R E P O R T R E S U M E S

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Microfiche Collection of Documents

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(ARM)

Compiled and Indexed by The ERIC Clearinghouse
on Vocational and Technical Education

Winter 1967

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VT004452

INTRODUCTION

This collection of microfiche includes the documents announced in the Winter, 1967 issue of Abstracts of Research and Related Materials in Vocational and Technical Education (ARM). The microfiche set is arranged in the following sequence:

1. Vocational Technical (VT) Number Index to Microfiche Collection of Documents Reported in ARM, Winter 1967.

2. Selected indexes from ARM, Winter 1967.

   a. Author Index

   b. Vocational and Supporting Services Index

   c. Subject Index

   The page numbers shown in these indexes refer to the location of the abstracts in ARM, Winter 1967.

3. The full text of documents listed in the VT Number Index on pages 1-2.

   The documents are arranged in numerical order according to VT numbers. The texts of materials in this microfiche set have been filmed continuously in VT number sequence thereby facilitating the purchase of the texts of all documents on microfiche with one order. This filming method also lowers the cost of the entire set as contrasted to the purchase of individual titles on separate microfiche.

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VT 000 018 ED

A Study of the Educational Needs for Workers Engaged in Occupations in Off-Farm Agricultural Businesses in Alabama.

Baker, Richard A.

Auburn Univ., Ala.

Jun66

EDRS Price MF-$0.18 HC-$2.84 71p.

*OFF FARM AGRICULTURAL OCCUPATIONS, *EMPLOYMENT OPPORTUNITIES, *AGRICULTURAL SKILLS, COOPERATIVE EDUCATION, CURRICULUM DEVELOPMENT, *OCCUPATIONAL CLUSTERS, *EMPLOYER ATTITUDES, INDIVIDUAL CHARACTERISTICS, EDUCATIONAL NEEDS, EMPLOYMENT PRACTICES,

In order to determine preemployment educational needs of secondary school students entering nonprofessional off farm agricultural occupations, this study was designed to identify employing firms, existing occupations, desirable characteristics of beginning employers, employers' familiarity with vocational agriculture programs, employers' agreement on changes needed in the program, employers' willingness to cooperate in preemployment training, problems of conducting cooperative education programs, and employers' agreement on the relative importance of various instructional units. The sample of 474 firms was selected randomly from stratified population categories. An interview instrument was designed and pretested. It was administered by vocational agriculture teachers. Descriptive statistical techniques were used in analyzing data, and factor analysis was used to group competencies. Of 184 occupations, 125 were nonprofessional and most required on the job training. A rural background was preferred for beginning employees. Personality, ability to get along with others, and communicative ability were important factors in employee selection, as well as high school graduation. Agricultural competencies were needed, and post high school training would be required in some cases. Most employers felt occupational experience programs were necessary, and they would cooperate in spite of anticipated liability problems. (JM)

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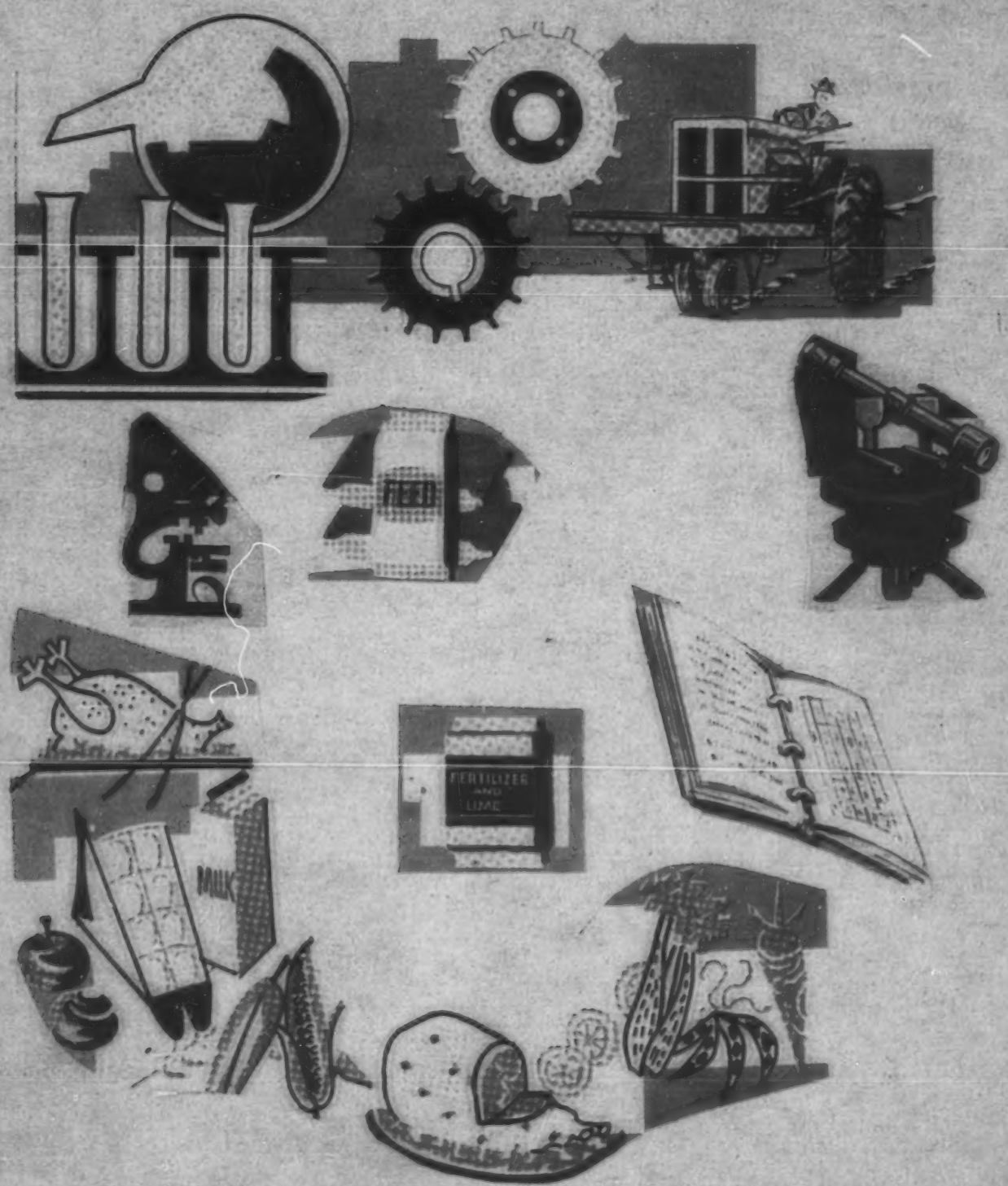
A STUDY OF THE EDUCATIONAL NEEDS FOR WORKERS ENGAGED IN OCCUPATIONS IN OFF-FARM AGRICULTURAL BUSINESSES IN ALABAMA



A Cooperative Research Project

Alabama State Department of Education
Vocational Education Division
Agricultural Education Service
Montgomery, Alabama

and

School of Education
Department of Vocational, Technical
and Practical Arts Education
Auburn University
Auburn, Alabama

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A STUDY OF THE EDUCATIONAL NEEDS FOR WORKERS ENGAGED IN OCCUPATIONS IN OFF-FARM AGRICULTURAL BUSINESSES IN ALABAMA

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INTRODUCTION

In the United States for each hundred students now enrolled in elementary schools three will probably not attain a secondary school diploma. Out of each hundred high school graduates, seventy will never apply for admission to colleges; eighty-six will live and work in our society without a baccalaureate degree.

Research conducted in 1964 by the Alabama State Department of Education revealed that of Alabama's secondary school graduates only thirty-one percent apply for college admission. Only fourteen percent of Alabama's high school graduates leave college with a baccalaureate degree.

Education may be viewed as having two basic components. One is of general nature, including knowledge and skills needed by all people. This is often referred to as general education. The other is occupational education which is concerned primarily with application of knowledge and skills to the world of work. Education for employment has been recognized as a legitimate function of the secondary school for several decades. Much has been said about this form of education in recent years. In fact, there appears to be a growing concern among secondary school educators that those youth who are not likely to go to college need some kind of specialized education which will prepare them for employment.

Purposes of the Study

The central problem of the study was to ascertain the pre-employment educational needs for secondary school students desiring to enter non-professional occupations in agriculture. The study involved the collection and analysis of data from individuals in businesses, industries and agencies of an off-farm agricultural nature.

The following research problems were investigated in the attempt to resolve the central problem of the study:

1. What are the agricultural businesses, industries and agencies in Alabama by main product or service categories in:

    a. farm machinery;
    b. farm supplies and equipment
    c. poultry and livestock industries;
    d. crop, forestry and conservation;
    e. ornamental horticulture, recreation, and wildlife; and
    f. farm services?

2. What are the occupations existing in the agricultural business categories of:

   a. farm machinery;
   b. farm supplies and equipment;
   c. poultry and livestock industry;
   d. crops, forestry, conservation;
   e. ornamental horticulture, recreation, wildlife; and
   f. farm service?

3. What are the desirable personal and background characteristics for entry level employment in off-farm agricultural businesses?

4. To what extent are business and industry managers, personnel directors, and supervisors familiar with the present secondary school program of vocational agriculture?

5. To what extent do business and industry owners, managers, personnel directors, and supervisors agree as to:

   a. the possibility of adjusting the present secondary school program of vocational agriculture to train for the off-farm agricultural occupations; and
   b. the possible curriculum approaches to pre-employment training for off-farm agricultural occupations in the secondary school program of vocational agriculture?

6. To what extent are off-farm agricultural firms and agencies willing to participate in a pre-employment educational program for off-farm agricultural occupations at the secondary school level?

7. What problems would be encountered by off-farm agricultural firms and agencies in participating in cooperative occupational experience programs for secondary school students?

8. To what extent do business and industry owners, managers, personnel directors, and supervisors agree as to the relative importance of selected basis instructional units in the pre-employment educational programs for occupations in agricultural firms and agencies?

Definition of Terms

The terms "off-farm agricultural business," "agricultural industry," and "agricultural agency," used in the study refer to those businesses, industries and agencies that provide supplies and services to individuals producing plants and animals. These plants and animals include those used for feed, food, fiber, shelter, and pleasure. The

primary factor considered in the classification of the off-farm agricultural firm was those businesses, industries and agencies that existed primarily for the purpose of providing supplies and services either directly or indirectly to individuals producing plants and animals.

The term "non-professional occupations" used in the study refers to occupations in which a majority of the respondents expressed that the educational requirement for entry employment is less than the baccalaureate degree level.[1]

The term "managerial level occupations" used in this study refers to occupations in which the respondents indicated as "manager."[2]

The term "occupational category" used in this study consists of a group of occupations or job titles within a business, industry or agency classified by the type of products sold and/or services provided.

The term "cluster" used in this study refers to a grouping by an association of common elements.

The term "sample counties" refers to the twenty counties selected at random from the counties in the state from which the sample of businesses and industries contacted were drawn.

The term "contact sample" refers to a random percentage sample of the total agricultural businesses, industries and agencies in the twenty sample counties.

The Data

Data for the study were obtained from 474 selected off-farm agricultural firms and agencies in the State, and the division heads of the State Department of Agriculture and Industries.

The sample of firms and agencies contacted in the study were selected at random from individual county listings of agricultural businesses, industries and agencies of the twenty sample counties. The sample counties were selected at random from a population stratification by vocational agriculture supervisory districts. The counties in each district were stratified into population units of less than 25,000; 25,000 to 50,000 and 50,000 and above. Two counties were selected at random from the less than 25,000 category and one county from the 25,000 to 50,000 category in each of the five supervisory districts. Jefferson, Etowah, Montgomery and Mobile counties were selected from the 50,000 and above category due to their metropolis area. One

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[1]See Table 4, page 16 for listing.
[2]See Table 2, page 9 for occupations so indicated.

county in the central supervisory district was selected at random from the 50,000 and above category to make a total of twenty counties.

Procedure Used in Conducting the Study

The following procedure was followed in conducting the study:

1. Defined and clarified the terms off-farm agricultural business, industry or agency.

2. Tentatively categorized off-farm agricultural businesses, industries and agencies into seven broad categories.

3. Prepared a partial listing by categories of the off-farm agricultural businesses, industries and agencies.

4. Prepared a list indicating sources of listings of off-farm agricultural firms and agencies in Alabama.

5. Prepared forms to be used by teachers of vocational agriculture for the reporting of county agricultural firms and agencies.

6. Categorized counties in the state by population.

7. Selected at random from the population stratification, sixteen sample counties to be included in the study, excluding Jefferson, Etowah, Montgomery and Mobile.[3]

8. Held meetings in each supervisory district with the teachers of vocational agriculture in the selected counties to explain the mechanics of the study and the methods and procedures to follow in securing the listings of agricultural firms and agencies.

9. Designed and pre-tested the instrument to be used by teachers of vocational agriculture in interviewing owners, managers, personnel directors and/or supervisors of the firms and agencies.[4]

10. Selected an "nth" random contact percentage sample of the firms and agencies to be interviewed in each county from the county listings.

11. Held meetings in each supervisory district with teachers of

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[3]See Appendix A, page 56
[4]See Appendix C, page 61

vocational agriculture to explain the mechanics and techniques to be used in conducting of interviews and assigning contacts to be made by each teacher.

12. Interviewed the selected contact sample in each of the sample counties.

Data Analysis

Descriptive statistical techniques were used in analyzing the data. Data with regards to the characteristics of workers and responses about programs were subjected to simple frequency tabulations.

Data relative to educational needs in terms of competencies were subjected to a factor analysis technique to identify the grouping (clustering) of competencies (instructional area) for occupational categories. Data used consisted of representative profile scores assigned to the verbal expressions of respondents as to the value of competencies for occupations. Since data were ordinal in nature, no statistical test interpretations were made with regard to correlations.

The data for the factor analysis were assembled by determining profile scores for each competency for each occupation and then for each competency for each occupational category.

PRESENTATION OF DATA

Agricultural Businesses, Industries and Agencies in Alabama. Table 1 reflects the types of agricultural businesses, industries and services operating in Alabama by main product or service categories. The eighteen types of firms or services listed are sub-divisions of the seven original broad categories included in the study classified according to the main products and/or services provided by the firms.

Occupations in Off-farm Agricultural Industries and Agencies. Table 2 reflects a total of 184 different occupation titles employed in the twenty counties within the firms in the contact sample. Of the total 184, one hundred twenty-five are classified as non-professional occupations by the definition used in this study.

Personal Characteristics Valued in Workers. A ranking of worker characteristics is revealed in Table 3. Respondents were asked to select the ten most valued traits wanted in their workers for a listing of twenty characteristics. Of the total 474 respondents, 465 indicated "works regularly and on time" as being one of the top ten most valued. Of course this is understandable because of the economic involvement. Characteristics relative to personal cleanliness and ability to get along with and communicate with people also were selected as being one of the ten most valued characteristics by 85 percent of the respondents.

Table 1. Agricultural Businesses, Industries, and Agencies in Alabama by Economic Activity

Main Product or Service Categories

Agricultural Chemical Manufacturers and Wholesales[1]

Dairy Products Manufacturers and Distributors

Crop Processing, Sales and Warehousing[2]

Farm Machinery and Equipment Manufacturers and Wholesales

Farm Machinery and Equipment Retail Sales and Service

Farm Service[3]

Farm Supply Retail Stores[4]

Feed Manufacturers and Wholesales

Flower Production and Sales

Food Processing and Distribution[5]

Government Agricultural Services[6]

Livestock Sales and Service[7]

Lumber and Wood Products[8]

Meat Processing and Wholesales[9]

Nursery Production, Sales and Landscaping Service

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1 Fertilizers, herbicides, insecticides and gum and wood chemicals
2 Farm products (raw materials)
3 Does not include government agricultural services
4 Includes hardware stores in non-metropolitan areas
5 Includes canned and frozen food plants, flour mills, meat mills, and crop oil mills
6 Includes state and federal agencies
7 Includes stockyards and special services
8 Includes pulp mills, logging, pulp-wood contractor, sawmills, planning mills, and forest nurseries
9 Includes meat packing plants and freezer plants

Table 1 (continued)

Main Product or Service Categories

Ornamental Plant Service and Turf Care[10]

Pest Control Service

Poultry and Poultry Processing and Sales

---

[10]Includes parks, cemetaries, golf courses, country clubs and others.

Table 2. Occupations in Off-farm Agricultural Businesses, Industries and Agencies in Alabama by Economic Activity

Agricultural Chemical Manufacturers and Wholesales

1. General Manager
2. Plant Superintendent
3. Sales Manager
4. Agronomists
5. Technical Fieldman
6. Educational Director
7. Plant Supervisor
8. Fertilizer Salesman
9. Insecticide and Herbicide Salesman
10. Plant Office Clerk
11. Warehouse Stock Clerk
12. Millwright[1]
13. Warehouse Serviceman[2]

Dairy Products Manufacturers and Distributors

14. General Plant Manager
15. Dairy Plant Supervisor
16. Route Supervisor
17. Dairy Technologist
18. Dairy Plant Fieldman
19. Bulk Tank Truck Driver
20. Dairy Products Salesman
21. Dairy Plant Worker

Cotton Processing, Sales and Warehousing

22. Gin and Warehouse Manager
23. Cotton Fieldman
24. Cotton Buyer
25. Gin and Warehouse Bookkeeper
26. Gin Operator[3]
27. Ginwright[1]
28. Ginner[4]
29. Warehouseman

Farm Machinery Retail Sales and Service

30. General Manager
31. Farm Machinery Service Center Manager
32. Farm Machinery Parts Manager
33. Farm Machinery Salesman
34. Farm Machinery Parts Clerk
35. Farm Machinery Business Bookkeeper
36. Farm Machinery Mechanic
37. Farm Machinery Field Mechanic

---

1 Worker that changes the layout and set-up of machines and mechanical equipment, keeps the machines and equipment in efficient operating condition and performs duties such as dismantling, moving, installing and repairing machines.

2 Worker performing a service for the benefit of another worker or customer

3 Worker that tends machine that separates cotton from seed

4 Worker performing semi-skilled duties entailing in the suction feeding, hydraulic pressing, etc. in cotton processing

Table 2 (continued)

Farm Supply and Equipment Retail Stores

38. Farm Supply and Equipment Store Manager
39. Farm Supply and Equipment Store Fieldman
40. Farm Supplies and Equipment Salesman
41. Farm Supply Store Sales Clerk
42. Farm Supply Store Bookkeeper
43. Farm Equipment Parts Clerk
44. Farm Supply Store Stock Clerk
45. Farm Equipment and Facilities Maintenance Man
46. Farm Supply Store Serviceman[2]

Feed Manufacturers and Wholesales

47. General Manager
48. Mill Manager
49. Mill Supervisor
50. Feed Salesman
51. Warehouse Stock Clerk
52. Feed Mill Operator
53. Feed Mixer Operator
54. Millwright[1]
55. Feed Mill Serviceman[2]

Farm Service

56. Feeding Unit Manager
57. Mobile Feed Mill Operator
58. Facilities Maintenance Man
59. Poultry Fieldman
60. Bulk Feed Truck Driver
61. Custom Work Business Manager
62. Custom Farm Machine Operator
63. Bulk Fertilizer Spreader Operator
64. Liquid Fertilizer Applicator Machine Operator
65. Seed Cleaner Operator
66. Rural Electrification Advisor
67. PCA Office Manager
68. PCA Field Representative

Flower Production and Sales

69. Florists

---

1 Worker that changes the layout and set-up of machines and mechanical equipment, keeps the machines and equipment in efficient operating condition and performs duties such as dismantling, moving, installing and repairing machines

2. Worker performing a service for the benefit of another worker or customer

Table 2 (continued)

Food Processing and Distribution

70. General Manager
71. Plant Supervisor
72. Produce Buyer
73. Machine Operators
74. Graders
75. Millwright[1]

Government Agricultural Services

76. Agricultural Economist
77. Agricultural Engineer
78. Animal Scientist
79. Agronomist
80. County Agricultural Extension Agent
81. Entomologist
82. Forester
83. Ornamental Horticulturist
84. Plant Scientist
85. Soil Scientist
86. Teacher of Vocational Agriculture
87. Veterinarian
88. Wildlife Biologist
89. Farmer Home Administration Supervisor
90. Federal Land Bank Appraiser
91. Federal Land Bank Field Manager
92. Agricultural Chemical Inspector
93. Gin and Warehouse Inspector
94. Grain Sampler
95. Lands Inspector
96. Livestock Inspector
97. Milk Marketing Examiner
98. Plant Industry Inspector
99. Poultry Inspector
100. Poultry Products Inspector
101. Produce Inspector
102. Seed Analyst
103. Seed Technologist
104. Veterinarian Assistant
105. Wildlife Conservation Officer
106. Agricultural Journalist
107. ASCS Compliance Fieldman
108. ASCS District Fieldman
109. ASCS County Fieldman
110. ASCS County Office Manager
111. ASCS Program Specialist
112. ASCS Performance Checkers
113. Crop Insurance Fieldman
114. Cotton Classers
115. Forest Patrolman
116. Forest Towerman
117. Forest Rangers
118. Livestock Market Analyst
119. Market New Analyst
120. Park Ranger
121. Soil Conservationist
122. Soil Conservation Technician

Livestock Sales and Service

123. Stockyard Manager
124. Artificial Inseminator
125. Veterinarian
126. Veterinarian Assistant

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1 Worker that changes the layout and set-up of machines and mechanical equipment, keeps the machines and equipment in efficient operating condition and performs duties such as dismantling, moving, installing and repairing machines

Table 2 (continued)

Livestock Sales and Service

127. Auctioneer
128. Livestock
129. Stockyard Clerk
130. Livestock Grader
131. Stockyard Weighmaster
132. Stockyard Sorter
133. Livestock Truck Driver

Lumber and Wood Products

134. Pulpwood Yark Manager
135. Sawmill Manager
136. Pole Yard Manager
137. Forester
138. Pulpwood Yard Supervisor
139. Woods Supervisor
140. Pole Treating Plant Supervisor
141. Timber Buyer=
142. Timber Cruiser
143. Lo Scaler
144. Millwright[1]
145. Rolling Equipment Operator
146. Lumber Checker
147. Lumber Grader
148. Pole Inspector
149. Stationary Equipment Operator
150. Timber Marker

Meat Processing and Wholesales

151. Plant Manager
152. Plant Supervisor
153. Livestock Buyer
154. Meat Salesman
155. Meat Cutter
156. Livestock Grader
157. Locker Plant Worker

Nursery Production, Sales and Landscaping Service

158. Nursery Manager
159. Landscape Gardener
160. Nursery Production Supervisor
161. Landscape Architect
162. Nursery Stock Salesman
163. Propagator
164. Nursery Production worker
165. Equipment Operator

Ornamental Plant Service and Turf Care

166. Landscape Gardner
167. Green Keeper
168. Park Ranger
169. Tree Surgeon

Pest Control Service

170. Pest Control Business Manager
171. Exterminator
172. Pest Control Route Salesman

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1 Worker that changes the layout and set-up of machines and mechanical equipment, keeps the machines and equipment in efficient operating condition and performs duties such as dismantling, moving, installing and repairing machines

Table 2 (continued)

Poultry and Poultry Product Processing and Sales

173. Hatchery Manager
174. Egg Processing Plant Manager
175. Poultry Meat Processing Manager
176. Poultry Fieldman
177. Hatchery Supervisor
178. Poultry Meat Processing Plant Supervisor
179. Poultry and Egg Salesman
180. Poultry and Egg Buyer
181. Hatchery Worker
182. Egg Candler
183. Poultry Meat Processor
184. Live Poultry Truck Driver

Table 3. Ordinal Ranking of Employee Personal Characteristics as Valued by Four Hundred and Seventy-four Employers in Off-farm Agricultural Businesses and Industries in Alabama

Personal Characteristics	Number of Responses as Being One of Ten Most Valued
Works regularly and on time	465
Gets along with his fellow workers	463
Fulfills promises and obligations	462
Initiates undertakings	461
Completes his work	456
Speaks clearly and correctly	448
Makes wise use of time	445
Can express his ideas well	434
Is orderly in his work	433
Exhibits personal cleanliness and neatness	425
Uses good English in written form	415
Is honest in word and deed	413
Admits error when shown wrong	412
Possesses forceful personality	400
Seems happy in his work	398
Arouses enthusiasm in his fellow workers	370
Exhibits endurance in continued effort	325
Shows intellectual curiosity	315
Participates in civic activities	312
Places group above himself	310

Educational Requirement. The minimum educational grade levels for individuals desiring to enter occupations as expressed by the employing respondents are revealed in Table 4. It will be noted that a majority of the respondents indicated a minimum of high school education for all occupations with a few exceptions. In most cases these were semi-skill level occupations. Table 4 also depicts that managerial level positions are open to individuals with a high school education. It should be assumed however that age, experience, and the high school education are closely associated factors for entry into managerial occupations. The factors of age and experience may not be as closely associated with the employment of post-high school education graduates for managerial positions.

Post-High School Educations for Occupations. As reflected in Table 4, many of the respondents indicated that they do hire individuals with only a high school education. It will also be noted in Table 5 that technical short courses are not required for entry into many of the occupations. Table 5 also indicates that for those firms requiring technical training, such training is usually provided through on-the-job training by the firm or through some commercial concern. Very few firms utilize the public schools for employee training.

Table 4. Minimum Education Grade Levels for Individual Desiring to Enter Selected Occupations in Off-farm Agricultural Businesses and Industries as Expressed by the Employers Interviewed in Alabama

Headnote:
1. Will hire less than high school
2. High School
3. Post H.S. Technical
4. B. S. Degree
5. Master's Degree
6. Doctor's Degree
7. Doesn't matter

Occupations by main product or service categories	Number of Persons Expressing (See headnote for level)							Total
	1	2	3	4	5	6	7	
Agricultural Chemical Manufacturers and Wholesales								
General Manager	0	10	1	10	1	0	0	22
Sales Manager	0	9	0	7	0	0	1	17
Warehouse Stock Clerk	1	9	0	0	0	0	1	11
Warehouse Serviceman	4	6	3	0	0	0	1	14
Dairy Products Manufacturers and Distributors								
General Plant Manager	0	2	4	3	0	0	0	9
Dairy Plant Supervisor	0	4	1	0	0	0	0	6
Bulk Tank Truck Driver	2	2	0	0	0	0	0	4
Dairy Products Salesman	0	6	1	0	0	0	0	7
Dairy Plant Worker	3	7	1	0	0	0	2	13
Cotton Processing, Sales and Warehousing								
Gin and Warehouse Manager	0	8	1	0	0	0	0	9
Cotton Buyer	0	5	1	0	0	0	0	7

Table 4 (continued)

Occupations by main product or service categories	Number of Persons Expressing (See headnote for level) 1	2	3	4	5	6	7	Total
Cotton Processing, Sales and Warehousing (continued)								
Gin and Warehouse Bookkeeper	0	2	7	1	0	0	1	10
Gin Operator	1	10	0	0	0	0	0	11
Ginwright	0	3	2	0	0	0	0	5
Ginner	14	2	0	0	0	0	0	16
Warehouseman	6	4	0	0	0	0	0	10
Farm Machinery Retail Sales and Service								
General Manager	0	5	4	2	0	0	0	11
Farm Machinery Salesman	3	12	1	4	0	0	0	20
Farm Machinery Parts Clerk	3	24	1	0	0	0	0	28
Farm Machinery Business Bookkeeper	0	5	4	0	0	0	0	9
Farm Machinery Mechanic	1	16	29	0	0	0	2	48
Farm Machinery Field Mechanic	4	4	1	0	0	0	0	9
Farm Supply and Equipment Retail Stores								
Farm Supply and Equipment Store Manager	0	17	4	5	0	0	0	26
Farm Supplies and Equipment Salesman	1	17	3	0	0	0	0	21
Farm Supply Store Sales Clerk	6	18	0	0	0	0	0	24
Farm Supply Store Bookkeeper	0	6	2	0	0	0	0	8

Table 4 (continued)

Occupations by main product or service categories	Number of Persons Expressing (See headnote for level) 1	2	3	4	5	6	7	Total
Farm Supply and Equipment Retail Stores (cont'd.)								
Farm Supply Store Serviceman	14	10	0	0	0	0	0	24
Feed Manufacturers and Wholesales								
Mill Manager	0	5	16	5	4	0	0	27
Feed Salesman	0	2	5	4	0	0	0	11
Feed Mill Operator	2	13	6	0	0	0	0	19
Feed Mill Serviceman	18	12	0	0	0	0	0	30
Farm Service								
Poultry Fieldman	0	5	2	4	0	0	0	11
Custom Farm Machine Operator	2	5	0	0	0	0	0	7
PCA Office Manager	0	0	0	12	0	0	0	12
PCA Field Representative	0	8	0	4	0	0	0	12
Flower Production and Sales								
Florists	4	13	2	0	0	0	0	19
Food Processing and Distribution								
General Manager	0	2	5	1	1	0	0	9
Plant Supervisor	0	3	3	1	0	0	0	7
Produce Buyer	0	2	3	1	0	0	1	7
Machine Operators	2	3	0	0	0	0	0	5

Table 4 (continued)

Occupations by main product or service categories	Number of Persons Expressing (See headnote for level) 1	2	3	4	5	6	7	Total
Food Processing and Distribution (cont'd.)								
Graders	2	3	0	0	0	0	0	5
Livestock Sales and Service								
Stockyard Manager	0	3	2	1	0	0	0	6
Artificial Inseminator	0	2	2	0	0	0	0	4
Livestock Buyer	1	6	1	0	0	0	0	8
Stockyard Clerk	5	6	6	0	0	0	0	17
Stockyard Sorter	3	1	0	0	0	0	0	4
Livestock Truck Driver	6	3	0	0	0	0	0	9
Lumber and Wood Products								
Pulpwood Yard Manager	2	6	4	0	0	0	2	14
Sawmill Manager	3	7	2	0	0	0	0	12
Forester	0	3	3	6	0	0	0	12
Pulpwood Yard Supervisor	2	6	0	0	0	0	0	8
Timber Cruiser	2	6	0	0	0	0	0	8
Millwright	3	6	0	0	0	0	0	9
Rolling Equipment Operator	4	8	0	0	0	0	0	12
Pole Inspector	2	5	0	0	0	0	0	7
Stationary Equipment Operator	22	4	0	0	0	0	0	27

Table 4 (continued)

Occupations by main product or service categories	Number of Persons Expressing (See headnote for level) 1	2	3	4	5	6	7	Total
Meat Processing and Wholesales								
Plant Manager	0	1	3	0	0	0	0	4
Plant Supervisor	0	1	4	0	0	0	0	4
Meat Salesman	0	1	5	2	0	0	0	8
Meat Cutter	0	5	7	0	0	0	0	12
Locker Plant Worker	5	9	1	0	0	0	0	15
Nursery Production, Sales and Landscaping Service								
Nursery Manager	0	4	9	3	0	0	0	16
Landscape Gardener	0	14	9	8	0	0	0	31
Nursery Production Supervisor	2	6	1	0	0	0	0	9
Propagator	2	5	2	0	0	0	0	9
Ornamental Plant Service and Turf Care								
Green Keeper	2	2	2	0	0	0	0	6
Tree Surgeon	2	5	1	0	0	0	0	8
Pest Control Service								
Exterminator	0	6	3	2	0	0	0	11
Pest Control Route Salesman	0	3	4	0	0	0	0	7

Table 4 (continued)

Occupations by main product or service categories	Number of Persons Expressing (See headnote for level) 1	2	3	4	5	6	7	Total
Poultry and Poultry Product Processing and Sales								
Hatchery Manager	0	4	4	0	0	0	0	8
Egg Processing Plant Manager	0	4	1	0	0	0	0	5
Hatchery Supervisor	0	2	4	0	0	0	0	6
Poultry and Egg Buyer	0	4	1	0	0	0	0	5
Hatchery Worker	1	11	0	0	0	0	0	9
Egg Candler	11	2	0	0	0	0	0	12
Poultry Meat Processor	6	4	0	0	0	0	0	10
Live Poultry Truck Driver	8	4	0	0	0	0	0	12

Table 5. Technical Short Courses Required for Entry into Selected Occupations in Off-farm Agricultural Businesses and Industries as Expressed by Employers Interviewed in Alabama.

Headnote:
*1. None required
2. Provided by firm
3. Provided by commercial concern
4. Provided by public school less than college grade
5. Provided by agri. college

Occupations by main product or service	Number Persons Expressing (See headnote for course)					
	1	2	3	4	5	Total
Agricultural Chemical Manufacturers and Wholesales						
General Manager	10	2	2	4	4	22
Sales Manager	10	4	0	0	3	17
Warehouse Stock Clerk	7	3	1	0	0	11
Warehouse Serviceman	7	3	4	0	0	14
Dairy Products Manufacturers and Distributors						
General Plant Manager	4	2	0	0	3	9
Dairy Plant Supervisor	3	3	0	0	0	6
Bulk Tank Truck Driver	1	3	0	0	0	4
Dairy Products Salesman	3	4	0	0	0	7
Dairy Plant Worker	8	4	1	0	0	13
Cotton Processing, Sales and Warehousing						
Gin and Warehouse Manager	1	6	1	1	0	9
Cotton Buyer	5	2	0	0	0	7
Gin and Warehouse Bookkeeper	1	5	4	0	0	10
Gin Operator	1	9	1	0	0	11
Ginwright	3	0	2	0	0	5
Ginner	1	14	1	0	0	16
Warehouseman	1	8	1	0	0	10

Headnote:
*1. None required
2. Provided by firm
3. Provided by commercial concern
4. Provided by public school less than college grade
5. Provided by agri. college

Occupations by main product or service categories	Number Persons Expressing (See headnote for course) 1	2	3	4	5	Total
Farm Machinery Retail Sales and Service						
General Manager	2	2	1	2	2	11
Farm Machinery Salesman	9	6	2	3	0	20
Farm Machinery Parts Clerk	2	15	11	0	0	28
Farm Machinery Business Bookkeeper	2	3	4	0	0	9
Farm Machinery Mechanic	4	17	27	0	0	48
Farm Supply and Equipment Retail Stores						
Farm Supply and Equipment Store Manager	6	2	1	0	0	9
Farm Supplies and Equipment Salesman	8	8	5	4	1	26
Farm Supply Store Sales Clerk	14	0	5	1	1	21
Farm Supply Store Bookkeeper	1	16	4	0	3	24
Farm Supply Store Serviceman	8	0	0	0	0	8
Feed Manufacturers and Wholesales						
Mill Manager	0	20	1	0	2	24
Feed Salesman	2	15	5	0	5	27
Feed Mill Operator	1	10	1	0	0	12
Feed Mill Serviceman	13	6	0	0	0	19
Farm Service						
Poultry Fieldman	0	24	3	0	3	30
Custom Farm Machine Operator	2	9	0	0	0	11

Headnote:
*1. None required
2. Provided by firm
3. Provided by commercial concern
4. Provided by public school less than college grade
5. Provided by agri. college

Occupations by main product or service categories	Number Persons Expressing (See headnote for course)					
	1	2	3	4	5	Total
Farm Service (continued)						
PCA Office Manager	0	8	2	0	2	12
PCA Field Representative	0	8	2	0	0	12
Flower Production and Sales						
Florists	2	11	3	0	3	19
Food Processing and Distribution						
General Manager	1	8	0	0	0	9
Plant Supervisor	3	3	1	0	0	7
Produce Buyer	1	6	0	0	0	7
Machine Operators	3	1	1	0	0	5
Graders	1	4	0	0	0	5
Government Agricultural Services						
Livestock Sales and Service						
Stockyard Manager	4	1	0	0	1	6
Artificial Inseminator	0	4	0	0	0	4
Livestock Buyer	5	3	0	0	0	8
Stockyard Clerk	14	3	0	0	0	17
Stockyard Sorter	17	0	0	0	0	17
Livestock Truck Driver	4	0	0	0	0	4
Lumber and Wood Products						
Pulpwood Yard Manager	5	2	1	0	1	9
Sawmill Manager	2	9	0	0	3	14
Forester	5	2	0	0	5	12

Headnote:
*1. None required
2. Provided by firm
3. Provided by commercial concern
4. Provided by public school less than college grade
5. Provided by agri. college

Occupations by main product or service categories	Number Persons Expressing (See headnote for course) 1	2	3	4	5	Total
Lumber and Wood Products (continued)						
Pulpwood Yard Supervisor	11	1	0	0	0	12
Timber Cruiser	1	7	0	0	0	8
Millwright	7	2	0	0	0	9
Rolling Equipment Operator	10	2	0	0	0	12
Pole Inspector	0	7	0	0	0	7
Stationary Equipment Operator	25	0	0	2	0	27
Meat Processing and Wholesales						
Plant Manager	0	2	3	0	0	5
Plant Supervisor	0	3	2	0	0	5
Meat Salesman	5	3	0	0	0	8
Meat Cutter	6	4	2	0	0	12
Locker Plant Worker	9	3	0	3	0	15
Nursery Production, Sales and Landscaping Service						
Nursery Manager	8	2	2	3	1	16
Landscape Gardener	20	0	3	4	4	31
Propagator	3	4	0	2	0	9
Nursery Production Worker	9	3	0	1	1	14
Ornamental Plant Service Turf Care						
Green Keeper	6	0	0	0	0	6
Tree Surgeon	7	0	0	1	0	8
Pest Control Service						
Exterminator	8	2	1	0	0	11

Headnote:
*1. None required
2. Provided by firm
3. Provided by commercial concern
4. Provided by public school less than college grade
5. Provided by agri. college

Occupations by main product or service categories	Number Persons Expressing (See headnote for course) 1	2	3	4	5	Total
Pest Control Service (continued)						
Pest Control Route Salesman	3	4	0	0	0	7
Poultry and Poultry Product Processing and Sales						
Hatchery Manager	4	1	0	2	1	8
Egg Processing Plant Manager	4	1	0	0	0	5
Hatchery Supervisor	4	2	0	0	0	6
Poultry and Egg Buyer	3	1	1	0	0	5
Hatchery Worker	9	3	0	0	0	12
Egg Candler	7	2	0	0	1	10
Poultry Meat Processor	9	0	0	1	0	10
Live Poultry Truck Driver	9	3	0	0	0	12

Residential Background Preference. Table 6 reflects the residential background preferences of employers for persons entering occupations in agriculture. A vast majority of the respondents indicated that they preferred workers with a farm background; while a small percentage indicated no preference.

It will be noted that those few individuals indicating "no preference" did so primarily for managerial, sales, clerical and semi-skilled occupations in only a few of the main product and service categories. Respondents expressing the greatest percentage of "no preference" as contrasted to "farm background" by other economic activities, were lumber and wood products and meat processing and sales.

Familiarity of Instruction in Vocational Agriculture. As reflected in Table 7, of the 474 respondents contacted, 258 (54 percent) were either familiar or very familiar with the instructional program of vocational agriculture. Sixty-eight (14 percent) were somewhat familiar. The economic activities in which the number of respondents not familiar exceeded the number familiar with the program were: chemical manufacturers and wholesales; flower production and sales; food processing and distribution; ornamental plant service and turf care; and pest control service.

Table 6. Residential Background Preference for Individuals Entering Occupations as Expressed by the Employers Interviewed in Off-farm Agricultural Businesses and Industries in Alabama.

Headnote:
*1. Farm background
2. Rural, non-farm
3. Urban
4. No preference

Occupations by main product or service categories	Number of Persons Expressing (See headnote for background)				
	*1	2	3	4	Total
Agricultural Chemical Manufacturers and Wholesales					
General Manager	12	2	0	8	22
Sales Manager	11	1	0	4	17
Warehouse Stock Clerk	7	3	0	1	11
Warehouse Serviceman	8	3	0	3	14
Dairy Products Manufacturers and Distributors					
General Plant Manager	7	0	0	2	9
Dairy Plant Supervisor	5	0	0	1	4
Bulk Tank Truck Driver	4	0	0	0	4
Dairy Products Salesman	4	1	0	3	7
Dairy Plant Worker	10	1	0	2	13
Cotton Processing, Sales and Warehousing					
Gin and Warehouse Manager	8	1	0	0	9
Cotton Buyer	4	1	0	2	7
Gin and Warehouse Bookkeeper	4	2	0	4	10
Gin operator	10	0	0	1	11
Ginwright	4	0	0	1	5
Ginner	12	2	0	2	16
Warehouseman	6	1	0	3	10

Headnote:
*1. Farm background
2. Rural, non-farm
3. Urban
4. No preference

Occupations by main product or service categories	Number of Persons Expressing (See headnote for background)				
	1	2	3	4	Total
Farm Machinery Retail Sales and Service					
General Manager	11	0	0	0	11
Farm Machinery Salesman-	17	3	0	0	20
Farm Machinery Parts Clerk	23	0	0	5	28
Farm Machinery Business Bookkeeper	7	0	0	2	9
Farm Machinery Mechanic	43	1	0	4	48
Farm Machinery Field Mechanic	9	0	0	0	9
Farm Supply and Equipment Retail Stores					
Farm Supply and Equipment Store Manager	20	1	1	4	26
Farm Supplies and Equipment Salesman	19	1	0	2	22
Farm Supply Store Sales Clerk	19	2	0	3	24
Farm Supply Store Bookkeeper	7	0	0	1	8
Farm Supply Store Serviceman	20	0	0	4	24
Feed Manufacturers and Wholesales					
General Manager	24	0	1	2	27
Mill Supervisor	5	0	0	0	5
Feed Mill Operator	16	0	0	3	19
Feed Mill Serviceman	25	1	0	0	26
Farm Service					
Poultry Fieldman	5	0	0	0	5
Custom Farm Machine Operator	7	0	0	0	7

Headnote:
*1. Farm background
2. Rural, non-farm
3. Urban
4. No Preference

Occupations by main product or service categories	Number of Persons Expressing (See headnote for background) 1	2	3	4	Total
Flower Production and Sales					
Florists	8	0	3	7	18
Food Processing and Distribution					
General Manager	9	0	0	0	9
Plant Supervisor	6	0	0	1	7
Produce Buyer	7	0	0	0	7
Machine Operators	3	0	0	2	5
Graders	5	0	0	0	5
Government Agricultural Services					
Livestock Sales and Service					
Stockyard Manager	6	0	0	0	6
Artificial Inseminator	4	0	0	0	4
Livestock Buyer	7	1	0	0	8
Stockyard Sorter	15	0	0	2	17
Livestock Truck Driver	4	0	0	0	4
Lumber and Wood Products					
Pulpwood Yard Manager	6	2	0	1	9
Sawmill Manager	3	2	0	9	14
Forester	6	2	1	3	12
Pulpwood Yard Supervisor	8	0	0	4	12
Timber Cruiser	2	0	0	6	8
Millwright	3	1	0	5	9
Rolling Equipment Operator	7	0	0	5	12

Headnote:
*1. Farm background
2. Rural, non-farm
3. Urban
4. No Preference

Occupations by main product or service categories	Number of Persons Expressing (See headnote for background) 1	2	3	4	Total
Lumber and Wood Products (cont'd.)					
Pole Inspector	2	0	0	5	7
Stationary Equipment Operator	4	0	1	22	27
Meat Processing and Wholesales					
Plant Manager	2	0	0	3	5
Plant Supervisor	4	1	0	0	5
Meat Salesman	4	0	1	3	8
Meat Cutter	7	0	0	5	12
Locker Plant Worker	5	1	1	8	15
Nursery Production, Sales and Landscaping Service					
Nursery Manager	13	2	0	1	16
Landscape Gardener	21	2	1	7	31
Propagator	7	0	1	1	9
Ornamental Plant Service and Turf Care					
Green Keeper	6	0	0	0	6
Tree Surgeon	4	2	0	2	8
Pest Control Service					
Exterminator	6	2	0	3	11
Pest Control Route Salesman	2	0	0	5	7
Poultry and Poultry Product Processing and Sales					
Hatchery Manager	6	0	1	1	8
Egg Processing Plant Manager	3	0	0	2	5

Headnote:
*1. Farm background
2. Rural, non-farm
3. Urban
4. No Preference

Occupations by main product or service categories	Number of Persons Expressing (See headnote for background)				
	1	2	3	4	Total
Poultry and Poultry Product Processing and Sales (cont'd.)					
Hatchery Supervisor	5	0	0	1	6
Poultry Meat Processing Plant Supervisor	2	0	0	3	5
Poultry and Egg Buyer	4	0	0	1	5
Hatchery Worker	7	0	0	5	12
Egg Candler	6	0	1	3	10
Poultry Meat Processor	1	0	1	8	10
Live Poultry Truck Driver	5	1	0	6	12

Table 7. Familiarity of the Employers Interviewed in Off-farm Agricultural Business and Industry Categories in Alabama with the Instructional Program of Vocational Agriculture.

Headnote:
1. Very familiar
2. Familiar
3. Somewhat familiar
4. Not familiar

Product or Service Categories	Number Expressing (See headnote) 1	2	3	4	Total
Agricultural Chemical Manufacturers and Wholesales	2	6	2	14	24
Dairy Products Manufacturers and Distributors	2	4	5	8	19
Cotton Processing, Sales and Warehousing	12	4	8	3	27
Farm Machinery and Equipment Retail Sales and Service	30	3	5	1	39
Farm Service	8	6	3	1	18
Farm Supply Retail Stores	18	31	1	6	56
Feed Manufacturers and Wholesales	12	8	2	4	26
Flower Production and Sales	1	2	5	10	18
Food Processing and Distribution	3	3	1	12	19
Livestock Sales and Service	4	30	18	41	93
Lumber and Wood Products	6	18	6	1	31
Meat Processing and Wholesales	2	6	3	5	16
Nursery Production, Sales and Landscaping Services	8	5	4	10	27
Ornamental Plant Service and Turf Care	3	4	1	15	23
Pest Control Service	3	2	1	5	11
Poultry and Poultry Processing and Sales	12	6	3	6	27
TOTALS.	126	138	68	142	474

Degree of Proficiency Vocational Agriculture could Prepare Workers. Table 8 reflects the opinions of the respondents as to the degree which vocational agriculture could prepare workers for agricultural firms. A majority of individuals expressed opinions varying from "very proficient" to "somewhat proficient." The opinions varied for occupations and for occupations within the main product and service categories. Expressions of lesser degrees of proficiency were expressed for skilled occupations.

Feasibility of Type of Instructional Programs. Table 9 reveals the feasibility ranking of four types of instruction programs for providing instruction for occupations in off-farm agricultural firms at the secondary school level. It is quite evident that the respondents believe the program of production agriculture and mechanics would not be the best approach. A vast majority agreed, as evident by their ranking, that the occupational clustering approach for related instruction and cooperative occupational experience program would be the most feasible approach. The responses were fairly well distributed with regard to operational approach for providing the instruction.

Table 8. Opinions of Employers Interviewed in Alabama As to the Degree of Proficiency the program of Vocational Agriculture could prepare workers for Occupations in Off-farm Agricultural Businesses and Industries.

Headnote:
*1. Very proficient
2. Proficient
3. Somewhat proficient
4. Very small degree of proficiency

Main product or Service categories	Number of Persons Expressing (See headnote for degree)				
	*1	2	3	4	Total
Agricultural Chemical Manufacturers and Wholesales					
General Manager	1	8	11	2	22
Sales Manager	1	8	4	4	17
Warehouse Stock Clerk	5	2	4	0	11
Warehouse Serviceman	4	4	4	2	14
Dairy Products Manufacturers and Distributors					
General Plant Manager	0	2	4	3	9
Dairy Plant Supervisor	0	1	4	1	6
Bulk Tank Truck Driver	2	2	0	0	4
Dairy Products Salesman	2	1	4	0	7
Dairy Plant Worker	2	4	4	3	13
Cotton Processing, Sales and Warehousing					
Gin and Warehouse Manager	0	5	4	0	9
Cotton Buyer	0	2	5	0	7
Gin and Warehouse Bookkeeper	1	4	4	1	10
Gin Operator	1	3	4	3	11
Ginwright	1	3	1	0	5
Ginner	1	12	3	0	16

Headnote:
*1. Very proficient
2. Proficient
3. Somewhat proficient
4. Very small degree of proficiency

Main product or service categories	Number of Persons Expressing (See headnote for degree)				
	*1	2	3	4	Total
Farm Machinery Retail Sales and Service					
General Manager	0	2	6	2	10
Farm Machinery Salesman	4	5	0	2	11
Farm Machinery Parts Clerk	9	8	2	1	20
Farm Machinery Business Bookkeeper	3	4	10	11	28
Farm Machinery Mechanic	2	4	18	24	48
Farm Machinery Field Mechanic	0	2	3	4	9
Farm Supply and Equipment Retail Stores					
Farm Supply and Equipment Store Manager	7	9	8	2	26
Farm Supplies and Equipment Salesman	5	12	4	1	22
Farm Supply Store Sales Clerk	4	13	7	0	24
Farm Supply Store Bookkeeper	0	2	2	4	8
Farm Supply Store Serviceman	2	8	12	2	24
Feed Manufacturers and Wholesales					
General Manager	6	9	10	2	27
Feed Salesman	0	5	0	0	5
Feed Mill Operator	2	9	5	3	19
Feed Mill Serviceman	1	6	11	8	26
Farm Service					
Poultry Fieldman	0	0	5	0	5
Custom Farm Machine Operator	0	5	2	0	7

Headnote
*1. Very Proficient
2. Proficient
3. Somewhat proficient
4. Very small degree of proficiency

Occupations by main product or service categories	Number of Persons Expressing (See headnote for degree) 1	2	3	4	Total
Flower Production and Sales					
Florists	2	5	5	6	18
Food Processing and Distribution					
General Manager	2	4	3	0	9
Plant Supervisor	0	5	2	0	7
Produce Buyer	2	1	4	0	7
Machine Operators	1	2	2	0	5
Graders	2	1	2	0	5
Government Agricultural Services					
Livestock Sales and Service					
Stockyard Manager	4	0	2	0	6
Artificial Inseminator	1	1	1	1	4
Livestock Buyer	1	5	2	0	8
Stockyard Sorter	6	7	4	0	17
Livestock Truck Driver	0	0	4	0	4
Lumber and Wood Products					
Pulpwood Yard Manager	1	4	3	1	9
Sawmill Manager	3	2	7	2	14
Forester	2	3	3	4	12
Pulpwood Yard Supervisor	2	2	7	1	12
Timber Cruiser	1	3	3	1	8
Millwright	0	1	5	3	9
Rolling Equipment Operator	1	5	4	2	12
Pole Inspector	0	2	4	1	7
Stationary Equipment Operator	0	3	16	8	27

Headnote
*1. Very Proficient
2. Proficient
3. Somewhat proficient
4. Very small degree of proficiency

Occupations by main product or service categories	Number of Persons Expressing (See headnote for degree) 1	2	3	4	Total
Meat Processing and Wholesales					
Plant Manager	0	0	4	1	5
Plant Supervisor	1	1	1	2	5
Meat Salesman	1	2	4	1	8
Meat Cutter	2	4	4	2	12
Locker Plant Worker	2	1	7	5	15
Nursery Production, Sales and Landscaping Service					
Nursery Manager	2	6	8	0	16
Landscape Gardener	5	11	13	2	31
Propagator	0	2	5	2	9
Nursery Production Worker	1	6	5	2	14
Ornamental Plant Service and Turf Care					
Green Keeper	0	1	3	2	6
Tree Surgeon	1	2	2	3	8
Pest Control Service					
Exterminator	3	3	2	3	11
Pest Control Route Salesman	0	4	0	3	7
Poultry and Poultry Product Processing and Sales					
Hatchery Manager	0	1	4	3	8
Egg Processing Plant Manager	0	1	2	2	5
Hatchery Supervisor	2	1	2	1	6
Poultry Meat Processing Plant Supervisor	1	2	2	0	5

Headnote
*1. Very Proficient
2. Proficient
3. Somewhat proficient
4. Very small degree of proficiency

Occupations by main product or service categories	Number of Persons Expressing (See headnote for degree) 1	2	3	4	Total
Poultry and Poultry Product Processing and Sales (continued)					
Poultry and Egg Buyer	0	2	2	1	5
Hatchery Worker	0	4	2	6	12
Egg Candler	1	2	4	3	10
Poultry Meat Processor	0	2	2	6	10
Live Poultry Truck Driver	0	1	6	5	12

Table 9. Expressions of the Employers Interviewed in Alabama as to the Most Feasible Type of Instructional Program for Providing at the High School Level the Pre-employment Needs for Occupations in Off-farm Agricultural Businesses and Industries.

Type of Program	Number of Persons Ranking Feasibility				
	1*	2	3	4	Total
Instruction in production agriculture, leadership and agricultural mechanics supplemented by on-farm production project program experiences	60	67	144	203	474
Instructional program consisting of skills and abilities common to both on-farm and off-farm agricultural occupations supplemented by leadership training and on-farm projects and/or work experience in businesses under the supervision of the business and teacher.	332	92	42	8	474
Instruction consisting of skills and abilities common to both on-farm and off-farm agricultural occupations the first part of the total instructional program followed by training in clusters of agricultural occupations supplemented by leadership training and on-farm production project and/or work experience in businesses under the supervision of the business and teacher.	368	60	32	14	474
Instructional program consisting of skills and abilities common to both on-farm and off-farm agricultural occupation supplemented by leadership training and on-farm projects and/or short exploratory work experience under the supervision of the business and teacher.	232	106	72	64	474

*Ordinal ranking with 1 begin most feasible.

Willingness of Firm to Cooperate with Schools. As reflected in Table 10, most of the firms were willing to cooperate and assist the schools in organizing and administering instructional programs. Only three percent of the 474 contacted indicated that their firm would not be willing to participate.

Anticipated Problems to be Encountered by Cooperating Firms. Although a majority of the firms were willing to cooperate and participate in work experience programs, some problems were anticipated. Sixty-six percent, as shown in Table 11, anticipated problems with liability insurance, while minimum wage law problems were anticipated by fourteen percent of the firms.

Clusters Based on Needed Competencies by Workers. In an effort to cluster occupational categories for program planning, the data collected were subjected to a factor analysis technique. Competency occupation scores were determined for each competency on the interview schedule for each occupation found in the contact sample. After determining the scores for each occupation, scores were determined for each competency for all occupations within each occupational category. These scores were used through a rotational correlation analysis to cluster the occupational categories and competencies. Table 12 reflects occupational categories clustered into five category factors. It is interesting to note that farm supply retail stores factored with four of the five category factors. Food processing and distribution, lumber and wood products, and farm service factored with agricultural machinery sales and service due to a large number of mechanical occupations in the three categories. Dairy products manufacturing and distribution

Table 10. Willingness of Businesses and Industries in Alabama to Participate in a Cooperative Instructional Program for Occupations in Off-farm Agricultural Businesses and Industries.

Degree of Willingness	Of Total (474) Interviewed	
	Number	Percent
Not willing	15	3
Permit students to visit and observe operations	425	90
Employ interested students during vacation periods	389	82
Employ interested students on a part-time basis during the school year	369	78
Employ interested students on a seasonal basis	432	91
Participate in a student work experience program a few hours during the school day on a non-pay basis	412	87
Participate in a student work experience program few hours during the school day on a non-pay basis and a pay basis on weekends	435	91
Work with school personnel in outlining an educational program which would help prepare persons for work in off-farm agricultural occupations	468	99
Release key employees to assist teachers in providing instruction for high school students	312	66

Table 12. Anticipated Problems to be Encountered as Expressed by Employees in Off-farm Agricultural Businesses and Industries in the Employing of Alabama High School Students in Work Experience Educational Programs.

Problem	Of Total (474) Interviewed	
	Number	Percent
Liability Insurance	312	66
Labor Union Regulations	14	3
Time Involved in Training Employees or Work Experience Programs	45	9
Minimum Wage Laws	66	14
Others	5	1

and ornamental plant services and turf care had relatively low rotated factors scores in Category Factor 3 and Category Factor 4.

Table 13 depicts the competencies clusters for all the non-professional and non-managerial level occupations found in the contact sample. The varimax analysis was programmed for sixteen factcrs. It will be noted in Table 13 that a majority of the competencies clustered into 10 "clean" competency factors with rotated scores of 50 and above. A majority of the rotated scores in factors 11 through 16 were in the 30's and below. Competencies with rotated scores of less than 40 were considered low correlations by the researcher and statistician.

Table 14 reflects competency clusters for occupations within the occupational categories clustered previously and reflected in Table 12. This analysis excludes managerial level occupations. The clustering pattern for the competencies, in general, was the same as for the analysis of all occupations as shown in Table 13. It will be noted however that many rotated competency scores were less than 40 for two or more of the category clusters in plant and soil science, animal and poultry science, crop production, ornamental horticulture and mechanical technology.

Table 12. Occupational Categories Clusters for Economic Activities in Off-farm Agricultural Based on Needed Competencies for Occupations within Businesses, Industries and Agencies in Alabama

Cluster	Rotated Factor Score	
Category Factor 1. Crop Production Supply, Sales and Services		
Cotton processing, sales and warehousing	.63	High
Farm services	.62	"
Farm supply retail stores	.60	"
Category Factor 2. Agricultural Machinery Sales and Services		
Farm machinery retail sales and services	.59	"
Farm service	.57	"
Food processing and distribution	.55	"
Lumber and wood products	.40	
Category Factor 3. Livestock and Poultry Sales, Services and Products Processing		
Livestock sales and services	.56	"
Meat processing and wholesales	.52	"
Poultry and poultry processing and sales	.50	"
Feed manufacturing and wholesales	.49	"
Dairy products manufacturing and distribution	.40	
Category Factor 4. Agricultural Supply, Sales and Services		
Farm supply retail stores	.79	"
Feed manufacturing and wholesales	.76	"
Pest control services	.74	"
Agricultural chemical manufacturing and wholesales	.71	"
Livestock sales and services	.69	"
Ornamental plant services and turf care	.60	
Category Factor 5. Horticultural Production, Sales and Services		
Nursery production, sales and services	.60	"
Ornamental plant services and turf care	.58	"
Flower production and sales	.54	"
Farm supply retail stores	.47	"

Table 13. Competencies Clusters for One Hundred Twenty-five Non-professional Occupations in Off-farm Agricultural Businesses, Industries and Agencies in Alabama *

Cluster	Rotated Factor Score	
Competency Factor I - Plant and Soil Science		
Characteristics and properties of soil	.92	High
Soil and plant relationships	.92	"
Fertilizers and plant nutrients	.90	"
Science and practices of soil preparation	.90	"
Science and practices of cultivation	.89	"
Chemical weed control	.88	"
Understanding and controlling plant diseases	.77	
Soil and water management	.66	
Competency Factor II - Animal and Poultry Science		
Fundamentals of animal nutrition	.95	"
Feed and feed values	.94	"
Balancing livestock rations	.92	"
Animal growth and development	.90	"
Maintaining animal health	.87	"
Animal selection and breeding	.75	
Dairying	.72	
Poultry meat production	.66	
Egg production	.50	Low
Competency Factor III - Pest Control		
Understanding and controlling common insects	.66	High
Using insecticides and pesticides	.66	"
Competency Factor IV - Crop Production		
Fruit and nut production	.86	"
Vegetable production	.84	"
Cotton production	.81	"
Grain production	.75	"
Forage production	.74	"
Forestry and forest products	.54	Low
Competency Factor V - Ornamental Horticulture		
Planning an attractive home surrounding	.78	High
Establishing and maintaining ornamental plants	.75	"

*Analysis excluded all managerial level occupations

Competency Factor VI - Farm Business Organization and Management

Agricultural policy	.75	High
Marketing farm products	.72	"
Economic principles and managerial functions in farm business	.71	"

Competency Factor VII - General Business

Principles of economics	.70	"
Business law	.65	"
Management principles	.53	

Competency Factor VIII - Merchandising

Advertising	.70	"
Customer relations	.70	"
Salesmanship	.70	"
Principles of Marketing	.68	"
Business communications	.67	"
Business math	.65	"
Business procedures	.63	"

Competency Factor IX - Basic Mechanical Technology

Developing cold metalworking skills	.89	"
Knowledge of industrial processing	.89	"
Using power metalworking tools	.89	"
Painting and finishing	.89	"
Using power woodworking tools	.86	"
Using an arc and oxyacetylene welder	.85	"
Fuels and lubricants	.84	"
Power mechanics	.80	"
Calculating pre-construction cost	.79	"
Woodworking and carpentry	.78	"
Metallurgy	.77	"
Hydraulics	.77	"
Planning shop projects	.76	"
Freehand sketching and drawing	.76	"

Competency Factor X - Farm Mechanization

Farm electrification	.83	"
Farm buildings and conveniences	.80	"
Farm power and machinery	.52	Low

Table 14. Varimax Rotational Analysis of the Competencies Needed by Persons Engaged in Non-professional Occupations in Off-farm Agricultural Businesses, Industries, and Agencies by Occupational Categories Clusters *

Headnote:

1. Crop Production supply, sales and service
2. Agricultural machinery sales and services
3. Livestock and poultry sales, services and products processing
4. Agricultural supply, sales and services
5. Horticultural production, sales and services

Competencies Cluster:	Rotated Factor Scores for Competency by Occupational Categories Cluster (see headnote for categories)				
	1 (N=24)**	2 (N-33)	3 (N=38)	4 (N=38)	5 (N=22)
I Plant and Soil Science					
Characteristics and properties of soil	.83	.62	.64	.82	.80
Soil and plant relationships	.76	...	.62	.82	.80
Fertilizers and plant nutrients	.80	.61	.63	.80	.80
Science and practice of soil preparation	.62	.71	.52	.76	.78
Science and practices of cultivation	.70	.71	...	.74	.79
Chemical weed control	.84	.73	.63	.82	.83
Understanding and controlling plant diseases	.61	...	...	.79	.76
Soil and water management	...	.73	...	.59	.54
II Animal and Poultry Science					
Fundamentals of animal nutrition	.61	...	.79	.72	.58

*Analysis excluded all managerial level occupations
**N= Number of different occupations in Categories Cluster
Note: Omissions (...) in table cells indicate competency factor scores of less than .40.

	1	2	3	4	5
Feed and feed values	.74	...	.78	.69	.58
Balancing livestock rations	.63		.78	.64	.51
Animal growth and development	...	...	.79	.61	.52
Maintaining animal health	.62		.77	.71	.53
Animal selection and breeding	...	...	.70	.58	...
Dairying	.58	...	.62	.53	...
Poultry meat production	.62	.54	.56	.56	...
Egg production	.60	...	.58	.52	...
III Pest Control					
Understanding and controlling common insects	.79	.51	.69	.73	.69
Using insecticides and pesticides	.78	.62	.71	.76	.72
IV Crop Production					
Fruit and nut production	.72	.52	...	.62	.54
Vegetable production	.62	.52	...	.60	.56
Cotton production	.71	.63	...	.68	...
Grain production	.60	...	.51	.60	...
Forage production	.60	.61	.63	.66	...
Forestry and forest products	...	.73	...	...	...
V Ornamental Horticulture					
Planning an attractive home surrounding	...	...	...	.62	.83
Establishing and maintaining ornamental plants	.63	...	...	.65	.88
VI Farm Business Organization and Management					
Agricultural policy	.65	.58	.64	.62	.52
Marketing farm products	.70	.74	.73	.78	.58
Economic principles and managerial functions in farm business	.52	.64	.65	.66	.51
VII General Business					
Principles of economics	.62	.65	.63	.64	.62

Table 15 (continued)

	1	2	3	4	5
Business law	.62	.58	.52	.60	.58
Management principles	.58	.60	.64	.52	.59
VIII Merchandising					
Advertising	.63	.66	.63	.58	.52
Customer relations	.70	.71	.73	.73	.74
Salesmanship	.70	.73	.68	.74	.72
Principles of marketing	.68	.69	.74	.71	.73
Business communication	.68	.70	.71	.70	.68
Business math	.73	.71	.73	.74	.69
Business procedures	.73	.72	.76	.77	.65
IX Basic Mechanical Technology					
Developing cold metalworking skills	...	.76	...	.53	.55
Knowledge of industrial processing	.62	.74	.60	.52	...
Using power metalworking tools	...	.70	...	...	...
Painting and finishing	.64	.74	.74	.68	.60
Using power woodworking tools	.65	.65	.63	.63	.53
Using an arc and oxyacetylene welder	...	.74	...	.52	...
Fuels and lubricants	.60	.60	...	.60	.54
Power mechanics	.65	.75	.56	.61	.58
Calculating pre-construction cost	.56	.60	.58	.57	.52
Woodworking and carpentry	.60	.58	...	.53	.53
Metallurgy	.5[illegible]	.6[illegible]	...	...	...
Hydraulics	.60	.70	.69	.51	...
Planning shop projects	.60	.68	.64	.66	.63
Freehand sketching and drawing	.56	.66	.63	.67	.72
X Farm Mechanization					
Farm electrification	.65	.68	.51	.53	.56

Table 15 (continued)

	1	2	3	4	5
Farm buildings and conveniences	.70	.69	.54	.56	.58
Farm power and machinery	.60	.78	...	.51	.56

SUMMARY AND CONCLUSIONS

The central problem of this study was to ascertain the pre-employment educational needs for secondary school students desiring to enter non-professional occupations in business, industries and agencies of an off-farm agricultural nature.

The study involved the collection and analysis of data from 474 employers in seventeen different types of agricultural firms in twenty randomly selected counties in the state. The study was designed to investigate a number of questions relative to existing occupations and their characteristics. Data were collected by the interview technique with teachers of vocational agriculture serving as interviewers. Descriptive statistical techniques were used in analyzing the data with no attempt being made to make statistical test interpretation due to use of ordinal type data.

SUMMARY

1. Of the 184 occupations found in the twenty counties within the 474 payroll businesses, 125 were considered non-professional.

2. Personal characteristics relative to cleanliness and the ability to get along and communicate with other people were rated in the top ten most desirable characteristics of employees by 85 percent of the employers interviewed.

3. Semi-skilled occupations were the only occupations in which a majority of the employers indicated that they would hire non-secondary school graduates.

4. Most of the firms contacted indicated that they trained a majority of their employees through on-the-job training.

5. Thirty percent of the employers contacted were not familiar with the vocational agriculture program. A majority of these were located in the metropolis areas.

6. A rural background was preferred for most workers by a majority of the employers.

7. Employers indicated that a majority of the skilled occupations require a more concentrated form of education than can be completed at the secondary school level.

8. A majority of employers indicated that related instruction offered through an occupational cluster approach and concurrently with an occupational experience would probably be the best instructional approach.

9. A majority of the employers indicated a willingness to cooperate with schools in providing an instructional program.

10. Over half of the employers interviewed anticipated problems with liability insurance for student employees.

11. Using a correlation technique and derived competency scores for occupations in seventeen types of firms, the firms clustered into five occupational categories; namely: crop production supply sales and services; agricultural machinery sales and services; livestock and poultry sales, services and products processing; agricultural supply sales and services; and horticultural production, sales and services.

12. Using a correlation technique and derived competency scores for the 125 non-professional occupations in the firms, it was found that the occupational competency clusters areas for the group of 125 occupations were: plant and soil science; animal and poultry science; pest control; crop production; ornamental horticulture; farm business organization and management; general business; merchandising; basic mechanical technology and farm mechanization.

13. Using a correlation technique and derived competency scores for the occupational categories clusters, it was revealed that some competencies within the competency areas of plant and soil science; animal and poultry science; crop production; ornamental horticulture; and mechanical technology are not important for some occupations.

CONCLUSIONS

There are many employment opportunities in firms of an agricultural nature. The secondary school program of vocational agriculture must accept the responsibility of preparing or assisting in the preparation of individuals not only for production agriculture, but also for entry into the many occupations in the supporting services.

Conclusions drawn from the results of this study are:

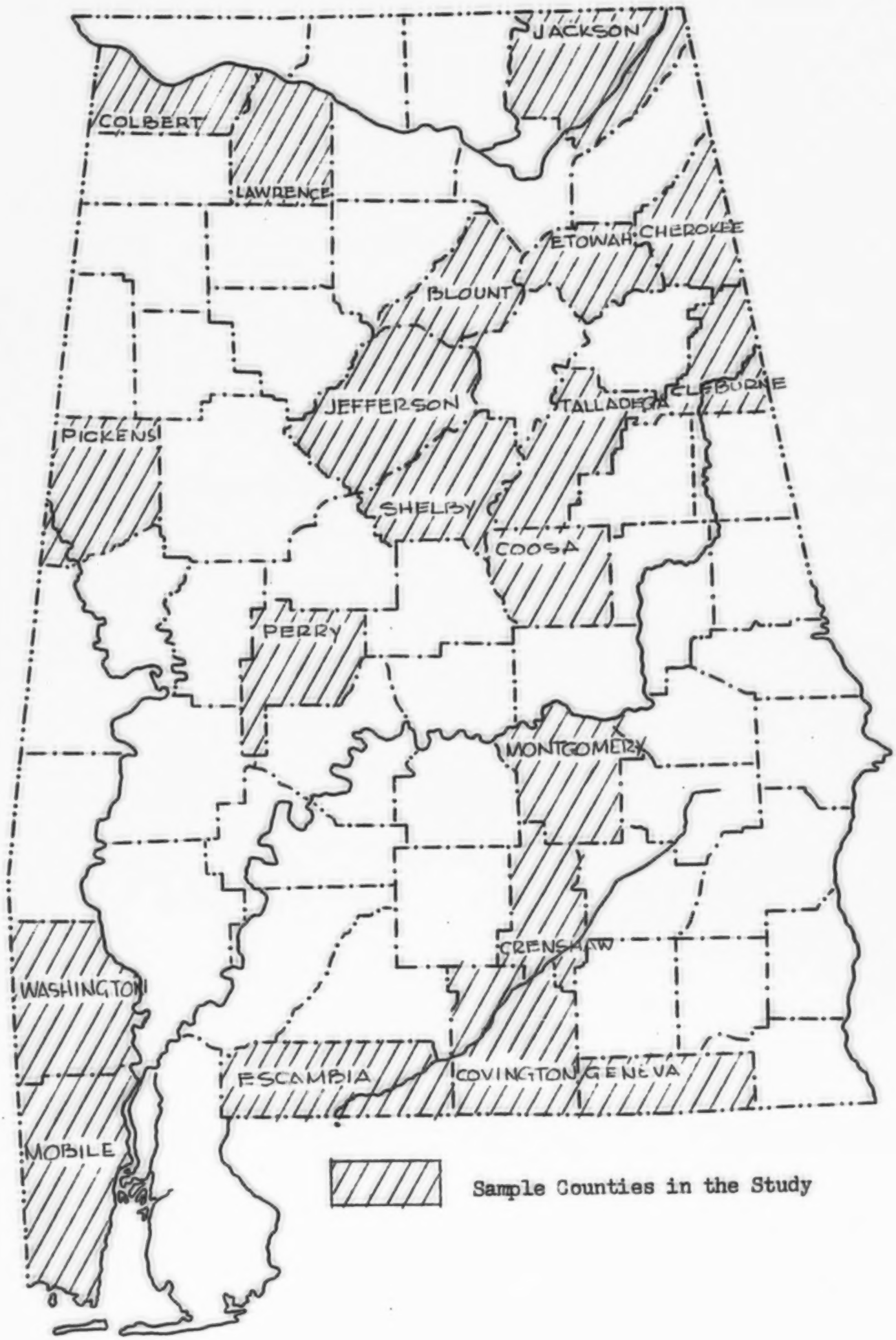
1. Since a majority of the occupations found in the study were non-professional and some require on-the-job training, it appears that emphasis should be placed on the occupational competencies need for entry level employment.

2. A rural background is preferred but not a requirement for job entry. Emphasis was placed on education and occupational experience; therefore, students in urban and semi-rural areas interested in agriculturally related careers can benefit from instruction in vocational agriculture.
3. Personality is also considered an important factor in job success by employers in firms of an agricultural nature. The ability to get along with people and to communicate ideas are considered vital to a success in non-professional agriculturally related careers. Employers in agricultural businesses also want well educated people; therefore, high school drop-outs will receive little consideration when applying for a job in an agricultural type business if a high school graduate is available with the same level of competency and degree of experience.
4. Knowledge and skills in agriculture, business, and mechanics are needed by workers employed in businesses, industries and agencies of an off-farm agricultural nature. Many of the occupations require skills and knowledge usually taught beyond the secondary school level but less than baccalaureate level.
5. Secondary school students preparing for distributive occupations in agricultural firms should be placed in businesses to gain the needed occupational experiences for entry level employment.
6. Although employers in businesses, industries, and agencies of an agricultural nature anticipate problems, they are willing to assist schools in providing vocational education programs for secondary level students.

7. Instructional programs for occupations in agricultural businesses should include competency areas needed by a majority of the workers in the occupational clusters in which employment opportunities exist. Results of this study indicate that instructional (common elements) programs should include crop production, sales, and services; agricultural machinery sales and services; livestock and poultry sales, services and products processing; agricultural supply sales and services; and horticultural production sales, and services.

8. A core (common elements) instructional program for all agricultural occupations should be offered in schools where employment opportunities are limited or equally distributed among a number of the economic activities in the agri-business complex.

APPENDIX A


JACKSON
COLBERT
LAWRENCE
ETOWAH
CHEROKEE
BLOUNT
CLEBURNE
TALLADEGA
JEFFERSON
PICKENS
SHELBY
COOSA
PERRY
MONTGOMERY
CRENSHAW
WASHINGTON
ESCAMBIA
COVINGTON
GENEVA
MOBILE
Sample Counties in the Study

APPENDIX B

Number of Agricultural Businesses and Industries in Alabama by Economic Activities.

Counties	Number by main product or service categories (See footnote for activities)																	Totals
	1	2	3	4	5	6	7.	8	9	10	11	12	13	14	15	16	17	
Autauga	0	3	5	1	0	2	4	0	2	1	0	2	1	3	2	0	0	26
Baldwin	0	1	0	7	0	22	30	4	12	7	7	40	5	15	8	4	3	165
Barbour	2	3	11	7	0	20	26	8	6	5	3	50	1	1	0	1	20	164
Bibb	0	3	2	2	0	1	8	1	4	0	0	10	1	1	1	1	0	35
Blount	2	3	13	4	0	10	23	3	3	0	5	1	2	3	0	2	7	81
Bullock	0	0	3	2	0	2	3	2	2	1	0	4	0	2	0	0	1	22
Butler	0	0	2	4	0	1	3	4	2	0	0	10	1	1	1	3	0	32
Calhoun	1	4	5	5	0	15	20	2	16	0	3	21	6	5	6	7	1	117
Chambers	3	1	2	2	0	2	2	1	2	1	0	3	1	1	1	1	0	23
Cherokee	1	1	11	5	0	6	12	3	3	0	3	2	1	0	1	1	3	53
Chilton	5	5	3	3	0	1	10	4	4	8	1	22	1	3	0	2	1	73
Choctaw	2	1	3	4	0	5	9	2	12	0	1	12	1	1	1	2	0	56
Clarke	1	0	1	5	0	1	4	4	1	0	1	10	0	2	0	0	2	32
Clay	0	0	1	2	0	4	6	4	5	1	0	6	1	1	1	1	1	34
Cleburne	0	0	0	0	0	1	5	2	3	1	1	3	0	0	1	1	3	21
Coffee	0	2	4	5	0	7	15	0	4	2	3	14	2	5	1	2	0	66
Colbert	1	4	5	3	0	6	5	2	8	2	2	4	1	3	4	4	1	55
Conecuh	1	4	6	3	0	17	6	2	2	5	6	3	1	0	0	5	0	61

1. Agri. chemical manuf. and wholesales
2. Dairy product manuf. and district
3. Cotton processing sales and warehousing
4. Farm mach. and equip. retail sales and service
5. Farm mach. and equip. manuf. and wholesales
6. Farm service
7. Farm supply retail stores
8. Feed manuf. and wholesales
9. Flower production and sales
10. Food processing and distribution
11. Livestock sales and service
12. Lumber and wood products
13. Meat processing and wholesales
14. Nursery production sales and landscaping services
15. Ornemental plant service and turf care
16. Pest control service
17. Poultry and poultry processing and sales

Appendix B (continued)

Counties	Number by main product or service categories (See footnote for activities)																	Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Coosa	0	1	0	2	0	1	3	2	1	1	2	5	0	0	1	1	1	21
Covington	0	4	3	5	0	1	19	3	7	4	5	13	1	5	2	2	1	75
Crenshaw	0	0	4	3	0	1	10	1	1	2	1	5	0	0	1	1	2	32
Cullman	3	5	19	5	0	40	7	19	8	4	5	8	6	9	0	5	10	153
Dale	5	0	4	3	0	4	8	6	2	3	2	9	3	3	2	4	2	60
Dallas	3	4	12	11	1	32	12	5	5	7	8	84	3	4	3	3	2	199
DeKalb	1	5	32	10	0	20	38	16	5	12	2	20	4	8	5	3	10	191
Elmore	0	0	4	0	0	9	15	4	7	1	0	15	2	2	3	0	0	62
Escambia	2	0	2	7	0	1	8	5	7	1	4	2	1	4	2	7	1	54
Etowah	1	2	4	3	0	1	6	1	5	3	12	4	12	4	3	7	3	71
Fayette	0	1	6	4	1	12	11	2	4	3	3	17	1	2	1	3	2	73
Franklin	1	1	5	7	0	10	14	8	7	1	5	8	5	2	0	3	10	87
Geneva	4	0	6	4	0	1	18	9	1	9	8	5	3	1	4	1	0	74
Greene	2	0	2	2	0	1	4	1	0	0	1	5	0	0	0	0	0	18
Hale	1	1	8	6	0	8	7	3	2	1	0	3	1	0	0	3	1	45
Henry	6	5	7	5	0	9	6	4	4	2	5	9	2	2	10	2	3	81
Houston	8	4	4	10	1	8	15	8	18	10	6	10	2	9	2	6	5	126
Jackson	0	2	8	4	0	3	10	6	6	6	1	7	0	2	3	2	2	62
Jefferson	18	32	5	6	0	5	21	3	106	11	35	24	26	39	13	26	31	401
Lamar	0	0	10	1	0	4	15	5	3	1	0	25	1	1	0	0	0	66
Lauderdale	2	8	7	5	0	4	8	8	10	7	6	11	2	4	0	7	2	91
Lawrence	1	0	7	6	0	3	7	2	2	0	4	1	0	1	1	2	3	40
Lee	1	1	1	1	0	3	3	0	4	1	0	4	1	4	4	3	1	32
Limestone	18	2	30	4	3	20	61	3	6	0	4	14	7	5	9	9	3	198
Lowndes	0	0	2	1	0	1	3	0	1	0	0	3	0	0	0	1	1	13
Macon	4	0	4	3	0	4	8	0	3	0	1	3	0	1	1	1	1	34
Madison	6	6	26	11	1	7	10	8	9	7	2	21	3	30	40	5	3	195
Marengo	2	0	4	3	0	8-	6	3	2	0	5	16	3	1	4	1	0	58
Marion	0	3	3	3	0	3	4	2	2	1	1	4	1	0	0	2	1	32

Appendix B (continued)

Counties	Number by main product or service categories (See footnote for activities)																	Totals
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
Marshall	7	1	4	9	0	15	15	16	4	0	11	20	4	8	1	6	8	129
Mobile	11	19	0	5	0	8	11	5	27	23	30	32	9	34	11	22	11	260
Monroe	0	0	6	4	0	2	6	5	1	0	2	30	1	1	0	1	0	59
Montgomery	13	11	8	8	0	4	15	6	21	9	33	6	9	24	8	11	9	195
Morgan	3	7	17	10	0	45	20	9	12	5	8	20	7	11	7	3	3	187
Perry	1	0	4	2	0	4	5	1	1	3	3	2	0	0	1	2	1	30
Pickens	2	0	4	4	0	5	10	6	5	1	5	4	1	1	4	1	2	55
Pike	3	4	4	5	1	7	14	6	9	2	2	19	4	2	4	3	3	92
Randolph	0	1	3	4	1	3	14	6	6	5	1	6	1	0	0	0	0	51
Russell	2	0	0	1	0	2	3	0	8	1	3	15	0	3	1	1	1	41
Shelby	4	4	2	3	0	2	8	3	3	0	4	17	3	3	1	1	3	61
St. Clair	0	0	0	2	0	1	4	2	0	0	1	12	0	1	0	0	1	24
Sumter	0	0	3	1	0	3	3	1	2	0	1	3	0	0	1	0	0	18
Talladega	1	2	6	7	0	2	4	0	2	5	3	5	2	5	1	1	2	48
Tallapoosa	3	3	5	2	0	5	13	3	9	1	1	15	1	6	1	2	2	72
Tuscaloosa	11	12	3	6	3	6	16	18	21	3	5	14	5	16	9	6	2	156
Walker	3	3	4	3	0	5	8	10	0	2	1	44	1	5	2	2	2	95
Washington	1	0	0	1	0	2	3	0	1	3	3	11	0	0	0	0	1	26
Wilcox	0	0	6	1	0	2	6	1	2	2	1	30	0	0	0	0	0	51
Winston	0	0	0	0	0	2	17	4	2	0	0	7	1	0	0	0	0	33
Totals	175	189	385	277	12	473	746	288	467	197	282	884	165	310	190	208	195	5,443

APPENDIX C

PRE-EMPLOYMENT EDUCATIONAL NEEDS FOR WORKERS ENGAGED IN OFF-FARM AGRICULTURAL OCCUPATIONS

(Interview Schedule)

County Number

I. Occupation

Job title _____

Level of employment code:

1. ( ) Semi-skilled
2. ( ) Skilled
3. ( ) Clerical
4. ( ) Sales
5. ( ) Supervisor
6. ( ) Manager
7. ( ) Service
8. ( ) Technical
9. ( ) Professional

Position of person interviewed:

1. ( ) Owner
2. ( ) Owner-Manager
3. ( ) Manager (hired)
4. (Personnel Director
5. ( ) Sales Manager
6. ( ) Office Manager
7. ( ) Others (specify) _____

Difficulty in filling vacancies with qualified persons

1. ( ) No difficulty
2. ( ) Some, but not much difficulty
3. ( ) Great difficulty
4. ( ) Extremely difficult

II. Checked below are the <u>ten</u> most valued personal characteristics of an employee (Check only ten)

( ) Orderly in his work
( ) Works regularly and on time
( ) Completes his work
( ) Makes wise use of time
( ) Shows intellectual curiosity
( ) Initiates undertakings'
( ) Fulfills promises and obligations
( ) Admits error when shown wrong
( ) Is honest in word and deed
( ) Seems happy in his work
( ) Participates in civic activities
( ) Places group above himself
( ) Arouses enthusiasm in his fellow workers
( ) Exhibits endurance in continued effort
( ) Gets along with his fellow workers
( ) Exhibits personal cleanliness and neatness
( ) Possesses forceful personality
( ) Can express his ideas well
( ) Speaks clearly and correctly
( ) Uses good English in written form

Educational grade level for entry (check one)

1. ( ) Will hire with less than high school
2. ( ) High school minimum
3. ( ) Post high school technical education
4. ( ) B. S. degree minimum
5. ( ) M. S. degree minimum
6. ( ) Doctor's degree minimum
7. ( ) Doesn't matter

Technical short courses required for entry

1. ( ) None required
2. ( ) Provided by firm being interviewed
3. ( ) Provided by commercial concern
4. ( ) Provided by public schools less than college grade
5. ( ) Provided by college (agricultural or others)

Residential background preference (check one)

1. (F) Farm background
2. ( ) Rural, non-farm background
3. ( ) Urban background
4. ( ) No preference

III. Pre-employment educational programs

To what degree of significance do you feel that the present instructional program of vocational agriculture trains a proficient worker in <u>this</u> occupation?

1. ( ) Very significant
2. ( ) Significant
3. ( ) Of some significance
4. ( ) Of little significance

Remarks_____

_____

To what extent of proficiency do you feel that a high school instructional program in vocational agriculture could train a worker for <u>this</u> occupation?

1. ( ) Very proficient
2. ( ) Proficient
3. ( ) Somewhat proficient
4. ( ) Very small degree of proficiency

Remarks_____

_____

Pre-employment Educational Program

To what extent are you familiar with the present Vocational Agriculture program?

1. ( ) Very familiar
2. ( ) Familiar
3. ( ) Somewhat familiar
4. ( ) Not familiar

Ranked in order are the ways in which the person interviewed felt would be most feasible in providing at the high school level the pre-employment educational needs for off-farm agricultural occupations.

A. ( ) Instruction in <u>production</u> agriculture, <u>leadership</u> and <u>farm mechanics</u> supplemented by on-farm production project program experiences.

B. ( ) Instructional program consisting of skills and abilities common to both on-farm and off-farm agricultural occupations supplemented by on-farm projects and/or work experience in businesses under the supervision of the business and teacher.

C. ( ) Instruction consisting of skills and abilities common to both on-farm and off-farm agricultural occupations the first part of the total instructional program followed by training in clusters of agricultural occupations supplemented by on-farm production project and/or work experience in businesses under the supervision of the business and teacher.

D. ( ) Instructional program consisting of skills and abilities common to both on-farm and off-farm agricultural occupation supplemented by on-farm projects and/or short exploratory work experience under the supervision of the business and teacher.

Company willingness to participate in a coordinated school-employer educational program for high school students: (Check all that apply.)

( ) Not willing
( ) Permit students to visit and observe operations
( ) Employ interested students during vacation periods
( ) Employ interested students on a part-time basis during the school year
( ) Employ interested students on a seasonal basis
( ) Participate in a student work experience program a few hours during the school day on a non-pay basis.
( ) Participate in a student work experience program a few hours during the school day on a non-pay basis and a pay basis on weekends.
( ) Work with school personnel in outlining an educational program which would help prepare persons for work in off-farm agricultural occupations.
( ) Release key employees to assist teachers in providing instruction for high school students.

( ) Others (specify)_____

Remarks:_____

_____

Problems that might be encountered by the company in the employing (or participating in work experience educational programs) of high school students:

( ) Liability insurance
( ) Labor union regulations
( ) Time involved in training employees or time element involved in work experience programs
( ) Minimum wage laws
( ) Others (specify)_____

Remarks:_____

_____

_____

VI. Pre-employment educational needs

Importance of selected basic and enterprise units in vocational agriculture in the pre-employment educational program for those entering this occupation

	4 Essential	3 Important	2 Of some importance	1 Of little importance
73. Characteristics and properties of soils				
74. Soil and plant relationships				
75. Crop improvement through breeding				
76. Land class capabilities				
77. Fertilizers and plant nutrients				
78. Science and practice of soil preparation				
79. Science and practice of cultivation				
80. Principles of irrigation				
81. Animal selection and breeding				
82. Animal growth and development				
83. Fundamentals of animal nutrition				
84. Feeds and feed values				
85. Balancing livestock rations				
86. Maintaining animal health				
87. Selecting crop varieties				
88. Chemical weed control				
89. Drying and storing crops				
90. Farm records and accounts				
91. Economic principles and managerial functions in the farm business				
92. Agricultural capital and finance				
93. Farm law				

	4 Essential	3 Important	2 Of some importance	1 Of little importance
94. Marketing farm products				
95. Agricultural policy				
96. Understanding and controlling plant diseases				
97. Understanding and controlling common insects				
98. Controlling rodents				
99. Using insecticides and pesticides				
100. Conservation of wildlife and other natural resources				
101. Opportunities in off-farm agricultural occupations				
102. FFA and 4-H leadership activities				
103. Livestock production				
104. Dairying				
105. Poultry meat production				
106. Egg production				
107. Grain production				
108. Cotton production				
109. Fruit and nut production				
110. Vegetable production				
111. Peanut production				
112. Forest and forest products				
113. Forage production				
114. Planning an attractive home surrounding				

	4 Essential	3 Important	2 Of some importance	1 Of little importance
115. Est. and maint. ornamental plant materials				
116. Farm power and machinery				
117. Farm building and conveniences				
118. Farm electrification				
119. Soil and water management				

Importance of selected instructional areas in general and business education in the pre-employment educational program for those entering this occupation.

120. Salesmanship				
121. Customer relations				
122. Bookeeeping				
123. Retail store management				
124. Business communications				
125. Office practice				
126. Business math				
127. Management principles				
128. Marketing				
129. Business law				
130. Principles of economics				
131. Personnel management				
132. Public speaking				
133. Government regulations				

	4 Essential	3 Important	2 Of some importance	1 Of little importance
134. Transportation				
135. Financing (insurance, credit)				
136. Credit and collection				
137. Advertising				
138. Shop Accounting				

Importance of selected instructional areas in mechanics in the pre-employment educational program for those entering this occupation.

139. Freehand sketching and drawing				
140. Mechanical drawing				
141. Planning general or farm shop projects				
142. Calculating pre-construction cost				
143. Woodworking and carpentry				
144. Knowledge of industrial processing				
145. Using power woodworking tools				
146. Using power metalworking tools				
147. Fuels and lubricants				
148. Tool fitting				
149. Painting and finishing				
150. Developing cold metalworking skills				
151. Developing hot metalworking skills				
152. Using an arc and oxyacetylene welder				
153. Power mechanics				
154. Metallurgy				
155. Hydraulics				

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High School Principals' Perceptions of the Roles and Responsibilities of Persons Who Would Be Charged with the Responsibility for Leadership in the Development of Occupationally Oriented Programs in High Schools.

Wenrich, Ralph C. * Shaffer, Earl W.

Michigan Univ., Ann Arbor. School of Education

Sep65

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*PRINCIPALS, *OPINIONS, HIGH SCHOOLS, *FEDERAL AID, *STATE AID, *VOCATIONAL EDUCATION, QUESTIONNAIRES, PROGRAM ADMINISTRATION,

Michigan,

Principals in 106 large high schools in Michigan were interviewed to determine how they would use an assistant who would be responsible for developing occupationally oriented programs for employment-bound youth. Duties, responsibities, and relationships which the assistant might be expected to assume or develop were also studied. The areas ranked in order of the principals' responses were -- (1) pupil personnel, (2) school-community relations, (3) instructional program, (4) business functions, and (5) teaching personnel. The first three of 27 activities listed and ranked by percentage of responses for major responsibilities of the assistant were -- (1) locating and organizing instructional materials, (2) determining local occupational education needs, and (3) operating a student job-placement program. It was concluded that most principals of large high schools in Michigan were interested in expanding vocational or occupational programs, and they saw the need for an assistant to give help and leadership. The assistant should be trained in both school administration and occupational education, and should work with the principal, other school personnel, and local civic, business, industrial and professional groups to improve the high school's ability to prepare young people for employment. (PS)

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RALPH C. WENRICH

EARL W. SHAFFER

YT 00029

Sponsored by:

State Board of Control for Vocational Education
Lansing, Michigan

Administered through:

September 1965

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HIGH SCHOOL PRINCIPALS' PERCEPTIONS OF THE ROLES AND RESPONSIBILITIES OF PERSONS WHO WOULD BE CHARGED WITH THE RESPONSIBILITY FOR LEADERSHIP IN THE DEVELOPMENT OF OCCUPATIONALLY ORIENTED PROGRAMS IN HIGH SCHOOLS

Ralph C. Wenrich
Earl W. Shaffer

ORA Project 06845

sponsored by:

STATE BOARD OF CONTROL FOR VOCATIONAL EDUCATION
LANSING, MICHIGAN

administered through:

OFFICE OF RESEARCH ADMINISTRATION ANN ARBOR

September 1965

FOREWORD

In 1963, The University of Michigan did a survey of principals of major high schools in Michigan to determine what kinds of assistance they would consider most helpful in developing and/or operating more adequate programs and services for employment-bound youth. Over 98 percent of the principals responded, and three-fourths of them favored spending "some" or "most" earmarked vocational education funds to help them improve their programs for employment-bound youth.

Most of the principals felt that they did not have time to give leadership to the programs for employment-bound youth, and nearly three-fourths of them felt their programs could be improved if funds were made available to provide an extra assistant to give this leadership.

The study reported here is an attempt to determine how high school principals would use an assistant responsible for the development of occupationally oriented programs and services.

Although the project director takes full responsibility for the study, it should be recognized that he has had the assistance of many of his colleagues. Particular credit should be given to Earl Shaffer, Assistant in Research for the project, for assisting in the design of the study and for carrying through most of the details. The services of William C. Eckerman of the Survey Research Center, were extremely valuable in constructing the interview guide.

I would also like to express my appreciation to the 120 principals (of the 123 contacted) who agreed to participate in the study by granting an interview. I would also like to thank the 40 men in the University of Michigan's first Leadership Development Project for Vocational and Technical Education who conducted the interviews.

Ralph C. Wenrich
Project Director

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PART I. INTRODUCTION

A. STATEMENT OF THE PROBLEM

In the spring of 1963, a study was made by Wenrich and Ollenburger[1] to determine what kinds of assistance principals of larger high schools in Michigan would consider most helpful in developing and/or operating special programs and services for employment-bound youth. Of the 120 principals included in the study, 109 accepted the responsibility for giving employment-bound youth salable skills; only 19 principals felt that their schools were doing all that could be done toward achieving this goal. A majority of the principals felt that they did not have time to give leadership to the programs, and nearly three-fourths of them felt their programs could be improved if funds were available for an assistant who would administer the occupational education program.

To prepare people for such leadership positions, we need to know more about the nature of these positions and the duties and responsibilities involved.

B. OBJECTIVES OF THE STUDY

The objectives of the study were:

1. To determine what duties and responsibilities the principals would give to an assistant responsible for leading the development of occupationally oriented programs and services.

2. To determine the relationship the assistant has and/or should have with the principal, counselors, teachers, individuals in other community agencies and organizations, and in the world of work.

3. To determine if there is a pattern of duties, responsibilities, and relationships which the assistant might be expected to assume and develop.

C. SCOPE OF THE STUDY

The study included 106 of 123 Michigan high school principals of schools with a student population of 700 or more in grades 10-12, of 1000 or more in

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[1] Ralph C. Wenrich and Alvin Ollenburger. High School Principals' Perceptions of Assistance Needed in Order to Develop More Adequate Programs for Employment-Bound Youth. Ann Arbor: The University of Michigan Office of Research Administration, December 1963.

grades 9-12, and of 1,600 or more in grades 7-12. This was the same group of principals who were involved in the earlier study by Wenrich and Ollenburger.

D. PROCEDURE

A list was made of the types of duties and responsibilities related to occupational education with which high school principals needed assistance. This was done with the help of principals, professors of secondary school administration and curriculum, and twenty occupational educators from Michigan, who were members of the University of Michigan's first summer workshop of the Leadership Development Project for Vocational and Technical Education, held during the 1964 summer session.

An interviewer's questionnaire guide was constructed and pre-tested by giving it to a number of staff members and high school principals who were not included in the population to be interviewed. The questionnaire was then revised to eliminate ambiguities (See Appendix, p. 20).

As a voluntary assignment during their training internship, the twenty members of the Leadership Development Project Workshop and twenty members of the control group for the project were assigned certain high school principals to visit and interview, using the questionnaire guide.

Early in January, a letter was sent to each of the 123 principals whose schools qualified for the study, explaining the purposes of the study and requesting their participation in the interviews (see Appendix, p. 19).

Interviews were completed with 106 of the 123 principals. Only three principals declined the invitation to take part in the interview. Because of time limitations and changes in positions, the interviewers were unable to complete 14 interviews.

PART II. RESULTS OF THE STUDY

A. FIVE AREAS OF RESPONSIBILITY FOR PROPOSED ASSISTANTS

For this study the projected duties and responsibilities in which an assistant might be involved were divided into five major areas:

Instructional Program
School-Community Relations
Pupil Personnel
Teaching Personnel
Business Functions

Under each of the major areas were a number of specific areas of activity, designated by the letters a, b, c, etc. (see questionnaire, Appendix, p. 21).

The principals were asked to indicate to what extent they felt the proposed assistant should be involved in and have responsibility for the activities listed under each of the five areas.

The choices for responding to each item were that the new assistant principal would:

1. Have primary responsibility for the area, subject only to the veto power of the principal

2. Share responsibility for the area with the principal

3. Act only as an advisor to the principal in this area

4. Not be involved at all in this area

To save space, the responses have been shortened, in the rest of this study, to PRIMARY RESPONSIBILITY, SHARED RESPONSIBILITY, ADVISORY ONLY, NO RESPONSIBILITY.

1. Comparing the Responses for the Five Areas of Responsibility

The activities under Pupil Personnel received the highest average number of votes per item (64 percent) as an area of PRIMARY RESPONSIBILITY for the assistant. School-Community Relations ranked second, with an average of 60 percent of the responses under PRIMARY RESPONSIBILITY. Instructional Program ranked third, with an average of 47 percent, and Business Functions ranked fourth with an average of 43 percent. The fifth ranked area was Teaching Personnel, with 16 percent (see Table I).

TABLE I

THE FIVE MAJOR AREAS RATED AS MAJOR RESPONSIBILITY OF THE NEW ASSISTANT (RANKED ACCORDING TO AVERAGE PERCENTAGE OF PRINCIPALS' RESPONSE)

Area by Rank	Area by Title	Average Percentage
Area One	Pupil Personnel	64
Area Two	School-Community Relations	60
Area Three	Instructional Program	47
Area Four	Business Functions	43
Area Five	Teaching Personnel	16

When the major areas of responsibility are ranked according to the average percentage of responses per item indicated as a SHARED RESPONSIBILITY, Instructional Program and Teaching Personnel both received an average of 41 percent, Business Functions was third with 33 percent, School-Community Relations was fourth with 32 percent, and Pupil Personnel was fifth with 19 percent (see Table II).

2. Comparing the Responses for Specific Activities Listed Under the Major Areas of Responsibility

More than 50 percent of the principals felt that each activity under Pupil Personnel was a PRIMARY RESPONSIBILITY of the new assistant. First and second in this group were operation of a student job-placement program and establishment of a student job-placement program, with 75 and 74 percent of the votes, respectively (see Table III).

Under School-Community Relations, at least 50 percent of the principals felt each activity to be a PRIMARY RESPONSIBILITY of the new assistant. Determining local occupational needs through recognized methods such as surveys ranked first, with 76 percent. Establishing and/or working with lay advisory committees and developing relations with community agencies and professional organizations ranked second, with 70 percent (see Table IV).

Only one activity under Instructional Program, initiating curriculum innovation, was viewed by at least 50 percent of the principals to be a PRIMARY RESPONSIBILITY of the new assistant. Although Instructional Program ranks third in terms of the principals' perceptions of PRIMARY RESPONSIBILITY, 3 of the 5 activities listed under that area were seen by at least 50 percent of the principals as a SHARED RESPONSIBILITY for the new assistant (see Table V).

No single activity listed under Business Functions received a 50 percent vote under any of the four possible response categories. Item c, purchasing supplies and equipment, was felt by 49 percent of the principals to be a PRIMARY RESPONSIBILITY, while 48 percent saw activity a, budget planning, as a PRIMARY RESPONSIBILITY of the new assistant (see Table VI).

None of the activities having to do with Teaching Personnel was felt to be a PRIMARY RESPONSIBILITY of the new assistant. Fifty-nine percent of the principals rated orienting new teachers as a SHARED RESPONSIBILITY. A noticeable majority, 71 percent, felt that the new assistant would not be involved in determining salaries for teachers (see Table VII). In space provided for further comment, many principals pointed out that salary was not within the realm of building administrative staff.

In the areas of Instructional Program and Teaching Personnel, most of the activities were felt to be more a SHARED RESPONSIBILITY than a PRIMARY RESPONSIBILITY of the new assistant. However, none of the principals classified any of the activities under Instructional Program as NO RESPONSIBILITY (see Table V).

TABLE II

THE FIVE MAJOR AREAS RATED AS SHARED RESPONSIBILITY OF THE NEW ASSISTANT (RANKED ACCORDING TO AVERAGE PERCENTAGE OF PRINCIPALS' RESPONSES)

Area by Rank	Area by Title	Average Percentage
Area One	Instructional Program	41
Area One	Teaching Personnel	41
Area Three	Business Functions	33
Area Four	School-Community Relations	32
Area Five	Pupil Personnel	19

TABLE III

PUPIL PERSONNEL: EXTENT OF THE NEW ASSISTANT'S RESPONSIBILITY, OPINIONS OF PRINCIPALS, BY PERCENTAGE

Answer	Activities Under Pupil Personnel*				
	a	b	c	d	e
Major Responsibility	50	55	74	75	65
Shared Responsibility	28	21	16	10	22
Advisory Only	16	14	4	7	10
No Responsibility	5	8	2	6	3
No Response	1	2	3	2	0
Total	100	100	100	100	100

*a. Offering vocational guidance services to students
b. Selecting students for occupational training
c. Establishing a student job-placement program
d. Operating a student job-placement program
e. Conducting follow-up studies of students after graduation from or dropping out of high school

TABLE IV

SCHOOL-COMMUNITY RELATIONS: EXTENT OF THE NEW ASSISTANT'S RESPONSIBILITY, OPINIONS OF PRINCIPALS, BY PERCENTAGE

Answer	Activities Under School-Community Relations*					
	a	b	c	d	e	f
Major Responsibility	64	70	76	70	34	50
Shared Responsibility	27	22	19	23	62	41
Advisory Only	7	8	4	7	4	9
No Responsibility	1	0	1	0	0	0
No Response	1	0	0	0	0	0
Total	100	100	100	100	100	100

*a. Involving local business and industry in the problems and programs of the school

b. Establishing and/or working with lay advisory committees

c. Determining local occupational education needs through recognized methods, such as community surveys

d. Developing relations with such community agencies as M.E.S.C., Chambers of Commerce, law enforcement agencies, representatives of labor and management, and other professional organizations

e. Interpreting the school's occupational education program to parents and patrons of the school

f. Interpreting, for the school and the community, legislation affecting occupational education

TABLE V

INSTRUCTIONAL PROGRAM: EXTENT OF THE NEW ASSISTANT'S RESPONSIBILITY, OPINIONS OF PRINCIPALS, BY PERCENTAGE

Answer	Activities Under Instructional Program*				
	a	b	c	d	e
Major Responsibility	28	38	33	55	49
Shared Responsibility	60	52	53	29	42
Advisory Only	10	10	12	15	9
No Responsibility	0	0	0	0	0
No Response	2	0	2	1	0
Total	100	100	100	100	100

*a. Identifying and agreeing upon objectives
b. Evaluating existing programs
c. Developing and revising the curriculum
d. Initiating curriculum innovation
e. Improving instructional procedures

TABLE VI

BUSINESS FUNCTIONS: EXTENT OF THE NEW ASSISTANT'S RESPONSIBILITY, OPINIONS OF PRINCIPALS, BY PERCENTAGE

Answer	Activities Under Business Functions*		
	a	b	c
Major Responsibility	48	31	49
Shared Responsibility	34	40	26
Advisory Only	12	23	15
No Responsibility	6	6	9
No Response	0	0	1
Total	100	100	100

*a. Budget planning--estimating costs of occupational education programs
b. Determining school use of allocated funds
c. Purchasing supplies and equipment used in the educational training program

TABLE VII

TEACHING PERSONNEL: EXTENT OF THE NEW ASSISTANT'S RESPONSIBILITY, OPINIONS OF PRINCIPALS, BY PERCENTAGE

Answer	Activities Under Teaching Personnel*						
	a	b	c	d	e	f	g
Major Responsibility	13	4	10	35	42	0	9
Shared Responsibility	49	37	43	59	49	12	45
Advisory Only	26	36	30	1	7	17	39
No Responsibility	12	22	16	3	0	71	5
No Response	0	1	1	2	2	0	2
Total	100	100	100	100	100	100	100

*a. Recruiting of teachers in the occupational education area

b. Making final selection of teachers

c. Assigning teachers to departments

d. Orienting new teachers

e. Providing in-service education for teachers

f. Determining salaries for teachers

g. Recommending teachers for promotion

No activity was rated ADVISORY ONLY by more than a few principals.

When all activities in the questionnaire were ranked according to the percentage of principals listing them as PRIMARY RESPONSIBILITY, the first ten were from three major areas: School-Community Relations, Pupil Personnel and Instructional Program (see Table VIII).

B. FURTHER COMMENTS BY PRINCIPALS PARTICIPATING IN THE STUDY

The principals were encouraged to comment about or qualify any of their responses or to mention any activities which they felt should have been included in the questionnaire. Many of the principals pointed out that the distinction between a PRIMARY RESPONSIBILITY and a SHARED RESPONSIBILITY was not as easily defined as the questionnaire would imply. They felt that the assistant should offer strong leadership, but that major decisions in any of the five areas mentioned should reflect the combined efforts of the chief administrator, the assistant, and any others responsible for the administration of the total high school program.

Only five principals indicated that they saw no need for an assistant to handle the duties outlined in the study. Three of the five felt that they did need assistance in most of the areas outlined but preferred to get it from a director or coordinator of vocational education.

Sixty-five of the 106 principals stated that their schools had a vocational or occupational track. However, of the other 41, ten listed courses which they considered vocational or occupational, indicating that although they do not use the tracking system, they do have occupational educational offerings.

In further discussion with the interviewers, most principals stated that they do recognize the need for expansion of their present occupational offerings. In many schools, the occupational programs are being expanded and the principals indicated satisfaction with the results of those courses which they felt were in fact occupational education.

The principals felt that an assistant for occupational education, in order to fill adequately the role proposed for him, would have to be well trained in school administration and have a thorough knowledge of the needs and methods of training young people adequately for the world of work.

If trained persons were available, many principals felt that the greatest problem would then be that of locating additional funds for their salaries. If funds were made available, the principals indicated that both they and their boards of education would look favorably on the concept of a new assistant to give leadership to the development of better occupational training programs.

TABLE VIII

RANKING ORDER OF ALL ITEMS ON THE QUESTIONNAIRE, BY PERCENTAGE OF RESPONSES UNDER MAJOR RESPONSIBILITY

Rank	Activity	Percentage
1	Locating and organizing instructional materials	81
2	Determining local occupational education needs	76
3	Operating a student job-placement program	75
4	Establishing a student job-placement program	74
5	Developing relations with community agencies	70
5	Establishing and/or working with lay advisory committees	70
7	Conducting follow-up studies of students after graduation from or dropping out of high school	65
8	Involving local business and industry in the problems and programs of the school	64
9	Selecting students for occupational training	55
9	Initiating curriculum innovation	55
11	Offering vocational guidance services to students	50
11	Interpreting, for the school and the community, legislation affecting occupational education	50
13	Improving instructional procedures	49
13	Purchasing supplies and materials used in the educational training program	49
13	Providing in-service education for teachers	49
16	Budget planning--estimating costs of occupational education programs	48

TABLE VIII (Cont.)

Rank	Activity	Percentage
17	Evaluating existing programs	38
18	Orienting new teachers	35
19	Interpreting the school's occupational education program to parents and patrons of the school	34
20	Developing and revising the curriculum	33
21	Determining school use of allocated funds	31
22	Identifying and agreeing upon objectives	28
23	Recommending teachers for promotion	14
24	Recruiting of teachers in the occupational education area	13
25	Assigning teachers to departments	10
26	Making final selection of teachers	4
27	Determining salaries for teachers	0

C. RELATED INFORMATION

Of interest to the interviewers, though not an essential part of the questionnaire, was the relationship of the principals' educational history and administrative experience to their responses. Though no direct correlation was found, the results are included here since they may be helpful as background information.

When asked to list their undergraduate and graduate majors, the principals mentioned twenty-five fields. Only 19 principals listed the same undergraduate major (history). General social studies ranked second with 17 mentions and mathematics was third with 15.

However, nearly half of the principals (51 of the 106) listed secondary school administration as their graduate major. General secondary education ranked second with 19 mentions.

When questioned about their background of administrative experience, 59 of the 106 principals reported 1-10 years of teaching experience before their first administrative experience. Only 19 of the 106 principals had taught 10-15 years before becoming a principal. Forty-seven of the principals had 1-5 years of experience as assistants or part-time principals before first being employed as full-time principals and 16 principals held assistant or part-time positions for 5-10 years.

Sixty-four of the 106 participants have occupied positions as full-time principals for ten years or less. Fifty-six principals have held their present positions for five years or less, 17 for 5-10 years, and 17 for 10-15 years.

Opinions of the interviewers compared favorably with those of the principals as to the extent to which the schools were meeting the occupational education needs of their students. There were, however, some notable exceptions. In 21 instances, the interviewer indicated that programs which the principal considered occupational or vocational were actually good general classes in industrial arts and did not have adequate depth to prepare students for employment.

Generally, interviewers felt that high schools were doing a realistic job with those courses designed with the objective of salable skills, but that most schools offered too few.

The interviewers felt that they were well received by the principals participating in the study. They rated 92 of the principals as interested or very interested and only 11 as neutral or uninterested. Three interviewers made no response.

D. CONCLUSIONS

A majority of the larger high schools in Michigan are offering some form of vocational or occupational program. Most of the principals of these schools are interested in expanding these programs, and they see the need for an assistant to give help and leadership.

Although the principals give top priority to the areas of Pupil Personnel, School-Community Relations and Instructional Program, they want an assistant to administer the program in occupational education.

Principals perceive the assistant as a person trained in both school administration and occupational education, who can work with the principal, other school personnel, and local civic, business, industrial, and professional groups to improve the high school's ability to prepare young people for employment.

E. RECOMMENDATIONS

It is recommended that the State Board of Control for Vocational Education:

1. Adopt reimbursement policies which will encourage boards of education to provide principals of high schools large enough to operate specialized vocational programs with an assistant (full or part-time) whose responsibility it would be to give leadership to the development of better programs for employment-bound youth.

2. Encourage graduate schools of education to include more courses designed to acquaint high school administrators with the current nature and needs of occupational education.

3. Encourage graduate schools of education offering work in vocational education and vocational administration to provide more training and experience in activities having to do with pupil personnel and school-community relations.

4. Provide special consultant services to high schools wishing to establish a pupil placement program.

5. Adopt reimbursement policies which will encourage high school administrators and their faculties to spend more time in activities such as program planning and development of materials.

6. Encourage visitation programs between administrators and faculty members of high schools to exchange ideas and experiences in occupational education.

7. Encourage principals to seek out potential leaders in occupational

programs among members of their faculties and to assist these persons in acquiring the training and experience they need to qualify for these positions.

APPENDIX

THE UNIVERSITY OF MICHIGAN
SCHOOL OF EDUCATION
ANN ARBOR, MICHIGAN 48104

DEPARTMENT OF VOCATIONAL EDUCATION
AND PRACTICAL ARTS

MEMORANDUM

DATE: January 12, 1965

TO: Selected High School Principals in Michigan

FROM: Ralph C. Wenrich, Chairman
Department of Vocational Education and Practical Arts

SUBJECT: Request for an Interview

In the spring of 1963 The University of Michigan conducted a study to determine the kinds of assistance high school principals would consider to be most helpful in developing and operating special programs and services for employment-bound youth. A report on the study titled "High School Principals' Perceptions of Assistance Needed in Order to Develop More Adequate Programs for Employment-Bound Youth," was sent to you about a year ago.

In this study the majority of the high school principals who responded indicated that they do not have time to give leadership to the development and operation of more effective programs for employment-bound youth. Nearly three-fourths of the respondents indicated that programs for employment-bound youth in their schools could be improved if they had "an extra assistant whose job it would be to give leadership to the program."

We are currently engaged in a study designed to determine how high school principals would use an assistant whose responsibility it would be to develop occupationally oriented programs for employment-bound youth. As a part of this study, arrangements have been made for persons currently engaged in the University of Michigan Leadership Development Project to interview high school principals included in the study. You will therefore receive a call from one of these men requesting that he be granted an interview with you. This interview should require no more than 20 to 30 minutes. It is hoped that you will find it possible to cooperate with us in this study by granting the interview, and possibly by allowing the interviewer to visit the areas in your building in which programs for employment-bound students are now being offered.

AN ASSISTANT PRINCIPAL FOR OCCUPATIONAL EDUCATION

DUTIES AND RESPONSIBILITIES

(Questionnaire Guide)

Interviewer:_____

Principal:_____

Date of Interview:_____

Many of those currently concerned with the problem of meeting the need for realistic occupational education in the high school are suggesting that principals of larger high schools should have an assistant in charge of occupational education. It is assumed that his primary function would be that of developing, and giving assistance in the administration of, the occupational education portions of the school's instructional program.

The primary purpose of this questionnaire is to assist in determining the types of duties and responsibilities for which such assistants should be prepared.

Should a need be established for such an assistant in your school, the new position may include a number of responsibilities. In his role of developing and helping to administer the occupational education program for your school, to what extent do you feel the assistant principal would be involved in and have responsiblity for each of the following areas:

	The New Assistant Principal Would:			
	Have primary responsibility for this area subject only to veto power of principal	Share responsibility for this area with the principal	Act only as an advisor to the principal in this area	Not be involved at all in this area
INSTRUCTIONAL PROGRAM				
a. Identifying and agreeing upon objectives	___	___	___	___
b. Evaluating existing programs	___	___	___	___
c. Developing and revising the curriculum	___	___	___	___
d. Initiating curriculum innovation	___	___	___	___
e. Improving instructional procedures	___	___	___	___
f. Locating and organizing instructional materials	___	___	___	___
SCHOOL-COMMUNITY RELATIONS				
a. Involving local business and industry in the problems and programs of the school	___	___	___	___
b. Establishing and/or working with lay advisory committees	___	___	___	___

SCHOOL-COMMUNITY RELATIONS (Continued)

c. Determining local occupational education needs through recognized methods, such as community surveys	___	___	___	___
d. Developing relations with such community agencies as M.E.S.C., chambers of commerce, law enforcement agencies, representatives of labor and management, and other professional organizations	___	___	___	___
e. Interpreting the school's occupational education program to parents and patrons of the school	___	___	___	___
f. Interpreting, for the school and the community, legislation affecting occupational education	___	___	___	___
PUPIL PERSONNEL				
a. Offering vocational guidance services to students	___	___	___	___
b. Selecting students for occupational training	___	___	___	___
c. Establishing a student job placement program	___	___	___	___
d. Operating a student job place program	___	___	___	___
e. Conducting follow-up studies of students after graduating from--or dropping out of-- high school	___	___	___	___
TEACHING PERSONNEL (Teachers whose courses affect occupational education)				
a. Recruiting of teachers in the occupational education area	___	___	___	___
b. Making final selecting of teachers	___	___	___	___
c. Assigning teachers to departments	___	___	___	___

TEACHING PERSONNEL (Continued)

d. Orienting new teachers	___	___	___	___
e. Providing in-service education for teachers	___	___	___	___
f. Determining salaries for teachers	___	___	___	___
g. Recommending teachers for promotion	___	___	___	___
BUSINESS FUNCTIONS				
a. Budget planning--estimating costs of occupational education programs	___	___	___	___
b. Determining school use of allocated funds				
c. Purchasing supplies and equipment used in the educational training program	___	___	___	___

FURTHER COMMENTS:

GENERAL INFORMATION

The Principal

_____ 1. Undergraduate major

_____ 2. Graduate Major

_____ 3. Highest degree received

_____ 4. Total number of years teaching experience prior to becoming a principal

5. What subjects have you taught? _____

_____

_____ 6. Number of years as an assistant or part-time principal

_____ 7. Number of years as a full-time principal

_____ 8. Number of years in present position

The Instructional Program

No	Yes	
____	____	1. Do you have a college preparation track?
____	____	2. Do you have a general education track?
____	____	3. Do you have a vocational or occupational education track?

Comment: _____

_____

Which courses in your curriculum do you consider to be vocational or occupational?

1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

Of those courses considered vocational, which do you feel are doing a realistic job of preparing students for today's labor market?

____ All of them

____ None of them

1. _____ 2. _____

3. _____ 4. _____

5. _____ 6. _____

INTERVIEWER'S REPORT

To the Interviewer:

Since the interview guide was so designed as to leave little room for expansion of points or mention of any preface of qualification which may have been included with some answers given, this space has been provided for a written description of your visitation.

In making your report, please include some evaluation of the following:

The principal's attitude toward your mission and the information requested:

_____ Very interested _____Interested _____Neutral _____ Disinterested

Your impressions of present occupational course offerings in the school:

Types of courses offered _____

_____

Physical facilities _____

_____

The length of your interview _____

Any problems which you encountered with the questionnaire or its administration:

Your evaluation of this total interview experience and any benefits which you feel you derived from participation:

Please use the reverse side of this sheet for further comments.

VT 000 031

VT 000 031 ED

Educational Attainment of Jobseekers Registered for Employment With the Ohio State Employment Service, April 25, 1965.

Ohio Bur. of Unemployment Compensation, Columbus

Sep65

EDRS Price MF-$0.27 HC-$5.16 129p.

ACADEMIC ACHIEVEMENT, *UNEMPLOYED, *HIGH SCHOOL GRADUATES, *DROPOUTS, COLLEGE GRADUATES, CLERICAL WORKERS, SALES WORKERS, SERVICE WORKERS, SKILLED WORKERS, SEMISKILLED WORKERS, UNSKILLED WORKERS, PROFESSIONAL PERSONNEL, SEX (CHARACTERISTICS), AGE GROUPS, EMPLOYMENT SERVICES, *JOB APPLICATION, GEOGRAPHIC DISTRIBUTION,

Ohio,

A survey of persons seeking employment through every public employment office in Ohio was designed to update and compare findings with results of a similar study conducted in 1962. Total jobseekers registered for employment in 1965 numbered 132,350. In 1962, the total was 215,477. The decline of 39 percent was due in part to the shorter validity period (time within which applicants must revisit the local office to indicate continued availability) for the 1965 count in 22 local offices. More important, however, were generally improved employment opportunities. Nearly 62 percent of the jobseekers were not high school graduates in 1962, compared with 60 percent in 1965. Among the youth under 20, the proportion who had not finished high school rose from 49 to 54 percent between the two counts. Jobseekers under 20 totaled 14,394 in 1962 and 16,971 in 1965, representing an 18 percent increase. This was the only age group whose total did not show a substantial decline between the two counts. Of the total registered, one out of four had no formal education beyond the eighth grade, three out of five had no high school diploma, one-third had finished high school but did not go on to college, and fewer than one out of twelve had some college training. The appendix includes tables of data for each county in Ohio with the educational attainment of registered jobseekers by occupational and age group in 1962 and 1965. (PS)

DEC 6 1966

ED015348

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED FOR EMPLOYMENT WITH THE OHIO STATE EMPLOYMENT SERVICE

APRIL 25, 1965

DIVISION OF RESEARCH AND STATISTICS
BUREAU OF UNEMPLOYMENT COMPENSATION
COLUMBUS 16, OHIO

VT 00031

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED FOR EMPLOYMENT WITH THE OHIO STATE EMPLOYMENT SERVICE

APRIL 25, 1965

DIVISION OF RESEARCH AND STATISTICS
BUREAU OF UNEMPLOYMENT COMPENSATION
COLUMBUS 16, OHIO

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ACKNOWLEDGEMENTS

Employability of jobseekers, of course, varies with many factors beyond the state of the economy. Among the more important of these factors are level of educational attainment, skill, age, and sex. This study, emphasizing formal educational attainment, was designed not only to update comparable tabulations three years earlier, but also to provide--for the first time--data for each county of Ohio.

The research design and analysis were undertaken by William Papier, Director of Research and Statistics, who supervised the study. James W. Drake, Assistant Director for Statistics, edited the local returns and prepared the summary tabulations, assisted by Gerry Ziegler, Statistician.

Especial acknowledgement is due Millard E. Draudt, Director of Local Office Operations, and his local employment office managers throughout Ohio, who were responsible for the substantial task of reviewing and tallying the basic registration records.

Willard P. Dudley, Administrator
Ohio Bureau of Unemployment Compensation

September 1965

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED FOR EMPLOYMENT WITH THE OHIO STATE EMPLOYMENT SERVICE, APRIL 25, 1965

INTRODUCTION

The Ohio Bureau of Unemployment Compensation administers the statewide network of public employment offices known as the Ohio State Employment Service. Although these offices serve all of Ohio's 88 counties, there were a total of 80 full-time offices in the State, located in 55 counties, as of April 25, 1965.[1]

Persons seeking employment in Ohio, whether or not covered under the Ohio Unemployment Compensation Law may register with the Service and be considered for job openings. No charges, beyond regular tax costs, are levied on applicants or employers.

Persons already employed, but who are seeking other or better jobs, may also register. Although no count is made of those employed at the time of registration, it is estimated that at least 95 percent are jobless.

Candidates for employment in Ohio are free to register with any public employment office in the State. Most, more than likely, register with the office nearest their home, which is frequently in the county of residence. Some, who prefer employment in large metropolitan centers or elsewhere, doubtless cross one or more county lines to register. Data by county, therefore--presented for the first time in this study--relate to county of employment preference, except for counties

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[1] See Appendix for map showing location of full-time offices and counties served.

which have no full-time offices. For counties where no full-time offices are located, data on jobseekers were tallied according to home county. The great preponderance of jobseekers probably prefer jobs within commuting distance of home.

This study was designed to update and compare findings with results of a similar study conducted three years earlier, the supply of which was exhausted shortly after publication. As in the case of the prior survey, a complete count was made of persons registered with every public employment office in Ohio, as of April 25. This date was chosen in both cases to exclude, insofar as possible, large numbers of temporarily unemployed construction workers (during winter months) and students seeking vacation jobs (during summer months).

The number of active jobseekers is affected, both in volume and composition, not only by seasonal factors and the general level of the economy, but also by the length of time registrations are considered active, the extent to which jobseekers voluntarily solicit the aid of public employment offices, and other factors.

Registrations are maintained as active for a prescribed validity period--the time within which applicants must revisit the local office to indicate continued availability for employment. At the time of the earlier study 22 local offices had validity periods of 60 to 89 days. The remaining 42 offices kept their applications active from 30 to 59 days. At the time of the current study, however, all local offices were clearing their files on 30 to 59 day validity periods.

Registered jobseekers represent a very large segment but by no means all of the unemployed. Most claimants for unemployment compensation are included. Among those usually excluded, however, are

claimants laid off temporarily with expectations of early recall, and partially-employed claimants on reduced hours. Those who have been disqualified for benefits, or who have exhausted their benefit rights, may register voluntarily, but are not required to do so.

Persons who are not covered under the Ohio Unemployment Compensation Law may or may not be registered. Of these, some may seek other channels of employment--through direct application to employers, union hiring halls, advertisements, family and friends, professional associations, schools, colleges, non-profit, or private employment agencies. Some of the unemployed--because of age, health, or other reasons--may not maintain active registrations on a continuing basis, possibly because of limited needs or job prospects, or both.

Other factors also influence the volume and composition of registered jobseekers. These include the effectiveness of local offices as placement agencies, the extent to which local employers maintain self-sufficient personnel departments, and the nature, extent, and effectiveness of competing agencies and media.

Levels of formal educational attainment, as reported by jobseekers, were cross-classified in both studies by sex, occupational group, and age group. Application records were tallied to record the formal schooling of each jobseeker in one of five possible groups: (1) eight or fewer grades; (2) some high school; (3) high school graduate; (4) some college; or (5) college graduate.

Following the standard classification system used by all public offices in the nation, each jobseeker was further tallied by skill, in one of seven broad occupational groups: (1) professional, technical, and managerial; (2) clerical and sales; (3) service; (4) skilled;

(5) semiskilled; (6) unskilled (including agricultural); and (7) entry. Entry classifications apply to persons who must be considered for jobs on bases other than prior work experience or fully-qualifying training. Many new entrants to the labor force are so-classified. Older workers may also be tallied in entry occupations, when re-employment prospects in prior occupations are poor because of skill obsolescence or deterioration, or physical handicaps.

Younger jobseekers were broken into two age subgroups--those under 20 and those from 20 through 24 years of age. Those 25 and over, however, were tallied in ten-year intervals, up to the oldest group who were 65 years of age or over.

Detailed tabulations for the State of Ohio and for individual counties are presented in the Appendix. Preceding these, however, are two maps, the first of which shows the location of local offices as of April 25, 1965 and the counties served by each. The second map identifies the eight most populous counties of Ohio, indicating areas served by local offices in these counties, and also identifying counties embraced in tabulations of registrants in Southeastern Ohio.

Tables in the A series in the Appendix are all summary tables, offering statewide data or comparative data for groups of counties. Tables in the B series are individual county tables, presented in alphabetic sequence.

In interpreting the data tabulated it should be kept in mind that the active file of the Ohio State Employment Service should not be considered necessarily representative either of the labor force or of the unemployed segment of the labor force. They do reflect, however, some of the major qualifications for employment of a very large segment of the unemployed jobseekers in Ohio.

STATEWIDE ANALYSIS

Total jobseekers registered for employment with the Ohio State Employment Service on April 25, 1965 numbered 132,350. Of these, two out of three were men. Three years earlier the total was 215,477. Nearly seven out of ten were men.

The decline of 39 percent in the total number of jobseekers, as well as the shrinkage in the proportion of men, was due in part to the shorter validity period for the latest count for 22 local offices. Probably far more important, however, were generally improved employment opportunities. As of April 1962, for example, Ohio's overall rate of unemployment was estimated at 5.2 percent of the civilian labor force. By April 1965 this had dropped to 2.7 percent.

Over the three-year period moderate improvement occurred in the level of formal educational attainment of Ohio's registered jobseekers. Whereas nearly 62 percent were not high school graduates at the time of the earlier count, only 60 percent were so-classified by April 25, 1965. The improvement, however, was concentrated largely among women jobseekers, since, as indicated by the percentages below, 65 percent of the men in both counts had not finished high school:

Educational Attainment	Total		Men	
	1962	1965	1962	1965
Total[1]	100.0	100.0	100.0	100.0
Eight grades or fewer	29.6	25.8	33.8	30.6
Some high school	32.2	34.3	31.7	34.7
High school graduate	30.8	31.9	26.6	26.3
Some college	6.1	6.7	6.3	6.8
College graduate	1.3	1.4	1.6	1.7

[1]Totals may not add precisely to 100.0 percent in this and following tables because of rounding to one decimal place.

The proportion of men with high school diplomas (but no college training) shrank slightly. This probably reflects somewhat greater employer demands for male high school graduates, as job prospects generally improved between April 1962 and April 1965.

As might be expected, jobseekers with lower levels of skills also had lower levels of formal education. The table below shows the percentages of jobseekers by occupational group who did not graduate from high school:

Occupational Group	Total		Men	
	1962	1965	1962	1965
Total	61.8	60.1	65.5	65.3
Professional and managerial	19.1	16.0	17.6	14.8
Clerical and sales	28.8	24.2	29.9	26.5
Service	74.7	74.0	76.6	76.1
Skilled	67.8	66.8	67.7	67.1
Semiskilled	72.5	71.7	72.8	73.0
Unskilled and agricultural	75.8	75.0	76.9	77.4
Entry	43.7	50.2	45.0	54.2

Lowest levels of educational attainment were reported for jobseekers with unskilled, semiskilled, and service occupations. In these groups better than seven out of ten jobseekers had not finished high school. The percentages were slightly higher for men.

Relatively few candidates with professional, technical, managerial, clerical and sales skills, on the other hand, dropped out of school before receiving their high school diplomas. At the latest count only one out of six in the professional and managerial group, and one out of four in the clerical and sales group were dropouts. The proportions had declined for both groups.

It might also be expected that the younger jobseekers had somewhat higher levels of formal education than those who were older.

Again singling out those who did not graduate from high school by age group, the proportions follow:

Age Group	Total 1962	Total 1965	Men 1962	Men 1965
Total	61.8	60.1	65.5	65.3
Under 20	49.3	54.3	56.4	61.6
20 - 24	42.5	42.5	47.4	48.7
25 - 34	58.1	57.4	60.8	61.4
35 - 44	65.6	65.5	69.3	71.2
45 - 54	71.9	69.4	74.7	73.9
55 - 64	82.9	79.9	85.3	82.6
65 and over	83.1	82.7	84.8	85.3

Among the youth under 20 the proportion who had not finished high school rose from 49 to 54 percent between the two counts. Above this age group, however, the percentage of dropouts rose with age. Whereas only 43 percent of those 20 through 24 did not graduate from high school, 83 percent of those 65 years of age or older did not continue in school long enough to receive high school diplomas. The percentages were consistently higher for men in each age group than for total jobseekers.

Registrants with the lowest levels of education--unskilled, semiskilled and service workers--accounted for more than one-half the total number of jobseekers--55 percent in 1962 and 52 percent in 1965. The proportions were even higher for men jobseekers, as shown below:

Occupational Group	Total 1962	Total 1965	Men 1962	Men 1965
Total	100.0	100.0	100.0	100.0
Professional and managerial ..	3.0	3.1	3.5	3.6
Clerical and sales	13.9	13.4	6.3	6.0
Service	11.2	10.7	6.3	6.4
Skilled	17.1	14.0	24.0	20.4
Semiskilled	21.6	20.1	25.0	23.4
Unskilled and agricultural ...	22.0	21.0	25.2	24.7
Entry	11.3	17.7	9.9	15.5

Jobseekers in entry classifications rose from 11 percent in 1962 to nearly 18 percent in 1965. At the time of the earlier count only 44 percent so-classified had not finished high school. By April 1965 this figure had risen to 50 percent. The rise was due to a substantial increase, between the two counts, among those in entry occupations with "some high school." This group added one-fifth to its total--increasing from 7,927 to 9,486--in the face of declines for every other occupational group. Jobseekers under 20 years of age accounted for much of the increase. This age group, with "some high school," jumped 34 percent between 1962 and 1965, from 6,075 to 8,139.

The great influx of young people into the Ohio labor market in recent years and the relative lack of job openings for which they were qualified by education, or otherwise, is reflected in the growth in the number of jobseekers under 20. Their 1962 count totaled 14,394. Three years later this figure had risen 18 percent, to 16,971. This was the only age group whose total did not show a substantial decline between the two counts. Whereas fewer than 7 percent of all the registered jobseekers were under 20 at the time of the 1962 count, this figure reached nearly 13 percent three years later.

AREA ANALYSIS

Ohio has eight counties, each with a city of 100,000 or more in population. They are all metropolitan counties which, in the aggregate, account for most of the jobseekers in the State. These counties are Cuyahoga, Franklin, Hamilton, Lucas, Mahoning, Montgomery, Stark, and Summit.

It was not possible, in the earlier survey, to tabulate jobseekers registered, by county. Where a given office served an adjacent county or counties, the figures were combined for the area served. Although the latest survey does provide data by county, in order to compare the two surveys the same counties were summarized so that the combined data for the eight large counties embrace eight additional smaller counties served in 1962 by these large counties (see second Appendix map).

Twenty-one counties in Southeastern Ohio posed a similar problem in providing geographic comparability for the two counts. These counties, within the so-called Appalachian Area, account for a relatively small share of the State's jobseekers. The dominance of the eight large-county areas is reflected in the percentages below:

Area	Total		Men	
	1962	1965	1962	1965
Total	100.0	100.0	100.0	100.0
Eight large county areas (16) ..	59.5	57.1	59.7	58.4
Southeastern counties (21)	9.5	11.0	10.0	11.8
All other counties (51)	31.0	31.9	30.3	29.8

Inclusion of data for eight smaller counties in the total for those served by the eight largest had relatively little effect on the

aggregate. In the 1965 count the 16 counties embraced in the area served by offices in the eight largest accounted for 57 percent of all the registered jobseekers in Ohio. Offices in the eight largest counties alone, however, accounted for 54 percent.

Data for areas served by offices in the larger counties greatly affect and largely control the statewide figures. Southeastern Ohio for at least a quarter-century has been an area of relatively limited employment opportunity, doubtless affecting the volume, age composition, skills, and educational attainment of jobseekers in the area. Comparisons might therefore be most meaningful between the 16 counties in the industrialized areas--the large county areas accounting for nearly three-fifths of the State's jobseekers--and the 51 counties outside Southeastern Ohio, with nearly one-third. Nine out of every ten jobseekers in Ohio were among these 67 counties, at the latest count.

In the percentage comparisons which follow, the "large areas" are defined as the 16 counties served by offices in the eight largest, while the "small areas" represent the 51 counties outside the 21 in "Southeastern Ohio."

Educational Attainment	Large Areas		Small Areas	
	1962	1965	1962	1965
Total	100.0	100.0	100.0	100.0
Eight grades or fewer	30.1	26.5	27.6	23.0
Some high school	32.8	34.1	32.3	35.4
High school graduate	28.6	30.1	33.8	34.7
Some college	6.8	7.5	5.5	6.0
College graduate	1.7	1.8	.9	.9

Jobseekers both in the large and small areas showed improvement, between the two counts, in their levels of formal educational attainment.

In the large areas, however, the proportion who did not finish high school was moderately higher than in the small areas. On the other hand, the percentage with college training was also somewhat greater in the large areas. The latter pattern probably reflects not only easier accessibility to colleges and universities in the larger cities, but also greater demands in such areas for college-trained personnel.

The extent to which jobseekers in these two groups of counties did not finish high school is indicated, by occupational group, as follows:

Occupational Group	Large Areas		Small Areas	
	1962	1965	1962	1965
Total	62.9	60.6	59.9	58.4
Professional and managerial ..	16.9	14.8	21.9	17.9
Clerical and sales	30.7	25.2	26.4	23.1
Service	74.9	75.0	74.4	72.9
Skilled	68.5	68.8	66.7	62.9
Semiskilled	74.1	74.8	69.6	67.4
Unskilled and agricultural ...	78.2	77.4	72.1	71.2
Entry	46.6	46.9	42.2	53.0

In the large areas three out of four service and semiskilled jobseekers did not finish high school. The proportion was slightly higher for unskilled workers. Although the percentages were similarly high in the small areas, they were smaller than in the large areas, with a better pattern of improvement between 1962 and 1965. The percentage of professional, technical, and managerial candidates without high school diplomas, however, was greater in the small than in the large areas. In all likelihood, opportunities for employment of candidates with such skills were greater in the large areas.

Variations in age distributions among candidates for jobs in the two areas who did not finish high school are presented, in percentages, below:

Age Group	Large Areas 1962	Large Areas 1965	Small Areas 1962	Small Areas 1965
Total	62.9	60.6	59.9	58.4
Under 20	55.6	54.3	46.7	54.4
20 - 24	43.4	42.0	41.9	43.2
25 - 34	58.4	57.8	58.3	56.2
35 - 44	65.7	65.4	64.8	64.4
45 - 54	72.7	69.5	68.8	67.4
55 - 64	82.8	79.7	81.7	78.1
65 and over	83.1	82.6	82.1	81.9

Among youth under 20 the percentage who did not complete high school increased in the small areas between 1962 and 1965. For the group from 20 through 24, similar increases occurred in the small areas. For those 25 and over, moderate improvement was apparent, although the proportions were higher than for the younger group, and rose with more advanced age.

The relative distributions of registered jobseekers by skill, as between the two groups of counties for the two counts, follow:

Occupational Group	Large Areas 1962	Large Areas 1965	Small Areas 1962	Small Areas 1965
Total	100.0	100.0	100.0	100.0
Professional and managerial ..	3.3	3.7	2.7	2.5
Clerical and sales	14.8	14.7	12.8	12.3
Service	11.7	11.2	10.2	10.6
Skilled	16.2	14.2	18.2	12.9
Semiskilled	20.9	19.3	22.4	21.2
Unskilled and agricultural ...	22.3	21.3	21.2	19.5
Entry	10.7	15.7	12.5	21.1

Especially notable in the data above are the marked gains in both areas, in the percentages classified in entry occupations. Also

noteworthy is the much greater relative shrinkage of skilled workers in the small areas between the two counts, as compared with the large areas.

This may be due to out-migration of skilled workers from the small areas or to greater relative demand for such workers locally. Since skilled workers tend to be heavily concentrated in manufacturing industries in the large industrial centers, and since such industries have been booming since 1962, the explanation probably lies in greater out-migration from small areas than from the large areas. The smaller share of white-collar jobseekers--professional, technical, clerical, and sales--in the small areas may be similarly explained, except that opportunities for such workers were probably greater in nonmanufacturing industries in the urban centers.

The Southeastern Ohio counties are all relatively small in terms of population and labor force. In the aggregate, the 21 counties so-defined for purposes of this study[1], accounted for 11 percent of the State's jobseekers at the latest count. The 51 counties outside those embraced in the area served by the eight largest were also relatively small, accounting for less than one-third of Ohio's registered jobseekers in 1965. Over the years, however, job prospects have generally been better in the smaller counties outside Southeastern Ohio than in Southeastern Ohio. Comparison of the registered jobseekers, therefore, in the 51 counties defined as small areas with those in the 21 counties of Southeastern Ohio may be of interest. Formal educational attainments, in percentages of jobseekers at each level, follow for the two groups of counties:

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[1]See second Appendix map. See also Papier, William, "Ohio Seeks Economic Balance," Employment Security Review, December 1953, U.S. Government Printing Office, Washington, D.C.

Educational Attainment	Small Areas 1962	Small Areas 1965	Southeast Areas 1962	Southeast Areas 1965
Total	100.0	100.0	100.0	100.0
Eight grades or fewer	27.6	23.0	32.6	29.9
Some high school	32.3	35.4	27.8	31.8
High school graduate	33.8	34.7	34.8	33.1
Some college	5.5	6.0	4.3	4.6
College graduate	.9	.9	.6	.6

Whereas the proportion who did not finish high school dropped slightly between the two counts in the small areas, a moderate increase occurred in Southeastern Ohio. The reverse pattern appeared with respect to high school graduates. Both groups, however, increased their shares of jobseekers who had some college training but did not graduate from college.

The proportions of registered jobseekers at the various skill levels in the two groups of smaller counties who did not finish school follow:

Occupational Group	Small Areas 1962	Small Areas 1965	Southeast Areas 1962	Southeast Areas 1965
Total	59.9	58.4	60.4	61.7
Professional and managerial ..	21.9	17.9	28.7	19.5
Clerical and sales	26.4	23.1	23.2	20.5
Service	74.4	72.9	74.9	71.5
Skilled	66.7	62.9	67.5	66.7
Semiskilled	69.6	67.4	72.1	69.7
Unskilled and agricultural ...	72.1	71.2	72.0	73.2
Entry	42.2	53.0	30.8	54.9

The percentages who did not finish high school were somewhat higher in Southeastern Ohio than in the small areas elsewhere, at the time of both counts. This was not the case, however, for clerical and sales workers, or, in 1962 for entry workers, and in 1965 for service workers. Both groups of counties experienced notable gains in the proportions

assigned entry classifications who had not finished high school, with an especially sharp rise for such applicants in Southeastern Ohio.

The age distributions of jobseekers in the two areas are compared below, again showing percentages who did not finish high school:

Age Group	Small Areas 1962	Small Areas 1965	Southeast Areas 1962	Southeast Areas 1965
Total	59.9	58.4	60.4	61.7
Under 20	46.7	54.4	31.4	53.8
20 - 24	41.9	43.2	39.3	43.0
25 - 34	58.3	56.2	55.7	57.9
35 - 44	64.8	64.4	67.5	69.0
45 - 54	68.8	67.4	76.3	73.7
55 - 64	81.7	78.1	87.5	85.2
65 and over	82.1	81.9	87.9	86.0

For those 35 years of age and over, the percentages who did not finish high school were greater in Southeastern Ohio than in other small areas, at both surveys. In 1965, this was true for all jobseekers 25 years of age or older. The percentages who failed to complete high school generally increased with age. Over 85 percent of those over 54 years of age in Southeastern Ohio had not finished high school.

Percentages of registered jobseekers by skill are compared below for the two groups of small counties:

Occupational Group	Small Areas 1962	Small Areas 1965	Southeast Areas 1962	Southeast Areas 1965
Total	100.0	100.0	100.0	100.0
Professional and managerial ..	2.7	2.5	2.1	1.9
Clerical and sales	12.8	12.3	11.7	9.9
Service	10.2	10.6	10.5	8.4
Skilled	18.2	12.9	19.5	16.6
Semiskilled	22.4	21.2	23.0	21.2
Unskilled and agricultural ...	21.2	19.5	22.3	24.2
Entry	12.5	21.1	10.8	17.8

The proportions of entry and white-collar jobseekers were lower at both counts in Southeastern Ohio than in the other small areas. The percentages of skilled as well as unskilled workers, however, were higher.

SUMMARY AND COMMENTARY

It would be possible, from the data appended, to comment individually on the patterns of educational attainment of jobseekers registered with the Ohio State Employment Service in each of Ohio's 88 counties. This was not done, in part because of a high degree of similarity in broad patterns, such as the extent to which candidates finished high school. A further consideration was the desire to publish and make these data available while they were still timely.

Perhaps the most striking fact observed is the remarkably high dropout rate among the registered jobseekers--defining that rate as the percentage who failed to graduate from high school. At the latest count, better than one out of four had no formal education beyond the eighth grade. One out of three had some high school training, but not enough to graduate. Thus three out of five jobseekers had no high school diplomas. Those who finished high school but did not go on to college represented one-third of the total registered. The rest--fewer than one out of twelve--had some college training or degrees.

Those groups which were numerically among the largest, probably embracing candidates in greatest need of employment, had relatively low levels of formal education. The men, for example, outnumbered the women nearly two-to-one. Yet the women, on the whole, had a higher level of educational attainment.

More than one-half the total registered jobseekers were unskilled, semiskilled, or service workers. These were the candidates heavily concentrated at the lower levels of the educational scale.

One out of four applicants was 45 years of age or older. The highest proportion of dropouts was among these older jobseekers.

As might be expected, jobseekers were heavily concentrated in the more industrialized urban centers of Ohio. Nearly three out of five were served by offices in the eight most populous counties. Candidates in these large urban centers, as a rule, had higher dropout rates than jobseekers in the more rural areas.

In Southeastern Ohio the percentage who failed to finish high school was higher than that in similar small areas elsewhere in the State. Furthermore, this dropout rate increased in Southeastern Ohio between 1962 and 1965, in contrast with the general pattern elsewhere.

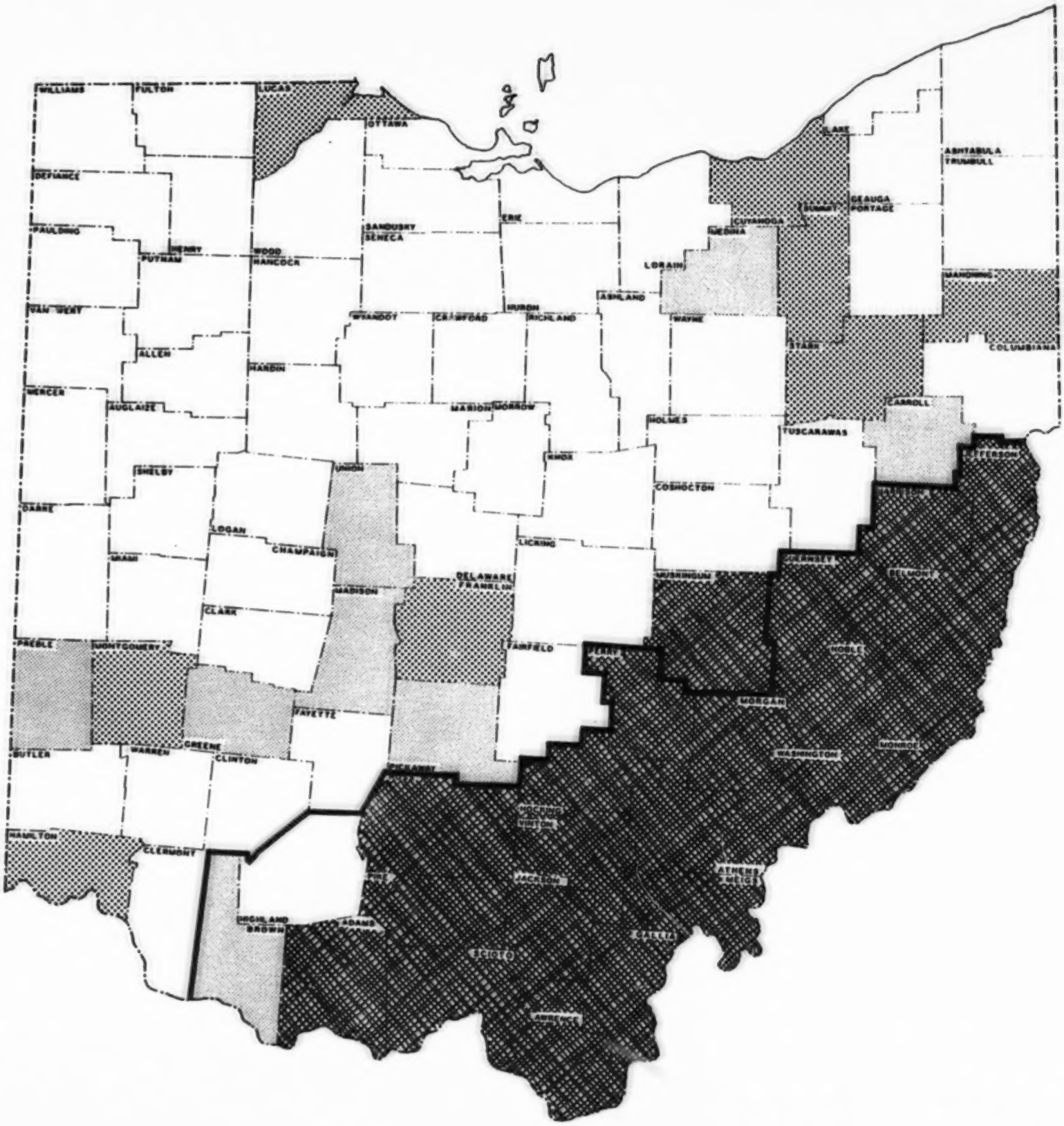
The statewide record indicates moderate improvement in the level of formal educational attainment of registered jobseekers between 1962 and 1965. Nevertheless, this is hardly impressive, especially in the light of widespread demands for higher and higher levels of training and skill.

It would be both unrealistic and unsound to lower job specifications, insofar as education and skill are concerned, in order to enhance employment prospects for those who solicit the aid of public employment offices. This could only lower living standards through curtailed productivity, higher costs, and deterioration in the quality of goods and services. The alternative, clearly, must be that of improving the qualifications of jobseekers, through a broad range of public and private efforts--through formal education to the highest level of student interest and ability--through vocational, on-the-job, and apprentice training--and through widespread programs of adult education.

APPENDIX

OHIO BUREAU OF UNEMPLOYMENT COMPENSATION
LOCAL OFFICES, APRIL 25, 1965

COUNTIES EMBRACED IN EIGHT LARGE OFFICE AREAS AND SOUTHEASTERN OHIO



8 Large Counties

Counties served by 8 Large Counties

Dividing line for 22 Southeastern Counties as defined in 1953

21 Southeastern Counties for which data on Jobseekers were comparable in 1962 and 1965

All Other Counties

SUMMARY TABLES

EDUCATIONAL ATTAINMENT OF TOTAL JOBSEEKERS REGISTERED IN OHIO
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	JOBSEEKERS, APRIL 25, 1962						JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	215,477	63,741	69,351	66,337	13,219	2,829	132,350	34,121	45,361	42,191	8,829	1,848
PROF. & MANAGERIAL.	6,432	395	833	2,124	1,693	1,387	4,100	175	478	1,360	1,139	948
CLERICAL & SALES ..	29,935	2,288	6,361	16,253	4,321	712	17,731	980	3,311	10,263	2,817	360
SERVICE	24,027	8,555	9,400	5,352	657	63	14,122	4,631	5,823	3,295	355	18
SKILLED	36,939	12,814	12,228	10,205	1,551	141	18,563	6,232	6,169	5,267	815	80
SEMISKILLED	46,545	16,898	16,840	11,450	1,285	72	26,633	8,655	10,435	6,903	599	41
UNSKILLED & OTHER[A].	47,352	20,123	15,762	10,288	1,107	72	27,818	11,211	9,659	6,275	624	49
ENTRY[B]	24,247	2,668	7,927	10,665	2,605	382	23,383	2,237	9,486	8,828	2,480	352
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.0	.6	1.2	3.2	12.8	49.0	3.1	.5	1.1	3.2	12.9	51.3
CLERICAL & SALES ..	13.9	3.6	9.2	24.5	32.7	25.2	13.4	2.9	7.3	24.3	31.9	19.5
SERVICE	11.2	13.4	13.6	8.1	5.0	2.2	10.7	13.6	12.8	7.8	4.0	1.0
SKILLED	17.1	20.1	17.6	15.4	11.7	5.0	14.0	18.3	13.6	12.5	9.2	4.3
SEMISKILLED	21.6	26.5	24.3	17.3	9.7	2.5	20.1	25.4	23.0	16.4	6.8	2.2
UNSKILLED & OTHER[A].	22.0	31.6	22.7	15.5	8.4	2.5	21.0	32.9	21.3	14.9	7.1	2.7
ENTRY[B]	11.3	4.2	11.4	16.1	19.7	13.5	17.7	6.6	20.9	20.9	28.1	19.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.6	32.2	30.8	6.1	1.3	100.0	25.8	34.3	31.9	6.7	1.4
PROF. & MANAGERIAL.	100.0	6.1	13.0	33.0	26.3	21.6	100.0	4.3	11.7	33.2	27.8	23.1
CLERICAL & SALES ..	100.0	7.6	21.2	54.3	14.4	2.4	100.0	5.5	18.7	57.9	15.9	2.0
SERVICE	100.0	35.6	39.1	22.3	2.7	.3	100.0	32.8	41.2	23.3	2.5	.1
SKILLED	100.0	34.7	33.1	27.6	4.2	.4	100.0	33.6	33.2	28.4	4.4	.4
SEMISKILLED	100.0	36.3	36.2	24.6	2.8	.2	100.0	32.5	39.2	25.9	2.2	.2
UNSKILLED & OTHER[A].	100.0	42.5	33.3	21.7	2.3	.2	100.0	40.3	34.7	22.6	2.2	.2
ENTRY[B]	100.0	11.0	32.7	44.0	10.7	1.6	100.0	9.6	40.6	37.8	10.6	1.5
	NUMBER, BY AGE GROUP											
TOTAL	215,477	63,741	69,351	66,337	13,219	2,829	132,350	34,121	45,361	42,191	8,829	1,848
UNDER 20	14,394	1,025	6,075	6,352	935	7	16,971	1,070	8,139	6,299	1,451	12
20 - 24	39,266	3,665	13,032	18,322	3,895	352	25,114	2,197	8,480	11,304	2,646	487
25 - 34	51,393	11,627	18,232	17,284	3,264	986	29,508	6,153	10,765	10,317	1,750	523
35 - 44	47,901	15,092	16,316	13,291	2,477	725	26,881	8,381	9,212	7,469	1,405	414
45 - 54	34,684	14,569	10,357	7,761	1,561	436	19,683	7,917	5,753	4,812	949	252
55 - 64	19,759	12,196	4,192	2,392	772	207	11,157	6,434	2,473	1,628	496	126
65 AND OVER	8,080	5,567	1,147	935	315	116	3,036	1,969	539	362	132	34
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	6.7	1.6	8.8	9.6	7.1	.2	12.8	3.1	17.9	14.9	16.4	.6
20 - 24	18.2	5.7	18.8	27.6	29.5	12.4	19.0	6.4	18.7	26.8	30.0	26.4
25 - 34	23.9	18.2	26.3	26.1	24.7	34.9	22.3	18.0	23.7	24.5	19.8	28.3
35 - 44	22.2	23.7	23.5	20.0	18.7	25.6	20.3	24.6	20.3	17.7	15.9	22.4
45 - 54	16.1	22.9	14.9	11.7	11.8	15.4	14.9	23.2	12.7	11.4	10.7	13.6
55 - 64	9.2	19.1	6.0	3.6	5.8	7.3	8.4	18.9	5.5	3.9	5.6	6.8
65 AND OVER	3.7	8.7	1.7	1.4	2.4	4.1	2.3	5.8	1.2	.9	1.5	1.8
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.6	32.2	30.8	6.1	1.3	100.0	25.8	34.3	31.9	6.7	1.4
UNDER 20	100.0	7.1	42.2	44.1	6.5	.0	100.0	6.3	48.0	37.1	8.5	.1
20 - 24	100.0	9.3	33.2	46.7	9.9	.9	100.0	8.7	33.8	45.0	10.5	1.9
25 - 34	100.0	22.6	35.5	33.6	6.4	1.9	100.0	20.9	36.5	35.0	5.9	1.8
35 - 44	100.0	31.5	34.1	27.7	5.2	1.5	100.0	31.2	34.3	27.8	5.2	1.5
45 - 54	100.0	42.0	29.9	22.4	4.5	1.3	100.0	40.2	29.2	24.4	4.8	1.3
55 - 64	100.0	61.7	21.2	12.1	3.9	1.0	100.0	57.7	22.2	14.6	4.4	1.1
65 AND OVER	100.0	68.9	14.2	11.6	3.9	1.4	100.0	64.9	17.8	11.9	4.3	1.1

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF MEN JOBSEEKERS REGISTERED IN OHIO
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	MEN JOBSEEKERS, APRIL 25, 1962						MEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	149,747	50,631	47,472	39,831	9,458	2,355	88,087	26,940	30,525	23,201	5,948	1,473
PROF. & MANAGERIAL.	5,249	323	600	1,678	1,454	1,194	3,181	138	334	963	945	801
CLERICAL & SALES ..	9,379	935	1,862	3,917	2,128	537	5,328	420	992	2,377	1,323	216
SERVICE	9,371	3,873	3,311	1,766	378	43	5,635	2,074	2,214	1,133	200	14
SKILLED	35,938	12,487	11,871	9,920	1,525	135	17,931	6,071	5,947	5,046	789	78
SEMISKILLED	37,378	14,052	13,160	8,969	1,133	64	20,585	7,038	7,988	5,003	520	36
UNSKILLED & OTHER[A].	37,673	17,225	11,766	7,615	1,004	63	21,736	9,743	7,084	4,318	545	46
ENTRY[B]	14,759	1,736	4,902	5,966	1,836	319	13,691	1,456	5,966	4,361	1,626	282
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.5	.6	1.3	4.2	15.4	50.7	3.6	.5	1.1	4.2	15.9	54.4
CLERICAL & SALES ..	6.3	1.8	3.9	9.8	22.5	22.8	6.0	1.6	3.2	10.2	22.2	14.7
SERVICE	6.3	7.6	7.0	4.4	4.0	1.8	6.4	7.7	7.3	4.9	3.4	1.0
SKILLED	24.0	24.7	25.0	24.9	16.1	5.7	20.4	22.5	19.5	21.7	13.3	5.3
SEMISKILLED	25.0	27.8	27.7	22.5	12.0	2.7	23.4	26.1	26.2	21.6	8.7	2.4
UNSKILLED & OTHER[A].	25.2	34.0	24.8	19.1	10.6	2.7	24.7	36.2	23.2	18.6	9.2	3.1
ENTRY[B]	9.9	3.4	10.3	15.0	19.4	13.5	15.5	5.4	19.5	18.8	27.3	19.1
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	33.8	31.7	26.6	6.3	1.6	100.0	30.6	34.7	26.3	6.8	1.7
PROF. & MANAGERIAL.	100.0	6.2	11.4	32.0	27.7	22.7	100.0	4.3	10.5	30.3	29.7	25.2
CLERICAL & SALES ..	100.0	10.0	19.9	41.8	22.7	5.7	100.0	7.9	18.6	44.6	24.8	4.1
SERVICE	100.0	41.3	35.3	18.8	4.0	.5	100.0	36.8	39.3	20.1	3.5	.2
SKILLED	100.0	34.7	33.0	27.6	4.2	.4	100.0	33.9	33.2	28.1	4.4	.4
SEMISKILLED	100.0	37.6	35.2	24.0	3.0	.2	100.0	34.2	38.8	24.3	2.5	.2
UNSKILLED & OTHER[A].	100.0	45.7	31.2	20.2	2.7	.2	100.0	44.8	32.6	19.9	2.5	.2
ENTRY[B]	100.0	11.8	33.2	40.4	12.4	2.2	100.0	10.6	43.6	31.9	11.9	2.1
	NUMBER, BY AGE GROUP											
TOTAL	149,747	50,631	47,472	39,831	9,458	2,355	88,087	26,940	30,525	23,201	5,948	1,473
UNDER 20	8,563	791	4,040	3,188	539	5	10,380	866	5,534	3,146	829	5
20 - 24	27,169	3,098	9,781	11,341	2,708	241	16,999	1,890	6,388	6,605	1,784	332
25 - 34	37,324	9,753	12,935	11,218	2,556	862	20,486	5,084	7,488	6,134	1,321	459
35 - 44	32,592	11,898	10,701	7,528	1,837	628	17,237	6,591	5,683	3,664	956	343
45 - 54	23,358	11,032	6,415	4,498	1,059	354	12,735	5,993	3,418	2,502	623	199
55 - 64	14,365	9,489	2,765	1,440	512	159	7,957	4,960	1,615	937	337	108
65 AND OVER	6,376	4,570	835	618	247	106	2,293	1,556	399	213	98	27
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	5.7	1.6	8.5	8.0	5.7	.2	11.8	3.2	18.1	13.6	13.9	.3
20 - 24	18.1	6.1	20.6	28.5	28.6	10.2	19.3	7.0	20.9	28.5	30.0	22.5
25 - 34	24.9	19.3	27.2	28.2	27.0	36.6	23.3	18.9	24.5	26.4	22.2	31.2
35 - 44	21.8	23.5	22.5	18.9	19.4	26.7	19.6	24.5	18.6	15.8	16.1	23.3
45 - 54	15.6	21.8	13.5	11.3	11.2	15.0	14.5	22.2	11.2	10.8	10.5	13.5
55 - 64	9.6	18.7	5.8	3.6	5.4	6.8	9.0	18.4	5.3	4.0	5.7	7.3
65 AND OVER	4.3	9.0	1.8	1.6	2.6	4.5	2.6	5.8	1.3	.9	1.6	1.8
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	33.8	31.7	26.6	6.3	1.6	100.0	30.6	34.7	26.3	6.8	1.7
UNDER 20	100.0	9.2	47.2	37.2	6.3	.1	100.0	8.3	53.3	30.3	8.0	.0
20 - 24	100.0	11.4	36.0	41.7	10.0	.9	100.0	11.1	37.6	38.9	10.5	2.0
25 - 34	100.0	26.1	34.7	30.1	6.8	2.3	100.0	24.8	36.6	29.9	6.4	2.2
35 - 44	100.0	36.5	32.8	23.1	5.6	1.9	100.0	38.2	33.0	21.3	5.5	2.0
45 - 54	100.0	47.2	27.5	19.3	4.5	1.5	100.0	47.1	26.8	19.6	4.9	1.6
55 - 64	100.0	66.1	19.2	10.0	3.6	1.1	100.0	62.3	20.3	11.8	4.2	1.4
65 AND OVER	100.0	71.7	13.1	9.7	3.9	1.7	100.0	67.9	17.4	9.3	4.3	1.2

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF WOMEN JOBSEEKERS REGISTERED IN OHIO
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	WOMEN JOBSEEKERS, APRIL 25, 1962						WOMEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	65,730	13,110	21,879	26,506	3,761	474	44,263	7,181	14,836	18,990	2,881	375
PROF. & MANAGERIAL.	1,183	72	233	446	239	193	919	37	144	397	194	147
CLERICAL & SALES ..	20,556	1,353	4,499	12,336	2,193	175	12,403	560	2,319	7,886	1,494	144
SERVICE	14,656	4,682	6,089	3,586	279	20	8,487	2,557	3,609	2,162	155	4
SKILLED	1,001	327	357	285	26	6	632	161	222	221	26	2
SEMISKILLED	9,167	2,846	3,680	2,481	152	8	6,048	1,617	2,447	1,900	79	5
UNSKILLED & OTHER[A].	9,679	2,898	3,996	2,673	103	9	6,082	1,468	2,575	1,957	79	3
ENTRY[B]	9,488	932	3,025	4,699	769	63	9,692	781	3,520	4,467	854	70
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.8	.5	1.1	1.7	6.4	40.7	2.1	.5	1.0	2.1	6.7	39.2
CLERICAL & SALES ..	31.3	10.3	20.6	46.5	58.3	36.9	28.0	7.8	15.6	41.5	51.9	38.4
SERVICE	22.3	35.7	27.8	13.5	7.4	4.2	19.2	35.6	24.3	11.4	5.4	1.1
SKILLED	1.5	2.5	1.6	1.1	.7	1.3	1.4	2.2	1.5	1.2	.9	.5
SEMISKILLED	13.9	21.7	16.8	9.4	4.0	1.7	13.7	22.5	16.5	10.0	2.7	1.3
UNSKILLED & OTHER[A].	14.7	22.1	18.3	10.1	2.7	1.9	13.7	20.4	17.4	10.3	2.7	.8
ENTRY[B]	14.4	7.1	13.8	17.7	20.4	13.3	21.9	10.9	23.7	23.5	29.6	18.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.9	33.3	40.3	5.7	.7	100.0	16.2	33.5	42.9	6.5	.8
PROF. & MANAGERIAL.	100.0	6.1	19.7	37.7	20.2	16.3	100.0	4.0	15.7	43.2	21.1	16.0
CLERICAL & SALES ..	100.0	6.6	21.9	60.0	10.7	.9	100.0	4.5	18.7	63.6	12.0	1.2
SERVICE	100.0	31.9	41.5	24.5	1.9	.1	100.0	30.1	42.5	25.5	1.8	.0
SKILLED	100.0	32.7	35.7	28.5	2.6	.6	100.0	25.5	35.1	35.0	4.1	.3
SEMISKILLED	100.0	31.0	40.1	27.1	1.7	.1	100.0	26.7	40.5	31.4	1.3	.1
UNSKILLED & OTHER[A].	100.0	29.9	41.3	27.6	1.1	.1	100.0	24.1	42.3	32.2	1.3	.0
ENTRY[B]	100.0	9.8	31.9	49.5	8.1	.7	100.0	8.1	36.3	46.1	8.8	.7
	NUMBER, BY AGE GROUP											
TOTAL	65,730	13,110	21,879	26,506	3,761	474	44,263	7,181	14,836	18,990	2,881	375
UNDER 20	5,831	234	2,035	3,164	396	2	6,591	204	2,605	3,153	622	7
20 - 24	12,097	567	3,251	6,981	1,187	111	8,115	307	2,092	4,699	862	155
25 - 34	14,069	1,874	5,297	6,066	708	124	9,022	1,069	3,277	4,183	429	64
35 - 44	15,309	3,194	5,615	5,763	640	97	9,644	1,790	3,529	3,805	449	71
45 - 54	11,326	3,537	3,942	3,263	502	82	6,948	1,924	2,335	2,310	326	53
55 - 64	5,394	2,707	1,427	952	260	48	3,200	1,474	858	691	159	18
65 AND OVER	1,704	997	312	317	68	10	743	413	140	149	34	7
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	8.9	1.8	9.3	11.9	10.5	.4	14.9	2.8	17.6	16.6	21.6	1.9
20 - 24	18.4	4.3	14.9	26.3	31.6	23.4	18.3	4.3	14.1	24.7	29.9	41.3
25 - 34	21.4	14.3	24.2	22.9	18.8	26.2	20.4	14.9	22.1	22.0	14.9	17.1
35 - 44	23.3	24.4	25.7	21.7	17.0	20.5	21.8	24.9	23.8	20.0	15.6	18.9
45 - 54	17.2	27.0	18.0	12.3	13.3	17.3	15.7	26.8	15.7	12.2	11.3	14.1
55 - 64	8.2	20.6	6.5	3.6	6.9	10.1	7.2	20.5	5.8	3.6	5.5	4.8
65 AND OVER	2.6	7.6	1.4	1.2	1.8	2.1	1.7	5.8	.9	.8	1.2	1.9
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.9	33.3	40.3	5.7	.7	100.0	16.2	33.5	42.9	6.5	.8
UNDER 20	100.0	4.0	34.9	54.3	6.8	.0	100.0	3.1	39.5	47.8	9.4	.1
20 - 24	100.0	4.7	26.9	57.7	9.8	.9	100.0	3.8	25.8	57.9	10.6	1.9
25 - 34	100.0	13.3	37.7	43.1	5.0	.9	100.0	11.8	36.3	46.4	4.8	.7
35 - 44	100.0	20.9	36.7	37.6	4.2	.6	100.0	18.6	36.6	39.5	4.7	.7
45 - 54	100.0	31.2	34.8	28.8	4.4	.7	100.0	27.7	33.6	33.2	4.7	.8
55 - 64	100.0	50.2	26.5	17.6	4.8	.9	100.0	46.1	26.8	21.6	5.0	.6
65 AND OVER	100.0	58.5	18.3	18.6	4.0	.6	100.0	55.6	18.8	20.1	4.6	.9

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF TOTAL JOBSEEKERS REGISTERED IN COUNTIES SERVED BY EIGHT LARGER OFFICES
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	JOBSEEKERS, APRIL 25, 1962						JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	128,150	38,625	42,091	36,636	8,679	2,119	75,568	20,047	25,791	22,716	5,637	1,377
PROF. & MANAGERIAL.	4,168	213	490	1,248	1,175	1,042	2,777	115	297	857	789	719
CLERICAL & SALES ..	19,008	1,587	4,258	9,689	2,905	569	11,078	639	2,152	6,086	1,920	281
SERVICE	15,046	5,388	5,876	3,309	429	44	8,431	2,813	3,508	1,874	225	11
SKILLED	20,786	7,302	6,936	5,453	1,007	88	10,703	3,705	3,661	2,777	506	54
SEMISKILLED	26,840	9,993	9,910	6,062	823	52	14,617	5,010	5,915	3,303	364	25
UNSKILLED & OTHER[A].	28,619	12,456	9,923	5,495	700	45	16,074	6,693	5,747	3,223	381	30
ENTRY[B]	13,683	1,686	4,698	5,380	1,640	279	11,888	1,072	4,511	4,596	1,452	257
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.3	.6	1.2	3.4	13.5	49.2	3.7	.6	1.2	3.8	14.0	52.2
CLERICAL & SALES ..	14.8	4.1	10.1	26.4	33.5	26.9	14.7	3.2	8.3	26.8	34.1	20.4
SERVICE	11.7	13.9	14.0	9.0	4.9	2.1	11.2	14.0	13.6	8.2	4.0	.8
SKILLED	16.2	18.9	16.5	14.9	11.6	4.2	14.2	18.5	14.2	12.2	9.0	3.9
SEMISKILLED	20.9	25.9	23.5	16.5	9.5	2.5	19.3	25.0	22.9	14.5	6.5	1.8
UNSKILLED & OTHER[A].	22.3	32.2	23.6	15.0	8.1	2.1	21.3	33.4	22.3	14.2	6.8	2.2
ENTRY[B]	10.7	4.4	11.2	14.7	18.9	13.2	15.7	5.3	17.5	20.2	25.8	18.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	30.1	32.8	28.6	6.8	1.7	100.0	26.5	34.1	30.1	7.5	1.8
PROF. & MANAGERIAL.	100.0	5.1	11.8	29.9	28.2	25.0	100.0	4.1	10.7	30.9	28.4	25.9
CLERICAL & SALES ..	100.0	8.3	22.4	51.0	15.3	3.0	100.0	5.8	19.4	54.9	17.3	2.5
SERVICE	100.0	35.8	39.1	22.0	2.9	.3	100.0	33.4	41.6	22.2	2.7	.1
SKILLED	100.0	35.1	33.4	26.2	4.8	.4	100.0	34.6	34.2	25.9	4.7	.5
SEMISKILLED	100.0	37.2	36.9	22.6	3.1	.2	100.0	34.3	40.5	22.6	2.5	.2
UNSKILLED & OTHER[A].	100.0	43.5	34.7	19.2	2.4	.2	100.0	41.6	35.8	20.1	2.4	.2
ENTRY[B]	100.0	12.3	34.3	39.3	12.0	2.0	100.0	9.0	37.9	38.7	12.2	2.2
	NUMBER, BY AGE GROUP											
TOTAL	128,150	38,625	42,091	36,636	8,679	2,119	75,568	20,047	25,791	22,716	5,637	1,377
UNDER 20	6,974	479	3,394	2,600	497	4	7,305	467	3,498	2,599	735	6
20 - 24	22,402	1,980	7,750	10,043	2,388	241	14,220	1,096	4,879	6,274	1,623	348
25 - 34	30,761	6,735	11,229	9,756	2,282	759	17,047	3,449	6,410	5,603	1,195	390
35 - 44	29,518	9,240	10,152	7,815	1,758	553	16,018	4,942	5,527	4,230	1,006	313
45 - 54	21,040	8,917	6,369	4,372	1,051	331	11,912	4,709	3,579	2,766	662	196
55 - 64	12,112	7,570	2,461	1,441	492	148	6,953	4,011	1,527	986	328	101
65 AND OVER	5,343	3,704	736	609	211	83	2,113	1,373	371	258	88	23
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	5.4	1.2	8.1	7.1	5.7	.2	9.7	2.3	13.6	11.4	13.0	.4
20 - 24	17.5	5.1	18.4	27.4	27.5	11.4	18.8	5.5	18.9	27.6	28.8	25.3
25 - 34	24.0	17.4	26.7	26.6	26.3	35.8	22.6	17.2	24.9	24.7	21.2	28.3
35 - 44	23.0	23.9	24.1	21.3	20.3	26.1	21.2	24.7	21.4	18.6	17.8	22.7
45 - 54	16.4	23.1	15.1	11.9	12.1	15.6	15.8	23.5	13.9	12.2	11.7	14.2
55 - 64	9.5	19.6	5.8	3.9	5.7	7.0	9.2	20.0	5.9	4.3	5.8	7.3
65 AND OVER	4.2	9.6	1.7	1.7	2.4	3.9	2.8	6.8	1.4	1.1	1.6	1.7
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	30.1	32.8	28.6	6.8	1.7	100.0	26.5	34.1	30.1	7.5	1.8
UNDER 20	100.0	6.9	48.7	37.3	7.1	.1	100.0	6.4	47.9	35.6	10.1	.1
20 - 24	100.0	8.8	34.6	44.8	10.7	1.1	100.0	7.7	34.3	44.1	11.4	2.4
25 - 34	100.0	21.9	36.5	31.7	7.4	2.5	100.0	20.2	37.6	32.9	7.0	2.3
35 - 44	100.0	31.3	34.4	26.5	6.0	1.9	100.0	30.9	34.5	26.4	6.3	2.0
45 - 54	100.0	42.4	30.3	20.8	5.0	1.6	100.0	39.5	30.0	23.2	5.6	1.6
55 - 64	100.0	62.5	20.3	11.9	4.1	1.2	100.0	57.7	22.0	14.2	4.7	1.5
65 AND OVER	100.0	69.3	13.8	11.4	3.9	1.6	100.0	65.0	17.6	12.2	4.2	1.1

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF MEN JOBSEEKERS REGISTERED IN COUNTIES SERVED BY EIGHT LARGER OFFICES
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	MEN JOBSEEKERS, APRIL 25, 1962						MEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	89,426	30,418	28,876	21,948	6,404	1,780	51,417	15,874	17,960	12,633	3,852	1,098
PROF. & MANAGERIAL.	3,435	171	347	1,000	1,017	900	2,151	92	208	581	664	606
CLERICAL & SALES ..	6,215	596	1,221	2,420	1,540	438	3,473	264	634	1,476	929	170
SERVICE	6,895	2,818	2,501	1,263	279	34	3,886	1,391	1,619	730	137	9
SKILLED	20,167	7,084	6,718	5,292	988	85	10,379	3,600	3,552	2,679	495	53
SEMISKILLED	21,308	8,119	7,675	4,747	721	46	11,581	4,038	4,718	2,487	316	22
UNSKILLED & OTHER[A].	22,645	10,480	7,412	4,070	643	40	12,693	5,780	4,303	2,247	334	29
ENTRY[B]	8,761	1,150	3,002	3,156	1,216	237	7,254	709	2,926	2,433	977	209
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.8	.6	1.2	4.6	15.9	50.6	4.2	.6	1.2	4.6	17.2	55.2
CLERICAL & SALES ..	6.9	2.0	4.2	11.0	24.0	24.6	6.8	1.7	3.5	11.7	24.1	15.5
SERVICE	7.7	9.3	8.7	5.8	4.4	1.9	7.6	8.8	9.0	5.8	3.6	.8
SKILLED	22.6	23.3	23.3	24.1	15.4	4.8	20.2	22.7	19.8	21.2	12.9	4.8
SEMISKILLED	23.8	26.7	26.6	21.6	11.3	2.6	22.5	25.4	26.3	19.7	8.2	2.0
UNSKILLED & OTHER[A].	25.3	34.5	25.7	18.5	10.0	2.2	24.7	36.4	24.0	17.8	8.7	2.6
ENTRY[B]	9.8	3.8	10.4	14.4	19.0	13.3	14.1	4.5	16.3	19.3	25.4	19.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	34.0	32.3	24.5	7.2	2.0	100.0	30.9	34.9	24.6	7.5	2.1
PROF. & MANAGERIAL.	100.0	5.0	10.1	29.1	29.6	26.2	100.0	4.3	9.7	27.0	30.9	28.2
CLERICAL & SALES ..	100.0	9.6	19.6	38.9	24.8	7.0	100.0	7.6	18.3	42.5	26.7	4.9
SERVICE	100.0	40.9	36.3	18.3	4.0	.5	100.0	35.8	41.7	18.8	3.5	.2
SKILLED	100.0	35.1	33.3	26.2	4.9	.4	100.0	34.7	34.2	25.8	4.8	.5
SEMISKILLED	100.0	38.1	36.0	22.3	3.4	.2	100.0	34.9	40.7	21.5	2.7	.2
UNSKILLED & OTHER[A].	100.0	46.3	32.7	18.0	2.8	.2	100.0	45.5	33.9	17.7	2.6	.2
ENTRY[B]	100.0	13.1	34.3	36.0	13.9	2.7	100.0	9.8	40.3	33.5	13.5	2.9
	NUMBER, BY AGE GROUP											
TOTAL	89,426	30,418	28,876	21,948	6,404	1,780	51,417	15,874	17,960	12,633	3,852	1,098
UNDER 20	4,370	384	2,386	1,286	311	3	4,594	362	2,411	1,396	425	.....
20 - 24	15,581	1,668	5,841	6,176	1,725	171	9,723	943	3,823	3,621	1,102	234
25 - 34	22,634	5,714	8,088	6,359	1,810	663	12,173	2,892	4,701	3,347	897	336
35 - 44	20,203	7,267	6,640	4,474	1,335	487	10,698	3,951	3,624	2,154	706	263
45 - 54	13,840	6,596	3,843	2,413	725	263	7,683	3,560	2,137	1,395	432	159
55 - 64	8,625	5,777	1,556	842	334	116	4,938	3,068	991	567	225	87
65 AND OVER	4,173	3,012	522	398	164	77	1,608	1,098	273	153	65	19
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	4.9	1.3	8.3	5.9	4.9	.2	8.9	2.3	13.4	11.1	11.0	.....
20 - 24	17.4	5.5	20.2	28.1	26.9	9.6	18.9	5.9	21.3	28.7	28.6	21.3
25 - 34	25.3	18.8	28.0	29.0	28.3	37.2	23.7	18.2	26.2	26.5	23.3	30.6
35 - 44	22.6	23.9	23.0	20.4	20.8	27.4	20.8	24.9	20.2	17.1	18.3	24.0
45 - 54	15.5	21.7	13.3	11.0	11.3	14.8	14.9	22.4	11.9	11.0	11.2	14.5
55 - 64	9.6	19.0	5.4	3.8	5.2	6.5	9.6	19.3	5.5	4.5	5.8	7.9
65 AND OVER	4.7	9.9	1.8	1.8	2.6	4.3	3.1	6.9	1.5	1.2	1.7	1.7
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	34.0	32.3	24.5	7.2	2.0	100.0	30.9	34.9	24.6	7.5	2.1
UNDER 20	100.0	8.8	54.6	29.4	7.1	.1	100.0	7.9	52.5	30.4	9.3	.....
20 - 24	100.0	10.7	37.5	39.6	11.1	1.1	100.0	9.7	39.3	37.2	11.3	2.4
25 - 34	100.0	25.2	35.7	28.1	8.0	2.9	100.0	23.8	38.6	27.5	7.4	2.8
35 - 44	100.0	36.0	32.9	22.1	6.6	2.4	100.0	36.9	33.9	20.1	6.6	2.5
45 - 54	100.0	47.7	27.8	17.4	5.2	1.9	100.0	46.3	27.8	18.2	5.6	2.1
55 - 64	100.0	67.0	18.0	9.8	3.9	1.3	100.0	62.1	20.1	11.5	4.6	1.8
65 AND OVER	100.0	72.2	12.5	9.5	3.9	1.8	100.0	68.3	17.0	9.5	4.0	1.2

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF WOMEN JOBSEEKERS REGISTERED IN COUNTIES SERVED BY EIGHT LARGER OFFICES
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	WOMEN JOBSEEKERS, APRIL 25, 1962						WOMEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	38,724	8,207	13,215	14,688	2,275	339	24,151	4,173	7,831	10,083	1,785	279
PROF. & MANAGERIAL.	733	42	143	248	158	142	626	23	89	276	125	113
CLERICAL & SALES ..	12,793	991	3,037	7,269	1,365	131	7,605	375	1,518	4,610	991	111
SERVICE	8,151	2,570	3,375	2,046	150	10	4,545	1,422	1,889	1,144	88	2
SKILLED	619	218	218	161	19	3	324	105	109	98	11	1
SEMISKILLED	5,532	1,874	2,235	1,315	102	6	3,036	972	1,197	816	48	3
UNSKILLED & OTHER[A].	5,974	1,976	2,511	1,425	57	5	3,381	913	1,444	976	47	1
ENTRY[B]	4,922	536	1,696	2,224	424	42	4,634	363	1,585	2,163	475	48
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.9	.5	1.1	1.7	6.9	41.9	2.6	.6	1.1	2.7	7.0	40.5
CLERICAL & SALES ..	33.0	12.1	23.0	49.5	60.0	38.6	31.5	9.0	19.4	45.7	55.5	39.8
SERVICE	21.0	31.3	25.5	13.9	6.6	2.9	18.8	34.1	24.1	11.3	4.9	.7
SKILLED	1.6	2.7	1.6	1.1	.8	.9	1.3	2.5	1.4	1.0	.6	.4
SEMISKILLED	14.3	22.8	16.9	9.0	4.5	1.8	12.6	23.3	15.3	8.1	2.7	1.1
UNSKILLED & OTHER[A].	15.4	24.1	19.0	9.7	2.5	1.5	14.0	21.9	18.4	9.7	2.6	.4
ENTRY[B]	12.7	6.5	12.8	15.1	18.6	12.4	19.2	8.7	20.2	21.5	26.6	17.2
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.2	34.1	37.9	5.9	.9	100.0	17.3	32.4	41.7	7.4	1.2
PROF. & MANAGERIAL.	100.0	5.7	19.5	33.8	21.6	19.4	100.0	3.7	14.2	44.1	20.0	18.1
CLERICAL & SALES ..	100.0	7.7	23.7	56.8	10.7	1.0	100.0	4.9	20.0	60.6	13.0	1.5
SERVICE	100.0	31.5	41.4	25.1	1.8	.1	100.0	31.3	41.6	25.2	1.9	.0
SKILLED	100.0	35.2	35.2	26.0	3.1	.5	100.0	32.4	33.6	30.2	3.4	.3
SEMISKILLED	100.0	33.9	40.4	23.8	1.8	.1	100.0	32.0	39.4	26.9	1.6	.1
UNSKILLED & OTHER[A].	100.0	33.1	42.0	23.9	1.0	.1	100.0	27.0	42.7	28.9	1.4	.0
ENTRY[B]	100.0	10.9	34.5	45.2	8.6	.9	100.0	7.8	34.2	46.7	10.3	1.0
	NUMBER, BY AGE GROUP											
TOTAL	38,724	8,207	13,215	14,688	2,275	339	24,151	4,173	7,831	10,083	1,785	279
UNDER 20	2,604	95	1,008	1,314	186	1	2,711	105	1,087	1,203	310	6
20 - 24	6,821	312	1,909	3,867	663	70	4,497	153	1,056	2,653	521	114
25 - 34	8,127	1,021	3,141	3,397	472	96	4,874	557	1,709	2,256	298	54
35 - 44	9,315	1,973	3,512	3,341	423	66	5,320	991	1,903	2,076	300	50
45 - 54	7,200	2,321	2,526	1,959	326	68	4,229	1,149	1,442	1,371	290	37
55 - 64	3,487	1,793	905	599	158	32	2,015	943	536	419	103	14
65 AND OVER	1,170	692	214	211	47	6	505	275	98	105	23	4
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	6.7	1.2	7.6	8.9	8.2	.3	11.2	2.5	13.9	11.9	17.4	2.2
20 - 24	17.6	3.8	14.4	26.3	29.1	20.6	18.6	3.7	13.5	26.3	29.2	40.9
25 - 34	21.0	12.4	23.8	23.1	20.7	28.3	20.2	13.3	21.8	22.4	16.7	19.4
35 - 44	24.1	24.0	26.6	22.7	18.6	19.5	22.0	23.7	24.3	20.6	16.8	17.9
45 - 54	18.6	28.3	19.1	13.3	14.3	20.1	17.5	27.5	18.4	13.6	12.9	13.3
55 - 64	9.0	21.8	6.8	4.1	6.9	9.4	8.3	22.6	6.8	4.2	5.8	5.0
65 AND OVER	3.0	8.4	1.6	1.4	2.1	1.8	2.1	6.6	1.3	1.0	1.3	1.4
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.2	34.1	37.9	5.9	.9	100.0	17.3	32.4	41.7	7.4	1.2
UNDER 20	100.0	3.6	38.7	50.5	7.1	.0	100.0	3.9	40.1	44.4	11.4	.2
20 - 24	100.0	4.6	28.0	56.7	9.7	1.0	100.0	3.4	23.5	59.0	11.6	2.5
25 - 34	100.0	12.6	38.6	41.8	5.8	1.2	100.0	11.4	35.1	46.3	6.1	1.1
35 - 44	100.0	21.2	37.7	35.9	4.5	.7	100.0	18.6	35.8	39.0	5.6	.9
45 - 54	100.0	32.2	35.1	27.2	4.5	.9	100.0	27.2	34.1	32.4	5.4	.9
55 - 64	100.0	51.4	26.0	17.2	4.5	.9	100.0	46.8	26.6	20.8	5.1	.7
65 AND OVER	100.0	59.1	18.3	18.0	4.0	.5	100.0	54.5	19.4	20.8	4.6	.8

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF TOTAL JOBSEEKERS REGISTERED IN COUNTIES SERVED BY SMALLER OFFICES (EXCLUDING SOUTHEASTERN COUNTIES), BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	JOBSEEKERS, APRIL 25, 1962						JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	66,820	18,429	21,567	22,571	3,659	594	42,211	9,713	14,938	14,652	2,525	383
PROF. & MANAGERIAL.	1,829	131	269	702	440	287	1,046	47	140	412	267	180
CLERICAL & SALES ..	8,525	546	1,702	5,045	1,107	125	5,212	260	945	3,218	723	66
SERVICE	6,819	2,366	2,705	1,556	175	17	4,467	1,393	1,864	1,100	106	4
SKILLED	12,144	3,922	4,179	3,577	421	45	5,441	1,631	1,789	1,769	230	22
SEMISKILLED	14,992	5,040	5,398	4,160	380	14	8,930	2,554	3,463	2,702	197	14
UNSKILLED & OTHER[A].	14,152	5,609	4,596	3,582	341	24	8,219	2,950	2,902	2,155	199	13
ENTRY[B]	8,359	815	2,718	3,949	795	82	8,896	878	3,835	3,296	803	84
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.7	.7	1.2	3.1	12.0	48.3	2.5	.5	.9	2.8	10.6	47.0
CLERICAL & SALES ..	12.8	3.0	7.9	22.4	30.3	21.0	12.3	2.7	6.3	22.0	28.6	17.2
SERVICE	10.2	12.8	12.5	6.9	4.8	2.9	10.6	14.3	12.5	7.5	4.2	1.0
SKILLED	18.2	21.3	19.4	15.8	11.5	7.6	12.9	16.8	12.0	12.1	9.1	5.7
SEMISKILLED	22.4	27.3	25.0	18.4	10.4	2.4	21.2	26.3	23.2	18.4	7.8	3.7
UNSKILLED & OTHER[A].	21.2	30.4	21.3	15.9	9.3	4.0	19.5	30.4	19.4	14.7	7.9	3.4
ENTRY[B]	12.5	4.4	12.6	17.5	21.7	13.8	21.1	9.0	25.7	22.5	31.8	21.9
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.6	32.3	33.8	5.5	.9	100.0	23.0	35.4	34.7	6.0	.9
PROF. & MANAGERIAL.	100.0	7.2	14.7	38.4	24.1	15.7	100.0	4.5	13.4	39.4	25.5	17.2
CLERICAL & SALES ..	100.0	6.4	20.0	59.2	13.0	1.5	100.0	5.0	18.1	61.7	13.9	1.3
SERVICE	100.0	34.7	39.7	22.8	2.6	.2	100.0	31.2	41.7	24.6	2.4	.1
SKILLED	100.0	32.3	34.4	29.5	3.5	.4	100.0	30.0	32.9	32.5	4.2	.4
SEMISKILLED	100.0	33.6	36.0	27.7	2.5	.1	100.0	28.6	38.8	30.3	2.2	.2
UNSKILLED & OTHER[A].	100.0	39.6	32.5	25.3	2.4	.2	100.0	35.9	35.3	26.2	2.4	.2
ENTRY[B]	100.0	9.7	32.5	47.2	9.5	1.0	100.0	9.9	43.1	37.1	9.0	.9
	NUMBER, BY AGE GROUP											
TOTAL	66,820	18,429	21,567	22,571	3,659	594	42,211	9,713	14,938	14,652	2,525	383
UNDER 20	5,882	436	2,309	2,791	344	2	7,571	475	3,642	2,895	555	4
20 - 24	13,034	1,274	4,185	6,264	1,219	92	8,157	769	2,756	3,722	794	116
25 - 34	15,577	3,616	5,460	5,530	775	196	9,209	1,873	3,304	3,476	448	108
35 - 44	14,005	4,251	4,812	4,234	572	136	8,006	2,378	2,775	2,447	324	82
45 - 54	10,265	3,952	3,108	2,687	426	92	5,513	2,105	1,612	1,524	227	45
55 - 64	5,783	3,377	1,349	779	232	46	3,025	1,653	711	501	140	20
65 AND OVER	2,274	1,523	344	286	91	30	730	460	138	87	37	8
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	8.8	2.4	10.7	12.4	9.4	.3	17.9	4.9	24.4	19.8	22.0	1.0
20 - 24	19.5	6.9	19.4	27.8	33.3	15.5	19.3	7.9	18.4	25.4	31.4	30.3
25 - 34	23.3	19.6	25.3	24.5	21.2	33.0	21.8	19.3	22.1	23.7	17.7	28.2
35 - 44	21.0	23.1	22.3	18.8	15.6	22.9	19.0	24.5	18.6	16.7	12.8	21.4
45 - 54	15.4	21.4	14.4	11.9	11.6	15.5	13.1	21.7	10.8	10.4	9.0	11.7
55 - 64	8.7	18.3	6.3	3.5	6.3	7.7	7.2	17.0	4.8	3.4	5.5	5.2
65 AND OVER	3.4	8.3	1.6	1.3	2.5	5.1	1.7	4.7	.9	.6	1.5	2.1
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.6	32.3	33.8	5.5	.9	100.0	23.0	35.4	34.7	6.0	.9
UNDER 20	100.0	7.4	39.3	47.4	5.8	.0	100.0	6.3	48.1	38.2	7.3	.1
20 - 24	100.0	9.8	32.1	48.1	9.4	.7	100.0	9.4	33.8	45.6	9.7	1.4
25 - 34	100.0	23.2	35.1	35.5	5.0	1.3	100.0	20.3	35.9	37.7	4.9	1.2
35 - 44	100.0	30.4	34.4	30.2	4.1	1.0	100.0	29.7	34.7	30.6	4.0	1.0
45 - 54	100.0	38.5	30.3	26.2	4.2	.9	100.0	38.2	29.2	27.6	4.1	.8
55 - 64	100.0	58.4	23.3	13.5	4.0	.8	100.0	54.6	23.5	16.6	4.6	.7
65 AND OVER	100.0	67.0	15.1	12.6	4.0	1.3	100.0	63.0	18.9	11.9	5.1	1.1

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF MEN JOBSEEKERS REGISTERED IN COUNTIES SERVED BY SMALLER OFFICES (EXCLUDING SOUTHEASTERN COUNTIES), BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	MEN JOBSEEKERS, APRIL 25, 1962						MEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	45,384	14,579	14,498	13,394	2,432	481	26,244	7,345	9,274	7,667	1,655	303
PROF. & MANAGERIAL.	1,474	107	199	548	374	246	821	36	97	316	219	153
CLERICAL & SALES ..	2,487	266	534	1,163	438	86	1,380	112	273	648	308	39
SERVICE	1,936	832	633	389	74	8	1,340	519	474	293	52	2
SKILLED	11,824	3,838	4,060	3,470	414	42	5,208	1,585	1,704	1,682	216	21
SEMISKILLED	11,896	4,218	4,153	3,178	334	13	6,516	2,032	2,441	1,859	172	12
UNSKILLED & OTHER[A].	11,032	4,825	3,327	2,562	298	20	6,065	2,501	1,974	1,405	174	11
ENTRY[B]	4,735	493	1,592	2,084	500	66	4,914	560	2,311	1,464	514	65
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.2	.7	1.4	4.1	15.4	51.1	3.1	.5	1.0	4.1	13.2	50.5
CLERICAL & SALES ..	5.5	1.8	3.7	8.7	18.0	17.9	5.3	1.5	2.9	8.5	18.6	12.9
SERVICE	4.3	5.7	4.4	2.9	3.0	1.7	5.1	7.1	5.1	3.8	3.1	.7
SKILLED	26.1	26.3	28.0	25.9	17.0	8.7	19.8	21.6	18.4	21.9	13.1	6.9
SEMISKILLED	26.2	28.9	28.6	23.7	13.7	2.7	24.8	27.7	26.3	24.2	10.4	4.0
UNSKILLED & OTHER[A].	24.3	33.1	22.9	19.1	12.3	4.2	23.1	34.1	21.3	18.3	10.5	3.6
ENTRY[B]	10.4	3.4	11.0	15.6	20.6	13.7	18.7	7.6	24.9	19.1	31.1	21.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	32.1	31.9	29.5	5.4	1.1	100.0	28.0	35.3	29.2	6.3	1.2
PROF. & MANAGERIAL.	100.0	7.3	13.5	37.2	25.4	16.7	100.0	4.4	11.8	38.5	26.7	18.6
CLERICAL & SALES ..	100.0	10.7	21.5	46.8	17.6	3.5	100.0	8.1	19.8	47.0	22.3	2.8
SERVICE	100.0	43.0	32.7	20.1	3.8	.4	100.0	38.7	35.4	21.9	3.9	.1
SKILLED	100.0	32.5	34.3	29.3	3.5	.4	100.0	30.4	32.7	32.3	4.1	.4
SEMISKILLED	100.0	35.5	34.9	26.7	2.8	.1	100.0	31.2	37.5	28.5	2.6	.2
UNSKILLED & OTHER[A].	100.0	43.7	30.2	23.2	2.7	.2	100.0	41.2	32.5	23.2	2.9	.2
ENTRY[B]	100.0	10.4	33.6	44.0	10.6	1.4	100.0	11.4	47.0	29.8	10.5	1.3
	NUMBER, BY AGE GROUP											
TOTAL	45,384	14,579	14,498	13,394	2,432	481	26,244	7,345	9,274	7,667	1,655	303
UNDER 20	3,398	338	1,440	1,433	186	1	4,490	393	2,441	1,333	320	3
20 - 24	8,917	1,090	3,125	3,861	783	58	5,246	637	1,870	2,125	531	83
25 - 34	10,912	2,944	3,718	3,494	583	173	5,840	1,474	1,985	1,978	343	100
35 - 44	9,183	3,277	3,087	2,318	391	110	4,575	1,740	1,480	1,095	198	62
45 - 54	6,933	3,007	1,960	1,615	271	80	3,442	1,536	929	799	144	34
55 - 64	4,199	2,625	911	485	145	33	2,115	1,258	466	285	90	16
65 AND OVER	1,842	1,298	257	188	73	26	536	347	103	52	29	5
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	7.5	2.3	9.9	10.7	7.6	.2	17.1	5.4	26.3	17.4	19.3	1.0
20 - 24	19.6	7.5	21.6	28.8	32.2	12.1	20.0	8.7	20.2	27.7	32.1	27.4
25 - 34	24.0	20.2	25.6	26.1	24.0	36.0	22.3	19.5	21.4	25.8	20.7	33.0
35 - 44	20.2	22.5	21.3	17.3	16.1	22.9	17.4	23.7	16.0	14.3	12.0	20.5
45 - 54	15.3	20.6	13.5	12.1	11.1	16.6	13.1	20.9	10.0	10.4	8.7	11.2
55 - 64	9.3	18.0	6.3	3.6	6.0	6.9	8.1	17.1	5.0	3.7	5.4	5.3
65 AND OVER	4.1	8.9	1.8	1.4	3.0	5.4	2.0	4.7	1.1	.7	1.8	1.7
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	32.1	31.9	29.5	5.4	1.1	100.0	28.0	35.3	29.2	6.3	1.2
UNDER 20	100.0	9.9	42.4	42.2	5.5	.0	100.0	8.8	54.4	29.7	7.1	.1
20 - 24	100.0	12.2	35.0	43.3	8.8	.7	100.0	12.1	35.6	40.5	10.1	1.6
25 - 34	100.0	27.0	34.1	32.0	5.3	1.6	100.0	24.6	34.0	33.9	5.9	1.7
35 - 44	100.0	35.7	33.6	25.2	4.3	1.2	100.0	38.0	32.3	23.9	4.3	1.4
45 - 54	100.0	43.4	28.3	23.3	3.9	1.2	100.0	44.6	27.0	23.2	4.2	1.0
55 - 64	100.0	62.5	21.7	11.6	3.5	.8	100.0	59.5	22.0	13.5	4.3	.8
65 AND OVER	100.0	70.5	14.0	10.2	4.0	1.4	100.0	64.7	19.2	9.7	5.4	.9

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF WOMEN JOBSEEKERS REGISTERED IN COUNTIES SERVED BY SMALLER OFFICES (EXCLUDING SOUTHEASTERN COUNTIES), BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	WOMEN JOBSEEKERS, APRIL 25, 1962						WOMEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	21,436	3,850	7,069	9,177	1,227	113	15,967	2,368	5,664	6,985	870	80
PROF. & MANAGERIAL.	355	24	70	154	66	41	225	11	43	96	48	27
CLERICAL & SALES ..	6,038	280	1,168	3,882	669	39	3,832	148	672	2,570	415	27
SERVICE	4,883	1,534	2,072	1,167	101	9	3,127	874	1,390	807	54	2
SKILLED	320	84	119	107	7	3	233	46	85	87	14	1
SEMISKILLED	3,096	822	1,245	982	46	1	2,414	522	1,022	843	25	2
UNSKILLED & OTHER[A].	3,120	784	1,269	1,020	43	4	2,154	449	928	750	25	2
ENTRY[B]	3,624	322	1,126	1,865	295	16	3,982	318	1,524	1,832	289	19
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.7	.6	1.0	1.7	5.4	36.3	1.4	.5	.8	1.4	5.5	33.8
CLERICAL & SALES ..	28.2	7.3	16.5	42.3	54.5	34.5	24.0	6.2	11.9	36.8	47.7	33.8
SERVICE	22.8	39.8	29.3	12.7	8.2	8.0	19.6	36.9	24.5	11.6	6.2	2.5
SKILLED	1.5	2.2	1.7	1.2	.6	2.7	1.5	1.9	1.5	1.2	1.6	1.2
SEMISKILLED	14.4	21.4	17.6	10.7	3.7	.9	15.1	22.0	18.0	12.1	2.9	2.5
UNSKILLED & OTHER[A].	14.6	20.4	18.0	11.1	3.5	3.5	13.5	19.0	16.4	10.7	2.9	2.5
ENTRY[B]	16.9	8.4	15.9	20.3	24.0	14.2	24.9	13.4	26.9	26.2	33.2	23.8
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.0	33.0	42.8	5.7	.5	100.0	14.8	35.5	43.7	5.4	.5
PROF. & MANAGERIAL.	100.0	6.8	19.7	43.4	18.6	11.5	100.0	4.9	19.1	42.7	21.3	12.0
CLERICAL & SALES ..	100.0	4.6	19.3	64.3	11.1	.6	100.0	3.9	17.5	67.1	10.8	.7
SERVICE	100.0	31.4	42.4	23.9	2.1	.2	100.0	28.0	44.5	25.8	1.7	.1
SKILLED	100.0	26.2	37.2	33.4	2.2	.9	100.0	19.7	36.5	37.3	6.0	.4
SEMISKILLED	100.0	26.6	40.2	31.7	1.5	.0	100.0	21.6	42.3	34.9	1.0	.1
UNSKILLED & OTHER[A].	100.0	25.1	40.7	32.7	1.4	.1	100.0	20.8	43.1	34.8	1.2	.1
ENTRY[B]	100.0	8.9	31.1	51.5	8.1	.4	100.0	8.0	38.3	46.0	7.3	.5
	NUMBER, BY AGE GROUP											
TOTAL	21,436	3,850	7,069	9,177	1,227	113	15,967	2,368	5,664	6,985	870	80
UNDER 20	2,484	98	869	1,358	158	1	3,081	82	1,201	1,562	235	1
20 - 24	4,117	184	1,060	2,403	436	34	2,911	132	886	1,597	263	33
25 - 34	4,665	672	1,742	2,036	192	23	3,369	439	1,319	1,498	105	8
35 - 44	4,822	974	1,725	1,916	181	26	3,431	638	1,295	1,352	126	20
45 - 54	3,332	945	1,148	1,072	155	12	2,071	569	683	725	83	11
55 - 64	1,584	752	438	294	87	13	910	395	245	216	50	4
65 AND OVER	432	225	87	98	18	4	194	113	35	35	8	3
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	11.6	2.5	12.3	14.8	12.9	.9	19.3	3.5	21.2	22.4	27.0	1.2
20 - 24	19.2	4.8	15.0	26.2	35.5	30.1	18.2	5.6	15.6	22.9	30.2	41.2
25 - 34	21.8	17.5	24.6	22.2	15.6	20.4	21.1	18.5	23.3	21.4	12.1	10.0
35 - 44	22.5	25.3	24.4	20.9	14.8	23.0	21.5	26.9	22.9	19.4	14.5	25.0
45 - 54	15.5	24.5	16.2	11.7	12.6	10.6	13.0	24.0	12.1	10.4	9.5	13.8
55 - 64	7.4	19.5	6.2	3.2	7.1	11.5	5.7	16.7	4.3	3.1	5.7	5.0
65 AND OVER	2.0	5.8	1.2	1.1	1.5	3.5	1.2	4.8	.6	.5	.9	3.8
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.0	33.0	42.8	5.7	.5	100.0	14.8	35.5	43.7	5.4	.5
UNDER 20	100.0	3.9	35.0	54.7	6.4	.0	100.0	2.7	39.0	50.7	7.6	.0
20 - 24	100.0	4.5	25.7	58.4	10.6	.8	100.0	4.5	30.4	54.9	9.0	1.1
25 - 34	100.0	14.4	37.3	43.6	4.1	.5	100.0	13.0	39.2	44.5	3.1	.2
35 - 44	100.0	20.2	35.8	39.7	3.8	.5	100.0	18.6	37.7	39.4	3.7	.6
45 - 54	100.0	28.4	34.5	32.2	4.7	.4	100.0	27.5	33.0	35.0	4.0	.5
55 - 64	100.0	47.5	27.7	18.6	5.5	.8	100.0	43.4	26.9	23.7	5.5	.4
65 AND OVER	100.0	52.1	20.1	22.7	4.2	.9	100.0	58.2	18.0	18.0	4.1	1.5

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF TOTAL JOBSEEKERS REGISTERED IN TWENTY-ONE SOUTHEASTERN COUNTIES
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	JOBSEEKERS, APRIL 25, 1962						JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	20,507	6,687	5,693	7,130	881	116	14,571	4,361	4,632	4,823	667	88
PROF. & MANAGERIAL.	435	51	74	174	78	58	277	13	41	91	83	49
CLERICAL & SALES ..	2,402	155	401	1,519	309	18	1,441	81	214	959	174	13
SERVICE	2,162	801	819	487	53	2	1,224	425	451	321	24	3
SKILLED	4,009	1,590	1,113	1,175	123	8	2,419	896	719	721	79	4
SEMISKILLED	4,713	1,865	1,532	1,228	82	6	3,086	1,091	1,057	898	38	2
UNSKILLED & OTHER[A].	4,581	2,058	1,243	1,211	66	3	3,525	1,568	1,010	897	44	6
ENTRY[B]	2,205	167	511	1,336	170	21	2,599	287	1,140	936	225	11
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.1	.8	1.3	2.4	8.9	50.0	1.9	.3	.9	1.9	12.4	55.7
CLERICAL & SALES ..	11.7	2.3	7.0	21.3	35.1	15.5	9.9	1.9	4.6	19.9	26.1	14.8
SERVICE	10.5	12.0	14.4	6.8	6.0	1.7	8.4	9.7	9.7	6.7	3.6	3.4
SKILLED	19.5	23.8	19.6	16.5	14.0	6.9	16.6	20.5	15.5	14.9	11.8	4.5
SEMISKILLED	23.0	27.9	26.9	17.2	9.3	5.2	21.2	25.0	22.8	18.6	5.7	2.3
UNSKILLED & OTHER[A].	22.3	30.8	21.8	17.0	7.5	2.6	24.2	36.0	21.8	18.6	6.6	6.8
ENTRY[B]	10.8	2.5	9.0	18.7	19.3	18.1	17.8	6.6	24.6	19.4	33.7	12.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	32.6	27.8	34.8	4.3	.6	100.0	29.9	31.8	33.1	4.6	.6
PROF. & MANAGERIAL.	100.0	11.7	17.0	40.0	17.9	13.3	100.0	4.7	14.8	32.9	30.0	17.7
CLERICAL & SALES ..	100.0	6.5	16.7	63.2	12.9	.7	100.0	5.6	14.9	66.6	12.1	.9
SERVICE	100.0	37.0	37.9	22.5	2.5	.1	100.0	34.7	36.8	26.2	2.0	.2
SKILLED	100.0	39.7	27.8	29.3	3.1	.2	100.0	37.0	29.7	29.8	3.3	.2
SEMISKILLED	100.0	39.6	32.5	26.1	1.7	.1	100.0	35.4	34.3	29.1	1.2	.1
UNSKILLED & OTHER[A].	100.0	44.9	27.1	26.4	1.4	.1	100.0	44.5	28.7	25.4	1.2	.2
ENTRY[B]	100.0	7.6	23.2	60.6	7.7	1.0	100.0	11.0	43.9	36.0	8.7	.4
	NUMBER, BY AGE GROUP											
TOTAL	20,507	6,687	5,693	7,130	881	116	14,571	4,361	4,632	4,823	667	88
UNDER 20	1,538	110	372	961	94	1	2,095	128	999	805	161	2
20 - 24	3,830	411	1,097	2,015	288	19	2,737	332	845	1,308	229	23
25 - 34	5,055	1,276	1,543	1,998	207	31	3,252	831	1,051	1,238	107	25
35 - 44	4,378	1,601	1,352	1,242	147	36	2,857	1,061	910	792	75	19
45 - 54	3,379	1,700	880	702	84	13	2,258	1,103	562	522	60	11
55 - 64	1,864	1,249	382	172	48	13	1,179	770	235	141	28	5
65 AND OVER	463	340	67	40	13	3	193	136	30	17	7	3
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	7.5	1.6	6.5	13.5	10.7	.9	14.4	2.9	21.6	16.7	24.1	2.3
20 - 24	18.7	6.1	19.3	28.3	32.7	16.4	18.8	7.6	18.2	27.1	34.3	26.1
25 - 34	24.7	19.1	27.1	28.0	23.5	26.7	22.3	19.1	22.7	25.7	16.0	28.4
35 - 44	21.3	23.9	23.7	17.4	16.7	31.0	19.6	24.3	19.6	16.4	11.2	21.6
45 - 54	16.5	25.4	15.5	9.8	9.5	11.2	15.5	25.3	12.1	10.8	9.0	12.5
55 - 64	9.1	18.7	6.7	2.4	5.4	11.2	8.1	17.7	5.1	2.9	4.2	5.7
65 AND OVER	2.3	5.1	1.2	.6	1.5	2.6	1.3	3.1	.6	.4	1.0	3.4
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	32.6	27.8	34.8	4.3	.6	100.0	29.9	31.8	33.1	4.6	.6
UNDER 20	100.0	7.2	24.2	62.5	6.1	.1	100.0	6.1	47.7	38.4	7.7	.1
20 - 24	100.0	10.7	28.6	52.6	7.5	.5	100.0	12.1	30.9	47.8	8.4	.8
25 - 34	100.0	25.2	30.5	39.5	4.1	.6	100.0	25.6	32.3	38.1	3.3	.8
35 - 44	100.0	36.6	30.9	28.4	3.4	.8	100.0	37.1	31.9	27.7	2.6	.7
45 - 54	100.0	50.3	26.0	20.8	2.5	.4	100.0	48.8	24.9	23.1	2.7	.5
55 - 64	100.0	67.0	20.5	9.2	2.6	.7	100.0	65.3	19.9	12.0	2.4	.4
65 AND OVER	100.0	73.4	14.5	8.6	2.8	.6	100.0	70.5	15.5	8.8	3.6	1.6

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF MEN JOBSEEKERS REGISTERED IN TWENTY-ONE SOUTHEASTERN COUNTIES
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	MEN JOBSEEKERS, APRIL 25, 1962						MEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	14,937	5,634	4,098	4,489	622	94	10,426	3,721	3,291	2,901	441	72
PROF. & MANAGERIAL.	340	45	54	130	63	48	209	10	29	66	62	42
CLERICAL & SALES ..	677	73	107	334	150	13	475	44	85	253	86	7
SERVICE	540	223	177	114	25	1	409	164	121	110	11	3
SKILLED	3,947	1,565	1,093	1,158	123	8	2,344	886	691	685	78	4
SEMISKILLED	4,174	1,715	1,332	1,044	78	5	2,488	968	829	657	32	2
UNSKILLED & OTHER[A].	3,996	1,920	1,027	983	63	3	2,978	1,462	807	666	37	6
ENTRY[B]	1,263	93	308	726	120	16	1,523	187	729	464	135	8
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.3	.8	1.3	2.9	10.1	51.1	2.0	.3	.9	2.3	14.1	58.3
CLERICAL & SALES ..	4.5	1.3	2.6	7.4	24.1	13.8	4.6	1.2	2.6	8.7	19.5	9.7
SERVICE	3.6	4.0	4.3	2.5	4.0	1.1	3.9	4.4	3.7	3.8	2.5	4.2
SKILLED	26.4	27.8	26.7	25.8	19.8	8.5	22.5	23.8	21.0	23.6	17.7	5.6
SEMISKILLED	27.9	30.4	32.5	23.3	12.5	5.3	23.9	26.0	25.2	22.6	7.3	2.8
UNSKILLED & OTHER[A].	26.8	34.1	25.1	21.9	10.1	3.2	28.6	39.3	24.5	23.0	8.4	8.3
ENTRY[B]	8.5	1.7	7.5	16.2	19.3	17.0	14.6	5.0	22.2	16.0	30.6	11.1
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	37.7	27.4	30.1	4.2	.6	100.0	35.7	31.6	27.8	4.2	.7
PROF. & MANAGERIAL.	100.0	13.2	15.9	38.2	18.5	14.1	100.0	4.8	13.9	31.6	29.7	20.1
CLERICAL & SALES ..	100.0	10.8	15.8	49.3	22.2	1.9	100.0	9.3	17.9	53.3	18.1	1.5
SERVICE	100.0	41.3	32.8	21.1	4.6	.2	100.0	40.1	29.6	26.9	2.7	.7
SKILLED	100.0	39.7	27.7	29.3	3.1	.2	100.0	37.8	29.5	29.2	3.3	.2
SEMISKILLED	100.0	41.1	31.9	25.0	1.9	.1	100.0	38.9	33.3	26.4	1.3	.1
UNSKILLED & OTHER[A].	100.0	48.0	25.7	24.6	1.6	.1	100.0	49.1	27.1	22.4	1.2	.2
ENTRY[B]	100.0	7.4	24.4	57.5	9.5	1.3	100.0	12.3	47.9	30.5	8.9	.5
	NUMBER, BY AGE GROUP											
TOTAL	14,937	5,634	4,098	4,489	622	94	10,426	3,721	3,291	2,901	441	72
UNDER 20	795	69	214	469	42	1	1,296	111	682	417	84	2
20 - 24	2,671	340	815	1,304	200	12	2,030	310	695	859	151	15
25 - 34	3,778	1,095	1,129	1,365	163	26	2,473	758	802	809	81	23
35 - 44	3,206	1,354	974	736	111	31	1,964	900	579	415	52	18
45 - 54	2,585	1,429	612	470	63	11	1,610	897	352	308	47	6
55 - 64	1,541	1,087	298	113	33	10	904	634	158	85	22	5
65 AND OVER	361	260	56	32	10	3	149	111	23	8	4	3
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	5.3	1.2	5.2	10.4	6.8	1.1	12.4	3.0	20.7	14.4	19.0	2.8
20 - 24	17.9	6.0	19.9	29.0	32.2	12.8	19.5	8.3	21.1	29.6	34.2	20.8
25 - 34	25.3	19.4	27.6	30.4	26.2	27.7	23.7	20.4	24.4	27.9	18.4	31.9
35 - 44	21.5	24.0	23.8	16.4	17.8	33.0	18.8	24.2	17.6	14.3	11.8	25.0
45 - 54	17.3	25.4	14.9	10.5	10.1	11.7	15.4	24.1	10.7	10.6	10.7	8.3
55 - 64	10.3	19.3	7.3	2.5	5.3	10.6	8.7	17.0	4.8	2.9	5.0	6.9
65 AND OVER	2.4	4.6	1.4	.7	1.6	3.2	1.4	3.0	.7	.3	.9	4.2
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	37.7	27.4	30.1	4.2	.6	100.0	35.7	31.6	27.8	4.2	.7
UNDER 20	100.0	8.7	26.9	59.0	5.3	.1	100.0	8.6	52.6	32.2	6.5	.2
20 - 24	100.0	12.7	30.5	48.8	7.5	.4	100.0	15.3	34.2	42.3	7.4	.7
25 - 34	100.0	29.0	29.9	36.1	4.3	.7	100.0	30.7	32.4	32.7	3.3	.9
35 - 44	100.0	42.2	30.4	23.0	3.5	1.0	100.0	45.8	29.5	21.1	2.6	.9
45 - 54	100.0	55.3	23.7	18.2	2.4	.4	100.0	55.7	21.9	19.1	2.9	.4
55 - 64	100.0	70.5	19.3	7.3	2.1	.6	100.0	70.1	17.5	9.4	2.4	.6
65 AND OVER	100.0	72.0	15.5	8.9	2.8	.8	100.0	74.5	15.4	5.4	2.7	2.0

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF WOMEN JOBSEEKERS REGISTERED IN TWENTY-ONE SOUTHEASTERN COUNTIES
BY OCCUPATIONAL AND AGE GROUP, APRIL 25, 1962 AND APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	WOMEN JOBSEEKERS, APRIL 25, 1962						WOMEN JOBSEEKERS, APRIL 25, 1965					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	5,570	1,053	1,595	2,641	259	22	4,145	640	1,341	1,922	226	16
PROF. & MANAGERIAL.	95	6	20	44	15	10	68	3	12	25	21	7
CLERICAL & SALES ..	1,725	82	294	1,185	159	5	966	37	129	706	88	6
SERVICE	1,622	578	642	373	28	1	815	261	330	211	13	.....
SKILLED	62	25	20	17	.....	.....	75	10	28	36	1	.....
SEMISKILLED	539	150	200	184	4	1	598	123	228	241	6	.....
UNSKILLED & OTHER[A].	585	138	216	228	3	.....	547	106	203	231	7	.....
ENTRY[B]	942	74	203	610	50	5	1,076	100	411	472	90	3
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.7	.6	1.3	1.7	5.8	45.5	1.6	.5	.9	1.3	9.3	43.7
CLERICAL & SALES ..	31.0	7.8	18.4	44.9	61.4	22.7	23.3	5.8	9.6	36.7	38.9	37.5
SERVICE	29.1	54.9	40.3	14.1	10.8	4.5	19.7	40.8	24.6	11.0	5.8	.....
SKILLED	1.1	2.4	1.3	.6	.....	.....	1.8	1.6	2.1	1.9	.4	.....
SEMISKILLED	9.7	14.2	12.5	7.0	1.5	4.5	14.4	19.2	17.0	12.5	2.7	.....
UNSKILLED & OTHER[A].	10.5	13.1	13.5	8.6	1.2	.....	13.2	16.6	15.1	12.0	3.1	.....
ENTRY[B]	16.9	7.0	12.7	23.1	19.3	22.7	26.0	15.6	30.6	24.6	39.8	18.8
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.9	28.6	47.4	4.6	.4	100.0	15.4	32.4	46.4	5.5	.4
PROF. & MANAGERIAL.	100.0	6.3	21.1	46.3	15.8	10.5	100.0	4.4	17.6	36.8	30.9	10.3
CLERICAL & SALES ..	100.0	4.8	17.0	68.7	9.2	.3	100.0	3.8	13.4	73.1	9.1	.6
SERVICE	100.0	35.6	39.6	23.0	1.7	.1	100.0	32.0	40.5	25.9	1.6	.....
SKILLED	100.0	40.3	32.3	27.4	.....	.....	100.0	13.3	37.3	48.0	1.3	.....
SEMISKILLED	100.0	27.8	37.1	34.1	.7	.2	100.0	20.6	38.1	40.3	1.0	.....
UNSKILLED & OTHER[A].	100.0	23.6	36.9	39.0	.5	.....	100.0	19.4	37.1	42.2	1.3	.....
ENTRY[B]	100.0	7.9	21.5	64.8	5.3	.5	100.0	9.3	38.2	43.9	8.4	.3
	NUMBER, BY AGE GROUP											
TOTAL	5,570	1,053	1,595	2,641	259	22	4,145	640	1,341	1,922	226	16
UNDER 20	743	41	158	492	52	.....	799	17	317	388	77	.....
20 - 24	1,159	71	282	711	88	7	707	22	150	449	78	8
25 - 34	1,277	181	414	633	44	5	779	73	249	429	26	2
35 - 44	1,172	247	378	506	36	5	893	161	331	377	23	1
45 - 54	794	271	268	232	21	2	648	206	210	214	13	5
55 - 64	323	162	84	59	15	3	275	136	77	56	6	.....
65 AND OVER	102	80	11	8	3	.....	44	25	7	9	3	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	13.3	3.9	9.9	18.6	20.1	.....	19.3	2.7	23.6	20.2	34.1	.....
20 - 24	20.8	6.7	17.7	26.9	34.0	31.8	17.1	3.4	11.2	23.4	34.5	50.0
25 - 34	22.9	17.2	26.0	24.0	17.0	22.7	18.8	11.4	18.6	22.3	11.5	12.5
35 - 44	21.0	23.5	23.7	19.2	13.9	22.7	21.5	25.2	24.7	19.6	10.2	6.2
45 - 54	14.3	25.7	16.8	8.8	8.1	9.1	15.6	32.2	15.7	11.1	5.8	31.2
55 - 64	5.8	15.4	5.3	2.2	5.8	13.6	6.6	21.2	5.7	2.9	2.7	.....
65 AND OVER	1.8	7.6	.7	.3	1.2	.....	1.1	3.9	.5	.5	1.3	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.9	28.6	47.4	4.6	.4	100.0	15.4	32.4	46.4	5.5	.4
UNDER 20	100.0	5.5	21.3	66.2	7.0	.....	100.0	2.1	39.7	48.6	9.6	.....
20 - 24	100.0	6.1	24.3	61.3	7.6	.6	100.0	3.1	21.2	63.5	11.0	1.1
25 - 34	100.0	14.2	32.4	49.6	3.4	.4	100.0	9.4	32.0	55.1	3.3	.3
35 - 44	100.0	21.1	32.3	43.2	3.1	.4	100.0	18.0	37.1	42.2	2.6	.1
45 - 54	100.0	34.1	33.8	29.2	2.6	.3	100.0	31.8	32.4	33.0	2.0	.8
55 - 64	100.0	50.2	26.0	18.3	4.6	.9	100.0	49.5	28.0	20.4	2.2	.....
65 AND OVER	100.0	78.4	10.8	7.8	2.9	.....	100.0	56.8	15.9	20.5	6.8	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

COUNTY TABLES

ADAMS COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN ADAMS COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	331	174	70	84	2	1	295	159	60	74	2	.....
PROF. & MANAGERIAL.	1	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	6	.....	1	4	.....	1	.....	.....	.....	.....	.....	.....
SERVICE	14	7	3	3	1	.....	5	2	.....	2	1	.....
SKILLED	47	26	9	12	.....	.....	47	26	9	12	.....	.....
SEMISKILLED	116	56	31	28	1	.....	110	54	29	26	1	.....
UNSKILLED & OTHER[A].	116	75	16	25	.....	.....	116	75	16	25	.....	.....
ENTRY[B]	31	10	10	11	.....	.....	17	2	6	9	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	.3	.....	.....	1.2	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	1.8	.....	1.4	4.8	.....	100.0	.....	.....	.....	.....	.....	.....
SERVICE	4.2	4.0	4.3	3.6	50.0	.....	1.7	1.3	.....	2.7	50.0	.....
SKILLED	14.2	14.9	12.9	14.3	.....	.....	15.9	16.4	15.0	16.2	.....	.....
SEMISKILLED	35.0	32.2	44.3	33.3	50.0	.....	37.3	34.0	48.3	35.1	50.0	.....
UNSKILLED & OTHER[A].	35.0	43.1	22.9	29.8	.....	.....	39.3	47.2	26.7	33.8	.....	.....
ENTRY[B]	9.4	5.7	14.3	13.1	.....	.....	5.8	1.3	10.0	12.2	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	52.6	21.1	25.4	.6	.3	100.0	53.9	20.3	25.1	.7	.....
PROF. & MANAGERIAL.	100.0	.....	.....	100.0	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	100.0	.....	16.7	66.7	.....	16.7	.....	.....	.....	.....	.....	.....
SERVICE	100.0	50.0	21.4	21.4	7.1	.....	100.0	40.0	.....	40.0	20.0	.....
SKILLED	100.0	55.3	19.1	25.5	.....	.....	100.0	55.3	19.1	25.5	.....	.....
SEMISKILLED	100.0	48.3	26.7	24.1	.9	.....	100.0	49.1	26.4	23.6	.9	.....
UNSKILLED & OTHER[A].	100.0	64.7	13.8	21.6	.....	.....	100.0	64.7	13.8	21.6	.....	.....
ENTRY[B]	100.0	32.3	32.3	35.5	.....	.....	100.0	11.8	35.3	52.9	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	331	174	70	84	2	1	295	159	60	74	2	.....
UNDER 20	9	2	2	4	1	.....	7	2	1	3	1	.....
20 - 24	54	9	20	25	.....	.....	52	9	19	24	.....	.....
25 - 34	98	40	21	36	1	.....	90	38	18	33	1	.....
35 - 44	84	56	16	12	.....	.....	72	51	13	8	.....	.....
45 - 54	61	45	9	6	.....	1	51	39	7	5	.....	.....
55 - 64	22	19	2	1	.....	.....	20	17	2	1	.....	.....
65 AND OVER	3	3	.....	.....	.....	.....	3	3	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	2.7	1.1	2.9	4.8	50.0	.....	2.4	1.3	1.7	4.0	50.0	.....
20 - 24	16.3	5.2	28.6	29.8	.....	.....	17.6	5.7	31.7	32.4	.....	.....
25 - 34	29.6	23.0	30.0	42.9	50.0	.....	30.5	23.9	30.0	44.6	50.0	.....
35 - 44	25.4	32.2	22.9	14.3	.....	.....	24.4	32.1	21.7	10.8	.....	.....
45 - 54	18.4	25.9	12.9	7.1	.....	100.0	17.3	24.5	11.7	6.8	.....	.....
55 - 64	6.6	10.9	2.9	1.2	.....	.....	6.8	10.7	3.3	1.4	.....	.....
65 AND OVER	.9	1.7	.....	.....	.....	.....	1.0	1.9	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	52.6	21.1	25.4	.6	.3	100.0	53.9	20.3	25.1	.7	.....
UNDER 20	100.0	22.2	22.2	44.4	11.1	.....	100.0	28.6	14.3	42.9	14.3	.....
20 - 24	100.0	16.7	37.0	46.3	.....	.....	100.0	17.3	36.5	46.2	.....	.....
25 - 34	100.0	40.8	21.4	36.7	1.0	.....	100.0	42.2	20.0	36.7	1.1	.....
35 - 44	100.0	66.7	19.0	14.3	.....	.....	100.0	70.8	18.1	11.1	.....	.....
45 - 54	100.0	73.8	14.8	9.8	.....	1.6	100.0	76.5	13.7	9.8	.....	.....
55 - 64	100.0	86.4	9.1	4.5	.....	.....	100.0	85.0	10.0	5.0	.....	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

ALLEN COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN ALLEN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,310	320	469	448	66	7	864	259	289	263	48	5
PROF. & MANAGERIAL.	30	3	9	9	5	4	23	3	5	6	5	4
CLERICAL & SALES ..	172	5	37	105	24	1	57	1	8	35	13	.....
SERVICE	180	48	87	42	2	1	58	22	24	10	2	.....
SKILLED	172	50	58	56	8	.....	166	49	55	54	8	.....
SEMISKILLED	276	73	106	92	5	.....	208	59	75	69	5	.....
UNSKILLED & OTHER[A].	332	128	118	81	5	.....	270	114	87	65	4	.....
ENTRY[B]	148	13	54	63	17	1	82	11	35	24	11	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.3	.9	1.9	2.0	7.6	57.1	2.7	1.2	1.7	2.3	10.4	80.0
CLERICAL & SALES ..	13.1	1.6	7.9	23.4	36.4	14.3	6.6	.4	2.8	13.3	27.1	.....
SERVICE	13.7	15.0	18.6	9.4	3.0	14.3	6.7	8.5	8.3	3.8	4.2	.....
SKILLED	13.1	15.6	12.4	12.5	12.1	.....	19.2	18.9	19.0	20.5	16.7	.....
SEMISKILLED	21.1	22.8	22.6	20.5	7.6	.....	24.1	22.8	26.0	26.2	10.4	.....
UNSKILLED & OTHER[A].	25.3	40.0	25.2	18.1	7.6	.....	31.2	44.0	30.1	24.7	8.3	.....
ENTRY[B]	11.3	4.1	11.5	14.1	25.8	14.3	9.5	4.2	12.1	9.1	22.9	20.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.4	35.8	34.2	5.0	.5	100.0	30.0	33.4	30.4	5.6	.6
PROF. & MANAGERIAL.	100.0	10.0	30.0	30.0	16.7	13.3	100.0	13.0	21.7	26.1	21.7	17.4
CLERICAL & SALES ..	100.0	2.9	21.5	61.0	14.0	.6	100.0	1.8	14.0	61.4	22.8	.....
SERVICE	100.0	26.7	48.3	23.3	1.1	.6	100.0	37.9	41.4	17.2	3.4	.....
SKILLED	100.0	29.1	33.7	32.6	4.7	.....	100.0	29.5	33.1	32.5	4.8	.....
SEMISKILLED	100.0	26.4	38.4	33.3	1.8	.....	100.0	28.4	36.1	33.2	2.4	.....
UNSKILLED & OTHER[A].	100.0	38.6	35.5	24.4	1.5	.....	100.0	42.2	32.2	24.1	1.5	.....
ENTRY[B]	100.0	8.8	36.5	42.6	11.5	.7	100.0	13.4	42.7	29.3	13.4	1.2
	NUMBER, BY AGE GROUP											
TOTAL	1,310	320	469	448	66	7	864	259	289	263	48	5
UNDER 20	155	10	71	64	10	.....	96	9	52	28	7	.....
20 - 24	290	30	104	128	24	4	184	29	68	67	18	2
25 - 34	287	61	106	107	12	1	181	45	59	67	9	1
35 - 44	242	78	93	62	8	1	159	62	51	39	6	1
45 - 54	212	79	63	60	9	1	148	63	37	41	6	1
55 - 64	93	46	24	20	3	.....	71	38	14	17	2	.....
65 AND OVER	31	16	8	7	.....	.....	25	13	8	4	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	11.8	3.1	15.1	14.3	15.2	.....	11.1	3.5	18.0	10.6	14.6	.....
20 - 24	22.1	9.4	22.2	28.6	36.4	57.1	21.3	11.2	23.5	25.5	37.5	40.0
25 - 34	21.9	19.1	22.6	23.9	18.2	14.3	20.9	17.4	20.4	25.5	18.8	20.0
35 - 44	18.5	24.4	19.8	13.8	12.1	14.3	18.4	23.9	17.6	14.8	12.5	20.0
45 - 54	16.2	24.7	13.4	13.4	13.6	14.3	17.1	24.3	12.8	15.6	12.5	20.0
55 - 64	7.1	14.4	5.1	4.5	4.5	.....	8.2	14.7	4.8	6.5	4.2	.....
65 AND OVER	2.4	5.0	1.7	1.6	.....	.....	2.9	5.0	2.8	1.5	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.4	35.8	34.2	5.0	.5	100.0	30.0	33.4	30.4	5.6	.6
UNDER 20	100.0	6.5	45.8	41.3	6.5	.....	100.0	9.4	54.2	29.2	7.3	.....
20 - 24	100.0	10.3	35.9	44.1	8.3	1.4	100.0	15.8	37.0	36.4	9.8	1.1
25 - 34	100.0	21.3	36.9	37.3	4.2	.3	100.0	24.9	32.6	37.0	5.0	.6
35 - 44	100.0	32.2	38.4	25.6	3.3	.4	100.0	39.0	32.1	24.5	3.8	.6
45 - 54	100.0	37.3	29.7	28.3	4.2	.5	100.0	42.6	25.0	27.7	4.1	.7
55 - 64	100.0	49.5	25.8	21.5	3.2	.....	100.0	53.5	19.7	23.9	2.8	.....
65 AND OVER	100.0	51.6	25.8	22.6	.....	.....	100.0	52.0	32.0	16.0	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

ASHLAND COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN ASHLAND COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	196	38	60	82	12	4	105	22	37	37	5	4
PROF. & MANAGERIAL.	5	.....	.....	2	.....	3	4	.....	.....	1	.....	3
CLERICAL & SALES ..	25	.....	4	18	2	1	7	.....	2	3	1	1
SERVICE	14	4	4	5	1	.....	4	2	1	1	.....	.....
SKILLED	34	7	5	19	3	.....	15	.....	.....	15	.....	.....
SEMISKILLED	34	6	16	11	1	.....	25	4	13	7	1	.....
UNSKILLED & OTHER[A].	57	18	21	16	2	.....	36	13	14	7	2	.....
ENTRY[B]	27	3	10	11	3	.....	14	3	7	3	1	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.6	.....	.....	2.4	.....	75.0	3.8	.....	.....	2.7	.....	75.0
CLERICAL & SALES ..	12.8	.....	6.7	22.0	16.7	25.0	6.7	.....	5.4	8.1	20.0	25.0
SERVICE	7.1	10.5	6.7	6.1	8.3	.....	3.8	9.1	2.7	2.7	.....	.....
SKILLED	17.3	18.4	8.3	23.2	25.0	.....	14.3	.....	.....	40.5	.....	.....
SEMISKILLED	17.3	15.8	26.7	13.4	8.3	.....	23.8	18.2	35.1	18.9	20.0	.....
UNSKILLED & OTHER[A].	29.1	47.4	35.0	19.5	16.7	.....	34.3	59.1	37.8	18.9	40.0	.....
ENTRY[B]	13.8	7.9	16.7	13.4	25.0	.....	13.3	13.6	18.9	8.1	20.0	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.4	30.6	41.8	6.1	2.0	100.0	21.0	35.2	35.2	4.8	3.8
PROF. & MANAGERIAL.	100.0	.....	.....	40.0	.....	60.0	100.0	.....	.....	25.0	.....	75.0
CLERICAL & SALES ..	100.0	.....	16.0	72.0	8.0	4.0	100.0	.....	28.6	42.9	14.3	14.3
SERVICE	100.0	28.6	28.6	35.7	7.1	.....	100.0	50.0	25.0	25.0	.....	.....
SKILLED	100.0	20.6	14.7	55.9	8.8	.....	100.0	.....	.....	100.0	.....	.....
SEMISKILLED	100.0	17.6	47.1	32.4	2.9	.....	100.0	16.0	52.0	28.0	4.0	.....
UNSKILLED & OTHER[A].	100.0	31.6	36.8	28.1	3.5	.....	100.0	36.1	38.9	19.4	5.6	.....
ENTRY[B]	100.0	11.1	37.0	40.7	11.1	.....	100.0	21.4	50.0	21.4	7.1	.....
	NUMBER, BY AGE GROUP											
TOTAL	196	38	60	82	12	4	105	22	37	37	5	4
UNDER 20	38	1	10	22	5	.....	21	1	8	10	2	.....
20 - 24	40	3	12	21	3	1	26	3	9	12	1	1
25 - 34	36	6	14	13	2	1	21	3	8	7	2	1
35 - 44	27	7	8	12	.....	.....	16	5	5	6	.....	.....
45 - 54	30	8	9	11	1	1	10	3	4	2	.....	1
55 - 64	23	11	7	3	1	1	10	6	3	.....	.....	1
65 AND OVER	2	2	.....	.....	.....	.....	1	1	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	19.4	2.6	16.7	26.8	41.7	.....	20.0	4.5	21.6	27.0	40.0	.....
20 - 24	20.4	7.9	20.0	25.6	25.0	25.0	24.8	13.6	24.3	32.4	20.0	25.0
25 - 34	18.4	15.8	23.3	15.9	16.7	25.0	20.0	13.6	21.6	18.9	40.0	25.0
35 - 44	13.8	18.4	13.3	14.6	.....	.....	15.2	22.7	13.5	16.2	.....	.....
45 - 54	15.3	21.1	15.0	13.4	8.3	25.0	9.5	13.6	10.8	5.4	.....	25.0
55 - 64	11.7	28.9	11.7	3.7	8.3	25.0	9.5	27.3	8.1	.....	.....	25.0
65 AND OVER	1.0	5.3	.....	.....	.....	.....	1.0	4.5	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.4	30.6	41.8	6.1	2.0	100.0	21.0	35.2	35.2	4.8	3.8
UNDER 20	100.0	2.6	26.3	57.9	13.2	.....	100.0	4.8	38.1	47.6	9.5	.....
20 - 24	100.0	7.5	30.0	52.5	7.5	2.5	100.0	11.5	34.6	46.2	3.8	3.8
25 - 34	100.0	16.7	38.9	36.1	5.6	2.8	100.0	14.3	38.1	33.3	9.5	4.8
35 - 44	100.0	25.9	29.6	44.4	.....	.....	100.0	31.2	31.2	37.5	.....	.....
45 - 54	100.0	26.7	30.0	36.7	3.3	3.3	100.0	30.0	40.0	20.0	.....	10.0
55 - 64	100.0	47.8	30.4	13.0	4.3	4.3	100.0	60.0	30.0	.....	.....	10.0
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE.

[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.

[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

ASHTABULA COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN ASHTABULA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,507	319	564	532	84	8	1,013	261	365	314	66	7
PROF. & MANAGERIAL.	63	11	15	28	5	4	51	9	13	20	5	4
CLERICAL & SALES ..	157	11	37	94	15	.....	35	4	9	18	4	.....
SERVICE	133	31	56	44	2	.....	38	15	11	10	2	.....
SKILLED	308	72	109	105	22	.....	306	72	109	103	22	.....
SEMISKILLED	303	71	135	86	10	1	234	56	99	68	10	1
UNSKILLED & OTHER[A].	289	91	99	85	14	.....	207	79	62	55	11	.....
ENTRY[B]	254	32	113	90	16	3	142	26	62	40	12	2
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	4.2	3.4	2.7	5.3	6.0	50.0	5.0	3.4	3.6	6.4	7.6	57.1
CLERICAL & SALES ..	10.4	3.4	6.6	17.7	17.9	.....	3.5	1.5	2.5	5.7	6.1	.....
SERVICE	8.8	9.7	9.9	8.3	2.4	.....	3.8	5.7	3.0	3.2	3.0	.....
SKILLED	20.4	22.6	19.3	19.7	26.2	.....	30.2	27.6	29.9	32.8	33.3	.....
SEMISKILLED	20.1	22.3	23.9	16.2	11.9	12.5	23.1	21.5	27.1	21.7	15.2	14.3
UNSKILLED & OTHER[A].	19.2	28.5	17.6	16.0	16.7	.....	20.4	30.3	17.0	17.5	16.7	.....
ENTRY[B]	16.9	10.0	20.0	16.9	19.0	37.5	14.0	10.0	17.0	12.7	18.2	28.6
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.2	37.4	35.3	5.6	.5	100.0	25.8	36.0	31.0	6.5	.7
PROF. & MANAGERIAL.	100.0	17.5	23.8	44.4	7.9	6.3	100.0	17.6	25.5	39.2	9.8	7.8
CLERICAL & SALES ..	100.0	7.0	23.6	59.9	9.6	.....	100.0	11.4	25.7	51.4	11.4	.....
SERVICE	100.0	23.3	42.1	33.1	1.5	.....	100.0	39.5	28.9	26.3	5.3	.....
SKILLED	100.0	23.4	35.4	34.1	7.1	.....	100.0	23.5	35.6	33.7	7.2	.....
SEMISKILLED	100.0	23.4	44.6	28.4	3.3	.3	100.0	23.9	42.3	29.1	4.3	.4
UNSKILLED & OTHER[A].	100.0	31.5	34.3	29.4	4.8	.....	100.0	38.2	30.0	26.6	5.3	.....
ENTRY[B]	100.0	12.6	44.5	35.4	6.3	1.2	100.0	18.3	43.7	28.2	8.5	1.4
	NUMBER, BY AGE GROUP											
TOTAL	1,507	319	564	532	84	8	1,013	261	365	314	66	7
UNDER 20	140	16	72	44	8	.....	81	16	40	20	5	.....
20 - 24	278	26	89	131	29	3	179	24	58	76	19	2
25 - 34	319	40	128	137	12	2	210	29	84	84	11	2
35 - 44	336	76	131	109	19	1	223	61	84	61	16	1
45 - 54	256	70	90	84	11	1	196	61	67	57	10	1
55 - 64	144	68	48	23	4	1	100	52	30	13	4	1
65 AND OVER	34	23	6	4	1	.....	24	18	2	3	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	9.3	5.0	12.8	8.3	9.5	.....	8.0	6.1	11.0	6.4	7.6	.....
20 - 24	18.4	8.2	15.8	24.6	34.5	37.5	17.7	9.2	15.9	24.2	28.8	28.6
25 - 34	21.2	12.5	22.7	25.8	14.3	25.0	20.7	11.1	23.0	26.8	16.7	28.6
35 - 44	22.3	23.8	23.2	20.5	22.6	12.5	22.0	23.4	23.0	19.4	24.2	14.3
45 - 54	17.0	21.9	16.0	15.8	13.1	12.5	19.3	23.4	18.4	18.2	15.2	14.3
55 - 64	9.6	21.3	8.5	4.3	4.8	12.5	9.9	19.9	8.2	4.1	6.1	14.3
65 AND OVER	2.3	7.2	1.1	.8	1.2	.....	2.4	6.9	.5	1.0	1.5	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.2	37.4	35.3	5.6	.5	100.0	25.8	36.0	31.0	6.5	.7
UNDER 20	100.0	11.4	51.4	31.4	5.7	.....	100.0	19.8	49.4	24.7	6.2	.....
20 - 24	100.0	9.4	32.0	47.1	10.4	1.1	100.0	13.4	32.4	42.5	10.6	1.1
25 - 34	100.0	12.5	40.1	42.9	3.8	.6	100.0	13.8	40.0	40.0	5.2	1.0
35 - 44	100.0	22.6	39.0	32.4	5.7	.3	100.0	27.4	37.7	27.4	7.2	.4
45 - 54	100.0	27.3	35.2	32.8	4.3	.4	100.0	31.1	34.2	29.1	5.1	.5
55 - 64	100.0	47.2	33.3	16.0	2.8	.7	100.0	52.0	30.0	13.0	4.0	1.0
65 AND OVER	100.0	67.6	17.6	11.8	2.9	.....	100.0	75.0	8.3	12.5	4.2	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

ATHENS COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN ATHENS COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	463	108	142	174	34	5	369	99	117	127	22	4
PROF. & MANAGERIAL.	4	.....	1	.....	1	2	3	.....	.....	.....	1	2
CLERICAL & SALES ..	29	.....	4	13	10	2	12	.....	3	6	2	1
SERVICE	44	13	19	12	.....	.....	13	4	3	6	.....	.....
SKILLED	73	18	21	31	3	.....	73	18	21	31	3	.....
SEMISKILLED	82	20	31	29	2	.....	79	20	28	29	2	.....
UNSKILLED & OTHER[A].	136	46	51	36	3	.....	119	46	47	23	3	.....
ENTRY[B]	95	11	15	53	15	1	70	11	15	32	11	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	.9	.....	.7	.....	2.9	40.0	.8	.....	.....	.....	4.5	50.0
CLERICAL & SALES ..	6.3	.....	2.8	7.5	29.4	40.0	3.3	.....	2.6	4.7	9.1	25.0
SERVICE	9.5	12.0	13.4	6.9	.....	.....	3.5	4.0	2.6	4.7	.....	.....
SKILLED	15.8	16.7	14.8	17.8	8.8	.....	19.8	18.2	17.9	24.4	13.6	.....
SEMISKILLED	17.7	18.5	21.8	16.7	5.9	.....	21.4	20.2	23.9	22.8	9.1	.....
UNSKILLED & OTHER[A].	29.4	42.6	35.9	20.7	8.8	.....	32.2	46.5	40.2	18.1	13.6	.....
ENTRY[B]	20.5	10.2	10.6	30.5	44.1	20.0	19.0	11.1	12.8	25.2	50.0	25.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.3	30.7	37.6	7.3	1.1	100.0	26.8	31.7	34.4	6.0	1.1
PROF. & MANAGERIAL.	100.0	.....	25.0	.....	25.0	50.0	100.0	.....	.....	.....	33.3	66.7
CLERICAL & SALES ..	100.0	.....	13.8	44.8	34.5	6.9	100.0	.....	25.0	50.0	16.7	8.3
SERVICE	100.0	29.5	43.2	27.3	.....	.....	100.0	30.8	23.1	46.2	.....	.....
SKILLED	100.0	24.7	28.8	42.5	4.1	.....	100.0	24.7	28.8	42.5	4.1	.....
SEMISKILLED	100.0	24.4	37.8	35.4	2.4	.....	100.0	25.3	35.4	36.7	2.5	.....
UNSKILLED & OTHER[A].	100.0	33.8	37.5	26.5	2.2	.....	100.0	38.7	39.5	19.3	2.5	.....
ENTRY[B]	100.0	11.6	15.8	55.8	15.8	1.1	100.0	15.7	21.4	45.7	15.7	1.4
	NUMBER, BY AGE GROUP											
TOTAL	463	108	142	174	34	5	369	99	117	127	22	4
UNDER 20	50	5	10	26	9	.....	35	5	10	15	5	.....
20 - 24	94	7	30	41	14	2	75	7	26	32	9	1
25 - 34	117	18	44	51	3	1	101	18	39	42	1	1
35 - 44	82	24	31	24	2	1	64	21	24	16	2	1
45 - 54	84	32	19	28	5	.....	63	27	11	20	5	.....
55 - 64	31	20	7	3	1	.....	27	19	6	2	.....	.....
65 AND OVER	5	2	1	1	.....	1	4	2	1	.....	.....	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	10.8	4.6	7.0	14.9	26.5	.....	9.5	5.1	8.5	11.8	22.7	.....
20 - 24	20.3	6.5	21.1	23.6	41.2	40.0	20.3	7.1	22.2	25.2	40.9	25.0
25 - 34	25.3	16.7	31.0	29.3	8.8	20.0	27.4	18.2	33.3	33.1	4.5	25.0
35 - 44	17.7	22.2	21.8	13.8	5.9	20.0	17.3	21.2	20.5	12.6	9.1	25.0
45 - 54	18.1	29.6	13.4	16.1	14.7	.....	17.1	27.3	9.4	15.7	22.7	.....
55 - 64	6.7	18.5	4.9	1.7	2.9	.....	7.3	19.2	5.1	1.6	.....	.....
65 AND OVER	1.1	1.9	.7	.6	.....	20.0	1.1	2.0	.9	.....	.....	25.0
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.3	30.7	37.6	7.3	1.1	100.0	26.8	31.7	34.4	6.0	1.1
UNDER 20	100.0	10.0	20.0	52.0	18.0	.....	100.0	14.3	28.6	42.9	14.3	.....
20 - 24	100.0	7.4	31.9	43.6	14.9	2.1	100.0	9.3	34.7	42.7	12.0	1.3
25 - 34	100.0	15.4	37.6	43.6	2.6	.9	100.0	17.8	38.6	41.6	1.0	1.0
35 - 44	100.0	29.3	37.8	29.3	2.4	1.2	100.0	32.8	37.5	25.0	3.1	1.6
45 - 54	100.0	38.1	22.6	33.3	6.0	.....	100.0	42.9	17.5	31.7	7.9	.....
55 - 64	100.0	64.5	22.6	9.7	3.2	.....	100.0	70.4	22.2	7.4	.....	.....
65 AND OVER	100.0	40.0	20.0	20.0	.....	20.0	100.0	50.0	25.0	.....	.....	25.0

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

AUGLAIZE COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN AUGLAIZE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	343	57	99	156	31	.....	235	46	71	96	22	.....
PROF. & MANAGERIAL.	7	.....	.....	6	1	.....	6	.....	.....	5	1	.....
CLERICAL & SALES ..	34	1	1	25	7	.....	5	.....	.....	4	1	.....
SERVICE	29	8	5	14	2	.....	15	6	3	5	1	.....
SKILLED	37	9	10	15	3	.....	36	9	10	14	3	.....
SEMISKILLED	70	11	26	27	6	.....	59	9	22	22	6	.....
UNSKILLED & OTHER[A].	127	27	43	52	5	.....	88	22	27	34	5	.....
ENTRY[B]	39	1	14	17	7	.....	26	.....	9	12	5	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	2.0	.....	.....	3.8	3.2	.....	2.6	.....	.....	5.2	4.5	.....
CLERICAL & SALES ..	9.9	1.8	1.0	16.0	22.6	.....	2.1	.....	.....	4.2	4.5	.....
SERVICE	8.5	14.0	5.1	9.0	6.5	.....	6.4	13.0	4.2	5.2	4.5	.....
SKILLED	10.8	15.8	10.1	9.6	9.7	.....	15.3	19.6	14.1	14.6	13.6	.....
SEMISKILLED	20.4	19.3	26.3	17.3	19.4	.....	25.1	19.6	31.0	22.9	27.3	.....
UNSKILLED & OTHER[A].	37.0	47.4	43.4	33.3	16.1	.....	37.4	47.8	38.0	35.4	22.7	.....
ENTRY[B]	11.4	1.8	14.1	10.9	22.6	.....	11.1	.....	12.7	12.5	22.7	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	16.6	28.9	45.5	9.0	.....	100.0	19.6	30.2	40.9	9.4	.....
PROF. & MANAGERIAL.	100.0	.....	.....	85.7	14.3	.....	100.0	.....	.....	83.3	16.7	.....
CLERICAL & SALES ..	100.0	2.9	2.9	73.5	20.6	.....	100.0	.....	.....	80.0	20.0	.....
SERVICE	100.0	27.6	17.2	48.3	6.9	.....	100.0	40.0	20.0	33.3	6.6	.....
SKILLED	100.0	24.3	27.0	40.5	8.1	.....	100.0	25.0	27.8	38.9	8.3	.....
SEMISKILLED	100.0	15.7	37.1	38.6	8.6	.....	100.0	15.3	37.3	37.3	10.2	.....
UNSKILLED & OTHER[A].	100.0	21.3	33.9	40.9	3.9	.....	100.0	25.0	30.7	38.6	5.7	.....
ENTRY[B]	100.0	2.6	35.9	43.6	17.9	.....	100.0	.....	34.6	46.2	19.2	.....
	NUMBER, BY AGE GROUP											
TOTAL	343	57	99	156	31	.....	235	46	71	96	22	.....
UNDER 20	93	4	25	48	16	.....	73	3	20	39	11	.....
20 - 24	77	11	25	33	8	.....	54	9	20	19	6	.....
25 - 34	72	11	20	35	6	.....	43	10	10	19	4	.....
35 - 44	57	10	21	26	.....	.....	34	9	15	10	.....	.....
45 - 54	27	13	4	10	.....	.....	20	9	4	7	.....	.....
55 - 64	14	7	4	3	.....	.....	8	5	2	1	.....	.....
65 AND OVER	3	1	.....	1	1	.....	3	1	.....	1	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	27.1	7.0	25.3	30.8	51.6	.....	31.1	6.5	28.2	40.6	50.0	.....
20 - 24	22.4	19.3	25.3	21.2	25.8	.....	23.0	19.6	28.2	19.8	27.3	.....
25 - 34	21.0	19.3	20.2	22.4	19.4	.....	18.3	21.7	14.1	19.8	18.2	.....
35 - 44	16.6	17.5	21.2	16.7	.....	.....	14.5	19.6	21.1	10.4	.....	.....
45 - 54	7.9	22.8	4.0	6.4	.....	.....	8.5	19.6	5.6	7.3	.....	.....
55 - 64	4.1	12.3	4.0	1.9	.....	.....	3.4	10.9	2.8	1.0	.....	.....
65 AND OVER	.9	1.8	.....	.6	3.2	.....	1.3	2.2	.....	1.0	4.5	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	16.6	28.9	45.5	9.0	.....	100.0	19.6	30.2	40.9	9.4	.....
UNDER 20	100.0	4.3	26.9	51.6	17.2	.....	100.0	4.1	27.4	53.4	15.1	.....
20 - 24	100.0	14.3	32.5	42.9	10.4	.....	100.0	16.7	37.0	35.2	11.1	.....
25 - 34	100.0	15.3	27.8	48.6	8.3	.....	100.0	23.3	23.3	44.2	9.3	.....
35 - 44	100.0	17.5	36.8	45.6	.....	.....	100.0	26.5	44.1	29.4	.....	.....
45 - 54	100.0	48.1	14.8	37.0	.....	.....	100.0	45.0	20.0	35.0	.....	.....
55 - 64	100.0	50.0	28.6	21.4	.....	.....	100.0	62.5	25.0	12.5	.....	.....
65 AND OVER	100.0	33.3	.....	33.3	33.3	.....	100.0	33.3	.....	33.3	33.3	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN BELMONT COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,203	315	405	420	51	12	883	261	295	276	40	11
PROF. & MANAGERIAL.	23	.....	4	5	5	9	19	.....	3	4	4	8
CLERICAL & SALES ..	104	6	21	65	11	1	37	5	8	13	10	1
SERVICE	73	25	17	24	7	.....	26	10	2	10	4	.....
SKILLED	180	55	52	64	9	.....	171	55	49	59	8	.....
SEMISKILLED	303	102	94	104	3	.....	218	72	72	71	3	.....
UNSKILLED & OTHER[A].	296	108	85	100	2	1	278	105	80	90	2	1
ENTRY[B]	224	19	132	58	14	1	134	14	81	29	9	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.9	.....	1.0	1.2	9.8	75.0	2.2	.....	1.0	1.4	10.0	72.7
CLERICAL & SALES ..	8.6	1.9	5.2	15.5	21.6	8.3	4.2	1.9	2.7	4.7	25.0	9.1
SERVICE	6.1	7.9	4.2	5.7	13.7	.....	2.9	3.8	.7	3.6	10.0	.....
SKILLED	15.0	17.5	12.8	15.2	17.6	.....	19.4	21.1	16.6	21.4	20.0	.....
SEMISKILLED	25.2	32.4	23.2	24.8	5.9	.....	24.7	27.6	24.4	25.7	7.5	.....
UNSKILLED & OTHER[A].	24.6	34.3	21.0	23.8	3.9	8.3	31.5	40.2	27.1	32.6	5.0	9.1
ENTRY[B]	18.6	6.0	32.6	13.8	27.5	8.3	15.2	5.4	27.5	10.5	22.5	9.1
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.2	33.7	34.9	4.2	1.0	100.0	29.6	33.4	31.3	4.5	1.2
PROF. & MANAGERIAL.	100.0	.....	17.4	21.7	21.7	39.1	100.0	.....	15.8	21.1	21.1	42.1
CLERICAL & SALES ..	100.0	5.8	20.2	62.5	10.6	1.0	100.0	13.5	21.6	35.1	27.0	2.7
SERVICE	100.0	34.2	23.3	32.9	9.6	.....	100.0	38.5	7.7	38.5	15.4	.....
SKILLED	100.0	30.6	28.9	35.6	5.0	.....	100.0	32.2	28.7	34.5	4.7	.....
SEMISKILLED	100.0	33.7	31.0	34.3	1.0	.....	100.0	33.0	33.0	32.6	1.4	.....
UNSKILLED & OTHER[A].	100.0	36.5	28.7	33.8	.7	.3	100.0	37.8	28.8	32.4	.7	.4
ENTRY[B]	100.0	8.5	58.9	25.9	6.2	.4	100.0	10.4	60.4	21.6	6.7	.7
	NUMBER, BY AGE GROUP											
TOTAL	1,203	315	405	420	51	12	883	261	295	276	40	11
UNDER 20	222	7	132	71	12	.....	133	6	82	41	4	.....
20 - 24	153	10	47	80	13	3	132	10	45	62	12	3
25 - 34	235	35	65	122	11	2	189	33	55	88	11	2
35 - 44	236	63	81	79	7	6	172	59	60	42	6	5
45 - 54	208	103	52	49	4	.....	138	71	34	30	3	.....
55 - 64	132	83	27	18	4	.....	104	70	18	12	4	.....
65 AND OVER	17	14	1	1	.....	1	15	12	1	1	.....	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	18.5	2.2	32.6	16.9	23.5	.....	15.1	2.3	27.8	14.9	10.0	.....
20 - 24	12.7	3.2	11.6	19.0	25.5	25.0	14.9	3.8	15.3	22.5	30.0	27.3
25 - 34	19.5	11.1	16.0	29.0	21.6	16.7	21.4	12.6	18.6	31.9	27.5	18.2
35 - 44	19.6	20.0	20.0	18.8	13.7	50.0	19.5	22.6	20.3	15.2	15.0	45.5
45 - 54	17.3	32.7	12.8	11.7	7.8	.....	15.6	27.2	11.5	10.9	7.5	.....
55 - 64	11.0	26.3	6.7	4.3	7.8	.....	11.8	26.8	6.1	4.3	10.0	.....
65 AND OVER	1.4	4.4	.2	.2	.....	8.3	1.7	4.6	.3	.4	.....	9.1
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.2	33.7	34.9	4.2	1.0	100.0	29.6	33.4	31.3	4.5	1.2
UNDER 20	100.0	3.2	59.5	32.0	5.4	.....	100.0	4.5	61.7	30.8	3.0	.....
20 - 24	100.0	6.5	30.7	52.3	8.5	2.0	100.0	7.6	34.1	47.0	9.1	2.3
25 - 34	100.0	14.9	27.7	51.9	4.7	.9	100.0	17.5	29.1	46.6	5.8	1.1
35 - 44	100.0	26.7	34.3	33.5	3.0	2.5	100.0	34.3	34.9	24.4	3.5	2.9
45 - 54	100.0	49.5	25.0	23.6	1.9	.....	100.0	51.4	24.6	21.7	2.2	.....
55 - 64	100.0	62.9	20.5	13.6	3.0	.....	100.0	67.3	17.3	11.5	3.8	.....
65 AND OVER	100.0	82.4	5.9	5.9	.....	5.9	100.0	80.0	6.7	6.7	.....	6.7

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN BROWN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	229	92	66	68	3	.....	207	90	62	52	3	.....
PROF. & MANAGERIAL.	1	.....	.....	.....	1	.....	1	.....	.....	.....	1	.....
CLERICAL & SALES ..	21	3	2	15	1	.....	9	2	1	5	1	.....
SERVICE	13	1	5	7	.....	.....	8	1	4	3	.....	.....
SKILLED	56	25	16	14	1	.....	55	25	15	14	1	.....
SEMISKILLED	52	26	14	12	.....	.....	51	26	13	12	.....	.....
UNSKILLED & OTHER[A].	85	37	28	20	.....	.....	82	36	28	18	.....	.....
ENTRY[B]	1	.....	1	.....	.....	.....	1	.....	1	.....	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	.4	.....	.....	.....	33.3	.....	.5	.....	.....	.....	33.3	.....
CLERICAL & SALES ..	9.2	3.3	3.0	22.1	33.3	.....	4.3	2.2	1.6	9.6	33.3	.....
SERVICE	5.7	1.1	7.6	10.3	.....	.....	3.9	1.1	6.5	5.8	.....	.....
SKILLED	24.5	27.2	24.2	20.6	33.3	.....	26.6	27.8	24.2	26.9	33.3	.....
SEMISKILLED	22.7	28.3	21.2	17.6	.....	.....	24.6	28.9	21.0	23.1	.....	.....
UNSKILLED & OTHER[A].	37.1	40.2	42.4	29.4	.....	.....	39.6	40.0	45.2	34.6	.....	.....
ENTRY[B]	.4	.....	1.5	.....	.....	.....	.5	.....	1.6	.....	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	40.2	28.8	29.7	1.3	.....	100.0	43.5	30.0	25.1	1.4	.....
PROF. & MANAGERIAL.	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....	100.0	.....
CLERICAL & SALES ..	100.0	14.3	9.5	71.4	4.8	.....	100.0	22.2	11.1	55.6	11.1	.....
SERVICE	100.0	7.7	38.5	53.8	.....	.....	100.0	12.5	50.0	37.5	.....	.....
SKILLED	100.0	44.6	28.6	25.0	1.8	.....	100.0	45.5	27.3	25.5	1.8	.....
SEMISKILLED	100.0	50.0	26.9	23.1	.....	.....	100.0	51.0	25.5	23.5	.....	.....
UNSKILLED & OTHER[A].	100.0	43.5	32.9	23.5	.....	.....	100.0	43.9	34.1	22.0	.....	.....
ENTRY[B]	100.0	.....	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	229	92	66	68	3	.....	207	90	62	52	3	.....
UNDER 20	9	.....	1	8	.....	.....	5	.....	1	4	.....	.....
20 - 24	29	3	10	16	.....	.....	26	3	10	13	.....	.....
25 - 34	74	24	26	24	.....	.....	69	24	25	20	.....	.....
35 - 44	52	24	15	12	1	.....	49	23	13	12	1	.....
45 - 54	37	21	10	5	1	.....	33	21	9	2	1	.....
55 - 64	25	18	3	3	1	.....	22	17	3	1	1	.....
65 AND OVER	3	2	1	.....	.....	.....	3	2	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	3.9	.....	1.5	11.8	.....	.....	2.4	.....	1.6	7.7	.....	.....
20 - 24	12.7	3.3	15.2	23.5	.....	.....	12.6	3.3	16.1	25.0	.....	.....
25 - 34	32.3	26.1	39.4	35.3	.....	.....	33.3	26.7	40.3	38.5	.....	.....
35 - 44	22.7	26.1	22.7	17.6	33.3	.....	23.7	25.6	21.0	23.1	33.3	.....
45 - 54	16.2	22.8	15.2	7.4	33.3	.....	15.9	23.3	14.5	3.8	33.3	.....
55 - 64	10.9	19.6	4.5	4.4	33.3	.....	10.6	18.9	4.8	1.9	33.3	.....
65 AND OVER	1.3	2.2	1.5	.....	.....	.....	1.4	2.2	1.6	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	40.2	28.8	29.7	1.3	.....	100.0	43.5	30.0	25.1	1.4	.....
UNDER 20	100.0	.....	11.1	88.9	.....	.....	100.0	.....	20.0	80.0	.....	.....
20 - 24	100.0	10.3	34.5	55.2	.....	.....	100.0	11.5	38.5	50.0	.....	.....
25 - 34	100.0	32.4	35.1	32.4	.....	.....	100.0	34.8	36.2	29.0	.....	.....
35 - 44	100.0	46.2	28.8	23.1	1.9	.....	100.0	46.9	26.5	24.5	2.0	.....
45 - 54	100.0	56.8	27.0	13.5	2.7	.....	100.0	63.6	27.3	6.1	3.0	.....
55 - 64	100.0	72.0	12.0	12.0	4.0	.....	100.0	77.3	13.6	4.5	4.5	.....
65 AND OVER	100.0	66.7	33.3	.....	.....	.....	100.0	66.7	33.3	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN BUTLER COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	4,341	1,175	1,709	1,216	208	33	2,755	922	1,038	630	139	26
PROF. & MANAGERIAL.	74	2	7	19	29	17	56	.....	.....	14	26	16
CLERICAL & SALES ..	487	30	117	285	48	7	127	14	38	49	22	4
SERVICE	378	142	160	70	6	.....	135	55	44	34	2	.....
SKILLED	607	259	191	145	11	1	586	255	178	142	11	.....
SEMISKILLED	870	299	370	197	4	.....	621	233	258	128	2	.....
UNSKILLED & OTHER[A].	821	345	281	175	17	3	655	312	201	124	15	3
ENTRY[B]	1,104	98	583	325	93	5	575	53	319	139	61	3
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.7	.2	.4	1.6	13.9	51.5	2.0	.....	.....	2.2	18.7	61.5
CLERICAL & SALES ..	11.2	2.6	6.8	23.4	23.1	21.2	4.6	1.5	3.7	7.8	15.8	15.4
SERVICE	8.7	12.1	9.4	5.8	2.9	.....	4.9	6.0	4.2	5.4	1.4	.....
SKILLED	14.0	22.0	11.2	11.9	5.3	3.0	21.3	27.7	17.1	22.5	7.9	.....
SEMISKILLED	20.0	25.4	21.7	16.2	1.9	.....	22.5	25.3	24.9	20.3	1.4	.....
UNSKILLED & OTHER[A].	18.9	29.4	16.4	14.4	8.2	9.1	23.8	33.8	19.4	19.7	10.8	11.5
ENTRY[B]	25.4	8.3	34.1	26.7	44.7	15.2	20.9	5.7	30.7	22.1	43.9	11.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.1	39.4	28.0	4.8	.8	100.0	33.5	37.7	22.9	5.0	.9
PROF. & MANAGERIAL.	100.0	2.7	9.5	25.7	39.2	23.0	100.0	.....	.....	25.0	46.4	28.6
CLERICAL & SALES ..	100.0	6.2	24.0	58.5	9.9	1.4	100.0	11.0	29.9	38.6	17.3	3.1
SERVICE	100.0	37.6	42.3	18.5	1.6	.....	100.0	40.7	32.6	25.2	1.5	.....
SKILLED	100.0	42.7	31.5	23.9	1.8	.2	100.0	43.5	30.4	24.2	1.9	.....
SEMISKILLED	100.0	34.4	42.5	22.6	.5	.....	100.0	37.5	41.5	20.6	.3	.....
UNSKILLED & OTHER[A].	100.0	42.0	34.2	21.3	2.1	.4	100.0	47.6	30.7	18.9	2.3	.5
ENTRY[B]	100.0	8.9	52.8	29.4	8.4	.5	100.0	9.2	55.5	24.2	10.6	.5
	NUMBER, BY AGE GROUP											
TOTAL	4,341	1,175	1,709	1,216	208	33	2,755	922	1,038	630	139	26
UNDER 20	821	54	492	224	50	1	482	49	311	93	28	1
20 - 24	881	107	331	348	82	13	554	86	214	192	54	8
25 - 34	1,062	269	405	346	31	11	686	221	248	184	22	11
35 - 44	818	325	282	182	22	7	502	248	146	88	15	5
45 - 54	456	226	138	79	12	1	312	173	80	48	10	1
55 - 64	256	164	54	29	9	.....	178	120	33	17	8	.....
65 AND OVER	47	30	7	8	2	.....	41	25	6	8	2	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	18.9	4.6	28.8	18.4	24.0	3.0	17.5	5.3	30.0	14.8	20.1	3.8
20 - 24	20.3	9.1	19.4	28.6	39.4	39.4	20.1	9.3	20.6	30.5	38.8	30.8
25 - 34	24.5	22.9	23.7	28.5	14.9	33.3	24.9	24.0	23.9	29.2	15.8	42.3
35 - 44	18.8	27.7	16.5	15.0	10.6	21.2	18.2	26.9	14.1	14.0	10.8	19.2
45 - 54	10.5	19.2	8.1	6.5	5.8	3.0	11.3	18.8	7.7	7.6	7.2	3.8
55 - 64	5.9	14.0	3.2	2.4	4.3	.....	6.5	13.0	3.2	2.7	5.8	.....
65 AND OVER	1.1	2.6	.4	.7	1.0	.....	1.5	2.7	.6	1.3	1.4	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.1	39.4	28.0	4.8	.8	100.0	33.5	37.7	22.9	5.0	.9
UNDER 20	100.0	6.6	59.9	27.3	6.1	.1	100.0	10.2	64.5	19.3	5.8	.2
20 - 24	100.0	12.1	37.6	39.5	9.3	1.5	100.0	15.5	38.6	34.7	9.7	1.4
25 - 34	100.0	25.3	38.1	32.6	2.9	1.0	100.0	32.2	35.2	26.8	3.2	1.6
35 - 44	100.0	39.7	34.5	22.2	2.7	.9	100.0	49.4	29.1	17.5	3.0	1.0
45 - 54	100.0	49.6	30.3	17.3	2.6	.2	100.0	55.4	25.6	15.4	3.2	.3
55 - 64	100.0	64.1	21.1	11.3	3.5	.....	100.0	67.4	18.5	9.6	4.5	.....
65 AND OVER	100.0	63.8	14.9	17.0	4.3	.....	100.0	61.0	14.6	19.5	4.9	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN CARROLL COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	487	112	196	151	23	5	286	98	115	54	14	5
PROF. & MANAGERIAL.	8	.....	.....	3	2	3	7	.....	.....	2	2	3
CLERICAL & SALES ..	46	.....	9	32	5	.....	8	.....	1	5	2	.....
SERVICE	80	14	33	27	6	.....	12	3	6	2	1	.....
SKILLED	44	15	21	8	.....	.....	43	15	21	7	.....	.....
SEMISKILLED	101	37	39	21	4	.....	76	35	28	9	4	.....
UNSKILLED & OTHER[A].	121	37	50	30	2	2	98	36	39	19	2	2
ENTRY[B]	87	9	44	30	4	.....	42	9	20	10	3	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.6	.....	.....	2.0	8.7	60.0	2.4	.....	.....	3.7	14.3	60.0
CLERICAL & SALES ..	9.4	.....	4.6	21.2	21.7	.....	2.8	.....	.9	9.3	14.3	.....
SERVICE	16.4	12.5	16.8	17.9	26.1	.....	4.2	3.1	5.2	3.7	7.1	.....
SKILLED	9.0	13.4	10.7	5.3	.....	.....	15.0	15.3	18.3	13.0	.....	.....
SEMISKILLED	20.7	33.0	19.9	13.9	17.4	.....	26.6	35.7	24.3	16.7	28.6	.....
UNSKILLED & OTHER[A].	24.8	33.0	25.5	19.9	8.7	40.0	34.3	36.7	33.9	35.2	14.3	40.0
ENTRY[B]	17.9	8.0	22.4	19.9	17.4	.....	14.7	9.2	17.4	18.5	21.4	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.0	40.2	31.0	4.7	1.0	100.0	34.3	40.2	18.9	4.9	1.7
PROF. & MANAGERIAL.	100.0	.....	.....	37.5	25.0	37.5	100.0	.....	.....	28.6	28.6	42.9
CLERICAL & SALES ..	100.0	.....	19.6	69.6	10.9	.....	100.0	.....	12.5	62.5	25.0	.....
SERVICE	100.0	17.5	41.2	33.8	7.5	.....	100.0	25.0	50.0	16.7	8.3	.....
SKILLED	100.0	34.1	47.7	18.2	.....	.....	100.0	34.9	48.8	16.3	.....	.....
SEMISKILLED	100.0	36.6	38.6	20.8	4.0	.....	100.0	46.1	36.8	11.8	5.3	.....
UNSKILLED & OTHER[A].	100.0	30.6	41.3	24.8	1.7	1.7	100.0	36.7	39.8	19.4	2.0	2.0
ENTRY[B]	100.0	10.3	50.6	34.5	4.6	.....	100.0	21.4	47.6	23.8	7.1	.....
	NUMBER, BY AGE GROUP											
TOTAL	487	112	196	151	23	5	286	98	115	54	14	5
UNDER 20	96	6	57	26	7	.....	58	5	36	12	5	.....
20 - 24	98	11	37	41	9	.....	54	11	23	15	5	.....
25 - 34	97	20	38	32	3	4	54	18	23	9	.....	4
35 - 44	85	22	41	22	.....	.....	45	21	20	4	.....	.....
45 - 54	70	29	17	22	2	.....	42	23	9	8	2	.....
55 - 64	30	14	6	7	2	1	23	11	4	5	2	1
65 AND OVER	11	10	.....	1	.....	.....	10	9	.....	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	19.7	5.4	29.1	17.2	30.4	.....	20.3	5.1	31.3	22.2	35.7	.....
20 - 24	20.1	9.8	18.9	27.2	39.1	.....	18.9	11.2	20.0	27.8	35.7	.....
25 - 34	19.9	17.9	19.4	21.2	13.0	80.0	18.9	18.4	20.0	16.7	.....	80.0
35 - 44	17.5	19.6	20.9	14.6	.....	.....	15.7	21.4	17.4	7.4	.....	.....
45 - 54	14.4	25.9	8.7	14.6	8.7	.....	14.7	23.5	7.8	14.8	14.3	.....
55 - 64	6.2	12.5	3.1	4.6	8.7	20.0	8.0	11.2	3.5	9.3	14.3	20.0
65 AND OVER	2.3	8.9	.....	.7	.....	.....	3.5	9.2	.....	1.9	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.0	40.2	31.0	4.7	1.0	100.0	34.3	40.2	18.9	4.9	1.7
UNDER 20	100.0	6.2	59.4	27.1	7.3	.....	100.0	8.6	62.1	20.7	8.6	.....
20 - 24	100.0	11.2	37.8	41.8	9.2	.....	100.0	20.4	42.6	27.8	9.3	.....
25 - 34	100.0	20.6	39.2	33.0	3.1	4.1	100.0	33.3	42.6	16.7	.....	7.4
35 - 44	100.0	25.9	48.2	25.9	.....	.....	100.0	46.7	44.4	8.9	.....	.....
45 - 54	100.0	41.4	24.3	31.4	2.9	.....	100.0	54.8	21.4	19.0	4.8	.....
55 - 64	100.0	46.7	20.0	23.3	6.7	3.[illegible]	100.0	47.8	17.4	21.7	8.7	4.3
65 AND OVER	100.0	90.9	.....	9.1	.....	.....	100.0	90.0	.....	10.0	.....	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

CHAMPAIGN COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN CHAMPAIGN COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	185	55	60	62	6	2	125	45	40	34	5	1
PROF. & MANAGERIAL.	3	.....	.....	2	1	.....	3	.....	.....	2	1	.....
CLERICAL & SALES ..	26	.....	8	14	4	.....	11	.....	3	5	3	.....
SERVICE	14	6	3	5	.....	.....	7	5	1	1	.....	.....
SKILLED	32	12	10	10	.....	.....	30	12	10	8	.....	.....
SEMISKILLED	46	19	15	11	.....	1	39	19	11	9	.....	.....
UNSKILLED & OTHER[A].	33	13	12	8	.....	.....	23	8	10	5	.....	.....
ENTRY[B]	31	5	12	12	1	1	12	1	5	4	1	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.6	.....	.....	3.2	16.7	.....	2.4	.....	.....	5.9	20.0	.....
CLERICAL & SALES ..	14.1	.....	13.3	22.6	66.7	.....	8.8	.....	7.5	14.7	60.0	.....
SERVICE	7.6	10.9	5.0	8.1	.....	.....	5.6	11.1	2.5	2.9	.....	.....
SKILLED	17.3	21.8	16.7	16.1	.....	.....	24.0	26.7	25.0	23.5	.....	.....
SEMISKILLED	24.9	34.5	25.0	17.7	.....	50.0	31.2	42.2	27.5	26.5	.....	.....
UNSKILLED & OTHER[A].	17.8	23.6	20.0	12.9	.....	.....	18.4	17.8	25.0	14.7	.....	.....
ENTRY[B]	16.8	9.1	20.0	19.4	16.7	50.0	9.6	2.2	12.5	11.8	20.0	100.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.7	32.4	33.5	3.2	1.1	100.0	36.0	32.0	27.2	4.0	.8
PROF. & MANAGERIAL.	100.0	.....	.....	66.7	33.3	.....	100.0	.....	.....	66.7	33.3	.....
CLERICAL & SALES ..	100.0	.....	30.8	53.8	15.4	.....	100.0	.....	27.3	45.5	27.3	.....
SERVICE	100.0	42.9	21.4	35.7	.....	.....	100.0	71.4	14.3	14.3	.....	.....
SKILLED	100.0	37.5	31.2	31.2	.....	.....	100.0	40.0	33.3	26.7	.....	.....
SEMISKILLED	100.0	41.3	32.6	23.9	.....	2.2	100.0	48.7	28.2	23.1	.....	.....
UNSKILLED & OTHER[A].	100.0	39.4	36.4	24.2	.....	.....	100.0	34.8	43.5	21.7	.....	.....
ENTRY[B]	100.0	16.1	38.7	38.7	3.2	3.2	100.0	8.3	41.7	33.3	8.3	8.3
	NUMBER, BY AGE GROUP											
TOTAL	185	55	60	62	6	2	125	45	40	34	5	1
UNDER 20	21	1	11	9	.....	.....	12	1	8	3	.....	.....
20 - 24	25	4	11	10	.....	.....	17	3	8	6	.....	.....
25 - 34	41	6	18	16	1	.....	24	6	10	8	.....	.....
35 - 44	40	19	9	11	1	.....	27	15	5	6	1	.....
45 - 54	36	13	7	13	1	2	26	10	5	9	1	1
55 - 64	18	11	3	1	3	.....	16	9	3	1	3	.....
65 AND OVER	4	1	1	2	.....	.....	3	1	1	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	11.4	1.8	18.3	14.5	.....	.....	9.6	2.2	20.0	8.8	.....	.....
20 - 24	13.5	7.3	18.3	16.1	.....	.....	13.6	6.7	20.0	17.6	.....	.....
25 - 34	22.2	10.9	30.0	25.8	16.7	.....	19.2	13.3	25.0	23.5	.....	.....
35 - 44	21.6	34.5	15.0	17.7	16.7	.....	21.6	33.3	12.5	17.6	20.0	.....
45 - 54	19.5	23.6	11.7	21.0	16.7	100.0	20.8	22.2	12.5	26.5	20.0	100.0
55 - 64	9.7	20.0	5.0	1.6	50.0	.....	12.8	20.0	7.5	2.9	60.0	.....
65 AND OVER	2.2	1.8	1.7	3.2	.....	.....	2.4	2.2	2.5	2.9	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.7	32.4	33.5	3.2	1.1	100.0	36.0	32.0	27.2	4.0	.8
UNDER 20	100.0	4.8	52.4	42.9	.....	.....	100.0	8.3	66.7	25.0	.....	.....
20 - 24	100.0	16.0	44.0	40.0	.....	.....	100.0	17.6	47.1	35.3	.....	.....
25 - 34	100.0	14.6	43.9	39.0	2.4	.....	100.0	25.0	41.7	33.3	.....	.....
35 - 44	100.0	47.5	22.5	27.5	2.5	.....	100.0	55.6	18.5	22.2	3.7	.....
45 - 54	100.0	36.1	19.4	36.1	2.8	5.6	100.0	38.5	19.2	34.6	3.8	3.8
55 - 64	100.0	61.1	16.7	5.6	16.7	.....	100.0	56.2	18.8	6.2	18.8	.....
65 AND OVER	100.0	25.0	25.0	50.0	.....	.....	100.0	33.3	33.3	33.3	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

CLARK COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN CLARK COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,780	516	651	509	93	11	1,224	416	449	290	58	11
PROF. & MANAGERIAL.	42	1	4	18	13	6	36	.....	4	14	12	6
CLERICAL & SALES ..	199	14	48	111	26	.....	55	5	10	28	12	.....
SERVICE	225	79	99	45	1	1	74	32	28	13	.....	1
SKILLED	216	78	79	50	9	.....	199	72	75	46	6	.....
SEMISKILLED	416	146	173	92	5	.....	362	131	148	78	5	.....
UNSKILLED & OTHER[A].	298	146	102	45	5	.....	263	134	87	37	5	.....
ENTRY[B]	384	52	146	148	34	4	235	42	97	74	18	4
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.4	.2	.6	3.5	14.0	54.5	2.9	.....	.9	4.8	20.7	54.5
CLERICAL & SALES ..	11.2	2.7	7.4	21.8	28.0	.....	4.5	1.2	2.2	9.7	20.7	.....
SERVICE	12.6	15.3	15.2	8.8	1.1	9.1	6.0	7.7	6.2	4.5	.....	9.1
SKILLED	12.1	15.1	12.1	9.8	9.7	.....	16.3	17.3	16.7	15.9	10.3	.....
SEMISKILLED	23.4	28.3	26.6	18.1	5.4	.....	29.6	31.5	33.0	26.9	8.6	.....
UNSKILLED & OTHER[A].	16.7	28.3	15.7	8.8	5.4	.....	21.5	32.2	19.4	12.8	8.6	.....
ENTRY[B]	21.6	10.1	22.4	29.1	36.6	36.4	19.2	10.1	21.6	25.5	31.0	36.4
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.0	36.6	28.6	5.2	.6	100.0	34.0	36.7	23.7	4.7	.9
PROF. & MANAGERIAL.	100.0	2.4	9.5	42.9	31.0	14.3	100.0	.....	11.1	38.9	33.3	16.7
CLERICAL & SALES ..	100.0	7.0	24.1	55.8	13.1	.....	100.0	9.1	18.2	50.9	21.8	.....
SERVICE	100.0	35.1	44.0	20.0	.4	.4	100.0	43.2	37.8	17.6	.....	1.4
SKILLED	100.0	36.1	36.6	23.1	4.2	.....	100.0	36.2	37.7	23.1	3.0	.....
SEMISKILLED	100.0	35.1	41.6	22.1	1.2	.....	100.0	36.2	40.9	21.5	1.4	.....
UNSKILLED & OTHER[A].	100.0	49.0	34.2	15.1	1.7	.....	100.0	51.0	33.1	14.1	1.9	.....
ENTRY[B]	100.0	13.5	38.0	38.5	8.9	1.0	100.0	17.9	41.3	31.5	7.7	1.7
	NUMBER, BY AGE GROUP											
TOTAL	1,780	516	651	509	93	11	1,224	416	449	290	58	11
UNDER 20	224	18	81	105	20	.....	137	17	60	52	8	.....
20 - 24	368	44	161	138	25	.....	269	40	122	90	17	.....
25 - 34	399	93	169	118	15	4	280	80	119	63	14	4
35 - 44	334	115	130	69	18	2	217	84	83	37	11	2
45 - 54	247	121	60	53	9	4	169	96	36	30	3	4
55 - 64	172	98	46	22	5	1	126	80	27	14	4	1
65 AND OVER	36	27	4	4	1	.....	26	19	2	4	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	12.6	3.5	12.4	20.6	21.5	.....	11.2	4.1	13.4	17.9	13.8	.....
20 - 24	20.7	8.5	24.7	27.1	26.9	.....	22.0	9.6	27.2	31.0	29.3	.....
25 - 34	22.4	18.0	26.0	23.2	16.1	36.4	22.9	19.2	26.5	21.7	24.1	36.4
35 - 44	18.8	22.3	20.0	13.6	19.4	18.2	17.7	20.2	18.5	12.8	19.0	18.2
45 - 54	13.9	23.4	9.2	10.4	9.7	36.4	13.8	23.1	8.0	10.3	5.2	36.4
55 - 64	9.7	19.0	7.1	4.3	5.4	9.1	10.3	19.2	6.0	4.8	6.9	9.1
65 AND OVER	2.0	5.2	.6	.8	1.1	.....	2.1	4.6	.4	1.4	1.7	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.0	36.6	28.6	5.2	.6	100.0	34.0	36.7	23.7	4.7	.9
UNDER 20	100.0	8.0	36.2	46.9	8.9	.....	100.0	12.4	43.8	38.0	5.8	.....
20 - 24	100.0	12.0	43.8	37.5	6.8	.....	100.0	14.9	45.4	33.5	6.3	.....
25 - 34	100.0	23.3	42.4	29.6	3.8	1.0	100.0	28.6	42.5	22.5	5.0	1.4
35 - 44	100.0	34.4	38.9	20.7	5.4	.6	100.0	38.7	38.2	17.1	5.1	.9
45 - 54	100.0	49.0	24.3	21.5	3.6	1.6	100.0	56.8	21.3	17.8	1.8	2.4
55 - 64	100.0	57.0	26.7	12.8	2.9	.6	100.0	63.5	21.4	11.1	3.2	.8
65 AND OVER	100.0	75.0	11.1	11.1	2.8	.....	100.0	73.1	7.7	15.4	3.8	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN CLERMONT COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,271	480	447	290	47	7	908	399	299	166	38	6
PROF. & MANAGERIAL.	24	.....	9	5	7	3	19	.....	7	4	6	2
CLERICAL & SALES ..	155	23	41	76	13	2	38	11	7	12	6	2
SERVICE	90	36	38	16	.....	.....	35	18	11	6	.....	.....
SKILLED	243	106	90	32	14	1	236	104	85	32	14	1
SEMISKILLED	363	162	121	73	7	.....	295	137	97	55	6	.....
UNSKILLED & OTHER[A].	284	124	103	55	2	.....	193	101	56	34	2	.....
ENTRY[B]	112	29	45	33	4	1	92	28	36	23	4	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.9	.....	2.0	1.7	14.9	42.9	2.1	.....	2.3	2.4	15.8	33.3
CLERICAL & SALES ..	12.2	4.8	9.2	26.2	27.7	28.6	4.2	2.8	2.3	7.2	15.8	33.3
SERVICE	7.1	7.5	8.5	5.5	.....	.....	3.9	4.5	3.7	3.6	.....	.....
SKILLED	19.1	22.1	20.1	11.0	29.8	14.3	26.0	26.1	28.4	19.3	36.8	16.7
SEMISKILLED	28.6	33.7	27.1	25.2	14.9	.....	32.5	34.3	32.4	33.1	15.8	.....
UNSKILLED & OTHER[A].	22.3	25.8	23.0	19.0	4.3	.....	21.3	25.3	18.7	20.5	5.3	.....
ENTRY[B]	8.8	6.0	10.1	11.4	8.5	14.3	10.1	7.0	12.0	13.9	10.5	16.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	37.8	35.2	22.8	3.7	.6	100.0	43.9	32.9	18.3	4.2	.7
PROF. & MANAGERIAL.	100.0	.....	37.5	20.8	29.2	12.5	100.0	.....	36.8	21.1	31.6	10.5
CLERICAL & SALES ..	100.0	14.8	26.5	49.0	8.4	1.3	100.0	28.9	18.4	31.6	15.8	5.3
SERVICE	100.0	40.0	42.2	17.8	.....	.....	100.0	51.4	31.4	17.1	.....	.....
SKILLED	100.0	43.6	37.0	13.2	5.8	.4	100.0	44.1	36.0	13.6	5.9	.4
SEMISKILLED	100.0	44.6	33.3	20.1	1.9	.....	100.0	46.4	32.9	18.6	2.0	.....
UNSKILLED & OTHER[A].	100.0	43.7	36.3	19.4	.7	.....	100.0	52.3	29.0	17.6	1.0	.....
ENTRY[B]	100.0	25.9	40.2	29.5	3.6	.9	100.0	30.4	39.1	25.0	4.3	1.1
	NUMBER, BY AGE GROUP											
TOTAL	1,271	480	447	290	47	7	908	399	299	166	38	6
UNDER 20	122	35	52	33	2	.....	90	29	42	17	2	.....
20 - 24	226	35	87	93	10	1	160	31	65	56	7	1
25 - 34	270	79	109	70	10	2	182	66	63	42	9	2
35 - 44	269	120	92	45	8	4	174	92	50	24	5	3
45 - 54	221	114	68	30	9	.....	160	93	45	15	7	.....
55 - 64	137	83	34	16	4	.....	118	74	29	11	4	.....
65 AND OVER	26	14	5	3	4	.....	24	14	5	1	4	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	9.6	7.3	11.6	11.4	4.3	.....	9.9	7.3	14.0	10.2	5.3	.....
20 - 24	17.8	7.3	19.5	32.1	21.3	14.3	17.6	7.8	21.7	33.7	18.4	16.7
25 - 34	21.2	16.5	24.4	24.1	21.3	28.6	20.0	16.5	21.1	25.3	23.7	33.3
35 - 44	21.2	25.0	20.6	15.5	17.0	57.1	19.2	23.1	16.7	14.5	13.2	50.0
45 - 54	17.4	23.7	15.2	10.3	19.1	.....	17.6	23.3	15.1	9.0	18.4	.....
55 - 64	10.8	17.3	7.6	5.5	8.5	.....	13.0	18.5	9.7	6.6	10.5	.....
65 AND OVER	2.0	2.9	1.1	1.0	8.5	.....	2.6	3.5	1.7	.6	10.5	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	37.8	35.2	22.8	3.7	.6	100.0	43.9	32.9	18.3	4.2	.7
UNDER 20	100.0	28.7	42.6	27.0	1.6	.....	100.0	32.2	46.7	18.9	2.2	.....
20 - 24	100.0	15.5	38.5	41.2	4.4	.4	100.0	19.4	40.6	35.0	4.4	.6
25 - 34	100.0	29.3	40.4	25.9	3.7	.7	100.0	36.3	34.6	23.1	4.9	1.1
35 - 44	100.0	44.6	34.2	16.7	3.0	1.5	100.0	52.9	28.7	13.8	2.9	1.7
45 - 54	100.0	51.6	30.8	13.6	4.1	.....	100.0	58.1	28.1	9.4	4.4	.....
55 - 64	100.0	60.6	24.8	11.7	2.9	.....	100.0	62.7	24.6	9.3	3.4	.....
65 AND OVER	100.0	53.8	19.2	11.5	15.4	.....	100.0	58.3	20.8	4.2	16.7	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

CLINTON COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN CLINTON COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	190	59	70	59	2	.....	138	57	49	31	1	.....
PROF. & MANAGERIAL.	5	.....	.....	4	1	.....	2	.....	.....	2	.....	.....
CLERICAL & SALES ..	22	1	6	15	.....	.....	8	1	2	5	.....	.....
SERVICE	21	6	9	6	.....	.....	9	5	2	2	.....	.....
SKILLED	25	9	8	8	.....	.....	21	9	7	5	.....	.....
SEMISKILLED	50	19	17	14	.....	.....	44	18	15	11	.....	.....
UNSKILLED & OTHER[A].	45	17	20	7	1	.....	37	17	16	3	1	.....
ENTRY[B]	22	7	10	5	.....	.....	17	7	7	3	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	2.6	.....	.....	6.8	50.0	.....	1.4	.....	.....	6.5	.....	.....
CLERICAL & SALES ..	11.6	1.7	8.6	25.4	.....	.....	5.8	1.8	4.1	16.1	.....	.....
SERVICE	11.1	10.2	12.9	10.2	.....	.....	6.5	8.8	4.1	6.5	.....	.....
SKILLED	13.2	15.3	11.4	13.6	.....	.....	15.2	15.8	14.3	16.1	.....	.....
SEMISKILLED	26.3	32.2	24.3	23.7	.....	.....	31.9	31.6	30.6	35.5	.....	.....
UNSKILLED & OTHER[A].	23.7	28.8	28.6	11.9	50.0	.....	26.8	29.8	32.7	9.7	100.0	.....
ENTRY[B]	11.6	11.9	14.3	8.5	.....	.....	12.3	12.3	14.3	9.7	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	31.1	36.8	31.1	1.1	.....	100.0	41.3	35.5	22.5	.7	.....
PROF. & MANAGERIAL.	100.0	.....	.....	80.0	20.0	.....	100.0	.....	.....	100.0	.....	.....
CLERICAL & SALES ..	100.0	4.5	27.3	68.2	.....	.....	100.0	12.5	25.0	62.5	.....	.....
SERVICE	100.0	28.6	42.9	28.6	.....	.....	100.0	55.6	22.2	22.2	.....	.....
SKILLED	100.0	36.0	32.0	32.0	.....	.....	100.0	42.9	33.3	23.8	.....	.....
SEMISKILLED	100.0	38.0	34.0	28.0	.....	.....	100.0	40.9	34.1	25.0	.....	.....
UNSKILLED & OTHER[A].	100.0	37.8	44.4	15.6	2.2	.....	100.0	45.9	43.2	8.1	2.7	.....
ENTRY[B]	100.0	31.8	45.5	22.7	.....	.....	100.0	41.2	41.2	17.6	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	190	59	70	59	2	.....	138	57	49	31	1	.....
UNDER 20	4	.....	3	1	.....	.....	2	.....	2	.....	.....	.....
20 - 24	29	6	7	15	1	.....	23	6	4	13	.....	.....
25 - 34	50	11	18	20	1	.....	36	11	14	10	1	.....
35 - 44	58	19	27	12	.....	.....	44	18	19	7	.....	.....
45 - 54	35	16	12	7	.....	.....	24	16	7	1	.....	.....
55 - 64	14	7	3	4	.....	.....	9	6	3	.....	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	2.1	.....	4.3	1.7	.....	.....	1.4	.....	4.1	.....	.....	.....
20 - 24	15.3	10.2	10.0	25.4	50.0	.....	16.7	10.5	8.2	41.9	.....	.....
25 - 34	26.3	18.6	25.7	33.9	50.0	.....	26.1	19.3	28.6	32.3	100.0	.....
35 - 44	30.5	32.2	38.6	20.3	.....	.....	31.9	31.6	38.8	22.6	.....	.....
45 - 54	18.4	27.1	17.1	11.9	.....	.....	17.4	28.1	14.3	3.2	.....	.....
55 - 64	7.4	11.9	4.3	6.8	.....	.....	6.5	10.5	6.1	.....	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	31.1	36.8	31.1	1.1	.....	100.0	41.3	35.5	22.5	.7	.....
UNDER 20	100.0	.....	75.0	25.0	.....	.....	100.0	.....	100.0	.....	.....	.....
20 - 24	100.0	20.7	24.1	51.7	3.4	.....	100.0	26.1	17.4	56.5	.....	.....
25 - 34	100.0	22.0	36.0	40.0	2.0	.....	100.0	30.6	38.9	27.8	2.8	.....
35 - 44	100.0	32.8	46.6	20.7	.....	.....	100.0	40.9	43.2	15.9	.....	.....
45 - 54	100.0	45.7	34.3	20.0	.....	.....	100.0	66.7	29.2	4.2	.....	.....
55 - 64	100.0	50.0	21.4	28.6	.....	.....	100.0	66.7	33.3	.....	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN COLUMBIANA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,641	379	555	611	76	20	837	250	287	240	44	16
PROF. & MANAGERIAL.	44	1	5	12	13	13	35	1	3	9	11	11
CLERICAL & SALES ..	244	16	37	157	32	2	47	8	5	23	11	.....
SERVICE	219	48	99	67	5	.....	33	16	11	5	1	.....
SKILLED	152	47	46	53	3	3	133	44	39	44	3	3
SEMISKILLED	372	131	131	109	1	.....	219	81	88	49	1	.....
UNSKILLED & OTHER[A].	266	97	99	66	4	.....	165	67	59	35	4	.....
ENTRY[B]	344	39	138	147	18	2	205	33	82	75	13	2
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.7	.3	.9	2.0	17.1	65.0	4.2	.4	1.0	3.7	25.0	68.8
CLERICAL & SALES ..	14.9	4.2	6.7	25.7	42.1	10.0	5.6	3.2	1.7	9.6	25.0	.....
SERVICE	13.3	12.7	17.8	11.0	6.6	.....	3.9	6.4	3.8	2.1	2.3	.....
SKILLED	9.3	12.4	8.3	8.7	3.9	15.0	15.9	17.6	13.6	18.3	6.8	18.8
SEMISKILLED	22.7	34.6	23.6	17.8	1.3	.....	26.2	32.4	30.7	20.4	2.3	.....
UNSKILLED & OTHER[A].	16.2	25.6	17.8	10.8	5.3	.....	19.7	26.8	20.6	14.6	9.1	.....
ENTRY[B]	21.0	10.3	24.9	24.1	23.7	10.0	24.5	13.2	28.6	31.2	29.5	12.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.1	33.8	37.2	4.6	1.2	100.0	29.9	34.3	28.7	5.3	1.9
PROF. & MANAGERIAL.	100.0	2.3	11.4	27.3	29.5	29.5	100.0	2.9	8.6	25.7	31.4	31.4
CLERICAL & SALES ..	100.0	6.6	15.2	64.3	13.1	.8	100.0	17.0	10.6	48.9	23.4	.....
SERVICE	100.0	21.9	45.2	30.6	2.3	.....	100.0	48.5	33.3	15.2	3.0	.....
SKILLED	100.0	30.9	30.3	34.9	2.0	2.0	100.0	33.1	29.3	33.1	2.3	2.3
SEMISKILLED	100.0	35.2	35.2	29.3	.3	.....	100.0	37.0	40.2	22.4	.5	.....
UNSKILLED & OTHER[A].	100.0	36.5	37.2	24.8	1.5	.....	100.0	40.6	35.8	21.2	2.4	.....
ENTRY[B]	100.0	11.3	40.1	42.7	5.2	.6	100.0	16.1	40.0	36.6	6.3	1.0
	NUMBER, BY AGE GROUP											
TOTAL	1,641	379	555	611	76	20	837	250	287	240	44	16
UNDER 20	307	24	144	121	18	.....	153	18	86	40	9	.....
20 - 24	263	17	91	130	19	6	152	16	63	56	13	4
25 - 34	302	53	115	118	11	5	163	43	58	50	7	5
35 - 44	346	88	105	136	11	6	157	58	41	50	4	4
45 - 54	229	85	59	73	9	3	112	51	22	29	7	3
55 - 64	167	91	38	32	6	.....	85	54	14	15	2	.....
65 AND OVER	27	21	3	1	2	.....	15	10	3	.....	2	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	18.7	6.3	25.9	19.8	23.7	.....	18.3	7.2	30.0	16.7	20.5	.....
20 - 24	16.0	4.5	16.4	21.3	25.0	30.0	18.2	6.4	22.0	23.3	29.5	25.0
25 - 34	18.4	14.0	20.7	19.3	14.5	25.0	19.5	17.2	20.2	20.8	15.9	31.2
35 - 44	21.1	23.2	18.9	22.3	14.5	30.0	18.8	23.2	14.3	20.8	9.1	25.0
45 - 54	14.0	22.4	10.6	11.9	11.8	15.0	13.4	20.4	7.7	12.1	15.9	18.8
55 - 64	10.2	24.0	6.8	5.2	7.9	.....	10.2	21.6	4.9	6.2	4.5	.....
65 AND OVER	1.6	5.5	.5	.2	2.6	.....	1.8	4.0	1.0	.....	4.5	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.1	33.8	37.2	4.6	1.2	100.0	29.9	34.3	28.7	5.3	1.9
UNDER 20	100.0	7.8	46.9	39.4	5.9	.....	100.0	11.8	56.2	26.1	5.9	.....
20 - 24	100.0	6.5	34.6	49.4	7.2	2.3	100.0	10.5	41.4	36.8	8.6	2.6
25 - 34	100.0	17.5	38.1	39.1	3.6	1.7	100.0	26.4	35.6	30.7	4.3	3.1
35 - 44	100.0	25.4	30.3	39.3	3.2	1.7	100.0	36.9	26.1	31.8	2.5	2.5
45 - 54	100.0	37.1	25.8	31.9	3.9	1.3	100.0	45.5	19.6	25.9	6.2	2.7
55 - 64	100.0	54.5	22.8	19.2	3.6	.....	100.0	63.5	16.5	17.6	2.4	.....
65 AND OVER	100.0	77.8	11.1	3.7	7.4	.....	100.0	66.7	20.0	.....	13.3	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN COSHOCTON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	333	80	118	128	6	1	186	67	67	46	5	1
PROF. & MANAGERIAL.	2	.....	.....	1	1	.....	2	.....	.....	1	1	.....
CLERICAL & SALES ..	27	.....	6	21	.....	.....	2	.....	1	1	.....	.....
SERVICE	32	7	11	13	1	.....	13	6	4	3	.....	.....
SKILLED	46	14	13	16	2	1	43	13	11	16	2	1
SEMISKILLED	77	20	34	23	.....	.....	44	19	18	7	.....	.....
UNSKILLED & OTHER[A].	99	33	34	30	2	.....	63	27	21	13	2	.....
ENTRY[B]	50	6	20	24	.....	.....	19	2	12	5	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	.6	.....	.....	.8	16.7	.....	1.1	.....	.....	2.2	20.0	.....
CLERICAL & SALES ..	8.1	.....	5.1	16.4	.....	.....	1.1	.....	1.5	2.2	.....	.....
SERVICE	9.6	8.8	9.3	10.2	16.7	.....	7.0	9.0	6.0	6.5	.....	.....
SKILLED	13.8	17.5	11.0	12.5	33.3	100.0	23.1	19.4	16.4	34.8	40.0	100.0
SEMISKILLED	23.1	25.0	28.8	18.0	.....	.....	23.7	28.4	26.9	15.2	.....	.....
UNSKILLED & OTHER[A].	29.7	41.2	28.8	23.4	33.3	.....	33.9	40.3	31.3	28.3	40.0	.....
ENTRY[B]	15.0	7.5	16.9	18.8	.....	.....	10.2	3.0	17.9	10.9	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.0	35.4	38.4	1.8	.3	100.0	36.0	36.0	24.7	2.7	.5
PROF. & MANAGERIAL.	100.0	.....	.....	50.0	50.0	.....	100.0	.....	.....	50.0	50.0	.....
CLERICAL & SALES ..	100.0	.....	22.2	77.8	.....	.....	100.0	.....	50.0	50.0	.....	.....
SERVICE	100.0	21.9	34.4	40.6	3.1	.....	100.0	46.2	30.8	23.1	.....	.....
SKILLED	100.0	30.4	28.3	34.8	4.3	2.2	100.0	30.2	25.6	37.2	4.7	2.3
SEMISKILLED	100.0	26.0	44.2	29.9	.....	.....	100.0	43.2	40.9	15.9	.....	.....
UNSKILLED & OTHER[A].	100.0	33.3	34.3	30.3	2.0	.....	100.0	42.9	33.3	20.6	3.2	.....
ENTRY[B]	100.0	12.0	40.0	48.0	.....	.....	100.0	10.5	63.2	26.3	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	333	80	118	128	6	1	186	67	67	46	5	1
UNDER 20	35	3	13	18	1	.....	14	2	9	3	.....	.....
20 - 24	53	7	17	28	1	.....	29	5	13	10	1	.....
25 - 34	67	10	31	25	1	.....	31	8	16	6	1	.....
35 - 44	75	13	35	27	.....	.....	35	11	16	8	.....	.....
45 - 54	60	21	14	24	1	.....	41	20	6	14	1	.....
55 - 64	36	21	6	6	2	1	29	16	5	5	2	1
65 AND OVER	7	5	2	.....	.....	.....	7	5	2	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	10.5	3.8	11.0	14.1	16.7	.....	7.5	3.0	13.4	6.5	.....	.....
20 - 24	15.9	8.8	14.4	21.9	16.7	.....	15.6	7.5	19.4	21.7	20.0	.....
25 - 34	20.1	12.5	26.3	19.5	16.7	.....	16.7	11.9	23.9	13.0	20.0	.....
35 - 44	22.5	16.2	29.7	21.1	.....	.....	18.8	16.4	23.9	17.4	.....	.....
45 - 54	18.0	26.2	11.9	18.8	16.7	.....	22.0	29.9	9.0	30.4	20.0	.....
55 - 64	10.8	26.2	5.1	4.7	33.3	100.0	15.6	23.9	7.5	10.9	40.0	100.0
65 AND OVER	2.1	6.2	1.7	.....	.....	.....	3.8	7.5	3.0	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.0	35.4	38.4	1.8	.3	100.0	36.0	36.0	24.7	2.7	.5
UNDER 20	100.0	8.6	37.1	51.4	2.9	.....	100.0	14.3	64.3	21.4	.....	.....
20 - 24	100.0	13.2	32.1	52.8	1.9	.....	100.0	17.2	44.8	34.5	3.4	.....
25 - 34	100.0	14.9	46.3	37.3	1.5	.....	100.0	25.8	51.6	19.4	3.2	.....
35 - 44	100.0	17.3	46.7	36.0	.....	.....	100.0	31.4	45.7	22.9	.....	.....
45 - 54	100.0	35.0	23.3	40.0	1.7	.....	100.0	48.8	14.6	34.1	2.4	.....
55 - 64	100.0	58.3	16.7	16.7	5.6	2.8	100.0	55.2	17.2	17.2	6.8	3.4
65 AND OVER	100.0	71.4	28.6	.....	.....	.....	100.0	71.4	28.6	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN CRAWFORD COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	763	166	309	226	55	7	478	131	209	102	29	7
PROF. & MANAGERIAL	8	.....	.....	3	.....	5	5	.....	.....	.....	.....	5
CLERICAL & SALES	93	2	15	60	16	.....	22	.....	9	9	4	.....
SERVICE	91	27	46	16	2	.....	23	7	12	3	1	.....
SKILLED	84	21	34	28	1	.....	80	20	33	26	1	.....
SEMISKILLED	148	46	58	41	3	.....	123	43	50	27	3	.....
UNSKILLED & OTHER[A]	133	47	48	33	5	.....	105	43	41	16	5	.....
ENTRY[B]	206	23	108	45	28	2	120	18	64	21	15	2
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL	1.0	.....	.....	1.3	.....	71.4	1.0	.....	.....	.....	.....	71.4
CLERICAL & SALES	12.2	1.2	4.9	26.5	29.1	.....	4.6	.....	4.3	8.8	13.8	.....
SERVICE	11.9	16.3	14.9	7.1	3.6	.....	4.8	5.3	5.7	2.9	3.4	.....
SKILLED	11.0	12.7	11.0	12.4	1.8	.....	16.7	15.3	15.8	25.5	3.4	.....
SEMISKILLED	19.4	27.7	18.8	18.1	5.5	.....	25.7	32.8	23.9	26.5	10.3	.....
UNSKILLED & OTHER[A]	17.4	28.3	15.5	14.6	9.1	.....	22.0	32.8	19.6	15.7	17.2	.....
ENTRY[B]	27.0	13.9	35.0	19.9	50.9	28.6	25.1	13.7	30.6	20.6	51.7	28.6
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.8	40.5	29.6	7.2	.9	100.0	27.4	43.7	21.3	6.1	1.5
PROF. & MANAGERIAL	100.0	.....	.....	37.5	.....	62.5	100.0	.....	.....	.....	.....	100.0
CLERICAL & SALES	100.0	2.2	16.1	64.5	17.2	.....	100.0	.....	40.9	40.9	18.2	.....
SERVICE	100.0	29.7	50.5	17.6	2.2	.....	100.0	30.4	52.2	13.0	4.3	.....
SKILLED	100.0	25.0	40.5	33.3	1.2	.....	100.0	25.0	41.2	32.5	1.2	.....
SEMISKILLED	100.0	31.1	39.2	27.7	2.0	.....	100.0	35.0	40.7	22.0	2.4	.....
UNSKILLED & OTHER[A]	100.0	35.3	36.1	24.8	3.8	.....	100.0	41.0	39.0	15.2	4.8	.....
ENTRY[B]	100.0	11.2	52.4	21.8	13.6	1.0	100.0	15.0	53.3	17.5	12.5	1.7
	NUMBER, BY AGE GROUP											
TOTAL	763	166	309	226	55	7	478	131	209	102	29	7
UNDER 20	209	20	120	42	27	.....	123	16	78	19	10	.....
20 - 24	148	14	69	50	14	1	100	13	51	23	12	1
25 - 34	148	45	49	47	5	2	103	35	34	29	3	2
35 - 44	114	27	31	52	4	.....	58	21	18	18	1	.....
45 - 54	86	31	23	25	4	3	52	24	15	7	3	3
55 - 64	46	22	13	9	1	1	32	17	9	5	.....	1
65 AND OVER	12	7	4	1	.....	.....	10	5	4	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	27.4	12.0	38.8	18.6	49.1	.....	25.7	12.2	37.3	18.6	34.5	.....
20 - 24	19.4	8.4	22.3	22.1	25.5	14.3	20.9	9.9	24.4	22.5	41.4	14.3
25 - 34	19.4	27.1	15.9	20.8	9.1	28.6	21.5	26.7	16.3	28.4	10.3	28.6
35 - 44	14.9	16.3	10.0	23.0	7.3	.....	12.1	16.0	8.6	17.6	3.4	.....
45 - 54	11.3	18.7	7.4	11.1	7.3	42.9	10.9	18.3	7.2	6.9	10.3	42.9
55 - 64	6.0	13.3	4.2	4.0	1.8	14.3	6.7	13.0	4.3	4.9	.....	14.3
65 AND OVER	1.6	4.2	1.3	.4	.....	.....	2.1	3.8	1.9	1.0	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.8	40.5	29.6	7.2	.9	100.0	27.4	43.7	21.3	6.1	1.5
UNDER 20	100.0	9.6	57.4	20.1	12.9	.....	100.0	13.0	63.4	15.4	8.1	.....
20 - 24	100.0	9.5	46.6	33.8	9.5	.7	100.0	13.0	51.0	23.0	12.0	1.0
25 - 34	100.0	30.4	33.1	31.8	3.4	1.4	100.0	34.0	33.0	28.2	2.9	1.9
35 - 44	100.0	23.7	27.2	45.6	3.5	.....	100.0	36.2	31.0	31.0	1.7	.....
45 - 54	100.0	36.0	26.7	29.1	4.7	3.5	100.0	46.2	28.8	13.5	5.8	5.8
55 - 64	100.0	47.8	28.3	19.6	2.2	2.2	100.0	53.1	28.1	15.6	.....	3.1
65 AND OVER	100.0	58.3	33.3	8.3	.....	.....	100.0	50.0	40.0	10.0	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN CUYAHOGA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	20,682	5,489	7,334	6,011	1,487	361	14,694	4,276	5,439	3,627	1,058	294
PROF. & MANAGERIAL.	750	39	103	244	184	180	581	30	68	165	154	164
CLERICAL & SALES ..	2,996	209	610	1,579	501	97	984	80	189	403	258	54
SERVICE	2,458	855	1,013	512	76	2	1,218	412	528	229	47	2
SKILLED	3,336	1,031	1,267	839	179	20	3,225	984	1,234	809	178	20
SEMISKILLED	4,405	1,449	1,854	973	118	11	3,445	1,118	1,479	735	102	11
UNSKILLED & OTHER[A].	4,270	1,706	1,575	864	117	8	3,654	1,535	1,307	696	108	8
ENTRY[B]	2,467	200	912	1,000	312	43	1,587	117	634	590	211	35
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.6	.7	1.4	4.1	12.4	49.9	4.0	.7	1.3	4.5	14.6	55.8
CLERICAL & SALES ..	14.5	3.8	8.3	26.3	33.7	26.9	6.7	1.9	3.5	11.1	24.4	18.4
SERVICE	11.9	15.6	13.8	8.5	5.1	.6	8.3	9.6	9.7	6.3	4.4	.7
SKILLED	16.1	18.8	17.3	14.0	12.0	5.5	21.9	23.0	22.7	22.3	16.8	6.8
SEMISKILLED	21.3	26.4	25.3	16.2	7.9	3.0	23.4	26.1	27.2	20.3	9.6	3.7
UNSKILLED & OTHER[A].	20.6	31.1	21.5	14.4	7.9	2.2	24.9	35.9	24.0	19.2	10.2	2.7
ENTRY[B]	11.9	3.6	12.4	16.6	21.0	11.9	10.8	2.7	11.7	16.3	19.9	11.9
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.5	35.5	29.1	7.2	1.7	100.0	29.1	37.0	24.7	7.2	2.0
PROF. & MANAGERIAL.	100.0	5.2	13.7	32.5	24.5	24.0	100.0	5.2	11.7	28.4	26.5	28.2
CLERICAL & SALES ..	100.0	7.0	20.4	52.7	16.7	3.2	100.0	8.1	19.2	41.0	26.2	5.5
SERVICE	100.0	34.8	41.2	20.8	3.1	.1	100.0	33.8	43.3	18.8	3.9	.2
SKILLED	100.0	30.9	38.0	25.1	5.4	.6	100.0	30.5	38.3	25.1	5.5	.6
SEMISKILLED	100.0	32.9	42.1	22.1	2.7	.2	100.0	32.5	42.9	21.3	3.0	.3
UNSKILLED & OTHER[A].	100.0	40.0	36.9	20.2	2.7	.2	100.0	42.0	35.8	19.0	3.0	.2
ENTRY[B]	100.0	8.1	37.0	40.5	12.6	1.7	100.0	7.4	39.9	37.2	13.3	2.2
	NUMBER, BY AGE GROUP											
TOTAL	20,682	5,489	7,334	6,011	1,487	361	14,694	4,276	5,439	3,627	1,058	294
UNDER 20	1,306	95	724	383	104	.....	1,011	61	554	317	79	.....
20 - 24	3,365	192	1,211	1,531	377	54	2,330	159	983	905	246	37
25 - 34	4,311	720	1,722	1,457	327	85	3,160	593	1,337	912	244	74
35 - 44	4,755	1,287	1,761	1,273	328	106	3,381	1,045	1,288	724	236	88
45 - 54	3,848	1,401	1,255	916	205	71	2,551	1,045	812	494	144	56
55 - 64	2,285	1,275	512	346	115	37	1,632	961	346	211	82	32
65 AND OVER	812	519	149	105	31	8	629	412	119	64	27	7
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	6.3	1.7	9.9	6.4	7.0	.....	6.9	1.4	10.2	8.7	7.5	.....
20 - 24	16.3	3.5	16.5	25.5	25.4	15.0	15.9	3.7	18.1	25.0	23.3	12.6
25 - 34	20.8	13.1	23.5	24.2	22.0	23.5	21.5	13.9	24.6	25.1	23.1	25.2
35 - 44	23.0	23.4	24.0	21.2	22.1	29.4	23.0	24.4	23.7	20.0	22.3	29.9
45 - 54	18.6	25.5	17.1	15.2	13.8	19.7	17.4	24.4	14.9	13.6	13.6	19.0
55 - 64	11.0	23.2	7.0	5.8	7.7	10.2	11.1	22.5	6.4	5.8	7.8	10.9
65 AND OVER	3.9	9.5	2.0	1.7	2.1	2.2	4.3	9.6	2.2	1.8	2.6	2.4
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.5	35.5	29.1	7.2	1.7	100.0	29.1	37.0	24.7	7.2	2.0
UNDER 20	100.0	7.3	55.4	29.3	8.0	.....	100.0	6.0	54.8	31.4	7.8	.....
20 - 24	100.0	5.7	36.0	45.5	11.2	1.6	100.0	6.8	42.2	38.8	10.6	1.6
25 - 34	100.0	16.7	39.9	33.8	7.6	2.0	100.0	18.8	42.3	28.9	7.7	2.3
35 - 44	100.0	27.1	37.0	26.8	6.9	2.2	100.0	30.9	38.1	21.4	7.0	2.6
45 - 54	100.0	36.4	32.6	23.8	5.3	1.8	100.0	41.0	31.8	19.4	5.6	2.2
55 - 64	100.0	55.8	22.4	15.1	5.0	1.6	100.0	58.9	21.2	12.9	5.0	2.0
65 AND OVER	100.0	63.9	18.3	12.9	3.8	1.0	100.0	65.5	18.9	10.2	4.3	1.1

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

DARKE COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN DARKE COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	700	114	300	259	24	3	363	83	173	94	12	1
PROF. & MANAGERIAL	10	.....	1	5	1	3	7	.....	1	4	1	1
CLERICAL & SALES	91	6	9	67	9	.....	25	4	6	11	4	.....
SERVICE	59	22	24	13	.....	.....	13	8	4	1	.....	.....
SKILLED	32	10	9	11	2	.....	32	10	9	11	2	.....
SEMISKILLED	111	18	49	43	1	.....	78	18	31	29	.....	.....
UNSKILLED & OTHER[A]	199	46	82	67	4	.....	112	36	44	31	1	.....
ENTRY[B]	198	12	126	53	7	.....	96	7	78	7	4	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL	1.4	.....	.3	1.9	4.2	100.0	1.9	.....	.6	4.3	8.3	100.0
CLERICAL & SALES	13.0	5.3	3.0	25.9	37.5	.....	6.9	4.8	3.5	11.7	33.3	.....
SERVICE	8.4	19.3	8.0	5.0	.....	.....	3.6	9.6	2.3	1.1	.....	.....
SKILLED	4.6	8.8	3.0	4.2	8.3	.....	8.8	12.0	5.2	11.7	16.7	.....
SEMISKILLED	15.9	15.8	16.3	16.6	4.2	.....	21.5	21.7	17.9	30.9	.....	.....
UNSKILLED & OTHER[A]	28.4	40.4	27.3	25.9	16.7	.....	30.9	43.4	25.4	33.0	8.3	.....
ENTRY[B]	28.3	10.5	42.0	20.5	29.2	.....	26.4	8.4	45.1	7.4	33.3	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	16.3	42.9	37.0	3.4	.4	100.0	22.9	47.7	25.9	3.3	.3
PROF. & MANAGERIAL	100.0	.....	10.0	50.0	10.0	30.0	100.0	.....	14.3	57.1	14.3	14.3
CLERICAL & SALES	100.0	6.6	9.9	73.6	9.9	.....	100.0	16.0	24.0	44.0	16.0	.....
SERVICE	100.0	37.3	40.7	22.0	.....	.....	100.0	61.5	30.8	7.7	.....	.....
SKILLED	100.0	31.2	28.1	34.4	6.2	.....	100.0	31.2	28.1	34.4	6.2	.....
SEMISKILLED	100.0	16.2	44.1	38.7	.9	.....	100.0	23.1	39.7	37.2	.....	.....
UNSKILLED & OTHER[A]	100.0	23.1	41.2	33.7	2.0	.....	100.0	32.1	39.3	27.7	.9	.....
ENTRY[B]	100.0	6.1	63.6	26.8	3.5	.....	100.0	7.3	81.2	7.3	4.2	.....
	NUMBER, BY AGE GROUP											
TOTAL	700	114	300	259	24	3	363	83	173	94	12	1
UNDER 20	191	8	135	44	4	.....	115	6	91	16	2	.....
20 - 24	141	11	56	69	4	1	69	7	33	27	2	.....
25 - 34	143	19	46	69	8	1	65	16	19	26	3	1
35 - 44	105	25	28	50	2	.....	42	17	8	16	1	.....
45 - 54	76	26	23	23	3	1	35	16	10	8	1	.....
55 - 64	32	18	7	4	3	.....	26	15	7	1	3	.....
65 AND OVER	12	7	5	.....	.....	.....	11	6	5	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	27.3	7.0	45.0	17.0	16.7	.....	31.7	7.2	52.6	17.0	16.7	.....
20 - 24	20.1	9.6	18.7	26.6	16.7	33.3	19.0	8.4	19.1	28.7	16.7	.....
25 - 34	20.4	16.7	15.3	26.6	33.3	33.3	17.9	19.3	11.0	27.7	25.0	100.0
35 - 44	15.0	21.9	9.3	19.3	8.3	.....	11.6	20.5	4.6	17.0	8.3	.....
45 - 54	10.9	22.8	7.7	8.9	12.5	33.3	9.6	19.3	5.8	8.5	8.3	.....
55 - 64	4.6	15.8	2.3	1.5	12.5	.....	7.2	16.1	4.0	1.1	25.0	.....
65 AND OVER	1.7	6.1	1.7	.....	.....	.....	3.0	7.2	2.9	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	16.3	42.9	37.0	3.4	.4	100.0	22.9	47.7	25.9	3.3	.3
UNDER 20	100.0	4.2	70.7	23.0	2.1	.....	100.0	5.2	79.1	13.9	1.7	.....
20 - 24	100.0	7.8	39.7	48.9	2.8	.7	100.0	10.1	47.8	39.1	2.9	.....
25 - 34	100.0	13.3	32.2	48.3	5.6	.7	100.0	24.6	29.2	40.0	4.6	1.5
35 - 44	100.0	23.8	26.7	47.6	1.9	.....	100.0	40.5	19.0	38.1	2.4	.....
45 - 54	100.0	34.2	30.3	30.3	3.9	1.3	100.0	45.7	28.6	22.9	2.9	.....
55 - 64	100.0	56.2	21.9	12.5	9.4	.....	100.0	57.7	26.9	3.8	11.5	.....
65 AND OVER	100.0	58.3	41.7	.....	.....	.....	100.0	54.5	45.5	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

DEFIANCE COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN DEFIANCE COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	425	87	134	163	33	8	212	56	65	67	18	6
PROF. & MANAGERIAL.	18	.....	.....	7	5	6	11	.....	.....	3	4	4
CLERICAL & SALES ..	54	3	6	37	7	1	12	2	.....	7	2	1
SERVICE	54	15	18	14	3	.....	8	3	3	1	1	.....
SKILLED	32	9	6	14	2	1	31	8	6	14	2	1
SEMISKILLED	63	20	30	12	1	.....	45	17	20	7	1	.....
UNSKILLED & OTHER[A].	93	28	36	28	1	.....	62	20	21	20	1	.....
ENTRY[B]	111	8	38	51	14	.....	43	6	15	15	7	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	4.2	.....	.....	4.3	15.2	75.0	5.2	.....	.....	4.5	22.2	66.7
CLERICAL & SALES ..	12.7	3.4	4.5	22.7	21.2	12.5	5.7	3.6	.....	10.4	11.1	16.7
SERVICE	12.7	21.8	13.4	8.6	9.1	.....	3.8	5.4	4.6	1.5	5.6	....
SKILLED	7.5	10.3	4.5	8.6	6.1	12.5	14.6	14.3	9.2	20.9	11.1	16.7
SEMISKILLED	14.8	23.0	22.4	7.4	3.0	.....	21.2	30.4	30.8	10.4	5.6	.....
UNSKILLED & OTHER[A].	21.9	32.2	26.9	17.2	3.0	.....	29.2	35.7	32.3	29.9	5.6	.....
ENTRY[B]	26.1	9.2	28.4	31.3	42.4	.....	20.3	10.7	23.1	22.4	38.9	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.5	31.5	38.4	7.8	1.9	100.0	26.4	30.7	31.6	8.5	2.8
PROF. & MANAGERIAL.	100.0	.....	.....	38.9	27.8	33.3	100.0	.....	.....	27.3	36.4	36.4
CLERICAL & SALES ..	100.0	5.6	11.1	68.5	13.0	1.9	100.0	16.7	.....	58.3	16.7	8.3
SERVICE	100.0	35.2	33.3	25.9	5.6	.....	100.0	37.5	37.5	12.5	12.5	.....
SKILLED	100.0	28.1	18.8	43.8	6.2	3.1	100.0	25.8	15.4	45.2	6.5	3.2
SEMISKILLED	100.0	31.7	47.6	15.0	1.6	.....	100.0	37.8	44.4	15.6	2.2	.....
UNSKILLED & OTHER[A].	100.0	30.1	38.7	30.1	1.1	.....	100.0	32.3	33.9	32.3	1.6	.....
ENTRY[B]	100.0	7.2	34.2	45.9	12.6	.....	100.0	14.0	34.9	34.9	16.3	.....
	NUMBER, BY AGE GROUP											
TOTAL	425	87	134	163	33	8	212	56	65	67	18	6
UNDER 20	82	5	35	39	3	.....	41	4	20	16	1	.....
20 - 24	123	13	40	48	19	3	62	9	18	25	9	1
25 - 34	91	16	31	36	6	2	44	9	14	14	5	2
35 - 44	59	21	15	19	2	2	31	17	8	3	1	2
45 - 54	39	15	9	14	1	.....	16	7	2	6	1	.....
55 - 64	21	11	2	6	1	1	14	7	2	3	1	1
65 AND OVER	10	6	2	1	1	.....	4	3	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	19.3	5.7	26.1	23.9	9.1	.....	19.3	7.1	30.8	23.9	5.6	.....
20 - 24	28.9	14.9	29.9	29.4	57.6	37.5	29.2	16.1	27.7	37.3	50.0	16.7
25 - 34	21.4	18.4	23.1	22.1	18.2	25.0	20.8	16.1	21.5	20.9	27.8	33.3
35 - 44	13.9	24.1	11.2	11.7	6.1	25.0	14.6	30.4	12.3	4.5	5.6	33.3
45 - 54	9.2	17.2	6.7	8.6	3.0	.....	7.5	12.5	3.1	9.0	5.6	.....
55 - 64	4.9	12.6	1.5	3.7	3.0	12.5	6.6	12.5	3.1	4.5	5.6	16.7
65 AND OVER	2.4	6.9	1.5	.6	3.0	.....	1.9	5.4	1.5	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.5	31.5	38.4	7.8	1.9	100.0	26.4	30.7	31.6	8.5	2.8
UNDER 20	100.0	6.1	42.7	47.6	3.7	.....	100.0	9.8	48.8	39.0	2.4	.....
20 - 24	100.0	10.6	32.5	39.0	15.4	2.4	100.0	14.5	29.0	40.3	14.5	1.6
25 - 34	100.0	17.6	34.1	39.6	6.6	2.2	100.0	20.5	31.8	31.8	11.4	4.5
35 - 44	100.0	35.6	25.4	32.2	3.4	3.4	100.0	54.8	25.8	9.7	3.2	6.5
45 - 54	100.0	38.5	23.1	35.9	2.6	.....	100.0	43.8	12.5	37.5	6.2	.....
55 - 64	100.0	52.4	9.5	28.6	4.8	4.8	100.0	50.0	14.3	21.4	7.1	7.1
65 AND OVER	100.0	60.0	20.0	10.0	10.0	.....	100.0	75.0	25.0	.....	.....	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN DELAWARE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	702	175	217	270	30	10	532	157	175	173	19	8
PROF. & MANAGERIAL.	14	1	3	4	4	2	11	1	2	3	3	2
CLERICAL & SALES ..	62	1	9	44	6	2	8	1	1	5	1	.....
SERVICE	53	22	13	16	2	.....	27	15	7	5	.....	.....
SKILLED	143	40	48	51	4	.....	139	40	45	50	4	.....
SEMISKILLED	185	45	64	72	2	2	159	42	56	57	2	2
UNSKILLED & OTHER[A].	150	59	47	41	2	1	123	53	39	28	2	1
ENTRY[B]	95	7	33	42	10	3	65	5	25	25	7	3
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.0	.6	1.4	1.5	13.3	20.0	2.1	.6	1.1	1.7	15.8	25.0
CLERICAL & SALES ..	8.8	.6	4.1	16.3	20.0	20.0	1.5	.6	.6	2.9	5.3	.....
SERVICE	7.5	12.6	6.0	5.9	6.7	.....	5.1	9.6	4.0	2.9	.....	.....
SKILLED	20.4	22.9	22.1	18.9	13.3	.....	26.1	25.5	25.7	28.9	21.1	.....
SEMISKILLED	26.4	25.7	29.5	26.7	6.7	20.0	29.9	26.8	32.0	32.9	10.5	25.0
UNSKILLED & OTHER[A].	21.4	33.7	21.7	15.2	6.7	10.0	23.1	33.8	22.3	16.2	10.5	12.5
ENTRY[B]	13.5	4.0	15.2	15.6	33.3	30.0	12.2	3.2	14.3	14.5	36.8	37.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.9	30.9	38.5	4.3	1.4	100.0	29.5	32.9	32.5	3.6	1.5
PROF. & MANAGERIAL.	100.0	7.1	21.4	28.6	28.6	14.3	100.0	9.1	18.2	27.3	27.3	18.2
CLERICAL & SALES ..	100.0	1.6	14.5	71.0	9.7	3.2	100.0	12.5	12.5	62.5	12.5	.....
SERVICE	100.0	41.5	24.5	30.2	3.8	.....	100.0	55.6	25.9	18.5	.....	.....
SKILLED	100.0	28.0	33.6	35.7	2.8	.....	100.0	28.8	32.4	36.0	2.9	.....
SEMISKILLED	100.0	24.3	34.6	38.9	1.1	1.1	100.0	26.4	35.2	35.8	1.3	1.3
UNSKILLED & OTHER[A].	100.0	39.3	31.3	27.3	1.3	.7	100.0	43.1	31.7	22.8	1.6	.8
ENTRY[B]	100.0	7.4	34.7	44.2	10.5	3.2	100.0	7.7	38.5	38.5	10.8	4.6
	NUMBER, BY AGE GROUP											
TOTAL	702	175	217	270	30	10	532	157	175	173	19	8
UNDER 20	86	7	37	34	8	.....	60	6	30	18	6	.....
20 - 24	160	15	48	87	6	4	128	15	44	63	4	2
25 - 34	174	38	62	67	6	1	133	34	48	45	5	1
35 - 44	123	34	38	44	3	4	91	31	30	24	2	4
45 - 54	97	43	22	27	5	.....	66	35	15	15	1	.....
55 - 64	54	33	9	9	2	1	46	31	7	6	1	1
65 AND OVER	8	5	1	2	.....	.....	8	5	1	2	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	12.3	4.0	17.1	12.6	26.7	.....	11.3	3.8	17.1	10.4	31.6	.....
20 - 24	22.8	8.6	22.1	32.2	20.0	40.0	24.1	9.6	25.1	36.4	21.1	25.0
25 - 34	24.8	21.7	28.6	24.8	20.0	10.0	25.0	21.7	27.4	26.0	26.3	12.5
35 - 44	17.5	19.4	17.5	16.3	10.0	40.0	17.1	19.7	17.1	13.9	10.5	50.0
45 - 54	13.8	24.6	10.1	10.0	16.7	.....	12.4	22.3	8.6	8.7	5.3	.....
55 - 64	7.7	18.9	4.1	3.3	6.7	10.0	8.6	19.7	4.0	3.5	5.3	12.5
65 AND OVER	1.1	2.9	.5	.7	.....	.....	1.5	3.2	.6	1.2	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.9	30.9	38.5	4.3	1.4	100.0	29.5	32.9	32.5	3.6	1.5
UNDER 20	100.0	8.1	43.0	39.5	9.3	.....	100.0	10.0	50.0	30.0	10.0	.....
20 - 24	100.0	9.4	30.0	54.4	3.8	2.5	100.0	11.7	34.4	49.2	3.1	1.6
25 - 34	100.0	21.8	35.6	38.5	3.4	.6	100.0	25.6	36.1	33.8	3.8	.8
35 - 44	100.0	27.6	30.9	35.8	2.4	3.3	100.0	34.1	33.0	26.4	2.2	4.4
45 - 54	100.0	44.3	22.7	27.8	5.2	.....	100.0	53.0	22.7	22.7	1.5	.....
55 - 64	100.0	61.1	16.7	16.7	3.7	1.9	100.0	67.4	15.2	13.0	2.2	2.2
65 AND OVER	100.0	62.5	12.5	25.0	.....	.....	100.0	62.5	12.5	25.0	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN ERIE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	3,546	665	1,241	1,444	171	25	1,896	393	614	746	125	19
PROF. & MANAGERIAL.	97	6	12	42	24	13	78	5	9	32	21	11
CLERICAL & SALES ..	339	11	60	216	46	6	104	6	17	53	24	4
SERVICE	391	98	168	117	8	.....	112	26	47	32	7	.....
SKILLED	407	86	125	174	22	.....	383	82	117	162	22	.....
SEMISKILLED	1105	234	433	405	30	3	612	139	210	236	25	2
UNSKILLED & OTHER[A].	527	144	207	163	13	.....	334	108	112	104	10	.....
ENTRY[B]	680	86	236	327	28	3	273	27	102	127	16	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.7	.9	1.0	2.9	14.0	52.0	4.1	1.3	1.5	4.3	16.8	61.1
CLERICAL & SALES ..	9.6	1.7	4.8	15.0	26.9	24.0	5.5	1.5	2.8	7.1	19.2	22.2
SERVICE	11.0	14.7	13.5	8.1	4.7	.....	5.9	6.6	7.7	4.3	5.6	.....
SKILLED	11.5	12.9	10.1	12.0	12.9	.....	20.2	20.9	19.1	21.7	17.6	.....
SEMISKILLED	31.2	35.2	34.9	28.0	17.5	12.0	32.3	35.4	34.2	31.6	20.0	11.1
UNSKILLED & OTHER[A].	14.9	21.7	16.7	11.3	7.6	.....	17.6	27.5	18.2	13.9	8.0	.....
ENTRY[B]	19.2	12.9	19.0	22.6	16.4	12.0	14.4	6.9	16.6	17.0	12.8	5.6
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.8	35.0	40.7	4.8	.7	100.0	20.7	32.4	39.3	6.6	.9
PROF. & MANAGERIAL.	100.0	6.2	12.4	43.3	24.7	13.4	100.0	6.4	11.5	41.0	26.9	14.1
CLERICAL & SALES ..	100.0	3.2	17.7	63.7	13.6	1.8	100.0	5.8	16.3	51.0	23.1	3.8
SERVICE	100.0	25.1	43.0	29.9	2.0	.....	100.0	23.2	42.0	28.6	6.2	.....
SKILLED	100.0	21.1	30.7	42.8	5.4	.....	100.0	21.4	30.5	42.3	5.7	.....
SEMISKILLED	100.0	21.2	39.2	36.7	2.7	.3	100.0	22.7	34.3	38.6	4.1	.3
UNSKILLED & OTHER[A].	100.0	27.3	39.3	30.9	2.5	.....	100.0	32.3	33.5	31.1	3.0	.....
ENTRY[B]	100.0	12.6	34.7	48.1	4.1	.4	100.0	9.9	37.4	46.5	5.9	.4
	NUMBER, BY AGE GROUP											
TOTAL	3,546	665	1,241	1,444	171	25	1,896	393	614	746	125	18
UNDER 20	780	36	276	419	49	.....	468	25	177	230	36	.....
20 - 24	359	25	129	182	20	3	216	14	77	111	11	3
25 - 34	906	130	347	386	36	7	481	70	158	214	32	7
35 - 44	828	227	288	272	30	11	354	122	101	105	20	6
45 - 54	463	146	148	147	20	2	242	91	69	65	16	1
55 - 64	177	80	50	34	12	1	113	56	31	19	6	1
65 AND OVER	33	21	3	4	4	1	22	15	1	2	4	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	22.0	5.4	22.2	29.0	28.7	.....	24.7	6.4	28.8	30.8	28.8	.....
20 - 24	10.1	3.8	10.4	12.6	11.7	12.0	11.4	3.6	12.5	14.9	8.8	16.7
25 - 34	25.5	19.5	28.0	26.7	21.1	28.0	25.4	17.8	25.7	28.7	25.6	38.9
35 - 44	23.4	34.1	23.2	18.8	17.5	44.0	18.7	31.0	16.4	14.1	16.0	33.3
45 - 54	13.1	22.0	11.9	10.2	11.7	8.0	12.8	23.2	11.2	8.7	12.8	5.6
55 - 64	5.0	12.0	4.0	2.4	7.0	4.0	6.0	14.2	5.0	2.5	4.8	5.6
65 AND OVER	.9	3.2	.2	.3	2.3	4.0	1.2	3.8	.2	.3	3.2	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.8	35.0	40.7	4.8	.7	100.0	20.7	32.4	39.3	6.6	.9
UNDER 20	100.0	4.6	35.4	53.7	6.3	.....	100.0	5.3	37.8	49.1	7.7	.....
20 - 24	100.0	7.0	35.9	50.7	5.6	.8	100.0	6.5	35.6	51.4	5.1	1.4
25 - 34	100.0	14.3	38.3	42.6	4.0	.8	100.0	14.6	32.8	44.5	6.7	1.5
35 - 44	100.0	27.4	34.8	32.9	3.6	1.3	100.0	34.5	28.5	29.7	5.6	1.7
45 - 54	100.0	31.5	32.0	31.7	4.3	.4	100.0	37.6	28.5	26.9	6.6	.4
55 - 64	100.0	45.2	28.2	19.2	6.8	.6	100.0	49.6	27.4	16.8	5.3	.9
65 AND OVER	100.0	63.6	9.1	12.1	12.1	3.0	100.0	68.2	4.5	9.1	18.2	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN FAIRFIELD COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	758	177	276	272	30	3	449	131	166	130	19	3
PROF. & MANAGERIAL.	16	1	2	7	4	2	12	1	2	3	4	2
CLERICAL & SALES ..	85	3	17	56	8	1	31	1	9	14	6	1
SERVICE	83	29	36	16	2	.....	24	10	11	3	.....	.....
SKILLED	89	24	34	28	3	.....	83	24	29	28	2	.....
SEMISKILLED	152	42	61	45	4	.....	120	37	50	31	2	.....
UNSKILLED & OTHER[A].	202	60	81	61	.....	.....	132	49	51	32	.....	.....
ENTRY[B]	131	18	45	59	9	.....	47	9	14	19	5	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.1	.6	.7	2.6	13.3	66.7	2.7	.8	1.2	2.3	21.1	66.7
CLERICAL & SALES ..	11.2	1.7	6.2	20.6	26.7	33.3	6.9	.8	5.4	10.8	31.6	33.3
SERVICE	10.9	16.4	13.0	5.9	6.7	.....	5.3	7.6	6.6	2.3	.....	.....
SKILLED	11.7	13.6	12.3	10.3	10.0	.....	18.5	18.3	17.5	21.5	10.5	.....
SEMISKILLED	20.1	23.7	22.1	16.5	13.3	.....	26.7	28.2	30.1	23.8	10.5	.....
UNSKILLED & OTHER[A].	26.6	33.9	29.3	22.4	.....	.....	29.4	37.4	30.7	24.6	.....	.....
ENTRY[B]	17.3	10.2	16.3	21.7	30.0	.....	10.5	6.9	8.4	14.6	26.3	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.4	36.4	35.9	4.0	.4	100.0	29.2	37.0	29.0	4.2	.7
PROF. & MANAGERIAL.	100.0	6.2	12.5	43.8	25.0	12.5	100.0	8.3	16.7	25.0	33.3	16.7
CLERICAL & SALES ..	100.0	3.5	20.0	65.9	9.4	1.2	100.0	3.2	29.0	45.2	19.4	3.2
SERVICE	100.0	34.9	43.4	19.3	2.4	.....	100.0	41.7	45.8	12.5	.....	.....
SKILLED	100.0	27.0	38.2	31.5	3.4	.....	100.0	28.9	34.9	33.7	2.4	.....
SEMISKILLED	100.0	27.6	40.1	29.6	2.6	.....	100.0	30.8	41.7	25.8	1.7	.....
UNSKILLED & OTHER[A].	100.0	29.7	40.1	30.2	.....	.....	100.0	37.1	38.6	24.2	.....	.....
ENTRY[B]	100.0	13.7	34.4	45.0	6.9	.....	100.0	19.1	29.8	40.4	10.6	.....
	NUMBER, BY AGE GROUP											
TOTAL	758	177	276	272	30	3	449	131	166	130	19	3
UNDER 20	132	16	56	51	9	.....	67	10	29	23	5	.....
20 - 24	173	17	61	85	9	1	94	13	38	37	5	1
25 - 34	178	37	73	68	.....	.....	109	26	45	38	.....	.....
35 - 44	125	39	45	38	3	.....	75	29	27	16	3	.....
45 - 54	86	32	27	20	6	1	56	24	19	9	3	1
55 - 64	51	30	9	8	3	1	41	26	5	6	3	1
65 AND OVER	13	6	5	2	.....	.....	7	3	3	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	17.4	9.0	20.3	18.7	30.0	.....	14.9	7.6	17.5	17.7	26.3	.....
20 - 24	22.8	9.6	22.1	31.2	30.0	33.3	20.9	9.9	22.9	28.5	26.3	33.3
25 - 34	23.5	20.9	26.4	25.0	.....	.....	24.3	19.8	27.1	29.2	.....	.....
35 - 44	16.5	22.0	16.3	14.0	10.0	.....	16.7	22.1	16.3	12.3	15.8	.....
45 - 54	11.3	18.1	9.8	7.4	20.0	33.3	12.5	18.3	11.4	6.9	15.8	33.3
55 - 64	6.7	16.9	3.3	2.9	10.0	33.3	9.1	19.8	3.0	4.6	15.8	33.3
65 AND OVER	1.7	3.4	1.8	.7	.....	.....	1.6	2.3	1.8	.8	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.4	36.4	35.9	4.0	.4	100.0	29.2	37.0	29.0	4.2	.7
UNDER 20	100.0	12.1	42.4	38.6	6.8	.....	100.0	14.9	43.3	34.3	7.5	.....
20 - 24	100.0	9.8	35.3	49.1	5.2	.6	100.0	13.8	40.4	39.4	5.3	1.1
25 - 34	100.0	20.8	41.0	38.2	.....	.....	100.0	23.9	41.3	34.9	.....	.....
35 - 44	100.0	31.2	36.0	30.4	2.4	.....	100.0	38.7	36.0	21.3	4.0	.....
45 - 54	100.0	37.2	31.4	23.3	7.0	1.2	100.0	42.9	33.9	16.1	5.4	1.8
55 - 64	100.0	58.8	17.6	15.7	5.9	2.0	100.0	63.4	12.2	14.6	7.3	2.4
65 AND OVER	100.0	46.2	38.5	15.4	.....	.....	100.0	42.9	42.9	14.3	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

FAYETTE COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN FAYETTE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	855	287	309	244	14	1	521	203	194	116	8	.....
PROF. & MANAGERIAL.	15	3	5	5	2	.....	11	3	4	2	2	.....
CLERICAL & SALES ..	69	7	8	49	4	1	19	4	4	9	2	.....
SERVICE	141	49	63	29	.....	.....	17	10	5	2	.....	.....
SKILLED	85	32	30	23	.....	.....	75	30	25	20	.....	.....
SEMISKILLED	192	83	62	46	1	.....	151	63	48	39	1	.....
UNSKILLED & OTHER[A].	181	77	61	43	.....	.....	157	74	52	31	.....	.....
ENTRY[B]	172	36	80	49	7	.....	91	19	56	13	3	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	1.8	1.0	1.6	2.0	14.3	.....	2.1	1.5	2.1	1.7	25.0	.....
CLERICAL & SALES ..	8.1	2.4	2.6	20.1	28.6	100.0	3.6	2.0	2.1	7.8	25.0	.....
SERVICE	16.5	17.1	20.4	11.9	.....	.....	3.3	4.9	2.6	1.7	.....	.....
SKILLED	9.9	11.1	9.7	9.4	.....	.....	14.4	14.8	12.9	17.2	.....	.....
SEMISKILLED	22.5	28.9	20.1	18.9	7.1	.....	29.0	31.0	24.7	33.6	12.5	.....
UNSKILLED & OTHER[A].	21.2	26.8	19.7	17.6	.....	.....	30.1	36.5	26.8	26.7	.....	.....
ENTRY[B]	20.1	12.5	25.9	20.1	50.0	.....	17.5	9.4	28.9	11.2	37.5	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	33.6	36.1	28.5	1.6	.1	100.0	39.0	37.2	22.3	1.5	.....
PROF. & MANAGERIAL.	100.0	20.0	33.3	33.3	13.3	.....	100.0	27.3	36.4	18.2	18.2	.....
CLERICAL & SALES ..	100.0	10.1	11.6	71.0	5.8	1.4	100.0	21.1	21.1	47.4	10.5	.....
SERVICE	100.0	34.8	44.7	20.6	.....	.....	100.0	58.8	29.4	11.8	.....	.....
SKILLED	100.0	37.6	35.3	27.1	.....	.....	100.0	40.0	33.3	26.7	.....	.....
SEMISKILLED	100.0	43.2	32.3	24.0	.5	.....	100.0	41.7	31.8	25.8	.7	.....
UNSKILLED & OTHER[A].	100.0	42.5	33.7	23.8	.....	.....	100.0	47.1	33.1	19.7	.....	.....
ENTRY[B]	100.0	20.9	46.5	28.5	4.1	.....	100.0	20.9	61.5	14.3	3.3	.....
	NUMBER, BY AGE GROUP											
TOTAL	855	287	309	244	14	1	521	203	194	116	8	.....
UNDER 20	105	17	56	28	4	.....	68	13	45	8	2	.....
20 - 24	161	18	74	66	3	.....	103	16	55	31	1	.....
25 - 34	228	67	82	77	2	.....	161	56	59	44	2	.....
35 - 44	148	51	55	39	3	.....	82	39	21	19	3	.....
45 - 54	110	58	28	23	.....	1	54	36	9	9	.....	.....
55 - 64	83	58	13	10	2	.....	42	34	4	4	.....	.....
65 AND OVER	20	18	1	1	.....	.....	11	9	1	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	12.3	5.9	18.1	11.5	28.6	.....	13.1	6.4	23.2	6.9	25.0	.....
20 - 24	18.8	6.3	23.9	27.0	21.4	.....	19.8	7.9	28.4	26.7	12.5	.....
25 - 34	26.7	23.3	26.5	31.6	14.3	.....	30.9	27.6	30.4	37.9	25.0	.....
35 - 44	17.3	17.8	17.8	16.0	21.4	.....	15.7	19.2	10.8	16.4	37.5	.....
45 - 54	12.9	20.2	9.1	9.4	.....	100.0	10.4	17.7	4.6	7.8	.....	.....
55 - 64	9.7	20.2	4.2	4.1	14.3	.....	8.1	16.7	2.1	3.4	.....	.....
65 AND OVER	2.3	6.3	.3	.4	.....	.....	2.1	4.4	.5	.9	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	33.6	36.1	28.5	1.6	.1	100.0	39.0	37.2	22.3	1.5	.....
UNDER 20	100.0	16.2	53.3	26.7	3.8	.....	100.0	19.1	66.2	11.8	2.9	.....
20 - 24	100.0	11.2	46.0	41.0	1.9	.....	100.0	15.5	53.4	30.1	1.0	.....
25 - 34	100.0	29.4	36.0	33.8	.9	.....	100.0	34.8	36.6	27.3	1.2	.....
35 - 44	100.0	34.5	37.2	26.4	2.0	.....	100.0	47.6	25.6	23.2	3.7	.....
45 - 54	100.0	52.7	25.5	20.9	.....	.9	100.0	66.7	16.7	16.7	.....	.....
55 - 64	100.0	69.9	15.7	12.0	2.4	.....	100.0	81.0	9.5	9.5	.....	.....
65 AND OVER	100.0	90.0	5.0	5.0	.....	.....	100.0	81.8	9.1	9.1	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN FRANKLIN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	10,556	2,678	3,519	3,217	905	237	7,879	2,315	2,717	2,003	670	174
PROF. & MANAGERIAL.	534	10	38	165	169	152	397	8	32	103	141	113
CLERICAL & SALES ..	1,688	60	277	910	389	52	653	26	109	272	217	29
SERVICE	1,202	366	512	295	28	1	567	191	256	102	17	1
SKILLED	1,878	613	611	545	99	10	1,835	609	590	528	98	10
SEMISKILLED	2,076	677	863	459	71	6	1,838	624	765	380	64	5
UNSKILLED & OTHER[A].	2,044	815	704	452	65	8	1,791	760	589	372	62	8
ENTRY[B]	1,134	137	514	391	84	8	798	97	376	246	71	8
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	5.1	.4	1.1	5.1	18.7	64.1	5.0	.3	1.2	5.1	21.0	64.9
CLERICAL & SALES ..	16.0	2.2	7.9	28.3	43.0	21.9	8.3	1.1	4.0	13.6	32.4	16.7
SERVICE	11.4	13.7	14.5	9.2	3.1	.4	7.2	8.3	9.4	5.1	2.5	.6
SKILLED	17.8	22.9	17.4	16.9	10.9	4.2	23.3	26.3	21.7	26.4	14.6	5.7
SEMISKILLED	19.7	25.3	24.5	14.3	7.8	2.5	23.3	27.0	28.2	19.0	9.6	2.9
UNSKILLED & OTHER[A].	19.4	30.4	20.0	14.1	7.2	3.4	22.7	32.8	21.7	18.6	9.3	4.6
ENTRY[B]	10.7	5.1	14.6	12.2	9.3	3.4	10.1	4.2	13.8	12.3	10.6	4.6
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.4	33.3	30.5	8.6	2.2	100.0	29.4	34.5	25.4	8.5	2.2
PROF. & MANAGERIAL.	100.0	1.9	7.1	30.9	31.6	28.5	100.0	2.0	8.1	25.9	35.5	28.5
CLERICAL & SALES ..	100.0	3.6	16.4	53.9	23.0	3.1	100.0	4.0	16.7	41.7	33.2	4.4
SERVICE	100.0	30.4	42.6	24.5	2.3	.1	100.0	33.7	45.1	18.0	3.0	.2
SKILLED	100.0	32.6	32.5	29.0	5.3	.5	100.0	33.2	32.2	28.8	5.3	.5
SEMISKILLED	100.0	32.6	41.6	22.1	3.4	.3	100.0	33.9	41.6	20.7	3.5	.3
UNSKILLED & OTHER[A].	100.0	39.9	34.4	22.1	3.2	.4	100.0	42.4	32.9	20.8	3.5	.4
ENTRY[B]	100.0	12.1	45.3	34.5	7.4	.7	100.0	12.2	47.1	30.8	8.9	1.0
	NUMBER, BY AGE GROUP											
TOTAL	10,556	2,678	3,519	3,217	905	237	7,879	2,315	2,717	2,003	670	174
UNDER 20	1,072	102	480	363	127	.....	731	87	365	207	72	.....
20 - 24	2,347	223	824	933	286	81	1,738	204	679	586	223	46
25 - 34	2,627	567	961	842	196	61	2,062	514	762	572	164	50
35 - 44	2,055	676	637	552	141	49	1,515	587	462	326	100	40
45 - 54	1,445	544	407	366	98	30	1,040	447	283	214	71	25
55 - 64	841	459	190	137	43	12	666	392	150	83	31	10
65 AND OVER	169	107	20	24	14	4	127	84	16	15	9	3
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	10.2	3.8	13.6	11.3	14.0	.....	9.3	3.8	13.4	10.3	10.7	.....
20 - 24	22.2	8.3	23.4	29.0	31.6	34.2	22.1	8.8	25.0	29.3	33.3	26.4
25 - 34	24.9	21.2	27.3	26.2	21.7	25.7	26.2	22.2	28.0	28.6	24.5	28.7
35 - 44	19.5	25.2	18.1	17.2	15.6	20.7	19.2	25.4	17.0	16.3	14.9	23.0
45 - 54	13.7	20.3	11.6	11.4	10.8	12.7	13.2	19.3	10.4	10.7	10.6	14.4
55 - 64	8.0	17.1	5.4	4.3	4.8	5.1	8.5	16.9	5.5	4.1	4.6	5.7
65 AND OVER	1.6	4.0	.6	.7	1.5	1.7	1.6	3.6	.6	.7	1.3	1.7
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.4	33.3	30.5	8.6	2.2	100.0	29.4	34.5	25.4	8.5	2.2
UNDER 20	100.0	9.5	44.8	33.9	11.8	.....	100.0	11.9	49.9	28.3	9.8	.....
20 - 24	100.0	9.5	35.1	39.8	12.2	3.5	100.0	11.7	39.1	33.7	12.8	2.6
25 - 34	100.0	21.6	36.6	32.1	7.5	2.3	100.0	24.9	37.0	27.7	8.0	2.4
35 - 44	100.0	32.9	31.0	26.9	6.9	2.4	100.0	38.7	30.5	21.5	6.6	2.6
45 - 54	100.0	37.6	28.2	25.3	6.8	2.1	100.0	43.0	27.2	20.6	6.8	2.4
55 - 64	100.0	54.6	22.6	16.3	5.1	1.4	100.0	58.9	22.5	12.5	4.7	1.5
65 AND OVER	100.0	63.3	11.8	14.2	8.3	2.4	100.0	66.1	12.6	11.8	7.1	2.4

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN FULTON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	138	35	39	57	7	.....	64	24	17	20	3	.....
PROF. & MANAGERIAL.	1	.....	.....	1	.....	.....	1	.....	.....	1	.....	.....
CLERICAL & SALES ..	13	.....	.....	11	2	.....	2	.....	.....	2	.....	.....
SERVICE	4	.....	3	1	.....	.....	1	.....	.....	1	.....	.....
SKILLED	11	4	6	1	.....	.....	10	4	5	1	.....	.....
SEMISKILLED	28	6	10	10	2	.....	18	6	4	6	2	.....
UNSKILLED & OTHER[A].	71	23	19	28	1	.....	28	12	8	8	.....	.....
ENTRY[B]	10	2	1	5	2	.....	4	2	.....	1	1	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	.7	.....	.....	1.8	.....	.....	1.6	.....	.....	5.0	.....	.....
CLERICAL & SALES ..	9.4	.....	.....	19.3	28.6	.....	3.1	.....	.....	10.0	.....	.....
SERVICE	2.9	.....	7.7	1.8	.....	.....	1.6	.....	.....	5.0	.....	.....
SKILLED	8.0	11.4	15.4	1.8	.....	.....	15.6	16.7	29.4	5.0	.....	.....
SEMISKILLED	20.3	17.1	25.6	17.5	28.6	.....	28.1	25.0	23.5	30.0	66.7	.....
UNSKILLED & OTHER[A].	51.4	65.7	48.7	49.1	14.3	.....	43.8	50.0	47.1	40.0	.....	.....
ENTRY[B]	7.2	5.7	2.6	8.8	28.6	.....	6.2	8.3	.....	5.0	33.3	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.4	28.3	41.3	5.1	.....	100.0	37.5	26.6	31.2	4.7	.....
PROF. & MANAGERIAL.	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....
CLERICAL & SALES ..	100.0	.....	.....	84.6	15.4	.....	100.0	.....	.....	100.0	.....	.....
SERVICE	100.0	.....	75.0	25.0	.....	.....	100.0	.....	.....	100.0	.....	.....
SKILLED	100.0	36.4	54.5	9.1	.....	.....	100.0	40.0	50.0	10.0	.....	.....
SEMISKILLED	100.0	21.4	35.7	35.7	7.1	.....	100.0	33.3	22.2	33.3	11.1	.....
UNSKILLED & OTHER[A].	100.0	32.4	26.8	39.4	1.4	.....	100.0	42.9	28.6	28.6	.....	.....
ENTRY[B]	100.0	20.0	10.0	50.0	20.0	.....	100.0	50.0	.....	25.0	25.0	.....
	NUMBER, BY AGE GROUP											
TOTAL	138	35	39	57	7	.....	64	24	17	20	3	.....
UNDER 20	9	3	1	4	1	.....	5	2	1	1	1	.....
20 - 24	24	3	5	14	2	.....	13	2	2	8	1	.....
25 - 34	34	3	16	13	2	.....	11	.....	7	3	1	.....
35 - 44	34	8	11	14	1	.....	14	6	4	4	.....	.....
45 - 54	21	6	5	9	1	.....	10	5	3	2	.....	.....
55 - 64	12	8	1	3	.....	.....	9	7	.....	2	.....	.....
65 AND OVER	4	4	.....	.....	.....	.....	2	2	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	6.5	8.6	2.6	7.0	14.3	.....	7.8	8.3	5.9	5.0	33.3	.....
20 - 24	17.4	8.6	12.8	24.6	28.6	.....	20.3	8.3	11.8	40.0	33.3	.....
25 - 34	24.6	8.6	41.0	22.8	28.6	.....	17.2	.....	41.2	15.0	33.3	.....
35 - 44	24.6	22.9	28.2	24.6	14.3	.....	21.9	25.0	23.5	20.0	.....	.....
45 - 54	15.2	17.1	12.8	15.8	14.3	.....	15.6	20.8	17.6	10.0	.....	.....
55 - 64	8.7	22.9	2.6	5.3	.....	.....	14.1	29.2	.....	10.0	.....	.....
65 AND OVER	2.9	11.4	.....	.....	.....	.....	3.1	8.3	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.4	28.3	41.3	5.1	.....	100.0	37.5	26.6	31.2	4.7	.....
UNDER 20	100.0	33.3	11.1	44.4	11.1	.....	100.0	40.0	20.0	20.0	20.0	.....
20 - 24	100.0	12.5	20.8	58.3	8.3	.....	100.0	15.4	15.4	61.5	7.7	.....
25 - 34	100.0	8.8	47.1	38.2	5.9	.....	100.0	.....	63.6	27.3	9.1	.....
35 - 44	100.0	23.5	32.4	41.2	2.9	.....	100.0	42.9	28.6	28.6	.....	.....
45 - 54	100.0	28.6	23.8	42.9	4.8	.....	100.0	50.0	30.0	20.0	.....	.....
55 - 64	100.0	66.7	8.3	25.0	.....	.....	100.0	77.8	.....	22.2	.....	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN GALLIA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	533	210	147	159	17	.....	440	190	121	116	13	.....
PROF. & MANAGERIAL.	4	.....	1	2	1	.....	3	.....	.....	2	1	.....
CLERICAL & SALES ..	51	3	6	35	7	.....	23	3	4	11	5	.....
SERVICE	54	22	20	12	.....	.....	14	5	4	5	.....	.....
SKILLED	112	49	31	30	2	.....	112	49	31	30	2	.....
SEMISKILLED	115	51	34	28	2	.....	114	51	33	28	2	.....
UNSKILLED & OTHER[A].	134	83	29	21	1	.....	132	81	29	21	1	.....
ENTRY[B]	63	2	26	31	4	.....	42	1	20	19	2	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	.8	.....	.7	1.3	5.9	.....	.7	.....	.....	1.7	7.7	.....
CLERICAL & SALES ..	9.6	1.4	4.1	22.0	41.2	.....	5.2	1.6	3.3	9.5	38.5	.....
SERVICE	10.1	10.5	13.6	7.5	.....	.....	3.2	2.6	3.3	4.3	.....	.....
SKILLED	21.0	23.3	21.1	18.9	11.8	.....	25.5	25.8	25.6	25.9	15.4	.....
SEMISKILLED	21.6	24.3	23.1	17.6	11.8	.....	25.9	26.8	27.3	24.1	15.4	.....
UNSKILLED & OTHER[A].	25.1	39.5	19.7	13.2	5.9	.....	30.0	42.6	24.0	18.1	7.7	.....
ENTRY[B]	11.8	1.0	17.7	19.5	23.5	.....	9.5	.5	16.5	16.4	15.4	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	39.4	27.6	29.8	3.2	.....	100.0	43.2	27.5	26.4	3.0	.....
PROF. & MANAGERIAL.	100.0	.....	25.0	50.0	25.0	.....	100.0	.....	.....	66.7	33.3	.....
CLERICAL & SALES ..	100.0	5.9	11.8	68.6	13.7	.....	100.0	13.0	17.4	47.8	21.7	.....
SERVICE	100.0	40.7	37.0	22.2	.....	.....	100.0	35.7	28.6	35.7	.....	.....
SKILLED	100.0	43.7	27.7	26.8	1.8	.....	100.0	43.7	27.7	26.8	1.8	.....
SEMISKILLED	100.0	44.3	29.6	24.3	1.7	.....	100.0	44.7	28.9	24.6	1.8	.....
UNSKILLED & OTHER[A].	100.0	61.9	21.6	15.7	.7	.....	100.0	61.4	22.0	15.9	.8	.....
ENTRY[B]	100.0	3.2	41.3	49.2	6.3	.....	100.0	2.4	47.6	45.2	4.8	.....
	NUMBER, BY AGE GROUP											
TOTAL	533	210	147	159	17	.....	440	190	121	116	13	.....
UNDER 20	50	8	16	23	3	.....	35	7	12	14	2	.....
20 - 24	115	26	38	45	6	.....	91	23	34	31	3	.....
25 - 34	120	47	29	40	4	.....	104	45	23	32	4	.....
35 - 44	112	47	34	29	2	.....	96	44	27	23	2	.....
45 - 54	82	46	20	16	.....	.....	70	40	18	12	.....	.....
55 - 64	49	31	10	6	2	.....	40	27	7	4	2	.....
65 AND OVER	5	5	.....	.....	.....	.....	4	4	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	9.4	3.8	10.9	14.5	17.6	.....	8.0	3.7	9.9	12.1	15.4	.....
20 - 24	21.6	12.4	25.9	28.3	35.3	.....	20.7	12.1	28.1	26.7	23.1	.....
25 - 34	22.5	22.4	19.7	25.2	23.5	.....	23.6	23.7	19.0	27.6	30.8	.....
35 - 44	21.0	22.4	23.1	18.2	11.8	.....	21.8	23.2	22.3	19.8	15.4	.....
45 - 54	15.4	21.9	13.6	10.1	.....	.....	15.9	21.1	14.9	10.3	.....	.....
55 - 64	9.2	14.8	6.8	3.8	11.8	.....	9.1	14.2	5.8	3.4	15.4	.....
65 AND OVER	.9	2.4	.....	.....	.....	.....	.9	2.1	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	39.4	27.6	29.8	3.2	.....	100.0	43.2	27.5	26.4	3.0	.....
UNDER 20	100.0	16.0	32.0	46.0	6.0	.....	100.0	20.0	34.3	40.0	5.7	.....
20 - 24	100.0	22.6	33.0	39.1	5.2	.....	100.0	25.3	37.4	34.1	3.3	.....
25 - 34	100.0	39.2	24.2	33.3	3.3	.....	100.0	43.3	22.1	30.8	3.8	.....
35 - 44	100.0	42.0	30.4	25.9	1.8	.....	100.0	45.8	28.1	24.0	2.1	.....
45 - 54	100.0	56.1	24.4	19.5	.....	.....	100.0	57.1	25.7	17.1	.....	.....
55 - 64	100.0	63.3	20.4	12.2	4.1	.....	100.0	67.5	17.5	10.0	5.0	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN GEAUGA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	160	37	48	61	12	2	114	31	39	34	8	2
PROF. & MANAGERIAL.	9	.....	1	3	3	2	8	.....	1	3	2	2
CLERICAL & SALES ..	21	.....	2	15	4	.....	4	.....	1	1	2	.....
SERVICE	5	3	1	1	.....	.....	1	1	.....	.....	.....	.....
SKILLED	42	13	12	16	1	.....	40	12	12	15	1	.....
SEMISKILLED	33	12	14	6	1	.....	29	11	13	4	1	.....
UNSKILLED & OTHER[A].	39	7	13	17	2	.....	24	5	8	10	1	.....
ENTRY[B]	11	2	5	3	1	.....	8	2	4	1	1	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	5.6	.....	2.1	4.9	25.0	100.0	7.0	.....	2.6	8.8	25.0	100.0
CLERICAL & SALES ..	13.1	.....	4.2	24.6	33.3	.....	3.5	.....	2.6	2.9	25.0	.....
SERVICE	3.1	8.1	2.1	1.6	.....	.....	.9	3.2	.....	.....	.....	.....
SKILLED	26.2	35.1	25.0	26.2	8.3	.....	35.1	38.7	30.8	44.1	12.5	.....
SEMISKILLED	20.6	32.4	29.2	9.8	8.3	.....	25.4	35.5	33.3	11.8	12.5	.....
UNSKILLED & OTHER[A].	24.4	18.9	27.1	27.9	16.7	.....	21.1	16.1	20.5	29.4	12.5	.....
ENTRY[B]	6.9	5.4	10.4	4.9	8.3	.....	7.0	6.5	10.3	2.9	12.5	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.1	30.0	38.1	7.5	1.2	100.0	27.2	34.2	29.8	7.0	1.8
PROF. & MANAGERIAL.	100.0	.....	11.1	33.3	33.3	22.2	100.0	.....	12.5	37.5	25.0	25.0
CLERICAL & SALES ..	100.0	.....	9.5	71.4	19.0	.....	100.0	.....	25.0	25.0	50.0	.....
SERVICE	100.0	60.0	20.0	20.0	.....	.....	100.0	100.0	.....	.....	.....	.....
SKILLED	100.0	31.0	28.6	38.1	2.4	.....	100.0	30.0	30.0	37.5	2.5	.....
SEMISKILLED	100.0	36.4	42.4	18.2	3.0	.....	100.0	37.9	44.8	13.8	3.4	.....
UNSKILLED & OTHER[A].	100.0	17.9	33.3	43.6	5.1	.....	100.0	20.8	33.3	41.7	4.2	.....
ENTRY[B]	100.0	18.2	45.5	27.3	9.1	.....	100.0	25.0	50.0	12.5	12.5	.....
	NUMBER, BY AGE GROUP											
TOTAL	160	37	48	61	12	2	114	31	39	34	8	2
UNDER 20	14	4	2	6	2	.....	8	3	2	1	2	.....
20 - 24	29	4	11	11	2	1	20	3	10	4	2	1
25 - 34	34	4	14	13	3	.....	23	3	11	7	2	.....
35 - 44	34	8	7	15	3	1	26	6	6	13	.....	1
45 - 54	32	6	10	15	1	.....	21	5	6	9	1	.....
55 - 64	14	9	3	1	1	.....	13	9	3	.....	1	.....
65 AND OVER	3	2	1	.....	.....	.....	3	2	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	8.8	10.8	4.2	9.8	16.7	.....	7.0	9.7	5.1	2.9	25.0	.....
20 - 24	18.1	10.8	22.9	18.0	16.7	50.0	17.5	9.7	25.6	11.8	25.0	50.0
25 - 34	21.2	10.8	29.2	21.3	25.0	.....	20.2	9.7	28.2	20.6	25.0	.....
35 - 44	21.2	21.6	14.6	24.6	25.0	50.0	22.8	19.4	15.4	38.2	.....	50.0
45 - 54	20.0	16.2	20.8	24.6	8.3	.....	18.4	16.1	15.4	26.5	12.5	.....
55 - 64	8.8	24.3	6.2	1.6	8.3	.....	11.4	29.0	7.7	.....	12.5	.....
65 AND OVER	1.9	5.4	2.1	.....	.....	.....	2.6	6.5	2.6	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.1	30.0	38.1	7.5	1.2	100.0	27.2	34.2	29.8	7.0	1.8
UNDER 20	100.0	28.6	14.3	42.9	14.3	.....	100.0	37.5	25.0	12.5	25.0	.....
20 - 24	100.0	13.8	37.9	37.9	6.9	3.4	100.0	15.0	50.0	20.0	10.0	5.0
25 - 34	100.0	11.8	41.2	38.2	8.8	.....	100.0	13.0	47.8	30.4	8.7	.....
35 - 44	100.0	23.5	20.6	44.1	8.8	2.9	100.0	23.1	23.1	50.0	.....	3.8
45 - 54	100.0	18.8	31.2	46.9	3.1	.....	100.0	23.8	28.6	42.9	4.8	.....
55 - 64	100.0	64.3	21.4	7.1	7.1	.....	100.0	69.2	23.1	.....	7.7	.....
65 AND OVER	100.0	66.7	33.3	.....	.....	.....	100.0	66.7	33.3	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN GREENE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,433	546	443	347	81	16	1,047	485	320	186	45	11
PROF. & MANAGERIAL.	39	5	5	18	4	7	25	4	2	10	3	6
CLERICAL & SALES ..	174	8	31	101	31	3	41	3	8	20	8	2
SERVICE	117	33	46	29	8	1	40	14	14	8	4	.....
SKILLED	310	157	90	53	10	.....	301	153	87	51	10	.....
SEMISKILLED	355	168	125	54	7	1	292	146	99	39	7	1
UNSKILLED & OTHER[A].	304	164	89	46	3	2	269	157	76	34	1	1
ENTRY[B]	134	11	57	46	18	2	79	8	34	24	12	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.7	.9	1.1	5.2	4.9	43.8	2.4	.8	.6	5.4	6.7	54.5
CLERICAL & SALES ..	12.1	1.5	7.0	29.1	38.3	18.8	3.9	.6	2.5	10.8	17.8	18.2
SERVICE	8.2	6.0	10.4	8.4	9.9	6.2	3.8	2.9	4.4	4.3	8.9	.....
SKILLED	21.6	28.8	20.3	15.3	12.3	.....	28.7	31.5	27.2	27.4	22.2	.....
SEMISKILLED	24.8	30.8	28.2	15.6	8.6	6.2	27.9	30.1	30.9	21.0	15.6	9.1
UNSKILLED & OTHER[A].	21.2	30.0	20.1	13.3	3.7	12.5	25.7	32.4	23.8	18.3	2.2	9.1
ENTRY[B]	9.4	2.0	12.9	13.3	22.2	12.5	7.5	1.6	10.6	12.9	26.7	9.1
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	38.1	30.9	24.2	5.7	1.1	100.0	46.3	30.6	17.8	4.3	1.1
PROF. & MANAGERIAL.	100.0	12.8	12.8	46.2	10.3	17.9	100.0	16.0	8.0	40.0	12.0	24.0
CLERICAL & SALES ..	100.0	4.6	17.8	58.0	17.8	1.7	100.0	7.3	19.5	48.8	19.5	4.9
SERVICE	100.0	28.2	39.3	24.8	6.8	.9	100.0	35.0	35.0	20.0	10.0	.....
SKILLED	100.0	50.6	29.0	17.1	3.2	.....	100.0	50.8	28.9	16.9	3.3	.....
SEMISKILLED	100.0	47.3	35.2	15.2	2.0	.3	100.0	50.0	33.9	13.4	2.4	.3
UNSKILLED & OTHER[A].	100.0	53.9	29.3	15.1	1.0	.7	100.0	58.4	28.3	12.6	.4	.4
ENTRY[B]	100.0	8.2	42.5	34.3	13.4	1.5	100.0	10.1	43.0	30.4	15.2	1.3
	NUMBER, BY AGE GROUP											
TOTAL	1,433	546	443	347	81	16	1,047	485	320	186	45	11
UNDER 20	133	11	58	51	13	.....	73	8	38	23	4	.....
20 - 24	293	48	115	100	23	7	212	44	90	62	12	4
25 - 34	379	153	108	89	26	3	309	148	87	55	16	3
35 - 44	333	160	93	65	12	3	239	141	61	26	8	3
45 - 54	182	94	49	30	7	2	130	78	32	14	5	1
55 - 64	102	70	19	12	.....	1	74	57	11	6	.....	.....
65 AND OVER	11	10	1	.....	.....	.....	10	9	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	9.3	2.0	13.1	14.7	16.0	.....	7.0	1.6	11.9	12.4	8.9	.....
20 - 24	20.4	8.8	26.0	28.8	28.4	43.8	20.2	9.1	28.1	33.3	26.7	36.4
25 - 34	26.4	28.0	24.4	25.6	32.1	18.8	29.5	30.5	27.2	29.6	35.6	27.3
35 - 44	23.2	29.3	21.0	18.7	14.8	18.8	22.8	29.1	19.1	14.0	17.8	27.3
45 - 54	12.7	17.2	11.1	8.6	8.6	12.5	12.4	16.1	10.0	7.5	11.1	9.1
55 - 64	7.1	12.8	4.3	3.5	.....	6.2	7.1	11.8	3.4	3.2	.....	.....
65 AND OVER	.8	1.8	.2	.....	.....	.....	1.0	1.9	.3	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	38.1	30.9	24.2	5.7	1.1	100.0	46.3	30.6	17.8	4.3	1.1
UNDER 20	100.0	8.3	43.6	38.3	9.8	.....	100.0	11.0	52.1	31.5	5.5	.....
20 - 24	100.0	16.4	39.2	34.1	7.8	2.4	100.0	20.8	42.5	29.2	5.7	1.9
25 - 34	100.0	40.4	28.5	23.5	6.9	.8	100.0	47.9	28.2	17.8	5.2	1.0
35 - 44	100.0	48.0	27.9	19.5	3.6	.9	100.0	59.0	25.5	10.9	3.3	1.3
45 - 54	100.0	51.6	26.9	16.5	3.8	1.1	100.0	60.0	24.6	10.8	3.8	.8
55 - 64	100.0	68.6	18.6	11.8	.....	1.0	100.0	77.0	14.9	8.1	.....	.....
65 AND OVER	100.0	90.9	9.1	.....	.....	.....	100.0	90.0	10.0	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN GUERNSEY COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	939	192	328	360	54	5	517	141	185	151	35	5
PROF. & MANAGERIAL.	21	1	3	7	8	2	18	1	2	5	8	2
CLERICAL & SALES ..	99	6	10	65	18	.....	31	4	6	15	6	.....
SERVICE	109	44	43	22	.....	.....	40	19	15	6	.....	.....
SKILLED	144	30	44	59	10	1	132	29	37	55	10	1
SEMISKILLED	251	44	104	101	1	1	87	29	35	21	1	1
UNSKILLED & OTHER[A].	146	51	53	39	2	1	114	48	42	22	1	1
ENTRY[B]	169	16	71	67	15	.....	95	11	48	27	9	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.2	.5	.9	1.9	14.8	40.0	3.5	.7	1.1	3.3	22.9	40.0
CLERICAL & SALES ..	10.5	3.1	3.0	18.1	33.3	.....	6.0	2.8	3.2	9.9	17.1	.....
SERVICE	11.6	22.9	13.1	6.1	.....	.....	7.7	13.5	8.1	4.0	.....	.....
SKILLED	15.3	15.6	13.4	16.4	18.5	20.0	25.5	20.6	20.0	36.4	28.6	20.0
SEMISKILLED	26.7	22.9	31.7	28.1	1.9	20.0	16.8	20.6	18.9	13.9	2.9	20.0
UNSKILLED & OTHER[A].	15.5	26.6	16.2	10.8	3.7	20.0	22.1	34.0	22.7	14.6	2.9	20.0
ENTRY[B]	18.0	8.3	21.6	18.6	27.8	.....	18.4	7.8	25.9	17.9	25.7	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.4	34.9	38.3	5.8	.5	100.0	27.3	35.8	29.2	6.8	1.0
PROF. & MANAGERIAL.	100.0	4.8	14.3	33.3	38.1	9.5	100.0	5.6	11.1	27.8	44.4	11.1
CLERICAL & SALES ..	100.0	6.1	10.1	65.7	18.2	.....	100.0	12.9	19.4	48.4	19.4	.....
SERVICE	100.0	40.4	39.4	20.2	.....	.....	100.0	47.5	37.5	15.0	.....	.....
SKILLED	100.0	20.8	30.6	41.0	6.9	.7	100.0	22.0	28.0	41.7	7.6	.8
SEMISKILLED	100.0	17.5	41.4	40.2	.4	.4	100.0	33.3	40.2	24.1	1.1	1.1
UNSKILLED & OTHER[A].	100.0	34.9	36.3	26.7	1.4	.7	100.0	42.1	36.8	19.3	.9	.9
ENTRY[B]	100.0	9.5	42.0	39.6	8.9	.....	100.0	11.6	50.5	28.4	9.5	.....
	NUMBER, BY AGE GROUP											
TOTAL	939	192	328	360	54	5	517	141	185	151	35	5
UNDER 20	115	9	57	43	6	.....	72	9	42	19	2	.....
20 - 24	156	8	53	78	16	1	88	7	38	33	9	1
25 - 34	203	24	67	102	8	2	108	19	36	44	7	2
35 - 44	208	37	79	80	10	2	100	27	33	31	7	2
45 - 54	163	62	51	41	9	.....	92	43	24	18	7	.....
55 - 64	78	41	18	15	4	.....	50	29	12	6	3	.....
65 AND OVER	16	11	3	1	1	.....	7	7	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	12.2	4.7	17.4	11.9	11.1	.....	13.9	6.4	22.7	12.6	5.7	.....
20 - 24	16.6	4.2	16.2	21.7	29.6	20.0	17.0	5.0	20.5	21.9	25.7	20.0
25 - 34	21.6	12.5	20.4	28.3	14.8	40.0	20.9	13.5	19.5	29.1	20.0	40.0
35 - 44	22.2	19.3	24.1	22.2	16.5	40.0	19.3	19.1	17.8	20.5	20.0	40.0
45 - 54	17.4	32.3	15.5	11.4	16.7	.....	17.8	30.5	13.0	11.9	20.0	.....
55 - 64	8.3	21.4	5.5	4.2	7.4	.....	9.7	20.6	6.5	4.0	8.6	.....
65 AND OVER	1.7	5.7	.9	.3	1.9	.....	1.4	5.0	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.4	34.9	38.3	5.8	.5	100.0	27.3	35.8	29.2	6.8	1.0
UNDER 20	100.0	7.8	49.6	37.4	5.2	.....	100.0	12.5	58.3	26.4	2.8	.....
20 - 24	100.0	5.1	34.0	50.0	10.3	.6	100.0	8.0	43.2	37.5	10.2	1.1
25 - 34	100.0	11.8	33.0	50.2	3.9	1.0	100.0	17.6	33.3	40.7	6.5	1.9
35 - 44	100.0	17.8	38.0	38.5	4.8	1.0	100.0	27.0	33.0	31.0	7.0	2.0
45 - 54	100.0	38.0	31.3	25.2	5.5	.....	100.0	46.7	26.1	19.6	7.6	.....
55 - 64	100.0	52.6	23.1	19.2	5.1	.....	100.0	58.0	24.0	12.0	6.0	.....
65 AND OVER	100.0	68.8	18.8	6.2	6.2	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HAMILTON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	13,431	4,836	4,438	3,202	753	202	9,319	3,790	2,938	1,892	534	165
PROF. & MANAGERIAL.	497	19	63	139	163	113	403	16	45	105	142	95
CLERICAL & SALES ..	1,982	179	524	927	302	50	728	85	166	284	159	34
SERVICE	1,551	634	649	250	17	1	864	362	358	130	13	1
SKILLED	1,830	799	530	422	67	12	1,775	776	509	411	67	12
SEMISKILLED	2,551	1,113	922	473	42	1	1,873	845	662	335	31	.....
UNSKILLED & OTHER[A].	3,407	1,834	1,079	448	44	2	2,668	1,546	780	303	37	2
ENTRY[B]	1,613	258	671	543	118	23	1,008	160	418	324	85	21
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.7	.4	1.4	4.3	21.6	55.9	4.3	.4	1.5	5.5	26.6	57.6
CLERICAL & SALES ..	14.8	3.7	11.8	29.0	40.1	24.8	7.8	2.2	5.7	15.0	29.8	20.6
SERVICE	11.5	13.1	14.6	7.8	2.3	.5	9.3	9.6	12.2	6.9	2.4	.6
SKILLED	13.6	16.5	11.9	13.2	8.9	5.9	19.0	20.5	17.3	21.7	12.5	7.3
SEMISKILLED	19.0	23.0	20.8	14.8	5.6	.5	20.1	22.3	22.5	17.7	5.8	.....
UNSKILLED & OTHER[A].	25.4	37.9	24.3	14.0	5.8	1.0	28.6	40.8	26.5	16.0	6.9	1.2
ENTRY[B]	12.0	5.3	15.1	17.0	15.7	11.4	10.8	4.2	14.2	17.1	15.9	12.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	36.0	33.0	23.8	5.6	1.5	100.0	40.7	31.5	20.3	5.7	1.8
PROF. & MANAGERIAL.	100.0	3.8	12.7	28.0	32.8	22.7	100.0	4.0	11.2	26.1	35.2	23.6
CLERICAL & SALES ..	100.0	9.0	26.4	46.8	15.2	2.5	100.0	11.7	22.8	39.0	21.8	4.7
SERVICE	100.0	40.9	41.8	16.1	1.1	.1	100.0	41.9	41.4	15.0	1.5	.1
SKILLED	100.0	43.7	29.0	23.1	3.7	.7	100.0	43.7	28.7	23.2	3.8	.7
SEMISKILLED	100.0	43.6	36.1	18.5	1.6	.0	100.0	45.1	35.3	17.9	1.7	.....
UNSKILLED & OTHER[A].	100.0	53.8	31.7	13.1	1.3	.1	100.0	57.9	29.2	11.4	1.4	.1
ENTRY[B]	100.0	16.0	41.6	33.7	7.3	1.4	100.0	15.9	41.5	32.1	8.4	2.1
	NUMBER, BY AGE GROUP											
TOTAL	13,431	4,836	4,438	3,202	753	202	9,319	3,790	2,938	1,892	534	165
UNDER 20	928	121	455	299	53	.....	567	95	288	152	32	.....
20 - 24	2,249	270	866	862	215	36	1,546	214	641	522	144	25
25 - 34	3,160	869	1,227	864	150	50	2,190	673	826	539	111	41
35 - 44	2,990	1,249	979	562	142	58	2,066	963	624	322	107	50
45 - 54	2,176	1,089	540	400	115	32	1,499	846	322	216	89	26
55 - 64	1,447	901	289	173	62	22	1,079	731	178	113	37	20
65 AND OVER	481	337	82	42	16	4	372	268	59	28	14	3
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	6.9	2.5	10.3	9.3	7.0	.....	6.1	2.5	9.8	8.0	6.0	.....
20 - 24	16.7	5.6	19.5	26.9	28.6	17.8	16.6	5.6	21.8	27.6	27.0	15.2
25 - 34	23.5	18.0	27.6	27.0	19.9	24.8	23.5	17.8	28.1	28.5	20.8	24.8
35 - 44	22.3	25.8	22.1	17.6	18.9	28.7	22.2	25.4	21.2	17.0	20.0	30.3
45 - 54	16.2	22.5	12.2	12.5	15.3	15.8	16.1	22.3	11.0	11.4	16.7	15.8
55 - 64	10.8	18.6	6.5	5.4	8.2	10.9	11.6	19.3	6.1	6.0	6.9	12.1
65 AND OVER	3.6	7.0	1.8	1.3	2.1	2.0	4.0	7.1	2.0	1.5	2.6	1.8
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	36.0	33.0	23.8	5.6	1.5	100.0	40.7	31.5	20.3	5.7	1.8
UNDER 20	100.0	13.0	49.0	32.2	5.7	.....	100.0	16.8	50.8	26.8	5.6	.....
20 - 24	100.0	12.0	38.5	38.3	9.6	1.6	100.0	13.8	41.5	33.8	9.3	1.6
25 - 34	100.0	27.5	38.8	27.3	4.7	1.6	100.0	30.7	37.7	24.6	5.1	1.9
35 - 44	100.0	41.8	32.7	18.8	4.7	1.9	100.0	46.6	30.2	15.6	5.2	2.4
45 - 54	100.0	50.0	24.8	18.4	5.3	1.5	100.0	56.4	21.5	14.4	5.9	1.7
55 - 64	100.0	62.3	20.0	12.0	4.3	1.5	100.0	67.7	16.5	10.5	3.4	1.9
65 AND OVER	100.0	70.1	17.0	8.7	3.3	.8	100.0	72.0	15.9	7.5	3.8	.6

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

HANCOCK COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HANCOCK COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	887	128	342	325	78	14	511	103	179	174	44	11
PROF. & MANAGERIAL.	23	.....	2	11	3	7	18	.....	1	9	3	5
CLERICAL & SALES ..	109	4	21	64	17	3	44	3	10	20	8	3
SERVICE	88	19	36	21	11	1	28	8	11	5	4	.....
SKILLED	76	13	26	34	3	.....	74	13	25	33	3	.....
SEMISKILLED	173	36	64	69	4	.....	142	32	52	54	4	.....
UNSKILLED & OTHER[A].	165	43	51	61	9	1	112	37	31	38	5	1
ENTRY[B]	253	13	142	65	31	2	93	10	49	15	17	2
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.6	.....	.6	3.4	3.8	50.0	3.5	.....	.6	5.2	6.8	45.5
CLERICAL & SALES ..	12.3	3.1	6.1	19.7	21.8	21.4	8.6	2.9	5.6	11.5	18.2	27.3
SERVICE	9.9	14.8	10.5	6.5	14.1	7.1	5.5	7.8	6.1	2.9	9.1	.....
SKILLED	8.6	10.2	7.6	10.5	3.8	.....	14.5	12.6	14.0	19.0	6.8	.....
SEMISKILLED	19.5	28.1	18.7	21.2	5.1	.....	27.8	31.1	29.1	31.0	9.1	.....
UNSKILLED & OTHER[A].	18.6	33.6	14.9	18.8	11.5	7.1	21.9	35.9	17.3	21.8	11.4	9.1
ENTRY[B]	28.5	10.2	41.5	20.0	39.7	14.3	18.2	9.7	27.4	8.6	38.6	18.2
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	14.4	38.6	36.6	8.8	1.6	100.0	20.2	35.0	34.1	8.6	2.2
PROF. & MANAGERIAL.	100.0	.....	8.7	47.8	13.0	30.4	100.0	.....	5.6	50.0	16.7	27.8
CLERICAL & SALES ..	100.0	3.7	19.3	58.7	15.6	2.8	100.0	6.8	22.7	45.5	18.2	6.8
SERVICE	100.0	21.6	40.9	23.9	12.5	1.1	100.0	28.6	39.3	17.9	14.3	.....
SKILLED	100.0	17.1	34.2	44.7	3.9	.....	100.0	17.6	33.8	44.6	4.1	.....
SEMISKILLED	100.0	20.8	37.0	39.9	2.3	.....	100.0	22.5	36.6	38.0	2.8	.....
UNSKILLED & OTHER[A].	100.0	26.1	30.9	37.0	5.5	.6	100.0	33.0	27.7	33.9	4.5	.9
ENTRY[B]	100.0	5.1	56.1	25.7	12.3	.8	100.0	10.8	52.7	16.1	18.3	2.2
	NUMBER, BY AGE GROUP											
TOTAL	887	128	342	325	78	14	511	103	179	174	44	11
UNDER 20	178	5	110	42	21	.....	85	5	51	16	13	.....
20 - 24	243	9	80	113	33	8	134	8	41	61	17	7
25 - 34	163	25	59	70	8	1	98	19	33	38	7	1
35 - 44	154	35	54	54	8	3	98	30	27	36	3	2
45 - 54	78	22	20	33	2	1	50	19	13	16	2	.....
55 - 64	56	19	17	13	6	1	35	12	13	7	2	1
65 AND OVER	15	13	2	.....	.....	.....	11	10	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	20.1	3.9	32.2	12.9	26.9	.....	16.6	4.9	28.5	9.2	29.5	.....
20 - 24	27.4	7.0	23.4	34.8	42.3	57.1	26.2	7.8	22.9	35.1	38.6	63.6
25 - 34	18.4	19.5	17.3	21.5	10.3	7.1	19.2	18.4	18.4	21.8	15.9	9.1
35 - 44	17.4	27.3	15.8	16.6	10.3	21.4	19.2	29.1	15.1	20.7	6.8	18.2
45 - 54	8.8	17.2	5.8	10.2	2.6	7.1	9.8	18.4	7.3	9.2	4.5	.....
55 - 64	6.3	14.8	5.0	4.0	7.7	7.1	6.8	11.7	7.3	4.0	4.5	9.1
65 AND OVER	1.7	10.2	.6	.....	.....	.....	2.2	9.7	.6	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	14.4	38.6	36.6	8.8	1.6	100.0	20.2	35.0	34.1	8.6	2.2
UNDER 20	100.0	2.8	61.8	23.6	11.8	.....	100.0	5.9	60.0	18.8	15.3	.....
20 - 24	100.0	3.7	32.9	46.5	13.6	3.3	100.0	6.0	30.6	45.5	12.7	5.2
25 - 34	100.0	15.3	36.2	42.9	4.9	.6	100.0	19.4	33.7	38.8	7.1	1.0
35 - 44	100.0	22.7	35.1	35.1	5.2	1.9	100.0	30.6	27.6	36.7	3.1	2.0
45 - 54	100.0	28.2	25.6	42.3	2.6	1.3	100.0	38.0	26.0	32.0	4.0	.....
55 - 64	100.0	33.9	30.4	23.2	10.7	1.8	100.0	34.3	37.1	20.0	5.7	2.9
65 AND OVER	100.0	86.7	13.3	.....	.....	.....	100.0	90.9	9.1	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HARDIN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	214	56	64	82	12	.....	165	52	44	61	8	.....
PROF. & MANAGERIAL	2	.....	.....	1	1	.....	1	.....	.....	.....	1	.....
CLERICAL & SALES	26	.....	5	14	7	.....	12	.....	3	4	5	.....
SERVICE	13	2	9	1	1	.....	5	1	4	.....	.....	.....
SKILLED	36	7	5	22	2	.....	33	7	4	20	2	.....
SEMISKILLED	49	12	17	20	.....	.....	42	12	12	18	.....	.....
UNSKILLED & OTHER[A]	75	34	19	22	.....	.....	62	31	14	17	.....	.....
ENTRY[B]	13	1	9	2	1	.....	10	1	7	2	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL	.9	.....	.....	1.2	8.3	.....	.6	.....	.....	.....	12.5	.....
CLERICAL & SALES	12.1	.....	7.8	17.1	58.3	.....	7.3	.....	6.8	6.6	62.5	.....
SERVICE	6.1	3.6	14.1	1.2	8.3	.....	3.0	1.9	9.1	.....	.....	.....
SKILLED	16.8	12.5	7.8	26.8	16.7	.....	20.0	13.5	9.1	32.8	25.0	.....
SEMISKILLED	22.9	21.4	26.6	24.4	.....	.....	25.5	23.1	27.3	29.5	.....	.....
UNSKILLED & OTHER[A]	35.0	60.7	29.7	26.8	.....	.....	37.6	59.6	31.8	27.9	.....	.....
ENTRY[B]	6.1	1.8	14.1	2.4	8.3	.....	6.1	1.9	15.9	3.3	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.2	29.9	38.3	5.6	.....	100.0	31.5	26.7	37.0	4.8	.....
PROF. & MANAGERIAL	100.0	.....	.....	50.0	50.0	.....	100.0	.....	.....	.....	100.0	.....
CLERICAL & SALES	100.0	.....	19.2	53.8	26.9	.....	100.0	.....	25.0	33.3	41.7	.....
SERVICE	100.0	15.4	69.2	7.7	7.7	.....	100.0	20.0	80.0	.....	.....	.....
SKILLED	100.0	19.4	13.9	61.1	5.6	.....	100.0	21.2	12.1	60.6	6.1	.....
SEMISKILLED	100.0	24.5	34.7	40.8	.....	.....	100.0	28.6	28.6	42.9	.....	.....
UNSKILLED & OTHER[A]	100.0	45.3	25.3	29.3	.....	.....	100.0	50.0	22.6	27.4	.....	.....
ENTRY[B]	100.0	7.7	69.2	15.4	7.7	.....	100.0	10.0	70.0	20.0	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	214	56	64	82	12	.....	165	52	44	61	8	.....
UNDER 20	15	2	6	6	1	.....	12	2	5	4	1	.....
20 - 24	38	5	15	15	3	.....	31	5	13	12	1	.....
25 - 34	43	8	9	26	.....	.....	37	8	8	21	.....	.....
35 - 44	55	18	16	20	1	.....	42	18	10	13	1	.....
45 - 54	36	10	12	12	2	.....	25	9	6	9	1	.....
55 - 64	23	12	4	3	4	.....	18	10	2	2	4	.....
65 AND OVER	4	1	2	.....	1	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	7.0	3.6	9.4	7.3	8.3	.....	7.3	3.8	11.4	6.6	12.5	.....
20 - 24	17.8	8.9	23.4	18.3	25.0	.....	18.8	9.6	29.5	19.7	12.5	.....
25 - 34	20.1	14.3	14.1	31.7	.....	.....	22.4	15.4	18.2	34.4	.....	.....
35 - 44	25.7	32.1	25.0	24.4	8.3	.....	25.5	34.6	22.7	21.3	12.5	.....
45 - 54	16.8	17.9	18.8	14.6	16.7	.....	15.2	17.3	13.6	14.8	12.5	.....
55 - 64	10.7	21.4	6.2	3.7	33.3	.....	10.9	19.2	4.5	3.3	50.0	.....
65 AND OVER	1.9	1.8	3.1	.....	8.3	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.2	29.9	38.3	5.6	.....	100.0	31.5	26.7	37.0	4.8	.....
UNDER 20	100.0	13.3	40.0	40.0	6.7	.....	100.0	16.7	41.7	33.3	8.3	.....
20 - 24	100.0	13.2	39.5	39.5	7.9	.....	100.0	16.1	41.9	38.7	3.2	.....
25 - 34	100.0	18.6	20.9	60.5	.....	.....	100.0	21.6	21.6	56.8	.....	.....
35 - 44	100.0	32.7	29.1	36.4	1.8	.....	100.0	42.9	23.8	31.0	2.4	.....
45 - 54	100.0	27.8	33.3	33.3	5.6	.....	100.0	36.0	24.0	36.0	4.0	.....
55 - 64	100.0	52.2	17.4	13.0	17.4	.....	100.0	55.6	11.1	11.1	22.2	.....
65 AND OVER	100.0	25.0	50.0	.....	25.0	.....	.....	.....	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HARRISON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	68	25	19	23	1	.....	54	21	16	16	1	.....
PROF. & MANAGERIAL.	2	.....	1	1	.....	.....	2	.....	1	1	.....	.....
CLERICAL & SALES ..	6	.....	1	5	.....	.....	1	.....	.....	1	.....	.....
SERVICE	4	3	1	.....	.....	.....	2	2	.....	.....	.....	.....
SKILLED	8	4	1	3	.....	.....	8	4	1	3	.....	.....
SEMISKILLED	27	10	6	10	1	.....	24	10	6	7	1	.....
UNSKILLED & OTHER[A].	17	7	7	3	.....	.....	14	5	6	3	.....	.....
ENTRY[B]	4	1	2	1	.....	.....	3	.....	2	1	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	2.9	.....	5.3	4.3	.....	.....	3.7	.....	6.2	6.2	.....	.....
CLERICAL & SALES ..	8.8	.....	5.3	21.7	.....	.....	1.9	.....	.....	6.2	.....	.....
SERVICE	5.9	12.0	5.3	.....	.....	.....	3.7	9.5	.....	.....	.....	.....
SKILLED	11.8	16.0	5.3	13.0	.....	.....	14.8	19.0	6.2	18.8	.....	.....
SEMISKILLED	39.7	40.0	31.6	43.5	100.0	.....	44.4	47.6	37.5	43.8	100.0	.....
UNSKILLED & OTHER[A].	25.0	28.0	36.8	13.0	.....	.....	25.9	23.8	37.5	18.8	.....	.....
ENTRY[B]	5.9	4.0	10.5	4.3	.....	.....	5.6	.....	12.5	6.2	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	36.8	27.9	33.8	1.5	.....	100.0	38.9	29.6	29.6	1.9	.....
PROF. & MANAGERIAL.	100.0	.....	50.0	50.0	.....	.....	100.0	.....	50.0	50.0	.....	.....
CLERICAL & SALES ..	100.0	.....	16.7	83.3	.....	.....	100.0	.....	.....	100.0	.....	.....
SERVICE	100.0	75.0	25.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....
SKILLED	100.0	50.0	12.5	37.5	.....	.....	100.0	50.0	12.5	37.5	.....	.....
SEMISKILLED	100.0	37.0	22.2	37.0	3.7	.....	100.0	41.7	25.0	29.2	4.2	.....
UNSKILLED & OTHER[A].	100.0	41.2	41.2	17.6	.....	.....	100.0	35.7	42.9	21.4	.....	.....
ENTRY[B]	100.0	25.0	50.0	25.0	.....	.....	100.0	.....	66.7	33.3	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	68	25	19	23	1	.....	54	21	16	16	1	.....
UNDER 20	4	.....	2	2	.....	.....	3	.....	2	1	.....	.....
20 - 24	7	1	2	4	.....	.....	6	1	2	3	.....	.....
25 - 34	18	5	6	7	.....	.....	17	5	5	7	.....	.....
35 - 44	13	2	5	5	1	.....	8	2	3	2	1	.....
45 - 54	17	11	2	4	.....	.....	13	9	2	2	.....	.....
55 - 64	6	4	1	1	.....	.....	5	3	1	1	.....	.....
65 AND OVER	3	2	1	.....	.....	.....	2	1	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	5.9	.....	10.5	8.7	.....	.....	5.6	.....	12.5	6.2	.....	.....
20 - 24	10.3	4.0	10.5	17.4	.....	.....	11.1	4.8	12.5	18.8	.....	.....
25 - 34	26.5	20.0	31.6	30.4	.....	.....	31.5	23.8	31.2	43.8	.....	.....
35 - 44	19.1	8.0	26.3	21.7	100.0	.....	14.8	9.5	18.8	12.5	100.0	.....
45 - 54	25.0	44.0	10.5	17.4	.....	.....	24.1	42.9	12.5	12.5	.....	.....
55 - 64	8.8	16.0	5.3	4.3	.....	.....	9.3	14.3	6.2	6.2	.....	.....
65 AND OVER	4.4	8.0	5.3	.....	.....	.....	3.7	4.8	6.2	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	36.8	27.9	33.8	1.5	.....	100.0	38.9	29.6	29.6	1.9	.....
UNDER 20	100.0	.....	50.0	50.0	.....	.....	100.0	.....	66.7	33.3	.....	.....
20 - 24	100.0	14.3	28.6	57.1	.....	.....	100.0	16.7	33.3	50.0	.....	.....
25 - 34	100.0	27.8	33.3	38.9	.....	.....	100.0	29.4	29.4	41.2	.....	.....
35 - 44	100.0	15.4	38.5	38.5	7.7	.....	100.0	25.0	37.5	25.0	12.5	.....
45 - 54	100.0	64.7	11.8	23.5	.....	.....	100.0	69.2	15.4	15.4	.....	.....
55 - 64	100.0	66.7	16.7	16.7	.....	.....	100.0	60.0	20.0	20.0	.....	.....
65 AND OVER	100.0	66.7	33.3	.....	.....	.....	100.0	50.0	50.0	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

HENRY COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HENRY COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	206	42	64	76	23	1	123	30	38	46	8	1
PROF. & MANAGERIAL.	4	.....	.....	2	1	1	4	.....	.....	2	1	1
CLERICAL & SALES ..	20	1	2	11	6	.....	6	.....	1	2	3	.....
SERVICE	7	4	1	2	.....	.....	5	2	1	2	.....	.....
SKILLED	10	3	.....	7	.....	.....	10	3	.....	7	.....	.....
SEMISKILLED	33	5	9	19	.....	.....	27	5	8	14	.....	.....
UNSKILLED & OTHER[A].	48	16	18	14	.....	.....	34	13	10	11	.....	.....
ENTRY[B]	84	13	34	21	16	.....	37	7	18	8	4	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.9	.....	.....	2.6	4.3	100.0	3.3	.....	.....	4.3	12.5	100.0
CLERICAL & SALES ..	9.7	2.4	3.1	14.5	26.1	.....	4.9	.....	2.6	4.3	37.5	.....
SERVICE	3.4	9.5	1.6	2.6	.....	.....	4.1	6.7	2.6	4.3	.....	.....
SKILLED	4.9	7.1	.....	9.2	.....	.....	8.1	10.0	.....	15.2	.....	.....
SEMISKILLED	16.0	11.9	14.1	25.0	.....	.....	22.0	16.7	21.1	30.4	.....	.....
UNSKILLED & OTHER[A].	23.3	38.1	28.1	18.4	.....	.....	27.6	43.3	26.3	23.9	.....	.....
ENTRY[B]	40.8	31.0	53.1	27.6	69.6	.....	30.1	23.3	47.4	17.4	50.0	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.4	31.1	36.9	11.2	.5	100.0	24.4	30.9	37.4	6.5	.8
PROF. & MANAGERIAL.	100.0	.....	.....	50.0	25.0	25.0	100.0	.....	.....	50.0	25.0	25.0
CLERICAL & SALES ..	100.0	5.0	10.0	55.0	30.0	.....	100.0	.....	16.7	33.3	50.0	.....
SERVICE	100.0	57.1	14.3	28.6	.....	.....	100.0	40.0	20.0	40.0	.....	.....
SKILLED	100.0	30.0	.....	70.0	.....	.....	100.0	30.0	.....	70.0	.....	.....
SEMISKILLED	100.0	15.2	27.3	57.6	.....	.....	100.0	18.5	29.6	51.9	.....	.....
UNSKILLED & OTHER[A].	100.0	33.3	37.5	29.2	.....	.....	100.0	38.2	29.4	32.4	.....	.....
ENTRY[B]	100.0	15.5	40.5	25.0	19.0	.....	100.0	18.9	48.6	21.6	10.8	.....
	NUMBER, BY AGE GROUP											
TOTAL	206	42	64	76	23	1	123	30	38	46	8	1
UNDER 20	56	4	25	17	10	.....	32	3	17	10	2	.....
20 - 24	37	3	10	20	4	.....	21	3	4	12	2	.....
25 - 34	39	8	11	19	1	.....	26	5	7	13	1	.....
35 - 44	33	7	6	14	5	1	17	4	3	7	2	1
45 - 54	22	8	8	4	2	.....	14	5	6	3	.....	.....
55 - 64	16	10	3	2	1	.....	11	8	1	1	1	.....
65 AND OVER	3	2	1	.....	.....	.....	2	2	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	27.2	9.5	39.1	22.4	43.5	.....	26.0	10.0	44.7	21.7	25.0	.....
20 - 24	18.0	7.1	15.6	26.3	17.4	.....	17.1	10.0	10.5	26.1	25.0	.....
25 - 34	18.9	19.0	17.2	25.0	4.3	.....	21.1	16.7	18.4	28.3	12.5	.....
35 - 44	16.0	16.7	9.4	18.4	21.7	100.0	13.8	13.3	7.9	15.2	25.0	100.0
45 - 54	10.7	19.0	12.5	5.3	8.7	.....	11.4	16.7	15.8	6.5	.....	.....
55 - 64	7.8	23.8	4.7	2.6	4.3	.....	8.9	26.7	2.6	2.2	12.5	.....
65 AND OVER	1.5	4.8	1.6	.....	.....	.....	1.6	6.7	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.4	31.1	36.9	11.2	.5	100.0	24.4	30.9	37.4	6.5	.8
UNDER 20	100.0	7.1	44.6	30.4	17.9	.....	100.0	9.4	53.1	31.2	6.2	.....
20 - 24	100.0	8.1	27.0	54.1	10.8	.....	100.0	14.3	19.0	57.1	9.5	.....
25 - 34	100.0	20.5	28.2	48.7	2.6	.....	100.0	19.2	26.9	50.0	3.8	.....
35 - 44	100.0	21.2	18.2	42.4	15.2	3.0	100.0	23.5	17.6	41.2	11.8	5.9
45 - 54	100.0	36.4	36.4	18.2	9.1	.....	100.0	35.7	42.9	21.4	.....	.....
55 - 64	100.0	62.5	18.8	12.5	6.2	.....	100.0	72.7	9.1	9.1	9.1	.....
65 AND OVER	100.0	66.7	33.3	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HIGHLAND COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	330	98	100	124	7	1	234	83	67	77	6	1
PROF. & MANAGERIAL.	5	.....	.....	5	.....	.....	3	.....	.....	3	.....	.....
CLERICAL & SALES ..	31	3	6	20	2	.....	8	.....	1	6	1	.....
SERVICE	19	3	9	7	.....	.....	4	1	3	.....	.....	.....
SKILLED	42	11	13	16	1	1	42	11	13	16	1	1
SEMISKILLED	106	36	33	37	.....	.....	83	31	23	29	.....	.....
UNSKILLED & OTHER[A].	77	38	27	12	.....	.....	65	35	20	10	.....	.....
ENTRY[B]	50	7	12	27	4	.....	29	5	7	13	4	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.5	.....	.....	4.0	.....	.....	1.3	.....	.....	3.9	.....	.....
CLERICAL & SALES ..	9.4	3.1	6.0	16.1	28.6	.....	3.4	.....	1.5	7.8	16.7	.....
SERVICE	5.8	3.1	9.0	5.6	.....	.....	1.7	1.2	4.5	.....	.....	.....
SKILLED	12.7	11.2	13.0	12.9	14.3	100.0	17.9	13.3	19.4	20.8	16.7	100.0
SEMISKILLED	32.1	36.7	33.0	29.8	.....	.....	35.5	37.3	34.3	37.7	.....	.....
UNSKILLED & OTHER[A].	23.3	38.8	27.0	9.7	.....	.....	27.8	42.2	29.9	13.0	.....	.....
ENTRY[B]	15.2	7.1	12.0	21.8	57.1	.....	12.4	6.0	10.4	16.9	66.7	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.7	30.3	37.6	2.1	.3	100.0	35.5	28.6	32.9	2.6	.4
PROF. & MANAGERIAL.	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....
CLERICAL & SALES ..	100.0	9.7	19.4	64.5	6.5	.....	100.0	.....	12.5	75.0	12.5	.....
SERVICE	100.0	15.8	47.4	36.8	.....	.....	100.0	25.0	75.0	.....	.....	.....
SKILLED	100.0	26.2	31.0	38.1	2.4	2.4	100.0	26.2	31.0	38.1	2.4	2.4
SEMISKILLED	100.0	34.0	31.1	34.9	.....	.....	100.0	37.3	27.7	34.9	.....	.....
UNSKILLED & OTHER[A].	100.0	49.4	35.1	15.6	.....	.....	100.0	53.8	30.8	15.4	.....	.....
ENTRY[B]	100.0	14.0	24.0	54.0	8.0	.....	100.0	17.2	24.1	44.8	13.8	.....
	NUMBER, BY AGE GROUP											
TOTAL	330	98	100	124	7	1	234	83	67	77	6	1
UNDER 20	37	3	8	25	1	.....	22	2	7	12	1	.....
20 - 24	60	8	24	26	2	.....	43	7	20	14	2	.....
25 - 34	85	29	22	31	2	1	65	26	14	22	2	1
35 - 44	71	17	29	25	.....	.....	49	14	19	16	.....	.....
45 - 54	48	22	11	13	2	.....	30	16	3	10	1	.....
55 - 64	25	16	5	4	.....	.....	22	15	4	3	.....	.....
65 AND OVER	4	3	1	.....	.....	.....	3	3	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	11.2	3.1	8.0	20.2	14.3	.....	9.4	2.4	10.4	15.6	16.7	.....
20 - 24	18.2	8.2	24.0	21.0	28.6	.....	18.4	8.4	29.9	18.2	33.3	.....
25 - 34	25.8	29.6	22.0	25.0	28.6	100.0	27.8	31.3	20.9	28.6	33.3	100.0
35 - 44	21.5	17.3	29.0	20.2	.....	.....	20.9	16.9	28.4	20.8	.....	.....
45 - 54	14.5	22.4	11.0	10.5	28.6	.....	12.8	19.3	4.5	13.0	16.7	.....
55 - 64	7.6	16.3	5.0	3.2	.....	.....	9.4	18.1	6.0	3.9	.....	.....
65 AND OVER	1.2	3.1	1.0	.....	.....	.....	1.3	3.6	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.7	30.3	37.6	2.1	.3	100.0	35.5	28.6	32.9	2.6	.4
UNDER 20	100.0	8.1	21.6	67.6	2.7	.....	100.0	9.1	31.8	54.5	4.5	.....
20 - 24	100.0	13.3	40.0	43.3	3.3	.....	100.0	16.3	46.5	32.6	4.7	.....
25 - 34	100.0	34.1	25.9	36.5	2.4	1.2	100.0	40.0	21.5	33.8	3.1	1.5
35 - 44	100.0	23.9	40.8	35.2	.....	.....	100.0	28.6	38.8	32.7	.....	.....
45 - 54	100.0	45.8	22.9	27.1	4.2	.....	100.0	53.3	10.0	33.3	3.3	.....
55 - 64	100.0	64.0	20.0	16.0	.....	.....	100.0	68.2	18.2	13.6	.....	.....
65 AND OVER	100.0	75.0	25.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HOCKING COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	820	202	287	311	16	4	490	154	166	155	13	2
PROF. & MANAGERIAL.	2	.....	1	1	.....	.....	2	.....	1	1	.....	.....
CLERICAL & SALES ..	70	6	11	49	2	2	17	3	3	9	2	.....
SERVICE	50	10	22	17	1	.....	11	3	4	3	1	.....
SKILLED	136	31	59	42	2	2	112	26	52	30	2	2
SEMISKILLED	226	70	85	69	2	.....	132	50	41	40	1	.....
UNSKILLED & OTHER[A].	203	72	66	59	6	.....	161	66	45	45	5	.....
ENTRY[B]	133	13	43	74	3	.....	55	6	20	27	2	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	.2	.....	.3	.3	.....	.....	.4	.....	.6	.6	.....	.....
CLERICAL & SALES ..	8.5	3.0	3.8	15.8	12.5	50.0	3.5	1.9	1.8	5.8	15.4	.....
SERVICE	6.1	5.0	7.7	5.5	6.2	.....	2.2	1.9	2.4	1.9	7.7	.....
SKILLED	16.6	15.3	20.6	13.5	12.5	50.0	22.9	16.9	31.3	19.4	15.4	100.0
SEMISKILLED	27.6	34.7	29.6	22.2	12.5	.....	26.9	32.5	24.7	25.8	7.7	.....
UNSKILLED & OTHER[A].	24.8	35.6	23.0	19.0	37.5	.....	32.9	42.9	27.1	29.0	38.5	.....
ENTRY[B]	16.2	6.4	15.0	23.8	18.8	.....	11.2	3.9	12.0	17.4	15.4	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.6	35.0	37.9	2.0	.5	100.0	31.4	33.9	31.6	2.7	.4
PROF. & MANAGERIAL.	100.0	.....	50.0	50.0	.....	.....	100.0	.....	50.0	50.0	.....	.....
CLERICAL & SALES ..	100.0	8.6	15.7	70.0	2.9	2.9	100.0	17.6	17.6	52.9	11.8	.....
SERVICE	100.0	20.0	44.0	34.0	2.0	.....	100.0	27.3	36.4	27.3	9.1	.....
SKILLED	100.0	22.8	43.4	30.9	1.5	1.5	100.0	23.2	46.4	26.8	1.8	1.8
SEMISKILLED	100.0	31.0	37.6	30.5	.9	.....	100.0	37.9	31.1	30.3	.8	.....
UNSKILLED & OTHER[A].	100.0	35.5	32.5	29.1	3.0	.....	100.0	41.0	28.0	28.0	3.1	.....
ENTRY[B]	100.0	9.8	32.3	55.6	2.3	.....	100.0	10.9	36.4	49.1	3.6	.....
	NUMBER, BY AGE GROUP											
TOTAL	820	202	287	311	16	4	490	154	166	155	13	2
UNDER 20	125	5	39	75	6	.....	76	4	30	37	5	.....
20 - 24	145	16	55	68	6	.....	98	12	35	45	6	.....
25 - 34	159	29	67	63	.....	.....	92	25	35	32	.....	.....
35 - 44	156	40	58	55	2	1	85	29	28	26	1	1
45 - 54	133	51	43	35	1	3	68	35	22	10	.....	1
55 - 64	83	48	21	13	1	.....	56	38	12	5	1	.....
65 AND OVER	19	13	4	2	.....	.....	15	11	4	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	15.2	2.5	13.6	24.1	37.5	.....	15.5	2.6	18.1	23.9	38.5	.....
20 - 24	17.7	7.9	19.2	21.9	37.5	.....	20.0	7.8	21.1	29.0	46.2	.....
25 - 34	19.4	14.4	23.3	20.3	.....	.....	18.8	16.2	21.1	20.6	.....	.....
35 - 44	19.0	19.8	20.2	17.7	12.5	25.0	17.3	18.8	16.9	16.8	7.7	50.0
45 - 54	16.2	25.2	15.0	11.3	6.2	75.0	13.9	22.7	13.3	6.5	.....	50.0
55 - 64	10.1	23.8	7.3	4.2	6.2	.....	11.4	24.7	7.2	3.2	7.7	.....
65 AND OVER	2.3	6.4	1.4	.6	.....	.....	3.1	7.1	2.4	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.6	35.0	37.9	2.0	.5	100.0	31.4	33.9	31.6	2.7	.4
UNDER 20	100.0	4.0	31.2	60.0	4.8	.....	100.0	5.3	39.5	48.7	6.6	.....
20 - 24	100.0	11.0	37.9	46.9	4.1	.....	100.0	12.2	35.7	45.9	6.1	.....
25 - 34	100.0	18.2	42.1	39.6	.....	.....	100.0	27.2	38.0	34.8	.....	.....
35 - 44	100.0	25.6	37.2	35.3	1.3	.6	100.0	34.1	32.9	30.6	1.2	1.2
45 - 54	100.0	38.3	32.3	26.3	.8	2.3	100.0	51.5	32.4	14.7	.....	1.5
55 - 64	100.0	57.8	25.3	15.7	1.2	.....	100.0	67.9	21.4	8.9	1.8	.....
65 AND OVER	100.0	68.4	21.1	10.5	.....	.....	100.0	73.3	26.7	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HOLMES COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	31	9	5	16	.....	1	22	8	3	11	.....	.....
PROF. & MANAGERIAL.	1	.....	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	4	1	.....	3	.....	.....	3	1	.....	2	.....	.....
SERVICE	2	2	.....	.....	.....	.....	1	1	.....	.....	.....	.....
SKILLED	6	3	1	2	.....	.....	6	3	1	2	.....	.....
SEMISKILLED	5	.....	2	3	.....	.....	5	.....	2	3	.....	.....
UNSKILLED & OTHER[A].	8	3	1	4	.....	.....	5	3	.....	2	.....	.....
ENTRY[B]	5	.....	1	4	.....	.....	2	.....	.....	2	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....	.....
PROF. & MANAGERIAL.	3.2	.....	.....	.....	.....	100.0	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	12.9	11.1	.....	18.8	.....	.....	13.6	12.5	.....	18.2	.....	.....
SERVICE	6.5	22.2	.....	.....	.....	.....	4.5	12.5	.....	.....	.....	.....
SKILLED	19.4	33.3	20.0	12.5	.....	.....	27.3	37.5	33.3	18.2	.....	.....
SEMISKILLED	16.1	.....	40.0	18.8	.....	.....	22.7	.....	66.7	27.3	.....	.....
UNSKILLED & OTHER[A].	25.8	33.3	20.0	25.0	.....	.....	22.7	37.5	.....	18.2	.....	.....
ENTRY[B]	16.1	.....	20.0	25.0	.....	.....	9.1	.....	.....	18.2	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.0	16.1	51.6	.....	3.2	100.0	36.4	13.6	50.0	.....	.....
PROF. & MANAGERIAL.	100.0	.....	.....	.....	.....	100.0	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	100.0	25.0	.....	75.0	.....	.....	100.0	33.3	.....	66.7	.....	.....
SERVICE	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....
SKILLED	100.0	50.0	16.7	33.3	.....	.....	100.0	50.0	16.7	33.3	.....	.....
SEMISKILLED	100.0	.....	40.0	60.0	.....	.....	100.0	.....	40.0	60.0	.....	.....
UNSKILLED & OTHER[A].	100.0	37.5	12.5	50.0	.....	.....	100.0	60.0	.....	40.0	.....	.....
ENTRY[B]	100.0	.....	20.0	80.0	.....	.....	100.0	.....	.....	100.0	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	31	9	5	16	.....	1	22	8	3	11	.....	.....
UNDER 20	4	.....	.....	4	.....	.....	1	.....	.....	1	.....	.....
20 - 24	3	.....	2	1	.....	.....	2	.....	1	1	.....	.....
25 - 34	7	2	.....	5	.....	.....	5	1	.....	4	.....	.....
35 - 44	4	1	2	1	.....	.....	3	1	1	1	.....	.....
45 - 54	4	.....	1	3	.....	.....	4	.....	1	3	.....	.....
55 - 64	7	4	.....	2	.....	1	5	4	.....	1	.....	.....
65 AND OVER	2	2	.....	.....	.....	.....	2	2	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....	.....
UNDER 20	12.9	.....	.....	25.0	.....	.....	4.5	.....	.....	9.1	.....	.....
20 - 24	9.7	.....	40.0	6.2	.....	.....	9.1	.....	33.3	9.1	.....	.....
25 - 34	22.6	22.2	.....	31.2	.....	.....	22.7	12.5	.....	36.4	.....	.....
35 - 44	12.9	11.1	40.0	6.2	.....	.....	13.6	12.5	33.3	9.1	.....	.....
45 - 54	12.9	.....	20.0	18.8	.....	.....	18.2	.....	33.3	27.3	.....	.....
55 - 64	22.6	44.4	.....	12.5	.....	100.0	22.7	50.0	.....	9.1	.....	.....
65 AND OVER	6.5	22.2	.....	.....	.....	.....	9.1	25.0	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.0	16.1	51.6	.....	3.2	100.0	36.4	13.6	50.0	.....	.....
UNDER 20	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....
20 - 24	100.0	.....	66.7	33.3	.....	.....	100.0	.....	50.0	50.0	.....	.....
25 - 34	100.0	28.6	.....	71.4	.....	.....	100.0	20.0	.....	80.0	.....	.....
35 - 44	100.0	25.0	50.0	25.0	.....	.....	100.0	33.3	33.3	33.3	.....	.....
45 - 54	100.0	.....	25.0	75.0	.....	.....	100.0	.....	25.0	75.0	.....	.....
55 - 64	100.0	57.1	.....	28.6	.....	14.3	100.0	80.0	.....	20.0	.....	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN HURON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	314	88	108	92	21	5	176	63	55	41	12	5
PROF. & MANAGERIAL.	11	1	2	4	1	3	9	.....	1	4	1	3
CLERICAL & SALES ..	45	1	8	29	6	1	12	.....	2	6	3	1
SERVICE	39	14	12	10	3	.....	12	6	2	2	2	.....
SKILLED	42	14	9	16	2	1	39	14	8	14	2	1
SEMISKILLED	62	19	30	11	2	.....	35	16	13	6	.....	.....
UNSKILLED & OTHER[A].	89	36	35	16	2	.....	56	27	20	7	2	.....
ENTRY[B]	26	3	12	6	5	.....	13	.....	9	2	2	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.5	1.1	1.9	4.3	4.8	60.0	5.1	.....	1.8	9.8	8.3	60.0
CLERICAL & SALES ..	14.3	1.1	7.4	31.5	28.6	20.0	6.8	.....	3.6	14.6	25.0	20.0
SERVICE	12.4	15.9	11.1	10.9	14.3	.....	6.8	9.5	3.6	4.9	16.7	.....
SKILLED	13.4	15.9	8.3	17.4	9.5	20.0	22.2	22.2	14.5	34.1	16.7	20.0
SEMISKILLED	19.7	21.6	27.8	12.0	9.5	.....	19.9	25.4	23.6	14.6	.....	.....
UNSKILLED & OTHER[A].	28.3	40.9	32.4	17.4	9.5	.....	31.3	42.9	36.4	17.1	16.7	.....
ENTRY[B]	8.3	3.4	11.1	6.5	23.8	.....	7.4	.....	16.4	4.9	16.7	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	28.0	34.4	29.3	6.7	1.6	100.0	35.8	31.2	23.3	6.8	2.8
PROF. & MANAGERIAL.	100.0	9.1	18.2	36.4	9.1	27.3	100.0	.....	11.1	44.4	11.1	33.3
CLERICAL & SALES ..	100.0	2.2	17.8	64.4	13.3	2.2	100.0	.....	16.7	50.0	25.0	8.3
SERVICE	100.0	35.9	30.8	25.6	7.7	.....	100.0	50.0	16.7	16.7	16.7	.....
SKILLED	100.0	33.3	21.4	38.1	4.8	2.4	100.0	35.9	20.5	35.9	5.1	2.6
SEMISKILLED	100.0	30.6	48.4	17.7	3.2	.....	100.0	45.7	37.1	17.1	.....	.....
UNSKILLED & OTHER[A].	100.0	40.4	39.3	18.0	2.2	.....	100.0	48.2	35.7	12.5	3.6	.....
ENTRY[B]	100.0	11.5	46.2	23.1	19.2	.....	100.0	.....	69.2	15.4	15.4	.....
	NUMBER, BY AGE GROUP											
TOTAL	314	88	108	92	21	5	176	63	55	41	12	5
UNDER 20	40	3	17	14	6	.....	18	1	11	3	3	.....
20 - 24	61	11	22	20	7	1	35	9	12	9	4	1
25 - 34	55	12	22	18	1	2	31	11	8	9	1	2
35 - 44	65	22	23	18	2	.....	33	11	11	9	2	.....
45 - 54	60	23	18	17	1	1	33	16	9	7	.....	1
55 - 64	28	14	6	5	3	.....	22	12	4	4	2	.....
65 AND OVER	5	3	.....	.....	1	1	4	3	.....	.....	.....	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	12.7	3.4	15.7	15.2	28.6	.....	10.2	1.6	20.0	7.3	25.0	.....
20 - 24	19.4	12.5	20.4	21.7	33.3	20.0	19.9	14.3	21.8	22.0	33.3	20.0
25 - 34	17.5	13.6	20.4	19.6	4.8	40.0	17.6	17.5	14.5	22.0	8.3	40.0
35 - 44	20.7	25.0	21.3	19.6	9.5	.....	18.7	17.5	20.0	22.0	16.7	.....
45 - 54	19.1	26.1	16.7	18.5	4.8	20.0	18.7	25.4	16.4	17.1	.....	20.0
55 - 64	8.9	15.9	5.6	5.4	14.3	.....	12.5	19.0	7.3	9.8	16.7	.....
65 AND OVER	1.6	3.4	.....	.....	4.8	20.0	2.3	4.8	.....	.....	.....	20.0
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	28.0	34.4	29.3	6.7	1.6	100.0	35.8	31.2	23.3	6.8	2.8
UNDER 20	100.0	7.5	42.5	35.0	15.0	.....	100.0	5.6	61.1	16.7	16.7	.....
20 - 24	100.0	18.0	36.1	32.8	11.5	1.6	100.0	25.7	34.3	25.7	11.4	2.9
25 - 34	100.0	21.8	40.0	32.7	1.8	3.6	100.0	35.5	25.8	29.0	3.2	6.5
35 - 44	100.0	33.8	35.4	27.7	3.1	.....	100.0	33.3	33.3	27.3	6.1	.....
45 - 54	100.0	38.3	30.0	28.3	1.7	1.7	100.0	48.5	27.3	21.2	.....	3.0
55 - 64	100.0	50.0	21.4	17.9	10.7	.....	100.0	54.5	18.2	18.2	9.1	.....
65 AND OVER	100.0	60.0	.....	.....	20.0	20.0	100.0	75.0	.....	.....	.....	25.0

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN JACKSON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,028	400	307	304	17	.....	718	325	197	185	11	.....
PROF. & MANAGERIAL.	13	2	3	4	4	.....	9	1	2	3	3	.....
CLERICAL & SALES ..	50	4	9	36	1	.....	20	3	3	14	.....	.....
SERVICE	90	42	28	19	1	.....	37	21	11	4	1	.....
SKILLED	148	63	42	41	2	.....	146	63	42	39	2	.....
SEMISKILLED	162	80	41	41	.....	.....	157	79	39	39	.....	.....
UNSKILLED & OTHER[A].	299	146	89	62	2	.....	211	120	52	37	2	.....
ENTRY[B]	266	63	95	101	7	.....	138	38	48	49	3	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	1.3	.5	1.0	1.3	23.5	.....	1.3	.3	1.0	1.6	27.3	.....
CLERICAL & SALES ..	4.9	1.0	2.9	11.8	5.9	.....	2.8	.9	1.5	7.6	.....	.....
SERVICE	8.8	10.5	9.1	6.2	5.9	.....	5.2	6.5	5.6	2.2	9.1	.....
SKILLED	14.4	15.8	13.7	13.5	11.8	.....	20.3	19.4	21.3	21.1	18.2	.....
SEMISKILLED	15.8	20.0	13.4	13.5	.....	.....	21.9	24.3	19.8	21.1	.....	.....
UNSKILLED & OTHER[A].	29.1	36.5	29.0	20.4	11.8	.....	29.4	36.9	26.4	20.0	18.2	.....
ENTRY[B]	25.9	15.8	30.9	33.2	41.2	.....	19.2	11.7	24.4	26.5	27.3	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	38.9	29.9	29.6	1.7	.....	100.0	45.3	27.4	25.8	1.5	.....
PROF. & MANAGERIAL.	100.0	15.4	23.1	30.8	30.8	.....	100.0	11.1	22.2	33.3	33.3	.....
CLERICAL & SALES ..	100.0	8.0	18.0	72.0	2.0	.....	100.0	15.0	15.0	70.0	.....	.....
SERVICE	100.0	46.7	31.1	21.1	1.1	.....	100.0	56.8	29.7	10.8	2.7	.....
SKILLED	100.0	42.6	28.4	27.7	1.4	.....	100.0	43.2	28.8	26.7	1.4	.....
SEMISKILLED	100.0	49.4	25.3	25.3	.....	.....	100.0	50.3	24.8	24.8	.....	.....
UNSKILLED & OTHER[A].	100.0	48.8	29.8	20.7	.7	.....	100.0	56.9	24.6	17.5	.9	.....
ENTRY[B]	100.0	23.7	35.7	38.0	2.6	.....	100.0	27.5	34.8	35.5	2.2	.....
	NUMBER, BY AGE GROUP											
TOTAL	1,028	400	307	304	17	.....	718	325	197	185	11	.....
UNDER 20	129	18	48	60	3	.....	81	15	31	33	2	.....
20 - 24	161	27	49	83	2	.....	123	27	39	56	1	.....
25 - 34	233	85	76	68	4	.....	165	70	47	46	2	.....
35 - 44	247	108	91	46	2	.....	148	76	50	22	.....	.....
45 - 54	164	99	28	34	3	.....	125	85	18	19	3	.....
55 - 64	87	60	13	12	2	.....	71	50	11	8	2	.....
65 AND OVER	7	3	2	1	1	.....	5	2	1	1	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	12.5	4.5	15.6	19.7	17.6	.....	11.3	4.6	15.7	17.8	18.2	.....
20 - 24	15.7	6.8	16.0	27.3	11.8	.....	17.1	8.3	19.8	30.3	9.1	.....
25 - 34	22.7	21.2	24.8	22.4	23.5	.....	23.0	21.5	23.9	24.9	18.2	.....
35 - 44	24.0	27.0	29.6	15.1	11.8	.....	20.6	23.4	25.4	11.9	.....	.....
45 - 54	16.0	24.8	9.1	11.2	17.6	.....	17.4	26.2	9.1	10.3	27.3	.....
55 - 64	8.5	15.0	4.2	3.9	11.8	.....	9.9	15.4	5.6	4.3	18.2	.....
65 AND OVER	.7	.8	.7	.3	5.9	.....	.7	.6	.5	.5	9.1	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	38.9	29.9	29.6	1.7	.....	100.0	45.3	27.4	25.8	1.5	.....
UNDER 20	100.0	14.0	37.2	46.5	2.3	.....	100.0	18.5	38.3	40.7	2.5	.....
20 - 24	100.0	16.8	30.4	51.6	1.2	.....	100.0	22.0	31.7	45.5	.8	.....
25 - 34	100.0	36.5	32.6	29.2	1.7	.....	100.0	42.4	28.5	27.9	1.2	.....
35 - 44	100.0	43.7	36.8	18.6	.8	.....	100.0	51.4	33.8	14.9	.....	.....
45 - 54	100.0	60.4	17.1	20.7	1.8	.....	100.0	68.0	14.4	15.2	2.4	.....
55 - 64	100.0	69.0	14.9	13.8	2.3	.....	100.0	70.4	15.5	11.3	2.8	.....
65 AND OVER	100.0	42.9	28.6	14.3	14.3	.....	100.0	40.0	20.0	20.0	20.0	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN JEFFERSON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,100	202	302	390	177	29	695	160	200	202	109	24
PROF. & MANAGERIAL.	79	.....	2	19	41	17	56	.....	2	13	27	14
CLERICAL & SALES ..	232	7	28	151	44	2	87	5	12	47	22	1
SERVICE	209	62	87	51	6	3	63	25	17	16	2	3
SKILLED	115	28	42	41	3	1	113	28	42	39	3	1
SEMISKILLED	159	48	73	34	3	1	148	46	67	31	3	1
UNSKILLED & OTHER[A].	114	48	36	26	3	1	111	48	35	24	3	1
ENTRY[B]	192	9	34	68	77	4	117	8	25	32	49	3
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	7.2	.....	.7	4.9	23.2	58.6	8.1	.....	1.0	6.4	24.8	58.3
CLERICAL & SALES ..	21.1	3.5	9.3	38.7	24.9	6.9	12.5	3.1	6.0	23.3	20.2	4.2
SERVICE	19.0	30.7	28.8	13.1	3.4	10.3	9.1	15.6	8.5	7.9	1.8	12.5
SKILLED	10.5	13.9	13.9	10.5	1.7	3.4	16.3	17.5	21.0	19.3	2.8	4.2
SEMISKILLED	14.5	23.8	24.2	8.7	1.7	3.4	21.3	28.8	33.5	15.3	2.8	4.2
UNSKILLED & OTHER[A].	10.4	23.8	11.9	6.7	1.7	3.4	16.0	30.0	17.5	11.9	2.8	4.2
ENTRY[B]	17.5	4.5	11.3	17.4	43.5	13.8	16.8	5.0	12.5	15.8	45.0	12.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.4	27.5	35.5	16.1	2.6	100.0	23.0	28.8	29.1	15.7	3.5
PROF. & MANAGERIAL.	100.0	.....	2.5	24.1	51.9	21.5	100.0	.....	3.6	23.2	48.2	25.0
CLERICAL & SALES ..	100.0	3.0	12.1	65.1	19.0	.9	100.0	5.7	13.8	54.0	25.3	1.1
SERVICE	100.0	29.7	41.6	24.4	2.9	1.4	100.0	39.7	27.0	25.4	3.2	4.8
SKILLED	100.0	24.3	36.5	35.7	2.6	.9	100.0	24.8	37.2	34.5	2.7	.9
SEMISKILLED	100.0	30.2	45.9	21.4	1.9	.6	100.0	31.1	45.3	20.9	2.0	.7
UNSKILLED & OTHER[A].	100.0	42.1	31.6	22.8	2.6	.9	100.0	43.2	31.5	21.6	2.7	.9
ENTRY[B]	100.0	4.7	17.7	35.4	40.1	2.1	100.0	6.8	21.4	27.4	41.9	2.6
	NUMBER, BY AGE GROUP											
TOTAL	1,100	202	302	390	177	29	695	160	200	202	109	24
UNDER 20	167	10	40	64	53	.....	94	9	29	26	30	.....
20 - 24	325	15	75	141	88	6	213	15	59	82	52	5
25 - 34	223	31	77	83	19	13	160	28	59	47	15	11
35 - 44	163	47	57	46	10	3	100	41	30	18	8	3
45 - 54	121	38	32	42	4	5	68	26	14	22	3	3
55 - 64	75	41	18	12	2	2	39	25	6	5	1	2
65 AND OVER	26	20	3	2	1	.....	21	16	3	2	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	15.2	5.0	13.2	16.4	29.9	.....	13.5	5.6	14.5	12.9	27.5	.....
20 - 24	29.5	7.4	24.8	36.2	49.7	20.7	30.6	9.4	29.5	40.6	47.7	20.8
25 - 34	20.3	15.3	25.5	21.3	10.7	44.8	23.0	17.5	29.5	23.3	13.8	45.8
35 - 44	14.8	23.3	18.9	11.8	5.6	10.3	14.4	25.6	15.0	8.9	7.3	12.5
45 - 54	11.0	18.8	10.6	10.8	2.3	17.2	9.8	16.2	7.0	10.9	2.8	12.5
55 - 64	6.8	20.3	6.0	3.1	1.1	6.9	5.6	15.6	3.0	2.5	.9	8.3
65 AND OVER	2.4	9.9	1.0	.5	.6	.....	3.0	10.0	1.5	1.0	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.4	27.5	35.5	16.1	2.6	100.0	23.0	28.8	29.1	15.7	3.5
UNDER 20	100.0	6.0	24.0	38.3	31.7	.....	100.0	9.6	30.9	27.7	31.9	.....
20 - 24	100.0	4.6	23.1	43.4	27.1	1.8	100.0	7.0	27.7	38.5	24.4	2.3
25 - 34	100.0	13.9	34.5	37.2	8.5	5.8	100.0	17.5	36.9	29.4	9.4	6.9
35 - 44	100.0	28.8	35.0	28.2	6.1	1.8	100.0	41.0	30.0	18.0	8.0	3.0
45 - 54	100.0	31.4	26.4	34.7	3.3	4.1	100.0	38.2	20.6	32.4	4.4	4.4
55 - 64	100.0	54.7	24.0	16.0	2.7	2.7	100.0	64.1	15.4	12.8	2.6	5.1
65 AND OVER	100.0	76.9	11.5	7.7	3.8	.....	100.0	76.2	14.3	9.5	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

KNOX COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN KNOX COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	667	114	195	302	49	7	420	87	151	147	31	4
PROF. & MANAGERIAL.	23	1	5	10	4	3	17	.....	4	8	3	2
CLERICAL & SALES ..	89	4	10	63	11	1	12	1	2	6	3	.....
SERVICE	43	11	13	19	.....	.....	11	4	3	4	.....	.....
SKILLED	62	14	28	13	6	1	61	14	27	13	6	1
SEMISKILLED	126	34	53	37	2	.....	96	24	44	26	2	.....
UNSKILLED & OTHER[A].	98	18	28	48	3	1	88	18	24	42	3	1
ENTRY[B]	226	32	58	112	23	1	135	26	47	48	14	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.4	.9	2.6	3.3	8.2	42.9	4.0	.....	2.6	5.4	9.7	50.0
CLERICAL & SALES ..	13.3	3.5	5.1	20.9	22.4	14.3	2.9	1.1	1.3	4.1	9.7	.....
SERVICE	6.4	9.6	6.7	6.3	.....	.....	2.6	4.6	2.0	2.7	.....	.....
SKILLED	9.3	12.3	14.4	4.3	12.2	14.3	14.5	16.1	17.9	8.8	19.4	25.0
SEMISKILLED	18.9	29.8	27.2	12.3	4.1	.....	22.9	27.6	29.1	17.7	6.5	.....
UNSKILLED & OTHER[A].	14.7	15.8	14.4	15.9	6.1	14.3	21.0	20.7	15.9	28.6	9.7	25.0
ENTRY[B]	33.9	28.1	29.7	37.1	46.9	14.3	32.1	29.9	31.1	32.7	45.2	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	17.1	29.2	45.3	7.3	1.0	100.0	20.7	36.0	35.0	7.4	1.0
PROF. & MANAGERIAL.	100.0	4.3	21.7	43.5	17.4	13.0	100.0	.....	23.5	47.1	17.6	11.8
CLERICAL & SALES ..	100.0	4.5	11.2	70.8	12.4	1.1	100.0	8.3	16.7	50.0	25.0	.....
SERVICE	100.0	25.6	30.2	44.2	.....	.....	100.0	36.4	27.3	36.4	.....	.....
SKILLED	100.0	22.6	45.2	21.0	9.7	1.6	100.0	23.0	44.3	21.3	9.8	1.6
SEMISKILLED	100.0	27.0	42.1	29.4	1.6	.....	100.0	25.0	45.8	27.1	2.1	.....
UNSKILLED & OTHER[A].	100.0	18.4	28.6	49.0	3.1	1.0	100.0	20.5	27.3	47.7	3.4	1.1
ENTRY[B]	100.0	14.2	25.7	49.6	10.2	.4	100.0	19.3	34.8	35.6	10.4	.....
	NUMBER, BY AGE GROUP											
TOTAL	667	114	195	302	49	7	420	87	151	147	31	4
UNDER 20	87	4	22	55	6	.....	53	4	20	27	2	.....
20 - 24	185	14	43	100	26	2	131	14	37	61	18	1
25 - 34	128	16	45	61	6	.....	80	11	35	30	4	.....
35 - 44	104	25	42	33	3	1	62	19	30	10	3	.....
45 - 54	88	22	25	31	7	3	47	14	18	10	3	2
55 - 64	61	27	13	19	1	1	38	21	8	7	1	1
65 AND OVER	14	6	5	3	.....	.....	9	4	3	2	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	13.0	3.5	11.3	18.2	12.2	.....	12.6	4.6	13.2	18.4	6.5	.....
20 - 24	27.7	12.3	22.1	33.1	53.1	28.6	31.2	16.1	24.5	41.5	58.1	25.0
25 - 34	19.2	14.0	23.1	20.2	12.2	.....	19.0	12.6	23.2	20.4	12.9	.....
35 - 44	15.6	21.9	21.5	10.9	6.1	14.3	14.8	21.8	19.9	6.8	9.7	.....
45 - 54	13.2	19.3	12.8	10.3	14.3	42.9	11.2	16.1	11.9	6.8	9.7	50.0
55 - 64	9.1	23.7	6.7	6.3	2.0	14.3	9.0	24.1	5.3	4.8	3.2	25.0
65 AND OVER	2.1	5.3	2.6	1.0	.....	.....	2.1	4.6	2.0	1.4	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	17.1	29.2	45.3	7.3	1.0	100.0	20.7	36.0	35.0	7.4	1.0
UNDER 20	100.0	4.6	25.3	63.2	6.9	.....	100.0	7.5	37.7	50.9	3.8	.....
20 - 24	100.0	7.6	23.2	54.1	14.1	1.1	100.0	10.7	28.2	46.6	13.7	.8
25 - 34	100.0	12.5	35.2	47.7	4.7	.....	100.0	13.8	43.8	37.5	5.0	.....
35 - 44	100.0	24.0	40.4	31.7	2.9	1.0	100.0	30.6	48.4	16.1	4.8	.....
45 - 54	100.0	25.0	28.4	35.2	8.0	3.4	100.0	29.8	38.3	21.3	6.4	4.3
55 - 64	100.0	44.3	21.3	31.1	1.6	1.6	100.0	55.3	21.1	18.4	2.6	2.6
65 AND OVER	100.0	42.9	35.7	21.4	.....	.....	100.0	44.4	33.3	22.2	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

LAKE COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN LAKE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,252	288	410	459	80	15	711	193	250	200	55	13
PROF. & MANAGERIAL.	61	2	8	19	23	9	45	1	6	13	16	9
CLERICAL & SALES ..	245	16	45	167	14	3	48	5	6	27	8	2
SERVICE	145	62	61	21	1	.....	24	13	6	5	.....	.....
SKILLED	261	74	103	67	17	.....	256	74	103	66	13	.....
SEMISKILLED	231	77	77	72	4	1	158	53	62	38	4	1
UNSKILLED & OTHER[A].	171	47	71	52	1	.....	100	40	37	22	1	.....
ENTRY[B]	138	10	45	61	20	2	80	7	30	29	13	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	4.9	.7	2.0	4.1	28.8	60.0	6.3	.5	2.4	6.5	29.1	69.2
CLERICAL & SALES ..	19.6	5.6	11.0	36.4	17.5	20.0	6.8	2.6	2.4	13.5	14.5	15.4
SERVICE	11.6	21.5	14.9	4.6	1.2	.....	3.4	6.7	2.4	2.5	.....	.....
SKILLED	20.8	25.7	25.1	14.6	21.2	.....	36.0	38.3	41.2	33.0	23.6	.....
SEMISKILLED	18.5	26.7	18.8	15.7	5.0	6.7	22.2	27.5	24.8	19.0	7.3	7.7
UNSKILLED & OTHER[A].	13.7	16.3	17.3	11.3	1.2	.....	14.1	20.7	14.8	11.0	1.8	.....
ENTRY[B]	11.0	3.5	11.0	13.3	25.0	13.3	11.3	3.6	12.0	14.5	23.6	7.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.0	32.7	36.7	6.4	1.2	100.0	27.1	35.2	28.1	7.7	1.8
PROF. & MANAGERIAL.	100.0	3.3	13.1	31.1	37.7	14.8	100.0	2.2	13.3	28.9	35.6	20.0
CLERICAL & SALES ..	100.0	6.5	18.4	68.2	5.7	1.2	100.0	10.4	12.5	56.2	16.7	4.2
SERVICE	100.0	42.8	42.1	14.5	.7	.....	100.0	54.2	25.0	20.8	.....	.....
SKILLED	100.0	28.4	39.5	25.7	6.5	.....	100.0	28.9	40.2	25.8	5.1	.....
SEMISKILLED	100.0	33.3	33.3	31.2	1.7	.4	100.0	33.5	39.2	24.1	2.5	.6
UNSKILLED & OTHER[A].	100.0	27.5	41.5	30.4	.6	.....	100.0	40.0	37.0	22.0	1.0	.....
ENTRY[B]	100.0	7.2	32.6	44.2	14.5	1.4	100.0	8.8	37.5	36.2	16.2	1.2
	NUMBER, BY AGE GROUP											
TOTAL	1,252	288	410	459	80	15	711	193	250	200	55	13
UNDER 20	151	8	39	88	15	1	61	5	26	24	5	1
20 - 24	209	16	79	92	17	5	123	14	48	45	13	3
25 - 34	269	62	108	85	13	1	149	33	58	48	9	1
35 - 44	273	68	91	94	16	4	152	48	54	32	14	4
45 - 54	206	62	63	69	11	1	134	40	43	39	11	1
55 - 64	116	57	23	29	5	2	68	38	16	11	1	2
65 AND OVER	28	15	7	2	3	1	24	15	5	1	2	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	12.1	2.8	9.5	19.2	18.8	6.7	8.6	2.6	10.4	12.0	9.1	7.7
20 - 24	16.7	5.6	19.3	20.0	21.2	33.3	17.3	7.3	19.2	22.5	23.6	23.1
25 - 34	21.5	21.5	26.3	18.5	16.2	6.7	21.0	17.1	23.2	24.0	16.4	7.7
35 - 44	21.8	23.6	22.2	20.5	20.0	26.7	21.4	24.9	21.6	16.0	25.5	30.8
45 - 54	16.5	21.5	15.4	15.0	13.8	6.7	18.8	20.7	17.2	19.5	20.0	7.7
55 - 64	9.3	19.8	5.6	6.3	6.2	13.3	9.6	19.7	6.4	5.5	1.8	15.4
65 AND OVER	2.2	5.2	1.7	.4	3.8	6.7	3.4	7.8	2.0	.5	3.6	7.7
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.0	32.7	36.7	6.4	1.2	100.0	27.1	35.2	28.1	7.7	1.8
UNDER 20	100.0	5.3	25.8	58.3	9.9	.7	100.0	8.2	42.6	39.3	8.2	1.6
20 - 24	100.0	7.7	37.8	44.0	8.1	2.4	100.0	11.4	39.0	36.6	10.6	2.4
25 - 34	100.0	23.0	40.1	31.6	4.8	.4	100.0	22.1	38.9	32.2	6.0	.7
35 - 44	100.0	24.9	33.3	34.4	5.9	1.5	100.0	31.6	35.5	21.1	9.2	2.6
45 - 54	100.0	30.1	30.6	33.5	5.3	.5	100.0	29.9	32.1	29.1	8.2	.7
55 - 64	100.0	49.1	19.8	25.0	4.3	1.7	100.0	55.9	23.5	16.2	1.5	2.9
65 AND OVER	100.0	53.6	25.0	7.1	10.7	3.6	100.0	62.5	20.8	4.2	8.3	4.2

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN LAWRENCE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,550	451	550	494	50	5	1,119	409	390	282	33	5
PROF. & MANAGERIAL.	26	1	4	13	3	5	17	1	2	7	2	5
CLERICAL & SALES ..	158	4	19	121	14	.....	45	1	10	26	8	.....
SERVICE	125	37	53	34	1	.....	38	17	10	10	1	.....
SKILLED	244	115	59	60	10	.....	241	115	57	59	10	.....
SEMISKILLED	293	109	109	68	7	.....	261	104	98	53	6	.....
UNSKILLED & OTHER[A].	327	156	92	76	3	.....	294	151	74	66	3	.....
ENTRY[B]	377	29	214	122	12	.....	223	20	139	61	3	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.7	.2	.7	2.6	6.0	100.0	1.5	.2	.5	2.5	6.1	100.0
CLERICAL & SALES ..	10.2	.9	3.5	24.5	28.0	.....	4.0	.2	2.6	9.2	24.2	.....
SERVICE	8.1	8.2	9.6	6.9	2.0	.....	3.4	4.2	2.6	3.5	3.0	.....
SKILLED	15.7	25.5	10.7	12.1	20.0	.....	21.5	28.1	14.6	20.9	30.3	.....
SEMISKILLED	18.9	24.2	19.8	13.8	14.0	.....	23.3	25.4	25.1	18.8	18.2	.....
UNSKILLED & OTHER[A].	21.1	34.6	16.7	15.4	6.0	.....	26.3	36.9	19.0	23.4	9.1	.....
ENTRY[B]	24.3	6.4	38.9	24.7	24.0	.....	19.9	4.9	35.6	21.6	9.1	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.1	35.5	31.9	3.2	.3	100.0	36.6	34.9	25.2	2.9	.4
PROF. & MANAGERIAL.	100.0	3.8	15.4	50.0	11.5	19.2	100.0	5.9	11.8	41.2	11.8	29.4
CLERICAL & SALES ..	100.0	2.5	12.0	76.6	8.9	.....	100.0	2.2	22.2	57.8	17.8	.....
SERVICE	100.0	29.6	42.4	27.2	.8	.....	100.0	44.7	26.3	26.3	2.6	.....
SKILLED	100.0	47.1	24.2	24.6	4.1	.....	100.0	47.7	23.7	24.5	4.1	.....
SEMISKILLED	100.0	37.2	37.2	23.2	2.4	.....	100.0	39.8	37.5	20.3	2.3	.....
UNSKILLED & OTHER[A].	100.0	47.7	28.1	23.2	.9	.....	100.0	51.4	25.2	22.4	1.0	.....
ENTRY[B]	100.0	7.7	56.8	32.4	3.2	.....	100.0	9.0	62.3	27.4	1.3	.....
	NUMBER, BY AGE GROUP											
TOTAL	1,550	451	550	494	50	5	1,119	409	390	282	33	5
UNDER 20	332	17	202	105	8	.....	218	15	140	60	3	.....
20 - 24	312	53	100	145	14	.....	224	47	83	86	8	.....
25 - 34	335	123	99	103	9	1	268	114	80	65	8	1
35 - 44	269	107	74	79	7	2	186	99	42	39	4	2
45 - 54	223	97	60	58	8	.....	154	85	33	29	7	.....
55 - 64	69	50	13	3	2	1	60	45	11	2	1	1
65 AND OVER	10	4	2	1	2	1	9	4	1	1	2	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	21.4	3.8	36.7	21.3	16.0	.....	19.5	3.7	35.9	21.3	9.1	.....
20 - 24	20.1	11.8	18.2	29.4	28.0	.....	20.0	11.5	21.3	30.5	24.2	.....
25 - 34	21.6	27.3	18.0	20.9	18.0	20.0	23.9	27.9	20.5	23.0	24.2	20.0
35 - 44	17.4	23.7	13.5	16.0	14.0	40.0	16.6	24.2	10.8	13.8	12.1	40.0
45 - 54	14.4	21.5	10.9	11.7	16.0	.....	13.8	20.8	8.5	10.3	21.2	.....
55 - 64	4.5	11.1	2.4	.6	4.0	20.0	5.4	11.0	2.8	.7	3.0	20.0
65 AND OVER	.6	.9	.4	.2	4.0	20.0	.8	1.0	.3	.4	6.1	20.0
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.1	35.5	31.9	3.2	.3	100.0	36.6	34.9	25.2	2.9	.4
UNDER 20	100.0	5.1	60.8	31.6	2.4	.....	100.0	6.9	64.2	27.5	1.4	.....
20 - 24	100.0	17.0	32.1	46.5	4.5	.....	100.0	21.0	37.1	38.4	3.6	.....
25 - 34	100.0	36.7	29.6	30.7	2.7	.3	100.0	42.5	29.9	24.3	3.0	.4
35 - 44	100.0	39.8	27.5	29.4	2.6	.7	100.0	53.2	22.6	21.0	2.2	1.1
45 - 54	100.0	43.5	26.9	26.0	3.6	.....	100.0	55.2	21.4	18.8	4.5	.....
55 - 64	100.0	72.5	18.8	4.3	2.9	1.4	100.0	75.0	18.3	3.3	1.7	1.7
65 AND OVER	100.0	40.0	20.0	10.0	20.0	10.0	100.0	44.4	11.1	11.1	22.2	11.1

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

LICKING COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN LICKING COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	938	249	330	292	59	8	649	201	217	181	45	5
PROF. & MANAGERIAL.	36	2	3	18	8	5	28	2	2	13	7	4
CLERICAL & SALES ..	122	15	25	68	13	1	20	3	6	7	4	.....
SERVICE	111	43	42	26	.....	.....	42	17	14	11	.....	.....
SKILLED	143	45	45	41	11	1	139	44	43	40	11	1
SEMISKILLED	168	45	63	52	8	.....	146	42	49	48	7	.....
UNSKILLED & OTHER[A].	212	87	68	51	6	.....	189	83	56	45	5	.....
ENTRY[B]	146	12	84	36	13	1	85	10	47	17	11	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.8	.8	.9	6.2	13.6	62.5	4.3	1.0	.9	7.2	15.6	80.0
CLERICAL & SALES ..	13.0	6.0	7.6	23.3	22.0	12.5	3.1	1.5	2.8	3.9	8.9	.....
SERVICE	11.8	17.3	12.7	8.9	.....	.....	6.5	8.5	6.5	6.1	.....	.....
SKILLED	15.2	18.1	13.6	14.0	18.6	12.5	21.4	21.9	19.8	22.1	24.4	20.0
SEMISKILLED	17.9	18.1	19.1	17.8	13.6	.....	22.5	20.9	22.6	26.5	15.6	.....
UNSKILLED & OTHER[A].	22.6	34.9	20.6	17.5	10.2	.....	29.1	41.3	25.8	24.9	11.1	.....
ENTRY[B]	15.6	4.8	25.5	12.3	22.0	12.5	13.1	5.0	21.7	9.4	24.4	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.5	35.2	31.1	6.3	.9	100.0	31.0	33.4	27.9	6.9	.8
PROF. & MANAGERIAL.	100.0	5.6	8.3	50.0	22.2	13.9	100.0	7.1	7.1	46.4	25.0	14.3
CLERICAL & SALES ..	100.0	12.3	20.5	55.7	10.7	.8	100.0	15.0	30.0	35.0	20.0	.....
SERVICE	100.0	38.7	37.8	23.4	.....	.....	100.0	40.5	33.3	26.2	.....	.....
SKILLED	100.0	31.5	31.5	28.7	7.7	.7	100.0	31.7	30.9	28.8	7.9	.7
SEMISKILLED	100.0	26.8	37.5	31.0	4.8	.....	100.0	28.8	33.6	32.9	4.8	.....
UNSKILLED & OTHER[A].	100.0	41.0	32.1	24.1	2.8	.....	100.0	43.9	29.6	23.8	2.6	.....
ENTRY[B]	100.0	8.2	57.5	24.7	8.9	.7	100.0	11.8	55.3	20.0	12.9	.....
	NUMBER, BY AGE GROUP											
TOTAL	938	249	330	292	59	8	649	201	217	181	45	5
UNDER 20	134	11	81	33	9	.....	81	9	48	19	5	.....
20 - 24	170	15	60	82	13	.....	123	13	43	57	10	.....
25 - 34	214	53	76	72	11	2	162	46	57	49	9	1
35 - 44	165	44	58	55	5	3	106	39	34	29	2	2
45 - 54	130	54	34	31	8	3	88	38	22	19	7	2
55 - 64	93	53	15	15	10	.....	72	46	10	6	10	.....
65 AND OVER	32	19	6	4	3	.....	17	10	3	2	2	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	14.3	4.4	24.5	11.3	15.3	.....	12.5	4.5	22.1	10.5	11.1	.....
20 - 24	18.1	6.0	18.2	28.1	22.0	.....	19.0	6.5	19.8	31.5	22.2	.....
25 - 34	22.8	21.3	23.0	24.7	18.6	25.0	25.0	22.9	26.3	27.1	20.0	20.0
35 - 44	17.6	17.7	17.6	18.8	8.5	37.5	16.3	19.4	15.7	16.0	4.4	40.0
45 - 54	13.9	21.7	10.3	10.6	13.6	37.5	13.6	18.9	10.1	10.5	15.6	40.0
55 - 64	9.9	21.3	4.5	5.1	16.9	.....	11.1	22.9	4.6	3.3	22.2	.....
65 AND OVER	3.4	7.6	1.8	1.4	5.1	.....	2.6	5.0	1.4	1.1	4.4	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.5	35.2	31.1	6.3	.9	100.0	31.0	33.4	27.9	6.9	.8
UNDER 20	100.0	8.2	60.4	24.6	6.7	.....	100.0	11.1	59.3	23.5	6.2	.....
20 - 24	100.0	8.8	35.3	48.2	7.6	.....	100.0	10.6	35.0	46.3	8.1	.....
25 - 34	100.0	24.8	35.5	33.6	5.1	.9	100.0	28.4	35.2	30.2	5.6	.6
35 - 44	100.0	26.7	35.2	33.3	3.0	1.8	100.0	36.8	32.1	27.4	1.9	1.9
45 - 54	100.0	41.5	26.2	23.8	6.2	2.3	100.0	43.2	25.0	21.6	8.0	2.3
55 - 64	100.0	57.0	16.1	16.1	10.8	.....	100.0	63.9	13.9	8.3	13.9	.....
65 AND OVER	100.0	59.4	18.8	12.5	9.4	.....	100.0	58.8	17.6	11.8	11.8	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN LOGAN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	350	75	117	144	13	1	217	68	74	69	5	1
PROF. & MANAGERIAL.	7	.....	1	2	4	.....	3	.....	.....	1	2	.....
CLERICAL & SALES ..	45	.....	8	33	4	.....	11	.....	3	8	.....	.....
SERVICE	44	13	19	12	.....	.....	25	9	10	6	.....	.....
SKILLED	47	23	7	17	.....	.....	45	23	7	15	.....	.....
SEMISKILLED	47	13	22	12	.....	.....	32	12	13	7	.....	.....
UNSKILLED & OTHER[A].	30	12	12	6	.....	.....	29	12	12	5	.....	.....
ENTRY[B]	130	14	48	62	5	1	72	12	29	27	3	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.0	.....	.9	1.4	30.8	.....	1.4	.....	.....	1.4	40.0	.....
CLERICAL & SALES ..	12.9	.....	6.8	22.9	30.8	.....	5.1	.....	4.1	11.6	.....	.....
SERVICE	12.6	17.3	16.2	8.3	.....	.....	11.5	13.2	13.5	8.7	.....	.....
SKILLED	13.4	30.7	6.0	11.8	.....	.....	20.7	33.8	9.5	21.7	.....	.....
SEMISKILLED	13.4	17.3	18.8	8.3	.....	.....	14.7	17.6	17.6	10.1	.....	.....
UNSKILLED & OTHER[A].	8.6	16.0	10.3	4.2	.....	.....	13.4	17.6	16.2	7.2	.....	.....
ENTRY[B]	37.1	18.7	41.0	43.1	38.5	100.0	33.2	17.6	39.2	39.1	60.0	100.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.4	33.4	41.1	3.7	.3	100.0	31.3	34.1	31.8	2.3	.5
PROF. & MANAGERIAL.	100.0	.....	14.3	28.6	57.1	.....	100.0	.....	.....	33.3	66.7	.....
CLERICAL & SALES ..	100.0	.....	17.8	73.3	8.9	.....	100.0	.....	27.3	72.7	.....	.....
SERVICE	100.0	29.5	43.2	27.3	.....	.....	100.0	36.0	40.0	24.0	.....	.....
SKILLED	100.0	48.9	14.9	36.2	.....	.....	100.0	51.1	15.6	33.3	.....	.....
SEMISKILLED	100.0	27.7	46.8	25.5	.....	.....	100.0	37.5	40.6	21.9	.....	.....
UNSKILLED & OTHER[A].	100.0	40.0	40.0	20.0	.....	.....	100.0	41.4	41.4	17.2	.....	.....
ENTRY[B]	100.0	10.8	36.9	47.7	3.8	.8	100.0	16.7	40.3	37.5	4.2	1.4
	NUMBER, BY AGE GROUP											
TOTAL	350	75	117	144	13	1	217	68	74	69	5	1
UNDER 20	108	8	39	57	4	.....	56	8	28	18	2	.....
20 - 24	41	7	15	17	2	.....	25	6	7	11	1	.....
25 - 34	71	9	27	33	1	1	42	8	15	18	.....	1
35 - 44	55	18	19	15	3	.....	36	15	12	7	2	.....
45 - 54	43	12	11	17	3	.....	31	12	7	12	.....	.....
55 - 64	29	19	5	5	.....	.....	24	17	4	3	.....	.....
65 AND OVER	3	2	1	.....	.....	.....	3	2	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	30.9	10.7	33.3	39.6	30.8	.....	25.8	11.8	37.8	26.1	40.0	.....
20 - 24	11.7	9.3	12.8	11.8	15.4	.....	11.5	8.8	9.5	15.9	20.0	.....
25 - 34	20.3	12.0	23.1	22.9	7.7	100.0	19.4	11.8	20.3	26.1	.....	100.0
35 - 44	15.7	24.0	16.2	10.4	23.1	.....	16.6	22.1	16.2	10.1	40.0	.....
45 - 54	12.3	16.0	9.4	11.8	23.1	.....	14.3	17.6	9.5	17.4	.....	.....
55 - 64	8.3	25.3	4.3	3.5	.....	.....	11.1	25.0	5.4	4.3	.....	.....
65 AND OVER	.9	2.7	.9	.....	.....	.....	1.4	2.9	1.4	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.4	33.4	41.1	3.7	.3	100.0	31.3	34.1	31.8	2.3	.5
UNDER 20	100.0	7.4	36.1	52.8	3.7	.....	100.0	14.3	50.0	32.1	3.6	.....
20 - 24	100.0	17.1	36.6	41.5	4.9	.....	100.0	24.0	28.0	44.0	4.0	.....
25 - 34	100.0	12.7	38.0	46.5	1.4	1.4	100.0	19.0	35.7	42.9	.....	2.4
35 - 44	100.0	32.7	34.5	27.3	5.5	.....	100.0	41.7	33.3	19.4	5.6	.....
45 - 54	100.0	27.9	25.6	39.5	7.0	.....	100.0	38.7	22.6	38.7	.....	.....
55 - 64	100.0	65.5	17.2	17.2	.....	.....	100.0	70.8	16.7	12.5	.....	.....
65 AND OVER	100.0	66.7	33.3	.....	.....	.....	100.0	66.7	33.3	.....	.....	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN LORAIN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,758	331	621	651	126	29	1,075	243	399	329	79	25
PROF. & MANAGERIAL.	52	2	11	18	10	11	39	2	6	12	8	11
CLERICAL & SALES ..	289	15	45	179	46	4	76	8	9	36	20	3
SERVICE	230	64	90	66	10	.....	73	24	24	20	5	.....
SKILLED	222	57	87	70	6	2	212	54	84	66	6	2
SEMISKILLED	292	76	128	79	7	2	217	58	93	57	7	2
UNSKILLED & OTHER[A].	298	90	128	71	8	1	234	78	96	51	8	1
ENTRY[B]	375	27	132	168	39	9	224	19	87	87	25	6
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.0	.6	1.8	2.8	7.9	37.9	3.6	.8	1.5	3.6	10.1	44.0
CLERICAL & SALES ..	16.4	4.5	7.2	27.5	36.5	13.8	7.1	3.3	2.3	10.9	25.3	12.0
SERVICE	13.1	19.3	14.5	10.1	7.9	.....	6.8	9.9	6.0	6.1	6.3	.....
SKILLED	12.6	17.2	14.0	10.8	4.8	6.9	19.7	22.2	21.1	20.1	7.6	8.0
SEMISKILLED	16.6	23.0	20.6	12.1	5.6	6.9	20.2	23.9	23.3	17.3	8.9	8.0
UNSKILLED & OTHER[A].	17.0	27.2	20.6	10.9	6.3	3.4	21.8	32.1	24.1	15.5	10.1	4.0
ENTRY[B]	21.3	8.2	21.3	25.8	31.0	31.0	20.8	7.8	21.8	26.4	31.6	24.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.8	35.3	37.0	7.2	1.6	100.0	22.6	37.1	30.6	7.3	2.3
PROF. & MANAGERIAL.	100.0	3.8	21.2	34.6	19.2	21.2	100.0	5.1	15.4	30.8	20.5	28.2
CLERICAL & SALES ..	100.0	5.2	15.6	61.9	15.9	1.4	100.0	10.5	11.8	47.4	26.3	3.9
SERVICE	100.0	27.8	39.1	28.7	4.3	.....	100.0	32.9	32.9	27.4	6.8	.....
SKILLED	100.0	25.7	39.2	31.5	2.7	.9	100.0	25.5	39.6	31.1	2.8	.9
SEMISKILLED	100.0	26.0	43.8	27.1	2.4	.7	100.0	26.7	42.9	26.3	3.2	.9
UNSKILLED & OTHER[A].	100.0	30.2	43.0	23.8	2.7	.3	100.0	33.3	41.0	21.8	3.4	.4
ENTRY[B]	100.0	7.2	35.2	44.8	10.4	2.4	100.0	8.5	38.8	38.8	11.2	2.7
	NUMBER, BY AGE GROUP											
TOTAL	1,758	331	621	651	126	29	1,075	243	399	329	79	25
UNDER 20	275	12	119	125	18	1	151	10	83	49	8	1
20 - 24	374	20	120	186	38	10	254	17	90	112	27	8
25 - 34	364	63	138	125	28	10	233	49	88	67	20	9
35 - 44	358	84	124	115	30	5	196	61	69	47	15	4
45 - 54	220	63	82	66	6	3	119	43	40	29	4	3
55 - 64	136	74	32	25	5	.....	95	49	24	18	4	.....
65 AND OVER	31	15	6	9	1	.....	27	14	5	7	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	15.6	3.6	19.2	19.2	14.3	3.4	14.0	4.1	20.8	14.9	10.1	4.0
20 - 24	21.3	6.0	19.3	28.6	30.2	34.5	23.6	7.0	22.6	34.0	34.2	32.0
25 - 34	20.7	19.0	22.2	19.2	22.2	34.5	21.7	20.2	22.1	20.4	25.3	36.0
35 - 44	20.4	25.4	20.0	17.7	23.8	17.2	18.2	25.1	17.3	14.3	19.0	16.0
45 - 54	12.5	19.0	13.2	10.1	4.8	10.3	11.1	17.7	10.0	8.8	5.1	12.0
55 - 64	7.7	22.4	5.2	3.8	4.0	.....	8.8	20.2	6.0	5.5	5.1	.....
65 AND OVER	1.8	4.5	1.0	1.4	.8	.....	2.5	5.8	1.3	2.1	1.3	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.8	35.3	37.0	7.2	1.6	100.0	22.6	37.1	30.6	7.3	2.3
UNDER 20	100.0	4.4	43.3	45.5	6.5	.4	100.0	6.6	55.0	32.5	5.3	.7
20 - 24	100.0	5.3	32.1	49.7	10.2	2.7	100.0	6.7	35.4	44.1	10.6	3.1
25 - 34	100.0	17.3	37.9	34.3	7.7	2.7	100.0	21.0	37.8	28.8	8.6	3.9
35 - 44	100.0	23.5	34.6	32.1	8.4	1.4	100.0	31.1	35.2	24.0	7.7	2.0
45 - 54	100.0	28.6	37.3	30.0	2.7	1.4	100.0	36.1	33.6	24.4	3.4	2.5
55 - 64	100.0	54.4	23.5	18.4	3.7	.....	100.0	51.6	25.3	18.9	4.2	.....
65 AND OVER	100.0	48.4	19.4	29.0	3.2	.....	100.0	51.9	18.5	25.9	3.7	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

LUCAS COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN LUCAS COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	5,596	1,360	1,991	1,724	438	83	3,310	1,038	1,205	762	241	64
PROF. & MANAGERIAL.	178	17	25	58	44	34	136	16	16	40	36	28
CLERICAL & SALES ..	838	42	135	511	142	8	201	14	19	101	62	5
SERVICE	679	218	309	138	14	.....	299	120	128	48	3	.....
SKILLED	448	156	178	97	15	2	429	149	175	90	13	2
SEMISKILLED	1,073	375	443	233	20	2	886	306	369	189	20	2
UNSKILLED & OTHER[A].	1,248	493	476	258	20	1	832	396	294	124	17	1
ENTRY[B]	1,132	59	425	429	183	36	527	37	204	170	90	26
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.2	1.2	1.3	3.4	10.0	41.0	4.1	1.5	1.3	5.2	14.9	43.8
CLERICAL & SALES ..	15.0	3.1	6.8	29.6	32.4	9.6	6.1	1.3	1.6	13.3	25.7	7.8
SERVICE	12.1	16.0	15.5	8.0	3.2	.....	9.0	11.6	10.6	6.3	1.2	.....
SKILLED	8.0	11.5	8.9	5.6	3.4	2.4	13.0	14.4	14.5	11.8	5.4	3.1
SEMISKILLED	19.2	27.6	22.3	13.5	4.6	2.4	26.8	29.5	30.6	24.8	8.3	3.1
UNSKILLED & OTHER[A].	22.3	36.2	23.9	15.0	4.6	1.2	25.1	38.2	24.4	16.3	7.1	1.6
ENTRY[B]	20.2	4.3	21.3	24.9	41.8	43.4	15.9	3.6	16.9	22.3	37.3	40.6
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.3	35.6	30.8	7.8	1.5	100.0	31.4	36.4	23.0	7.3	1.9
PROF. & MANAGERIAL.	100.0	9.6	14.0	32.6	24.7	19.1	100.0	11.8	11.8	29.4	26.5	20.6
CLERICAL & SALES ..	100.0	5.0	16.1	61.0	16.9	1.0	100.0	7.0	9.5	50.2	30.8	2.5
SERVICE	100.0	32.1	45.5	20.3	2.1	.....	100.0	40.1	42.8	16.1	1.0	.....
SKILLED	100.0	34.8	39.7	21.7	3.3	.4	100.0	34.7	40.8	21.0	3.0	.5
SEMISKILLED	100.0	34.9	41.3	21.7	1.9	.2	100.0	34.5	41.6	21.3	2.3	.2
UNSKILLED & OTHER[A].	100.0	39.5	38.1	20.7	1.6	.1	100.0	47.6	35.3	14.9	2.0	.1
ENTRY[B]	100.0	5.2	37.5	37.9	16.2	3.2	100.0	7.0	38.7	32.3	17.1	4.9
	NUMBER, BY AGE GROUP											
TOTAL	5,596	1,360	1,991	1,724	438	83	3,310	1,038	1,205	762	241	64
UNDER 20	715	15	342	262	96	.....	302	12	161	100	29	.....
20 - 24	1,007	54	350	444	134	25	638	48	270	219	82	19
25 - 34	1,163	198	471	393	80	21	769	165	327	209	54	14
35 - 44	1,115	293	401	338	64	19	645	235	234	118	42	16
45 - 54	899	360	293	203	33	10	477	248	129	75	16	9
55 - 64	539	335	98	74	25	7	352	240	58	33	16	5
65 AND OVER	158	105	36	10	6	1	127	90	26	8	2	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	12.8	1.1	17.2	15.2	21.9	.....	9.1	1.2	13.4	13.1	12.0	.....
20 - 24	18.0	4.0	17.6	25.8	30.6	30.1	19.3	4.6	22.4	28.7	34.0	29.7
25 - 34	20.8	14.6	23.7	22.8	18.3	25.3	23.2	15.9	27.1	27.4	22.4	21.9
35 - 44	19.9	21.5	20.1	19.6	14.6	22.9	19.5	22.6	19.4	15.5	17.4	25.0
45 - 54	16.1	26.5	14.7	11.8	7.5	12.0	14.4	23.9	10.7	9.8	6.6	14.1
55 - 64	9.6	24.6	4.9	4.3	5.7	8.4	10.6	23.1	4.8	4.3	6.6	7.8
65 AND OVER	2.8	7.7	1.8	.6	1.4	1.2	3.8	8.7	2.2	1.0	.8	1.6
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.3	35.6	30.8	7.8	1.5	100.0	31.4	36.4	23.0	7.3	1.9
UNDER 20	100.0	2.1	47.8	36.6	13.4	.....	100.0	4.0	53.3	33.1	9.6	.....
20 - 24	100.0	5.4	34.8	44.1	13.3	2.5	100.0	7.5	42.3	34.3	12.9	3.0
25 - 34	100.0	17.0	40.5	33.8	6.9	1.8	100.0	21.5	42.5	27.2	7.0	1.8
35 - 44	100.0	26.3	36.0	30.3	5.7	1.7	100.0	36.4	36.3	18.3	6.5	2.5
45 - 54	100.0	40.0	32.6	22.6	3.7	1.1	100.0	52.0	27.0	15.7	3.4	1.9
55 - 64	100.0	62.2	18.2	13.7	4.6	1.3	100.0	68.2	16.5	9.4	4.5	1.4
65 AND OVER	100.0	66.5	22.8	6.3	3.8	.6	100.0	70.9	20.5	6.3	1.6	.8

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MADISON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	412	185	115	109	3	.....	318	162	81	73	2	.....
PROF. & MANAGERIAL.	2	.....	.....	2	.....	.....	2	.....	.....	2	.....	.....
CLERICAL & SALES ..	26	4	3	18	1	.....	10	2	2	6	.....	.....
SERVICE	23	15	7	1	.....	.....	11	11	.....	.....	.....	.....
SKILLED	51	20	19	11	1	.....	46	19	17	9	1	.....
SEMISKILLED	82	48	16	17	1	.....	78	45	15	17	1	.....
UNSKILLED & OTHER[A].	215	97	64	54	.....	.....	161	85	41	35	.....	.....
ENTRY[B]	13	1	6	6	.....	.....	10	.....	6	4	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	.5	.....	.....	1.8	.....	.....	.6	.....	.....	2.7	.....	.....
CLERICAL & SALES ..	6.3	2.2	2.6	16.5	33.3	.....	3.1	1.2	2.5	8.2	.....	.....
SERVICE	5.6	8.1	6.1	.9	.....	.....	3.5	6.8	.....	.....	.....	.....
SKILLED	12.4	10.8	16.5	10.1	33.3	.....	14.5	11.7	21.0	12.3	50.0	.....
SEMISKILLED	19.9	25.9	13.9	15.6	33.3	.....	24.5	27.8	18.5	23.3	50.0	.....
UNSKILLED & OTHER[A].	52.2	52.4	55.7	49.5	.....	.....	50.6	52.5	50.6	47.9	.....	.....
ENTRY[B]	3.2	.5	5.2	5.5	.....	.....	3.1	.....	7.4	5.5	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	44.9	27.9	26.5	.7	.....	100.0	50.9	25.5	23.0	.6	.....
PROF. & MANAGERIAL.	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....
CLERICAL & SALES ..	100.0	15.4	11.5	69.2	3.8	.....	100.0	20.0	20.0	60.0	.....	.....
SERVICE	100.0	65.2	30.4	4.3	.....	.....	100.0	100.0	.....	.....	.....	.....
SKILLED	100.0	39.2	37.3	21.6	2.0	.....	100.0	41.3	37.0	19.6	2.2	.....
SEMISKILLED	100.0	58.5	19.5	20.7	1.2	.....	100.0	57.7	19.2	21.8	1.3	.....
UNSKILLED & OTHER[A].	100.0	45.1	29.8	25.1	.....	.....	100.0	52.8	25.5	21.7	.....	.....
ENTRY[B]	100.0	7.7	46.2	46.2	.....	.....	100.0	.....	60.0	40.0	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	412	185	115	109	3	.....	318	162	81	73	2	.....
UNDER 20	5	.....	2	3	.....	.....	5	.....	2	3	.....	.....
20 - 24	39	5	17	17	.....	.....	37	5	16	16	.....	.....
25 - 34	90	35	24	30	1	.....	69	33	19	16	1	.....
35 - 44	116	50	30	36	.....	.....	87	44	19	24	.....	.....
45 - 54	80	42	24	12	2	.....	59	32	17	9	1	.....
55 - 64	71	44	17	10	.....	.....	53	40	8	5	.....	.....
65 AND OVER	11	9	1	1	.....	.....	8	8	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	1.2	.....	1.7	2.8	.....	.....	1.6	.....	2.5	4.1	.....	.....
20 - 24	9.5	2.7	14.8	15.6	.....	.....	11.6	3.1	19.8	21.9	.....	.....
25 - 34	21.8	18.9	20.9	27.5	33.3	.....	21.7	20.4	23.5	21.9	50.0	.....
35 - 44	28.2	27.0	26.1	33.0	.....	.....	27.4	27.2	23.5	32.9	.....	.....
45 - 54	19.4	22.7	20.9	11.0	66.7	.....	18.6	19.8	21.0	12.3	50.0	.....
55 - 64	17.2	23.8	14.8	9.2	.....	.....	16.7	24.7	9.9	6.8	.....	.....
65 AND OVER	2.7	4.9	.9	.9	.....	.....	2.5	4.9	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	44.9	27.9	26.5	.7	.....	100.0	50.9	25.5	23.0	.6	.....
UNDER 20	100.0	.....	40.0	60.0	.....	.....	100.0	.....	40.0	60.0	.....	.....
20 - 24	100.0	12.8	43.6	43.6	.....	.....	100.0	13.5	43.2	43.2	.....	.....
25 - 34	100.0	38.9	26.7	33.3	1.1	.....	100.0	47.8	27.5	23.2	1.4	.....
35 - 44	100.0	43.1	25.9	31.0	.....	.....	100.0	50.6	21.8	27.6	.....	.....
45 - 54	100.0	52.5	30.0	15.0	2.5	.....	100.0	54.2	28.8	15.3	1.7	.....
55 - 64	100.0	62.0	23.9	14.1	.....	.....	100.0	75.5	15.1	9.4	.....	.....
65 AND OVER	100.0	81.8	9.1	9.1	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MAHONING COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	4,108	686	1,371	1,359	510	182	2,689	537	959	655	367	171
PROF. & MANAGERIAL.	156	1	2	34	45	74	136	1	1	26	38	70
CLERICAL & SALES ..	573	26	104	310	106	27	176	11	34	61	47	23
SERVICE	443	97	188	140	17	1	135	30	59	34	11	1
SKILLED	527	147	195	148	32	5	509	142	190	141	31	5
SEMISKILLED	519	137	229	135	17	1	423	114	197	99	12	1
UNSKILLED & OTHER[A].	549	186	222	116	24	1	476	169	198	86	22	1
ENTRY[B]	1,341	92	431	476	269	73	834	70	280	208	206	70
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.8	.1	.1	2.5	8.8	40.7	5.1	.2	.1	4.0	10.4	40.9
CLERICAL & SALES ..	13.9	3.8	7.6	22.8	20.8	14.8	6.5	2.0	3.5	9.3	12.8	13.5
SERVICE	10.8	14.1	13.7	10.3	3.3	.5	5.0	5.6	6.2	5.2	3.0	.6
SKILLED	12.8	21.4	14.2	10.9	6.3	2.7	18.9	26.4	19.8	21.5	8.4	2.9
SEMISKILLED	12.6	20.0	16.7	9.9	3.3	.5	15.7	21.2	20.5	15.1	3.3	.6
UNSKILLED & OTHER[A].	13.4	27.1	16.2	8.5	4.7	.5	17.7	31.5	20.6	13.1	6.0	.6
ENTRY[B]	32.6	13.4	31.4	35.0	52.7	40.1	31.0	13.0	29.2	31.8	56.1	40.9
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	16.7	33.4	33.1	12.4	4.4	100.0	20.0	35.7	24.4	13.6	6.4
PROF. & MANAGERIAL.	100.0	.6	1.3	21.8	28.8	47.4	100.0	.7	.7	19.1	27.9	51.5
CLERICAL & SALES ..	100.0	4.5	18.2	54.1	18.5	4.7	100.0	6.2	19.3	34.7	26.7	13.1
SERVICE	100.0	21.9	42.4	31.6	3.8	.2	100.0	22.2	43.7	25.2	8.1	.7
SKILLED	100.0	27.9	37.0	28.1	6.1	.9	100.0	27.9	37.3	27.7	6.1	1.0
SEMISKILLED	100.0	26.4	44.1	26.0	3.3	.2	100.0	27.0	46.6	23.4	2.8	.2
UNSKILLED & OTHER[A].	100.0	33.9	40.4	21.1	4.4	.2	100.0	35.5	41.6	18.1	4.6	.2
ENTRY[B]	100.0	6.9	32.1	35.5	20.1	5.4	100.0	8.4	33.6	24.9	24.7	8.4
	NUMBER, BY AGE GROUP											
TOTAL	4,108	686	1,371	1,359	510	182	2,689	537	959	655	367	171
UNDER 20	532	15	229	187	98	3	278	15	141	61	61	.....
20 - 24	891	19	248	372	195	57	599	14	190	192	149	54
25 - 34	884	100	291	315	90	88	637	79	226	168	79	85
35 - 44	838	160	304	284	71	19	525	126	206	133	42	18
45 - 54	596	193	203	152	37	11	395	150	133	78	24	10
55 - 64	271	137	79	37	15	3	182	100	52	18	9	3
65 AND OVER	96	62	17	12	4	1	73	53	11	5	3	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	13.0	2.2	16.7	13.8	19.2	1.6	10.3	2.8	14.7	9.3	16.6	.....
20 - 24	21.7	2.8	18.1	27.4	38.2	31.3	22.3	2.6	19.8	29.3	40.6	31.6
25 - 34	21.5	14.6	21.2	23.2	17.6	48.4	23.7	14.7	23.6	25.6	21.5	49.7
35 - 44	20.4	23.3	22.2	20.9	13.9	10.4	19.5	23.5	21.5	20.3	11.4	10.5
45 - 54	14.5	28.1	14.8	11.2	7.3	6.0	14.7	27.9	13.9	11.9	6.5	5.8
55 - 64	6.6	20.0	5.8	2.7	2.9	1.6	6.8	18.6	5.4	2.7	2.5	1.8
65 AND OVER	2.3	9.0	1.2	.9	.8	.5	2.7	9.9	1.1	.8	.8	.6
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	16.7	33.4	33.1	12.4	4.4	100.0	20.0	35.7	24.4	13.6	6.4
UNDER 20	100.0	2.8	43.0	35.2	18.4	.6	100.0	5.4	50.7	21.9	21.9	.....
20 - 24	100.0	2.1	27.8	41.8	21.9	6.4	100.0	2.3	31.7	32.1	24.9	9.0
25 - 34	100.0	11.3	32.9	35.6	10.2	10.0	100.0	12.4	35.5	26.4	12.4	13.3
35 - 44	100.0	19.1	36.3	33.9	8.5	2.3	100.0	24.0	39.2	25.3	8.0	3.4
45 - 54	100.0	32.4	34.1	25.5	6.2	1.8	100.0	38.0	33.7	19.7	6.1	2.5
55 - 64	100.0	50.6	29.2	13.7	5.5	1.1	100.0	54.9	28.6	9.9	4.9	1.6
65 AND OVER	100.0	64.6	17.7	12.5	4.2	1.0	100.0	72.6	15.1	6.8	4.1	1.4

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MARION COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	974	206	342	365	53	8	707	173	260	237	33	4
PROF. & MANAGERIAL.	28	.....	4	15	5	4	22	.....	4	12	4	2
CLERICAL & SALES ..	129	5	24	79	19	2	34	3	8	15	8	.....
SERVICE	82	32	30	19	1	.....	33	15	10	8	.....	.....
SKILLED	122	40	39	41	1	1	121	39	39	41	1	1
SEMISKILLED	185	40	74	67	4	.....	154	36	62	52	4	.....
UNSKILLED & OTHER[A].	137	63	43	31	.....	.....	119	60	33	26	.....	.....
ENTRY[B]	291	26	128	113	23	1	224	20	104	83	16	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.9	.....	1.2	4.1	9.4	50.0	3.1	.....	1.5	5.1	12.1	50.0
CLERICAL & SALES ..	13.2	2.4	7.0	21.6	35.8	25.0	4.8	1.7	3.1	6.3	24.2	.....
SERVICE	8.4	15.5	8.8	5.2	1.9	.....	4.7	8.7	3.8	3.4	.....	.....
SKILLED	12.5	19.4	11.4	11.2	1.9	12.5	17.1	22.5	15.0	17.3	3.0	25.0
SEMISKILLED	19.0	19.4	21.6	18.4	7.5	.....	21.8	20.8	23.8	21.9	12.1	.....
UNSKILLED & OTHER[A].	14.1	30.6	12.6	8.5	.....	.....	16.8	34.7	12.7	11.0	.....	.....
ENTRY[B]	29.9	12.6	37.4	31.0	43.4	12.5	31.7	11.6	40.0	35.0	48.5	25.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.1	35.1	37.5	5.4	.8	100.0	24.5	36.8	33.5	4.7	.6
PROF. & MANAGERIAL.	100.0	.....	14.3	53.6	17.9	14.3	100.0	.....	18.2	54.5	18.2	9.1
CLERICAL & SALES ..	100.0	3.9	18.6	61.2	14.7	1.6	100.0	8.8	23.5	44.1	23.5	.....
SERVICE	100.0	39.0	36.6	23.2	1.2	.....	100.0	45.5	30.3	24.2	.....	.....
SKILLED	100.0	32.8	32.0	33.6	.8	.8	100.0	32.2	32.2	33.9	.8	.8
SEMISKILLED	100.0	21.6	40.0	36.2	2.2	.....	100.0	23.4	40.3	33.8	2.6	.....
UNSKILLED & OTHER[A].	100.0	46.0	31.4	22.6	.....	.....	100.0	50.4	27.7	21.8	.....	.....
ENTRY[B]	100.0	8.9	44.0	38.8	7.9	.3	100.0	8.9	46.4	37.1	7.1	.4
	NUMBER, BY AGE GROUP											
TOTAL	974	206	342	365	53	8	707	173	260	237	33	4
UNDER 20	223	16	103	91	13	.....	170	16	88	59	7	.....
20 - 24	248	29	78	117	22	2	186	25	57	87	16	1
25 - 34	195	44	65	77	6	3	151	39	54	51	5	2
35 - 44	149	48	52	43	5	1	102	39	36	22	4	1
45 - 54	92	36	28	26	2	.....	55	27	16	11	1	.....
55 - 64	59	30	14	8	5	2	36	24	7	5	.....	.....
65 AND OVER	8	3	2	3	.....	.....	7	3	2	2	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	22.9	7.8	30.1	24.9	24.5	.....	24.0	9.2	33.8	24.9	21.2	.....
20 - 24	25.5	14.1	22.8	32.1	41.5	25.0	26.3	14.5	21.9	36.7	48.5	25.0
25 - 34	20.0	21.4	19.0	21.1	11.3	37.5	21.4	22.5	20.8	21.5	15.2	50.0
35 - 44	15.3	23.3	15.2	11.8	9.4	12.5	14.4	22.5	13.8	9.3	12.1	25.0
45 - 54	9.4	17.5	8.2	7.1	3.8	.....	7.8	15.6	6.2	4.6	3.0	.....
55 - 64	6.1	14.6	4.1	2.2	9.4	25.0	5.1	13.9	2.7	2.1	.....	.....
65 AND OVER	.8	1.5	.6	.8	.....	.....	1.0	1.7	.8	.8	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.1	35.1	37.5	5.4	.8	100.0	24.5	36.8	33.5	4.7	.6
UNDER 20	100.0	7.2	46.2	40.8	5.8	.....	100.0	9.4	51.8	34.7	4.1	.....
20 - 24	100.0	11.7	31.5	47.2	8.9	.8	100.0	13.4	30.6	46.8	8.6	.5
25 - 34	100.0	22.6	33.3	39.5	3.1	1.5	100.0	25.8	35.8	33.8	3.3	1.3
35 - 44	100.0	32.2	34.9	28.9	3.4	.7	100.0	38.2	35.3	21.6	3.9	1.0
45 - 54	100.0	39.1	30.4	28.3	2.2	.....	100.0	49.1	29.1	20.0	1.8	.....
55 - 64	100.0	50.8	23.7	13.6	8.5	3.4	100.0	66.7	19.4	13.9	.....	.....
65 AND OVER	100.0	37.5	25.0	37.5	.....	.....	100.0	42.9	28.6	28.6	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MEDINA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	583	125	198	225	32	3	374	89	131	128	23	3
PROF. & MANAGERIAL.	15	1	5	3	4	2	11	1	4	2	2	2
CLERICAL & SALES ..	63	3	7	48	5	.....	14	3	2	8	1	.....
SERVICE	28	3	13	10	2	.....	8	2	2	2	2	.....
SKILLED	137	30	46	50	11	.....	135	30	45	49	11	.....
SEMISKILLED	89	21	35	33	.....	.....	75	18	30	27	.....	.....
UNSKILLED & OTHER[A].	209	65	78	60	6	.....	102	33	36	28	5	.....
ENTRY[B]	42	2	14	21	4	1	29	2	12	12	2	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.6	.8	2.5	1.3	12.5	66.7	2.9	1.1	3.1	1.6	8.7	66.7
CLERICAL & SALES ..	10.8	2.4	3.5	21.3	15.6	.....	3.7	3.4	1.5	6.2	4.3	.....
SERVICE	4.8	2.4	6.6	4.4	6.2	.....	2.1	2.2	1.5	1.6	8.7	.....
SKILLED	23.5	24.0	23.2	22.2	34.4	.....	36.1	33.7	34.4	38.3	47.8	.....
SEMISKILLED	15.3	16.8	17.7	14.7	.....	.....	20.1	20.2	22.9	21.1	.....	.....
UNSKILLED & OTHER[A].	35.8	52.0	39.4	26.7	18.8	.....	27.3	37.1	27.5	21.9	21.7	.....
ENTRY[B]	7.2	1.6	7.1	9.3	12.5	33.3	7.8	2.2	9.2	9.4	8.7	33.3
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.4	34.0	38.6	5.5	.5	100.0	23.8	35.0	34.2	6.1	.8
PROF. & MANAGERIAL.	100.0	6.7	33.3	20.0	26.7	13.3	100.0	9.1	36.4	18.2	18.2	18.2
CLERICAL & SALES ..	100.0	4.8	11.1	76.2	7.9	.....	100.0	21.4	14.3	57.1	7.1	.....
SERVICE	100.0	10.7	46.4	35.7	7.1	.....	100.0	25.0	25.0	25.0	25.0	.....
SKILLED	100.0	21.9	33.6	36.5	8.0	.....	100.0	22.2	33.3	36.3	8.1	.....
SEMISKILLED	100.0	23.6	39.3	37.1	.....	.....	100.0	24.0	40.0	36.0	.....	.....
UNSKILLED & OTHER[A].	100.0	31.1	37.3	28.7	2.9	.....	100.0	32.4	35.3	27.5	4.9	.....
ENTRY[B]	100.0	4.8	33.3	50.0	9.5	2.4	100.0	6.9	41.4	41.4	6.9	3.4
	NUMBER, BY AGE GROUP											
TOTAL	583	125	198	225	32	3	374	89	131	128	23	3
UNDER 20	54	1	16	34	3	.....	38	1	16	19	2	.....
20 - 24	96	9	27	50	9	1	61	8	22	26	4	1
25 - 34	129	22	43	55	7	2	98	17	34	39	6	2
35 - 44	138	24	58	51	5	.....	82	17	34	26	5	.....
45 - 54	102	35	35	29	3	.....	50	19	14	15	2	.....
55 - 64	45	22	15	4	4	.....	31	15	9	3	4	.....
65 AND OVER	19	12	4	2	1	.....	14	12	2	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	9.3	.8	8.1	15.1	9.4	.....	10.2	1.1	12.2	14.8	8.7	.....
20 - 24	16.5	7.2	13.6	22.2	28.1	33.3	16.3	9.0	16.8	20.3	17.4	33.3
25 - 34	22.1	17.6	21.7	24.4	21.9	66.7	26.2	19.1	26.0	30.5	26.1	66.7
35 - 44	23.7	19.2	29.3	22.7	15.6	.....	21.9	19.1	26.0	20.3	21.7	.....
45 - 54	17.5	28.0	17.7	12.9	9.4	.....	13.4	21.3	10.7	11.7	8.7	.....
55 - 64	7.7	17.6	7.6	1.8	12.5	.....	8.3	16.9	6.9	2.3	17.4	.....
65 AND OVER	3.3	9.6	2.0	.9	3.1	.....	3.7	13.5	1.5	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	21.4	34.0	38.6	5.5	.5	100.0	23.8	35.0	34.2	6.1	.8
UNDER 20	100.0	1.9	29.6	63.0	5.6	.....	100.0	2.6	42.1	50.0	5.3	.....
20 - 24	100.0	9.4	28.1	52.1	9.4	1.0	100.0	13.1	36.1	42.6	6.6	1.6
25 - 34	100.0	17.1	33.3	42.6	5.4	1.6	100.0	17.3	34.7	39.8	6.1	2.0
35 - 44	100.0	17.4	42.0	37.0	3.6	.....	100.0	20.7	41.5	31.7	6.1	.....
45 - 54	100.0	34.3	34.3	28.4	2.9	.....	100.0	38.0	28.0	30.0	4.0	.....
55 - 64	100.0	48.9	33.3	8.9	8.9	.....	100.0	48.4	29.0	9.7	12.9	.....
65 AND OVER	100.0	63.2	21.1	10.5	5.3	.....	100.0	85.7	14.3	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MEIGS COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	285	102	101	78	4	.....	267	101	95	68	3	.....
PROF. & MANAGERIAL.	3	2	.....	.....	1	.....	3	2	.....	.....	1	.....
CLERICAL & SALES ..	16	3	3	9	1	.....	6	2	2	2	.....	.....
SERVICE	9	2	4	3	.....	.....	3	2	1	.....	.....	.....
SKILLED	88	37	26	24	1	.....	87	37	25	24	1	.....
SEMISKILLED	67	21	29	17	.....	.....	67	21	29	17	.....	.....
UNSKILLED & OTHER[A].	89	36	30	22	1	.....	88	36	29	22	1	.....
ENTRY[B]	13	1	9	3	.....	.....	13	1	9	3	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	1.1	2.0	.....	.....	25.0	.....	1.1	2.0	.....	.....	33.3	.....
CLERICAL & SALES ..	5.6	2.9	3.0	11.5	25.0	.....	2.2	2.0	2.1	2.9	.....	.....
SERVICE	3.2	2.0	4.0	3.8	.....	.....	1.1	2.0	1.1	.....	.....	.....
SKILLED	30.9	36.3	25.7	30.8	25.0	.....	32.6	36.6	26.3	35.3	33.3	.....
SEMISKILLED	23.5	20.6	28.7	21.8	.....	.....	25.1	20.8	30.5	25.0	.....	.....
UNSKILLED & OTHER[A].	31.2	35.3	29.7	28.2	25.0	.....	33.0	35.6	30.5	32.4	33.3	.....
ENTRY[B]	4.6	1.0	8.9	3.8	.....	.....	4.9	1.0	9.5	4.4	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	35.8	35.4	27.4	1.4	.....	100.0	37.8	35.6	25.5	1.1	.....
PROF. & MANAGERIAL.	100.0	66.7	.....	.....	33.3	.....	100.0	66.7	.....	.....	33.3	.....
CLERICAL & SALES ..	100.0	18.8	18.8	56.2	6.2	.....	100.0	33.3	33.3	33.3	.....	.....
SERVICE	100.0	22.2	44.4	33.3	.....	.....	100.0	66.7	33.3	.....	.....	.....
SKILLED	100.0	42.0	29.5	27.3	1.1	.....	100.0	42.5	28.7	27.6	1.1	.....
SEMISKILLED	100.0	31.3	43.3	25.4	.....	.....	100.0	31.3	43.3	25.4	.....	.....
UNSKILLED & OTHER[A].	100.0	40.4	33.7	24.7	1.1	.....	100.0	40.9	33.0	25.0	1.1	.....
ENTRY[B]	100.0	7.7	69.2	23.1	.....	.....	100.0	7.7	69.2	23.1	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	285	102	101	78	4	.....	267	101	95	68	3	.....
UNDER 20	5	.....	5	.....	.....	.....	5	.....	5	.....	.....	.....
20 - 24	56	4	24	27	1	.....	49	4	24	20	1	.....
25 - 34	70	16	27	26	1	.....	64	16	24	24	.....	.....
35 - 44	46	18	17	10	1	.....	43	18	15	9	1	.....
45 - 54	61	30	20	10	1	.....	60	29	20	10	1	.....
55 - 64	40	30	5	5	.....	.....	39	30	4	5	.....	.....
65 AND OVER	7	4	3	.....	.....	.....	7	4	3	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	1.8	.....	5.0	.....	.....	.....	1.9	.....	5.3	.....	.....	.....
20 - 24	19.6	3.9	23.8	34.6	25.0	.....	18.4	4.0	25.3	29.4	33.3	.....
25 - 34	24.6	15.7	26.7	33.3	25.0	.....	24.0	15.8	25.3	35.3	.....	.....
35 - 44	16.1	17.6	16.8	12.8	25.0	.....	16.1	17.8	15.8	13.2	33.3	.....
45 - 54	21.4	29.4	19.8	12.8	25.0	.....	22.5	28.7	21.1	14.7	33.3	.....
55 - 64	14.0	29.4	5.0	6.4	.....	.....	14.6	29.7	4.2	7.4	.....	.....
65 AND OVER	2.5	3.9	3.0	.....	.....	.....	2.6	4.0	3.2	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	35.8	35.4	27.4	1.4	.....	100.0	37.8	35.6	25.5	1.1	.....
UNDER 20	100.0	.....	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....
20 - 24	100.0	7.1	42.9	48.2	1.8	.....	100.0	8.2	49.0	40.8	2.0	.....
25 - 34	100.0	22.9	38.6	37.1	1.4	.....	100.0	25.0	37.5	37.5	.....	.....
35 - 44	100.0	39.1	37.0	21.7	2.2	.....	100.0	41.9	34.9	20.9	2.3	.....
45 - 54	100.0	49.2	32.8	16.4	1.6	.....	100.0	48.3	33.3	16.7	1.7	.....
55 - 64	100.0	75.0	12.5	12.5	.....	.....	100.0	76.9	10.3	12.8	.....	.....
65 AND OVER	100.0	57.1	42.9	.....	.....	.....	100.0	57.1	42.9	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

MERCER COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MERCER COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	269	41	68	129	27	4	160	24	36	78	19	3
PROF. & MANAGERIAL.	8	2	1	3	1	1	6	2	1	2	.....	1
CLERICAL & SALES ..	23	.....	4	12	7	.....	7	.....	2	2	3	.....
SERVICE	28	4	8	13	3	.....	2	.....	1	.....	1	.....
SKILLED	31	7	11	11	1	1	30	7	10	11	1	1
SEMISKILLED	53	5	14	32	2	.....	42	4	9	27	2	.....
UNSKILLED & OTHER[A].	83	22	22	33	5	1	49	10	9	25	5	.....
ENTRY[B]	43	1	8	25	8	1	24	1	4	11	7	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.0	4.9	1.5	2.3	3.7	25.0	3.8	8.3	2.8	2.6	.....	33.3
CLERICAL & SALES ..	8.6	.....	5.9	9.3	25.9	.....	4.4	.....	5.6	2.6	15.8	.....
SERVICE	10.4	9.8	11.8	10.1	11.1	.....	1.2	.....	2.8	.....	5.3	.....
SKILLED	11.5	17.1	16.2	8.5	3.7	25.0	18.8	29.2	27.8	14.1	5.3	33.3
SEMISKILLED	19.7	12.2	20.6	24.8	7.4	.....	26.2	16.7	25.0	34.6	10.5	.....
UNSKILLED & OTHER[A].	30.9	53.7	32.4	25.6	18.5	25.0	30.6	41.7	25.0	32.1	26.3	.....
ENTRY[B]	16.0	2.4	11.8	19.4	29.6	25.0	15.0	4.2	11.1	14.1	36.8	33.3
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	15.2	25.3	48.0	10.0	1.5	100.0	15.0	22.5	48.8	11.9	1.9
PROF. & MANAGERIAL.	100.0	25.0	12.5	37.5	12.5	12.5	100.0	33.3	16.7	33.3	.....	16.7
CLERICAL & SALES ..	100.0	.....	17.4	52.2	30.4	.....	100.0	.....	28.6	28.6	42.9	.....
SERVICE	100.0	14.3	28.6	46.4	10.7	.....	100.0	.....	50.0	.....	50.0	.....
SKILLED	100.0	22.6	35.5	35.5	3.2	3.2	100.0	23.3	33.3	36.7	3.3	3.3
SEMISKILLED	100.0	9.4	26.4	60.4	3.8	.....	100.0	9.5	21.4	64.3	4.8	.....
UNSKILLED & OTHER[A].	100.0	26.5	26.5	39.8	6.0	1.2	100.0	20.4	18.4	51.0	10.2	.....
ENTRY[B]	100.0	2.3	18.6	58.1	18.6	2.3	100.0	4.2	16.7	45.8	29.2	4.2
	NUMBER, BY AGE GROUP											
TOTAL	269	41	68	129	27	4	160	24	36	78	19	3
UNDER 20	73	.....	9	50	14	.....	39	.....	5	22	12	.....
20 - 24	66	3	16	39	7	1	50	2	10	32	5	1
25 - 34	52	10	17	23	.....	2	31	7	7	16	.....	1
35 - 44	28	8	10	6	3	1	9	4	4	.....	.....	1
45 - 54	26	8	9	7	2	.....	16	4	6	5	1	.....
55 - 64	23	11	7	4	1	.....	14	6	4	3	1	.....
65 AND OVER	1	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	27.1	.....	13.2	38.8	51.9	.....	24.4	.....	13.9	28.2	63.2	.....
20 - 24	24.5	7.3	23.5	30.2	25.9	25.0	31.2	8.3	27.8	41.0	26.3	33.3
25 - 34	19.3	24.4	25.0	17.8	.....	50.0	19.4	29.2	19.4	20.5	.....	33.3
35 - 44	10.4	19.5	14.7	4.7	11.1	25.0	5.6	16.7	11.1	.....	.....	33.3
45 - 54	9.7	19.5	13.2	5.4	7.4	.....	10.0	16.7	16.7	6.4	5.3	.....
55 - 64	8.6	26.8	10.3	3.1	3.7	.....	8.8	25.0	11.1	3.8	5.3	.....
65 AND OVER	.4	2.4	.....	.....	.....	.....	.6	4.2	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	15.2	25.3	48.0	10.0	1.5	100.0	15.0	22.5	48.8	11.9	1.9
UNDER 20	100.0	.....	12.3	68.5	19.2	.....	100.0	.....	12.8	56.4	30.8	.....
20 - 24	100.0	4.5	24.2	59.1	10.6	1.5	100.0	4.0	20.0	64.0	10.0	2.0
25 - 34	100.0	19.2	32.7	44.2	.....	3.8	100.0	22.6	22.6	51.6	.....	3.2
35 - 44	100.0	28.6	35.7	21.4	10.7	3.6	100.0	44.4	44.4	.....	.....	11.1
45 - 54	100.0	30.8	34.6	26.9	7.7	.....	100.0	25.0	37.5	31.2	6.2	.....
55 - 64	100.0	47.8	30.4	17.4	4.3	.....	100.0	42.9	28.6	21.4	7.1	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MIAMI COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	844	195	307	278	56	8	441	138	158	106	33	6
PROF. & MANAGERIAL.	18	.....	2	7	5	4	15	.....	2	5	5	3
CLERICAL & SALES ..	116	7	27	63	19	.....	36	6	9	11	10	.....
SERVICE	94	24	42	25	3	.....	21	7	8	5	1	.....
SKILLED	95	30	36	25	2	2	92	30	35	23	2	2
SEMISKILLED	177	48	77	47	5	.....	83	30	30	19	4	.....
UNSKILLED & OTHER[A].	145	73	52	19	1	.....	109	61	37	10	1	.....
ENTRY[B]	199	13	71	92	21	2	85	4	37	33	10	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.1	.....	.7	2.5	8.9	50.0	3.4	.....	1.3	4.7	15.2	50.0
CLERICAL & SALES ..	13.7	3.6	8.8	22.7	33.9	.....	8.2	4.3	5.7	10.4	30.3	.....
SERVICE	11.1	12.3	13.7	9.0	5.4	.....	4.8	5.1	5.1	4.7	3.0	.....
SKILLED	11.3	15.4	11.7	9.0	3.6	25.0	20.9	21.7	22.2	21.7	6.1	33.3
SEMISKILLED	21.0	24.6	25.1	16.9	8.9	.....	18.8	21.7	19.0	17.9	12.1	.....
UNSKILLED & OTHER[A].	17.2	37.4	16.9	6.8	1.8	.....	24.7	44.2	23.4	9.4	3.0	.....
ENTRY[B]	23.6	6.7	23.1	33.1	37.5	25.0	19.3	2.9	23.4	31.1	30.3	16.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.1	36.4	32.9	6.6	.9	100.0	31.3	35.8	24.0	7.5	1.4
PROF. & MANAGERIAL.	100.0	.....	11.1	38.9	27.8	22.2	100.0	.....	13.3	33.3	33.3	20.0
CLERICAL & SALES ..	100.0	6.0	23.3	54.3	16.4	.....	100.0	16.7	25.0	30.6	27.8	.....
SERVICE	100.0	25.5	44.7	26.6	3.2	.....	100.0	33.3	38.1	23.8	4.8	.....
SKILLED	100.0	31.6	37.9	26.3	2.1	2.1	100.0	32.6	38.0	25.0	2.2	2.2
SEMISKILLED	100.0	27.1	43.5	26.6	2.8	.....	100.0	36.1	36.1	22.9	4.8	.....
UNSKILLED & OTHER[A].	100.0	50.3	35.9	13.1	.7	.....	100.0	56.0	33.9	9.2	.9	.....
ENTRY[B]	100.0	6.5	35.7	46.2	10.6	1.0	100.0	4.7	43.5	38.8	11.8	1.2
	NUMBER, BY AGE GROUP											
TOTAL	844	195	307	278	56	8	441	138	158	106	33	6
UNDER 20	178	3	71	86	18	.....	80	2	36	34	8	.....
20 - 24	160	19	55	72	12	2	85	13	36	27	8	1
25 - 34	179	43	66	55	13	2	104	31	32	30	9	2
35 - 44	148	53	58	33	4	.....	66	35	22	5	4	.....
45 - 54	98	43	33	19	3	.....	51	27	17	6	1	.....
55 - 64	55	21	15	12	4	3	35	19	9	4	1	2
65 AND OVER	26	13	9	1	2	1	20	11	6	.....	2	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	21.1	1.5	23.1	30.9	32.1	.....	18.1	1.4	22.8	32.1	24.2	.....
20 - 24	19.0	9.7	17.9	25.9	21.4	25.0	19.3	9.4	22.8	25.5	24.2	16.7
25 - 34	21.2	22.1	21.5	19.8	23.2	25.0	23.6	22.5	20.3	28.3	27.3	33.3
35 - 44	17.5	27.2	18.9	11.9	7.1	.....	15.0	25.4	13.9	4.7	12.1	.....
45 - 54	11.6	22.1	10.7	6.8	5.4	.....	11.6	19.6	10.8	5.7	3.0	.....
55 - 64	6.5	10.8	4.9	4.3	7.1	37.5	7.9	13.8	5.7	3.8	3.0	33.3
65 AND OVER	3.1	6.7	2.9	.4	3.6	12.5	4.5	8.0	3.8	.....	6.1	16.7
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	23.1	36.4	32.9	6.6	.9	100.0	31.3	35.8	24.0	7.5	1.4
UNDER 20	100.0	1.7	39.9	48.3	10.1	.....	100.0	2.5	45.0	42.5	10.0	.....
20 - 24	100.0	11.9	34.4	45.0	7.5	1.2	100.0	15.3	42.4	31.8	9.4	1.2
25 - 34	100.0	24.0	36.9	30.7	7.3	1.1	100.0	29.8	30.8	28.8	8.7	1.9
35 - 44	100.0	35.8	39.2	22.3	2.7	.....	100.0	53.0	33.3	7.6	6.1	.....
45 - 54	100.0	43.9	33.7	19.4	3.1	.....	100.0	52.9	33.3	11.8	2.0	.....
55 - 64	100.0	38.2	27.3	21.8	7.3	5.5	100.0	54.3	25.7	11.4	2.9	5.7
65 AND OVER	100.0	50.0	34.6	3.8	7.7	3.8	100.0	55.0	30.0	.....	10.0	5.0

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MONROE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	142	58	39	44	1	.....	126	55	36	34	1	.....
PROF. & MANAGERIAL.	3	.....	1	2	.....	.....	3	.....	1	2	.....	.....
CLERICAL & SALES ..	12	.....	2	10	.....	.....	5	.....	1	4	.....	.....
SERVICE	8	1	.....	7	.....	.....	3	.....	.....	3	.....	.....
SKILLED	32	20	6	6	.....	.....	32	20	6	6	.....	.....
SEMISKILLED	28	18	3	6	1	.....	27	17	3	6	1	.....
UNSKILLED & OTHER[A].	40	19	8	13	.....	.....	38	18	7	13	.....	.....
ENTRY[B]	19	.....	19	.....	.....	.....	18	.....	18	.....	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	2.1	.....	2.6	4.5	.....	.....	2.4	.....	2.8	5.9	.....	.....
CLERICAL & SALES ..	8.5	.....	5.1	22.7	.....	.....	4.0	.....	2.8	11.8	.....	.....
SERVICE	5.6	1.7	.....	15.9	.....	.....	2.4	.....	.....	8.8	.....	.....
SKILLED	22.5	34.5	15.4	13.6	.....	.....	25.4	36.4	16.7	17.6	.....	.....
SEMISKILLED	19.7	31.0	7.7	13.6	100.0	.....	21.4	30.9	8.3	17.6	100.0	.....
UNSKILLED & OTHER[A].	28.2	32.8	20.5	29.5	.....	.....	30.2	32.7	19.4	38.2	.....	.....
ENTRY[B]	13.4	.....	48.7	.....	.....	.....	14.3	.....	50.0	.....	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	40.8	27.5	31.0	.7	.....	100.0	43.7	28.6	27.0	.8	.....
PROF. & MANAGERIAL.	100.0	.....	33.3	66.7	.....	.....	100.0	.....	33.3	66.7	.....	.....
CLERICAL & SALES ..	100.0	.....	16.7	83.3	.....	.....	100.0	.....	20.0	80.0	.....	.....
SERVICE	100.0	12.5	.....	87.5	.....	.....	100.0	.....	.....	100.0	.....	.....
SKILLED	100.0	62.5	18.8	18.8	.....	.....	100.0	62.5	18.8	18.8	.....	.....
SEMISKILLED	100.0	64.3	10.7	21.4	3.6	.....	100.0	63.0	11.1	22.2	3.7	.....
UNSKILLED & OTHER[A].	100.0	47.5	20.0	32.5	.....	.....	100.0	47.4	18.4	34.2	.....	.....
ENTRY[B]	100.0	.....	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	142	58	39	44	1	.....	126	55	36	34	1	.....
UNDER 20	30	1	23	6	.....	.....	28	1	21	6	.....	.....
20 - 24	22	8	3	11	.....	.....	19	7	3	9	.....	.....
25 - 34	22	10	3	9	.....	.....	19	8	3	8	.....	.....
35 - 44	21	6	7	8	.....	.....	19	6	7	6	.....	.....
45 - 54	21	12	1	8	.....	.....	17	12	1	4	.....	.....
55 - 64	15	14	.....	1	.....	.....	14	14	.....	.....	.....	.....
65 AND OVER	11	7	2	1	1	.....	10	7	1	1	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	21.1	1.7	59.0	13.6	.....	.....	22.2	1.8	58.3	17.6	.....	.....
20 - 24	15.5	13.8	7.7	25.0	.....	.....	15.1	12.7	8.3	26.5	.....	.....
25 - 34	15.5	17.2	7.7	20.5	.....	.....	15.1	14.5	8.3	23.5	.....	.....
35 - 44	14.8	10.3	17.9	18.2	.....	.....	15.1	10.9	19.4	17.6	.....	.....
45 - 54	14.8	20.7	2.6	18.2	.....	.....	13.5	21.8	2.8	11.8	.....	.....
55 - 64	10.6	24.1	.....	2.3	.....	.....	11.1	25.5	.....	.....	.....	.....
65 AND OVER	7.7	12.1	5.1	2.3	100.0	.....	7.9	12.7	2.8	2.9	100.0	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	40.8	27.5	31.0	.7	.....	100.0	43.7	28.6	27.0	.8	.....
UNDER 20	100.0	3.3	76.7	20.0	.....	.....	100.0	3.6	75.0	21.4	.....	.....
20 - 24	100.0	36.4	13.6	50.0	.....	.....	100.0	36.8	15.8	47.4	.....	.....
25 - 34	100.0	45.5	13.6	40.9	.....	.....	100.0	42.1	15.8	42.1	.....	.....
35 - 44	100.0	28.6	33.3	38.1	.....	.....	100.0	31.6	36.8	31.6	.....	.....
45 - 54	100.0	57.1	4.8	38.1	.....	.....	100.0	70.6	5.9	23.5	.....	.....
55 - 64	100.0	93.3	.....	6.7	.....	.....	100.0	100.0	.....	.....	.....	.....
65 AND OVER	100.0	63.6	18.2	9.1	9.1	.....	100.0	70.0	10.0	10.0	10.0	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MONTGOMERY COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	6,903	1,763	2,203	2,275	517	145	4,395	1,418	1,441	1,100	332	104
PROF. & MANAGERIAL.	275	10	18	76	82	89	213	5	14	52	70	72
CLERICAL & SALES ..	1,112	46	192	658	189	27	303	17	43	139	90	14
SERVICE	705	228	278	172	25	2	366	125	140	83	16	2
SKILLED	817	339	227	207	41	3	793	337	220	198	36	2
SEMISKILLED	1,291	466	508	296	20	1	905	362	358	167	18	.....
UNSKILLED & OTHER[A].	1,421	573	528	280	40	.....	1,052	496	372	157	27	.....
ENTRY[B]	1,282	101	452	586	120	23	763	76	294	304	75	14
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	4.0	.6	.8	3.3	15.9	61.4	4.8	.4	1.0	4.7	21.1	69.2
CLERICAL & SALES ..	16.1	2.6	8.7	28.9	36.6	18.6	6.9	1.2	3.0	12.6	27.1	13.5
SERVICE	10.2	12.9	12.6	7.6	4.8	1.4	8.3	8.8	9.7	7.5	4.8	1.9
SKILLED	11.8	19.2	10.3	9.1	7.9	2.1	18.0	23.8	15.3	18.0	10.8	1.9
SEMISKILLED	18.7	26.4	23.1	13.0	3.9	.7	20.6	25.5	24.8	15.2	5.4	.....
UNSKILLED & OTHER[A].	20.6	32.5	24.0	12.3	7.7	.....	23.9	35.0	25.8	14.3	8.1	.....
ENTRY[B]	18.6	5.7	20.5	25.8	23.2	15.9	17.4	5.4	20.4	27.6	22.6	13.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.5	31.9	33.0	7.5	2.1	100.0	32.3	32.8	25.0	7.6	2.4
PROF. & MANAGERIAL.	100.0	3.6	6.5	27.6	29.8	32.4	100.0	2.3	6.6	24.4	32.9	33.8
CLERICAL & SALES ..	100.0	4.1	17.3	59.2	17.0	2.4	100.0	5.6	14.2	45.9	29.7	4.6
SERVICE	100.0	32.3	39.4	24.4	3.5	.3	100.0	34.2	38.3	22.7	4.4	.5
SKILLED	100.0	41.5	27.8	25.3	5.0	.4	100.0	42.5	27.7	25.0	4.5	.3
SEMISKILLED	100.0	36.1	39.3	22.9	1.5	.1	100.0	40.0	39.6	18.5	2.0	.....
UNSKILLED & OTHER[A].	100.0	40.3	37.2	19.7	2.8	.....	100.0	47.1	35.4	14.9	2.6	.....
ENTRY[B]	100.0	7.9	35.3	45.7	9.4	1.8	100.0	10.0	38.5	39.8	9.8	1.8
	NUMBER, BY AGE GROUP											
TOTAL	6,903	1,763	2,203	2,275	517	145	4,395	1,418	1,441	1,100	332	104
UNDER 20	719	38	353	289	39	.....	444	31	255	136	22	.....
20 - 24	1,508	147	457	720	132	52	950	131	349	372	70	28
25 - 34	1,654	354	568	564	143	25	1,081	301	378	282	102	18
35 - 44	1,470	510	447	375	102	36	908	403	242	164	70	29
45 - 54	924	361	253	230	62	18	568	285	140	87	40	16
55 - 64	523	296	107	74	35	11	363	218	64	46	24	11
65 AND OVER	105	57	18	23	4	3	81	49	13	13	4	2
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	10.4	2.2	16.0	12.7	7.5	.....	10.1	2.2	17.7	12.4	6.6	.....
20 - 24	21.8	8.3	20.7	31.6	25.5	35.9	21.6	9.2	24.2	33.8	21.1	26.9
25 - 34	24.0	20.1	25.8	24.8	27.7	17.2	24.6	21.2	26.2	25.6	30.7	17.3
35 - 44	21.3	28.9	20.3	16.5	19.7	24.8	20.7	28.4	16.8	14.9	21.1	27.9
45 - 54	13.4	20.5	11.5	10.1	12.0	12.4	12.9	20.1	9.7	7.9	12.0	15.4
55 - 64	7.6	16.8	4.9	3.3	6.8	7.6	8.3	15.4	4.4	4.2	7.2	10.6
65 AND OVER	1.5	3.2	.8	1.0	.8	2.1	1.8	3.5	.9	1.2	1.2	1.9
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.5	31.9	33.0	7.5	2.1	100.0	32.3	32.8	25.0	7.6	2.4
UNDER 20	100.0	5.3	49.1	40.2	5.4	.....	100.0	7.0	57.4	30.6	5.0	.....
20 - 24	100.0	9.7	30.3	47.7	8.8	3.4	100.0	13.8	36.7	39.2	7.4	2.9
25 - 34	100.0	21.4	34.3	34.1	8.6	1.5	100.0	27.8	35.0	26.1	9.4	1.7
35 - 44	100.0	34.7	30.4	25.5	6.9	2.4	100.0	44.4	26.7	18.1	7.7	3.2
45 - 54	100.0	39.1	27.4	24.9	6.7	1.9	100.0	50.2	24.6	15.3	7.0	2.8
55 - 64	100.0	56.6	20.5	14.1	6.7	2.1	100.0	60.1	17.6	12.7	6.6	3.0
65 AND OVER	100.0	54.3	17.1	21.9	3.8	2.9	100.0	60.5	16.0	16.0	4.9	2.5

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

MORGAN COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MORGAN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	76	20	23	31	2	.....	62	19	17	24	2	.....
PROF. & MANAGERIAL.	2	1	.....	1	.....	.....	1	1	.....	.....	.....	.....
CLERICAL & SALES ..	4	.....	.....	3	1	.....	3	.....	.....	2	1	.....
SERVICE	4	1	3	.....	.....	.....	2	1	1	.....	.....	.....
SKILLED	26	6	5	15	.....	.....	23	6	4	13	.....	.....
SEMISKILLED	24	7	7	9	1	.....	21	6	5	9	1	.....
UNSKILLED & OTHER[A].	16	5	8	3	.....	.....	12	5	7	.....	.....	.....
ENTRY[B]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	2.6	5.0	.....	3.2	.....	.....	1.6	5.3	.....	.....	.....	.....
CLERICAL & SALES ..	5.3	.....	.....	9.7	50.0	.....	4.8	.....	.....	8.3	50.0	.....
SERVICE	5.3	5.0	13.0	.....	.....	.....	3.2	5.3	5.9	.....	.....	.....
SKILLED	34.2	30.0	21.7	48.4	.....	.....	37.1	31.6	23.5	54.2	.....	.....
SEMISKILLED	31.6	35.0	30.4	29.0	50.0	.....	33.9	31.6	29.4	37.5	50.0	.....
UNSKILLED & OTHER[A].	21.1	25.0	34.8	9.7	.....	.....	19.4	26.3	41.2	.....	.....	.....
ENTRY[B]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.3	30.3	40.8	2.6	.....	100.0	30.6	27.4	38.7	3.2	.....
PROF. & MANAGERIAL.	100.0	50.0	.....	50.0	.....	.....	100.0	100.0	.....	.....	.....	.....
CLERICAL & SALES ..	100.0	.....	.....	75.0	25.0	.....	100.0	.....	.....	66.7	33.3	.....
SERVICE	100.0	25.0	75.0	.....	.....	.....	100.0	50.0	50.0	.....	.....	.....
SKILLED	100.0	23.1	19.2	57.7	.....	.....	100.0	26.1	17.4	56.5	.....	.....
SEMISKILLED	100.0	29.2	29.2	37.5	4.2	.....	100.0	28.6	23.8	42.9	4.8	.....
UNSKILLED & OTHER[A].	100.0	31.2	50.0	18.8	.....	.....	100.0	41.7	58.3	.....	.....	.....
ENTRY[B]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	76	20	23	31	2	.....	62	19	17	24	2	.....
UNDER 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	13	3	3	6	1	.....	12	3	2	6	1	.....
25 - 34	17	3	7	7	.....	.....	15	3	7	5	.....	.....
35 - 44	17	2	7	8	.....	.....	10	1	4	5	.....	.....
45 - 54	20	6	6	8	.....	.....	16	6	4	6	.....	.....
55 - 64	7	4	.....	2	1	.....	7	4	.....	2	1	.....
65 AND OVER	2	2	.....	.....	.....	.....	2	2	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	17.1	15.0	13.0	19.4	50.0	.....	19.4	15.8	11.8	25.0	50.0	.....
25 - 34	22.4	15.0	30.4	22.6	.....	.....	24.2	15.8	41.2	20.8	.....	.....
35 - 44	22.4	10.0	30.4	25.8	.....	.....	16.1	5.3	23.5	20.8	.....	.....
45 - 54	26.3	30.0	26.1	25.8	.....	.....	25.8	31.6	23.5	25.0	.....	.....
55 - 64	9.2	20.0	.....	6.5	50.0	.....	11.3	21.1	.....	8.3	50.0	.....
65 AND OVER	2.6	10.0	.....	.....	.....	.....	3.2	10.5	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.3	30.3	40.8	2.6	.....	100.0	30.6	27.4	38.7	3.2	.....
UNDER 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	100.0	23.1	23.1	46.2	7.7	.....	100.0	25.0	16.7	50.0	8.3	.....
25 - 34	100.0	17.6	41.2	41.2	.....	.....	100.0	20.0	46.7	33.3	.....	.....
35 - 44	100.0	11.8	41.2	47.1	.....	.....	100.0	10.0	40.0	50.0	.....	.....
45 - 54	100.0	30.0	30.0	40.0	.....	.....	100.0	37.5	25.0	37.5	.....	.....
55 - 64	100.0	57.1	.....	28.6	14.3	.....	100.0	57.1	.....	28.6	14.3	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MORROW COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	48	9	15	23	1	.....	36	8	12	16	.....	.....
PROF. & MANAGERIAL.	1	.....	1	.....	.....	.....	1	.....	1	.....	.....	.....
CLERICAL & SALES ..	5	.....	1	3	1	.....	1	.....	1	.....	.....	.....
SERVICE	3	1	1	1	.....	.....	1	.....	.....	1	.....	.....
SKILLED	11	2	3	6	.....	.....	11	2	3	6	.....	.....
SEMISKILLED	14	2	6	6	.....	.....	12	2	4	6	.....	.....
UNSKILLED & OTHER[A].	6	2	1	3	.....	.....	4	2	1	1	.....	.....
ENTRY[B]	8	2	2	4	.....	.....	6	2	2	2	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	.....	.....
PROF. & MANAGERIAL.	2.1	.....	6.7	.....	.....	.....	2.8	.....	8.3	.....	.....	.....
CLERICAL & SALES ..	10.4	.....	6.7	13.0	100.0	.....	2.8	.....	8.3	.....	.....	.....
SERVICE	6.2	11.1	6.7	4.3	.....	.....	2.8	.....	.....	6.2	.....	.....
SKILLED	22.9	22.2	20.0	26.1	.....	.....	30.6	25.0	25.0	37.5	.....	.....
SEMISKILLED	29.2	22.2	40.0	26.1	.....	.....	33.3	25.0	33.3	37.5	.....	.....
UNSKILLED & OTHER[A].	12.5	22.2	6.7	13.0	.....	.....	11.1	25.0	8.3	6.2	.....	.....
ENTRY[B]	16.7	22.2	13.3	17.4	.....	.....	16.7	25.0	16.7	12.5	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.7	31.2	47.9	2.1	.....	100.0	22.2	33.3	44.4	.....	.....
PROF. & MANAGERIAL.	100.0	.....	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....
CLERICAL & SALES ..	100.0	.....	20.0	60.0	20.0	.....	100.0	.....	100.0	.....	.....	.....
SERVICE	100.0	33.3	33.3	33.3	.....	.....	100.0	.....	.....	100.0	.....	.....
SKILLED	100.0	18.2	27.3	54.5	.....	.....	100.0	18.2	27.3	54.5	.....	.....
SEMISKILLED	100.0	14.3	42.9	42.9	.....	.....	100.0	16.7	33.3	50.0	.....	.....
UNSKILLED & OTHER[A].	100.0	33.3	16.7	50.0	.....	.....	100.0	50.0	25.0	25.0	.....	.....
ENTRY[B]	100.0	25.0	25.0	50.0	.....	.....	100.0	33.3	33.3	33.3	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	48	9	15	23	1	.....	36	8	12	16	.....	.....
UNDER 20	6	2	1	3	.....	.....	5	2	1	2	.....	.....
20 - 24	11	.....	3	8	.....	.....	9	.....	3	6	.....	.....
25 - 34	9	1	3	5	.....	.....	8	1	3	4	.....	.....
35 - 44	15	5	4	5	1	.....	8	4	1	3	.....	.....
45 - 54	5	.....	3	2	.....	.....	4	.....	3	1	.....	.....
55 - 64	2	1	1	.....	.....	.....	2	1	1	.....	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	.....	.....
UNDER 20	12.5	22.2	6.7	13.0	.....	.....	13.9	25.0	8.3	12.5	.....	.....
20 - 24	22.9	.....	20.0	34.8	.....	.....	25.0	.....	25.0	37.5	.....	.....
25 - 34	18.7	11.1	20.0	21.7	.....	.....	22.2	12.5	25.0	25.0	.....	.....
35 - 44	31.2	55.5	26.7	21.7	100.0	.....	22.2	50.0	8.3	18.8	.....	.....
45 - 54	10.4	.....	20.0	8.7	.....	.....	11.1	.....	25.0	6.2	.....	.....
55 - 64	4.2	11.1	6.7	.....	.....	.....	5.6	12.5	8.3	.....	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.7	31.2	47.9	2.1	.....	100.0	22.2	33.3	44.4	.....	.....
UNDER 20	100.0	33.3	16.7	50.0	.....	.....	100.0	40.0	20.0	40.0	.....	.....
20 - 24	100.0	.....	27.3	72.7	.....	.....	100.0	.....	33.3	66.7	.....	.....
25 - 34	100.0	11.1	33.3	55.6	.....	.....	100.0	12.5	37.5	50.0	.....	.....
35 - 44	100.0	33.3	26.7	33.3	6.7	.....	100.0	50.0	12.5	37.5	.....	.....
45 - 54	100.0	.....	60.0	40.0	.....	.....	100.0	.....	75.0	25.0	.....	.....
55 - 64	100.0	50.0	50.0	.....	.....	.....	100.0	50.0	50.0	.....	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN MUSKINGUM COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,456	413	474	514	49	6	911	311	297	268	30	5
PROF. & MANAGERIAL.	29	4	4	12	3	6	21	2	2	9	3	5
CLERICAL & SALES ..	137	13	20	90	14	.....	34	3	5	18	8	.....
SERVICE	102	39	34	26	3	.....	44	19	14	11	.....	.....
SKILLED	225	67	73	76	9	.....	223	67	72	75	9	.....
SEMISKILLED	320	112	114	88	6	.....	242	93	83	64	2	.....
UNSKILLED & OTHER[A].	529	166	176	179	8	.....	291	119	93	76	3	.....
ENTRY[B]	114	12	53	43	6	.....	56	8	28	15	5	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.0	1.0	.8	2.3	6.1	100.0	2.3	.6	.7	3.4	10.0	100.0
CLERICAL & SALES ..	9.4	3.1	4.2	17.5	28.6	.....	3.7	1.0	1.7	6.7	26.7	.....
SERVICE	7.0	9.4	7.2	5.1	6.1	.....	4.8	6.1	4.7	4.1	.....	.....
SKILLED	15.5	16.2	15.4	14.8	18.4	.....	24.5	21.5	24.2	28.0	30.0	.....
SEMISKILLED	22.0	27.1	24.1	17.1	12.2	.....	26.6	29.9	27.9	23.9	6.7	.....
UNSKILLED & OTHER[A].	36.3	40.2	37.1	34.8	16.3	.....	31.9	38.3	31.3	28.4	10.0	.....
ENTRY[B]	7.8	2.9	11.2	8.4	12.2	.....	6.1	2.6	9.4	5.6	16.7	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	28.4	32.6	35.3	3.4	.4	100.0	34.1	32.6	29.4	3.3	.5
PROF. & MANAGERIAL.	100.0	13.8	13.8	41.4	10.3	20.7	100.0	9.5	9.5	42.9	14.3	23.8
CLERICAL & SALES ..	100.0	9.5	14.6	65.7	10.2	.....	100.0	8.8	14.7	52.9	23.5	.....
SERVICE	100.0	38.2	33.3	25.5	2.9	.....	100.0	43.2	31.8	25.0	.....	.....
SKILLED	100.0	29.8	32.4	33.8	4.0	.....	100.0	30.0	32.3	33.6	4.0	.....
SEMISKILLED	100.0	35.0	35.6	27.5	1.9	.....	100.0	38.4	34.3	26.4	.8	.....
UNSKILLED & OTHER[A].	100.0	31.4	33.3	33.8	1.5	.....	100.0	40.9	32.0	26.1	1.0	.....
ENTRY[B]	100.0	10.5	46.5	37.7	5.3	.....	100.0	14.3	50.0	26.8	8.9	.....
	NUMBER, BY AGE GROUP											
TOTAL	1,456	413	474	514	49	6	911	311	297	268	30	5
UNDER 20	123	8	54	58	3	.....	68	7	32	28	1	.....
20 - 24	256	25	92	126	12	1	176	23	69	77	7	.....
25 - 34	364	73	125	156	10	.....	230	61	84	77	8	.....
35 - 44	314	107	100	91	14	2	182	80	56	37	7	2
45 - 54	243	108	66	61	7	1	152	73	35	39	4	1
55 - 64	131	74	35	17	3	2	87	54	19	9	3	2
65 AND OVER	25	18	2	5	.....	.....	16	13	2	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	8.4	1.9	11.4	11.3	6.1	.....	7.5	2.3	10.8	10.4	3.3	.....
20 - 24	17.6	6.1	19.4	24.5	24.5	16.7	19.3	7.4	23.2	28.7	23.3	.....
25 - 34	25.0	17.7	26.4	30.4	20.4	.....	25.2	19.6	28.3	28.7	26.7	.....
35 - 44	21.6	25.9	21.1	17.7	28.6	33.3	20.0	25.7	18.9	13.8	23.3	40.0
45 - 54	16.7	26.2	13.9	11.9	14.3	16.7	16.7	23.5	11.8	14.6	13.3	20.0
55 - 64	9.0	17.9	7.4	3.3	6.1	33.3	9.5	17.4	6.4	3.4	10.0	40.0
65 AND OVER	1.7	4.4	.4	1.0	.....	.....	1.8	4.2	.7	.4	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	28.4	32.6	35.3	3.4	.4	100.0	34.1	32.6	29.4	3.3	.5
UNDER 20	100.0	6.5	43.9	47.2	2.4	.....	100.0	10.3	47.1	41.2	1.5	.....
20 - 24	100.0	9.8	35.9	49.2	4.7	.4	100.0	13.1	39.2	43.7	4.0	.....
25 - 34	100.0	20.1	34.3	42.9	2.7	.....	100.0	26.5	36.5	33.5	3.5	.....
35 - 44	100.0	34.1	31.8	29.0	4.5	.6	100.0	44.0	30.8	20.3	3.8	1.1
45 - 54	100.0	44.4	27.2	25.1	2.9	.4	100.0	48.0	23.0	25.7	2.6	.7
55 - 64	100.0	56.5	26.7	13.0	2.3	1.5	100.0	62.1	21.8	10.3	3.4	2.3
65 AND OVER	100.0	72.0	8.0	20.0	.....	.....	100.0	81.2	12.5	6.2	.....	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN NOBLE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	142	39	44	59	.....	.....	105	35	30	40	.....	.....
PROF. & MANAGERIAL.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	4	1	.....	3	.....	.....	3	1	.....	2	.....	.....
SERVICE	3	2	.....	1	.....	.....	2	1	.....	1	.....	.....
SKILLED	27	8	9	10	.....	.....	26	8	8	10	.....	.....
SEMISKILLED	65	16	21	28	.....	.....	37	14	11	12	.....	.....
UNSKILLED & OTHER[A].	40	12	13	15	.....	.....	34	11	10	13	.....	.....
ENTRY[B]	3	.....	1	2	.....	.....	3	.....	1	2	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	.....	.....	100.0	100.0	100.0	100.0	.....	.....
PROF. & MANAGERIAL.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	2.8	2.6	.....	5.1	.....	.....	2.9	2.9	.....	5.0	.....	.....
SERVICE	2.1	5.1	.....	1.7	.....	.....	1.9	2.9	.....	2.5	.....	.....
SKILLED	19.0	20.5	20.5	16.9	.....	.....	24.8	22.9	26.7	25.0	.....	.....
SEMISKILLED	45.8	41.0	47.7	47.5	.....	.....	35.2	40.0	36.7	30.0	.....	.....
UNSKILLED & OTHER[A].	28.2	30.8	29.5	25.4	.....	.....	32.4	31.4	33.3	32.5	.....	.....
ENTRY[B]	2.1	.....	2.3	3.4	.....	.....	2.9	.....	3.3	5.0	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.5	31.0	41.5	.....	.....	100.0	33.3	28.6	38.1	.....	.....
PROF. & MANAGERIAL.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	100.0	25.0	.....	75.0	.....	.....	100.0	33.3	.....	66.7	.....	.....
SERVICE	100.0	66.7	.....	33.3	.....	.....	100.0	50.0	.....	50.0	.....	.....
SKILLED	100.0	29.6	33.3	37.0	.....	.....	100.0	30.8	30.8	38.5	.....	.....
SEMISKILLED	100.0	24.6	32.3	43.1	.....	.....	100.0	37.8	29.7	32.4	.....	.....
UNSKILLED & OTHER[A].	100.0	30.0	32.5	37.5	.....	.....	100.0	32.4	29.4	38.2	.....	.....
ENTRY[B]	100.0	.....	33.3	66.7	.....	.....	100.0	.....	33.3	66.7	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	142	39	44	59	.....	.....	105	35	30	40	.....	.....
UNDER 20	2	.....	.....	2	.....	.....	2	.....	.....	2	.....	.....
20 - 24	24	5	7	12	.....	.....	21	5	6	10	.....	.....
25 - 34	41	6	11	24	.....	.....	25	5	6	14	.....	.....
35 - 44	35	9	15	11	.....	.....	25	8	11	6	.....	.....
45 - 54	25	9	9	7	.....	.....	20	8	6	6	.....	.....
55 - 64	14	9	2	3	.....	.....	11	8	1	2	.....	.....
65 AND OVER	1	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	.....	.....	100.0	100.0	100.0	100.0	.....	.....
UNDER 20	1.4	.....	.....	3.4	.....	.....	1.9	.....	.....	5.0	.....	.....
20 - 24	16.9	12.8	15.9	20.3	.....	.....	20.0	14.3	20.0	25.0	.....	.....
25 - 34	28.9	15.4	25.0	40.7	.....	.....	23.8	14.3	20.0	35.0	.....	.....
35 - 44	24.6	23.1	34.1	18.6	.....	.....	23.8	22.9	36.7	15.0	.....	.....
45 - 54	17.6	23.1	20.5	11.9	.....	.....	19.0	22.9	20.0	15.0	.....	.....
55 - 64	9.9	23.1	4.5	5.1	.....	.....	10.5	22.9	3.3	5.0	.....	.....
65 AND OVER	.7	2.6	.....	.....	.....	.....	1.0	2.9	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.5	31.0	41.5	.....	.....	100.0	33.3	28.6	38.1	.....	.....
UNDER 20	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....
20 - 24	100.0	20.8	29.2	50.0	.....	.....	100.0	23.8	28.6	47.6	.....	.....
25 - 34	100.0	14.6	26.8	58.5	.....	.....	100.0	20.0	24.0	56.0	.....	.....
35 - 44	100.0	25.7	42.9	31.4	.....	.....	100.0	32.0	44.0	24.0	.....	.....
45 - 54	100.0	36.0	36.0	28.0	.....	.....	100.0	40.0	30.0	30.0	.....	.....
55 - 64	100.0	64.3	14.3	21.4	.....	.....	100.0	72.7	9.1	18.2	.....	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN OTTAWA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	688	181	222	242	34	9	344	113	117	91	19	4
PROF. & MANAGERIAL.	13	.....	2	5	1	5	11	.....	2	5	1	3
CLERICAL & SALES ..	117	4	16	74	21	2	24	1	2	13	8	.....
SERVICE	118	42	45	31	.....	.....	28	12	9	7	.....	.....
SKILLED	43	16	13	11	2	1	43	16	13	11	2	1
SEMISKILLED	173	53	62	56	2	.....	105	40	35	28	2	.....
UNSKILLED & OTHER[A].	138	49	59	27	2	1	103	41	44	17	1	.....
ENTRY[B]	86	17	25	38	6	.....	30	3	12	10	5	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.9	.....	.9	2.1	2.9	55.6	3.2	.....	1.7	5.5	5.3	75.0
CLERICAL & SALES ..	17.0	2.2	7.2	30.6	61.8	22.2	7.0	.9	1.7	14.3	42.1	.....
SERVICE	17.2	23.2	20.3	12.8	.....	.....	8.1	10.6	7.7	7.7	.....	.....
SKILLED	6.2	8.8	5.9	4.5	5.9	11.1	12.5	14.2	11.1	12.1	10.5	25.0
SEMISKILLED	25.1	29.3	27.9	23.1	5.9	.....	30.5	35.4	29.9	30.8	10.5	.....
UNSKILLED & OTHER[A].	20.1	27.1	26.6	11.2	5.9	11.1	29.9	36.3	37.6	18.7	5.3	.....
ENTRY[B]	12.5	9.4	11.3	15.7	17.6	.....	8.7	2.7	10.3	11.0	26.3	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.3	32.3	35.2	4.9	1.3	100.0	32.8	34.0	26.5	5.5	1.2
PROF. & MANAGERIAL.	100.0	.....	15.4	38.5	7.7	38.5	100.0	.....	18.2	45.5	9.1	27.3
CLERICAL & SALES ..	100.0	3.4	13.7	63.2	17.9	1.7	100.0	4.2	8.3	54.2	33.3	.....
SERVICE	100.0	35.6	38.1	26.3	.....	.....	100.0	42.9	32.1	25.0	.....	.....
SKILLED	100.0	37.2	30.2	25.6	4.7	2.3	100.0	37.2	30.2	25.6	4.7	2.3
SEMISKILLED	100.0	30.6	35.8	32.4	1.2	.....	100.0	38.1	33.3	26.7	1.9	.....
UNSKILLED & OTHER[A].	100.0	35.5	42.8	19.6	1.4	.7	100.0	39.8	42.7	16.5	1.0	.....
ENTRY[B]	100.0	19.8	29.1	44.2	7.0	.....	100.0	10.0	40.0	33.3	16.7	.....
	NUMBER, BY AGE GROUP											
TOTAL	688	181	222	242	34	9	344	113	117	91	19	4
UNDER 20	71	3	26	35	6	1	39	3	17	14	5	.....
20 - 24	115	13	39	54	7	2	76	11	28	32	4	1
25 - 34	151	41	44	51	12	3	69	23	15	23	6	2
35 - 44	148	49	52	44	3	.....	61	27	23	9	2	.....
45 - 54	125	38	38	45	2	2	53	23	19	9	1	1
55 - 64	56	25	19	8	4	.....	32	17	11	3	1	.....
65 AND OVER	22	12	4	5	.....	1	14	9	4	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	10.3	1.7	11.7	14.5	17.6	11.1	11.3	2.7	14.5	15.4	26.3	.....
20 - 24	16.7	7.2	17.6	22.3	20.6	22.2	22.1	9.7	23.9	35.2	21.1	25.0
25 - 34	21.9	22.7	19.8	21.1	35.3	33.3	20.1	20.4	12.8	25.3	31.6	50.0
35 - 44	21.5	27.1	23.4	18.2	8.8	.....	17.7	23.9	19.7	9.9	10.5	.....
45 - 54	18.2	21.0	17.1	18.6	5.9	22.2	15.4	20.4	16.2	9.9	5.3	25.0
55 - 64	8.1	13.8	8.6	3.3	11.8	.....	9.3	15.0	9.4	3.3	5.3	.....
65 AND OVER	3.2	6.6	1.8	2.1	.....	11.1	4.1	8.0	3.4	1.1	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.3	32.3	35.2	4.9	1.3	100.0	32.8	34.0	26.5	5.5	1.2
UNDER 20	100.0	4.2	36.6	49.3	8.5	1.4	100.0	7.7	43.6	35.9	12.8	.....
20 - 24	100.0	11.3	33.9	47.0	6.1	1.7	100.0	14.5	36.8	42.1	5.3	1.3
25 - 34	100.0	27.2	29.1	33.8	7.9	2.0	100.0	33.3	21.7	33.3	8.7	2.9
35 - 44	100.0	33.1	35.1	29.7	2.0	.....	100.0	44.3	37.7	14.8	3.3	.....
45 - 54	100.0	30.4	30.4	36.0	1.6	1.6	100.0	43.4	35.8	17.0	1.9	1.9
55 - 64	100.0	44.6	33.9	14.3	7.1	.....	100.0	53.1	34.4	9.4	3.1	.....
65 AND OVER	100.0	54.5	18.2	22.7	.....	4.5	100.0	64.3	28.6	7.1	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN PAULDING COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	87	22	28	32	4	1	44	20	15	9	.....	.....
PROF. & MANAGERIAL.	2	.....	1	.....	.....	1	1	.....	1	.....	.....	.....
CLERICAL & SALES ..	5	.....	1	3	1	.....	.....	.....	.....	.....	.....	.....
SERVICE	4	1	2	1	.....	.....	1	.....	1	.....	.....	.....
SKILLED	10	5	3	2	.....	.....	10	5	3	2	.....	.....
SEMISKILLED	20	8	6	6	.....	.....	15	8	5	2	.....	.....
UNSKILLED & OTHER[A].	20	6	10	4	.....	.....	11	5	5	1	.....	.....
ENTRY[B]	26	2	5	16	3	.....	6	2	.....	4	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....	.....
PROF. & MANAGERIAL.	2.3	.....	3.6	.....	.....	100.0	2.3	.....	6.7	.....	.....	.....
CLERICAL & SALES ..	5.7	.....	3.6	9.4	25.0	.....	.....	.....	.....	.....	.....	.....
SERVICE	4.6	4.5	7.1	3.1	.....	.....	2.3	.....	6.7	.....	.....	.....
SKILLED	11.5	22.7	10.7	6.2	.....	.....	22.7	25.0	20.0	22.2	.....	.....
SEMISKILLED	23.0	36.4	21.4	18.8	.....	.....	34.1	40.0	33.3	22.2	.....	.....
UNSKILLED & OTHER[A].	23.0	27.3	35.7	12.5	.....	.....	25.0	25.0	33.3	11.1	.....	.....
ENTRY[B]	29.9	9.1	17.9	50.0	75.0	.....	13.6	10.0	.....	44.4	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.3	32.2	36.8	4.6	1.1	100.0	45.5	34.1	20.5	.....	.....
PROF. & MANAGERIAL.	100.0	.....	50.0	.....	.....	50.0	100.0	.....	100.0	.....	.....	.....
CLERICAL & SALES ..	100.0	.....	20.0	60.0	20.0	.....	.....	.....	.....	.....	.....	.....
SERVICE	100.0	25.0	50.0	25.0	.....	.....	100.0	.....	100.0	.....	.....	.....
SKILLED	100.0	50.0	30.0	20.0	.....	.....	100.0	50.0	30.0	20.0	.....	.....
SEMISKILLED	100.0	40.0	30.0	30.0	.....	.....	100.0	53.3	33.3	13.3	.....	.....
UNSKILLED & OTHER[A].	100.0	30.0	50.0	20.0	.....	.....	100.0	45.5	45.5	9.1	.....	.....
ENTRY[B]	100.0	7.7	19.2	61.5	11.5	.....	100.0	33.3	.....	66.7	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	87	22	28	32	4	1	44	20	15	9	.....	.....
UNDER 20	13	.....	2	9	2	.....	3	.....	.....	3	.....	.....
20 - 24	20	3	8	8	1	.....	8	3	3	2	.....	.....
25 - 34	14	3	4	6	1	.....	8	3	4	1	.....	.....
35 - 44	16	4	7	4	.....	1	7	4	3	.....	.....	.....
45 - 54	15	6	6	3	.....	.....	11	4	5	2	.....	.....
55 - 64	8	5	1	2	.....	.....	6	5	.....	1	.....	.....
65 AND OVER	1	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....	.....
UNDER 20	14.9	.....	7.1	28.1	50.0	.....	6.8	.....	.....	33.3	.....	.....
20 - 24	23.0	13.6	28.6	25.0	25.0	.....	18.2	15.0	20.0	22.2	.....	.....
25 - 34	16.1	13.6	14.3	18.8	25.0	.....	18.2	15.0	26.7	11.1	.....	.....
35 - 44	18.4	18.2	25.0	12.5	.....	100.0	15.9	20.0	20.0	.....	.....	.....
45 - 54	17.2	27.3	21.4	9.4	.....	.....	25.0	20.0	33.3	22.2	.....	.....
55 - 64	9.2	22.7	3.6	6.2	.....	.....	13.6	25.0	.....	11.1	.....	.....
65 AND OVER	1.1	4.5	.....	.....	.....	.....	2.3	5.0	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.3	32.2	36.8	4.6	1.1	100.0	45.5	34.1	20.5	.....	.....
UNDER 20	100.0	.....	15.4	69.2	15.4	.....	100.0	.....	.....	100.0	.....	.....
20 - 24	100.0	15.0	40.0	40.0	5.0	.....	100.0	37.5	37.5	25.0	.....	.....
25 - 34	100.0	21.4	28.6	42.9	7.1	.....	100.0	37.5	50.0	12.5	.....	.....
35 - 44	100.0	25.0	43.8	25.0	.....	6.2	100.0	57.1	42.9	.....	.....	.....
45 - 54	100.0	40.0	40.0	20.0	.....	.....	100.0	36.4	45.5	18.2	.....	.....
55 - 64	100.0	62.5	12.5	25.0	.....	.....	100.0	83.3	.....	16.7	.....	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

PERRY COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN PERRY COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	309	88	87	127	7	.....	232	72	67	86	7	.....
PROF. & MANAGERIAL.	1	.....	.....	.....	1	.....	1	.....	.....	.....	1	.....
CLERICAL & SALES ..	28	2	4	22	.....	.....	8	2	1	5	.....	.....
SERVICE	12	5	5	2	.....	.....	4	1	2	1	.....	.....
SKILLED	70	19	12	36	3	.....	60	18	8	31	3	.....
SEMISKILLED	111	32	37	40	2	.....	85	23	31	29	2	.....
UNSKILLED & OTHER[A].	75	29	19	26	1	.....	63	27	15	20	1	.....
ENTRY[B]	12	1	10	1	.....	.....	11	1	10	.....	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	.3	.....	.....	.....	14.3	.....	.4	.....	.....	.....	14.3	.....
CLERICAL & SALES ..	9.1	2.3	4.6	17.3	.....	.....	3.4	2.8	1.5	5.8	.....	.....
SERVICE	3.9	5.7	5.7	1.6	.....	.....	1.7	1.4	3.0	1.2	.....	.....
SKILLED	22.7	21.6	13.8	28.3	42.9	.....	25.9	25.0	11.9	36.0	42.9	.....
SEMISKILLED	35.9	36.4	42.5	31.5	28.6	.....	36.6	31.9	46.3	33.7	28.6	.....
UNSKILLED & OTHER[A].	24.3	33.0	21.8	20.5	14.3	.....	27.2	37.5	22.4	23.3	14.3	.....
ENTRY[B]	3.9	1.1	11.5	.8	.....	.....	4.7	1.4	14.9	.....	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	28.5	28.2	41.1	2.3	.....	100.0	31.0	28.9	37.1	3.0	.....
PROF. & MANAGERIAL.	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....	100.0	.....
CLERICAL & SALES ..	100.0	7.1	14.3	78.6	.....	.....	100.0	25.0	12.5	62.5	.....	.....
SERVICE	100.0	41.7	41.7	16.7	.....	.....	100.0	25.0	50.0	25.0	.....	.....
SKILLED	100.0	27.1	17.1	51.4	4.3	.....	100.0	30.0	13.3	51.7	5.0	.....
SEMISKILLED	100.0	28.8	33.3	36.0	1.8	.....	100.0	27.1	36.5	34.1	2.4	.....
UNSKILLED & OTHER[A].	100.0	38.7	25.3	34.7	1.3	.....	100.0	42.9	23.8	31.7	1.6	.....
ENTRY[B]	100.0	8.3	83.3	8.3	.....	.....	100.0	9.1	90.9	.....	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	309	88	87	127	7	.....	232	72	67	86	7	.....
UNDER 20	19	1	10	6	2	.....	16	1	10	3	2	.....
20 - 24	64	6	17	39	2	.....	54	6	15	31	2	.....
25 - 34	72	11	21	39	1	.....	56	10	20	25	1	.....
35 - 44	62	18	18	25	1	.....	39	12	11	15	1	.....
45 - 54	59	29	14	15	1	.....	42	24	7	10	1	.....
55 - 64	31	22	7	2	.....	.....	24	19	4	1	.....	.....
65 AND OVER	2	1	.....	1	.....	.....	1	.....	.....	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	6.1	1.1	11.5	4.7	28.6	.....	6.9	1.4	14.9	3.5	28.6	.....
20 - 24	20.7	6.8	19.5	30.7	28.6	.....	23.3	8.3	22.4	36.0	28.6	.....
25 - 34	23.3	12.5	24.1	30.7	14.3	.....	24.1	13.9	29.9	29.1	14.3	.....
35 - 44	20.1	20.5	20.7	19.7	14.3	.....	16.8	16.7	16.4	17.4	14.3	.....
45 - 54	19.1	33.0	16.1	11.8	14.3	.....	18.1	33.3	10.4	11.6	14.3	.....
55 - 64	10.0	25.0	8.0	1.6	.....	.....	10.3	26.4	6.0	1.2	.....	.....
65 AND OVER	.6	1.1	.....	.8	.....	.....	.4	.....	.....	1.2	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	28.5	28.2	41.1	2.3	.....	100.0	31.0	28.9	37.1	3.0	.....
UNDER 20	100.0	5.3	52.6	31.6	10.5	.....	100.0	6.2	62.5	18.8	12.5	.....
20 - 24	100.0	9.4	26.6	60.9	3.1	.....	100.0	11.1	27.8	57.4	3.7	.....
25 - 34	100.0	15.3	29.2	54.2	1.4	.....	100.0	17.9	35.7	44.6	1.8	.....
35 - 44	100.0	29.0	29.0	40.3	1.6	.....	100.0	30.8	28.2	38.5	2.6	.....
45 - 54	100.0	49.2	23.7	25.4	1.7	.....	100.0	57.1	16.7	23.8	2.4	.....
55 - 64	100.0	71.0	22.6	6.5	.....	.....	100.0	79.2	16.7	4.2	.....	.....
65 AND OVER	100.0	50.0	.....	50.0	.....	.....	100.0	.....	.....	100.0	.....	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

PICKAWAY COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN PICKAWAY COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	226	100	68	53	5	.....	159	86	45	25	3	.....
PROF. & MANAGERIAL.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	20	1	3	13	3	.....	2	.....	.....	1	1	.....
SERVICE	14	5	4	5	.....	.....	4	1	1	2	.....	.....
SKILLED	40	19	13	6	2	.....	40	19	13	6	2	.....
SEMISKILLED	35	17	13	5	.....	.....	33	17	12	4	.....	.....
UNSKILLED & OTHER[A].	105	54	32	19	.....	.....	69	45	16	8	.....	.....
ENTRY[B]	12	4	3	5	.....	.....	11	4	3	4	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
PROF. & MANAGERIAL.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	8.8	1.0	4.4	24.5	60.0	.....	1.3	.....	.....	4.0	33.3	.....
SERVICE	6.2	5.0	5.9	9.4	.....	.....	2.5	1.2	2.2	8.0	.....	.....
SKILLED	17.7	19.0	19.1	11.3	40.0	.....	25.2	22.1	28.9	24.0	66.7	.....
SEMISKILLED	15.5	17.0	19.1	9.4	.....	.....	20.8	19.8	26.7	16.0	.....	.....
UNSKILLED & OTHER[A].	46.5	54.0	47.1	35.8	.....	.....	43.4	52.3	35.6	32.0	.....	.....
ENTRY[B]	5.3	4.0	4.4	9.4	.....	.....	6.9	4.7	6.7	16.0	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	44.2	30.1	23.5	2.2	.....	100.0	54.1	28.3	15.7	1.9	.....
PROF. & MANAGERIAL.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES ..	100.0	5.0	15.0	65.0	15.0	.....	100.0	.....	.....	50.0	50.0	.....
SERVICE	100.0	35.7	28.6	35.7	.....	.....	100.0	25.0	25.0	50.0	.....	.....
SKILLED	100.0	47.5	32.5	15.0	5.0	.....	100.0	47.5	32.5	15.0	5.0	.....
SEMISKILLED	100.0	48.6	37.1	14.3	.....	.....	100.0	51.5	36.4	12.1	.....	.....
UNSKILLED & OTHER[A].	100.0	51.4	30.5	18.1	.....	.....	100.0	65.2	23.2	11.6	.....	.....
ENTRY[B]	100.0	33.3	25.0	41.7	.....	.....	100.0	36.4	27.3	36.4	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	226	100	68	53	5	.....	159	86	45	25	3	.....
UNDER 20	1	.....	1	.....	.....	.....	1	.....	1	.....	.....	.....
20 - 24	29	5	10	14	.....	.....	21	4	8	9	.....	.....
25 - 34	69	19	28	20	2	.....	38	17	12	9	.....	.....
35 - 44	59	28	16	15	.....	.....	42	25	12	5	.....	.....
45 - 54	39	25	9	3	2	.....	34	22	8	2	2	.....
55 - 64	28	22	4	1	1	.....	23	18	4	.....	1	.....
65 AND OVER	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	.....	100.0	100.0	100.0	100.0	100.0	.....
UNDER 20	.4	.....	1.5	.....	.....	.....	.6	.....	2.2	.....	.....	.....
20 - 24	12.8	5.0	14.7	26.4	.....	.....	13.2	4.7	17.8	36.0	.....	.....
25 - 34	30.5	19.0	41.2	37.7	40.0	.....	23.9	19.8	26.7	36.0	.....	.....
35 - 44	26.1	28.0	23.5	28.3	.....	.....	26.4	29.1	26.7	20.0	.....	.....
45 - 54	17.3	25.0	13.2	5.7	40.0	.....	21.4	25.6	17.8	8.0	66.7	.....
55 - 64	12.4	22.0	5.9	1.9	20.0	.....	14.5	20.9	8.9	.....	33.3	.....
65 AND OVER	.4	1.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	44.2	30.1	23.5	2.2	.....	100.0	54.1	28.3	15.7	1.9	.....
UNDER 20	100.0	.....	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....
20 - 24	100.0	17.2	34.5	48.3	.....	.....	100.0	19.0	38.1	42.9	.....	.....
25 - 34	100.0	27.5	40.6	29.0	2.9	.....	100.0	44.7	31.6	23.7	.....	.....
35 - 44	100.0	47.5	27.1	25.4	.....	.....	100.0	59.5	28.6	11.9	.....	.....
45 - 54	100.0	64.1	23.1	7.7	5.1	.....	100.0	64.7	23.5	5.9	5.9	.....
55 - 64	100.0	78.6	14.3	3.6	3.6	.....	100.0	78.3	17.4	.....	4.3	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

PIKE COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN PIKE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	281	166	56	54	4	1	255	157	53	43	1	1
PROF. & MANAGERIAL.	1	.....	.....	.....	1	.....	1	.....	.....	.....	1	.....
CLERICAL & SALES ..	16	3	3	7	3	.....	1	.....	.....	1	.....	.....
SERVICE	13	8	.....	5	.....	.....	3	2	.....	1	.....	.....
SKILLED	36	20	12	4	.....	.....	36	20	12	4	.....	.....
SEMISKILLED	87	44	19	24	.....	.....	87	44	19	24	.....	.....
UNSKILLED & OTHER[A].	120	90	19	10	.....	1	119	90	19	9	.....	1
ENTRY[B]	8	1	3	4	.....	.....	8	1	3	4	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	.4	.....	.....	.....	25.0	.....	.4	.....	.....	.....	100.0	.....
CLERICAL & SALES ..	5.7	1.8	5.4	13.0	75.0	.....	.4	.....	.....	2.3	.....	.....
SERVICE	4.6	4.8	.....	9.3	.....	.....	1.2	1.3	.....	2.3	.....	.....
SKILLED	12.8	12.0	21.4	7.4	.....	.....	14.1	12.7	22.6	9.3	.....	.....
SEMISKILLED	31.0	26.5	33.9	44.4	.....	.....	34.1	28.0	35.8	55.8	.....	.....
UNSKILLED & OTHER[A].	42.7	54.2	33.9	18.5	.....	100.0	46.7	57.3	35.8	20.9	.....	100.0
ENTRY[B]	2.8	.6	5.4	7.4	.....	.....	3.1	.6	5.7	9.3	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	59.1	19.9	19.2	1.4	.4	100.0	61.6	20.8	16.9	.4	.4
PROF. & MANAGERIAL.	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....	100.0	.....
CLERICAL & SALES ..	100.0	18.8	18.8	43.8	18.8	.....	100.0	.....	.....	100.0	.....	.....
SERVICE	100.0	61.5	.....	38.5	.....	.....	100.0	66.7	.....	33.3	.....	.....
SKILLED	100.0	55.6	33.3	11.1	.....	.....	100.0	55.6	33.3	11.1	.....	.....
SEMISKILLED	100.0	50.6	21.8	27.6	.....	.....	100.0	50.6	21.8	27.6	.....	.....
UNSKILLED & OTHER[A].	100.0	75.0	15.8	8.3	.....	.8	100.0	75.6	16.0	7.6	.....	.8
ENTRY[B]	100.0	12.5	37.5	50.0	.....	.....	100.0	12.5	37.5	50.0	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	281	166	56	54	4	1	255	157	53	43	1	1
UNDER 20	14	4	4	6	.....	.....	13	4	4	5	.....	.....
20 - 24	33	14	7	11	1	.....	29	14	6	9	.....	.....
25 - 34	77	32	21	20	3	1	69	31	20	16	1	1
35 - 44	63	41	12	10	.....	.....	59	38	12	9	.....	.....
45 - 54	70	54	10	6	.....	.....	65	52	9	4	.....	.....
55 - 64	23	20	2	1	.....	.....	19	17	2	.....	.....	.....
65 AND OVER	1	1	.....	.....	.....	.....	1	1	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	5.0	2.4	7.1	11.1	.....	.....	5.1	2.5	7.5	11.6	.....	.....
20 - 24	11.7	8.4	12.5	20.4	25.0	.....	11.4	8.9	11.3	20.9	.....	.....
25 - 34	27.4	19.3	37.5	37.0	75.0	100.0	27.1	19.7	37.7	37.2	100.0	100.0
35 - 44	22.4	24.7	21.4	18.5	.....	.....	23.1	24.2	22.6	20.9	.....	.....
45 - 54	24.9	32.5	17.9	11.1	.....	.....	25.5	33.1	17.0	9.3	.....	.....
55 - 64	8.2	12.0	3.6	1.9	.....	.....	7.5	10.8	3.8	.....	.....	.....
65 AND OVER	.4	.6	.....	.....	.....	.....	.4	.6	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	59.1	19.9	19.2	1.4	.4	100.0	61.6	20.8	16.9	.4	.4
UNDER 20	100.0	28.6	28.6	42.9	.....	.....	100.0	30.8	30.8	38.5	.....	.....
20 - 24	100.0	42.4	21.2	33.3	3.0	.....	100.0	48.3	20.7	31.0	.....	.....
25 - 34	100.0	41.6	27.3	26.0	3.9	1.3	100.0	44.9	29.0	23.2	1.4	1.4
35 - 44	100.0	65.1	19.0	15.9	.....	.....	100.0	64.4	20.3	15.3	.....	.....
45 - 54	100.0	77.1	14.3	8.6	.....	.....	100.0	80.0	13.8	6.2	.....	.....
55 - 64	100.0	87.0	8.7	4.3	.....	.....	100.0	89.5	10.5	.....	.....	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN PORTAGE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,014	185	329	390	94	16	674	149	231	216	65	13
PROF. & MANAGERIAL.	31	1	2	11	12	5	26	.....	1	11	9	5
CLERICAL & SALES ..	135	6	15	88	23	3	32	1	5	18	7	1
SERVICE	102	29	43	25	5	.....	36	14	13	4	5	.....
SKILLED	161	34	51	64	11	1	155	33	50	60	11	1
SEMISKILLED	200	59	67	66	7	1	163	51	54	50	7	1
UNSKILLED & OTHER[A].	190	50	78	56	5	1	147	44	59	38	5	1
ENTRY[B]	195	6	73	80	31	5	115	6	49	35	21	4
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.1	.5	.6	2.8	12.8	31.2	3.9	.....	.4	5.1	13.8	38.5
CLERICAL & SALES ..	13.3	3.2	4.6	22.6	24.5	18.8	4.7	.7	2.2	8.3	10.8	7.7
SERVICE	10.1	15.7	13.1	6.4	5.3	.....	5.3	9.4	5.6	1.9	7.7	.....
SKILLED	15.9	18.4	15.5	16.4	11.7	6.2	23.0	22.1	21.6	27.8	16.9	7.7
SEMISKILLED	19.7	31.9	20.4	16.9	7.4	6.2	24.2	34.2	23.4	23.1	10.8	7.7
UNSKILLED & OTHER[A].	18.7	27.0	23.7	14.4	5.3	6.2	21.8	29.5	25.5	17.6	7.7	7.7
ENTRY[B]	19.2	3.2	22.2	20.5	33.0	31.2	17.1	4.0	21.2	16.2	32.3	30.8
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.2	32.4	38.5	9.3	1.6	100.0	22.1	34.3	32.0	9.6	1.9
PROF. & MANAGERIAL.	100.0	3.2	6.5	35.5	38.7	16.1	100.0	.....	3.8	42.3	34.6	19.2
CLERICAL & SALES ..	100.0	4.4	11.1	65.2	17.0	2.2	100.0	3.1	15.6	56.2	21.9	3.1
SERVICE	100.0	28.4	42.2	24.5	4.9	.....	100.0	38.9	36.1	11.1	13.9	.....
SKILLED	100.0	21.1	31.7	39.8	6.8	.6	100.0	21.3	32.3	38.7	7.1	.6
SEMISKILLED	100.0	29.5	33.5	33.0	3.5	.5	100.0	31.3	33.1	30.7	4.3	.6
UNSKILLED & OTHER[A].	100.0	26.3	41.1	29.5	2.6	.5	100.0	29.9	40.1	25.9	3.4	.7
ENTRY[B]	100.0	3.1	37.4	41.0	15.9	2.6	100.0	5.2	42.6	30.4	18.3	3.5
	NUMBER, BY AGE GROUP											
TOTAL	1,014	185	329	390	94	16	674	149	231	216	65	13
UNDER 20	177	6	90	67	14	.....	115	6	65	35	9	.....
20 - 24	245	15	66	118	38	8	171	12	55	68	29	7
25 - 34	205	36	61	87	16	5	140	30	42	53	11	4
35 - 44	172	42	58	61	9	2	90	31	28	26	3	2
45 - 54	133	46	36	42	9	.....	93	37	24	24	8	.....
55 - 64	58	28	13	12	5	.....	48	24	13	9	2	.....
65 AND OVER	24	12	5	3	3	1	17	9	4	1	3	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	17.5	3.2	27.4	17.2	14.9	.....	17.1	4.0	28.1	16.2	13.8	.....
20 - 24	24.2	8.1	20.1	30.3	40.4	50.0	25.4	8.1	23.8	31.5	44.6	53.8
25 - 34	20.2	19.5	18.5	22.3	17.0	31.2	20.8	20.1	18.2	24.5	16.9	30.8
35 - 44	17.0	22.7	17.6	15.6	9.6	12.5	13.4	20.8	12.1	12.0	4.6	15.4
45 - 54	13.1	24.9	10.9	10.8	9.6	.....	13.8	24.8	10.4	11.1	12.3	.....
55 - 64	5.7	15.1	4.0	3.1	5.3	.....	7.1	16.1	5.6	4.2	3.1	.....
65 AND OVER	2.4	6.5	1.5	.8	3.2	6.2	2.5	6.0	1.7	.5	4.6	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.2	32.4	38.5	9.3	1.6	100.0	22.1	34.3	32.0	9.6	1.9
UNDER 20	100.0	3.4	50.8	37.9	7.9	.....	100.0	5.2	56.5	30.4	7.8	.....
20 - 24	100.0	6.1	26.9	48.2	15.5	3.3	100.0	7.0	32.2	39.8	17.0	4.1
25 - 34	100.0	17.6	29.8	42.4	7.8	2.4	100.0	21.4	30.0	37.9	7.9	2.9
35 - 44	100.0	24.4	33.7	35.5	5.2	1.2	100.0	34.4	31.1	28.9	3.3	2.2
45 - 54	100.0	34.6	27.1	31.6	6.8	.....	100.0	39.8	25.8	25.8	8.6	.....
55 - 64	100.0	48.3	22.4	20.7	8.6	.....	100.0	50.0	27.1	18.7	4.2	.....
65 AND OVER	100.0	50.0	20.8	12.5	12.5	4.2	100.0	52.9	23.5	5.9	17.6	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

PREBLE COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN PREBLE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	72	22	27	21	1	1	26	11	12	3	.....	.....
PROF. & MANAGERIAL	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES	21	2	6	11	1	1	3	1	1	1	.....	.....
SERVICE	5	3	2	.....	.....	.....	1	1	.....	.....	.....	.....
SKILLED	12	6	5	1	.....	.....	11	5	5	1	.....	.....
SEMISKILLED	11	5	2	4	.....	.....	4	2	1	1	.....	.....
UNSKILLED & OTHER[A]	20	6	9	5	.....	.....	5	2	3	.....	.....	.....
ENTRY[B]	3	.....	3	.....	.....	.....	2	.....	2	.....	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....	.....
PROF. & MANAGERIAL	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES	29.2	9.1	22.2	52.4	100.0	100.0	11.5	9.1	8.3	33.3	.....	.....
SERVICE	6.9	13.6	7.4	.....	.....	.....	3.8	9.1	.....	.....	.....	.....
SKILLED	16.7	27.3	18.5	4.8	.....	.....	42.3	45.5	41.7	33.3	.....	.....
SEMISKILLED	15.3	22.7	7.4	19.0	.....	.....	15.4	18.2	8.3	33.3	.....	.....
UNSKILLED & OTHER[A]	27.8	27.3	33.3	23.8	.....	.....	19.2	18.2	25.0	.....	.....	.....
ENTRY[B]	4.2	.....	11.1	.....	.....	.....	7.7	.....	16.7	.....	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	30.6	37.5	29.2	1.4	1.4	100.0	42.3	46.2	11.5	.....	.....
PROF. & MANAGERIAL	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES	100.0	9.5	28.6	52.4	4.8	4.8	100.0	33.3	33.3	33.3	.....	.....
SERVICE	100.0	60.0	40.0	.....	.....	.....	100.0	100.0	.....	.....	.....	.....
SKILLED	100.0	50.0	41.7	8.3	.....	.....	100.0	45.5	45.5	9.1	.....	.....
SEMISKILLED	100.0	45.5	18.2	36.4	.....	.....	100.0	50.0	25.0	25.0	.....	.....
UNSKILLED & OTHER[A]	100.0	30.0	45.0	25.0	.....	.....	100.0	40.0	60.0	.....	.....	.....
ENTRY[B]	100.0	.....	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	72	22	27	21	1	1	26	11	12	3	.....	.....
UNDER 20	2	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	5	.....	3	1	.....	1	2	.....	2	.....	.....	.....
25 - 34	17	3	7	7	.....	.....	8	2	5	1	.....	.....
35 - 44	18	6	8	4	.....	.....	7	2	3	2	.....	.....
45 - 54	22	7	7	7	1	.....	5	3	2	.....	.....	.....
55 - 64	5	3	1	1	.....	.....	2	2	.....	.....	.....	.....
65 AND OVER	3	3	.....	.....	.....	.....	2	2	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	.....	.....
UNDER 20	2.8	.....	3.7	4.8	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	6.9	.....	11.1	4.8	.....	100.0	7.7	.....	16.7	.....	.....	.....
25 - 34	23.6	13.6	25.9	33.3	.....	.....	30.8	18.2	41.7	33.3	.....	.....
35 - 44	25.0	27.3	29.6	19.0	.....	.....	26.9	18.2	25.0	66.7	.....	.....
45 - 54	30.6	31.8	25.9	33.3	100.0	.....	19.2	27.3	16.7	.....	.....	.....
55 - 64	6.9	13.6	3.7	4.8	.....	.....	7.7	18.2	.....	.....	.....	.....
65 AND OVER	4.2	13.6	.....	.....	.....	.....	7.7	18.2	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	30.6	37.5	29.2	1.4	1.4	100.0	42.3	46.2	11.5	.....	.....
UNDER 20	100.0	.....	50.0	50.0	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	100.0	.....	60.0	20.0	.....	20.0	100.0	.....	100.0	.....	.....	.....
25 - 34	100.0	17.6	41.2	41.2	.....	.....	100.0	25.0	62.5	12.5	.....	.....
35 - 44	100.0	33.3	44.4	22.2	.....	.....	100.0	28.6	42.9	28.6	.....	.....
45 - 54	100.0	31.8	31.8	31.8	4.5	.....	100.0	60.0	40.0	.....	.....	.....
55 - 64	100.0	60.0	20.0	20.0	.....	.....	100.0	100.0	.....	.....	.....	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN PUTNAM COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	200	80	42	68	9	1	128	67	20	34	6	1
PROF. & MANAGERIAL.	3	.....	.....	1	1	1	2	.....	.....	.....	1	1
CLERICAL & SALES ..	11	1	.....	8	2	.....	2	1	.....	1	.....	.....
SERVICE	18	6	6	6	.....	.....	5	3	1	1	.....	.....
SKILLED	16	5	3	7	1	.....	15	5	3	6	1	.....
SEMISKILLED	43	19	9	13	2	.....	38	17	8	11	2	.....
UNSKILLED & OTHER[A].	100	49	22	26	3	.....	63	41	7	13	2	.....
ENTRY[B]	9	.....	2	7	.....	.....	3	.....	1	2	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.5	.....	.....	1.5	11.1	100.0	1.6	.....	.....	.....	16.7	100.0
CLERICAL & SALES ..	5.5	1.2	.....	11.8	22.2	.....	1.6	1.5	.....	2.9	.....	.....
SERVICE	9.0	7.5	14.3	8.8	.....	.....	3.9	4.5	5.0	2.9	.....	.....
SKILLED	8.0	6.2	7.1	10.3	11.1	.....	11.7	7.5	15.0	17.6	16.7	.....
SEMISKILLED	21.5	23.8	21.4	19.1	22.2	.....	29.7	25.4	40.0	32.4	33.3	.....
UNSKILLED & OTHER[A].	50.0	61.2	52.4	38.2	33.3	.....	49.2	61.2	35.0	38.2	33.3	.....
ENTRY[B]	4.5	.....	4.8	10.3	.....	.....	2.3	.....	5.0	5.9	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	40.0	21.0	34.0	4.5	.5	100.0	52.3	15.6	26.6	4.7	.8
PROF. & MANAGERIAL.	100.0	.....	.....	33.3	33.3	33.3	100.0	.....	.....	.....	50.0	50.0
CLERICAL & SALES ..	100.0	9.1	.....	72.7	18.2	.....	100.0	50.0	.....	50.0	.....	.....
SERVICE	100.0	33.3	33.3	33.3	.....	.....	100.0	60.0	20.0	20.0	.....	.....
SKILLED	100.0	31.2	18.8	43.8	6.2	.....	100.0	33.3	20.0	40.0	6.7	.....
SEMISKILLED	100.0	44.2	20.9	30.2	4.7	.....	100.0	44.7	21.1	28.9	5.3	.....
UNSKILLED & OTHER[A].	100.0	49.0	22.0	26.0	3.0	.....	100.0	65.1	11.1	20.6	3.2	.....
ENTRY[B]	100.0	.....	22.2	77.8	.....	.....	100.0	.....	33.3	66.7	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	200	80	42	68	9	1	128	67	20	34	6	1
UNDER 20	25	4	6	14	1	.....	16	4	4	8	.....	.....
20 - 24	32	6	6	18	2	.....	19	6	5	7	1	.....
25 - 34	37	14	6	16	1	.....	25	11	3	10	1	.....
35 - 44	36	16	10	8	2	.....	20	12	3	4	1	.....
45 - 54	34	17	7	9	.....	1	23	15	4	3	.....	1
55 - 64	30	17	7	3	3	.....	20	14	1	2	3	.....
65 AND OVER	6	6	.....	.....	.....	.....	5	5	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	12.5	5.0	14.3	20.6	11.1	.....	12.5	6.0	20.0	23.5	.....	.....
20 - 24	16.0	7.5	14.3	26.5	22.2	.....	14.8	9.0	25.0	20.6	16.7	.....
25 - 34	18.5	17.5	14.3	23.5	11.1	.....	19.5	16.4	15.0	29.4	16.7	.....
35 - 44	18.0	20.0	23.8	11.8	22.2	.....	15.6	17.9	15.0	11.8	16.7	.....
45 - 54	17.0	21.2	16.7	13.2	.....	100.0	18.0	22.4	20.0	8.8	.....	100.0
55 - 64	15.0	21.2	16.7	4.4	33.3	.....	15.6	20.9	5.0	5.9	50.0	.....
65 AND OVER	3.0	7.5	.....	.....	.....	.....	3.9	7.5	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	40.0	21.0	34.0	4.5	.5	100.0	52.3	15.6	26.6	4.7	.8
UNDER 20	100.0	16.0	24.0	56.0	4.0	.....	100.0	25.0	25.0	50.0	.....	.....
20 - 24	100.0	18.8	18.8	56.2	6.2	.....	100.0	31.6	26.3	36.8	5.3	.....
25 - 34	100.0	37.8	16.2	43.2	2.7	.....	100.0	44.0	12.0	40.0	4.0	.....
35 - 44	100.0	44.4	27.8	22.2	5.6	.....	100.0	60.0	15.0	20.0	5.0	.....
45 - 54	100.0	50.0	20.6	26.5	.....	2.9	100.0	65.2	17.4	13.0	.....	4.3
55 - 64	100.0	56.7	23.3	10.0	10.0	.....	100.0	70.0	5.0	10.0	15.0	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A]INCLUDES AGRICULTURE. [B]APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C]MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN RICHLAND COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,381	331	542	386	115	7	819	242	329	177	66	5
PROF. & MANAGERIAL.	42	1	5	26	9	1	35	1	3	23	8	.....
CLERICAL & SALES ..	186	8	39	111	27	1	56	.....	19	25	12	.....
SERVICE	146	47	67	31	1	.....	53	21	19	12	1	.....
SKILLED	144	48	46	41	8	1	132	48	39	38	6	1
SEMISKILLED	227	78	88	51	9	1	123	54	42	21	5	1
UNSKILLED & OTHER[A].	264	127	83	43	11	.....	210	111	64	26	9	.....
ENTRY[B]	372	22	214	83	50	3	210	7	143	32	25	3
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.0	.3	.9	6.7	7.8	14.3	4.3	.4	.9	13.0	12.1	.....
CLERICAL & SALES ..	13.5	2.4	7.2	28.8	23.5	14.3	6.8	.....	5.8	14.1	18.2	.....
SERVICE	10.6	14.2	12.4	8.0	.9	.....	6.5	8.7	5.8	6.8	1.5	.....
SKILLED	10.4	14.5	8.5	10.6	7.0	14.3	16.1	19.8	11.9	21.5	9.1	20.0
SEMISKILLED	16.4	23.6	16.2	13.2	7.8	14.3	15.0	22.3	12.8	11.9	7.6	20.0
UNSKILLED & OTHER[A].	19.1	38.4	15.3	11.1	9.6	.....	25.6	45.9	19.5	14.7	13.6	.....
ENTRY[B]	26.9	6.6	39.5	21.5	43.5	42.9	25.6	2.9	43.5	18.1	37.9	60.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.0	39.2	28.0	8.3	.5	100.0	29.5	40.2	21.6	8.1	.6
PROF. & MANAGERIAL.	100.0	2.4	11.9	61.9	21.4	2.4	100.0	2.9	8.6	65.7	22.9	.....
CLERICAL & SALES ..	100.0	4.3	21.0	59.7	14.5	.5	100.0	.....	33.9	44.6	21.4	.....
SERVICE	100.0	32.2	45.9	21.2	.7	.....	100.0	39.6	35.8	22.6	1.9	.....
SKILLED	100.0	33.3	31.9	28.5	5.6	.7	100.0	36.4	29.5	28.8	4.5	.8
SEMISKILLED	100.0	34.4	38.8	22.5	4.0	.4	100.0	43.9	34.1	17.1	4.1	.8
UNSKILLED & OTHER[A].	100.0	48.1	31.4	16.3	4.2	.....	100.0	52.9	30.5	12.4	4.3	.....
ENTRY[B]	100.0	5.9	57.5	22.3	13.4	.8	100.0	3.3	68.1	15.2	11.9	1.4
	NUMBER, BY AGE GROUP											
TOTAL	1,381	331	542	386	115	7	819	242	329	177	66	5
UNDER 20	352	5	232	83	32	.....	213	2	162	35	14	.....
20 - 24	266	30	86	99	48	3	141	19	45	47	28	2
25 - 34	271	76	89	91	13	2	157	57	46	42	10	2
35 - 44	239	79	83	67	8	2	126	56	40	23	6	1
45 - 54	141	68	30	34	9	.....	93	48	21	20	4	.....
55 - 64	86	55	16	12	3	.....	71	48	10	10	3	.....
65 AND OVER	26	18	6	.....	2	.....	18	12	5	.....	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	25.5	1.5	42.8	21.5	27.8	.....	26.0	.8	49.2	19.8	21.2	.....
20 - 24	19.3	9.1	15.9	25.6	41.7	42.9	17.2	7.9	13.7	26.6	42.4	40.0
25 - 34	19.6	23.0	16.4	23.6	11.3	28.6	19.2	23.6	14.0	23.7	15.2	40.0
35 - 44	17.3	23.9	15.3	17.4	7.0	28.6	15.4	23.1	12.2	13.0	9.1	20.0
45 - 54	10.2	20.5	5.5	8.8	7.8	.....	11.4	19.8	6.4	11.3	6.1	.....
55 - 64	6.2	16.6	3.0	3.1	2.6	.....	8.7	19.8	3.0	5.6	4.5	.....
65 AND OVER	1.9	5.4	1.1	.....	1.7	.....	2.2	5.0	1.5	.....	1.5	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	24.0	39.2	28.0	8.3	.5	100.0	29.5	40.2	21.6	8.1	.6
UNDER 20	100.0	1.4	65.9	23.6	9.1	.....	100.0	.9	76.1	16.4	6.6	.....
20 - 24	100.0	11.3	32.3	37.2	18.0	1.1	100.0	13.5	31.9	33.3	19.9	1.4
25 - 34	100.0	28.0	32.8	33.6	4.8	.7	100.0	36.3	29.3	26.8	6.4	1.3
35 - 44	100.0	33.1	34.7	28.0	3.3	.8	100.0	44.4	31.7	18.3	4.8	.8
45 - 54	100.0	48.2	21.3	24.1	6.4	.....	100.0	51.6	22.6	21.5	4.3	.....
55 - 64	100.0	64.0	18.6	14.0	3.5	.....	100.0	67.6	14.1	14.1	4.2	.....
65 AND OVER	100.0	69.2	23.1	.....	7.7	.....	100.0	66.7	27.8	.....	5.6	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN ROSS COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,007	263	350	351	37	6	785	235	275	247	22	6
PROF. & MANAGERIAL.	12	1	3	2	3	3	8	1	2	1	1	3
CLERICAL & SALES ..	133	8	26	84	14	1	51	4	8	31	7	1
SERVICE	96	30	39	27	.....	.....	38	12	15	11	.....	.....
SKILLED	168	80	45	39	4	.....	167	79	45	39	4	.....
SEMISKILLED	161	45	60	55	1	.....	156	42	59	54	1	.....
UNSKILLED & OTHER[A].	219	80	59	76	3	1	212	80	57	71	3	1
ENTRY[B]	218	19	118	68	12	1	153	17	89	40	6	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.2	.4	.9	.6	8.1	50.0	1.0	.4	.7	.4	4.5	50.0
CLERICAL & SALES ..	13.2	3.0	7.4	23.9	37.8	16.7	6.5	1.7	2.9	12.6	31.8	16.7
SERVICE	9.5	11.4	11.1	7.7	.....	.....	4.8	5.1	5.5	4.5	.....	.....
SKILLED	16.7	30.4	12.9	11.1	10.8	.....	21.3	33.6	16.4	15.8	18.2	.....
SEMISKILLED	16.0	17.1	17.1	15.7	2.7	.....	19.9	17.9	21.5	21.9	4.5	.....
UNSKILLED & OTHER[A].	21.7	30.4	16.9	21.7	8.1	16.7	27.0	34.0	20.7	28.7	13.6	16.7
ENTRY[B]	21.6	7.2	33.7	19.4	32.4	16.7	19.5	7.2	32.4	16.2	27.3	16.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.1	34.8	34.9	3.7	.6	100.0	29.9	35.0	31.5	2.8	.8
PROF. & MANAGERIAL.	100.0	8.3	25.0	16.7	25.0	25.0	100.0	12.5	25.0	12.5	12.5	37.5
CLERICAL & SALES ..	100.0	6.0	19.5	63.2	10.5	.8	100.0	7.8	15.7	60.8	13.7	2.0
SERVICE	100.0	31.2	40.6	28.1	.....	.....	100.0	31.6	39.5	28.9	.....	.....
SKILLED	100.0	47.6	26.8	23.2	2.4	.....	100.0	47.3	26.9	23.4	2.4	.....
SEMISKILLED	100.0	28.0	37.3	34.2	.6	.....	100.0	26.9	37.8	34.6	.6	.....
UNSKILLED & OTHER[A].	100.0	36.5	26.9	34.7	1.4	.5	100.0	37.7	26.9	33.5	1.4	.5
ENTRY[B]	100.0	8.7	54.1	31.2	5.5	.5	100.0	11.1	58.2	26.1	3.9	.7
	NUMBER, BY AGE GROUP											
TOTAL	1,007	263	350	351	37	6	785	235	275	247	22	6
UNDER 20	229	15	123	75	14	2	158	12	94	44	6	2
20 - 24	213	21	59	119	12	2	166	20	50	86	8	2
25 - 34	250	66	82	95	6	1	214	62	71	76	4	1
35 - 44	153	64	47	40	2	.....	117	55	31	29	2	.....
45 - 54	100	53	29	15	2	1	81	48	22	8	2	1
55 - 64	51	36	8	6	1	.....	42	32	6	4	.....	.....
65 AND OVER	11	8	2	1	.....	.....	7	6	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	22.7	5.7	35.1	21.4	37.8	33.3	20.1	5.1	34.2	17.8	27.3	33.3
20 - 24	21.2	8.0	16.9	33.9	32.4	33.3	21.1	8.5	18.2	34.8	36.4	33.3
25 - 34	24.8	25.1	23.4	27.1	16.2	16.7	27.3	26.4	25.8	30.8	18.2	16.7
35 - 44	15.2	24.3	13.4	11.4	5.4	.....	14.9	23.4	11.3	11.7	9.1	.....
45 - 54	9.9	20.2	8.3	4.3	5.4	16.7	10.3	20.4	8.0	3.2	9.1	16.7
55 - 64	5.1	13.7	2.3	1.7	2.7	.....	5.4	13.6	2.2	1.6	.....	.....
65 AND OVER	1.1	3.0	.6	.3	.....	.....	.9	2.6	.4	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.1	34.8	34.9	3.7	.6	100.0	29.9	35.0	31.5	2.8	.8
UNDER 20	100.0	6.6	53.7	32.8	6.1	.9	100.0	7.6	59.5	27.8	3.8	1.3
20 - 24	100.0	9.9	27.7	55.9	5.6	.9	100.0	12.0	30.1	51.8	4.8	1.2
25 - 34	100.0	26.4	32.8	38.0	2.4	.4	100.0	29.0	33.2	35.5	1.9	.5
35 - 44	100.0	41.8	30.7	26.1	1.3	.....	100.0	47.0	26.5	24.8	1.7	.....
45 - 54	100.0	53.0	29.0	15.0	2.0	1.0	100.0	59.3	27.2	9.9	2.5	1.2
55 - 64	100.0	70.6	15.7	11.8	2.0	.....	100.0	76.2	14.3	9.5	.....	.....
65 AND OVER	100.0	72.7	18.2	9.1	.....	.....	100.0	85.7	14.3	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN SANDUSKY COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	1,241	236	474	399	117	15	748	156	300	205	77	10
PROF. & MANAGERIAL.	30	1	2	12	12	3	22	1	2	11	7	1
CLERICAL & SALES ..	136	6	17	81	30	2	38	3	6	17	10	2
SERVICE	112	37	45	29	1	.....	31	17	9	5	.....	.....
SKILLED	104	15	37	50	2	.....	103	14	37	50	2	.....
SEMISKILLED	218	59	82	68	8	1	177	47	66	56	7	1
UNSKILLED & OTHER[A].	206	86	72	45	3	.....	132	61	45	23	3	.....
ENTRY[B]	435	32	219	114	61	9	245	13	135	43	48	6
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.4	.4	.4	3.0	10.3	20.0	2.9	.6	.7	5.4	9.1	10.0
CLERICAL & SALES ..	11.0	2.5	3.6	20.3	25.6	13.3	5.1	1.9	2.0	8.3	13.0	20.0
SERVICE	9.0	15.7	9.5	7.3	.9	.....	4.1	10.9	3.0	2.4	.....	.....
SKILLED	8.4	6.4	7.8	12.5	1.7	.....	13.8	9.0	12.3	24.4	2.6	.....
SEMISKILLED	17.6	25.0	17.3	17.0	6.8	6.7	23.7	30.1	22.0	27.3	9.1	10.0
UNSKILLED & OTHER[A].	16.6	36.4	15.2	11.3	2.6	.....	17.6	39.1	15.0	11.2	3.9	.....
ENTRY[B]	35.1	13.6	46.2	28.6	52.1	60.0	32.8	8.3	45.0	21.0	62.3	60.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.0	38.2	32.2	9.4	1.2	100.0	20.9	40.1	27.4	10.3	1.3
PROF. & MANAGERIAL.	100.0	3.3	6.7	40.0	40.0	10.0	100.0	4.5	9.1	50.0	31.8	4.5
CLERICAL & SALES ..	100.0	4.4	12.5	59.6	22.1	1.5	100.0	7.9	15.8	44.7	26.3	5.3
SERVICE	100.0	33.0	40.2	25.9	.9	.....	100.0	54.8	29.0	16.1	.....	.....
SKILLED	100.0	14.4	35.6	48.1	1.9	.....	100.0	13.6	35.9	48.5	1.9	.....
SEMISKILLED	100.0	27.1	37.6	31.2	3.7	.5	100.0	26.6	37.3	31.6	4.0	.6
UNSKILLED & OTHER[A].	100.0	41.7	35.0	21.8	1.5	.....	100.0	46.2	34.1	17.4	2.3	.....
ENTRY[B]	100.0	7.4	50.3	26.2	14.0	2.1	100.0	5.3	55.1	17.6	19.6	2.4
	NUMBER, BY AGE GROUP											
TOTAL	1,241	236	474	399	117	15	748	156	300	205	77	10
UNDER 20	331	8	196	88	39	.....	198	5	130	34	29	.....
20 - 24	208	23	60	82	35	8	134	14	37	52	26	5
25 - 34	282	61	90	110	19	2	173	41	53	64	13	2
35 - 44	204	57	67	66	10	4	114	36	44	27	4	3
45 - 54	126	41	37	36	11	1	66	25	17	19	5	.....
55 - 64	73	35	21	14	3	.....	52	26	18	8	.....	.....
65 AND OVER	17	11	3	3	.....	.....	11	9	1	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	26.7	3.4	41.4	22.1	33.3	.....	26.5	3.2	43.3	16.6	37.7	.....
20 - 24	16.8	9.7	12.7	20.6	29.9	53.3	17.9	9.0	12.3	25.4	33.8	50.0
25 - 34	22.7	25.8	19.0	27.6	16.2	13.3	23.1	26.3	17.7	31.2	16.9	20.0
35 - 44	16.4	24.2	14.1	16.5	8.5	26.7	15.2	23.1	14.7	13.2	5.2	30.0
45 - 54	10.2	17.4	7.8	9.0	9.4	6.7	8.8	16.0	5.7	9.3	6.5	.....
55 - 64	5.9	14.8	4.4	3.5	2.6	.....	7.0	16.7	6.0	3.9	.....	.....
65 AND OVER	1.4	4.7	.6	.8	.....	.....	1.5	5.8	.3	.5	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.0	38.2	32.2	9.4	1.2	100.0	20.9	40.1	27.4	10.3	1.3
UNDER 20	100.0	2.4	59.2	26.6	11.8	.....	100.0	2.5	65.7	17.2	14.6	.....
20 - 24	100.0	11.1	28.8	39.4	16.8	3.8	100.0	10.4	27.6	38.8	19.4	3.7
25 - 34	100.0	21.6	31.9	39.0	6.7	.7	100.0	23.7	30.6	37.0	7.5	1.2
35 - 44	100.0	27.9	32.8	32.4	4.9	2.0	100.0	31.6	38.6	23.7	3.5	2.6
45 - 54	100.0	32.5	29.4	28.6	8.7	.8	100.0	37.9	25.8	28.8	7.6	.....
55 - 64	100.0	47.9	28.8	19.2	4.1	.....	100.0	50.0	34.6	15.4	.....	.....
65 AND OVER	100.0	64.7	17.6	17.6	.....	.....	100.0	81.8	9.1	9.1	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

SCIOTO COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN SCIOTO COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	2,021	705	650	546	108	12	1,449	610	464	298	70	7
PROF. & MANAGERIAL.	38	1	6	16	10	5	30	1	4	13	9	3
CLERICAL & SALES ..	194	12	37	120	23	2	66	7	17	31	10	1
SERVICE	144	56	50	35	3	.....	39	14	15	10	.....	.....
SKILLED	325	146	102	66	11	.....	323	145	102	65	11	.....
SEMISKILLED	330	154	101	72	3	.....	292	144	90	55	3	.....
UNSKILLED & OTHER[A].	418	262	93	56	6	1	391	254	87	43	6	1
ENTRY[B]	572	74	261	181	52	4	308	45	149	81	31	2
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.9	.1	.9	2.9	9.3	41.7	2.1	.2	.9	4.4	12.9	42.9
CLERICAL & SALES ..	9.6	1.7	5.7	22.0	21.3	16.7	4.6	1.1	3.7	10.4	14.3	14.3
SERVICE	7.1	7.9	7.7	6.4	2.8	.....	2.7	2.3	3.2	3.4	.....	.....
SKILLED	16.1	20.7	15.7	12.1	10.2	.....	22.3	23.8	22.0	21.8	15.7	.....
SEMISKILLED	16.3	21.8	15.5	13.2	2.8	.....	20.2	23.6	19.4	18.5	4.3	.....
UNSKILLED & OTHER[A].	20.7	37.2	14.3	10.3	5.6	8.3	27.0	41.6	18.8	14.4	8.6	14.3
ENTRY[B]	28.3	10.5	40.2	33.2	48.1	33.3	21.3	7.4	32.1	27.2	44.3	28.6
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	34.9	32.2	27.0	5.3	.6	100.0	42.1	32.0	20.6	4.8	.5
PROF. & MANAGERIAL.	100.0	2.6	15.8	42.1	26.3	13.2	100.0	3.3	13.3	43.3	30.0	10.0
CLERICAL & SALES ..	100.0	6.2	19.1	61.9	11.9	1.0	100.0	10.6	25.8	47.0	15.2	1.5
SERVICE	100.0	38.9	34.7	24.3	2.1	.....	100.0	35.9	38.5	25.6	.....	.....
SKILLED	100.0	44.9	31.4	20.3	3.4	.....	100.0	44.9	31.6	20.1	3.4	.....
SEMISKILLED	100.0	46.7	30.6	21.8	.9	.....	100.0	49.3	30.8	18.8	1.0	.....
UNSKILLED & OTHER[A].	100.0	62.7	22.2	13.4	1.4	.2	100.0	65.0	22.3	11.0	1.5	.3
ENTRY[B]	100.0	12.9	45.6	31.6	9.1	.7	100.0	14.6	48.4	26.3	10.1	.6
	NUMBER, BY AGE GROUP											
TOTAL	2,021	705	650	546	108	12	1,449	610	464	298	70	7
UNDER 20	406	15	214	141	36	.....	214	11	124	61	18	.....
20 - 24	360	57	113	154	28	8	266	54	96	91	22	3
25 - 34	403	149	126	104	21	3	330	142	102	68	15	3
35 - 44	414	202	116	85	10	1	309	177	87	37	7	1
45 - 54	285	170	58	47	10	.....	212	140	36	30	6	.....
55 - 64	142	102	22	15	3	.....	108	77	18	11	2	.....
65 AND OVER	11	10	1	.....	.....	.....	10	9	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	20.1	2.1	32.9	25.8	33.3	.....	14.8	1.8	26.7	20.5	25.7	.....
20 - 24	17.8	8.1	17.4	28.2	25.9	66.7	18.4	8.9	20.7	30.5	31.4	42.9
25 - 34	19.9	21.1	19.4	19.0	19.4	25.0	22.8	23.3	22.0	22.8	21.4	42.9
35 - 44	20.5	28.7	17.8	15.6	9.3	8.3	21.3	29.0	18.8	12.4	10.0	14.3
45 - 54	14.1	24.1	8.9	8.6	9.3	.....	14.6	23.0	7.8	10.1	8.6	.....
55 - 64	7.0	14.5	3.4	2.7	2.8	.....	7.5	12.6	3.9	3.7	2.9	.....
65 AND OVER	.5	1.4	.2	.....	.....	.....	.7	1.5	.2	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	34.9	32.2	27.0	5.3	.6	100.0	42.1	32.0	20.6	4.8	.5
UNDER 20	100.0	3.7	52.7	34.7	8.9	.....	100.0	5.1	57.9	28.5	8.4	.....
20 - 24	100.0	15.8	31.4	42.8	7.8	2.2	100.0	20.3	36.1	34.2	8.3	1.1
25 - 34	100.0	37.0	31.3	25.8	5.2	.7	100.0	43.0	30.9	20.6	4.5	.9
35 - 44	100.0	48.8	28.0	20.5	2.4	.2	100.0	57.3	28.2	12.0	2.3	.3
45 - 54	100.0	59.6	20.4	16.5	3.5	.....	100.0	66.0	17.0	14.2	2.8	.....
55 - 64	100.0	71.8	15.5	10.6	2.1	.....	100.0	71.3	16.7	10.2	1.9	.....
65 AND OVER	100.0	90.9	9.1	.....	.....	.....	100.0	90.0	10.0	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

SENECA COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN SENECA COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	809	142	308	303	47	9	510	100	199	174	30	7
PROF. & MANAGERIAL.	17	.....	3	7	3	4	14	.....	2	6	3	3
CLERICAL & SALES ..	109	2	18	68	21	.....	28	1	3	16	8	.....
SERVICE	111	39	41	27	4	.....	33	13	9	8	3	.....
SKILLED	61	20	18	23	.....	.....	56	19	17	20	.....	.....
SEMISKILLED	117	27	65	24	1	.....	102	25	56	20	1	.....
UNSKILLED & OTHER[A].	94	29	35	26	4	.....	72	24	27	17	4	.....
ENTRY[B]	300	25	128	128	14	5	205	18	85	87	11	4
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.1	.....	1.0	2.3	6.4	44.4	2.7	.....	1.0	3.4	10.0	42.9
CLERICAL & SALES ..	13.5	1.4	5.8	22.4	44.7	.....	5.5	1.0	1.5	9.2	26.7	.....
SERVICE	13.7	27.5	13.3	8.9	8.5	.....	6.5	13.0	4.5	4.6	10.0	.....
SKILLED	7.5	14.1	5.8	7.6	.....	.....	11.0	19.0	8.5	11.5	.....	.....
SEMISKILLED	14.5	19.0	21.1	7.9	2.1	.....	20.0	25.0	28.1	11.5	3.3	.....
UNSKILLED & OTHER[A].	11.6	20.4	11.4	8.6	8.5	.....	14.1	24.0	13.6	9.8	13.3	.....
ENTRY[B]	37.1	17.6	41.6	42.2	29.8	55.6	40.2	18.0	42.7	50.0	36.7	57.1
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	17.6	38.1	37.5	5.8	1.1	100.0	19.6	39.1	34.1	5.9	1.4
PROF. & MANAGERIAL.	100.0	.....	17.6	41.2	17.6	23.5	100.0	.....	14.3	42.9	21.4	21.4
CLERICAL & SALES ..	100.0	1.8	16.5	62.4	19.3	.....	100.0	3.6	10.7	57.1	28.6	.....
SERVICE	100.0	35.1	36.9	24.3	3.6	.....	100.0	39.4	27.3	24.2	9.1	.....
SKILLED	100.0	32.8	29.5	37.7	.....	.....	100.0	33.9	30.4	35.7	.....	.....
SEMISKILLED	100.0	23.1	55.6	20.5	.9	.....	100.0	24.5	54.9	19.6	1.0	.....
UNSKILLED & OTHER[A].	100.0	30.9	37.2	27.7	4.3	.....	100.0	33.3	37.5	23.6	5.6	.....
ENTRY[B]	100.0	8.3	42.7	42.7	4.7	1.7	100.0	8.8	41.5	42.4	5.4	2.0
	NUMBER, BY AGE GROUP											
TOTAL	809	142	308	303	47	9	510	100	199	174	30	7
UNDER 20	262	10	133	106	13	.....	176	8	93	68	7	.....
20 - 24	143	8	44	69	18	4	101	8	29	45	16	3
25 - 34	136	28	43	55	7	3	83	15	30	31	5	2
35 - 44	109	29	42	33	3	2	62	24	22	14	.....	2
45 - 54	96	38	26	28	4	.....	56	29	14	12	1	.....
55 - 64	50	20	19	10	1	.....	27	11	11	4	1	.....
65 AND OVER	13	9	1	2	1	.....	5	5	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	32.4	7.0	43.2	35.0	27.7	.....	34.5	8.0	46.7	39.1	23.3	.....
20 - 24	17.7	5.6	14.3	22.8	38.3	44.4	19.8	8.0	14.6	25.9	53.3	42.9
25 - 34	16.8	19.7	14.0	18.2	14.9	33.3	16.3	15.0	15.1	17.8	16.7	28.6
35 - 44	13.5	20.4	13.6	10.9	6.4	22.2	12.2	24.0	11.1	8.0	.....	28.6
45 - 54	11.9	26.8	8.4	9.2	8.5	.....	11.0	29.0	7.0	6.9	3.3	.....
55 - 64	6.2	14.1	6.2	3.3	2.1	.....	5.3	11.0	5.5	2.3	3.3	.....
65 AND OVER	1.6	6.3	.3	.7	2.1	.....	1.0	5.0	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	17.6	38.1	37.5	5.8	1.1	100.0	19.6	39.1	34.1	5.9	1.4
UNDER 20	100.0	3.8	50.8	40.5	5.0	.....	100.0	4.5	52.8	38.6	4.0	.....
20 - 24	100.0	5.6	30.8	48.3	12.6	2.8	100.0	7.9	28.7	44.6	15.8	3.0
25 - 34	100.0	20.6	31.6	40.4	5.1	2.2	100.0	18.1	36.1	37.3	6.0	2.4
35 - 44	100.0	26.6	38.5	30.3	2.8	1.8	100.0	38.7	35.5	22.6	.....	3.2
45 - 54	100.0	39.6	27.1	29.2	4.2	.....	100.0	51.8	25.0	21.4	1.8	.....
55 - 64	100.0	40.0	38.0	20.0	2.0	.....	100.0	40.7	40.7	14.8	3.7	.....
65 AND OVER	100.0	69.2	7.7	15.4	7.7	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN SHELBY COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	380	115	114	126	22	3	268	95	83	73	14	3
PROF. & MANAGERIAL.	2	.....	.....	1	.....	1	2	.....	.....	1	.....	1
CLERICAL & SALES ..	48	3	3	33	8	1	15	1	1	12	.....	1
SERVICE	71	17	34	17	2	1	23	4	11	5	2	1
SKILLED	30	12	11	6	1	.....	29	12	11	5	1	.....
SEMISKILLED	104	34	29	39	2	.....	93	32	27	32	2	.....
UNSKILLED & OTHER[A].	84	43	25	15	1	.....	77	40	22	14	1	.....
ENTRY[B]	41	6	12	15	8	.....	29	6	11	4	8	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	.5	.....	.....	.8	.....	33.3	.7	.....	.....	1.4	.....	33.3
CLERICAL & SALES ..	12.6	2.6	2.6	26.2	36.4	33.3	5.6	1.1	1.2	16.4	.....	33.3
SERVICE	18.7	14.8	29.8	13.5	9.1	33.3	8.6	4.2	13.3	6.8	14.3	33.3
SKILLED	7.9	10.4	9.6	4.8	4.5	.....	10.8	12.6	13.3	6.8	7.1	.....
SEMISKILLED	27.4	29.6	25.4	31.0	9.1	.....	34.7	33.7	32.5	43.8	14.3	.....
UNSKILLED & OTHER[A].	22.1	37.4	21.9	11.9	4.5	.....	28.7	42.1	26.5	19.2	7.1	.....
ENTRY[B]	10.8	5.2	10.5	11.9	36.4	.....	10.8	6.3	13.3	5.5	57.1	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	30.3	30.0	33.2	5.8	.8	100.0	35.4	31.0	27.2	5.2	1.1
PROF. & MANAGERIAL.	100.0	.....	.....	50.0	.....	50.0	100.0	.....	.....	50.0	.....	50.0
CLERICAL & SALES ..	100.0	6.2	6.2	68.7	16.7	2.1	100.0	6.7	6.7	80.0	.....	6.7
SERVICE	100.0	23.9	47.9	23.9	2.8	1.4	100.0	17.4	47.8	21.7	8.7	4.3
SKILLED	100.0	40.0	36.7	20.0	3.3	.....	100.0	41.4	37.9	17.2	3.4	.....
SEMISKILLED	100.0	32.7	27.9	37.5	1.9	.....	100.0	34.4	29.0	34.4	2.2	.....
UNSKILLED & OTHER[A].	100.0	51.2	29.8	17.9	1.2	.....	100.0	51.9	28.6	18.2	1.3	.....
ENTRY[B]	100.0	14.6	29.3	36.6	19.5	.....	100.0	20.7	37.9	13.8	27.6	.....
	NUMBER, BY AGE GROUP											
TOTAL	380	115	114	126	22	3	268	95	83	73	14	3
UNDER 20	83	9	29	37	8	.....	59	9	23	19	8	.....
20 - 24	78	12	30	29	6	1	57	11	22	20	3	1
25 - 34	84	24	27	31	1	1	61	21	21	18	.....	1
35 - 44	58	25	18	13	2	.....	37	21	8	7	1	.....
45 - 54	43	24	5	11	3	.....	30	19	5	6	.....	.....
55 - 64	16	9	3	4	.....	.....	14	8	3	3	.....	.....
65 AND OVER	18	12	2	1	2	1	10	6	1	.....	2	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	21.8	7.8	25.4	29.4	36.4	.....	22.0	9.5	27.7	26.0	57.1	.....
20 - 24	20.5	10.4	26.3	23.0	27.3	33.3	21.3	11.6	26.5	27.4	21.4	33.3
25 - 34	22.1	20.9	23.7	24.6	4.5	33.3	22.8	22.1	25.3	24.7	.....	33.3
35 - 44	15.3	21.7	15.8	10.3	9.1	.....	13.8	22.1	9.6	9.6	7.1	.....
45 - 54	11.3	20.9	4.4	8.7	13.6	.....	11.2	20.0	6.0	8.2	.....	.....
55 - 64	4.2	7.8	2.6	3.2	.....	.....	5.2	8.4	3.6	4.1	.....	.....
65 AND OVER	4.7	10.4	1.8	.8	9.1	33.3	3.7	6.3	1.2	.....	14.3	33.3
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	30.3	30.0	33.2	5.8	.8	100.0	35.4	31.0	27.2	5.2	1.1
UNDER 20	100.0	10.8	34.9	44.6	9.6	.....	100.0	15.3	39.0	32.2	13.6	.....
20 - 24	100.0	15.4	38.5	37.2	7.7	1.3	100.0	19.3	38.6	35.1	5.3	1.8
25 - 34	100.0	28.6	32.1	36.9	1.2	1.2	100.0	34.4	34.4	29.5	.....	1.6
35 - 44	100.0	43.1	31.0	22.4	3.4	.....	100.0	56.8	21.6	18.9	2.7	.....
45 - 54	100.0	55.8	11.6	25.6	7.0	.....	100.0	63.3	16.7	20.0	.....	.....
55 - 64	100.0	56.2	18.8	25.0	.....	.....	100.0	57.1	21.4	21.4	.....	.....
65 AND OVER	100.0	66.7	11.1	5.6	11.1	5.6	100.0	60.0	10.0	.....	20.0	10.0

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

STARK COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN STARK COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	3,312	657	1,104	1,239	271	41	1,787	450	665	501	138	33
PROF. & MANAGERIAL.	83	5	8	31	28	11	56	3	5	20	20	8
CLERICAL & SALES ..	568	18	81	359	106	4	109	7	18	56	26	2
SERVICE	366	128	142	89	7	.....	95	48	29	13	5	.....
SKILLED	316	90	114	98	13	1	305	86	110	95	13	1
SEMISKILLED	623	183	247	175	16	2	448	131	178	124	13	2
UNSKILLED & OTHER[A].	565	172	232	143	16	2	389	136	152	84	15	2
ENTRY[B]	791	61	280	344	85	21	385	39	173	109	46	18
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.5	.8	.7	2.5	10.3	26.8	3.1	.7	.8	4.0	14.5	24.2
CLERICAL & SALES ..	17.1	2.7	7.3	29.0	39.1	9.8	6.1	1.6	2.7	11.2	18.8	6.1
SERVICE	11.1	19.5	12.9	7.2	2.6	.....	5.3	10.7	4.4	2.6	3.6	.....
SKILLED	9.5	13.7	10.3	7.9	4.8	2.4	17.1	19.1	16.5	19.0	9.4	3.0
SEMISKILLED	18.8	27.9	22.4	14.1	5.9	4.9	25.1	29.1	26.8	24.8	9.4	6.1
UNSKILLED & OTHER[A].	17.1	26.2	21.0	11.5	5.9	4.9	21.8	30.2	22.9	16.8	10.9	6.1
ENTRY[B]	23.9	9.3	25.4	27.8	31.4	51.2	21.5	8.7	26.0	21.8	33.3	54.5
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.8	33.3	37.4	8.2	1.2	100.0	25.2	37.2	28.0	7.7	1.8
PROF. & MANAGERIAL.	100.0	6.0	9.6	37.3	33.7	13.3	100.0	5.4	8.9	35.7	35.7	14.3
CLERICAL & SALES ..	100.0	3.2	14.3	63.2	18.7	.7	100.0	6.4	16.5	51.4	23.9	1.8
SERVICE	100.0	35.0	38.8	24.3	1.9	.....	100.0	50.5	30.5	13.7	5.3	.....
SKILLED	100.0	28.5	36.1	31.0	4.1	.3	100.0	28.2	36.1	31.1	4.3	.3
SEMISKILLED	100.0	29.4	39.6	28.1	2.6	.3	100.0	29.2	39.7	27.7	2.9	.4
UNSKILLED & OTHER[A].	100.0	30.4	41.1	25.3	2.8	.4	100.0	35.0	39.1	21.6	3.9	.5
ENTRY[B]	100.0	7.7	35.4	43.5	10.7	2.7	100.0	10.1	44.9	28.3	11.9	4.8
	NUMBER, BY AGE GROUP											
TOTAL	3,312	657	1,104	1,239	271	41	1,787	450	665	501	138	33
UNDER 20	446	17	192	195	42	.....	233	13	133	65	22	.....
20 - 24	728	45	217	387	64	15	415	40	160	168	37	10
25 - 34	755	110	271	305	54	15	431	91	170	122	34	14
35 - 44	611	145	197	222	43	4	315	107	99	80	25	4
45 - 54	449	149	148	92	55	5	218	93	65	47	10	3
55 - 64	243	137	63	32	9	2	128	73	31	15	7	2
65 AND OVER	80	54	16	6	4	.....	47	33	7	4	3	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	13.5	2.6	17.4	15.7	15.5	.....	13.0	2.9	20.0	13.0	15.9	.....
20 - 24	22.0	6.8	19.7	31.2	23.6	36.6	23.2	8.9	24.1	33.5	26.8	30.3
25 - 34	22.8	16.7	24.5	24.6	19.9	36.6	24.1	20.2	25.6	24.4	24.6	42.4
35 - 44	18.4	22.1	17.8	17.9	15.9	9.8	17.6	23.8	14.9	16.0	18.1	12.1
45 - 54	13.6	22.7	13.4	7.4	20.3	12.2	12.2	20.7	9.8	9.4	7.2	9.1
55 - 64	7.3	20.9	5.7	2.6	3.3	4.9	7.2	16.2	4.7	3.0	5.1	6.1
65 AND OVER	2.4	8.2	1.4	.5	1.5	.....	2.6	7.3	1.1	.8	2.2	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.8	33.3	37.4	8.2	1.2	100.0	25.2	37.2	28.0	7.7	1.8
UNDER 20	100.0	3.8	43.0	43.7	9.4	.....	100.0	5.6	57.1	27.9	9.4	.....
20 - 24	100.0	6.2	29.8	53.2	8.8	2.1	100.0	9.6	38.6	40.5	8.9	2.4
25 - 34	100.0	14.6	35.9	40.4	7.2	2.0	100.0	21.1	39.4	28.3	7.9	3.2
35 - 44	100.0	23.7	32.2	36.3	7.0	.7	100.0	34.0	31.4	25.4	7.9	1.3
45 - 54	100.0	33.2	33.0	20.5	12.2	1.1	100.0	42.7	29.8	21.6	4.6	1.4
55 - 64	100.0	56.4	25.9	13.2	3.7	.8	100.0	57.0	24.2	11.7	5.5	1.6
65 AND OVER	100.0	67.5	20.0	7.5	5.0	.....	100.0	70.2	14.9	8.5	6.4	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN SUMMIT COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	7,111	1,278	2,554	2,586	595	98	4,715	939	1,757	1,531	416	72
PROF. & MANAGERIAL.	232	8	30	80	61	53	177	8	21	51	53	44
CLERICAL & SALES ..	915	35	165	569	136	10	230	12	41	114	57	6
SERVICE	697	200	279	190	25	3	256	68	94	74	18	2
SKILLED	868	240	319	274	34	1	844	233	311	266	33	1
SEMISKILLED	1,289	263	580	399	47	.....	1,099	224	492	339	44	.....
UNSKILLED & OTHER[A].	1,382	411	528	397	42	4	958	309	341	267	37	4
ENTRY[B]	1,728	121	653	677	250	27	1,151	85	457	420	174	15
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	3.3	.6	1.2	3.1	10.3	54.1	3.8	.9	1.2	3.3	12.7	61.1
CLERICAL & SALES ..	12.9	2.7	6.5	22.0	22.9	10.2	4.9	1.3	2.3	7.4	13.7	8.3
SERVICE	9.8	15.6	10.9	7.3	4.2	3.1	5.4	7.2	5.4	4.8	4.3	2.8
SKILLED	12.2	18.8	12.5	10.6	5.7	1.0	17.9	24.8	17.7	17.4	7.9	1.4
SEMISKILLED	18.1	20.6	22.7	15.4	7.9	.....	23.3	23.9	28.0	22.1	10.6	.....
UNSKILLED & OTHER[A].	19.4	32.2	20.7	15.4	7.1	4.1	20.3	32.9	19.4	17.4	8.9	5.6
ENTRY[B]	24.3	9.5	25.6	26.2	42.0	27.6	24.4	9.1	26.0	27.4	41.8	20.8
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.0	35.9	36.4	8.4	1.4	100.0	19.9	37.3	32.5	8.8	1.5
PROF. & MANAGERIAL.	100.0	3.4	12.9	34.5	26.3	22.8	100.0	4.5	11.9	28.8	29.9	24.9
CLERICAL & SALES ..	100.0	3.8	18.0	62.2	14.9	1.1	100.0	5.2	17.8	49.6	24.8	2.6
SERVICE	100.0	28.7	40.0	27.3	3.6	.4	100.0	26.6	36.7	28.9	7.0	.8
SKILLED	100.0	27.6	36.8	31.6	3.9	.1	100.0	27.6	36.8	31.5	3.9	.1
SEMISKILLED	100.0	20.4	45.0	31.0	3.6	.....	100.0	20.4	44.8	30.8	4.0	.....
UNSKILLED & OTHER[A].	100.0	29.7	38.2	28.7	3.0	.3	100.0	32.3	35.6	27.9	3.9	.4
ENTRY[B]	100.0	7.0	37.8	39.2	14.5	1.6	100.0	7.4	39.7	36.5	15.1	1.3
	NUMBER, BY AGE GROUP											
TOTAL	7,111	1,278	2,554	2,586	595	98	4,715	939	1,757	1,531	416	72
UNDER 20	1,217	41	551	473	149	3	818	32	399	291	96	.....
20 - 24	1,455	52	453	756	175	19	1,057	47	370	503	127	10
25 - 34	1,549	227	588	588	113	33	1,150	197	453	386	85	29
35 - 44	1,290	277	515	383	96	19	748	189	295	180	69	15
45 - 54	983	335	305	288	38	17	550	229	153	130	25	13
55 - 64	472	266	116	69	16	5	291	182	69	26	11	3
65 AND OVER	145	80	26	29	8	2	101	63	18	15	3	2
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	17.1	3.2	21.6	18.3	25.0	3.1	17.3	3.4	22.7	19.0	23.1	.....
20 - 24	20.5	4.1	17.7	29.2	29.4	19.4	22.4	5.0	21.1	32.9	30.5	13.9
25 - 34	21.8	17.8	23.0	22.7	19.0	33.7	24.4	21.0	25.8	25.2	20.4	40.3
35 - 44	18.1	21.7	20.2	14.8	16.1	19.4	15.9	20.1	16.8	11.8	16.6	20.8
45 - 54	13.8	26.2	11.9	11.1	6.4	17.3	11.7	24.4	8.7	8.5	6.0	18.1
55 - 64	6.6	20.8	4.5	2.7	2.7	5.1	6.2	19.4	3.9	1.7	2.6	4.2
65 AND OVER	2.0	6.3	1.0	1.1	1.3	2.0	2.1	6.7	1.0	1.0	.7	2.8
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.0	35.9	36.4	8.4	1.4	100.0	19.9	37.3	32.5	8.8	1.5
UNDER 20	100.0	3.4	45.3	38.9	12.2	.2	100.0	3.9	48.8	35.6	11.7	.....
20 - 24	100.0	3.6	31.1	52.0	12.0	1.3	100.0	4.4	35.0	47.6	12.0	.9
25 - 34	100.0	14.7	38.0	38.0	7.3	2.1	100.0	17.1	39.4	33.6	7.4	2.5
35 - 44	100.0	21.5	39.9	29.7	7.4	1.5	100.0	25.3	39.4	24.1	9.2	2.0
45 - 54	100.0	34.1	31.0	29.3	3.9	1.7	100.0	41.6	27.8	23.6	4.5	2.4
55 - 64	100.0	56.4	24.6	14.6	3.4	1.1	100.0	62.5	23.7	8.9	3.8	1.0
65 AND OVER	100.0	55.2	17.9	20.0	5.5	1.4	100.0	62.4	17.8	14.9	3.0	2.0

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

TRUMBULL COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN TRUMBULL COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	3,141	583	1,139	1,136	245	38	2,211	471	821	692	190	37
PROF. & MANAGERIAL.	71	2	2	27	23	17	67	2	2	27	19	17
CLERICAL & SALES ..	375	7	70	214	75	9	122	3	21	48	42	8
SERVICE	346	96	155	85	10	.....	123	30	60	29	4	.....
SKILLED	479	121	156	180	21	1	475	120	156	177	21	1
SEMISKILLED	565	121	236	183	25	.....	473	106	196	146	25	.....
UNSKILLED & OTHER[A].	567	174	189	173	29	2	499	165	162	141	29	2
ENTRY[B]	738	62	331	274	62	9	452	45	224	124	50	9
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.3	.3	.2	2.4	9.4	44.7	3.0	.4	.2	3.9	10.0	45.9
CLERICAL & SALES ..	11.9	1.2	6.1	18.8	30.6	23.7	5.5	.6	2.6	6.9	22.1	21.6
SERVICE	11.0	16.5	13.6	7.5	4.1	.....	5.6	6.4	7.3	4.2	2.1	.....
SKILLED	15.2	20.8	13.7	15.8	8.6	2.6	21.5	25.5	19.0	25.6	11.1	2.7
SEMISKILLED	18.0	20.8	20.7	16.1	10.2	.....	21.4	22.5	23.9	21.1	13.2	.....
UNSKILLED & OTHER[A].	18.1	29.8	16.6	15.2	11.8	5.3	22.6	35.0	19.7	20.4	15.3	5.4
ENTRY[B]	23.5	10.6	29.1	24.1	25.3	23.7	20.4	9.6	27.3	17.9	26.3	24.3
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.6	36.3	36.2	7.8	1.2	100.0	21.3	37.1	31.3	8.6	1.7
PROF. & MANAGERIAL.	100.0	2.8	2.8	38.0	32.4	23.9	100.0	3.0	3.0	40.3	28.4	25.4
CLERICAL & SALES ..	100.0	1.9	18.7	57.1	20.0	2.4	100.0	2.5	17.2	39.3	34.4	6.6
SERVICE	100.0	27.7	44.8	24.6	2.9	.....	100.0	24.4	48.8	23.6	3.3	.....
SKILLED	100.0	25.3	32.6	37.6	4.4	.2	100.0	25.3	32.8	37.3	4.4	.2
SEMISKILLED	100.0	21.4	41.8	32.4	4.4	.....	100.0	22.4	41.4	30.9	5.3	.....
UNSKILLED & OTHER[A].	100.0	30.7	33.3	30.5	5.1	.4	100.0	33.1	32.5	28.3	5.8	.4
ENTRY[B]	100.0	8.4	44.9	37.1	8.4	1.2	100.0	10.0	49.6	27.4	11.1	2.0
	NUMBER, BY AGE GROUP											
TOTAL	3,141	583	1,139	1,136	245	38	2,211	471	821	692	190	37
UNDER 20	619	30	354	205	30	.....	385	25	246	91	23	.....
20 - 24	666	40	178	349	90	9	459	35	132	213	70	9
25 - 34	645	73	219	268	69	16	483	63	163	182	59	16
35 - 44	598	151	221	185	33	8	414	120	150	112	25	7
45 - 54	425	167	126	110	18	4	321	129	95	82	11	4
55 - 64	144	89	32	18	4	1	109	69	26	11	2	1
65 AND OVER	44	33	9	1	1	.....	40	30	9	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	19.7	5.1	31.1	18.0	12.2	.....	17.4	5.3	30.0	13.2	12.1	.....
20 - 24	21.2	6.9	15.6	30.7	36.7	23.7	20.8	7.4	16.1	30.8	36.8	24.3
25 - 34	20.5	12.5	19.2	23.6	28.2	42.1	21.8	13.4	19.9	26.3	31.1	43.2
35 - 44	19.0	25.9	19.4	16.3	13.5	21.1	18.7	25.5	18.3	16.2	13.2	18.9
45 - 54	13.5	28.6	11.1	9.7	7.3	10.5	14.5	27.4	11.6	11.8	5.8	10.8
55 - 64	4.6	15.3	2.8	1.6	1.6	2.6	4.9	14.6	3.2	1.6	1.1	2.7
65 AND OVER	1.4	5.7	.8	.1	.4	.....	1.8	6.4	1.1	.1	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	18.6	36.3	36.2	7.8	1.2	100.0	21.3	37.1	31.3	8.6	1.7
UNDER 20	100.0	4.8	57.2	33.1	4.8	.....	100.0	6.5	63.9	23.6	6.0	.....
20 - 24	100.0	6.0	26.7	52.4	13.5	1.4	100.0	7.6	28.8	46.4	15.3	2.0
25 - 34	100.0	11.3	34.0	41.6	10.7	2.5	100.0	13.0	33.7	37.7	12.2	3.3
35 - 44	100.0	25.3	37.0	30.9	5.5	1.3	100.0	29.0	36.2	27.1	6.0	1.7
45 - 54	100.0	39.3	29.6	25.9	4.2	.9	100.0	40.2	29.6	25.5	3.4	1.2
55 - 64	100.0	61.8	22.2	12.5	2.8	.7	100.0	63.3	23.9	10.1	1.8	.9
65 AND OVER	100.0	75.0	20.5	2.3	2.3	.....	100.0	75.0	22.5	2.5	.....	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN TUSCARAWAS COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	947	188	330	369	49	11	535	137	197	171	20	10
PROF. & MANAGERIAL.	23	1	3	11	5	3	18	.....	1	10	4	3
CLERICAL & SALES ..	166	2	33	103	23	5	39	.....	8	21	6	4
SERVICE	87	26	45	15	1	.....	21	7	9	5	.....	.....
SKILLED	107	33	40	30	4	.....	105	33	40	29	3	.....
SEMISKILLED	218	54	86	73	4	1	156	44	61	48	2	1
UNSKILLED & OTHER[A].	178	56	63	57	2	.....	120	46	39	33	2	.....
ENTRY[B]	168	16	60	80	10	2	76	7	39	25	3	2
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.4	.5	.9	3.0	10.2	27.3	3.4	.....	.5	5.8	20.0	30.0
CLERICAL & SALES ..	17.5	1.1	10.0	27.9	46.9	45.5	7.3	.....	4.1	12.3	30.0	40.0
SERVICE	9.2	13.8	13.6	4.1	2.0	.....	3.9	5.1	4.6	2.9	.....	.....
SKILLED	11.3	17.6	12.1	8.1	8.2	.....	19.6	24.1	20.3	17.0	15.0	.....
SEMISKILLED	23.0	28.7	26.1	19.8	8.2	9.1	29.2	32.1	31.0	28.1	10.0	10.0
UNSKILLED & OTHER[A].	18.8	29.8	19.1	15.4	4.1	.....	22.4	33.6	19.8	19.3	10.0	.....
ENTRY[B]	17.7	8.5	18.2	21.7	20.4	18.2	14.2	5.1	19.8	14.6	15.0	20.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.9	34.8	39.0	5.2	1.2	100.0	25.6	36.8	32.0	3.7	1.9
PROF. & MANAGERIAL.	100.0	4.3	13.0	47.8	21.7	13.0	100.0	.....	5.6	55.6	22.2	16.7
CLERICAL & SALES ..	100.0	1.2	19.9	62.0	13.9	3.0	100.0	.....	20.5	53.8	15.4	10.3
SERVICE	100.0	29.9	51.7	17.2	1.1	.....	100.0	33.3	42.9	23.8	.....	.....
SKILLED	100.0	30.8	37.4	28.0	3.7	.....	100.0	31.4	38.1	27.6	2.9	.....
SEMISKILLED	100.0	24.8	39.4	33.5	1.8	.5	100.0	28.2	39.1	30.8	1.3	.6
UNSKILLED & OTHER[A].	100.0	31.5	35.4	32.0	1.1	.....	100.0	38.3	32.5	27.5	1.7	.....
ENTRY[B]	100.0	9.5	35.7	47.6	6.0	1.2	100.0	9.2	51.3	32.9	3.9	2.6
	NUMBER, BY AGE GROUP											
TOTAL	947	188	330	369	49	11	535	137	197	171	20	10
UNDER 20	141	10	63	61	7	.....	76	7	44	24	1	.....
20 - 24	205	18	70	98	17	2	115	14	49	45	6	1
25 - 34	202	34	68	84	12	4	117	25	35	46	7	4
35 - 44	208	47	66	84	9	2	101	35	31	30	3	2
45 - 54	119	34	47	33	3	2	70	24	23	19	2	2
55 - 64	61	39	13	8	1	.....	47	28	12	6	1	.....
65 AND OVER	11	6	3	1	.....	1	9	4	3	1	.....	1
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	14.9	5.3	19.1	16.5	14.3	.....	14.2	5.1	22.3	14.0	5.0	.....
20 - 24	21.6	9.6	21.2	26.6	34.7	18.2	21.5	10.2	24.9	26.3	30.0	10.0
25 - 34	21.3	18.1	20.6	22.8	24.5	36.4	21.9	18.2	17.8	26.9	35.0	40.0
35 - 44	22.0	25.0	20.0	22.8	18.4	18.2	18.9	25.5	15.7	17.5	15.0	20.0
45 - 54	12.6	18.1	14.2	8.9	6.1	18.2	13.1	17.5	11.7	11.1	10.0	20.0
55 - 64	6.4	20.7	3.9	2.2	2.0	.....	8.8	20.4	6.1	3.5	5.0	.....
65 AND OVER	1.2	3.2	.9	.3	.....	9.1	1.7	2.9	1.5	.6	.....	10.0
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.9	34.8	39.0	5.2	1.2	100.0	25.6	36.8	32.0	3.7	1.9
UNDER 20	100.0	7.1	44.7	43.3	5.0	.....	100.0	9.2	57.9	31.6	1.3	.....
20 - 24	100.0	8.8	34.1	47.8	8.3	1.0	100.0	12.2	42.6	39.1	5.2	.9
25 - 34	100.0	16.8	33.7	41.6	5.9	2.0	100.0	21.4	29.9	39.3	6.0	3.4
35 - 44	100.0	22.6	31.7	40.4	4.3	1.0	100.0	34.7	30.7	29.7	3.0	2.0
45 - 54	100.0	28.6	39.5	27.7	2.5	1.7	100.0	34.3	32.9	27.1	2.9	2.9
55 - 64	100.0	63.9	21.3	13.1	1.6	.....	100.0	59.6	25.5	12.8	2.1	.....
65 AND OVER	100.0	54.5	27.3	9.1	.....	9.1	100.0	44.4	33.3	11.1	.....	11.1

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN UNION COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	427	118	164	129	13	3	212	90	73	41	6	2
PROF. & MANAGERIAL.	7	.....	.....	4	2	1	6	.....	.....	3	2	1
CLERICAL & SALES ..	35	3	3	25	2	2	2	1	.....	.....	.....	1
SERVICE	50	13	28	9	.....	.....	2	2	.....	.....	.....	.....
SKILLED	33	18	10	4	1	.....	33	18	10	4	1	.....
SEMISKILLED	65	25	25	14	1	.....	55	25	20	10	.....	.....
UNSKILLED & OTHER[A].	129	43	53	31	2	.....	87	39	31	16	1	.....
ENTRY[B]	108	16	45	42	5	.....	27	5	12	8	2	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.6	.....	.....	3.1	15.4	33.3	2.8	.....	.....	7.3	33.3	50.0
CLERICAL & SALES ..	8.2	2.5	1.8	19.4	15.4	66.7	.9	1.1	.....	.....	.....	50.0
SERVICE	11.7	11.0	17.1	7.0	.....	.....	.9	2.2	.....	.....	.....	.....
SKILLED	7.7	15.3	6.1	3.1	7.7	.....	15.6	20.0	13.7	9.8	16.7	.....
SEMISKILLED	15.2	21.2	15.2	10.9	7.7	.....	25.9	27.8	27.4	24.4	.....	.....
UNSKILLED & OTHER[A].	30.2	36.4	32.3	24.0	15.4	.....	41.0	43.3	42.5	39.0	16.7	.....
ENTRY[B]	25.3	13.6	27.4	32.6	38.5	.....	12.7	5.6	16.4	19.5	33.3	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.6	38.4	30.2	3.0	.7	100.0	42.5	34.4	19.3	2.8	.9
PROF. & MANAGERIAL.	100.0	.....	.....	57.1	28.6	14.3	100.0	.....	.....	50.0	33.3	16.7
CLERICAL & SALES ..	100.0	8.6	8.6	71.4	5.7	5.7	100.0	50.0	.....	.....	.....	50.0
SERVICE	100.0	26.0	56.0	18.0	.....	.....	100.0	100.0	.....	.....	.....	.....
SKILLED	100.0	54.5	30.3	12.1	3.0	.....	100.0	54.5	30.3	12.1	3.0	.....
SEMISKILLED	100.0	38.5	38.5	21.5	1.5	.....	100.0	45.5	36.4	18.2	.....	.....
UNSKILLED & OTHER[A].	100.0	33.3	41.1	24.0	1.6	.....	100.0	44.8	35.6	18.4	1.1	.....
ENTRY[B]	100.0	14.8	41.7	38.9	4.6	.....	100.0	18.5	44.4	29.6	7.4	.....
	NUMBER, BY AGE GROUP											
TOTAL	427	118	164	129	13	3	212	90	73	41	6	2
UNDER 20	70	5	36	25	4	.....	30	2	21	6	1	.....
20 - 24	81	13	34	30	4	.....	37	11	10	13	3	.....
25 - 34	89	28	37	18	3	3	48	20	17	8	1	2
35 - 44	93	31	25	36	1	.....	44	23	12	8	1	.....
45 - 54	60	24	24	11	1	.....	32	19	9	4	.....	.....
55 - 64	26	12	8	6	.....	.....	17	11	4	2	.....	.....
65 AND OVER	8	5	.....	3	.....	.....	4	4	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	16.4	4.2	22.0	19.4	30.8	.....	14.2	2.2	28.8	14.6	16.7	.....
20 - 24	19.0	11.0	20.7	23.3	30.8	.....	17.5	12.2	13.7	31.7	50.0	.....
25 - 34	20.8	23.7	22.6	14.0	23.1	100.0	22.6	22.2	23.3	19.5	16.7	100.0
35 - 44	21.8	26.3	15.2	27.9	7.7	.....	20.8	25.6	16.4	19.5	16.7	.....
45 - 54	14.1	20.3	14.6	8.5	7.7	.....	15.1	21.1	12.3	9.8	.....	.....
55 - 64	6.1	10.2	4.9	4.7	.....	.....	8.0	12.2	5.5	4.9	.....	.....
65 AND OVER	1.9	4.2	.....	2.3	.....	.....	1.9	4.4	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	27.6	38.4	30.2	3.0	.7	100.0	42.5	34.4	19.3	2.8	.9
UNDER 20	100.0	7.1	51.4	35.7	5.7	.....	100.0	6.7	70.0	20.0	3.3	.....
20 - 24	100.0	16.0	42.0	37.0	4.9	.....	100.0	29.7	27.0	35.1	8.1	.....
25 - 34	100.0	31.5	41.6	20.2	3.4	3.4	100.0	41.7	35.4	16.7	2.1	4.2
35 - 44	100.0	33.3	26.9	38.7	1.1	.....	100.0	52.3	27.3	18.2	2.3	.....
45 - 54	100.0	40.0	40.0	18.3	1.7	.....	100.0	59.4	28.1	12.5	.....	.....
55 - 64	100.0	46.2	30.8	23.1	.....	.....	100.0	64.7	23.5	11.8	.....	.....
65 AND OVER	100.0	62.5	.....	37.5	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN VAN WERT COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	564	113	174	228	46	3	380	75	108	158	36	3
PROF. & MANAGERIAL.	8	.....	.....	4	3	1	5	.....	.....	2	2	1
CLERICAL & SALES ..	27	1	.....	16	10	.....	12	.....	.....	5	7	.....
SERVICE	29	15	7	7	.....	.....	11	6	3	2	.....	.....
SKILLED	51	6	12	26	6	1	51	6	12	26	6	1
SEMISKILLED	99	29	21	46	3	.....	85	26	15	41	3	.....
UNSKILLED & OTHER[A].	142	42	57	39	4	.....	76	24	26	22	4	.....
ENTRY[B]	208	20	77	90	20	1	140	13	52	60	14	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.4	.....	.....	1.8	6.5	33.3	1.3	.....	.....	1.3	5.6	33.3
CLERICAL & SALES ..	4.8	.9	.....	7.0	21.7	.....	3.2	.....	.....	3.2	19.4	.....
SERVICE	5.1	13.3	4.0	3.1	.....	.....	2.9	8.0	2.8	1.3	.....	.....
SKILLED	9.0	5.3	6.9	11.4	13.0	33.3	13.4	8.0	11.1	16.5	16.7	33.3
SEMISKILLED	17.6	25.7	12.1	20.2	6.5	.....	22.4	34.7	13.9	25.9	8.3	.....
UNSKILLED & OTHER[A].	25.2	37.2	32.8	17.1	8.7	.....	20.0	32.0	24.1	13.9	11.1	.....
ENTRY[B]	36.9	17.7	44.3	39.5	43.5	33.3	36.8	17.3	48.1	38.0	38.9	33.3
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.0	30.9	40.4	8.2	.5	100.0	19.7	28.4	41.6	9.5	.8
PROF. & MANAGERIAL.	100.0	.....	.....	50.0	37.5	12.5	100.0	.....	.....	40.0	40.0	20.0
CLERICAL & SALES ..	100.0	3.7	.....	59.3	37.0	.....	100.0	.....	.....	41.7	58.3	.....
SERVICE	100.0	51.7	24.1	24.1	.....	.....	100.0	54.5	27.3	18.2	.....	.....
SKILLED	100.0	11.8	23.5	51.0	11.8	2.0	100.0	11.8	23.5	51.0	11.8	2.0
SEMISKILLED	100.0	29.3	21.2	46.5	3.0	.....	100.0	30.6	17.6	48.2	3.5	.....
UNSKILLED & OTHER[A].	100.0	29.6	40.1	27.5	2.8	.....	100.0	31.6	34.2	28.9	5.3	.....
ENTRY[B]	100.0	9.6	37.0	43.3	9.6	.5	100.0	9.3	37.1	42.9	10.0	.7
	NUMBER, BY AGE GROUP											
TOTAL	564	113	174	228	46	3	380	75	108	158	36	3
UNDER 20	117	9	66	36	6	.....	84	8	52	21	3	.....
20 - 24	130	12	25	71	21	1	91	8	15	51	16	1
25 - 34	131	13	33	73	11	1	94	9	16	58	10	1
35 - 44	68	19	21	25	2	1	39	11	11	15	1	1
45 - 54	72	26	22	21	3	.....	35	13	7	12	3	.....
55 - 64	39	28	6	2	3	.....	30	20	6	1	3	.....
65 AND OVER	7	6	1	.....	.....	.....	7	6	1	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	20.7	8.0	37.9	15.8	13.0	.....	22.1	10.7	48.1	13.3	8.3	.....
20 - 24	23.0	10.6	14.4	31.1	45.7	33.3	23.9	10.7	13.9	32.3	44.4	33.3
25 - 34	23.2	11.5	19.0	32.0	23.9	33.3	24.7	12.0	14.8	36.7	27.8	33.3
35 - 44	12.1	16.8	12.1	11.0	4.3	33.3	10.3	14.7	10.2	9.5	2.8	33.3
45 - 54	12.8	23.0	12.6	9.2	6.5	.....	9.2	17.3	6.5	7.6	8.3	.....
55 - 64	6.9	24.8	3.4	.9	6.5	.....	7.9	26.7	5.6	.6	8.3	.....
65 AND OVER	1.2	5.3	.6	.....	.....	.....	1.8	8.0	.9	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	20.0	30.9	40.4	8.2	.5	100.0	19.7	28.4	41.6	9.5	.8
UNDER 20	100.0	7.7	56.4	30.8	5.1	.....	100.0	9.5	61.9	25.0	3.6	.....
20 - 24	100.0	9.2	19.2	54.6	16.2	.8	100.0	8.8	16.5	56.0	17.6	1.1
25 - 34	100.0	9.9	25.2	55.7	8.4	.8	100.0	9.6	17.0	61.7	10.6	1.1
35 - 44	100.0	27.9	30.9	36.8	2.9	1.5	100.0	28.2	28.2	38.5	2.6	2.6
45 - 54	100.0	36.1	30.6	29.2	4.2	.....	100.0	37.1	20.0	34.3	8.6	.....
55 - 64	100.0	71.8	15.4	5.1	7.7	.....	100.0	66.7	20.0	3.3	10.0	.....
65 AND OVER	100.0	85.7	14.3	.....	.....	.....	100.0	85.7	14.3	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN VINTON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	33	18	5	10	.....	.....	29	17	4	8	.....	.....
PROF. & MANAGERIAL	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES	1	.....	.....	1	.....	.....	1	.....	.....	1	.....	.....
SERVICE	3	1	1	1	.....	.....	.....	.....	.....	.....	.....	.....
SKILLED	8	5	1	2	.....	.....	8	5	1	2	.....	.....
SEMISKILLED	9	7	.....	2	.....	.....	9	7	.....	2	.....	.....
UNSKILLED & OTHER[A]	12	5	3	4	.....	.....	11	5	3	3	.....	.....
ENTRY[B]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	.....	.....	100.0	100.0	100.0	100.0	.....	.....
PROF. & MANAGERIAL	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES	3.0	.....	.....	10.0	.....	.....	3.4	.....	.....	12.5	.....	.....
SERVICE	9.1	5.6	20.0	10.0	.....	.....	.....	.....	.....	.....	.....	.....
SKILLED	24.2	27.8	20.0	20.0	.....	.....	27.6	29.4	25.0	25.0	.....	.....
SEMISKILLED	27.3	38.9	.....	20.0	.....	.....	31.0	41.2	.....	25.0	.....	.....
UNSKILLED & OTHER[A]	36.4	27.8	60.0	40.0	.....	.....	37.9	29.4	75.0	37.5	.....	.....
ENTRY[B]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	54.5	15.2	30.3	.....	.....	100.0	58.6	13.8	27.6	.....	.....
PROF. & MANAGERIAL	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
CLERICAL & SALES	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....
SERVICE	100.0	33.3	33.3	33.3	.....	.....	.....	.....	.....	.....	.....	.....
SKILLED	100.0	62.5	12.5	25.0	.....	.....	100.0	62.5	12.5	25.0	.....	.....
SEMISKILLED	100.0	77.8	.....	22.2	.....	.....	100.0	77.8	.....	22.2	.....	.....
UNSKILLED & OTHER[A]	100.0	41.7	25.0	33.3	.....	.....	100.0	45.5	27.3	27.3	.....	.....
ENTRY[B]	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	NUMBER, BY AGE GROUP											
TOTAL	33	18	5	10	.....	.....	29	17	4	8	.....	.....
UNDER 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	1	.....	.....	1	.....	.....	1	.....	.....	1	.....	.....
25 - 34	3	1	.....	2	.....	.....	2	1	.....	1	.....	.....
35 - 44	13	6	3	4	.....	.....	10	5	2	3	.....	.....
45 - 54	7	5	1	1	.....	.....	7	5	1	1	.....	.....
55 - 64	9	6	1	2	.....	.....	9	6	1	2	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	.....	.....	100.0	100.0	100.0	100.0	.....	.....
UNDER 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	3.0	.....	.....	10.0	.....	.....	3.4	.....	.....	12.5	.....	.....
25 - 34	9.1	5.6	.....	20.0	.....	.....	6.9	5.9	.....	12.5	.....	.....
35 - 44	39.4	33.3	60.0	40.0	.....	.....	34.5	29.4	50.0	37.5	.....	.....
45 - 54	21.2	27.8	20.0	10.0	.....	.....	24.1	29.4	25.0	12.5	.....	.....
55 - 64	27.3	33.3	20.0	20.0	.....	.....	31.0	35.3	25.0	25.0	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	54.5	15.2	30.3	.....	.....	100.0	58.6	13.8	27.6	.....	.....
UNDER 20	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 - 24	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....	100.0	.....	.....
25 - 34	100.0	33.3	.....	66.7	.....	.....	100.0	50.0	.....	50.0	.....	.....
35 - 44	100.0	46.2	23.1	30.8	.....	.....	100.0	50.0	20.0	30.0	.....	.....
45 - 54	100.0	71.4	14.3	14.3	.....	.....	100.0	71.4	14.3	14.3	.....	.....
55 - 64	100.0	66.7	11.1	22.2	.....	.....	100.0	66.7	11.1	22.2	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

Soiter

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN WARREN COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	723	213	241	218	48	3	448	156	135	126	30	1
PROF. & MANAGERIAL.	19	1	3	6	8	1	10	1	.....	4	4	1
CLERICAL & SALES ..	92	8	18	57	8	1	25	6	4	12	3	.....
SERVICE	61	29	23	8	1	.....	15	11	1	3	.....	.....
SKILLED	120	41	35	39	5	.....	114	37	35	37	5	.....
SEMISKILLED	172	65	62	41	4	.....	107	48	36	22	1	.....
UNSKILLED & OTHER[A].	166	64	54	43	5	.....	107	48	26	30	3	.....
ENTRY[B]	93	5	46	24	17	1	70	5	33	18	14	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	2.6	.5	1.2	2.8	16.7	33.3	2.2	.6	.....	3.2	13.3	100.0
CLERICAL & SALES ..	12.7	3.8	7.5	26.1	16.7	33.3	5.6	3.8	3.0	9.5	10.0	.....
SERVICE	8.4	13.6	9.5	3.7	2.1	.....	3.3	7.1	.7	2.4	.....	.....
SKILLED	16.6	19.2	14.5	17.9	10.4	.....	25.4	23.7	25.9	29.4	16.7	.....
SEMISKILLED	23.8	30.5	25.7	18.8	8.3	.....	23.9	30.8	26.7	17.5	3.3	.....
UNSKILLED & OTHER[A].	23.0	30.0	22.4	19.7	10.4	.....	23.9	30.8	19.3	23.8	10.0	.....
ENTRY[B]	12.9	2.3	19.1	11.0	35.4	33.3	15.6	3.2	24.4	14.3	46.7	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.5	33.3	30.2	6.6	.4	100.0	34.8	30.1	28.1	6.7	.2
PROF. & MANAGERIAL.	100.0	5.3	15.8	31.6	42.1	5.3	100.0	10.0	.....	40.0	40.0	10.0
CLERICAL & SALES ..	100.0	8.7	19.6	62.0	8.7	1.1	100.0	24.0	16.0	48.0	12.0	.....
SERVICE	100.0	47.5	37.7	13.1	1.6	.....	100.0	73.3	6.7	20.0	.....	.....
SKILLED	100.0	34.2	29.2	32.5	4.2	.....	100.0	32.5	30.7	32.5	4.4	.....
SEMISKILLED	100.0	37.8	36.0	23.8	2.3	.....	100.0	44.9	33.6	20.6	.9	.....
UNSKILLED & OTHER[A].	100.0	38.6	32.5	25.9	3.0	.....	100.0	44.9	24.3	28.0	2.8	.....
ENTRY[B]	100.0	5.4	49.5	25.8	18.3	1.1	100.0	7.1	47.1	25.7	20.0	.....
	NUMBER, BY AGE GROUP											
TOTAL	723	213	241	218	48	3	448	156	135	126	30	1
UNDER 20	114	11	51	39	13	.....	79	10	37	23	9	.....
20 - 24	122	12	44	55	9	2	75	8	28	33	5	1
25 - 34	164	47	49	61	7	.....	105	36	26	37	6	.....
35 - 44	151	56	52	34	9	.....	86	40	26	15	5	.....
45 - 54	118	54	34	22	7	1	68	39	14	11	4	.....
55 - 64	44	27	10	5	2	.....	26	19	4	5	.....	.....
65 AND OVER	10	6	1	2	1	.....	7	4	.....	2	1	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	15.8	5.2	21.2	17.9	27.1	.....	17.6	6.4	27.4	18.3	30.0	.....
20 - 24	16.9	5.6	18.3	25.2	18.7	66.7	16.7	5.1	20.7	26.2	16.7	100.0
25 - 34	22.7	22.1	20.3	28.0	14.6	.....	23.4	23.1	19.3	29.4	20.0	.....
35 - 44	20.9	26.3	21.6	15.6	18.7	.....	19.2	25.6	19.3	11.9	16.7	.....
45 - 54	16.3	25.4	14.1	10.1	14.6	33.3	15.2	25.0	10.4	8.7	13.3	.....
55 - 64	6.1	12.7	4.1	2.3	4.2	.....	6.2	12.2	3.0	4.0	.....	.....
65 AND OVER	1.4	2.8	.4	.9	2.1	.....	1.6	2.6	.....	1.6	3.3	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	29.5	33.3	30.2	6.6	.4	100.0	34.8	30.1	28.1	6.7	.2
UNDER 20	100.0	9.6	44.7	34.2	11.4	.....	100.0	12.7	46.8	29.1	11.4	.....
20 - 24	100.0	9.8	36.1	45.1	7.4	1.6	100.0	10.7	37.3	44.0	6.7	1.3
25 - 34	100.0	28.7	29.9	37.2	4.3	.....	100.0	34.3	24.8	35.2	5.7	.....
35 - 44	100.0	37.1	34.4	22.5	6.0	.....	100.0	46.5	30.2	17.4	5.8	.....
45 - 54	100.0	45.8	28.8	18.6	5.9	.8	100.0	57.4	20.6	16.2	5.9	.....
55 - 64	100.0	61.4	22.7	11.4	4.5	.....	100.0	67.9	14.3	17.9	.....	.....
65 AND OVER	100.0	60.0	10.0	20.0	10.0	.....	100.0	57.1	.....	28.6	14.3	.....

[A] INCLUDES AGRICULTURE.

[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.

[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN WASHINGTON COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	784	210	246	290	36	2	625	190	206	201	26	2
PROF. & MANAGERIAL	13	.....	7	5	1	.....	12	.....	7	5	.....	.....
CLERICAL & SALES	91	3	9	66	11	2	24	1	2	14	5	2
SERVICE	58	15	22	20	1	.....	22	4	7	10	1	.....
SKILLED	207	69	68	60	10	.....	204	68	67	59	10	.....
SEMISKILLED	150	45	58	45	2	.....	135	42	51	40	2	.....
UNSKILLED & OTHER[A]	179	72	58	46	3	.....	169	72	54	40	3	.....
ENTRY[B]	86	6	24	48	8	.....	59	3	18	33	5	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL	1.7	.....	2.8	1.7	2.8	.....	1.9	.....	3.4	2.5	.....	.....
CLERICAL & SALES	11.6	1.4	3.7	22.8	30.6	100.0	3.8	.5	1.0	7.0	19.2	100.0
SERVICE	7.4	7.1	8.9	6.9	2.8	.....	3.5	2.1	3.4	5.0	3.8	.....
SKILLED	26.4	32.9	27.6	20.7	27.8	.....	32.6	35.8	32.5	29.4	38.5	.....
SEMISKILLED	19.1	21.4	23.6	15.5	5.6	.....	21.6	22.1	24.8	19.9	7.7	.....
UNSKILLED & OTHER[A]	22.8	34.3	23.6	15.9	8.3	.....	27.0	37.9	26.2	19.9	11.5	.....
ENTRY[B]	11.0	2.9	9.8	16.6	22.2	.....	9.4	1.6	8.7	16.4	19.2	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.8	31.4	37.0	4.6	.3	100.0	30.4	33.0	32.2	4.2	.3
PROF. & MANAGERIAL	100.0	.....	53.8	38.5	7.7	.....	100.0	.....	58.3	41.7	.....	.....
CLERICAL & SALES	100.0	3.3	9.9	72.5	12.1	2.2	100.0	4.2	8.3	58.3	20.8	8.3
SERVICE	100.0	25.9	37.9	34.5	1.7	.....	100.0	18.2	31.8	45.5	4.5	.....
SKILLED	100.0	33.3	32.9	29.0	4.8	.....	100.0	33.3	32.8	28.9	4.9	.....
SEMISKILLED	100.0	30.0	38.7	30.0	1.3	.....	100.0	31.1	37.8	29.6	1.5	.....
UNSKILLED & OTHER[A]	100.0	40.2	32.4	25.7	1.7	.....	100.0	42.6	32.0	23.7	1.8	.....
ENTRY[B]	100.0	7.0	27.9	55.8	9.3	.....	100.0	5.1	30.5	55.9	8.5	.....
	NUMBER, BY AGE GROUP											
TOTAL	784	210	246	290	36	2	625	190	206	201	26	2
UNDER 20	64	3	18	38	5	.....	38	3	13	19	3	.....
20 - 24	173	17	51	92	13	.....	135	16	44	65	10	.....
25 - 34	192	27	77	81	6	1	155	24	68	59	3	1
35 - 44	149	57	42	45	4	1	120	51	33	32	3	1
45 - 54	111	43	32	31	5	.....	96	40	28	23	5	.....
55 - 64	84	56	23	3	2	.....	72	50	17	3	2	.....
65 AND OVER	11	7	3	.....	1	.....	9	6	3	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	8.2	1.4	7.3	13.1	13.9	.....	6.1	1.6	6.3	9.5	11.5	.....
20 - 24	22.1	8.1	20.7	31.7	36.1	.....	21.6	8.4	21.4	32.3	38.5	.....
25 - 34	24.5	12.9	31.3	27.9	16.7	50.0	24.8	12.6	33.0	29.4	11.5	50.0
35 - 44	19.0	27.1	17.1	15.5	11.1	50.0	19.2	26.8	16.0	15.9	11.5	50.0
45 - 54	14.2	20.5	13.0	10.7	13.9	.....	15.4	21.1	13.6	11.4	19.2	.....
55 - 64	10.7	26.7	9.3	1.0	5.6	.....	11.5	26.3	8.3	1.5	7.7	.....
65 AND OVER	1.4	3.3	1.2	.....	2.8	.....	1.4	3.2	1.5	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	26.8	31.4	37.0	4.6	.3	100.0	30.4	33.0	32.2	4.2	.3
UNDER 20	100.0	4.7	28.1	59.4	7.8	.....	100.0	7.9	34.2	50.0	7.9	.....
20 - 24	100.0	9.8	29.5	53.2	7.5	.....	100.0	11.9	32.6	48.1	7.4	.....
25 - 34	100.0	14.1	40.1	42.2	3.1	.5	100.0	15.5	43.9	38.1	1.9	.6
35 - 44	100.0	38.3	28.2	30.2	2.7	.7	100.0	42.5	27.5	26.7	2.5	.8
45 - 54	100.0	38.7	28.8	27.9	4.5	.....	100.0	41.7	29.2	24.0	5.2	.....
55 - 64	100.0	66.7	27.4	3.6	2.4	.....	100.0	69.4	23.6	4.2	2.8	.....
65 AND OVER	100.0	63.6	27.3	.....	9.1	.....	100.0	66.7	33.3	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN WAYNE COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	329	85	93	117	30	4	177	64	55	42	15	1
PROF. & MANAGERIAL.	5	.....	.....	1	1	3	3	.....	.....	1	1	1
CLERICAL & SALES ..	58	3	4	39	12	.....	15	.....	3	7	5	.....
SERVICE	40	15	11	10	4	.....	8	6	1	.....	1	.....
SKILLED	36	14	8	11	3	.....	34	14	7	10	3	.....
SEMISKILLED	58	15	27	14	2	.....	44	15	18	9	2	.....
UNSKILLED & OTHER[A].	88	33	32	21	2	.....	58	25	21	10	2	.....
ENTRY[B]	44	5	11	21	6	1	15	4	5	5	1	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	1.5	.....	.....	.9	3.3	75.0	1.7	.....	.....	2.4	6.7	100.0
CLERICAL & SALES ..	17.6	3.5	4.3	33.3	40.0	.....	8.5	.....	5.5	16.7	33.3	.....
SERVICE	12.2	17.6	11.8	8.5	13.3	.....	4.5	9.4	1.8	.....	6.7	.....
SKILLED	10.9	16.5	8.6	9.4	10.0	.....	19.2	21.9	12.7	23.8	20.0	.....
SEMISKILLED	17.6	17.6	29.0	12.0	6.7	.....	24.9	23.4	32.7	21.4	13.3	.....
UNSKILLED & OTHER[A].	26.7	38.8	34.4	17.9	6.7	.....	32.8	39.1	38.2	23.8	13.3	.....
ENTRY[B]	13.4	5.9	11.8	17.9	20.0	25.0	8.5	6.2	9.1	11.9	6.7	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.8	28.3	35.6	9.1	1.2	100.0	36.2	31.1	23.7	8.5	.6
PROF. & MANAGERIAL.	100.0	.....	.....	20.0	20.0	60.0	100.0	.....	.....	33.3	33.3	33.3
CLERICAL & SALES ..	100.0	5.2	6.9	67.2	20.7	.....	100.0	.....	20.0	46.7	33.3	.....
SERVICE	100.0	37.5	27.5	25.0	10.0	.....	100.0	75.0	12.5	.....	12.5	.....
SKILLED	100.0	38.9	22.2	30.6	8.3	.....	100.0	41.2	20.6	29.4	8.8	.....
SEMISKILLED	100.0	25.9	46.6	24.1	3.4	.....	100.0	34.1	40.9	20.5	4.5	.....
UNSKILLED & OTHER[A].	100.0	37.5	36.4	23.9	2.3	.....	100.0	43.1	36.2	17.2	3.4	.....
ENTRY[B]	100.0	11.4	25.0	47.7	13.6	2.3	100.0	26.7	33.3	33.3	6.7	.....
	NUMBER, BY AGE GROUP											
TOTAL	329	85	93	117	30	4	177	64	55	42	15	1
UNDER 20	47	4	14	26	3	.....	20	4	7	8	1	.....
20 - 24	65	5	22	27	11	.....	33	5	15	8	5	.....
25 - 34	80	19	29	22	8	2	48	16	16	10	5	1
35 - 44	66	22	15	22	6	1	33	15	8	8	2	.....
45 - 54	35	13	8	12	1	1	19	8	5	5	1	.....
55 - 64	24	14	4	5	1	.....	16	10	3	2	1	.....
65 AND OVER	12	8	1	3	.....	.....	8	6	1	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	14.3	4.7	15.1	22.2	10.0	.....	11.3	6.2	12.7	19.0	6.7	.....
20 - 24	19.8	5.9	23.7	23.1	36.7	.....	18.6	7.8	27.3	19.0	33.3	.....
25 - 34	24.3	22.4	31.2	18.8	26.7	50.0	27.1	25.0	29.1	23.8	33.3	100.0
35 - 44	20.1	25.9	16.1	18.8	20.0	25.0	18.6	23.4	14.5	19.0	13.3	.....
45 - 54	10.6	15.3	8.6	10.3	3.3	25.0	10.7	12.5	9.1	11.9	6.7	.....
55 - 64	7.3	16.5	4.3	4.3	3.3	.....	9.0	15.6	5.5	4.8	6.7	.....
65 AND OVER	3.6	9.4	1.1	2.6	.....	.....	4.5	9.4	1.8	2.4	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	25.8	28.3	35.6	9.1	1.2	100.0	36.2	31.1	23.7	8.5	.6
UNDER 20	100.0	8.5	29.8	55.3	6.4	.....	100.0	20.0	35.0	40.0	5.0	.....
20 - 24	100.0	7.7	33.8	41.5	16.9	.....	100.0	15.2	45.5	24.2	15.2	.....
25 - 34	100.0	23.8	36.2	27.5	10.0	2.5	100.0	33.3	33.3	20.8	10.4	2.1
35 - 44	100.0	33.3	22.7	33.3	9.1	1.5	100.0	45.5	24.2	24.2	6.1	.....
45 - 54	100.0	37.1	22.9	34.3	2.9	2.9	100.0	42.1	26.3	26.3	5.3	.....
55 - 64	100.0	58.3	16.7	20.8	4.2	.....	100.0	62.5	18.8	12.5	6.2	.....
65 AND OVER	100.0	66.7	8.3	25.0	.....	.....	100.0	75.0	12.5	12.5	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

WILLIAMS COUNTY, OHIO

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN WILLIAMS COUNTY BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	84	19	21	38	4	2	34	12	6	11	3	2
PROF. & MANAGERIAL	1	.....	.....	.....	1	.....	1	.....	.....	.....	1	.....
CLERICAL & SALES	14	2	3	8	1	.....	3	2	1	.....	.....	.....
SERVICE	11	5	4	2	.....	.....	2	1	1	.....	.....	.....
SKILLED	4	1	.....	3	.....	.....	4	1	.....	3	.....	.....
SEMISKILLED	32	6	7	17	2	.....	15	4	2	7	2	.....
UNSKILLED & OTHER[A]	15	3	4	7	.....	1	5	3	.....	1	.....	1
ENTRY[B]	7	2	3	1	.....	1	4	1	2	.....	.....	1
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL	1.2	.....	.....	.....	25.0	.....	2.9	.....	.....	.....	33.3	.....
CLERICAL & SALES	16.7	10.5	14.3	21.1	25.0	.....	8.8	16.7	16.7	.....	.....	.....
SERVICE	13.1	26.3	19.0	5.3	.....	.....	5.9	8.3	16.7	.....	.....	.....
SKILLED	4.8	5.3	.....	7.9	.....	.....	11.8	8.3	.....	27.3	.....	.....
SEMISKILLED	38.1	31.6	33.3	44.7	50.0	.....	44.1	33.3	33.3	63.6	66.7	.....
UNSKILLED & OTHER[A]	17.9	15.8	19.0	18.4	.....	50.0	14.7	25.0	.....	9.1	.....	50.0
ENTRY[B]	8.3	10.5	14.3	2.6	.....	50.0	11.8	8.3	33.3	.....	.....	50.0
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	22.6	25.0	45.2	4.8	2.4	100.0	35.3	17.6	32.4	8.8	5.9
PROF. & MANAGERIAL	100.0	.....	.....	.....	100.0	.....	100.0	.....	.....	.....	100.0	.....
CLERICAL & SALES	100.0	14.3	21.4	57.1	7.1	.....	100.0	66.7	33.3	.....	.....	.....
SERVICE	100.0	45.5	36.4	18.2	.....	.....	100.0	50.0	50.0	.....	.....	.....
SKILLED	100.0	25.0	.....	75.0	.....	.....	100.0	25.0	.....	75.0	.....	.....
SEMISKILLED	100.0	18.8	21.9	53.1	6.2	.....	100.0	26.7	13.3	46.7	13.3	.....
UNSKILLED & OTHER[A]	100.0	20.0	26.7	46.7	.....	6.7	100.0	60.0	.....	20.0	.....	20.0
ENTRY[B]	100.0	28.6	42.9	14.3	.....	14.3	100.0	25.0	50.0	.....	.....	25.0
	NUMBER, BY AGE GROUP											
TOTAL	84	19	21	38	4	2	34	12	6	11	3	2
UNDER 20	14	1	5	8	.....	.....	7	1	3	3	.....	.....
20 - 24	19	.....	6	11	1	1	4	.....	1	2	.....	1
25 - 34	12	2	2	6	1	1	3	1	.....	.....	1	1
35 - 44	12	3	4	5	.....	.....	2	1	.....	1	.....	.....
45 - 54	11	2	3	5	1	.....	7	1	1	4	1	.....
55 - 64	13	8	1	3	1	.....	9	6	1	1	1	.....
65 AND OVER	3	3	.....	.....	.....	.....	2	2	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	16.7	5.3	23.8	21.1	.....	.....	20.6	8.3	50.0	27.3	.....	.....
20 - 24	22.6	.....	28.6	28.9	25.0	50.0	11.8	.....	16.7	18.2	.....	50.0
25 - 34	14.3	10.5	9.5	15.8	25.0	50.0	8.8	8.3	.....	.....	33.3	50.0
35 - 44	14.3	15.8	19.0	13.2	.....	.....	5.9	8.3	.....	9.1	.....	.....
45 - 54	13.1	10.5	14.3	13.2	25.0	.....	20.6	8.3	16.7	36.4	33.3	.....
55 - 64	15.5	42.1	4.8	7.9	25.0	.....	26.5	50.0	16.7	9.1	33.3	.....
65 AND OVER	3.6	15.8	.....	.....	.....	.....	5.9	16.7	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	22.6	25.0	45.2	4.8	2.4	100.0	35.3	17.6	32.4	8.8	5.9
UNDER 20	100.0	7.1	35.7	57.1	.....	.....	100.0	14.3	42.9	42.9	.....	.....
20 - 24	100.0	.....	31.6	57.9	5.3	5.3	100.0	.....	25.0	50.0	.....	25.0
25 - 34	100.0	16.7	16.7	50.0	8.3	8.3	100.0	33.3	.....	.....	33.3	33.3
35 - 44	100.0	25.0	33.3	41.7	.....	.....	100.0	50.0	.....	50.0	.....	.....
45 - 54	100.0	18.2	27.3	45.5	9.1	.....	100.0	14.3	14.3	57.1	14.3	.....
55 - 64	100.0	61.5	7.7	23.1	7.7	.....	100.0	66.7	11.1	11.1	11.1	.....
65 AND OVER	100.0	100.0	.....	.....	.....	.....	100.0	100.0	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE.

[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.

[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN WOOD COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	316	63	95	113	40	5	208	54	62	61	28	3
PROF. & MANAGERIAL	8	.....	4	2	2	.....	8	.....	4	2	2	.....
CLERICAL & SALES	53	1	7	27	15	3	16	1	3	5	6	1
SERVICE	41	7	18	10	6	.....	13	4	1	3	5	.....
SKILLED	64	14	20	27	3	.....	59	14	19	23	3	.....
SEMISKILLED	51	15	17	15	4	.....	47	15	14	14	4	.....
UNSKILLED & OTHER[A]	65	23	13	22	7	.....	46	17	9	13	7	.....
ENTRY[B]	34	3	16	10	3	2	19	3	12	1	1	2
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL	2.5	.....	4.2	1.8	5.0	.....	3.8	.....	6.5	3.3	7.1	.....
CLERICAL & SALES	16.8	1.6	7.4	23.9	37.5	60.0	7.7	1.9	4.8	8.2	21.4	33.3
SERVICE	13.0	11.1	18.9	8.8	15.0	.....	6.2	7.4	1.6	4.9	17.9	.....
SKILLED	20.3	22.2	21.1	23.9	7.5	.....	28.4	25.9	30.6	37.7	10.7	.....
SEMISKILLED	16.1	23.8	17.9	13.3	10.0	.....	22.6	27.8	22.6	23.0	14.3	.....
UNSKILLED & OTHER[A]	20.6	36.5	13.7	19.5	17.5	.....	22.1	31.5	14.5	21.3	25.0	.....
ENTRY[B]	10.8	4.8	16.8	8.8	7.5	40.0	9.1	5.6	19.4	1.6	3.6	66.7
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.9	30.1	35.8	12.7	1.6	100.0	26.0	29.8	29.3	13.5	1.4
PROF. & MANAGERIAL	100.0	.....	50.0	25.0	25.0	.....	100.0	.....	50.0	25.0	25.0	.....
CLERICAL & SALES	100.0	1.9	13.2	50.9	28.3	5.7	100.0	6.2	18.8	31.2	37.5	6.2
SERVICE	100.0	17.1	43.9	24.4	14.6	.....	100.0	30.8	7.7	23.1	38.5	.....
SKILLED	100.0	21.9	31.2	42.2	4.7	.....	100.0	23.7	32.2	39.0	5.1	.....
SEMISKILLED	100.0	29.4	33.3	29.4	7.8	.....	100.0	31.9	29.8	29.8	8.5	.....
UNSKILLED & OTHER[A]	100.0	35.4	20.0	33.8	10.8	.....	100.0	37.0	19.6	28.3	15.2	.....
ENTRY[B]	100.0	8.8	47.1	29.4	8.8	5.9	100.0	15.8	63.2	5.3	5.3	10.5
	NUMBER, BY AGE GROUP											
TOTAL	316	63	95	113	40	5	208	54	62	61	28	3
UNDER 20	61	2	27	24	8	.....	31	2	17	7	5	.....
20 - 24	59	3	13	26	15	2	42	3	10	19	9	1
25 - 34	65	18	17	18	10	2	52	16	11	14	9	2
35 - 44	56	13	15	23	4	1	36	11	10	11	4	.....
45 - 54	41	16	10	14	1	.....	23	13	4	6	.....	.....
55 - 64	26	8	11	5	2	.....	19	7	8	3	1	.....
65 AND OVER	8	3	2	3	.....	.....	5	2	2	1	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	19.3	3.2	28.4	21.2	20.0	.....	14.9	3.7	27.4	11.5	17.9	.....
20 - 24	18.7	4.8	13.7	23.0	37.5	40.0	20.2	5.6	16.1	31.1	32.1	33.3
25 - 34	20.6	28.6	17.9	15.9	25.0	40.0	25.0	29.6	17.7	23.0	32.1	66.7
35 - 44	17.7	20.6	15.8	20.4	10.0	20.0	17.3	20.4	16.1	18.0	14.3	.....
45 - 54	13.0	25.4	10.5	12.4	2.5	.....	11.1	24.1	6.5	9.8	.....	.....
55 - 64	8.2	12.7	11.6	4.4	5.0	.....	9.1	13.0	12.9	4.9	3.6	.....
65 AND OVER	2.5	4.8	2.1	2.7	.....	.....	2.4	3.7	3.2	1.6	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	19.9	30.1	35.8	12.7	1.6	100.0	26.0	29.8	29.3	13.5	1.4
UNDER 20	100.0	3.3	44.3	39.3	13.1	.....	100.0	6.5	54.8	22.6	16.1	.....
20 - 24	100.0	5.1	22.0	44.1	25.4	3.4	100.0	7.1	23.8	45.2	21.4	2.4
25 - 34	100.0	27.7	26.2	27.7	15.4	3.1	100.0	30.8	21.2	26.9	17.3	3.8
35 - 44	100.0	23.2	26.8	41.1	7.1	1.8	100.0	30.6	27.8	30.6	11.1	.....
45 - 54	100.0	39.0	24.4	34.1	2.4	.....	100.0	56.5	17.4	26.1	.....	.....
55 - 64	100.0	30.8	42.3	19.2	7.7	.....	100.0	36.8	42.1	15.8	5.3	.....
65 AND OVER	100.0	37.5	25.0	37.5	.....	.....	100.0	40.0	40.0	20.0	.....	.....

[A] INCLUDES AGRICULTURE.
[B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE.
[C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

EDUCATIONAL ATTAINMENT OF JOBSEEKERS REGISTERED IN WYANDOT COUNTY
BY SEX, OCCUPATIONAL AND AGE GROUP, APRIL 25, 1965

OCCUPATIONAL GROUP OR AGE GROUP	TOTAL JOBSEEKERS						MEN JOBSEEKERS					
	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE	TOTAL	8 OR FEWER GRADES	SOME HIGH SCHOOL	HIGH SCHOOL GRADUATE	SOME COLLEGE	COLLEGE GRADUATE
	NUMBER, BY OCCUPATIONAL GROUP											
TOTAL	81	7	23	40	9	2	50	7	10	25	6	2
PROF. & MANAGERIAL.	4	1	.....	.....	1	2	4	1	.....	.....	1	2
CLERICAL & SALES ..	7	.....	2	4	1	.....	4	.....	2	2	.....	.....
SERVICE	6	.....	2	3	1	.....	3	.....	.....	2	1	.....
SKILLED	8	1	.....	6	1	.....	8	1	.....	6	1	.....
SEMISKILLED	18	1	5	12	.....	.....	14	1	4	9	.....	.....
UNSKILLED & OTHER[A].	14	2	4	7	1	.....	7	2	2	2	1	.....
ENTRY[B]	24	2	10	8	4	.....	10	2	2	4	2	.....
	PERCENT, BY OCCUPATIONAL GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PROF. & MANAGERIAL.	4.9	14.3	.....	.....	11.1	100.0	8.0	14.3	.....	.....	16.7	100.0
CLERICAL & SALES ..	8.6	.....	8.7	10.0	11.1	.....	8.0	.....	20.0	8.0	.....	.....
SERVICE	7.4	.....	8.7	7.5	11.1	.....	6.0	.....	.....	8.0	16.7	.....
SKILLED	9.9	14.3	.....	15.0	11.1	.....	16.0	14.3	.....	24.0	16.7	.....
SEMISKILLED	22.2	14.3	21.7	30.0	.....	.....	28.0	14.3	40.0	36.0	.....	.....
UNSKILLED & OTHER[A].	17.3	28.6	17.4	17.5	11.1	.....	14.0	28.6	20.0	8.0	16.7	.....
ENTRY[B]	29.6	28.6	43.5	20.0	44.4	.....	20.0	28.6	20.0	16.0	33.3	.....
	PERCENT OF OCCUPATIONAL GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	8.6	28.4	49.4	11.1	2.5	100.0	14.0	20.0	50.0	12.0	4.0
PROF. & MANAGERIAL.	100.0	25.0	.....	.....	25.0	50.0	100.0	25.0	.....	.....	25.0	50.0
CLERICAL & SALES ..	100.0	.....	28.6	57.1	14.3	.....	100.0	.....	50.0	50.0	.....	.....
SERVICE	100.0	.....	33.3	50.0	16.7	.....	100.0	.....	.....	66.7	33.3	.....
SKILLED	100.0	12.5	.....	75.0	12.5	.....	100.0	12.5	.....	75.0	12.5	.....
SEMISKILLED	100.0	5.6	27.8	66.7	.....	.....	100.0	7.1	28.6	64.3	.....	.....
UNSKILLED & OTHER[A].	100.0	14.3	28.6	50.0	7.1	.....	100.0	28.6	28.6	28.6	14.3	.....
ENTRY[B]	100.0	8.3	41.7	33.3	16.7	.....	100.0	20.0	20.0	40.0	20.0	.....
	NUMBER, BY AGE GROUP											
TOTAL	81	7	23	40	9	2	50	7	10	25	6	2
UNDER 20	11	.....	6	5	.....	.....	7	.....	4	3	.....	.....
20 - 24	30	.....	9	13	8	.....	16	.....	2	8	6	.....
25 - 34	16	1	2	11	.....	2	13	1	1	9	.....	2
35 - 44	16	3	5	8	.....	.....	7	3	2	2	.....	.....
45 - 54	4	1	.....	2	1	.....	3	1	.....	2	.....	.....
55 - 64	4	2	1	1	.....	.....	4	2	1	1	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT, BY AGE GROUP[C]											
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
UNDER 20	13.6	.....	26.1	12.5	.....	.....	14.0	.....	40.0	12.0	.....	.....
20 - 24	37.0	.....	39.1	32.5	88.9	.....	32.0	.....	20.0	32.0	100.0	.....
25 - 34	19.8	14.3	8.7	27.5	.....	100.0	26.0	14.3	10.0	36.0	.....	100.0
35 - 44	19.8	42.9	21.7	20.0	.....	.....	14.0	42.9	20.0	8.0	.....	.....
45 - 54	4.9	14.3	.....	5.0	11.1	.....	6.0	14.3	.....	8.0	.....	.....
55 - 64	4.9	28.6	4.3	2.5	.....	.....	8.0	28.6	10.0	4.0	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	PERCENT OF AGE GROUP, BY EDUCATIONAL ATTAINMENT[C]											
TOTAL	100.0	8.6	28.4	49.4	11.1	2.5	100.0	14.0	20.0	50.0	12.0	4.0
UNDER 20	100.0	.....	54.5	45.5	.....	.....	100.0	.....	57.1	42.9	.....	.....
20 - 24	100.0	.....	30.0	43.3	26.7	.....	100.0	.....	12.5	50.0	37.5	.....
25 - 34	100.0	6.2	12.5	68.8	.....	12.5	100.0	7.7	7.7	69.2	.....	15.4
35 - 44	100.0	18.8	31.2	50.0	.....	.....	100.0	42.9	28.6	28.6	.....	.....
45 - 54	100.0	25.0	.....	50.0	25.0	.....	100.0	33.3	.....	66.7	.....	.....
55 - 64	100.0	50.0	25.0	25.0	.....	.....	100.0	50.0	25.0	25.0	.....	.....
65 AND OVER	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

[A] INCLUDES AGRICULTURE. [B] APPLICANTS HAVING POTENTIAL QUALIFICATIONS FOR ENTRANCE JOBS FOR WHICH THEY DO NOT HAVE FULLY QUALIFYING TRAINING OR EXPERIENCE. [C] MAY NOT TOTAL, DUE TO ROUNDING.

DIVISION OF RESEARCH AND STATISTICS
OHIO BUREAU OF UNEMPLOYMENT COMPENSATION, COLUMBUS

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Kentucky, North Carolina, Tennessee, Virginia,

The objectives of the study were to -- (1) compare educational goals of rural youth and their parents, and (2) determine the relationships of the similarities and differences to such factors as geographic area, state, sex, level of living, residence, family size, and club membership. A survey sample, selected from an equi-partitioned universe characterized by rural residence and school size, included six ninth and 10th grade children from each of 48 subgroups in Kentucky, North Carolina, Tennessee, and Virginia. Questionnaires and interest inventories were administered. Boys preferred outdoor, mechanical, computational, scientific and persuasive activities, while girls preferred artistic, literary, social service, musical and clerical activities. Mothers encouraged continuance of education more strongly than fathers. No differences in educational and vocational plans were found between members and nonmembers of 4-H Clubs, Future Homemakers of America, and Future Farmers of America. Youth's educational expectations increased in relation to level of living background. (JM)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Bulletin 107
Southern Cooperative Series
September 1965

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SOUTHERN COOPERATIVE SERIES

Bulletin No. 107

This bulletin is the 107th in the series of Southern Cooperative Bulletins. Under the procedure of cooperative publication, Bulletin No. 107 becomes, in effect, a separate publication for each of the cooperating stations and is mailed under the frank and indicia for each of the cooperating stations.

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EDUCATIONAL AND VOCATIONAL GOALS OF RURAL YOUTH IN THE SOUTH

Introduction

The present day emphasis given the President's economic opportunities program reinforces previous concern over the rural population's educational and vocational aspirations and expectations. The relationships between education, occupation, and level of living have been amply established. That the educational goals of rural youth are generally surpassed by those of urban youth is likewise recognized.

For some time now several organizations available to rural youth have incorporated into their programs units pertaining to careers. These programs were designed to enlighten rural youth in terms of job opportunities and requirements. In 1961, objectives of the 4-H program included as a longtime and annual county goal "have the youth in the 16-20 year group improve their understanding of career and employment requirements and opportunities" (6). In Future Farmers of America and in Future Homemakers of America general objectives are "to develop competent, aggressive, rural agricultural leadership" and "to help individuals improve personal, family, and community living," respectively (38, 27). Purposes also listed include furthering interest in agriculture and home economics.

A concern for a better understanding of certain of the rural population's educational and vocational goals and some factors possibly related to these goals led to the present study. The objectives of this cooperative project were: (1) to describe similarities and differences in educational and vocational goals of rural youth and of their parents for them; and (2) to determine the relationships of the similarities and differences in these goals to such factors as (a) geographic area; (b) state; (c) sex; (d) level of living; (e) farm or nonfarm residence; (f) family size; and (g) membership in certain rural youth organizations.[1]

Two reviews have recently summarized available research on educational and occupational goals of rural youth and their families (3, 15). The present account, therefore, will discuss, first, studies as to the age level of youth chosen for study, and then, in turn, available findings on the other six independent variables of the present survey affecting youths' expressed attitudes and aspirations and those of their parents.

[1] See page 9 for definition of the variables employed in this study.

Age and the Choice Process

Evidence from earlier research has indicated that occupational interest begins to stabilize in the ninth grade (35). There is support also that many decisions having a bearing on college and occupational plans are made several years prior to the senior year in high school, as the young person chooses school subjects, activities, and friends (30, 23, 31). The importance of gaining information from young adolescents has been further emphasized through a study of rural youth in Iowa in which it was found that boys and girls who wanted to become farmers or farm wives made their decision early in high school and then became less flexible about their choice than other youths (5, 4).

State and Area within State

Considerable variability among economic regions and subregions is usually attributed to the labor force as well as to the availability of jobs for new entrants to the labor force. Some rural areas provide only subsistence farming and unskilled labor of a seasonal nature whereas other areas have been found to be highly industrialized counties with a minimum of differences in terms of rural-urban aspirational levels (37, 19).

In each of the states contributing to this study, agriculture has shown a decline while industrialization has spread into those geographical locations affording adequate sources of raw materials, transportation, or manpower. Manufacturers contributing to a rapid industrial development in the southern area included here have been the extractive, tobacco, food, pulp and paper, chemical, furniture, and textile industries. It should be pointed out that agriculture, none the less, still remains a major element in the economy of many sections of the Southern Appalachian area.

The distinct difference which area within a state may make in occupational planning is illustrated in the work of Schwarzweller (33) in studying young men who did and did not leave poorer farming areas of Eastern Kentucky. The influence of industrialization was similarly seen in Ford's (17) Appalachian survey which pictured conditions and opinions in the mountain areas of the four states involved in the present study. Evidence was produced that these areas are no longer isolated in thinking and in educational values. Many organizational differences in educational systems exist among states. Consequently, no attempt has been made to generalize for the four-state area.

Sex Comparisons

Ford's (17) survey pointed out that earlier disparities in regard to education of boys and girls are being erased in rural mountainous areas even more than in urban localities. In a national survey of 14 to

18 year olds reported by Douvan (10), it was shown that percentages of high school boys expecting to attend college increased during high school years. In another study of 14 to 18 year old girls, Douvan (12) reported that the percentage of girls expecting to attend college diminished during the high school years.

Studies using the Kuder interest inventory have repeatedly confirmed the sex differences which led its originators to provide separate norms and profiles for boys and for girls. A study of tenth grade Ohio youth indicated that parents showed more agreement with respect to their daughter's top interest rather than their son's. Youth-parent agreement varied according to the sex of the youth and to the particular field of interest (22).

In many of the occupational choice studies made, residence differences have appeared for boys but not for girls (1, 2, 11, 13). Authors have often attributed this phenomenon to the secondary importance girls give to employment.

Level of Living

The relation between socioeconomic level and the hopes and efforts of young people toward their future life work has been a consistent observation (3, 28). Larger percentages of high than of low socioeconomic status youth have been found to continue their formal education in Pennsylvania (2), New Jersey (18), Washington (14), Indiana (8), and in Utah (7). In Kentucky socioeconomic status of the family was found to be particularly influential for boys (32). In two South Appalachian studies the general economic level of the whole community in which the youth grew up was noted to be of significance in their decisions regarding education (16, 33).

Residence

Although most studies of educational and occupational goals have pointed toward rural-urban differences, Haller (20) found no significant difference in the aspirations of farm and nonfarm rural boys when occupational opportunities other than farming were controlled.

There is little question that farm boys planning to farm differ in their value orientations from boys not planning to farm (20, 24, 36). They prefer rural living, outdoor work, work involving physical activity and the use of machinery, and work involving little contact with people.

Family Size

Family size has received little attention in studies related to choices of academic subjects, college attendance, or occupational choice. Edlefsen (14) reported that the only child expressed more certainty of

entering college than did those having brothers and sisters. Nam and Cowhig's (26) nation-wide study of factors related to college attendance indicated a slight negative influence of family size on numbers of youth actually reaching college who had planned to attend in the fall of their senior year. Elder (15), reviewing data concerning achievement orientations and career patterns of rural youth, noted that the size of the family determines theoretical maximum financial support for each child. Strauss' (36) investigation of personal characteristic and functional needs in the choice of farming as an occupation noted that family size did not influence choice of farming.

Membership In Organizations

Membership in rural youth groups as a variable in studies of occupational plans has occurred in relation to choice of farming. Kaldor (24) found length of 4-H Club membership was not greatly different between boys planning to farm and other boys. As might be expected, boys planning to farm were more frequently members of FFA. A study concerning career choices among 4-H Club members in Virginia reported that members listed the local 4-H leader and participation in the 4-H Career Exploration as most helpful in learning about careers (34).

Procedures

The Technical Committee for the regional project established the procedures to be followed by all contributing states. A complete study was carried out in each state, and later, data were pooled in order to obtain a four-state analysis.

The sample of ninth and tenth graders was designed to include six children from each state in each of 48 subgroups. There were 48 combinations of two sexes by two membership roles by three levels of living by two residences by two family sizes ($48=2 \cdot 3 \cdot 2 \cdot 2 \cdot 2$). The six students were spread geographically over the state—two from each of three areas.[2] The design ultimately called for a state sample of 288 youth, their mothers and their fathers.

Student information sheets which served to classify youth as to subgroup, were administered to the ninth and tenth grade students of randomly selected schools. The public schools of each state which were predominantly white, non-parochial, not located within corporate limits of cities of 50,000 or more and had chapters of FFA, or FHA or 4-H were visited in random order. Students who lived with both parents at a rural residence were eligible for selection which was

[2] These areas were delimited on the basis of soil and type of farming. Areas within the states usually took the names Eastern, Central, and Western areas.

made at random in randomly selected subgroups for each school visited.[3] The total sample included 285 cases in Kentucky, 281 in North Carolina, 288 in Tennessee, and 285 in Virginia.

The selection of the sample, then measurement of youths' attitudes toward an education, their educational and occupational plans, and vocational preferences required three visits to each school. Questionnaires identical to those of the youth were administered by an interviewer to mothers and fathers in their homes. Parents were asked to answer the questionnaires as they hoped their sons or daughters answered them at school.

Data Analyses

Analyses of variance were employed to point out notable differences among means on educational questionnaire scores and vocational preference subscores for seven control variables. These variables included: sex, boy or girl; membership, with a background of at least one semester in FFA or FHA, or one year in 4-H Club against no such background; level of living, interpreted as high, middle, or low as measured by a level of living scale;[4] residence, interpreted as farm or nonfarm; family size, defined as 1-2 child family or 3 or more child family; state, Kentucky, North Carolina, Tennessee, or Virginia; and area, the three areas in each state as determined by soil type. The three areas of each state would be said, in analysis of variance parlance, to be *nested* in the state classification and then both were *crossed* with all of the other five variables.

In this study, data from a survey have been analyzed by analysis of variance methods developed largely for handling data from experiments. Our terminology (e.g. "control variables" and "effects") has been colored by the experimentalist and we must take care that our interpretations do not suffer from a confusion of survey and experiment. In the first place the sample was not representative of the population of ninth and tenth graders in their proper proportions. For example, children of small families and lower levels of living were relatively scarce in the population but they were equally represented in the sample. In North Carolina, where the tally sheets used in drawing the sample were examined, it was found that in the schools visited there were as many as 532 boy nonmembers of middle level of living nonfarm residents and from large farm families and as few as 13 boy members of low level of living nonfarm residences and small family size in a partition. Our sample can be called "equipartitioned" rather than "representative."

[3] In North Carolina, for example, 6,923 eligible students were contacted in the 51 schools visited. Of this number, 3,557 were boys; 2,827 were members; 1,899 were in low, 3,509 in middle, and 1,515 were in high level of living groups; 2,790 were living on farms; and 1,844 came from small size families.

[4] An adaptation of the Cornell Level of Living Scale (9).

Next, keeping in mind the equi-partitioned universe from which our equi-partitioned sample was drawn, we chose to generalize to only the four-state geographic "region." The state variable was treated as fixed. The reader who wonders whether an effect might be more widespread geographically would do well to see if it interacted with the state variable and not expect its persistence if there were an interaction (Tables 1, 2 and 3).

Readers when applying our findings in their work with youth would not expect to manipulate the "control" variables of this study, but rather, will manipulate their own actions in accord with the control variable values of the youth with which they deal. For example, one will not change residences but will take note of them. To say that there was a "sex main effect" is simply a rather misleading way of saying there was a difference between boys and girls (One should add "in the equi-partitioned universe.").

Table 1. Significance Levels in Percents Where Null Hypotheses Were Rejected Upon Testing 22 Effects on Each of 11 Youths' Scores*

	Scale										
	Educational	Outdoor	Mechanical	Computational	Scientific	Persuasive	Artistic	Literary	Musical	Soc. Service	Clerical
Main Effects											
Sex	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05
Membership		.05	.05	.50							2.5
Level of Living	.05				.05				5.0		.50
Residence	1.0	.05	1.0		1.0		5.0				
Family Size	5.0						5.0				
Interaction											
Sex by Memb.		.05									
Sex by LOL											
Sex by Res.	2.5	2.5				0.1					
Sex by Fam. S.											
Memb. by LOL				5.0			2.5				
Memb. by Res.		.50									
Memb. by Fam. S.											
LOL by Res.											
LOL by Fam S.											
Res. by Fam. S.							1.0				
Blocking Effects											
State	.05	5.0								2.5	
Area in State	2.5	5.0						5.0			2.5
Blocking Interactions											
State by Sex		5.0	5.0	5.0			1.0		.50	2.5	
State by Memb.	2.5							5.0			
State by LOL									5.0	5.0	
State by Fam. S.											2.5

* Significance levels are shown as percents, for example, 5.0 = $p < .05$.

Table 2. Significance Levels in Percents Where Null Hypotheses Were Rejected Upon Testing 22 Effects on Each of 11 Fathers'-Minus-Youths' Scores*

	Scale										
	Educational	Outdoor	Mechanical	Computational	Scientific	Persuasive	Artistic	Literary	Musical	Soc. Service	Clerical
Main Effects											
Sex	.05	.05	.05	.05	.05	2.5	.50	1.0	.05	.05	.05
Membership											
Level of Living								2.5		5.0	
Residence											
Family Size											
Interactions											
Sex by Memb.		1.0				2.5					
Sex by LOL											
Sex by Res.					5.0	2.5					
Sex by Fam. S.										5.0	
Memb. by LOL											
Memb. by Res.											
Memb. by Fam. S.							5.0				
LOL by Res.											
LOL by Fam. S.											
Res. by Fam. S.											
Blocking Effects											
State		.05	.05			2.5		.05	.05	5.0	.05
Area in State											
Blocking Interactions											
State by Sex	2.5	.05						1.0			5.0
State by Memb.							5.0				
State by LOL						2.5	2.5			.50	
State by Res.											
State by Fam. S.											

* See notation, bottom of Table 1.

The shape of the distribution of deviations between observed educational questionnaire scores and the fitted subgroup means was a little flat in the center but still passably close to the bell-shaped normal distribution. In no case, among the 33 variables analyzed, did the higher-than-second-order pooled interaction mean square exceed to any extent the within subgroup mean square. These two results gave evidence that use of the F-tables was probably quite proper.

Every first order effect and all two-way interactions for each of the six factors (area in state and state were considered as one factor) were tested for each of the 33 analyses. This involved 22 x 33 = 726 tests and even with purely random data about 36 rejections at the 5 percent level would be found. Tables 1, 2, and 3 show considerably more cases of rejection but it should be recognized that 10 or 20 could have occurred by chance.

Table 3. Significance Levels in Percents Where Null Hypotheses Were Rejected Upon Testing 22 Effects on Each of 11 Mothers'-Minus-Youths' Scores*

	Scale										
	Educational	Outdoor	Mechanical	Computational	Scientific	Persuasive	Artistic	Literary	Musical	Soc. Service	Clerical
Main Effects											
Sex	.05	.05	.05	.05	.05			.50	.05	.05	.05
Membership				2.5							
Level of Living					.50						5.0
Residence			5.0								
Family Size											
Interactions											
Sex by Memb.											
Sex by LOL							1.0				
Sex by Res.						.50					
Sex by Fam. S.											
Memb. by LOL											
Memb. by Res.		.10									.05
Memb. by Fam. S.											
LOL by Res.											
LOL by Fam. S.											
Res. by Fam. S.											
Blocking Effects											
State	.50		.05	.05	.50		.05			.05	
Area in State											
Blocking Interactions											
State by Sex		5.0		.05	1.0		.50		.05		5.0
State by Memb.	5.0						5.0				
State by LOL											
State by Res.											
State by Fam. S.											

* See notation, bottom of Table 1.

Contingency table chi-square values were used to signal significant associations between vocational questionnaire items and sex, level of living, family size, residence, and membership status. Data on these items were analyzed separately for each state for boys and for girls and for parents of boys and for parents of girls. The total number of chi-square tables examined was 240. Only those associations reaching a significant level in two or more states (a total of 23) were considered for description. While chi-square probably does a good job of indicating differences in proportions responding to the items from boys to girls, from members to nonmembers and so forth, it does not take into account the stratification, in equi-partitioned style, of the sample. In an example worked in detail it was found that the chi-

square test did not detect a difference at the .01 level when a test accounting for the stratified nature of the sample did show such a relationship. This indicates that the chi-square test may be an overly conservative procedure.

Educational Attitude Scores

The Hieronymous questionnaire, Attitude Toward Education, was administered to the students, and later, each of their parents was asked to respond to the statements as they hoped their youngster had answered them. This scale was designed to test the student's opinion as to the value of an education in general rather than on his attitude toward the educational practices of the school which he was attending. The scale was constructed by the method of summated ratings. Two types of items were included, (1) a number of favorable and unfavorable statements about the value of an education, such as:

The most common way in which poor people raise their standard of living is through education.

A. Strongly Agree B. Agree C. Undecided D. Disagree E. Strongly Disagree

and; (2) a number of multiple choice items depicting student situations in life which reflected the value placed upon education, such as:

How much of the time do you enjoy being in school?

a) All the time
b) Most of the time
c) Fairly often
d) Hardly ever
e) Never

Although the principal focus of this study was on differences in score averages—differences associated with changes in the subgroupings of the sample—an appreciation of these differences can best be gained by observing the overall level of the scores and their range of variation. This base line information is provided in Table 4.

For the equi-partitioned sample the mean score on the educational value scale was 181.7.[5] This was an estimate of the mean of the equi-partitioned population and had a standard error of estimate of .44 score points. Such a value suggested that had the entire eligible school populations of all four states been measured, re-measured again and again, and the resulting mean scores for each subgroup been averaged, then the result would not be further away from 181.7 than perhaps twice .44. We "know" the average to be in the range 181 and 183; if it is not then our sample is truly an unlikely one.

The standard deviation of 14.7 (see Table 4) indicates how much one youth differed from the next when they were both in the same

[5] The mean for the equi-partitioned sample in North Carolina was 183.0. When each partition was expanded by the reciprocal of its sampling fraction the estimated mean in the actual population was 182.7. The similarity of these two results show that in this case a survey of the school population in North Carolina would have given a mean educational score close to that for the equi-partitioned sample.

Table 4. Educational Score Mean and Kuder Vocational Score Means, Standard Errors of the Means and Score Standard Deviations for Youth and Parent-Minus-Youth Differences

	Youth				Father-Youth				Mother-Youth			
Scale	Mean	±	S.E.	St. Dev.	Mean	±	S.E.	St. Dev.	Mean	±	S.E.	St. Dev.
Educational	181.7	±	.44	14.7	1.3	±	.60	20.4	3.5	±	.62	20.9
Outdoor	39.1	±	.35	11.7	3.3	±	.48	16.3	−2.9	±	.44	14.8
Mechanical	32.6	±	.27	9.3	5.1	±	.42	14.2	−4.0	±	.26	8.8
Computational	24.9	±	.20	6.7	2.9	±	.26	8.8	2.1	±	.39	13.1
Scientific	37.5	±	.33	11.1	.5	±	.37	12.6	−2.4	±	.37	12.6
Persuasive	38.6	±	.27	9.0	.8	±	.33	11.3	−1.4	±	.33	11.2
Artistic	26.9	±	.26	8.8	−2.6	±	.28	9.6	− .3	±	.29	9.7
Literary	18.8	±	.19	6.4	− .3	±	.24	8.0	.2	±	.23	7.8
Musical	13.3	±	.18	6.1	−1.0	±	.22	7.4	.4	±	.20	6.8
Soc. Service	44.7	±	.28	9.5	− .3	±	.39	13.2	2.6	±	.39	13.2
Clerical	54.5	±	.33	11.3	−1.3	±	.44	14.9	4.4	±	.45	15.2

subgroup. Whatever be the mean for a subgroup (some value near 181.7) about two-thirds of the youths' scores were within 14.7 points of this mean and 95 percent of them were within twice 14.7 or 29.4 score points of the mean. For example, while boys' and girls' means differed by 6 points it should be understood that a good many boys had scores above a good many girls even though the mean for girls was 6 points higher than the mean for boys.

Youths' educational questionnaire scores varied according to state, sex, level of living, residence, and family size.[6] Girls' mean score was higher by 5.8 points than that of boys, nonfarm youths' score exceeded that of farm youth by 2.5 points, and the mean score of youth from small family backgrounds was higher by 1.9 points than that of youth from larger families. The level of living effect revealed higher scores than the mean among youth from high (by 2.8 points) and middle (by .74 points) level of living backgrounds than among youth in the low level of living group who scored 3.6 points lower than the average.

Parent-son score disparities contributed primarily to youth-parent score differences on the educational questionnaire. Whereas boys' educational mean score was lower by 4.5 points than their fathers' score, girls' score was higher by 2.0 points than that of their fathers. Girls' mean score approximated their mothers' score (a difference of only .24 points), while boys' score was less than their mothers' score by 6.8 points.

Vocational Preference Scores

The *Kuder Preference Record* was designed to measure an individual's occupational preferences in 10 broad areas. These areas in-

[6] No main effect by membership was noted but there was a state by membership interaction. In all states except Virginia, members had slightly higher educational scores than nonmembers. In Virginia members averaged 4.9 points less than nonmembers.

clude: Outdoor, Mechanical, Computational, Scientific, Persuasive, Artistic, Literary, Musical, Social Service, and Clerical. The instrument was developed upon the assumption that an individual's preferences indicate that he likes certain types of activities. Upon identification of these preferences he can investigate the occupations that involve these activities. The form consists of numerous activities set up in groups of three. The youth were asked to indicate which of the three activities they would most prefer, and secondly, which activity they would prefer least. The parents were asked to select the activity that they hoped their youngster most preferred, and then, the activity they hoped that he least preferred.

The predominance of the sex effect is evident in the first row of Tables 1, 2, and 3. This is no surprise with regard to vocational preferences as revealed by the Kuder and it may not be surprising for educational values. At any rate Table 5 is offered in lieu of any extended discussion at present of these sex differences. Boys exceeded girls in preferring mechanical and outdoor pursuits, while girls preferred clerical and social service more than boys. Mothers and fathers agreed with each other in opposing, if only in their hopes, this sex difference exhibited by their children.

Although outdoor and mechanical interests were prime examples of youth-mother and youth-father differences, clerical, social service and scientific preferences were also involved. For example, boys showed much more mechanical interest than girls (by 23.0 points). Fathers of boys hoped their sons would be less interested in mechanical by .7 of a point, while fathers of daughters hoped the reverse to the extent of 10.9 points; the difference was between −.7 and +10.9 which is shown as —11.5 in Table 5 (Fathers of Boys-Fathers of Girls)-(Boys-Girls). Also mothers of boys hoped their sons would be less interested in mechanical by 9.1 points while mothers of girls

Table 5. Average Differences, Boys' Score Minus Girls' Score, for 33 Variables

	Youths' Scores	Father Minus Youth	Mother Minus Youth
Educational	− 5.8	6.4	6.5
Outdoor	20.4*	−12.3*	−10.0*
Mechanical	23.0*	−11.5*	−10.2
Computational	3.0*	− 3.1	− 2.1*
Scientific	10.5	− 5.9	− 3.8*
Persuasive	1.6	− 1.6	− 1.1†
Artistic	− 3.2*	1.7	.8†
Literary	− 3.1	1.4	1.4
Musical	− 5.9*	2.7*	2.1*
Social Service	−10.1*	7.2	6.4
Clerical	−13.0	5.1*	4.7*

† Not a significant difference

* A state-with-sex interaction is also present.

hoped the reverse to the extent of 1.1 points; the difference shown is −10.2.

The *outdoor* scores changed by membership status and residence and were more apparent for boys than for girls. The means as seen in Table 6 show the pattern and point to the relatively low position of the nonfarm, nonmember boys on outdoor scores.

Table 6. Outdoor Score Means of Boys and Girls According to Residence and Membership

	Boys		Girls	
	Farm	Nonfarm	Farm	Nonfarm
Members	53.3	50.8	29.4	28.2
Nonmembers	51.0	42.3	30.8	27.4

Membership and residence differences appeared on the *mechanical* preference scores: a higher mean was found among farm youth (33.2) than among nonfarm youth (31.9), and among members it was 33.7 while nonmembers had 31.4.

Membership again was a "statistically significant" factor in *computational* preferences, where nonmembers' average score exceeded that of members by 1.3 points. This was, however, a slight score difference and was almost completely confined to the higher level of living youth.

Scientific preference scores were associated with level of living—averaging 39.4 for high, 38.1 for middle, and 34.9 for low level of living subpopulations. This relationship was seen to change more rapidly between low and middle than between middle and high. The nonfarm half of the sample had an average scientific preference score of 38.4 versus 36.6 for the farm half.

The *persuasive* scores were fairly uniform over the study subpopulations. A sex difference was found among the nonfarm half; 40.3 for boys versus 36.9 for girls, but not very much among the farm group; 38.4 for boys and 38.6 for girls.

The *artistic* scores followed residence and family size differences as Table 7 shows. The youth from small, farm families had notably lower scores on artistic preferences.

Table 7. Artistic Score Mean of Youth According to Residence and Family Size

	Family Size	
	Small Size	Large Size
Farm	25.2	27.6
Nonfarm	27.6	27.2

Literary scores were much the same, except for the sex differences already noted. *Musical* scores varied a bit by level of living from 13.8 to 13.2 to 12.7 from high to low levels of living. In North Carolina, however, the middle level of living group had the highest average

musical preference. On the *social service* subscale score, differences were slight.

The *clerical* scores showed changes in level by membership and level of living differences. The nonmembers scored an average of 55.3 against 53.8 for members. Along the level of living axis clerical score averages rose from 53.3 to 54.2 to 56.1 while levels of living changed from high to middle to low.

In Table 2 the effects signalled were so scattered that, other than those sex differences previously mentioned, we chose not to discuss them. In Table 3 the number of significant effects are, as in Table 2, not worthy of too much attention but the extreme level of two membership-by-residence interactions led to the presentation of table 8 showing mother-minus-youth score averages.

Membership differences were not the same among farm as among nonfarm youth. On clerical scores youth were closer to their mothers' scores among farm members and nonfarm nonmembers and showed differences (they were quite far below their mothers) among farm nonmembers and nonfarm members. Just the reverse of this pattern was found for girls on their outdoor scores; the farm member and nonfarm nonmember girls were further below their mothers' scores for them. Only the mothers of nonfarm, nonmember boys came at all close to the scores of their sons on outdoor preferences (Table 8).

Table 8. Mother Minus Youth Outdoor and Clerical Score Averages According to Residence and Membership

	Outdoor				Clerical (Youth Combined)	
	Boys		Girls			
	Farm	N. Farm	Farm	N. Farm	Farm	N. Farm
Members	−7.6	−10.2	3.5	1.4	2.4	6.3
Nonmembers	−9.6	− 4.3	1.2	2.2	5.7	3.3

Educational and Occupational Plans

The vocational questionnaire was constructed by the technical committee. Youth were asked their expectations or opinions in regard to: (1) length of schooling, (2) plans—noncollege, college, (3) degree of parental urging received to continue schooling, (4) degree of financial help—schooling, (5) occupation desired, (6) occupation expected, (7) parents' attitude toward plans, (8) parents' opinion of plans, and (9) degree of financial help—occupation. Parents of the youth were given the same questionnaire and they were asked to respond according to their expectations and opinions of their son's or daughter's future.

There was a remarkable similarity between boys and girls in their reported plans for further schooling. This similarity can be seen in Table 9. The general pattern—most youth planning to finish high school, half as many planning to finish college, with lesser numbers in other categories—was perhaps not surprising, but the point-to-point

Table 9. Length of Schooling Expected by Boys and Girls by Level of Living

Response to Length of Schooling Item	Boys Level of Living High	Mid.	Low	Total	Girls Level of Living High	Mid.	Low	Total
This will be last year	0	2	4	6	1	1	2	4
Another year or two	4	6	4	14	0	2	6	8
Finish high school	61	110	144	315	49	112	138	299
Begin college	11	13	7	31	15	13	5	33
Graduate from college	91	47	23	161	97	49	27	173
Continue professional study	26	14	4	44	26	15	8	49
Sums	193	192	186	571	188	192	186	566

correspondence between the sexes even within level of living groups was noteworthy.[7]

The association between schooling plans and level of living can also be seen in Table 9. The transition from finish-high-school plans to graduate-from-college plans marked the high level of living sector from the other two level of living groups. The middle level of living sector also had a different distribution of plans from the low but the number of those planning to finish high school was not too distinct.

When those youth who did not plan to go to college were asked what training they expected to get, the sex difference became pronounced (see Table 10). This was due primarily to the military training option chosen by the boys and additionally to their heavy choice of the "help my father" response. The relatively few youth who said they planned to go to work immediately is worth noting.[8]

Table 10. Noncollege Plans by Boys and Girls

Response to Item on Noncollege Plans	Boys	Girls
Take training course before working	58	168
Take apprentice or on-the-job training	23	19
Go to work immediately	19	30
Help my family at home (Girls)		9
Help my father in his occupation (Boys)	41	
Marriage as soon as I leave school (Girls)		17
Do military service (Boys)	109	
Undecided	102	97
Not applicable (planning college or non-response)	220	230
Sums	572	570

Youths' perceptions of their parents' urging to continue school were related to level of living in a way that suggested that their perceptions were probably realistic. Most of the results in Tables 11 and 12 support this observation. Boys and girls were quite similar although there was a suggestion ($X^2=24.6$ on 4DF is very impressive) that mothers of girls were seen more often as encouraging their daughters

[7] Remember, the sample is "equi-partitioned" and not "representative."

[8] This also applies to the "equi-partitioned" rather than a "representative" sample.

Table 11. Boys' and Girls' Perception of Fathers' Urging to Go on to School by Level of Living

Response to Urging Item	Boys Level of Living High	Mid.	Low	Total	Girls Level of Living High	Mid.	Low	Total
Has strongly urged me to continue	115	74	48	237	104	73	49	226
Has given me some encouragement	40	68	60	168	59	53	61	173
Has never said much	30	39	55	124	24	54	56	134
Feels I should work after high school	4	10	21	35	1	8	19	28
Feels I should quit high school	3	1	0	4	0	1	0	1
Sums	192	192	184	568	188	189	185	562

Table 12. Boys' and Girls' Perception of Mothers' Urging to Go on to School by Level of Living

Response to Urging Item	Boys Level of Living High	Mid.	Low	Total	Girls Level of Living High	Mid.	Low	Total
Has strongly urged me to continue	123	84	60	267	121	99	75	295
Has given me some encouragement	33	58	56	147	52	58	60	170
Has never said much	19	34	44	97	14	28	29	71
Feels I should work after high school	5	11	20	36	1	6	20	27
Feels I should quit high school	11	4	4	19	0	0	1	1
Sums	191	191	184	566	188	191	185	564

than were mothers of boys by their sons. Paternal encouragement was perceived about the same by sons and by daughters ($X^2=3.26$ on 4DF).

In terms of financial help for schooling, boys expected to be helped in slightly more cases than girls ($X^2=9.72$ on 4DF) as can be seen from the Total columns in Table 13. Again the fairly strong association with level of living is apparent in expectations for financial help with schooling.

Table 13. Financial Help for Schooling Expected by Boys and Girls by Level of Living

Response to Financial Help Item	Boys Level of Living High	Mid.	Low	Total	Girls Level of Living High	Mid.	Low	Total
Willing to pay completely	94	63	44	201	83	59	35	177
Help a great deal	47	59	32	138	46	39	23	108
Able to give some help	47	63	82	192	55	78	88	221
Able to give no help	2	5	16	23	2	11	18	31
Would need help from me	3	2	9	14	2	3	16	21
Sums	193	192	183	568	188	190	180	558

Table 14. Financial Help for Starting Occupation Expected by Boys by Level of Living

Response to Financial Help Item	Boys Level of Living High	Mid.	Low	Total
Will give all of the help	7	4	7	18
Most of the help	104	89	73	266
Some of the help	14	19	13	46
Very little help	47	37	47	131
No financial help	20	41	43	104
Sums	192	190	183	565

As noted in Table 14, the most distinguishing items for boys in terms of financial help for an occupation were "most of the help" and "no financial help." The middle and low level of living boys were very similar to one another while the high level of living boys were more often found responding "most of the help."

Parents' expectations regarding their youths' educational and occupational plans were arranged in tables similar to Tables 9 through 14. These tables are not included here because of their similarity to those of the youth. Ideally we would like to pair the response of a child with his or her parent, characterize the kind of agreement, and then look at the association between agreement and our control variables. With such results one could locate sectors where agreement was low and thus aid in spotting value disagreements between parents and youth.

When this program of analysis was carried out on the item asking for plans for further schooling, only sex and level of living showed strong differences and Table 15 exhibits them. As one goes from youth in the lower level of living to those in a higher level the disagreement with parents increases. Generally, youth and their parents had higher expectations of schooling when they were from a higher level of living

Table 15. Agreement and Direction of Disagreement between Parents and Youth on Plans for Further Schooling by Sex and Level of Living

Degree of Agreement	Boys Level of Living High	Mid.	Low	Total	Girls Level of Living High	Mid.	Low	Total
Fathers								
Expectations greater than those of youth	47	55	41	143	45	40	35	120
Expectations in agreement with those of youth	104	109	118	331	86	108	112	306
Expectations less than those of youth	35	26	24	85	53	38	33	124
Mothers								
Expectations greater than those of youth	48	55	44	147	39	42	35	116
Expectations in agreement with those of youth	103	110	118	331	82	103	113	298
Expectations less than those of youth	35	26	22	83	62	42	32	136
Sums	372	381	367	1120	367	373	360	1100

Table 16. Agreement and Disagreement between Parents and Youth on Noncollege Plans by Sex and Level of Living

	Boys				Girls			
	Level of Living				Level of Living			
Degree of Agreement	High	Mid.	Low	Total	High	Mid.	Low	Total
Fathers								
Expectations in agreement with those of youth	16	29	33	78	18	39	53	110
Expectations different from those of youth	26	47	80	153	14	44	71	129
Mothers								
Expectations in agreement with those of youth	18	28	32	78	19	39	55	113
Expectations different from those of youth	26	47	82	155	13	44	70	127
Sums	86	151	227	464	64	166	249	479

but they did not always agree on the exact amount. This reflected, in part, the question wording which provided finely drawn distinctions concerning college plans. It should remind us, however, that where there are multiple alternatives, chances for disagreement increase. Where disagreement occurred, parents of boys, especially in the middle level of living, generally had higher expectations than their sons displayed. However, parents' educational expectations for their daughters, especially those in the high level of living group, most often were less than those of their daughters.

Disagreement regarding noncollege plans was likewise seen among parents and youth not anticipating college attendance. More similarity of noncollege plans was found among parents and daughters than among parents and sons (Table 16). Parent-youth disagreement was also more frequent among the low level of living group. This situation complements the case discussed above with regard to disagreement on plans for further schooling among the high level of living parents and youth.

The variation in agreement on parental urging by level of living can be seen in Table 17. Agreement between parents and youth was more common the higher the level of living. Boys reported having received more urging from their mothers than mothers reported having given. The amount of urging girls indicated receiving was equally above and below that reportedly given by their mothers. Fathers usually responded that they had given less urging than their sons and daughters said that they had received from them.

The kinds of occupations that youth desired and expected did not seem to vary greatly by membership, residence, or family size. Only among parents of girls did even level of living rise to an association with occupation. The nature of this relationship can be seen in Table 18 and is exactly what one might expect with the greatest level of living differences being located in preferences for the professional and technical occupations.

Table 17. Agreement and Direction of Disagreement between Parents and Youth on Parents' Urging them to Get Schooling by Sex and Level of Living

Degree of Agreement	Boys Level of Living High	Mid.	Low	Total	Girls Level of Living High	Mid.	Low	Total
Fathers								
More urging reported than was perceived by youth	24	32	45	101	25	51	42	118
Agreement with youth regarding urging given and received	108	104	65	277	108	75	66	249
Less urging reported than was perceived by youth	52	51	63	166	47	48	63	158
Mothers								
More urging reported than was perceived by youth	18	32	41	91	32	43	49	124
Agreement with youth regarding urging given and received	112	98	72	282	110	95	73	278
Less urging reported than was perceived by youth	53	55	60	168	38	40	51	129
Sums	367	372	346	1085	360	352	344	1056

Table 18. Occupations that Parents of Girls Preferred That Their Daughters Follow by Level of Living

	Fathers High	Mid.	Low	Mothers High	Mid.	Low
Professional, Tech.	128	88	72	131	95	64
Managers	1	6	1	0	4	1
Clerical	35	55	59	36	57	63
Sales	0	2	5	0	0	4
Craftsmen	0	0	1	1	0	1
Operatives	1	0	5	1	0	4
Private Housework	0	0	0	0	0	1
Service Work	8	24	28	10	25	31
Laborers	2	0	0	0	0	0
Homemakers	5	4	5	3	1	9
Sums	180	179	176	182	182	179

Summary and Conclusions

Rural ninth and tenth grade youth, approximately 288 from each of four states located in the Southern Appalachian region, were selected at random and tested as to certain of their attitudes toward an education, their educational and vocational expectations, and their vocational preferences. Both mothers and fathers of the youth were given questionnaires similar to those of the youth and were instructed to respond to them as they hoped their teenager had responded to them at school. The objectives of the study were: (1) to describe similarities and differences in educational goals of rural youth and of their parents for them; and (2) to determine the relationships of the similarities and differences in these goals to such factors as (a) geographic area; (b) state; (c) sex; (d) level of living; (e) farm or nonfarm residence; (f) family size; (g) membership in FFA, FHA, or 4-H Club.

Youth were selected at random to represent an equi-partitioned universe characterized by the following criteria: (1) rural residence; (2) enrollment in ninth and tenth grades of predominantly white county school systems having chapters of Future Farmers of America and/or Future Homemakers of America which were not located within the corporate limits of cities with 50,000 or more population. It was necessary that the selected youth be living with both parents.

As might be expected, the differences between boys and girls in regard to vocational interests, educational attitudes, as well as the degree of similarity to their parents' preferences for them, were predominant. Girls' attitudes toward an education were more favorable and were more similar to those their parents hoped they held than were boys' attitudes. The length of time that boys planned to stay in school, however, was markedly similar to girls' plans. This finding was unexpected in view of the differences that appeared between boys' and girls' evaluations of an education. It may, however, be related to the fact that boys more frequently than girls expected to receive complete or a great deal of financial help for schooling from their parents. It appears that there is a "double standard" in the requirements for education. Girls believe in the value of an education—for their brothers and some-day spouses.

Girls and boys reported considerably more "strong urging" to continue their education from their mothers than from their fathers. Burchinal (5) similarly observed that among rural tenth and twelfth grade boys in Iowa, boys talked over occupational plans with their mothers more frequently than with their fathers. In the present study, girls more often reported receiving encouragement from mothers than did boys. This stronger or more frequent maternal urging was probably responsible, in part at least, for girls' attitudes toward the value of an education.

Boys revealed a greater preference than girls for outdoor, mechanical, computational, scientific, and persuasive type activities. Girls, on the other hand, exhibited higher artistic, literary, social service, musical, and clerical interests than boys. Youth had greater sex role oriented vocational interests than their parents did for them, particularly than those of the parent of the opposite sex. Girls had higher interest than parents desired in female oriented activities such as artistic, literary, musical, and social service activities and less interest in such male related activities as outdoor, mechanical, scientific, and persuasive areas. Boys had higher outdoor, mechanical, and scientific interests and lower computational, literary, social service, musical, and literary interests than mothers and fathers preferred. Parent responses to the vocational preference test were elicited under instructions to answer as the parent *hoped* his or her son or daughter felt. It would seem likely that many of the parents' own preferences were reflected since youths' vocational interests were more similar to the responses of the parent of the same sex.

No differences between members and nonmembers of FFA, FHA, or 4-H Clubs were found in regard to attitudes toward the value of an education, nor with regard to educational or vocational plans. Does this finding imply that affiliation with such organizations has no effects on educational values nor plans? Not when this lack of difference is seen in conjunction with the fact that membership status was associated with certain vocational interests. Members' interest was higher than nonmembers' interest in mechanical and outdoor type activities and lower in clerical, computational, and literary type activities.[9] Thus the interests of members were already in areas which traditionally require lesser amounts of schooling. Their educational values and their plans for further study, however, were not noticeably less than those of nonmembers. Other membership-related differences were in the nature of interactions. The outdoor scores appeared to be in accord with the rural instincts which resonate among nonfarm, member boys but which were surprisingly restrained among girls—even the farm girls who were members. Fairly high outdoor scores were also found among the farm boys who were nonmembers. The nonfarm, nonmember boys had relatively low outdoor scores.

A greater value was placed upon an education by youth from a high or middle level of living background rather than those from a low level of living background. Youths' educational expectations increased in relation to level of living background; a college diploma was envisioned almost twice as frequently by boys and girls from a high level of living background as among middle level of living youth, and four times as frequently as among youth from a low level of living background. Youth from a high level of living background reported

[9] The findings reported here reinforce those of a similar study in North Carolina by Price (29). She found that except in the mechanical and social service areas, no significant differences were observable in the vocational preferences of members and nonmembers of Future Homemakers of America or in their attitudes toward the value of an education. Members had greater vocational interest in mechanical and social service areas than nonmembers.

having received more parental urging to continue their education than did other youth which could have accounted, in part, for their higher expectations and more favorable attitudes toward an education. Those results were not unexpected but their magnitude was still impressive.

A "lack of finances" has been found to be a frequent answer given by rural youth when asked why they did not attend college. Christiansen (7) has noted that despite the lack of relationship between reported family income and college plans, a relationship existed between rural youths' perception of their families' relative economic position and their plans for college. A perception of "above average" family income was associated with college plans. In the present study the amount of financial help for schooling that boys and girls expected to receive was seen to increase according to level of living background. The majority of all youth expected some financial help from their family. Sharp differences were noted, however, between the three level of living groups with respect to complete help, a great deal of help, and some help expected. Boys and girls from the high level of living group most frequently expected complete help whereas youth from middle and low level of living backgrounds usually expected some help. Youth from middle and particularly low level of living backgrounds when reporting lack of college plans may have been realistically appraising the financial resources that would be available to them.

The state of agreement between parents' and youths' expectations for further schooling was not too encouraging. About 57 percent of the parent-youth cases were in agreement. The direction of the disagreement varied and disagreement between youth and parents was more pronounced the higher the level of living. Sectors of frequent disagreement were higher level of living girls and their mothers, with girls reporting considerably greater educational expectations than their mothers reported. Youth-parent disagreement regarding non-college plans was more frequent among low level of living families.

Youth from high and middle level of living backgrounds displayed more scientific and musical interest than youth from the low level of living group. This scientific interest is explainable in that certain cultural advantages, generally more prevalent among upper and middle level of living groups, are known to stimulate an interest in discovering new facts and solving problems. Likewise, there may be greater emphasis and resources expended on musical interests among higher level of living families.

Residence, whether farm or nonfarm, was seldom associated with similarities or differences between rural youths' educational attitudes and plans, their vocational interests, and those that their parents hoped they held. Differences in the value youth placed upon an education according to residence were evident. Nonfarm youth placed a higher value on an education than did farm youth. That this residence difference was virtually absent among girls substantiates other studies in which residence differences have occurred for boys but not for girls

(1, 2, 11, 13). This occurrence has been explained as being related to the secondary importance girls attach to employment.

Farm and nonfarm residence were associated with differences in vocational interests. As was the case with educational attitudes, the residence differential was not always present for girls. Artistic-related activities held less interest for farm youth than for nonfarm youth. Little association with art as a medium or as a profession on the part of most farm youth could account for farm-nonfarm differences. A preference for scientific activities was significantly lower among farm than among nonfarm youth. This observation would seem to support similar studies which have shown less inquisitiveness among farm youth than among nonfarm youth.

The degree of similarity between rural youths' educational and vocational plans and their parents' preferences for them showed no relationship to size of family. A small-family background, that is, two or fewer children, was associated with youths' more favorable attitudes toward the value of an education. Parents with several children are doubtless aware of the crucial apportionment of family resources for schooling and consequently are more likely to communicate to youth less anxiety about their education than other parents. It is surprising, however, that this did not show up in differing educational plans.

The artistic interest exhibited by rural youth from families with three or more children was significantly greater than that shown by youth from smaller families. This difference, however, was confined to the farm group. Differences seen here may be accountable in that leisure time for the development of creative interests is more available in larger farm families in which there are a number of family members to share the farm responsibilities.

Data from this study lend support to the current concern over the economically deprived in that it appears that many of rural youths' educational and occupational expectations and those their parents hold for them are closely related to the family's level of living status.

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Appendix A

INSTRUMENTS

Three questionnaires were administered to the youth and to their mothers and to their fathers. Parents, interviewed after the youth, were given questionnaires corresponding to those given their teenagers and were asked to answer them as they hoped their sons or daughters answered them at school. The schedules used in the study included: the Hieronymous questionnaire, Attitudes Toward Education (21); a vocational questionnaire developed for the study by the Technical Committee; and the *Kuder Preference Record, Vocational Form* (25).

The Attitudes Toward Education scale elicited information about attitudes and opinions regarding the value of an education as well as a consideration of situations in life which reflected the value placed on education. The vocational questionnaire concerned expectations with respect to educational and vocational plans beyond high school and anticipated financial help with these plans. The *Kuder Preference Record* was designed to measure ten areas of vocational interest; outdoor, mechanical, scientific, persuasive, artistic, computational, literary, musical, social service, and clerical.

Parents also completed an information sheet relating to such data as: number of years of school attended, subject matter studied, past and present occupations.

The education of parents of the students represented a grade range of 0-19 years of schooling. In each state a median grade range of 8-10 was observed for both fathers and mothers of boys and of girls.

Appendix B

The following questionnaire is an example of the type administered to boys and to their parents. Changes occurring on the girls' questionnaire are noted. Parents of boys questionnaire was identical to that of boys and parents of girls questionnaire duplicated that of the girls. Parents were asked, for example, "How far do you expect your son (daughter) to go in school?"

STUDENT VOCATIONAL QUESTIONNAIRE FOR BOYS

INSTRUCTIONS: Read each question carefully. Then answer it according to the instructions given with the question itself.

1. How far do you expect to go in school? (check one)
   - _____ This will probably be my last year
   - _____ Another year or two
   - _____ I intend to finish high school
   - _____ I expect to start to college but probably won't finish
   - _____ I expect to graduate from a four year college
   - _____ I expect to continue professional study after college graduation

2. How many years do you expect to take courses in these subject in high school?

	How many more years will you take?	Check the ones you consider to be important for your future
Agriculture	_____	_____
Biology	_____	_____
Chemistry and physics	_____	_____
Commercial course (such as typing or bookkeeping)	_____	_____
English	_____	_____
Foreign language	_____	_____
Home economics	_____	_____
Industrial training	_____	_____
Mathematics	_____	_____
Social science (such as history, government, economics)	_____	_____

PLANS BEYOND HIGH SCHOOL

3. If you are not planning to attend college, what are your plans? Check the statement below that best fits your plans.

_____ Take training courses before working (such as, trades school, business college, evening vocational classes at high school, correspondence courses)
_____ Take apprentice or on the job training for skilled labor work
_____ Go to work immediately, without further job training
_____ Help my father in his occupation, farm, or business
_____ Get the military service requirement out of the way before further planning
_____ Undecided

(Girls)
If you are not planning to attend college, what are your plans? Check the statement below that best fits your plans.

_____ Take training courses before working (such as beauty school, business college, practical nursing school, evening vocational classes at high school, correspondence courses)
_____ Take apprentice or on the job training, such as for nursing aide, receptionist, etc.
_____ Go to work immediately without further job training
_____ Marriage as soon as I leave school
_____ Help my family at home
_____ Undecided

4. If you are planning to attend college, answer these questions:

a. What college will you attend? _____
(name of college)

b. What courses of study do you plan to follow in college?

_____ Agriculture
_____ Commerce
_____ Dentistry
_____ Education
_____ Engineering
_____ Fine Arts
_____ Home Economics
_____ Law
_____ Liberal Arts (social science, language, etc.)
_____ Nursing
_____ Pharmacy
_____ Physical or Biological Science
_____ Pre-Medicine
_____ Religion
_____ Veterinary Medicine

c. If you plan to enroll in agriculture, which area interests you most?

_____ Agriculture Education
_____ Agricultural Economics
_____ Agricultural Engineering
_____ Agronomy
_____ Animal and Poultry Science
_____ Dairy Processing
_____ Food Technology
_____ General Agriculture
_____ Horticulture
_____ Entomology and Plant Pathology
_____ Landscape Architecture
_____ Rural Sociology
_____ Forestry
_____ Veterinary Medicine

(Girls)
If you plan to enroll in Home Economics, which area interests you most? (check one)

_____ Child development and family relations
_____ Clothing and textiles
_____ General home economics
_____ Home economics education
_____ Foods and nutrition
_____ Interior decoration and design
_____ Home management and housing

5. As to continuing my education beyond high school, my father:
_____ has strongly urged me to continue
_____ has given me some encouragement to continue
_____ has never said much about it
_____ feels that I would be better off going to work after high school
_____ feels that I should quit high school and go to work

6. As to continuing my education beyond high school, my mother:
_____ has strongly urged me to continue
_____ has given me some encouragement to continue
_____ has never said much about it
_____ feels that I would be better off going to work after high school
_____ feels that I should quit high school and go to work

7. As to any further help from my folks in getting a start or in continuing schooling after high school, my parents would be:
_____ willing to pay my way completely
_____ financially able to help me a great deal
_____ financially able to give me some help
_____ financially able to give me no help
_____ would need financial support from me if I went to college

8. The occupations I would most like are:
1. _____ 2. _____
3. _____ 4. _____

9. What do you actually expect you will be doing as a lifetime kind of work? (Be specific as to what occupation you actually plan to follow.)

10. What do your parents think of your present occupational plans? (check one)
_____ Think I am shooting too high
_____ Think it's a good occupation and I have a chance of making it
_____ Think I should be trying for something different
_____ They say it's entirely up to me to get what I want
_____ I have never discussed it with them

(Girls)
My father's opinion is that:
_____ girls should expect to marry rather than prepare for a career
_____ a girl needs little preparation for an occupation because she will work, at most, only a few years before marrying
_____ a girl today should be prepared for both a career and marriage

_____ marriage and homemaking are not a full time occupation for women except when the children are small
_____ a girl needs preparation for a career, but not for marriage

My mother's opinion is that:
_____ girls should expect to marry rather than prepare for a career
_____ a girl needs little preparation for an occupation because she will work, at most, only a few years before marrying
_____ a girl today should be prepared for both a career and marriage
_____ marriage and homemaking are not a full time occupation for women except when the children are small
_____ a girl needs preparation for a career, but not for marriage

11. In getting a start in the occupation I have chosen, my parents:
_____ will give me all the financial help I need
_____ will give me most of the financial help I need
_____ will give me some of the financial help I need
_____ will give me very little financial help
_____ will give me no financial help at all

12. Two lists of occupations follow. One lists occupations in agriculture and one lists occupations in other areas. For each list, indicate your three choices as preferred occupations and your familiarity with each of the nine occupations.

OTHER AREAS

Check the three occupations you most prefer	Check how familiar you are with the work involved in this occupation. I know a lot about it	I know something about it	I know very little about it
_____ Research worker or chemist	_____	_____	_____
_____ Foreman, construction	_____	_____	_____
_____ Construction worker	_____	_____	_____
_____ High school teacher	_____	_____	_____
_____ Weekly newspaper editor	_____	_____	_____
_____ College professor	_____	_____	_____
_____ Real estate salesman or insurance salesman	_____	_____	_____
_____ Construction contractor	_____	_____	_____
_____ Manager of a factory	_____	_____	_____

OCCUPATIONS IN AGRICULTURE

Check the three you most prefer	Check how much you know about the work involved in this occupation A Lot	Something	Little
_____ County extension agent	_____	_____	_____
_____ Manager of a large (dairy plant, feed mill, etc.)	_____	_____	_____
_____ Farm renter and operator	_____	_____	_____
_____ College professor	_____	_____	_____
_____ Farm owner and operator	_____	_____	_____
_____ High school teacher	_____	_____	_____
_____ Manager of farm implement store	_____	_____	_____
_____ Farm laborer	_____	_____	_____
_____ Research scientist	_____	_____	_____

(Girls)

OTHER AREAS

Check the three you prefer	Check how much you know about the work involved in this occupation		
	A Lot	Something	Little
____ College professor	____	____	____
____ Research worker (chemist, etc.)	____	____	____
____ High school teacher	____	____	____
____ Weekly newspaper editor	____	____	____
____ Buyer for department of a larger store	____	____	____
____ Real estate or insurance saleswoman	____	____	____
____ Owner, manager apartments	____	____	____
____ Office manager	____	____	____
____ Factory worker	____	____	____

OCCUPATIONS IN HOME ECONOMICS

Check the three you prefer	Check how much you know about the work involved in this occupation		
	A Lot	Something	Little
____ College professor	____	____	____
____ Research scientist	____	____	____
____ County home demonstration agent	____	____	____
____ High school teacher	____	____	____
____ Dietitian in hospital, or home ec. advertising or designer clothing factory	____	____	____
____ Manager large hotel, nursery, restaurant, clothing store	____	____	____
____ Owner, operator, restaurant, nursery school, clothing store	____	____	____
____ Manager and worker small clothing, furnishings store, restaurant, nursery school or dressmaker	____	____	____
____ Worker in clothing, foods, furniture factory or a cook or waitress	____	____	____

VT 000 046

VT 000 046 ED

A Survey of Departments of Vocational Agriculture in Delaware to Ascertain the Emphasis Being Given to the Areas of Ornamental Horticulture, Floriculture, and Turf in the Course of Study and the Physical Facilities Available. (Agr. Educ. Publication no. 2).

Barwick, Ralph P.

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*VOCATIONAL AGRICULTURE, EDUCATIONAL FACILITIES, *ORNAMENTAL HORTICULTURE, *FLORICULTURE, *TURF MANAGEMENT, *CURRICULUM, SCHOOL SURVEYS,

Delaware,

In order to determine what teaching units were included in the state's vocational agriculture programs and the facilities available to aid instruction in these areas, 18 high schools in Delaware were surveyed. In 11 schools the vocational agriculture departments were including ornamental horticulture, seven were including floriculture, and 10 were including turf units. Greenhouse facilities were available in three schools, three had propagation areas, one had cold frames, and none had nurseries. Inclusion of these three subject areas and use of additional facilities was recommended to vocational agriculture teachers. (JM)

ED015348

A SURVEY OF DEPARTMENTS OF VOCATIONAL AGRICULTURE IN DELAWARE TO ASCERTAIN THE EMPHASIS BEING GIVEN TO THE AREAS OF ORNAMENTAL HORTICULTURE, FLORICULTURE, AND TURF IN THE COURSE OF STUDY AND THE PHYSICAL FACILITIES AVAILABLE

(Study made in Winter of 1963-64)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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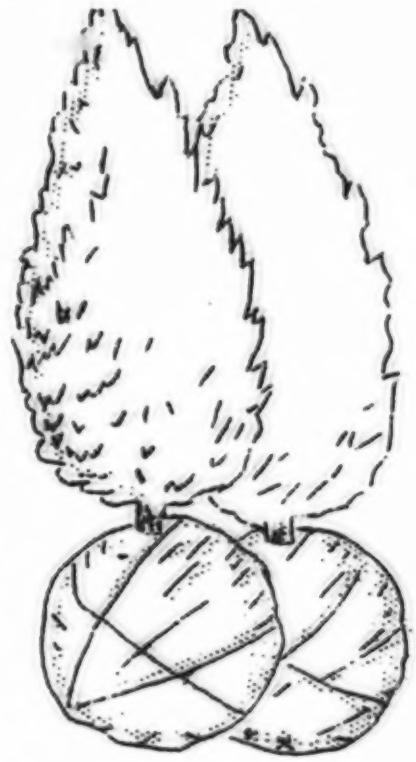

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Ag. Ed. Publication No. 2

A Survey of Departments of Vocational Agriculture in Delaware to Ascertain the Emphasis Being Given to the Areas of Ornamental Horticulture, Floriculture, and Turf in the Course of Study and the Physical Facilities Available

(Study made in Winter of 1963-64)

Ralph P. Barwick

Introduction

In recent years the areas of ornamental horticulture, floriculture, and turf have grown considerably in their importance in the State of Delaware. This increase in importance is due to the rapid population increase (40.3 per cent during the most recent census decade), increased consumer incomes (over $3,100 per capita in 1962 and the highest of any state in the U. S.), and new home construction primarily in the suburban areas.

There has been a tremendous increase in nursery crops in Delaware, particularly ornamentals. Table I shows that nursery acreage increased by 127 per cent from 1950 to 1961. Garden centers and other retail outlets have been established in great numbers to serve the needs of the consumers from the nearby housing developments. The most significant increase in sales of nursery stock took place in New Castle County where there was a

Table I

Acreage of Certified Nurseries, and Total Sales of Nursery and Greenhouse Products, Delaware, 1950-61*

Year	Nursery Acreage State	Total Sales			
		State	New Castle County	Kent County	Sussex County
		Dollars			
1950	1,113	1,872,311	739,161	101,243	1,031,905
1954	1,866	2,804,426	1,187,106	77,360	1,539,960
1959	1,869	3,059,293	1,826,376	91,448	1,141,469
1961	2,536	N.A.	N.A.	N.A.	N.A.

* Source: U.S. Census of Agriculture, 1950, 1954, 1959
Nursery Acreage, 1961 - Del. Dept. of Plant Industry

147 per cent increase from 1950 to 1959. During this same period there was an increase of 63 per cent for the State as a whole. This trend certainly indicates a bright future for ornamental crops in Delaware.

Purpose of the Study

The data included in the introduction of this study would certainly indicate the possibility of positions being available to individuals who have had the proper training in the areas of ornamental horticulture, floriculture, and turf. Training of this nature could be made available to those enrolled in vocational agriculture in the schools of Delaware by including teaching units in the course of study covering these horticultural areas.

In order to determine the extent that teaching units in the areas of ornamental horticulture, floriculture, and turf where included in the course of study of each vocational agriculture department in Delaware, and the physical facilities that were available to aid in the instruction of these areas, a survey was made during the winter of 1963-64. Specifically, the survey attempted to secure the following information:

1. Per cent of departments of vocational agriculture that include teaching units in ornamental horticulture in the course of study.

2. Per cent of departments of vocational agriculture that include teaching units in floriculture in the course of study.

3. Per cent of departments of vocational agriculture that include teaching units in turf in the course of study.

4. Mean and range of number of periods allotted by the departments of vocational agriculture in the course of study for ornamental horticulture.

5. Mean and range of number of periods allotted by the departments of vocational agriculture in the course of study for floriculture.

6. Mean and range of number of periods allotted by the departments of vocational agriculture in the course of study for turf.

7. Distribution of the number of periods allotted to ornamental horticulture by grade level.

8. Distribution of the number of periods allotted to floriculture by grade level.

9. Distribution of the number of periods allotted to turf by grade level.

10. Total number of periods allotted to the areas of ornamental horticulture, floriculture, and turf in each department of vocational agriculture including one, two, or three of the areas in the course of study.

11. Per cent of vocational agriculture departments with own greenhouse.

12. Per cent of vocational agriculture departments sharing greenhouse with another department in the school.

13. Departments with whom greenhouses are shared.

14. Size of greenhouses as measured by number of square feet.

15. Types of greenhouse construction.

16. Methods of greenhouse ventilation and heating.

17. Number of greenhouses with propagation equipment.

18. Per cent of vocational agriculture departments with a propagation area available eventhough department has no greenhouse.

19. Locations of propagation areas when not in greenhouse.

20. Per cent of vocational agriculture departments with cold frames.

21. Per cent of vocational agriculture departments operating a school nursery for ornamental plants.

22. Number of acres in school nurseries.

23. Per cent of vocational agriculture departments with land available for a school nursery.

24. Number of acres available for school nurseries.

Procedure

A survey form was distributed to the teachers of vocational agriculture in each of the 18 high schools early in the winter of 1963-64. One hundred per cent return of the survey forms was obtained.

Report of the Study

The number and per cent of the vocational agriculture departments in Delaware that included teaching units in their course of study on ornamental horticulture, floriculture, and turf is reported in Table II. Table II also includes the mean number of periods and the range in number of periods for each of the three areas.

Table II

The Extent to Which Eighteen Departments of Vocational Agriculture in Delaware High Schools Include Teaching Units in the Areas of Ornamental Horticulture, Floriculture, and Turf in the Course of Study

Teaching Unit	Number of Depts.	Per Cent of Depts.	Mean Number of Periods	Range in Number of Periods
Ornamental Horticulture	11	61	16	5 - 50
Floriculture	7	39	12	3 - 25
Turf	10	55	8	4 - 20

Sixty-one per cent of the vocational agriculture departments in Delaware included ornamental horticulture units in the course of study, 39 per cent included floriculture, and 55 per cent included turf. The mean number of periods allotted to ornamental horticulture was 16, with the range being from five to 50. Twelve was the mean number of periods for floriculture, with a range from three to 25, and the mean number of periods for turf was eight, with a range from four to 20.

Distribution of the number of periods allotted to ornamental horticulture by grade level in the 11 departments of vocational agriculture including it in the course of study is reported in Table III.

Table III

Distribution of the Number of Periods Allotted to Ornamental Horticulture by Grade Level in the Eleven Departments of Vocational Agriculture Including It in the Course of Study

Department*	Number of Periods in						
	9th Grade	10th Grade	9th & 10th Combined	11th Grade	12th Grade	11th & 12th Combined	Total
A		5		5	5		15
C	5						5
G		6					6
H				25	15		40
I				5	5		10
J		20		30			50
K						10	10
L				3	3		6
P						20	20
Q			5			5	10
R					6		6

* Each department was assigned a letter of the alphabet rather than publish the name of the department. However, once a letter was assigned to a department it is used to designate that department throughout this paper.

Distribution of the number of periods allotted to floriculture by grade level in the seven departments including it in the course of study is reported in Table IV.

Table IV

Distribution of the Number of Periods Allotted to Floriculture by Grade Level in the Seven Departments of Vocational Agriculture Including It in the Course of Study

Department*	Number of Periods in						
	9th Grade	10th Grade	9th & 10th Combined	11th Grade	12th Grade	11th & 12th Combined	Total
A		5		5	5		15
C	5						5
J		10					10
K			5			20	25
L				3			3
P						20	20
Q			5			5	10

* Each department was assigned a letter of the alphabet rather than publish the name of the department. However, once a letter was assigned to a department it is used to designate that department throughout this paper.

Distribution of the number of periods allotted to turf by grade level in the ten departments including it in the course of study is reported in Table V.

Table V

Distribution of the Number of Periods Allotted to Turf by Grade Level in the Ten Departments of Vocational Agriculture Including It in the Course of Study

Department*	Number of Periods in						
	9th Grade	10th Grade	9th & 10th Combined	11th Grade	12th Grade	11th & 12th Combined	Total
A		5		5	5		15
C	5						5
G				6			6
H		10					10
I				3	3		6
K						5	5
L	5				3		8
M						5	5
P						20	20
R					4		4

* Each department was assigned a letter of the alphabet rather than publish the name of the department. However, once a letter was assigned to the department it is used to designate that department throughout this paper.

The total number of periods allotted to the areas of ornamental horticulture, floriculture, and turf in each department of vocational agriculture is reported in Table VI.

Table VI

Total Number of Periods Allotted to the Areas of Ornamental Horticulture, Floriculture, and Turf in Each Department of Vocational Agriculture Including One or More of These Areas in the Course of Study

Department*	Number of Periods Allotted to Ornamental Horticulture	Number of Periods Allotted to Floriculture	Number of Periods Allotted to Turf	Total Number of Periods for all Areas
A	15	15	15	45
C	5	5	5	15
G	6		6	12
H	40		10	50
I	10		6	16
J	50	10		60
K	10	25	5	40
L	6	3	8	17
M			5	5
P	20	20	20	60
Q	10	10		20
R	6		4	10

* Each department was assigned a letter of the alphabet rather than publish the name of the department. However, once a letter was assigned to a department it is used to designate that department throughout this paper.

Table VI shows that 12 departments of vocational agriculture out of a possible 18, or 66 2/3 per cent, are allotting some time in their course of study to one or more of the areas covered in this survey.

Physical Facilities

Two, or 11 per cent, of the 18 vocational agriculture departments in Delaware have their own greenhouse and one, or five and one-half per cent, shares a greenhouse with the science department in their school. Thus 16 1/2 per cent of the departments do have greenhouse facilities available.

One greenhouse covers 1,250 square feet (25' x 50'), the other covers 252 square feet (12' x 21'),and the shared greenhouse covers 420 square feet (14' x 30').

Two of the greenhouses are of the conventional type using metal and glass, and one is of the lean-to type using metal and glass. Two of the greenhouses are equipped with automatic ventilation and one has to be manually controlled. Fans are included in the ventilation system of one, but not in the other two. One greenhouse has hot air heat, the other has hot water heat, and the method of heating the third was not reported. Two of the three have mist propagation equipment.

Three, or 17 per cent, of the departments that do not have greenhouses, do have a propagation area available to them somewhere within the school plant or on the school grounds. One of the departments that has a greenhouse, also has another propagation area available to them. One, or five and one-half per cent, of the departments has a cold frame.

At the time of this survey there were no departments of vocational agriculture in Delaware operating a school nursery for ornamental plants. One department reported that they were planning to start a five-acre nursery in the spring of 1964.

Twenty-two per cent, or four, of the departments have land

available for a school nursery. The acreage available to these four departments is as follows: 1.67 acres, 2.5 acres, 5 acres, and 26 acres.

Summary and Conclusions

Sixty-one per cent of the vocational agriculture departments in Delaware at the time of this survey were including some ornamental horticulture units in their course of study, 39 per cent were including floriculture, and 55 per cent were including turf. Out of a possible 18 departments, 12, or 66 2/3 per cent, are allotting some time in their course of study to one or more of the areas of ornamental horticulture, floriculture, and turf.

Sixteen and one-half per cent have greenhouse facilities available and five and one-half per cent have cold frames.

No departments of vocational agriculture in the State were operating school nurseries at the time of this survey, but 22 per cent have land available for one.

Teachers of vocational agriculture in the State of Delaware should be aware of the importance of ornamental horticulture, floriculture, and turf in their State and community and allot a proportionate amount of time in the course of study to these areas of subject matter. The percentage of those that are including these areas in their course of study indicates that most are cognizant of the situation. However, this survey indicates that much needs to be done to improve the availability of physical facilities to increase the effectiveness of the instruction.

VT 000 047

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A Survey of Departments of Vocational Agriculture Having F.F.A. Chapters in Delaware to Ascertain the Extent Vocational Agriculture High School Graduates Can Meet the Entrance Requirements ... at the University of Delaware. (Agr. Educ. Publication, no. 1).

Barwick, Ralph P.

Delaware Univ., Newark. School of Agriculture

Oct63

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*VOCATIONAL AGRICULTURE, *HIGH SCHOOL STUDENTS, GRADE 12, *COLLEGE ADMISSION, *ADMISSION CRITERIA, *COLLEGE PREPARATION,

Delaware,

In the spring of 1963 survey forms were sent to vocational agriculture teachers and principals in 15 high schools and all responded. In 13 schools it was possible for vocational agriculture students to schedule the academic courses required for admission to the B.S. degree curriculum of the School of Agriculture at the University of Delaware. Of the 92 high school seniors enrolled in vocational agriculture, 22 had applied for admission to college and 15 had applied for admission to either the B.S. or Associate degree curriculum in the School of Agriculture at the University of Delaware. It was recommended that the vocational agriculture student who is academically capable should complete the academic courses required for admission to most colleges. (PS)

ED015348

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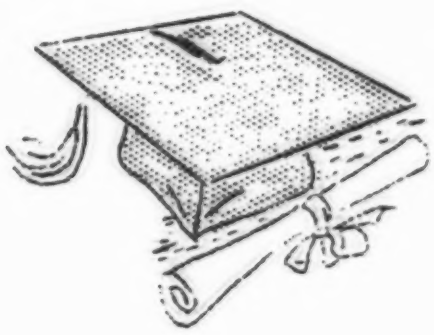
A SURVEY OF DEPARTMENTS OF VOCATIONAL AGRICULTURE HAVING F. F. A. CHAPTERS IN DELAWARE TO ASCERTAIN THE EXTENT VOCATIONAL AGRICULTURE HIGH SCHOOL GRADUATES CAN MEET THE ENTRANCE REQUIREMENTS OF THE SCHOOL OF AGRICULTURE AT THE UNIVERSITY OF DELAWARE

(Study made in Spring of 1963)



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VT000047

Ag. Ed. Publication No. 1

A Survey of Departments of Vocational Agriculture Having F. F. A. Chapters in Delaware to Ascertain the Extent Vocational Agriculture High School Graduates Can Meet the Entrance Requirements of the School of Agriculture at the University of Delaware

(Study made in Spring of 1963)

Ralph P. Barwick

The primary objective of vocational education in agriculture has been recognized as preparation for a career in farming or for off-farm agricultural occupations in which a broad knowledge of production agriculture and rural life is essential. Each year the entry into such careers upon high school graduation is becoming more difficult. More and more will the young man need to supplement his high school training with additional education. With this in mind, it is good insurance for capable young men to have completed at the time of high school graduation the courses required for entrance into an institution of higher learning.

It is logical that many of the young men who have completed the vocational agriculture course in high school should want to enroll in the agriculture curriculum in college since they are interested in agriculture, have participated in agricultural experience programs, and appreciate the science of agriculture. Also, it should logically follow that these vocational agriculture graduates of Delaware high schools would choose the University of Delaware for their training.

Current admission requirements for the Bachelor of Science degree in the School of Agriculture at the University of Delaware are as follows:

4 units (years) of English
1 unit (year) of Algebra
1 unit (year) of Plane Geometry
1 unit (year) of History
1 unit (year) of Laboratory Science
7 units of Approved Electives
15 units

The above requirements do not apply to the Associate in Applied Science degree (agriculture). The entrance requirements for this degree are:

4 units (years) of English
High School Graduate

Purpose of the Study

In order to determine the extent graduates of the 15 departments of vocational agriculture with F. F. A. Chapters in the state were meeting course entrance requirements for the B. S. degree in the School of Agriculture at the University of Delaware, a survey was made in the spring of 1963. Specifically, the survey attempted to secure the following information:

1. Per cent of schools in which vocational agriculture students could schedule the necessary academic courses required for admission to the B. S. degree curriculum of the School of Agriculture at the University of Delaware without difficulty or without making "special arrangements."

2. Per cent of schools in which vocational agriculture students could schedule the necessary academic courses required for admission to the B. S. degree curriculum of the School of Agriculture at the University of Delaware with some difficulty or without making "special arrangements."

3. Per cent of schools not permitting the scheduling of necessary academic subjects by vocational agriculture students for admission to the B. S. degree curriculum of the School of Agriculture at the University of Delaware.

4. Number of senior boys enrolled in vocational agriculture.

5. Per cent of senior boys enrolled in vocational agriculture meeting entrance requirements for the B. S. degree in the School of Agriculture at the University of Delaware at the time of graduation.

6. Per cent of senior boys enrolled in vocational agriculture who rank in the upper one-half of their high school graduating class.

7. Per cent of senior boys in vocational agriculture who have applied for admission to the B. S. curriculum in agriculture at the University of Delaware.

8. Per cent of senior boys in vocational agriculture who have applied for admission to the Associate degree curriculum in agriculture at the University of Delaware.

9. Per cent of senior boys in vocational agriculture who have applied for admission to an agricultural curriculum at a college or university other than the University of Delaware.

10. Per cent of senior boys in vocational agriculture who have applied for admission to a curriculum other than agriculture at the University of Delaware.

Procedure

A survey form was distributed to the teachers of vocational agriculture and the high school principals in each of the 15 high schools late in the spring of 1963. One hundred per cent return of the survey forms was obtained.

Report of the Study

The situation in Delaware regarding the degree to which high school graduates of vocational agriculture could meet the entrance requirements of the B. S. degree curriculum of the School of Agriculture at the University of Delaware is reported in Table I.

Table I

The Extent to Which 15 Delaware High Schools Provide Opportunity for Vocational Agriculture Students to Schedule the Necessary Academic Courses to Meet Entrance Requirements of the B. S. Degree Curriculum of the School of Agriculture at the University of Delaware

Extent to Which Needed Academic Courses Could be Scheduled Along with Vo-Ag	Number of Departments	Per Cent
Possible - no problem	11	74
Possible - with "special arrangements" or some difficulty	2	13
Not Possible	2	13
	15	100

Seventy-four per cent of the high schools in Delaware that have vocational agriculture in their curriculum and sponsor a chapter of the F. F. A. permit vocational agriculture students to schedule the necessary academic courses needed for admission to the B. S. degree curriculum of the School of Agriculture at the University of Delaware. Thirteen per cent of the schools in which agriculture was offered could provide vocational agriculture students an opportunity to schedule the needed academic courses with some special arrangements. Another 13 per cent reported that vocational agriculture students, for various reasons, could not enroll in the necessary academic courses.

High School Seniors Enrolled in Vocational Agriculture Who Were Interested in College

There were 92 high school seniors enrolled in vocational agriculture in Delaware during the 1962-63 school year. Thirty-six, or 30 per cent, were completing or had completed the academic courses required for entrance to the B. S. degree curriculum in the School of Agriculture. Of the 92 seniors, 28, or 30 per cent, ranked in the upper one-half of their high school graduating classes.

The survey showed that 22 seniors enrolled in vocational agriculture had applied for admission to institutions of higher learning. It is not known how many seniors were accepted and are now enrolled in college, however, approximately 24 per cent of the 92 seniors had applied for college admission. Nationwide approximately 30 per cent of all high school graduates obtain some college training.

Of this group of 22 seniors that had applied for admission to institutions of higher learning, 8, or 36 per cent, had applied for admission to the B. S. degree curriculum in agriculture at the University of Delaware. Seven, or approximately 32 per cent, had applied for admission to the Associate in Applied Science (agriculture) degree at the University of Delaware. This shows that of the 22 seniors planning to further their education at the collegiate level, 15, or 68 per cent, had made application to the School of Agriculture at the University of Delaware.

Of the remaining seven, four, or 18 per cent, had applied for admission to an agricultural curriculum at a college or university other than the University of Delaware and three, or 14 per cent, had applied for admission to a curriculum other than agriculture at a college or university other than the University of Delaware. None had applied for admission to a curriculum other than agriculture at the University of Delaware.

Summary and Conclusions

It was possible for vocational agriculture students to schedule the academic courses required for admission to the B. S. curriculum of the School of Agriculture at the University of Delaware in 87 per cent of the schools.

Approximately 24 per cent of the high school seniors enrolled in vocational agriculture had applied for admission to college and 68 per cent of these had applied to either the B. S. or Associate degree curriculum in the School of Agriculture at the University of Delaware.

It is recommended that the vocational agriculture student who is academically capable complete the academic courses required for admission to most colleges. While in high school a young man's goal may be strongly pointed toward an agricultural occupation in which he believes a college education is not necessary, but as he progresses through school this goal might change. He may see college attendance as necessary additional training to reach this new goal. Teachers and guidance personnel should be particularly alert concerning such students and should counsel with them as intelligently as possible.

The author is indebted to Dr. David R. McClay, Head, Department of Agricultural Education, The Pennsylvania State University, for many of the ideas and the format used in this study.

10/7/63

VT 000 048

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An Analysis of High School Vocational Agriculture from Evaluations of Graduates in the Panhandle-Plains Area of Texas.

Eggenberger, Lewis

Texas Technol. Coll., Lubbock. Dep. of Agr. Educ.

Jul64

EDRS Price MF-$0.09 HC-$2.24 56p.

FARMERS, OFF FARM AGRICULTURAL OCCUPATIONS, *PROGRAM EVALUATION, *VOCATIONAL AGRICULTURE, LEADERSHIP TRAINING, HIGH SCHOOL GRADUATES, SUPERVISED FARM PRACTICE, *VOCATIONAL FOLLOWUP, COLLEGE ATTENDANCE, PARENTAL BACKGROUND, *OCCUPATIONAL CHOICE,

Texas, Future Farmers of America, FFA Degree,

Questionnaires were sent to 1,201 of the 1,540 graduates from a representative sample of 52 of the 89 high schools in the area who had completed one or more years in vocational agriculture and who graduated in 1953, 1954, and 1955 to determine (1) their current occupation, (2) factors related to their occupational choice, (3) whether they had attended college, (4) their evaluation of course areas, (5) their evaluation of subject matter areas, and (6) their evaluation of vocational agriculture and Future Farmers of America (FFA) activities. Of the 846 who responded, 28.4 percent were farm operators, 15.7 percent were employed in farm-related occupations, 49.5 percent had entered nonagricultural employment, and 6.4 percent were in military service. Over 56 percent of the graduates whose fathers were farm operators entered agricultural occupations, compared with 18.9 percent whose fathers were in nonagricultural occupations. A graduate was more likely to become a farm operator as the number of years he had studied vocational agriculture increased. Approximately three-fifths had attended college and one-half of these had received a degree. Of the farm operators, 40 percent wished they could have substituted management or agri-business experience for supervised farm programs in high school. FFA leadership training was rated high by those in agricultural fields. (MS)

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Studies in Agricultural Education

An Analysis of High School Vocational Agriculture from Evaluations of Graduates in the Panhandle - Plains Area of Texas

Agricultural Education Department
Texas Technological College
Lubbock, Texas

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AN ANALYSIS OF HIGH SCHOOL VOCATIONAL AGRICULTURE FROM EVALUATIONS OF GRADUATES IN THE PANHANDLE-PLAINS AREA OF TEXAS

by

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July, 1964

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INTRODUCTION

High school curricula should be constantly evaluated to assist school personnel in developing courses according to the needs of the students. It is a known fact that technological innovations have caused job obsolescence while creating new job opportunities. This fact is true in vocational agriculture as well as in other areas. Consequently, information is needed to determine if present programs are being improved, and new courses are being added, to prepare students for the jobs available.

In agriculture, both advances in technology and changes in the organizational structure have provided incentive to increase the size of farms, thereby decreasing the number of farmers required to produce the food and fiber for our nation. Simultaneously, there is an increasing demand for employees with training in agriculture who understand the problems associated with distribution, processing, packaging, and marketing agricultural products.

To meet these demands, new programs are needed, and it is believed that the first step in such a development is to evaluate the students' vocational agriculture training with respect to their occupations. This particular study was developed for this purpose. It was designed to determine (1) the graduates' occupation, (2) factors related to occupational choices, (3) college attendance, (4) evaluation of high school course areas, (5) evaluation of vocational agriculture subject matter units, and (6) evaluation of vocational agriculture and Future Farmers of America (FFA) activities. The findings determined from this study should be especially beneficial to the teachers in Vocational Agriculture Area I of Texas, since the last follow-up study of graduates in this area

was conducted in 1939.

The objectives of this study were as follows:

1. To determine the present occupational status of West Texas high school graduates of 1953, 1954 and 1955, who had completed one or more years of vocational agriculture.
2. To determine the factors related to occupational choices of graduates.
3. To evaluate the high school course areas as related to occupations of the graduates.
4. To evaluate the vocational agriculture program as related to occupations of the graduates.
5. To determine possible changes that could be made in vocational agriculture in order to fulfill the needs of male high school graduates in West Texas.

METHOD OF PROCEDURE

A questionnaire was designed to obtain the information concerning the high school graduates' occupations and how they evaluated their vocational agriculture training. The years of vocational agriculture completed and the scholastic rank of the graduates were obtained from the high school permanent records.

The questionnaires were mailed to the high school graduates who had completed one or more years of vocational agriculture and who were graduated in 1953, 1954, or 1955. This period was selected as it allowed the graduates sufficient time to complete college, return from the military services, and become established in an occupation.

To obtain a representative sample, 52 high schools were selected from the 89 high schools in Vocational Agriculture Area I that had a vocational agriculture department during the 1953-1955 period. Area I consists of 38 counties that include the Panhandle of Texas. The high schools were divided into the following three groups according to the mean high school enrollments for the 1953-1955 periods: (1) below 130 enrollment, (2) 130 to 250 enrollment, and (3) above 250 enrollment. To obtain an equal number of graduates from the three groups, a random sample of 24 high schools was selected from the smaller sized schools, 17 from the medium sized schools, and 11 from the larger sized schools. Sufficient addresses of the graduates were secured from 45 of the 52 high schools.

The cooperation and hard work of the administrators and vocational agriculture teachers of the following high schools made this study possible:

Amherst	Groom	Quail
Anton	Gruver	Ralls
Booker	Hart	Ropes
Bovina	Hereford	Silverton
Childress	Idalou	Smyer
Claude	Kress	Spearman
Cooper	Levelland	Springlake
Crosbyton	Littlefield	Spur
Dalhart	Lubbock	Stratford
Darrouzette	Matador	Sundown
Dimmitt	Muleshoe	Texline
Estelline	Pampa	Three Way
Farwell	Panhandle	Tulia
Floydada	Patton Springs	Vega
Friona	Plainview	Whiteface

A total of 1540 graduates from the 45 high schools completed one or years of vocational agriculture and were graduated in 1953, 1954, and 1955. Eighteen individuals of this group were deceased at the time of the study. The vocational agriculture teachers obtained the addresses of 1201 graduates, or 78.9 percent of the total living graduates. The questionnaire was pretested by mailing it to 20 graduates who had received some vocational agriculture training in a high school that was not included in the random sample of schools. The revised questionnaire, a cover letter that explained the importance of the research, and a return envelope were mailed to the 1201 graduates. Fifty-two percent (625) of the graduates returned the questionnaire within ten days. Those who did not return the questionnaire were mailed another questionnaire and cover letter. Nineteen and seven-tenths percent (236) of the graduates complied by returning the questionnaire on the follow-up mailing. Fifteen of the 861 questionnaires returned were incomplete and were not used. The 846 questionnaires used represented 70.4 percent of the graduates whose addresses had been obtained and 55.6 percent of the total graduates.

The answers to the questions on the questionnaires were coded and punched on International Business Machine (I.B.M.) cards. This procedure

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facilitated the sorting and tabulation of the data.

Vocational Agriculture Area I was selected for this study for the following reasons: (1) the study could be coordinated with one vocational agriculture supervisor, (2) travel by the author would be limited since the schools were relatively close to Texas Technological College, and (3) the area would be easily defined if similar studies were conducted in the future. It should be emphasized that this area was not representative of all counties in Texas as to type of agriculture and cash farm income. The agriculture in this area consisted mainly of beef cattle, cotton, grain sorghum, and wheat, with considerable acreage under irrigation. The estimated cash farm income per farm in this 38-county area in 1960 was $28,675, compared to an estimated cash farm income per farm of $9,730 for the 254 counties in Texas. These estimates of cash farm income were compiled by the Bureau of Business Research, College of Business Administration, University of Texas.

The following terms were defined as follows to aid in interpreting the data:

1. Graduates: Former high school graduates who had completed one or more years of vocational agriculture.
2. Farm operator: A graduate who spent 50 percent of his time on a farm and who received 50 percent or more of his income from farming. He had to own and/or rent land to be classified as a farm operator.
3. Farm-related occupation: An occupation for which the worker needs to have experience in farming and/or a knowledge of the why and the how of farming operations or one in which he is most effective in his work if he has them. This group included those who were farm managers and farm laborers.

4. Nonagriculture occupation: An occupation for which the worker does not need to have experience in farming or a knowledge of the why and how of farming operations.

5. Vocational Agriculture Area I: A 38-county area that includes the Panhandle of Texas. The counties furthest South are as follows: Cochran, Hockley, Lubbock, Crosby, Dickens, and King.

6. Mean value rating: Determined by coding the value of "very important" as 4, "important" as 3, "little importance" as 2, and "no value" as 1.

FINDINGS

General Characteristics

Occupations of graduates

As indicated by data in Table 1, 240 graduates, or 28.4 percent, were farm operators; 133, or 15.7 percent, were employed in farm-related occupations; 419, or 49.5 percent, had entered nonagricultural occupations; and 54, or 6.4 percent, were in the military services. In comparison, 62.7 percent of the graduates' fathers were farm operators, 7.8 percent were in farm-related occupations, and 28.1 percent were in nonagricultural occupations.

The respondents who were college graduates at the time of this study were placed into occupational groups according to their college major. The seven college students majoring in agriculture were placed in the farm-related occupational group and the 19 college students who were nonagricultural majors were placed in the nonagricultural occupation group.

When those individuals employed in farm-related occupations were stratified by job category, data in Table 2 show that no category represented a high percentage of the total 846 graduates. Farm-related service occupations comprised 3.7 percent, operation and management occupations, 3.4 percent, and agricultural professions, 3.2 percent of the total graduates.

These data indicate that revising vocational agriculture to meet the needs of those individuals in any specific job category would be difficult. However, a vocational agriculture teacher should develop a teaching unit on the job opportunities available to graduates in farm-related occupations.

Table 1. Occupation of graduate compared to that of father

Occupation	Son		Father	
	N	%	N	%
Farm operator	240	28.4	530	62.7
Farm related	133	15.7	66	7.8
Nonagricultural	419	49.5	238	28.1
Military	54	6.4	-	-
Deceased	-	-	12	1.4
Total	846	100.0	846	100.0

Table 2. Job categories of graduates employed in farm-related occupations

Job category	Number	Percentage of total graduates (846)
Services	31	3.7
Operation or management	29	3.4
Agricultural profession	27	3.2
Selling	17	2.0
Farm laborer	15	1.8
Farm manager	7	0.8
College student majoring in agriculture	7	0.8
Total	133	15.7

One hundred and eight individuals, or 12.8 percent, started and left farming since graduation from high school. Seventy-eight, or 32.5 percent, of the farm operators held other jobs before becoming established in farming.

Twenty-four of the 133 graduates in farm-related occupations were farming part-time. Forty-one of the 473 graduates in nonagricultural occupations were part-time farmers. When the 41 part-time farmers were added to the 240 farm operators and to the 133 in farm-related occupations, 414, or 48.9 percent, of the total graduates were connected with agriculture. Nineteen graduates who were in a nonagricultural occupation and were not farming part-time were receiving income from investments in farm land.

Land operated by farmers

Those high school graduates who had completed one year of vocational agriculture were operating a median of 405.5 acres; those with two years, 480 acres; those with three years, 520 acres; and those who had completed four years of vocational agriculture, 580 acres.

The median number of acres of land operated by all farmers was 536.5 acres.

Migration

The 54 graduates who were in military service were not considered in the determination of the extent of migration of the graduates, as they had little choice as to where they were to be stationed. Therefore, the total for the nonagricultural group in the study of migration was 419 instead of 473.

Data in Table 3 show that only 4.1 percent (10) of the farm operators were farming more than 100 miles from the high school that they had

Table 3. Extent of migration by occupation of graduates

Migration	Occupation							
	Farm operators		Farm related		Nonagricultural		Total	
	N	%	N	%	N	%	N	%
Inside county	178	74.2	62	46.6	109	26.0	349	44.1
Outside county but within 100 miles	52	21.7	37	27.8	124	29.6	213	26.9
101 to 300 miles	4	1.6	19	14.3	70	16.7	93	11.7
More than 300 miles	6	2.5	15	11.3	116	27.7	137	17.3
Total	240	100.0	133	100.0	419	100.0	792	100.0

attended. Seventy-four and two-tenths percent (178) of the farm operators were farming in the county where they had lived and 21.7 percent (52) were farming outside the county but within 100 miles of the high school attended.

Those graduates who were employed in farm-related occupations migrated further than those who became farm operators. Forty-six and six-tenths percent (62) were employed within the county, 27.8 percent (37) were employed outside the county but within 100 miles, 14.3 percent (19) were employed 101 to 300 miles from high school attended, and 11.3 percent (15) were employed more than 300 miles from high school attended.

The graduates who were employed in nonagricultural occupations migrated further than either of the other two occupational groups. Only 26 percent (109) were employed within the county, and 29.6 percent (124) were employed outside the county but within 100 miles of the high school attended. Forty-four and four-tenths percent (186) of those in nonagricultural occupations were employed more than 100 miles from the high school attended.

The results of this study indicate that the vocational agriculture teacher can continue to develop the course of study in vocational agriculture around the needs within the county or, at most, within an area that has a radius of 100 miles from the place where he is teaching. Only 4.1 percent of the farm operators and 25.6 percent of those in farm-related occupations were working more than 100 miles from the high school attended. Seventy-four and two-tenths percent (178) of the farm operators were farming in the same county.

Factors Related to Occupational Choices of Graduates

Occupation of father

The occupation of the father was related to the occupation selected by the son, as indicated by data in Table 4. Forty and four-tenths percent (214) of the sons of fathers who were farm operators became farm operators, 16 percent (85) entered farm-related occupations, 37.9 percent (201) entered nonagricultural occupations, and 5.7 percent (30) were in the military service. In comparison, only 7.1 percent (17) of the sons of fathers who were in nonagricultural occupations became farm operators, 11.8 percent (28) of the sons were in farm-related occupations, 72.3 percent (172) entered nonagricultural occupations, and 8.8 percent (21) were in the military service. In other words, 18.9 percent (45) of the sons of the fathers who were in nonagricultural occupations entered an agricultural occupation.

Ten and six-tenths percent (7) of the sons of fathers who were in a farm-related occupation became farm operators, 25.8 percent (17) entered farm-related occupations, 59.1 percent (39) entered nonagricultural occupations, and 4.5 percent (3) were in the military service.

Of the 133 graduates employed in farm-related occupations, 63.9 percent (85) had fathers who were farm operators while the graduates were seniors in high school, 12.8 percent (17) had fathers who were employed in farm-related occupations, 21.1 percent (28) had fathers who were employed in nonagricultural occupations, and the fathers of 2.2 percent (3) were deceased.

The occupation of the high school student's father would be a good criterion to use if the vocational agriculture teacher was going to select his students on the basis of those who will eventually become farm operators or who will enter farm-related occupations. Only 7.1

Table 4. Relationship of the occupation of the son to that of the father[a]

Occupation of son	Occupation of father							
	Farm operator		Farm related		Nonagricultural		Deceased[b]	
	N	%	N	%	N	%	N	%
Farm operator	214	40.4	7	10.6	17	7.1	2	16.7
Farm related	85	16.0	17	25.8	28	11.8	3	25.0
Nonagricultural	201	37.9	39	59.1	172	72.3	7	58.3
Military	30	5.7	3	4.5	21	8.8	-	-
Total	530	100.0	66	100.0	238	100.0	12	100.0

[a]Chi-square value - 121.853. Table value at one-percent level and six degrees of freedom is 16.812. Significant at one-percent level.

[b]Not used in computing chi-square.

percent (17) of the sons of fathers who were in nonagricultural occupations became farm operators, and 11.8 percent (28) of the sons were in farm related occupations.

Total acres of land operated by father

As the size of the father's farm increased, the greater was the tendency for the son to become a farm operator. Only 4.9 percent of the sons of fathers who did not operate any land became farm operators. The percentages of the sons of fathers who operated land and became farm operators were as follows: 1 - 199 acres, 23.4 percent; 200- 499 acres, 30.4 percent; 500 - 999 acres, 43.4 percent; and 1000 acres or more, 46.0 percent.

The number of acres of land farmed by the fathers had little relationship to the tendency of sons to enter farm-related occupations. The percentage of sons who entered farm-related occupations according to the number of acres operated by the fathers were the following: none, 15 percent; 1 - 199 acres, 10.6 percent; 200 - 499 acres, 16.8 percent; 500 - 999 acres, 16.3 percent; and 1000 or more acres, 18 percent.

Years of vocational agriculture

A graduate was more likely to become a farm operator and less likely to enter a nonagricultural occupation as the number of years of vocational agriculture completed increased. Eighteen and six-tenths percent (16) of those graduates who had completed one year of vocational agriculture became farm operators, whereas 20 percent (44) of the graduates who had completed two years, 30.9 percent (105) of those who had completed three years, and 37.5 percent (75) of those who had completed four years of vocational agriculture became farm operators. The percentage of graduates who entered farm-related occupations increased when more than one year of vocational agriculture was completed. However, little diffe-

rence existed between those who completed two, three, or four years of vocational agriculture.

Some students who are entering agricultural occupations are possibly being counseled into other high school courses when they should have remained in vocational agriculture. This statement is based on the fact that 60, or 25 percent, of the 240 graduates who were farm operators had only one or two years of vocational agriculture, and 47, or 35.3 percent of the 133 graduates who had one or two years of vocational agriculture were in farm-related occupations.

Size of high school attended

No significant relationship existed between the size of high school from which an individual was graduated and the occupation entered by the graduate. Thirty-one and one-tenth percent of the graduates from the schools with an enrollment below 130 became farm operators, 30.3 percent from the schools with an enrollment of 130 to 250, and 25.2 percent from the schools with an enrollment above 250 students became farm operators.

Thirteen and seven-tenths percent of the graduates from schools with 250 or above enrollment entered farm related occupations, whereas

15.5 percent in the smaller sized schools and 18.7 percent in the medium sized schools entered these occupations.

As the school size increased, the number of graduates entering nonagricultural occupations increased.

The following observation may explain the fact that the size of the high school from which an individual was graduated did not significantly influence the occupation that he selected. The teachers in the larger high schools are selective in deciding which students should enroll in vocational agriculture, whereas in some smaller high schools vocational agriculture may even be required in order to maintain a department.

Scholastic rank of individual in high school graduating class

Of those who were graduated from high school in the upper and the second grade quartiles, 24.2 and 25.8 percent, respectively, became farm operators; whereas 31 and 31.4 percent of those in the third and the lower quartiles became farm operators. The opposite was true of those graduates entering nonagricultural occupations, as 55.7 percent of those in the second quartile entered these occupations whereas 42.6 percent of those in the third quartile were similarly employed. Approximately 50 percent of those graduates in each the upper and the lower quartiles entered nonagricultural occupations. Eleven and nine-tenths percent of the graduates in the second quartile entered farm-related occupations, whereas 20.6 percent of the graduates in the third quartile entered these occupations. Approximately 15 percent of those graduates in each the upper and the lower quartiles were employed in farm-related occupations.

College attendance

A larger percentage of those who entered farm-related or nonagricultural occupations had attended college than had those who became farm operators.

Forty-four and six-tenths percent of the farm operators had attended college, whereas 68.4 and 67.8 percent of those who entered farm-related or nonagricultural occupations had attended college.

Only 17.1 percent of the farmers were graduated from college, whereas 33.8 percent of those in farm related occupations and 35.3 percent of those in nonagricultural occupations had received a college degree.

Data in Table 5 compare the college majors of the high school graduates to their present occupations. Of the 66 farm operators who had attended one semester or more college but had not received a degree, 45.5 percent (30) had enrolled in college in an agricultural major and 54.5 percent (36) in a nonagricultural major. Forty-one farm operators were graduated from college, of which 70.7 percent (29) had majored in agriculture and 29.3 percent (12) had majored in nonagriculture curricula.

Thirty-seven percent (17) of those individuals in farm-related occupations who had not completed college had enrolled in college in an agricultural major, whereas 63 percent (29) had enrolled in a nonagricultural major. Of those who had graduated, 71.1 percent (32) majored in agriculture, and 28.9 percent (13) had nonagricultural majors.

Some high school graduates who took vocational agriculture while in high school were possibly counseled into selecting a nonagricultural major in college when they were destined to enter an agricultural occupation. Approximately three-fifths of the individuals who were in agricultural occupations and who had had some college training selected a nonagricultural major in college. Of those individuals who were graduated from college and who were in agricultural occupations, 29.1 percent had completed their college training in a nonagricultural major.

Each year more agricultural jobs are available for college graduates

Table 5. College attendance and major in college by occupation of graduates

College attendance	Major	Occupation: Farm operator N	Farm operator %	Farm related N	Farm related %	Nonagricultural N	Nonagricultural %	Total N	Total %
One semester or more college but no degree	Agricultural major	30	45.5	17	37.0	23	15.3	70	26.7
	Nonagricultural major	36	54.5	29	63.0	127	84.7	192	73.3
Total		66	100.0	46	100.0	150	100.0	262	100.0
College graduate	Agricultural major	29	70.7	32	71.1	13	7.6	74	28.9
	Nonagricultural major	12	29.3	13	28.9	157	92.4	182	71.1
Total		41	100.0	45	100.0	170	100.0	256	100.0

than there are graduates to fill these vacancies. The high school graduates who have taken vocational agriculture are the best potential source of college agricultural majors, as numerous research studies have indicated. Consequently, high school personnel should encourage more of those individuals who have had vocational agriculture to major in agriculture in college. Of the 262 individuals in this study who had had some college training but no degree, only 26.7 percent (70) were majoring in agriculture while in college, and only 28.9 percent (74) of the 256 individuals who were graduated from college majored in agriculture.

Evaluation of Course Areas

Data in Figure 1 represent the evaluation of high school course areas by graduates who were farm operators or who were employed in farm-related occupations or in nonagricultural occupations. The mean values computed were secured by coding the evaluation of "very important" as 4, "important" as 3, "little importance" as 2, and "no value" as 1. Those who had not taken a course were excluded from the computation for that course.

The farm operators rated English, speech, and typing lower than did those graduates who were in farm-related or nonagricultural occupations. Farmers rated higher the course areas in foreign language, business and bookkeeping, industrial arts, and vocational agriculture.

Those graduates in farm-related occupations rated the various course areas similarly to the way those in nonagricultural occupations rated them, with the two exceptions of science and vocational agriculture, which those in farm-related occupations rated higher.

The graduates in nonagricultural occupations rated science and vocational agriculture lower than did those who were farm operators or those who were in farm-related occupations. Foreign language, business

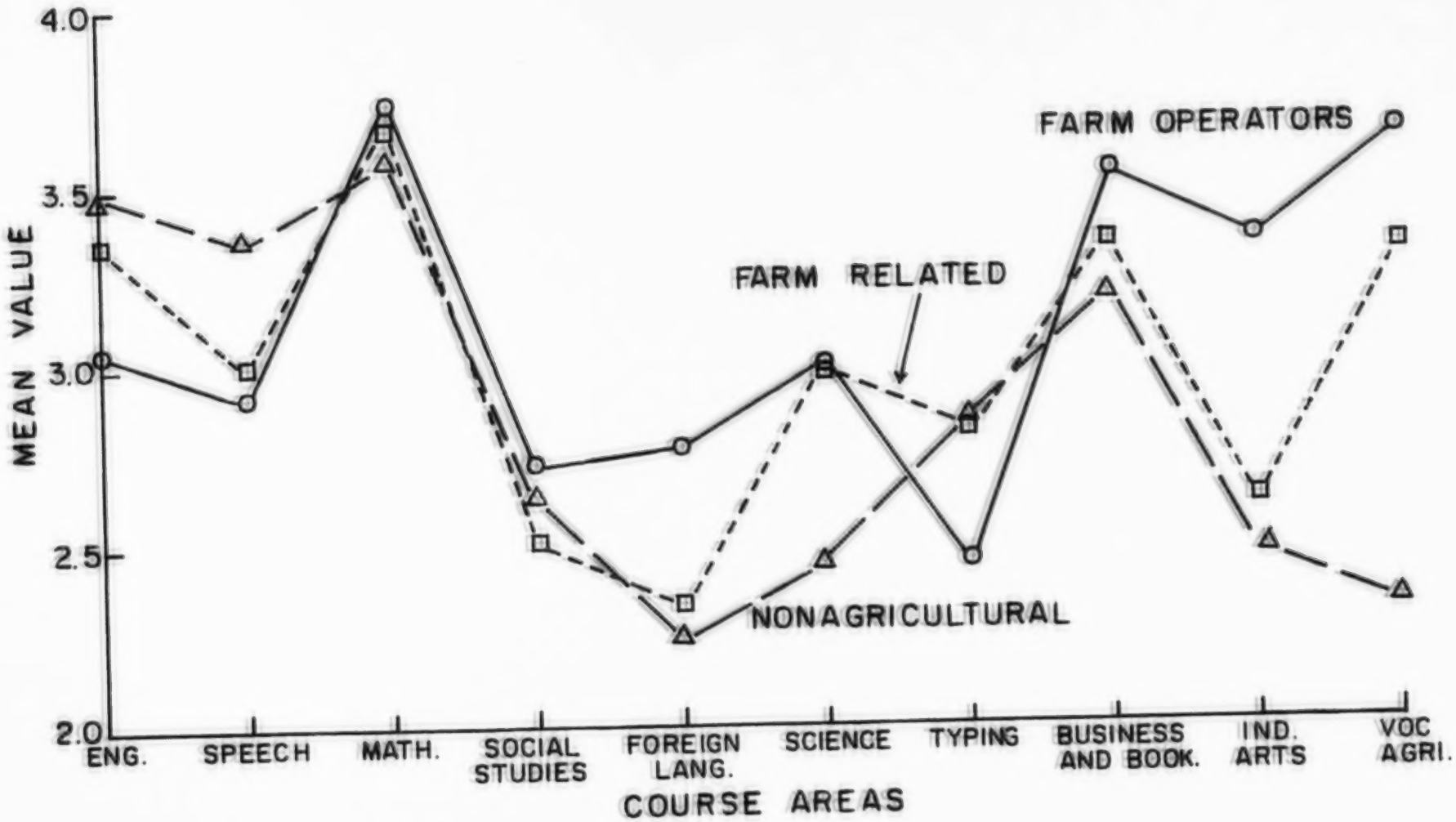

Figure 1. Evaluation of high school course areas by occupation of graduate

and bookkeeping, and industrial arts were also rated lower by those in nonagricultural occupations than by those in the other two occupational groups, but their ratings and those of graduates in farm-related occupations differed little.

The 54 graduates who were in the military service were included in the nonagricultural occupation group in all evaluation analyses. No significant relationship existed between those in the military services and those in other nonagricultural occupations in the evaluations of high school course areas or vocational agricultural activities. Also, since one-half of the 54 graduates in the military services had served over four years, they were probably making a career of the military service and would not be obtaining a civilian occupation in the near future.

Mean value ratings by graduates classified by occupations

The ranking and mean value ratings of the course areas by the individuals in the three occupational groups are presented in Table 6. Mathematics was rated highest by the graduates of all three groups. Those graduates who were farm operators rated mathematics with a mean value of 3.73 compared to 3.66 by those in farm-related occupations and 3.57 by those in nonagricultural occupations.

Vocational agriculture was rated second in importance by the farm operators, fourth by those in farm-related occupations, and ninth by those in nonagricultural occupations. The mean value of 2.32 indicates that those graduates in nonagricultural occupations considered vocational agriculture of "little importance" in their occupations.

Business and bookkeeping was rated third, second, and fourth by farm operators, by those in farm-related occupations, and by those in

Table 6. Mean value ratings of high school course areas by occupation of graduate

Course area	Occupation											
	Farm operators			Farm related			Nonagricultural			Total		
	Rank[a]	N[b]	Mean value[c]	Rank	N	Mean value	Rank	N	Mean value	Rank	N	Mean value
Mathematics	1	240	3.73	1	133	3.66	1	473	3.57	1	846	3.63
Vocational agriculture	2	240	3.63	4	133	3.31	9	473	2.32	5	846	2.84
Business and bookkeeping	3	145	3.52	2	82	3.34	4	296	3.20	3	523	3.31
Industrial arts	4	153	3.34	8	82	2.61	8	305	2.47	7	540	2.74
English	5	240	3.05	2	133	3.34	2	473	3.48	2	846	3.34
Science	6	212	3.00	6	122	3.00	6	445	2.65	6	779	2.80
Speech	7	148	2.91	5	91	3.19	3	334	3.35	4	573	3.21
Foreign language	8	77	2.77	10	36	2.33	10	146	2.24	10	259	2.41
Social studies	9	240	2.72	9	133	2.51	7	473	2.64	9	846	2.64
Typing	10	205	2.44	7	105	2.82	5	403	2.84	8	713	2.72

[a]Placed in rank order according to mean values. [b]Number of farm operators who rated the course.
[c]Determined by coding "very important" with a value of 4, "important", 3; "little importance", 2; and "no value", 1.

nonagricultural occupations, respectively. However, the mean value ranged only from 3.20 to 3.52.

The farm operators rated industrial arts fourth in importance to them in their present occupations, those in farm-related occupations rated it seventh, and those in nonagricultural occupations rated it eighth.

A mean value of 3.05 for English was indicated by the farm operators, who rated it fifth in importance to them. Those in farm-related and nonagricultural occupations rated it second with mean values of 3.34 and 3.48 respectively.

Those individuals in nonagricultural occupations rated science sixth, with a mean value of 2.65, farm operators rated it sixth, with a mean value of 3, and those in farm-related occupations rated it sixth, also with a mean value of 3.

Speech was rated seventh in importance by farm operators, but fifth by those in farm-related occupations, and third by those in nonagricultural occupations. The mean values were 2.91, 3.19, and 3.35, respectively.

The farm operators rated foreign language eighth; those in farm-related and nonagricultural occupations rated it tenth. The mean values were 2.77, 2.33, and 2.24, respectively.

Social studies was rated ninth in importance by the farm operators, ninth by those in farm-related occupations, and seventh by those in nonagricultural occupations.

Those individuals in farm-related and nonagricultural occupations rated typing seventh and fifth, respectively; the farm operators rated it tenth. The mean values were 2.82, 2.84, and 2.44, respectively.

Occasionally some high school personnel propose to substitute industrial arts for vocational agriculture in the high school curriculum. This substitution would not improve the curriculum when all occupational groups are considered. Those graduates in nonagricultural occupations rated industrial arts with a mean value of 2.47 compared to a value of 2.32 for vocational agriculture. However, the farm operators rated industrial arts with a mean value of 3.34, compared to 3.63 for vocational agriculture. Those individuals in farm-related occupations rated industrial arts with a low 2.61 mean value, whereas they rated vocational agriculture with a mean value of 3.31. The mean value ratings were 2.74 for industrial arts and 2.84 for vocational agriculture by all the graduates in this study. In this study, foreign language was possibly rated higher by the farm operators than by those graduates in farm-related or nonagricultural occupations, as the farm operators in Texas hire Latin Americans as farm laborers who may speak Spanish.

Evaluation of Vocational Agriculture

Figure 2 presents the mean value rating of vocational agriculture, eight subject matter units, and five vocational agriculture or FFA activities in which the students could have participated while in high school. The five activities include the supervised farming program, FFA training, FFA leadership teams, agricultural judging teams, and participation in the fat stock shows. The farm operators rated all phases of vocational agriculture higher than did those individuals in farm-related and nonagricultural occupations, except the FFA leadership activities. Those individuals in farm-related occupations rated the leadership activities the highest. The individuals in nonagricultural occupations rated all phases as of "little importance" to them except

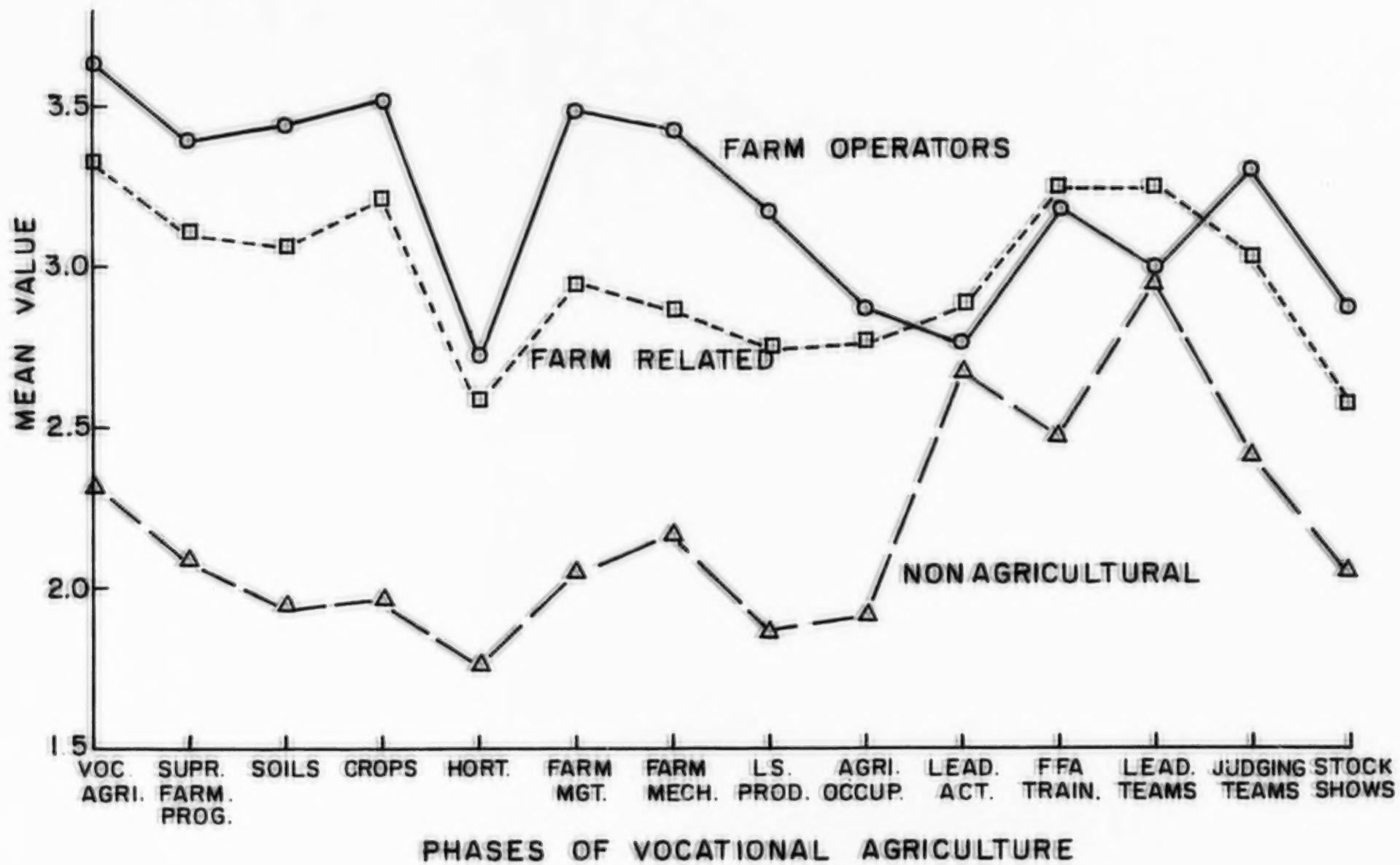

Figure 2. Evaluation of vocational agriculture by occupation of graduate

the FFA leadership activities, to which they gave a rating that approached that given by those in the other two occupational groups.

The mean value ratings of the five vocational agriculture or FFA activities by the graduates in each occupational group is indicated in Table 7.

Subject matter units in vocational agriculture

The mean value ratings of subject matter units in vocational agriculture by graduates according to occupation are presented in Table 8. Farm operators and those in farm-related occupations rated crop production first, whereas those in nonagricultural occupations rated FFA leadership activities first. The mean values for crop production were as follows: farm operators, 3.51; those in farm-related occupations, 3.21; and those in nonagricultural occupations, 1.96.

The farm operators rated farm management second in importance, whereas those in farm-related and nonagricultural occupations rated it third.

The farm operators rated soils third, whereas those in farm-related occupations rated it second, and those in nonagricultural occupations rated it fifth. Farm mechanics was rated fourth by the farm operators, fifth by those in farm-related occupations, and second by those in nonagricultural occupations.

The farm operators rated livestock production fifth, whereas those in farm-related or nonagricultural occupations rated it seventh in importance to them in their occupations.

The subject matter unit on agricultural occupations was rated sixth by those, who stated that it was taught, in all three occupational groups.

Those individuals in nonagricultural occupations rated the unit on

Table 7. Mean value ratings of vocational agriculture activities by occupation of graduate[a]

	Occupation					
	Farm operator		Farm related		Nonagricultural	
	N	Mean value	N	Mean value	N	Mean value
Vocational agriculture	240	3.63	133	3.31	473	2.32
Supervised farming program	240	3.38	133	3.10	473	2.08
FFA training	240	3.17	133	3.24	473	2.46
FFA leadership teams	157	2.99	67	3.24	240	2.95
Agricultural judging teams	165	3.30	85	3.02	283	2.40
Fat stock shows	171	2.86	78	2.56	264	2.03

[a]The mean values for the eight subject matter units, soils through leadership activities, are shown in Table 8.

Table 8. Mean value ratings of subject matter units in vocational agriculture by occupation of graduate

Subject matter unit	Occupation								
	Farm operator			Farm related			Nonagricultural		
	Rank[a]	N[b]	Mean value	Rank	N	Mean value	Rank	N	Mean value
Crop production	1	237	3.51	1	129	3.21	4	462	1.96
Farm management	2	230	3.48	3	117	2.94	3	440	2.04
Soils	3	214	3.44	2	118	3.06	5	440	1.93
Farm mechanics	4	222	3.42	5	128	2.86	2	441	2.16
Livestock production	5	239	3.16	7	132	2.74	7	471	1.86
Agricultural occupations	6	190	2.86	6	112	2.76	6	439	1.91
FFA leadership activities	7	238	2.75	4	130	2.87	1	467	2.66
Horticulture	8	176	2.70	8	98	2.58	8	400	1.75
Total number possible in each category		240			133			473	

[a]Placed in rank order according to mean value ratings.

[b]Number of farm operators rating the subject matter unit.

FFA leadership activities first in importance to them in their occupation, whereas those in farm-related occupations rated it fourth, and the farm operators rated it seventh. This unit was the only one for which the mean value was higher for those in farm-related occupations than for those who were farm operators. The mean values were as follows: those in farm-related occupations, 2.87; farm operators, 2.75; and those in nonagricultural occupations, 2.66.

Horticulture was rated eighth in importance to individuals of all three occupational groups.

The vocational agriculture teachers in Area I should review their course of studies to determine if they are giving proper emphasis to crop production, farm management, soils, and farm mechanics, as these units were rated highest by the farm operators and by those in farm-related occupations.

Future Farmers of America Degrees

The FFA degrees earned by the graduates when in vocational agriculture are compared to their present occupations in Table 9. The Green Hand Degree is the first degree that an FFA member can earn, followed by the Chapter Farmer, the State Farmer, and the American Farmer Degree.

Table 9. FFA degree earned by graduates when in vocational agriculture by occupation[a]

FFA degree	Occupation					
	Farm operator		Farm related		Nonagricultural	
	N	%	N	%	N	%
Green Hand	30	12.5	25	18.8	125	26.4
Chapter Farmer	148	61.7	92	69.2	303	65.1
State Farmer[b]	53	22.1	16	12.0	43	8.1
American Farmer	9	3.7	-	-	2	0.4
Total	240	100.0	133	100.0	473	100.0

[a]Chi-square value - 45.573. Table value at one-percent level and four degrees of freedom is 13.277. Significant at one-percent level.

[b]State Farmers and American Farmers were combined to compute the chi-square value.

Twenty-two and one-tenth percent (53) of the 240 farm operators had received a State Farmer Degree and 3.7 percent (9) had received an American Farmer Degree, whereas only 12.0 percent (16) of the 133 individuals in farm-related occupations and 8.1 percent (43) of the 473 in nonagricultural occupations had received the State Farmer Degree. None of those individuals in farm-related occupations had received an American Farmer Degree, and only two of the individuals in nonagricultural occupations had received this degree.

The percentage of individuals who had received only the Green Hand Degree was highest among those individuals who were in nonagricultural occupations. The percentages of the graduates who held this degree were as follows: farm operators, 12.5 percent; those in farm-related occupations, 18.8 percent; and those in nonagricultural occupations, 26.4 percent.

Little difference existed among the three occupational groups as to the number who had earned the Chapter Farmer Degree. Sixty-one and seven-tenths percent (148) of the farm operators had received this degree, 69.2 percent (92) of those in farm-related occupations, and 65.1 percent (303) of those in nonagricultural occupations had received the Chapter Farmer Degree.

Supervised farming program

Those individuals who were in nonagricultural occupations rated the supervised farming program of "little importance" to them in their occupations. The mean value was 2.08, compared to 3.10 for those graduates in farm-related occupations and 3.38 for those who were farm operators.

Data in Table 10 indicate the mean value ratings of the supervised farming program by the years of vocational agriculture completed in high school and the graduates' present occupation. The mean value increased as the years of vocational agriculture increased from one to three years for the three occupational groups: farm operators, farm-related occupations, and nonagricultural occupations. Those graduates who had completed four years of vocational agriculture and who were in nonagricultural occupations, or who were farm operators, rated the supervised farming program slightly lower than did those who had completed three years. Those in nonagricultural occupations who completed four years of vocational agriculture rated it with a mean value of 2.12, compared to 2.16 for those with three years. The farm operators who had completed four years of vocational agriculture rated the supervised farming program with a mean value of 3.37, compared to 3.49 for those with three years.

Those graduates who were in farm-related occupations and classified

by the number of years of vocational agriculture completed rated the supervised farming program with the following mean values: one year, 2.33; two years, 2.82; three years, 3.21; and four years, 3.44.

Forty percent (96) of the farm operators wished that they had been able to substitute management experience on the farm or in an agricultural business for the supervised farming program, whereas 44.4 percent (59) of those in farm-related occupations and 24.1 percent (114) of those in nonagricultural occupations desired to make this substitution.

Further research should be conducted concerning the desire of some graduates to substitute management and work experience on farms or in agricultural businesses for the vocational agriculture supervised farming program.

Table 10. Mean value ratings of supervised farming program by years of vocational agriculture and occupation

Years of vocational agriculture	Occupation					
	Farm operators		Farm related		Nonagricultural	
	N	Mean value	N	Mean value	N	Mean value
One	16	3.06	9	2.33	61	1.82
Two	44	3.23	38	2.82	138	2.06
Three	105	3.49	52	3.21	183	2.16
Four	75	3.37	34	3.44	91	2.12
Total	240		133		473	

FFA leadership training

Those graduates who were in farm-related occupations had received the most value from their FFA training. However, the farm operators had received nearly the same value, as the mean value computed was 3.17 compared to 3.24 for those in farm-related occupations. The graduates in nonagricultural occupations rated their FFA training considerably lower than did the other two occupational groups. The mean value computed for the nonagricultural group was 2.46.

The number of local, district, area or state FFA offices held is compared to the graduates' present occupation in Table 11. A larger percentage of those graduates who were farm operators had held an FFA office than had those who were in farm-related or nonagricultural occupations. Sixty-six and seven-tenths percent (160) of the 240 farm operators had held an FFA office, whereas only 58.6 percent (78) of those in farm related occupations and 51.6 percent (244) of those in

Table 11. FFA offices held by graduates while in vocational agriculture by occupations[a]

FFA offices held	Occupation					
	Farm operators		Farm related		Nonagricultural	
	N	%	N	%	N	%
None	80	33.3	55	41.4	229	48.4
One local office	89	37.1	45	33.8	156	33.0
More than one local office	52	21.7	25	18.8	74	15.6
District, area or state	19	7.9	8	6.0	14	3.0
Total	240	100.0	133	100.0	473	100.0

[a]Chi-square value - 21.378. Table value at one-percent level and six degrees of freedom is 16.812. Significant at one-percent level

nonagricultural occupations had held an FFA office. The farm operators and those in farm-related occupations had held more district, area or state FFA offices than had those graduates in nonagricultural occupations. The percentages of graduates who had held a district, area, or state office classified by occupation were as follows: farm operator, 7.9 percent; farm-related occupations, 6 percent; and nonagricultural occupations, 3 percent.

Little differences existed among the three occupational groups in the percentages of graduates who had held only one office. The percentage of those who had held more than one local office was highest among those who were farm operators. Twenty-one and seven-tenths percent of the farm operators, 18.8 percent of those in farm-related occupations, and 15.6 percent of those in nonagricultural occupations had held more than one local FFA office.

The mean value rating of FFA training was considerably higher for those graduates who had held one local office than for those who had not held an FFA office. As an example, the farm operators who had not held an FFA office gave their FFA training a mean value rating of 2.85, compared to a mean value of 3.24 given by those who had held a local office. These data indicate that a vocational agriculture teacher should encourage the FFA members to elect as many members as possible to local offices by selecting the officers from the vocational agriculture three and four classes to prevent a member from holding three local offices. Also junior officers, in addition to the regular chapter officers, could be elected. One hundred and fifty-one of the 846 graduates in this study held more than one local office.

The vocational agriculture teacher should also encourage his students

to work for advanced FFA degrees, as the value of FFA training increases as the degrees earned by the student advance from Green Hand to the American Farmer Degree. Those graduates who were farm operators and who had earned the Green Hand Degree while in FFA rated the FFA leadership training with a mean value of 2.87, those who had earned the Chapter Farmer Degree rated it with a mean value of 3.15, and those who had earned the State and American Farmer Degrees rated it with a mean value of 3.37.

FFA leadership contests

In Table 12 is recorded data of the participation of graduates in FFA leadership contests while the graduates were in high school as related to present occupations. Those individuals who were farm operators participated in all the contests more than did those in farm-related or nonagricultural occupations. Likewise, those in farm-related occupations participated slightly more than did those in nonagricultural occupations, except on the Chapter Farmer Farm Skill team. Six and eight-tenths percent of those in farm-related occupations participated on Chapter Farmer Farm Skills teams, compared to 8.2 percent of those in nonagricultural occupations.

The following percentages indicate the participation of the 846 graduates in the leadership contests regardless of occupation; Chapter Farmer Chapter Conducting, 29.7 percent (251); Green Hand Chapter Conducting, 29.6 percent (250); Chapter Farmer Farm Skills, 11.1 percent (94); Green Hand Farm Skills, 7.8 percent (66); Farm Radio, 7.6 percent (64); and FFA Quiz, 6.9 percent (58).

Table 12. Participation of graduates in FFA leadership contests by occupation

Leadership team	Occupation							
	Farm operator		Farm related		Nonagricultural		Total	
	N	%[a]	N	%	N	%	N	%
Chapter Farmer Chapter Conducting	84	35.0	39	29.3	128	27.1	251	29.7
Green Hand Chapter Conducting	82	34.2	41	30.8	127	26.8	250	29.6
Chapter Farmer Farm Skills	46	19.2	9	6.8	39	8.2	94	11.1
Green Hand Farm Skills	24	10.0	12	9.0	30	6.3	66	7.8
Farm Radio	22	9.2	10	7.5	32	6.8	64	7.6
FFA Quiz	18	7.5	9	6.8	31	6.6	58	6.9
Total of those who could have participated	240		133		473		846	

[a]The percentages were computed on the basis of the total number who could have participated in each occupational group.

Less than 12 percent of the graduates had participated in four of the six FFA leadership contests. Also only 65.4 percent of the graduates who were farm operators had participated in any FFA leadership contests, and only approximately one half of those in farm-related and nonagricultural occupations had participated in any FFA leadership contests. FFA leadership contests were rated higher than any other FFA or vocational agriculture activity by those who had participated in them and who were employed in nonagricultural occupations. The mean value rating given these contests by this occupational group was 2.95, compared to 2.99 for farm operators and 3.24 for those graduates in farm-related occupations. The value of

leadership contests to the graduates in each occupational group increased as the number of contests that they participated in increased and as the level of participation increased, with one exception. Those graduates who were in farm-related occupations and who had participated at the area or state level rated the value of leadership contests slightly lower than did those who had participated at only the district level.

It should be emphasized that graduates in farm-related occupations rated FFA training and training received from participating in FFA leadership contests higher than did the individuals in the other two occupational groups. Consequently, agricultural education personnel who are planning new programs for high school graduates in farm-related occupations should continue some type of leadership training for this group.

Agricultural judging contests

The participation of graduates in agricultural judging contests is presented in Table 13. Since numerous graduates participated in more than one contest while they were enrolled in vocational agricusture, the percentage of participation was computed by dividing the total number who could have participated in each occupational group into the number who did participate in each contest. Also, no distinction was made as to whether the participation was on a local, a district, an area, or a state basis.

The farm operators had participated in the various agricultural contests more than those who were in farm-related occupations or those in nonagricultural occupations, with the exception of the participation in the poultry and meats contest. Eight and three-tenths percent of the farm operators had participated in the poultry contest, 12.8 percent of those in farm-related occupations, and 12.3 percent of those in nonagri-

Table 13. Participation of graduates in agricultural judging contests

Contest	Occupation							
	Farm operators		Farm related		Nonagricultural		Total	
	N	%[a]	N	%	N	%	N	%
Livestock	116	48.3	51	38.3	154	32.6	321	37.9
Dairy Cattle	68	28.3	33	24.8	106	22.4	207	24.5
Dairy products	15	6.3	2	1.5	24	5.1	41	4.9
Cotton classing	26	10.8	14	10.5	41	8.7	81	9.6
Crops	46	19.2	24	18.0	66	13.9	136	16.1
Poultry	20	8.3	17	12.8	58	12.3	95	11.2
Meats	12	5.0	13	9.8	38	8.0	63	7.4
Land	19	7.9	7	5.3	31	6.6	57	6.7
Total of those who could have participated	240		133		473		846	

a The percentages were computed on the basis of the total number of each occupational group who could have participated.

cultural occupations had participated. Only 5 percent of the farm operators had participated in the meats contest when they were taking vocational agriculture, whereas 9.8 percent of those in farm-related occupations and 8 percent of those in nonagricultural occupations had participated. Only 1.5 percent (2) of the 133 graduates who entered farm-related occupations had participated in the dairy products contest. Six and three-tenths percent of the farm operators and 5.1 percent of those in nonagricultural occupations had participated in this contest.

The participation of the graduates in agricultural judging contests was low, as less than one fifth of the graduates had participated in six

of the eight contests. Also, 37 percent of the graduates had not participated in any of the eight contests. The eight contests rated according to participation by all graduates in descending order were: livestock, 37.9 percent; dairy cattle, 24.5 percent; crops, 16.1 percent; poultry, 11.2 percent; cotton classing, 9.6 percent; meats, 7.4 percent; land, 6.7 percent; and dairy products, 4.9 percent. The graduates who were farm operators and who were in farm-related occupations rated the value of agricultural judging contests considerably higher than did those graduates in nonagricultural occupations. The mean values by occupation were as follows: farm operators, 3.30; those in farm-related occupations, 3.02; and those in nonagricultural occupations, 2.40. With only one exception, the value of agricultural judging contests to the graduates in each occupational group increased as the number of contests that they had participated in increased and as the level of participation increased from local to state. The graduates in a nonagricultural occupation who participated in three or more agricultural contests rated the value of these contests slightly lower than did those who had participated in two contests.

Fat stock shows

The participation of graduates in fat stock shows classified by their present occupation is indicated in Table 14. Seventy-one and two-tenths percent of the farm operators had participated in fat stock shows, whereas only 58.7 percent of those graduates in farm-related occupations and 55.8 percent of those in nonagricultural occupations had participated. Very little difference existed between the three occupational groups in the number who had participated in one or two and three or four fat stock shows. Thirty-three and eight-tenths percent of the farm operators had participated in five or more fat stock shows, compared

Table 14. Participation of graduates in fat stock shows by occupation

Times showed livestock	Occupation							
	Farm operator		Farm related		Nonagricultural		Total	
	N	%	N	%	N	%	N	%
None	69	28.8	55	41.3	209	44.2	333	39.4
One or two	51	21.2	25	18.8	104	22.0	180	21.3
Three or four	39	16.2	28	21.1	77	16.3	144	17.0
Five or more	81	33.8	25	18.8	83	17.5	189	22.4
Total	240	100.0	133	100.0	473	100.0	846	100.0

to only 18.8 percent of those in farm-related occupations and 17.5 percent of those in nonagricultural occupations who had participated in five or more stock shows.

The 846 graduates had participated in fat stock shows as follows: no participation, 39.4 percent (333); one or two times, 21.3 percent (180); three or four times, 17.0 percent (144); and five or more times, 22.4 percent (189).

Graduates in nonagricultural occupations rated the training that they had received in fitting and showing livestock considerably lower than did the farm operators and those in farm-related occupations. The mean value ratings of fat stock shows for the three occupational groups were as follows: farm operators, 2.86; those in farm-related occupations, 2.56; and those in nonagricultural occupations, 2.03.

The number of times a farmer had fitted and shown livestock had a direct relation to the increased value rating of fat stock shows.

The mean values of fitting and showing livestock to farm operators by extent of participation were as follows: one or two times, 2.51;

three or four times, 2.72; five or six times, 2.90; and seven or more times, 3.30.

However, the relationship of the number of times a graduate who was in a farm-related occupation fitted and showed livestock to the value of participating in fat stock shows was not significant. The mean values by the number of times those individuals in farm-related occupations showed livestock were as follows: one or two times, 2.60; three or four times, 2.32; and five or more times, 2.80.

The number of times that a graduate who was a farm operator or who was in farm-related occupations fitted and showed livestock did not significantly affect his opinion concerning the value of the supervised farming program and had little effect on the value of the livestock production unit.

SUMMARY

The objectives of this study were to determine the present occupational status of West Texas high school graduates of 1953, 1954 and 1955 who had completed one or more years of vocational agriculture. Other objectives were to determine factors related to occupational choices of graduates; to evaluate the high school course areas and the vocational agriculture programs as related to the occupations of the graduates; and to determine possible changes that could be made in vocational agriculture in order to meet the needs of male high school graduates.

The data used in this study were secured from the permanent records of 45 high schools and from completed questionnaires obtained from 846 graduates. The number of students represented 70.4 percent of the graduates whose addresses were available.

Twenty-eight and four-tenths percent (240) of the graduates were farm operators, 15.7 percent (133) were employed in farm-related occupations, 59.5 percent (419) had entered nonagricultural occupations, and 6.4 percent (54) were in the military services.

The following factors were related to the occupational choices of the graduates at the one-percent level of significance when tested by use of the chi-square statistical method: occupation of the father, acres of land operated by the father while the son was in high school, years of vocational agriculture completed by the high school graduate, and the graduate's subsequent attendance at college. In other words, if the father was in an agricultural occupation, and as the size of the farm operated by the father increased and as the number of years of vocational agriculture completed by the graduate increased, the more likely

a graduate would enter an agricultural occupation. However, only 17.1 percent of the respondents who became farm operators graduated from college compared to one-third of those respondents who were employed in farm-related and nonagricultural occupations. The scholastic rank of the high school graduate was significant at the five-percent level. A slightly lower percentage of those individuals graduating in the upper half of their graduating class became farm operators than those graduating in the lower half. The relation of the size of high school attended and the occupational choice of the graduate was not significant.

Approximately three fifths of the 846 graduates had attended college. One half of those who had attended college had received a degree.

The graduates, not classified by occupation, rated the high school course areas in the following descending order: mathematics, English, business and bookkeeping, speech, vocational agriculture, science, industrial arts, typing, and foreign language. The farm operators rated vocational agriculture second and those graduates in farm-related occupations rated it fourth.

The farm operators rated the eight subject-matter units in vocational agriculture in the following descending order: crop production, farm management, farm mechanics, livestock production, soils, agricultural occupations, FFA leadership activities, and horticulture. The graduates in farm-related occupations rated soils and FFA leadership activities higher than did the farm operators.

The supervised farming program was rated "important" to the farm operators and those in farm-related occupations but of "little importance" to those in nonagricultural occupations.

Graduates who were in farm-related occupations or were farm opera-

tors received the most value from their FFA training indicating its value as "important". The graduates in the three occupational groups who participated in FFA leadership contests rated the training as "important" in their present occupations.

The graduates who were farm operators and who were in farm-related occupations rated the value of agricultural judging contests considerably higher than did those graduates in nonagricultural occupations. Graduates who were farm operators had greater participation and received more value from training received in fitting and showing livestock than did the other groups.

The implications of the findings of this study for vocational agriculture in the Panhandle-Plains area of Texas are as follows:

Pilot studies for senior students who plan to enter farm-related occupations are necessary to determine if management experience on a farm or in an agricultural business would be beneficial to students entering these occupations.

Teachers may need to be more selective in the students who enroll in vocational agriculture as those students who entered nonagricultural occupations rated most phases of their vocational agriculture training as of "little importance" in their occupations.

The vocational agriculture teacher and the guidance director should share in providing occupational guidance since nearly one-third of the students in this study who had entered agricultural occupations had completed only one or two years of vocational agriculture, and since approximately three-fifths of the individuals who were in agricultural occupations and who had had some college training had selected nonagricultural majors in college.

The vocational agriculture teachers in Area I may need to review their courses of studies to determine if they are giving proper emphasis to crop production, farm management, soils, and farm mechanics, as these units were rated most important by those in agricultural occupations. The usefulness of content and effectiveness of instruction of the other units in the courses of studies should be evaluated and improved.

Supervised farming programs that are of large enough scope to challenge all students are needed as the farm operators and those in farm-related occupations rated the farming program as "important" in their present occupations.

Vocational agriculture teachers should make maximum use of the FFA and continue to encourage students to obtain advanced degrees and to participate in FFA activities as leadership training was rated as "important" to all graduates.

The vocational agriculture teachers may need to evaluate carefully each FFA and agricultural judging contest as the participation in some contests was extremely low.

Young farmer programs appear to be needed in most schools, as the farm operators in this study, whose average age was 27, farmed a median of 536.5 acres. It is the vocational agriculture teacher's responsibility to help young farmers obtain information to make their farms efficient units.

APPENDIX A: FACTORS RELATED TO THE OCCUPATIONAL CHOICES OF GRADUATES

(See pages 12-17 for discussion of results)

Null hypothesis	Degrees of freedom[a]	Chi-square value	Level of significance in percent
No relationship exists between the occupation of the father and the occupation of the son that could not be attributed to random sampling differences	6	121.853	1
No relationship exists between the number of acres of land operated by the father while the son was in high school and the son's present occupation	12	130.647	1
No relationship exists between the years of vocational agriculture completed by the graduate while in high school and his present occupation	9	29.744	1
No relationship exists between the size of high school attended by the graduate and his present occupation	6	11.395	Not significant
No relationship exists between the grade quartile obtained by the student while in high school and his present occupation	9	17.878	5
No relationship exists between college attendance of graduate and his present occupation	6	46.005	1

[a]Degrees of freedom	Table value at five-percent level	Table value at one-percent level
6	12.592	16.812
9	16.919	21.666
12	21.026	26.217

APPENDIX B: EVALUATION OF VOCATIONAL AGRICULTURAL ACTIVITIES

(See Table 7, Page 27, for mean values)

Null hypothesis	Degrees of freedom	Chi-square value	Level of significance in percent
No difference existed between those graduates who were farm operators and those who were in farm-related occupations and the value they placed on the supervised farming program in their present occupation	2	10.283	1
No difference in the value of FFA training existed between those who were farm operators and those who were in farm related occupations	2	1.017	Not significant
No difference in the value of leadership contests to participants existed between those who were farm operators, those who were in farm-related occupations and those in nonagricultural occupations	4	10.630	5
No difference existed between those graduates who were farm operators and those who were in farm-related occupations and the value of agricultural judging contests in their present occupations	2	8.275	5
No difference existed between the farm operators and those in farm-related occupations in the value of fitting and showing livestock in their present occupations	3	8.04	5

[a] Degrees of freedom	Table value at five-percent level	Table value at one-percent level
2	5.991	9.210
3	7.815	11.341
4	9.488	13.277

APPENDIX C: ANALYSIS OF VARIANCE IN VALUES OF VOCATIONAL AGRICULTURE SUBJECT MATTER UNITS EXPRESSED BY GRADUATES WHO WERE FARM OPERATORS OR EMPLOYED IN FARM-RELATED OCCUPATIONS

(See pages 24-29 for discussion of results)

Source of variation	d.f.	s.s.	m.s.	F
Occupation[a]	1	45.75	45.75	10.40
Error (a)	264	1,162.23	4.40	
Subject matter units[b]	7	334.75	47.82	53.97
Occupation X subject matter units[c]	7	38.61	5.52	6.23
Within	1848	1,637.39	0.886	
Total	2127	3,218.73		

[a]For occupation F1, 264 = $\frac{45.75}{4.40}$ = 10.40**. Table value at one-percent level is 6.74.

[b]For subject matter units F7, 1848 = $\frac{47.82}{0.886}$ = 53.97**. Table value at one-percent level is 2.64.

[c]For occupation X subject matter units F7, 1848 = 5.52 = 6.23**. Table value at one-percent level is 2.64.

**Significant at one-percent level.

The data was treated with a factoral analysis of variance design to determine if any differences existed between the way farm operators and those in farm-related occupations rated the vocational agriculture subject matter units that they took while in high school. The graduates in nonagricultural occupations were not included in this analysis, as their ratings of the various units were obviously lower than those of graduates who were farm operators or who were in farm-related occupations, and this difference was not of interest to the author.

To compute the analysis of variance, the ratings of the graduates were coded as follows: "very important", 5; "important", 4; "little importance", 3; "no value", 2; and "was not taught", 1. In reviewing the results of this analysis, one should remember that all graduates in farm-related occupations and the random sample of 133 farm operators were included in the analysis, including those who said that a unit "was not taught". The numbers of the 846 graduates who stated that subject matter units were not taught were as follows: soils, 74; crops, 18; horticulture, 172; farm management, 59; farm mechanics, 55; livestock production, 4; agricultural occupations, 105; and leadership activities, 11.

The analysis of variance program available for the computer was developed for a balanced design. Consequently, a sample of 133 farm operators was randomly selected from the total of 240 farm operators in order that the number of farm operators would be the same as that of graduates who were in farm-related occupations, 133. The factors considered in this analysis were the two occupations and the eight subject matter units. The coded rating by a graduate for each subject matter unit was punched on I.B.M. cards. The total number of cards punched was 2128, as there were two occupations, eight subject matter units, and 133 replications (occupation x unit x replication; 2 x 8 x 133).

The null hypothesis that no difference existed between the way farm operators and those in farm-related occupations rated vocational agriculture courses that could not be attributed to random sampling differences was tested. The F value of 10.40 with one and 264 degrees of freedom for occupations was significant at the one-percent level. Therefore, evidence existed that a significant difference existed between the way farm operators and those in farm-related occupations rated vocational agriculture. The mean values of vocational agriculture rated by the farm operators was 3.91 and 3.61 by those in farm-related occupations.

The null hypothesis that no difference existed between the way the eight subject matter units were rated by those graduates who were in agricultural

occupations that could not be attributed to random sampling differences was tested. The F value of 53.97 with seven and 1848 degrees of freedom was significant at the one-percent level, and thus the null hypothesis was rejected. The mean value for each subject matter unit was as follows: soils, 3.91; crops, 4.30; horticulture, 2.95; farm management, 3.97; farm mechanics, 3.94; livestock production, 3.96; agricultural occupations, 3.33; and FFA leadership activities, 3.66.

The occupation and subject matter interaction was tested. The null hypothesis that no difference existed between the way farm operators and those in farm-related occupations rated the eight subject matter units taught in vocational agriculture that could not be attributed to random sampling differences was tested. The F value of 6.23 with seven and 1848 degrees of freedom was significant at the one-percent level, and thus the null hypothesis was rejected. Therefore, evidence showed that a difference did exist between the way farm operators and those in farm-related occupations rated the eight subject matter units taught in vocational agriculture. The differences in mean values between the way that the farm operators and those in farm-related occupations rated the subject matter units were as follows: soils, 0.40; crops, 0.37; horticulture, 0.11; farm management, 0.76; farm mechanics, 0.37; livestock production, 0.48; agricultural occupations, 0.02; and FFA leadership activities, 0.14. The farm operators rated all the subject matter units higher than did those in farm-related occupations, except the unit of FFA leadership activities.

VT 000 050

VT 000 050 ED

Employment Opportunities for Women in Alaska. A Collection of Data Pertaining to Knowledge and Skills of Home Economics and How These Contribute to Wage-Earning Occupations.

Bittner, Elladean Hays

Alaska State Dep of Educ, Juneau. Div of Vocat Educ.

65

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*FEMALES, *EMPLOYMENT OPPORTUNITIES, GEOGRAPHY, POPULATION DISTRIBUTION, ECONOMIC FACTORS, *EDUCATIONAL BACKGROUND, HEALTH SERVICES, EMPLOYMENT STATISTICS, FAMILY INCOME, OCCUPATIONS, RURAL AREAS, JOB TRAINING, *ESKIMOS, *OCCUPATIONAL HOME ECONOMICS,

Alaska,

Individuals and employers were interviewed in 25 towns and villages, during 1964-65 to determine -- (1) employment opportunities for women in Alaska, (2) previous job training for women, (3) the best methods of training women for available employment, (4) the need for new employment opportunities, and (5) possible new training programs. Information on the economy, geography, educational facilities, health services, and women's employment is organized by geographic regions. Background information is given on the education and working conditions of women, and the health problems of the region. Many women seeking work in Alaska were unskilled. Many Alaskan families lived in substandard housing because of low income. Job opportunities in the larger towns were more plentiful for the trained women but were scarce for the untrained. Eight recommendations included -- (1) The effort to prevent high school dropouts should be increased, (2) High schools should offer intensive courses in home economics for employment preparation in schools where the dropout rate is high, and (3) Vocational education for women should include course in money management. Separate recommendations were made for Eskimo villages. (MS)

ED015348

EMPLOYMENT OPPORTUNITIES FOR WOMEN

IN ALASKA

RELATED TO
KNOWLEDGE AND SKILLS USEFUL IN THE HOME
WHICH PROVIDE WAGE-EARNING OPPORTUNITIES

A REPORT
OF THE DIVISION OF VOCATIONAL EDUCATION, DEPARTMENT OF EDUCATION,
STATE OF ALASKA, PURSUANT TO THE DIRECTIVE AS STATED IN THE VOCATIONAL
EDUCATION ACT OF 1963

1965

VT 00050

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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EMPLOYMENT OPPORTUNITIES FOR WOMEN IN ALASKA

A collection of data pertaining to knowledge and skills of home economics and how these contribute to wage-earning occupations.

By

Elladean Hays Bittner
Home Economist

This research was approved by the State Board for Vocational Education in session on June 25, 1964, to be accomplished throughout Alaska in 1965 through the Division of Vocational Education with the cooperation of Anchorage Community College.

William T. Zahradnicek, Commissioner
Earl R. Hepler, Director

Department of Education
Division of Vocational Education

Home Economics Section

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INTRODUCTION

The economy, climate, and population characteristics of Alaska are so varied regionally that it would have been impractical to try to reach conclusions pertaining to employment that could apply to the whole State, so this report is divided into sections that are related by geography, economy, and ethnic origins.

There was poverty in some of the villages as serious as that found anywhere in the United States. At the same time, many of the towns were enjoying an unprecedented prosperity; and, in some, the rate of increase in individual income was among the highest in the United States during 1964.

Anti-poverty programs and other government projects that were being introduced to Alaskan communities changed some conditions during the year and could be expected to have an effect on women's work, as well as to reduce the number of people on welfare and the number of high school drop-outs.

Individuals and employers were interviewed in the twenty-five towns and villages visited. A list of these places and forms used as guides for the interviews and community surveys are shown in the appendix. Population information in the text, unless otherwise noted, is based upon United States census figures for 1960.

The term native is used for persons one-fourth or more Eskimo, Indian, or Aleut. The main body of the United States is referred to as Outside, in keeping with common Alaskan usage. Physically handicapped describes a person who has a physical or mental impairment which can be expected to be of a long-continued or indefinite duration and which substantially im-

pedes his ability to live independently. A dropout is a student who leaves school for any reason before completing requirements for graduation from high school. Vocational education is a form of training, the purpose of which is to fit persons for useful employment.

For a better understanding of the problems related to the employment of native women, the following reports should be read: Alaska Native Arts and Crafts, Potential for Expansion, Final Report to Bureau of Indian Affairs, University of Alaska, 1964; and Alaskan Native Secondary School Dropouts, University of Alaska, 1962.

The author is indebted to Mrs. Pat Leonard for her assistance; to Mrs. Mildred Foster and Dr. Earl Hepler for their advice and encouragement; and to Mr. Eugene Short, Director of the Anchorage Community College, for making space and facilities available.

CHAPTER I

THE PROBLEM

Purpose of the study. On August third, 1964, a research project was started to collect data pertaining to gainful and useful occupational skills of women in Alaska in order to carry out the directive as stated in the Vocational Education Act of 1963:

> "Ten per centum of the sums appropriated pursuant to Section 2 (authorization of appropriations section) for each fiscal year shall be used by the Commissioner to make grants to colleges and universities, and other public or non-profit private agencies and institutions, to State boards, and with approval of the appropriate State board to local educational agencies, to pay part of the cost of research and training programs and of experimental, developmental, or pilot programs developed by such institutions, boards, or agencies, and designed to meet the special vocational education needs of youths, particularly youths in economically depressed communities who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education programs."

Besides pointing out the need for research, the vocational law stated than ten per cent of the home economics funds in each state MUST be used in developing "gainful occupations for women and girls through development of the knowledge and skills of home economics".

The objectives of the survey were:

1. To become familiar with employment opportunities for women in Alaska.
2. To find out what training Alaskan women have already had for these jobs.
3. To determine ways that they can best be trained for available employment.
4. To investigate the need for new employment opportunities.
5. To suggest program development.

Importance of the study. The increase in the number of women combining the roles of homemaker and wage earner makes it necessary for them to be trained for proficiency in a job as well as in management and skills related to family life.

In order to know what programs should be provided to train women for employment utilizing home economics knowledge and skills, a study was made based upon the following assumptions:

1. The percentage of working women will continue to increase for several years.
2. Job opportunities for women are increasing and will continue to do so.
3. The opportunities in available jobs and the incidence of success will be greater for trained than for untrained women.
4. Training programs should be geared to present and projected employment opportunities.
5. Many families depend upon the wife's income to provide an acceptable standard of living.
6. Many women have not completed high school.
7. A significant number of women have not completed the eighth grade.
8. It is important to train some women for trades using homemaking skills so that they may realize income based upon these abilities.
9. Physically handicapped women can be given opportunities for employment.

10. Vocational education for women can fill a need not covered by other agencies.

11. Employers of women will benefit from hiring trained personnel.

12. There is a need for more day care centers for children of working mothers.

13. Legislation can improve work opportunities and working conditions for women.

Limitations of the study. Six months in appropriate periods throughout the fiscal year 1964-1965 were allotted for the study. The writer was designated to visit twenty-five cities and villages in Alaska to interview, survey, analyze data, report findings, and to suggest programs.

CHAPTER II

REVIEW OF THE LITERATURE

Alaska's womanpower. The Research and Analysis Section of the Alaska State Employment Service published a bulletin in 1963 which showed that 19 per cent of persons earning some income in Alaska during 1959 were wives of household heads and that 52 per cent of the married women in Alaska had earned some income that year. There were 23,600 women workers in Alaska in 1960, with the greatest number of these twenty-five to forty-four years of age. The bulletin showed that because of earlier marriages, mothers will be younger when their children reach school age and that more women between the ages of thirty-five and forty-four will be free to take jobs.[1]

The distribution of women seeking jobs through local offices of the Alaska State Employment Service by occupational classification in April, 1960, were as follows:[2]

Professional and Managerial	49
Clerical and Sales	462
Service	222
Skilled	7
Unskilled	81
Semi-skilled	33
Total Number	854

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[1] Alaska's Manpower; A Look at the 1960's. Prepared by Research and Analysis Section, Alaska Department of Labor, Employment Security Division, 1963. p. 9.

[2] Ibid., p. 25.

In connection with the above figures, taken from a table that included male workers as well as female, the report stated:

> The fact that many of the people looking for work are among segments of the workforce generally recognized as the most employable is an indication that more job development work needs to be done. Among the positive alternatives available are: fuller utilization by the community of the services available for bringing jobs and workers together; development of an adequate and work-oriented vocational education system, full participation in Federal programs designed to provide short intensive training for the unemployed; and continuation of vigorous efforts to promote increased utilization of Alaska's natural resources.[3]

This reflected a national trend. A United States Department of Health, Education, and Welfare publication of 1962 showed that the older her children, the more likely it was that a mother was employed and that of all children twelve to seventeen years of age living in husband-wife families, 33 per cent had an employed mother. The leaflet also pointed out that economic necessity probably was the major reason why mothers worked and that the lower the father's income, the larger the proportion of children whose mothers were employed. Forty-four per cent of children, living with their employed mother only, had mothers whose income was less than $2,000 a year. An additional 39 per cent of this group had mothers whose income was between $2,000 and $4,000 a year.[4]

Day care for children of working mothers was largely in the hands of fathers or other relatives who cared for six out of ten children whose mothers were employed full time. The others were cared for away from home by relatives, neighbors, or in group care, or under other arrangements.

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[3] Ibid., p. 25.

[4] U. S. Department of Health, Education, and Welfare, Social Security Administration, Children's Bureau. Working Mothers and Day Care Services in the United States. 1962. p. 2.

A survey in 1958 showed that about 400,000 children under twelve were expected to take care of themselves while their mothers worked full time.[5] Of the 22,219 women who were working in Alaska in 1960, 5,439 had children under six years of age.[6]

Native employment. Social and economic problems associated with acculturation of Alaskan natives were mentioned by several authors. The native populations, largest in the southwest and northwest regions, have the lowest employment growth potential, according to Rogers.[7]

The 1960 census showed that the income in the native villages was noticeably lower than in the towns with predominantly white populations. There had been little vocational training to prepare these people for jobs in the villages, or in the towns where many had moved since World War II.

Employment of village women. A report made by the Employment Security Division in 1964 showed that a census of ninety-one Eskimo communities taken in 1962 indicated that there were 1,244 women living in the area and that of this number thirty-five women, or 2.8 per cent had permanent employment and that forty-one had temporary employment. Permanently unemployed women numbered 513 and there were forty-six temporarily unemployed.[8]

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[5] Ibid., p. 2.

[6] Ibid., p. 4.

[7] George W. Rogers, "Preliminary Comments on Alaskan Native Population and Employment Prospects, 1960-2000." (Notes for talks by Dr. George W. Rogers given at the Bureau of Indian Affairs Employment Assistance Conference, Dec. 2-4, 1964, in Seattle, Wash., and Field Representatives Conference, Dec. 7-11, 1964, in Juneau, Alaska.) p. 6.

[8] Alaska Department of Labor, Employment Security Division, Designer-Craftsman; (Arts and Crafts). Nome, 1964. p. 27.

Women's employment in the villages differed from the accustomed work in urban areas. VanStone pointed out that women contributed to the real income of the family in the villages in many ways. This was shown by a description of subsistence activities in Point Hope:

> Although men dominate the cycle of subsistence activities, women have a definite part to play. Men do all the hunting but women take an active part in hunting activities at all times of the year, and do most of the fishing. During whaling, women not only participate in the preparations when they sew new covers for the skin boats but they are an integral part of activities on the ice. A whaling camp that has no woman to take charge of the preparation and serving of meals is under a considerable hardship from the standpoint of both efficiency and comfort. In summer when boats leave for Cape Lisburne to hunt caribou and gather murre eggs, one or two women are usually in the crew and take an active part in every aspect of the trip, even to the extent of doing some hunting themselves. A man and his wife frequently hunt caribou together during the summer months. Women do all the preparation of meat and skins and thus have a keen interest in winter and spring hunting. A man and his wife thus form an active partnership for carrying out the subsistence activities. A woman helps her husband in innumerable ways each day; e.g., she may help him harness his dogs before he sets out to hunt in the early morning and be ready to aid him in unloading his catch in the evening.[9]

Hughes, in his study of an Eskimo village, found that the most important form of "unearned" income for the village as a whole was provided by the Department of Public Welfare of Alaska, which gave monthly financial aid such as general relief, old-age assistance, and aid to dependent children. He remarked that it had increased markedly through the years since 1940 and that the widow's allowance and the temporary assistance given to a family when the husband was sick or disabled had begun to be considered perhaps more as a "way to make money" than as temporary financial assistance. For people with little income or no income, the welfare checks were

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[9]James W. VanStone, Point Hope. Seattle: University of Washington Press, 1962. p. 76.

greatly prized.[10]

Family income in the villages. ". . . in 1955, the distribution of estimated income by families was recorded as follows:

Under $100	$100-$199	$200-$299	$300-$399	$400-$499
2	1	2	1	1

$500-$749	$750-$999	$1,000-$1,499	$1,500-$1,999
9	7	15	10

These figures were obtained from records compiled by the Bureau of Indian Affairs and are supposed to include both earned income and an estimated cash value for native products. Since it is practically impossible to estimate the money value of things such as seals, tomcod, and whale meat, the foregoing figures should be considered as only approximate. It appears, though, that half the families in the village have an income of more than $1,000 a year, most of which doubtless comes from summer employment.[11]

Native education. Havighurst made the following statement about the cultural and individual aspects of Indian education, which may well apply to the Alaskan native:

> . . . American Indian groups have not taken part in American education at the secondary and higher levels as have European immigrant groups . . . [They] have clung to enough of their traditional cultures to prevent them from adopting fully the white American culture, including its attitudes toward education and its use of education as a means of social mobility and occupational achievement.
>
> . . . It seems that the Indian groups who do move into the American culture do so at the lower economic levels and require a generation or two to learn the ways of upward mobility, including the use of education for this purpose.
>
> Individual Indians have done very well in the American educational system by committing themselves to learning the dominant American culture and living in it. The number of such people is relatively small and gives evidence of the great holding power of many of the traditional Indian cul-

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[10]Charles C. Hughes, An Eskimo Village in the Modern World. Ithace, New York: 1960. pp. 204-205.

[11]VanStone, op. cit., p. 145.

tures upon their members.[12]

Adult education. A State Board of Vocational Education, the official governing body of vocational education, was responsible for the administration of Federal programs within the State: Smith Hughes Act, Public Law 347, George-Barden Act, National Defense Education Act, Manpower Development and Training Act, Area Redevelopment Act, and the Vocational Education Act of 1963. The Economic Opportunity Act of 1964, Public Law 88-452, provided education for employability, though not under the direct jurisdiction of vocational education.[13]

Nationally, the Manpower Development and Training Act was administered by the Secretary of Health, Education, and Welfare through the Office of Education. The Secretary of Labor directed surveys of employment opportunities in each state and was responsible for selection of trainees, payment of training allowances, and placement.

An expression of the need for a greatly expanded program of adult education in the villages was made by members of the Task Force on Alaska Native Affairs. They recommended that the program should be directed toward more than reducing the rate of illiteracy among the older natives. They suggested that it should include instruction in community organization, the preparation and preservation of foods, gardening, the development of small

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[12]Robert J. Havighurst, "Education Among American Indians: Individual and Cultural Aspects", American Indians and American Life. Philadelphia: The Annals of the American Academy of Political and Social Science, May, 1957. pp. 114-115.

[13]What is Vocational Education? Juneau, Alaska: Department of Education, Division of Vocational Education, [1965].

industries in the home and in the village, and the conservation of fish and game.[14]

The Division of Statewide Services, University of Alaska, included all general extension education, off-campus and public service activities typically provided at any of the land-grant universities. It made available to residents of the State not enrolled as regular students, educational programs of a non-credit as well as of a credit nature and other special services.

Many native young people were not eligible for admission to college because of the inadequacy of their earlier education. A study in 1960 showed that over one-fourth of the native children between fourteen and nineteen years of age were not in school and that almost one-third of the 5,365 children of that age group were still in elementary school.[15]

Professor Lee Salisbury of the University of Alaska said:

> Although the Alaskan native college entrant has already survived an attrition rate as high as 60 per cent in grade school and 28 per cent in high school and is assured of continuing BIA financial support, he has only one chance out of 24 of receiving a college degree---exactly half that of his non-native Alaskan counterpart.[16]

The Bureau of Indian Affairs' Branch of Employment Assistance administered two types of programs: employment assistance for those adults seeking job opportunities in the continental United States, and adult vocational training to help Indians and Eskimos obtain satisfactory employment

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[14] Report to the Secretary of the Interior by the Task Force on Alaska Native Affairs: W. W. Keeler, Hugh Wade, and James E. Officer, December 28, 1962. p. 16.

[15] Ibid., p. 11.

[16] Lee Salisbury as quoted in the Anchorage Daily Times, August 11, 1964.

through vocational counseling, institutional training, apprenticeships, and on-the-job training. Indians and Eskimos qualifying for this assistance had to be between the ages of eighteen and thirty-five. Financial assistance in the form of grants was given during the training period.[17]

During the year that research was conducted for this report, Federal authorities had become interested in accelerating anti-poverty programs, and vocational education offerings in the State had been expanded, many of them to train women. Courses in practical nursing and office work had been particularly popular in the urban areas. Many hard-to-reach people in the lower income classifications and sparsely populated areas still had economic needs that weren't being met by current training programs, obvious to the most casual observer traveling in the remote areas. Administrators of many government agencies were aware of this situation.

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[17] Emil Kowalczyk, Adult Education In-Service Training Session, Fairbanks, Alaska, January 13-17, 1964. p. 58.

CHAPTER III

ESKIMO VILLAGES

Geography. The Eskimo villages with which this study was concerned were located on the shore of the Chuckchi and Beaufort Seas north of 59°. The main populations were along, or near, the mouths of the Kobuk, Noatak, Ipewik, Avalik, Meade, and Ikpikpuk Rivers, all of which drain into the Arctic Ocean, and the Kuskokwim and Yukon Rivers draining into the Bering Sea. Dillingham was included, although it was further south, because the sociology and economy were so similar.

The climate of the Arctic was described by Spencer as follows:[1]

> In the truest sense, the Alaskan Arctic plain is a desert. Rain and snowfall are very slight, averaging not more than 5 to 7 inches per year . . . The principal basis for seasonal differentiation lies not in rainfall, but in the differing intensity of temperature and in the length of daylight. The brief summer season is marked by a thaw and, for a two-month period, by 24-hour sunshine. The transition from 24 hours of sunlight in late July to the fall equinox is most rapid, and, again, the shift from the equinox to the winter solstice involves the change in a short period from 12 hours of daylight to total darkness. At Point Barrow, for example, at 71° 23' N., 72 days of winter darkness, beginning November 15, are the rule. Temperature changes cannot be regarded as extreme. In summer, the averages hover somewhat above freezing, although highs of 60° or 65° F. may be reached for short periods. From this, there is a gradual shift to the winter temperatures. These are not so extreme as might be imagined, particularly along the coast where 30° F. below zero may be regarded as essentially average . . . The winter temperatures of the region, while by no means so cold in comparison with the 50° to 70° below zero readings of the deeper interior, as in the forested zones of continental type climate, are nonetheless infinitely more severe as a result of intensity of wind. In the Arctic plain and foothills, a somewhat more adequate adjustment on the part of humans in terms of clothing and housing is a necessity. The frigid winters are very long and the summer brief. Physiographic change is slow and little climatic variation has been noted since the 1880's when climatic

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[1]Robert F. Spencer, The North Alaskan Eskimo. Smithsonian Institution, Bureau of American Ethnology, Bulletin 171. U. S. Government Printing Office, Washington, 1959, pp. 11-12.

data were compiled for the first time and the coastal temperatures at Point Barrow were found to average on a yearly basis 8° F. above zero (Murdoch, 1892, p. 30). Streams and lakes are blocked with ice for much of the year and usually by November the ice has begun to form on the ocean, creating a pack which may remain unbroken until the following summer, often as late as August or September, or later.

Development of these northern villages was limited by permafrost which made it difficult to secure a safe supply of water and a sanitary method of disposing of human waste.

Population. Barrow, with 2,133 and the Kobuk with 3,560 represented the most highly populated election districts in the Alaskan Arctic in 1960.[2]

Village populations at that time were as follows:

Barrow	1,314
Kivalina	142
Kotzebue	1,290
Noatak	275
Noorvik	384
Point Hope	324
Selawik	348
Shishmaref	217
Wainwright	253

The native population represented 84.9 per cent of the total number of inhabitants in these election districts.

There were 1,605 natives in Barrow, 1,599 of whom were born in Alaska and 3,232 in the Kobuk district, with 3,180 of that number having been born in the State.

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[2]Bureau of Vital Statistics, Alaska Department of Health and Welfare. Population of Election Districts: 1960 and Population of All Incorporated Places and of Unincorporated Places of 25 or More: 1960 and 1950. Juneau: March 1, 1961. pp. 1-9.

Marital and family status were reported as follows:

Non-white Population	Barrow	Kobuk
Married couples	239	437
With own household	222	411
With own children under 6	192	274
With own children under 18	209	338
With husband under 45	146	254
Families	237	530
Husband-wife families	222	411
With own children under 6	175	286
With own children under 18	195	369
Unrelated individuals	90	132
Persons under 18 years old	905	1,728
Living with both parents	853	1,389

ADULT POPULATIONS BY SEX AND AGE OF FOUR ESKIMO VILLAGES

Age Group:	15 - 24		25 - 34		35 - 44		45 - 54		55 - 64	
Sex:	M	F	M	F	M	F	M	F	M	F
Kotzebue	133	83	117	71	77	50	58	41	34	19
Noorvik	39	25	24	21	26	25	10	7	8	5
Point Hope	33	23	23	16	11	10	13	13	5	5
Shishmaref	20	12	12	14	11	11	7	7	6	1

Exhibit A: A paper supplied by E. Arthur Patterson, Projects Development Officer, Bureau of Indian Affairs, Nome, Alaska, on August 21, 1964.

Economy of the Arctic villages. Government spending was the basis of the economy in the larger villages. In Barrow and Kotzebue Federal money was spent for construction and operation of Bureau of Indian Affairs schools, Alaska Native Service hospitals, military sites, and Alaska Communications System stations. In Barrow the Arctic Research Laboratory was used for scientific activities.

Scheduled airlines and bush air operations added to the real income and upgraded the standard of living by making goods available. Shipping, barging, and lightering continued to provide wage-earning opportunities.

Oil and mineral exploration brought money into many villages along the Arctic coast and inward. It was reported in August, 1964, that American and Canadian-British petroleum groups were contemplating the use of nuclear powered submarine tankers to move the oil directly from the fields north of the Brooks Range across the Arctic basin to European markets. Some geologists thought that the Arctic slope might have the greatest petroleum potential of any geological province within the United States.[3]

Hotels and restaurants were built to care for the people involved in the above activities. A soda fountain was installed in Barrow and barber chairs and beauty parlor equipment were acquired, awaiting qualified operators. Plans were being made in Barrow and Kotzebue for serve-yourself laundry and dry cleaning machines. It was not clear to the writer that a safe and dependable water supply could be provided for these activities. Natural gas was made available for the citizens of Barrow in the spring of 1965.

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[3] Alaska Monthly Review of Business and Economic Conditions. College, Alaska: Institute of Business, Economic and Government Research, August, 1964. p. 4.

Paying jobs were more available for men than women. The women contributed in many ways to the hunting-fishing economy and prepared some items of clothing. However, the refined skin sewing, beadwork, and basketry were not found among the Arctic people as much as among the Interior natives.

Opportunities for female occupations were limited as shown by the following census report:

INDUSTRY GROUP OF EMPLOYED PERSONS, FEMALE 1960

	Barrow	Kobuk
Female	36	159
Agriculture, Forestry, and Fisheries	--	5
Manufacturing	--	5
Nondurable Goods (Incl. Not Spec. Mnfgd.)	--	5
Transportation, Communications, and Other Public Util.	4	8
Food and Dairy Products Stores	--	5
Eating and Drinking Places	5	15
Personal Services	--	34
Hospitals	17	29
Educational Services: Government	6	17
Other Professional and Related Services	4	3
Public Administration	--	14
Industry Not Reported	--	24

Money management problems were simple. More than half the families had only enough income for bare subsistence.

Family income in 1959 was as follows:

	Barrow	Kobuk
All families	260	598
Under $1,000	18	131
$1,000 to $1,999	63	148
$2,000 to $2,999	31	59
$3,000 to $3,999	24	78
$4,000 to $4,999	23	39
$5,000 to $5,999	23	45
$6,000 to $6,999	27	28
$7,000 to $7,999	8	22
$8,000 to $8,999	36	15
$9,000 to $9,999	--	--
$10,000 and over	--	12
Median Income: Families	$3,750	$2,339

Although the median income did not compare unfavorably with the national figures, it was important to be aware that the cost of living at that time was considerably higher than the national average. Inaccessibility, cold temperatures, and a permafrost condition made it impossible for even those with the highest incomes to maintain a way of life that had become standard for the average family in the main body of the United States. Fresh produce prices were a good illustration of this difference. In August, 1964, one could buy an aging head of lettuce in Barrow for $1.37 and a tube

of tomatoes for $1.20. The more accessible village of Kotzebue offered medium-sized oranges for twenty cents each. It must be remembered, however, that the Arctic people still relied heavily on birds, animals, and fish to supplement their food supply and that berries and greens still made an important contribution to native diets. The innovation of natural gas was expected to make a considerable saving in heating costs in Barrow.

According to Bureau of Indian Affairs figures, Alaska's 43,000 Indians, Eskimos, and Aleuts in fifty villages harvested 2,092,193 pounds of game animals and by-products in 1962. They showed that 10,028 people and 9,754 work dogs were dependent to some degree upon this food supply. In addition, during that year, these villages harvested 96,207 pounds of game birds, collected 670 dozen wild bird eggs, and gathered and consumed over 100,000 pounds of edible berries and plants. Furthermore, they caught and used 2,146,676 pounds of fish from fresh water and ocean, bringing the total of wild animal products consumed to 4,335,076 pounds in 1962.

Compared to the 430,000 pounds of reindeer meat produced in 1963, some of which went to outside markets, it was believed that more than 90 per cent of the animal products consumed by the native population in the northern villages was from fish and game.[4]

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[4]Ibid., July, 1964. p. 5.

Women's employment. It must be remembered that the census figures could now show the whole picture. Not only was the work affected by the seasons, but also by the sporadic nature of many of the outside enterprises started in these communities. During the summer of 1964, for instance, there was more employment for women as more money was being spent in stores, eating places, and hotels. Construction of a hospital, school, and armory as well as the oil exploration made this possible. One government official estimated the female employment at that time to be seventy individuals. At the same time it was indicated that there were vacancies for female employment because of lack of trained women. The official predicted a 50 per cent projection in female workers required the following year. Everyone interviewed, men as well as women, expressed interest in the possibility of a beauty parlor's being installed and hoped that girls could be trained as beauticians.

Six girls interviewed who were working as waitresses in the eating places were students at Mt. Edgecumbe or the Bureau of Indian Affairs college at Lawrence, Kansas. It was obvious that the educated women in Barrow had an advantage over the others, even in the less-skilled jobs.

The welfare agent, a well-educated native woman of forty-eight who had given birth to her thirteenth child, suggested that a day care center for children of working mothers was badly needed. She pointed out that girls needed more instruction in sewing and preparation for hospital aide jobs. She mentioned, as did every employer interviewed, that women needed the proper training for the things that they were already doing. One woman made a living by keeping the parkas of the men stationed at a nearby mili-

tary site in repair.

A non-native woman in a managerial position said that the residents of Barrow had a good understanding of money and what it will buy. She said that children of the village at that time were spending a total of $125.00 a day on candy. (This figure was not checked.) She also stated that it cost fourteen dollars to have a "load" of laundry done in Fairbanks. A girl in a hotel, she said, was now doing the same job in Barrow for two dollars, using cold water. She expressed dissatisfaction with the lack of professional attitudes by the local employees toward their jobs and said that several employers were considering bringing in help from "Outside" because of undependability of the local help and their lack of responsibility in sticking to a job or reporting in when they knew they would be absent. Although Barrow was a "dry" town, apparently liquor was brought in for private use and still constituted a problem for both men and women. The woman mentioned expressed concern over the fact that there was little or nothing for the girls just out of the eighth grade to do.

The local attitude toward regular work must be evaluated in the light of understanding the importance of hunting and fishing to the natives. The fact that game and fish could be acquired only at certain times made it necessary for the people to take advantage of these times. This did not always fit into the pattern of the currently accepted attitudes toward work habits.

Educational facilities. A high school was being built. Meanwhile, there were fifty girls attending secondary schools in other towns, according to a Bureau of Indian Affairs official.

Adult education conducted by the Bureau of Indian Affairs in Barrow

included the formal learning activities: reading, writing, arithmetic, spelling, grammar and conversation. Informal learning activities took the form of village meetings regarding planning of community projects: natural gas for Barrow, road construction, house moving, village cooperatives, housing projects and townsite and survey meetings.

One Barrow woman, a cardiac case, was receiving vocational rehabilitation under the program of the State Department of Education. There was no evidence of handicapped women working in the village.

The younger women interviewed were all interested in further education and the older women put great stock in more education for their children, not only for prestige, but for economic reasons. The majority of the women over twenty-five had an education of sixth grade or less.

Health services. The Alaska Native Service (ANS) hospital played an important part in the economy, as well as the physical well-being, of the community. At the time of the survey there were nine women working there at permanent jobs in food service, housekeeping, laundry, and as hospital aides and practical nurses. The technical staff and clerical help were trained people from "Outside". The non-technical employees ranged in age from twenty-three to forty-five and all except two had been working there less than three years. Two had been there for twenty years.

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[5] Emil Kowalczyk, Adult Education In-Service Training Session, Fairbanks, Alaska, January 13-17, 1964. p. 23.

KOTZEBUE

Economy and geography. Kotzebue, located near the mouths of the Kobuk and Noatak Rivers, the chief trading center for that area, had a population in 1960 of 1,290, 86 per cent of whom were one-quarter or more Eskimo.

Business and governmental activity during the summer of 1964 gave the village an air of prosperity. However, 22 women were listed on the welfare rolls at that time, mostly for aid to dependent children.

An Air Force station three miles from town with a staff of eighty-five men and an Alaska National Guard unit, made up of native personnel, provided some income for the village.

The Federal government was represented in the community by: Federal Aviation Agency, Weather Bureau, Public Health Hospital, Public Health dentist, Federal Health and Welfare Office, Bureau of Indian Affairs School and Range Conservation Office, Alaska Communication System, Post Office, and White Alice. The State government maintained a Fish and Game office, State trooper, and Welfare officer.[6]

The types and numbers of businesses were as follows:[7]

Retail Stores - 8, oil company - 1, poultry farm - 1, marine freight - 1, construction - 1, airlines - 2, flying services - 4, cab companies - 4, hotels - 4, restaurants - 4, theatre - 1, dance halls - 2, coffee shops - 2, bank - 1, telephone company - 1, electric association - 1, amusement company - 1, water supply - 2, mining exploration - 1, auto repairs - 1.

A minority of the available workers were employed full time. The majority derived income from seasonal work, unemployment and welfare checks, trapping, fishing, and art-craft work. Hunting was mentioned as a source

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[6] Kotzebue Community Survey, 1964. Prepared by BIA School Personnel. pp. 3-4.

[7] Ibid., p. 4.

of unearned income.[8]

The report listed the chief sources of employment as follows:[9]

a. Professional services
   Notably hospital and BIA school

b. Construction
   Seasonal

c. Wholesale and retail stores
   Provide steady employment

d. Service trade
   Primarily owner-operated

e. Tourism
   Summer

f. Mining
   Copper mine expected to provide steady employment

g. Fishing
   Floating cannery in the summer

h. Arts and crafts
   Ivory, jade carving, and native dances

i. Transportation and communication

There were three hotels, all small. The cost of living was 186 per cent, based upon Seattle as 100 per cent. Kotzebue's first self-service (and only) laundry opened in September of 1964. This included twelve automatic washers, four tri-load dryers, and two dry cleaning machines.

Educational facilities. The Bureau of Indian Affairs operated an elementary school and planned to open a high school in 1966. The latter was to include eleven classrooms, shops, home economics rooms, and a gymnasium. Meanwhile, eighty-four girls were attending high school away from

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[8] Ibid., p. 4.

[9] Ibid., p. 5.

home---twelve at Chemawa, forty-two at Mt. Edgecumbe and thirty at Wrangell.

Enrollment and school population were:[10]

Elementary	375
BIA High School	25
Friends' High School	30

Four hundred of the students were classified as "native".

The Friends' High School had four women teachers, all of whom had been there less than four years.

The Bureau of Indian Affairs adult education program was taught by two teachers to twenty students. The curriculum was made up of remedial English and mathematics, regular classes in civics, mathematics, English, and various correspondence courses, according to the Bureau of Indian Affairs report.

There was a Roman Catholic kindergarten, but no day care center for children. The employers interviewed mentioned the need for well-trained persons to provide day care for working mothers' children.

Women's employment. An estimated ninety-four women were working in Kotzebue at such jobs as cooks, hotel maids, grocery store clerks, fish canners, nurses and related hospital jobs, and airline station managers. Some of the problems mentioned by employers were the lack of professional attitude toward a job, inadequate training, and drinking.

The Alaska Native Service Hospital, operated by the United States Department of Health and Welfare, hired forty-three women in an age range of eighteen to sixty years for the following positions:

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[10] Ibid., p. 9.

Food Service Workers	6
Aides	14
Registered Nurses	11
Dental Assistants	1
Clerical Workers	5
Housekeepers and Laundry Workers	6

Two-thirds of these employees had been there less than three years. One had been on the staff since 1949.

Each hotel employed from five to eight women during the summer.

Candid comments regarding job opportunities for women follow:

Private employer: "What you people are trying to do is fine and I admire you very much for it, but it is of no use unless you can stop the drinking. They are no good for work when they get to drinking. If you gave them a choice between a bottle of whiskey and this building, they would take the whiskey. Any kind of training would help if it would keep them on the job."

(Kotzebue was a "dry" town at the time of the survey.)

Educator: "There would probably be a need for day care centers for teachers' children, but heating and room is the problem."

Educator's wife: "Maybe they would rather have someone come to their homes to take care of their children so they could do other work."

Oldtimer: "The main income here is welfare."

EDUCATION, EMPLOYMENT STATUS, AND SELECTED LABOR FORCE CHARACTERISTICS OF THE POPULATION, FEMALE, OF BARROW AND KOBUK ELECTION DISTRICTS

		Barrow	Kobuk*
Years of School Completed			
Female, 25 Years Old and Over		243	614
No School Years Completed		65	105
Elementary:	1 to 4 years	93	133
	5 and 6 years	33	164
	7 years	9	47
	8 years	16	85
High School:	1 to 3 years	--	14
	4 years	9	20
College	1 to 3 years	6	15
	4 years or more	12	31
Median School Years Completed		3.4	5.8

*The Kobuk election district included Ambler, Buckland (Elephant Point), Candle, Deering, Kiana, Kivalina, Kobuk, Kotzebue, Noatak, Noorvik, Point Hope, Selawik, and Shungnak.

AGE OF PERSONS IN LABOR FORCE, FEMALE

	Barrow	Kobuk
14 to 17 Years Old	--	14
18 to 24 Years Old	23	47
25 to 34 Years Old	24	49
35 to 44 Years Old	--	32
45 to 64 Years Old	16	36
65 Years Old and Over	--	9
Married Women in Labor Force Husband Present	36	98
Women in Labor Force with Own Children Under 6	32	63
Married, Husband Present	32	54

NOME

Economy and geography. Nome, a city of 2,316 people, was situated at 64° 30' N. and 165° 24' W. on the southwest coast of the Seward Peninsula on the Bering Sea in typical arctic terrain with the usual problems of permafrost, limited water supply, and flooding.

Nome had been an important gold mining center at the turn of the century; but in 1964, its economy was largely dependent upon tourism and government employment. Recent projects were: a water and sewer system, a vocational school, a Bureau of Indian Affairs student dormitory, an armory, and a Federal Building.

Nome was the center of an election district of 6,091 people in 1960. Village populations were:

Diomede	88	Savoonga	299
Elim	145	Shaktoolik	187
Gambell	358	Shishmaref	217
Golovin	59	Stebbins	158
King Island	66	Teller	217
Koyuk	129	Teller Mission	77
Mekoryuk	242	Unalakleet	574
Nome	2,316	Wales	128
St. Michael	205	White Mountain	151

Tourist items of jade, ivory, and fur sold fairly well, although traders had difficulty providing a steady and standarized supply. The Nome Skin Sewers Cooperative Association whose members had developed a reputation for the production of fine fur garments had closed. One reason given was that the woman who had been the leader was no longer able to continue working

and no one was prepared to take her place.

Year-around work was found with the airlines, stores, bars, restaurants, hotels, and other service industries. Mining and freighting provided some jobs during the summer. The 1960 census figures showed that family income was extremely low for 1,166 families in 1959.

For several years natives had been moving in to Nome from villages, adding to the number of unskilled employable persons. The case of the King Island Eskimos who had come in from a rocky island in the Bering Sea to find employment and improve living conditions illustrated some of the problems encountered by the villagers.[11]

Although there was no commercial fishing in this area, many families depended upon catching their winter supply for personal use. The personal and economic habits of the natives living in Nome showed that they had become much more money orientated than their friends in the smaller villages. State and Bureau of Indian Affairs officials had been concerned with the lack of a basic economy in Nome since the waning of the gold mining industry.

Reindeer herding, which had been sponsored by the Bureau of Indian Affairs, with six or eight steady herders, showed some promise. A report to the Bureau of Indian Affairs by Arthur D. Little, Inc., pointed out that the Seward Peninsula was one of the two most favorable areas for reindeer grazing in the State. It suggested that the six herds existing in 1963 might be able to produce 800,000 pounds of meat by the end of a five-year phase. The report showed that 482,000 pounds of meat valued at $182,000 were already being consumed and that Nome, which used some 90,000 pounds,

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[11] Tundra Times. October 5, 1964.

was the largest customer for reindeer meat and had an appropriate location for a canning plant.

The report recommended improvement in range management and animal husbandry practices to overcome such adverse factors as: the competition with other meats, dietary deficiencies which affected the health of the animals, warble fly infestation, and loss of animals to predators. In addition, there had been a history of failure by the herdsmen in carrying out a job that was incompatible with their established way of life.[12] It might be said, then, that the reindeer industry had not been successful since its introduction to Alaska and could not be depended upon to affect the employment outlook for women, at least for many years.

Besides filling job needs, the State Employment Service was involved in helping to set up Manpower Retraining programs.

Educational facilities. One building housed the elementary and high schools. The Nome Vocational School, four miles from town, was administered jointly by the State Department of Education through its Division of Vocational Education and the State Department of Labor through its Employment Security Division. It was planned to provide job training for 200 persons and in 1964-1965 was offering bush airfield maintenance, arts and crafts, small engine maintenance and repair, and highway engineering technology. Class offerings were based on research made through the Federal Office of Manpower, Automation and Training for a demonstration manpower program.[13]

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[12]Arthur D. Little, Inc., An Evaluation of the Feasibility of Native Industry in Northwestern Alaska. Report to BIA, September, 1963. pp. 16-40.

[13]Tundra Times. June 22, 1964.

One concern was to provide basic education in reading, writing, and arithmetic and an understanding of the social structure of the modern world as well as training in skills.

Further educational opportunities for the native population of Nome were provided by the Bureau of Indian Affairs. Some of the trainees were enrolled in a special program at Fairbanks; others were going to school "Outside".

Of the seven girls who had been graduated from high school in Nome the preceding year, three were continuing their education---one at Alaska Methodist University; one at the University of Alaska; and one "Outside".

One home demonstration agent with the Extension Service of the United States Department of Agriculture covered an area along the coast from a few miles south of Unalakleet to Point Hope.

Health services. The Department of Health and Welfare was represented by nurses, a doctor, and a dentist. Besides caring for the ailing, they carried out a program of preventive medicine and health education concerned with purity of water supply, disposal of human waste, and control of contagious diseases. The latter was of great concern in this area for, as Rodahl pointed out, the infant mortality rate among the Eskimos was twice as high as that of the other states, and tuberculosis caused thirty times more deaths among the Eskimos than among the whites in America.[14]

A Methodist mission hospital in the town served the community. Natives requiring hospitalization or extended and specialized care could go to the Alaska Native Service hospital in Anchorage.

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[14]Kaare Rodahl, M. D., The Last of the Few. New York, Evanston and London: Harper and Row, 1963.

Women's employment. The ever recurring theme of disinterest and undependability, drinking, and not showing up for work was woven into conversations of employers. One, who had recently purchased a business, was particularly bitter about the employment problem. Another, who had worked in the bush as well as in Nome, had adapted his operation to the ways of the people, seemingly to the satisfaction of both. Another, a newcomer, deplored the work attitudes as being "unreal".

A shop specializing in tourist trade had partially solved the problem by providing boxes of pre-cut materials and trim for slippers which were given to women who were known to do dependable work. This was particularly good for older women whose teeth were not in good condition to shape the mukluk or slipper sole, although this process was often done with pliers by the younger women.

Although business in Nome was considered slow, there was a demand for trained office workers, particularly typists. As in many other towns surveyed, the skilled job was often held by a non-native.

Some of the employers of women were:

Hospital	36
School	25
Curio Shop	7
Hotel-Restaurant	8

The hospital jobs were:

Registered Nurse	10	Housekeeper	2
Nurse's Aide	12	Secretary	4
Cafeteria	4	Physical Therapist	1
Laundry	2	Laboratory Technician	1

Governmental agencies and airlines provided office jobs. There was a good demand for baby-sitters and light housekeepers since many of the working women were between twenty and forty years of age, had small children at home, and there was no day care center for children of working mothers and no school lunch program.

An agent of the State Employment Service said that female employment was low at the time and that training for the following occupations would be helpful: domestic, clerical, food service, hospital, institutional child care, and hotel service. He pointed out that the dormitory for the students at the vocational school would provide additional employment. The cafeteria in that school was expected to provide steady employment for some women.

Talks with working women showed that most of them had worked on their present jobs less than two years. Many of them were unskilled and an observation of some of them at work showed their need for training.

The good skin sewers were, in most cases, women of forty or older. The younger native women were holding jobs in government offices, stores, and hotels, or in private homes.

OCCUPATION GROUP AND CLASS OF WORKER OF EMPLOYED PERSONS, FEMALE: 1960

NOME ELECTION DISTRICT

Female, Employed	392
Professional, Technical, and Kindred Workers	72
Medical and Other Health Workers: Salaried	21
Teachers, Elementary and Secondary Schools	34
Other Professional, Etc.: Salaried	17
Managers, Officials, and Proprietors, Except Farm	28
Salaried	12
Self-employed, Retail Trade	12
Other Than Retail Trade	4
Clerical and Kindred Workers	71
Secretaries, Stenographers, and Typists	12
Other Clerical Workers	59
Sales Workers	12
Retail Trade	8
Other Than Retail Trade	4
Craftsmen, Foremen, and Kindred Workers	9
Operatives and Kindred Workers	13
Durable Goods Manufacturing	4
Non-manufacturing	9
Private Household Workers	83
Service Workers, Except Private Household	68
Waiters, Bartenders, Cooks, and Counter Workers	27
Other Service Workers	41
Occupations Not Reported	36

EDUCATION, EMPLOYMENT STATUS, AND SELECTED LABOR FORCE CHARACTERISTICS OF THE POPULATION, FEMALE

NOME ELECTION DISTRICT

Years of School Completed		
Female, 25 Years Old and Over		983
No School Years Completed		95
Elementary:	1 to 4 Years	216
	5 and 6 Years	201
	7 Years	89
	8 Years	106
High School:	1 to 3 Years	71
	4 Years	70
College:	1 to 3 Years	56
	4 Years or More	79
Median School Years Completed		6.8

AGES OF PERSONS IN LABOR FORCE, FEMALE

NOME ELECTION DISTRICT

14 to 17 Years Old	41
18 to 24 Years Old	119
25 to 34 Years Old	110
35 to 44 Years Old	130
45 to 64 Years Old	74
65 Years Old and Over	8
Married Women in Labor Force, Husband Present	228
Women in Labor Force With Own Children Under 6	119
Married, Husband Present	97

EMPLOYMENT STATUS OF FEMALES
14 YEARS OLD AND OVER

NOME ELECTION DISTRICT

Female, 14 Years Old and Over	1,453
Labor Force	482
Employed	392
Unemployed	90
Not in Labor Force	971
Inmate of Institution	...
Enrolled in School	172
Other, Under 65 Years Old	734
With Own Children Under 6	388
Married, Husband Present	358
Other, 65 Years Old and Over	65

FAMILY INCOME IN 1959

NOME ELECTION DISTRICT

All Families	687
Under $1,000	143
$1,000 to $1,999	153
$2,000 to $2,999	107
$3,000 to $3,999	76
$4,000 to $4,999	41
$5,000 to $5,999	42
$6,000 to $6,999	36
$7,000 to $7,999	21
$8,000 to $8,999	17
$9,000 to $9,999	16
$10,000 and Over	35
Median Income: Families	$2,444

SAINT LAWRENCE ISLAND

Economy and geography. The island, lying thirty-eight miles southeast of Indian Point, Siberia, was about one hundred miles long and twenty miles wide, the largest island in the Bering Sea. Between 168° 45' and 171° 50' west longitude and 63° and 63° 38' north latitude, it was assailed by storms the year round, although extremely low temperatures were uncommon. Precipitation could be expected for 300 days of the year, but high winds prevented an accumulation of snow.

Sub-arctic, low growing plants, some of them edible, covered the island. Birds and animals of the land and sea provided food and materials for clothing. Sea mammals were perhaps a more important source, walrus and seal being most available. Waterfowl and their eggs were the main source of protein food during the summers. Cliffs along the island's edge and inland marshes were nesting places for auklets, sea gulls, cranes, loons, puffins, ducks, geese, and other birds.

Foxes and ground squirrels were indigenous to the island; however, the latter were not as popular for parkas as the seal. Reindeer had been introduced in 1900. This had been a successful operation and the herd had increased to several thousand in 1940, but at the time of this survey it was estimated that the herd numbered between 900 and 1,000 and grazed near Savoonga.

Subsistence activities, particularly the hunting of walrus and seal, still formed the backbone of the economy. Welfare and the sale of carved ivory, baleen products, handmade dolls, fur slippers, seal and fox skins, walrus ivory, and archaeological specimens, provided the main cash income.

Scheduled airline service brought passengers and mail to the island three times weekly.

Men were employed in the native stores, as airline agents, postmasters, school custodians, assistants in the Bureau of Indian Affairs education program, and as guides when a big game hunt was organized.

Women found jobs in the school lunch program, as baby sitters and occasionally as housekeepers, as saleswomen for beauty products, in a native-owned coffee shop, and in the post office. They also sold specimens that they dug from the ancient site and fur products which they made.

SAVOONGA

Economy and geography. Savoonga was on the north side of St. Lawrence Island, some fifty miles east of Gambell. The town was at the water's edge, accessible by a one and one-half mile walk from the airport through marshy tundra. During the summer water stood on the ground in the village, making it necessary to have board walks connecting the buildings. In the summer water was piped from a spring to an elevated tank in the center of the village. Typical tundra vegetation, including lichen, spread from the village edge to the low-lying hills in the center of the island. Savoonga was somewhat protected from the ocean storms, but appeared to have more of a drainage problem than the villages located on the beaches of coarse gravel.

A small point of land, into which a wind-protected "pillbox" had been built, was almost continuously occupied during the day by men and boys watching for birds and seals to shoot. High cliffs were used by waterfowl for nesting. Almost every house had from one to three birds, cleaned and plucked, hanging from a rack near the entrance. Fishing provided a variety to the summer diets, although none were caught for commercial trade.

Unearned income from hunting and fishing was important to the economy. Wage-earning opportunities were provided by several State and Federal jobs: postmaster, sanitation officer, and National Guard captain. Employment in airport construction had been available during the summer of 1964 for eight men, a small percentage of the total crew. Two men worked in the council-owned store.

The coming of the airplane to Savoonga (it was the last community

in Alaska to receive its mail by dogsled in the winter and umiak in the summer) may lead to a widening of the economic base; but at the time of the survey the building of a new schoolhouse and a road from the airstrip to the village were the only projects mentioned. These were expected to provide jobs for another summer.

Residents prided themselves on being good workers and managers. There were many indications of thrift and industry and good use of local resources.

Educational facilities. The Bureau of Indian Affairs teachers estimated that the ninety-seven pupil school would increase to 130 students five years hence. There were eight girls attending school "Outside"---seven at Chemawa and one at Mt. Edgecumbe. There were no adult classes. The council president mentioned receiving bulletins from the extension service and suggested that it would be good for the women to be taught canning.

Some men were attending the Nome Vocational School. One handicapped girl had been educated "Outside" and was trained for typing and sewing. However, there were no employment opportunities for her in the village, except as a part-time domestic.

Health services. The two nurse's aides took care of routine health matters. A dentist and a doctor from Nome, mentioned earlier, made occasional trips to Savoonga.

A village sanitation officer was paid to take the responsibility for the water supply and sewage disposal. The presence of an internal cyst-forming organism, *Echinococcus granulosus*, which was carried by dogs and transferred to humans by drinking water, made it necessary for each family to treat its water supply.

Dispensing health information was an important part of the teacher's job. A snack consisting of pilot bread, juice, and a vitamin pill was given the children during the morning recess.

As in Gambell, tuberculosis had been a real problem. Many of the women interviewed had spent a year or two in Alaska Native Service hospitals recovering from the disease.

Women's employment. Employed women were as follows: two nurse's aides, one teacher's aide, one domestic, and a Bureau of Indian Affairs teacher.

The airport construction superintendent arranged for the crew's laundry to be done by local women. The wife of the president of the village council handled it, dividing the work among fifteen women who did a creditable job in their own homes using irons heated on the stove.

Orders from the construction crews for dolls and other handicrafts kept the women busy who were skilled at sewing. One woman had made twenty parka-clad dolls that summer. Slippers, balls, and toy seals were popular items.

It should be mentioned that women were busy all day with family chores---carrying water, cleaning game, cooking, sewing, housecleaning, and helping to care for the dogs. The women interviewed seemed reluctant to make positive statements or to show interest in an activity that would interfere with the established routine of a woman's life. They looked to their husbands for help in answering the questions. The wife of the council president evidently was a leader among the women and represented them well in contacts with outsiders. The women showed an interest in laundering, baking, nursing, and food handling.

Educational facilities. A couple taught the eight grades in a Bureau of Indian Affairs school with help of a native teacher aide. Five of the six girls who were graduated the preceding year had gone away to high school.

A native man was in charge of the adult education program and was searching for ways to meet the needs of the villagers. It was interesting to note that the only woman enrolled in the Nome Vocational School in September, 1964, was a Gambell resident in her fifties who had had two years of schooling.

Health services. A doctor and a dentist, under contract with the Department of Health, visited Gambell occasionally. There was no nurse in the village. Routine medical care was given by a nurse's aide, a native man trained for the job. Serious cases were usually sent to Nome or Anchorage.

Women's employment. Employment for women was limited. There was some indication that women did not put a realistic value on their time; they sometimes worked as domestics at a low hourly rate, and they sold well-made men's parkas for as low as $60. Many of the women tanned skins for family garments.

One woman had become interested in baking and had gained a fine reputation for her products. There was some discussion as to the feasibility of establishing a small bakery. Another woman earned several hundred dollars a year from her black-and-white drawings. Some of them had been copyrighted and transferred to household articles which appeared to be selling well.

Women showed consideration for their husbands' opinions as they discussed plans for money-making activities. They looked at their husbands

as if asking permission before answering questions and remarked that what they would do depended upon their husbands' attitudes. Some were shy and lacking in ideas for money-making activities for themselves. Upon suggestions from the interviewer, they indicated an interest in baking, laundry, and nursing.

The correlation between age and education for seven women interviewed was as follows:

AGE	YEARS OF SCHOOLING
57	2
50	0
48	4
37	4
37	6
30	7
20	8

A high value was placed on education, and adults showed that they felt that better jobs were available to those who could work with written words and numbers. Some remarked that their education had been limited because they had lived on another part of the island; others, that they had become sick and had had to quit school, or that their mother had died and they had left school to help the father rear younger children.

Several of the women had come over from Siberia as children. None of the married women interviewed indicated an interest in leaving the island permanently. There could have been a different feeling among the young, unmarried girls. Hughes, for instance, found that the inhabitants were interested in the stability and security of the white world and would be

willing to leave the island in order to share in a world characterized by power, material abundance, skill, cleverness, health, cleanliness, long life, enjoyment, excitement, and individual freedom.[15]

Many housewives were caring for semi-invalid or bedridden, elderly relatives. Tuberculosis was a problem for all ages. According to Hughes, during the period of 1940 to 1954 there were forty-nine deaths from this disease, representing a rate of 1,067 per 100,000 as compared with the United States rate in 1954 of 10.2 per 100,000. Thirty-one per cent of the deaths fell in the eleven to nineteen-year-old group. Fifty-three per cent of the population, not counting stillbirths, died before reaching twenty years of age.[16]

Civil Aeronautics Administration buildings, no longer used by that agency, had served in the 1960's as an inn, a trading center, and headquarters for walrus and polar bear hunting. A trader made some effort to encourage native industry by guiding the local people in making salable items and finding commercial outlets for them.

A Bureau of Indian Affairs program called for shipping 500 to 1,000 reindeer to St. Lawrence Island to be cared for by islanders for use as domestic food and food for the numerous sled dogs. This was to be done late in the summer of 1964, but the project had been delayed until the following year because of transportation problems.[17]

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[15]Hughes, op. cit., p. 345.

[16]Ibid., p. 78.

[17]"Reindeer Shipment Plans Under Study", Anchorage Times, September 16, 1964.

Fur farming and hide tanning had been suggested for similar arctic villages, but research had indicated that this was technically feasible but economically unfeasible.

Lack of motivation, a tendency to rely upon the government, and the absence of a heritage of management experience were mentioned as impeding factors for this, as well as for the reindeer industry.[18]

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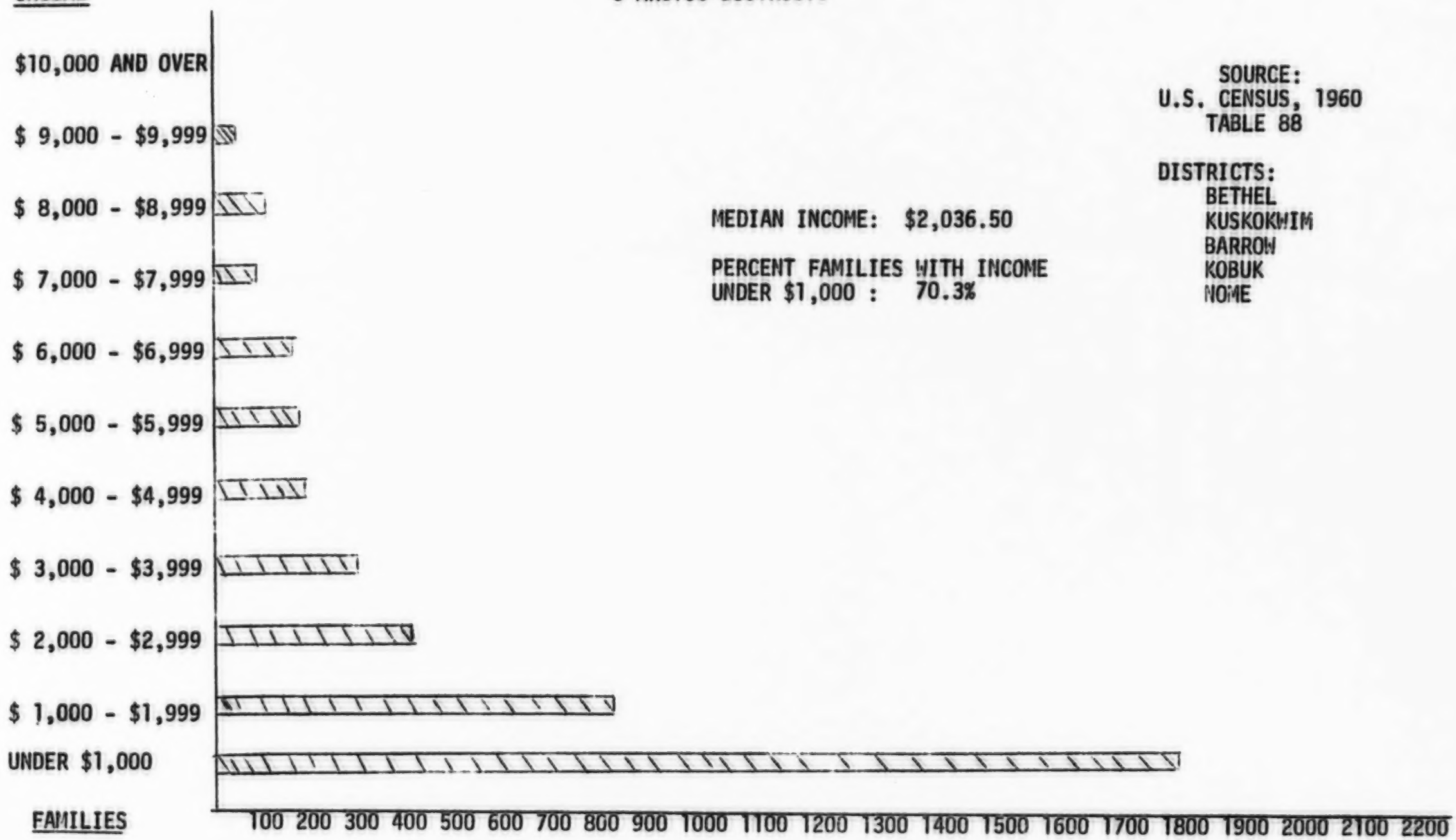
[18] Arthur D. Little, Inc., op. cit., p 69.

FAMILY INCOME

5 ARCTIC DISTRICTS



MEDIAN INCOME: $2,036.50

PERCENT FAMILIES WITH INCOME UNDER $1,000 : 70.3%

SOURCE:
U.S. CENSUS, 1960
TABLE 88

DISTRICTS:
- BETHEL
- KUSKOKWIM
- BARROW
- KOBUK
- NOME

YEARS OF SCHOOL COMPLETED BY FEMALES 25 YEARS AND OVER

5 ARCTIC DISTRICTS

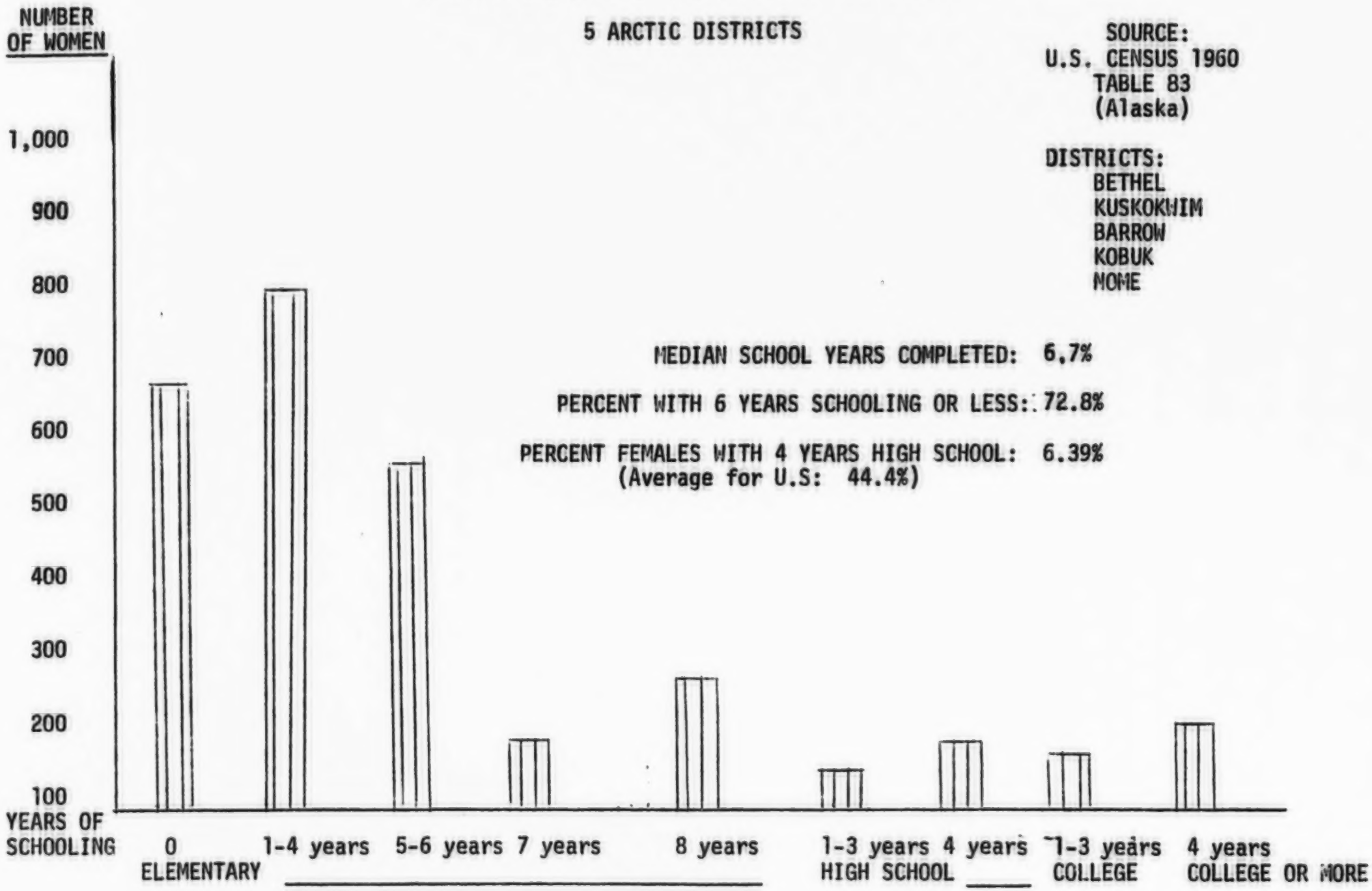
SOURCE:
U.S. CENSUS 1960
TABLE 83
(Alaska)

DISTRICTS:
BETHEL
KUSKOKWIM
BARROW
KOBUK
NOME

MEDIAN SCHOOL YEARS COMPLETED: 6.7%

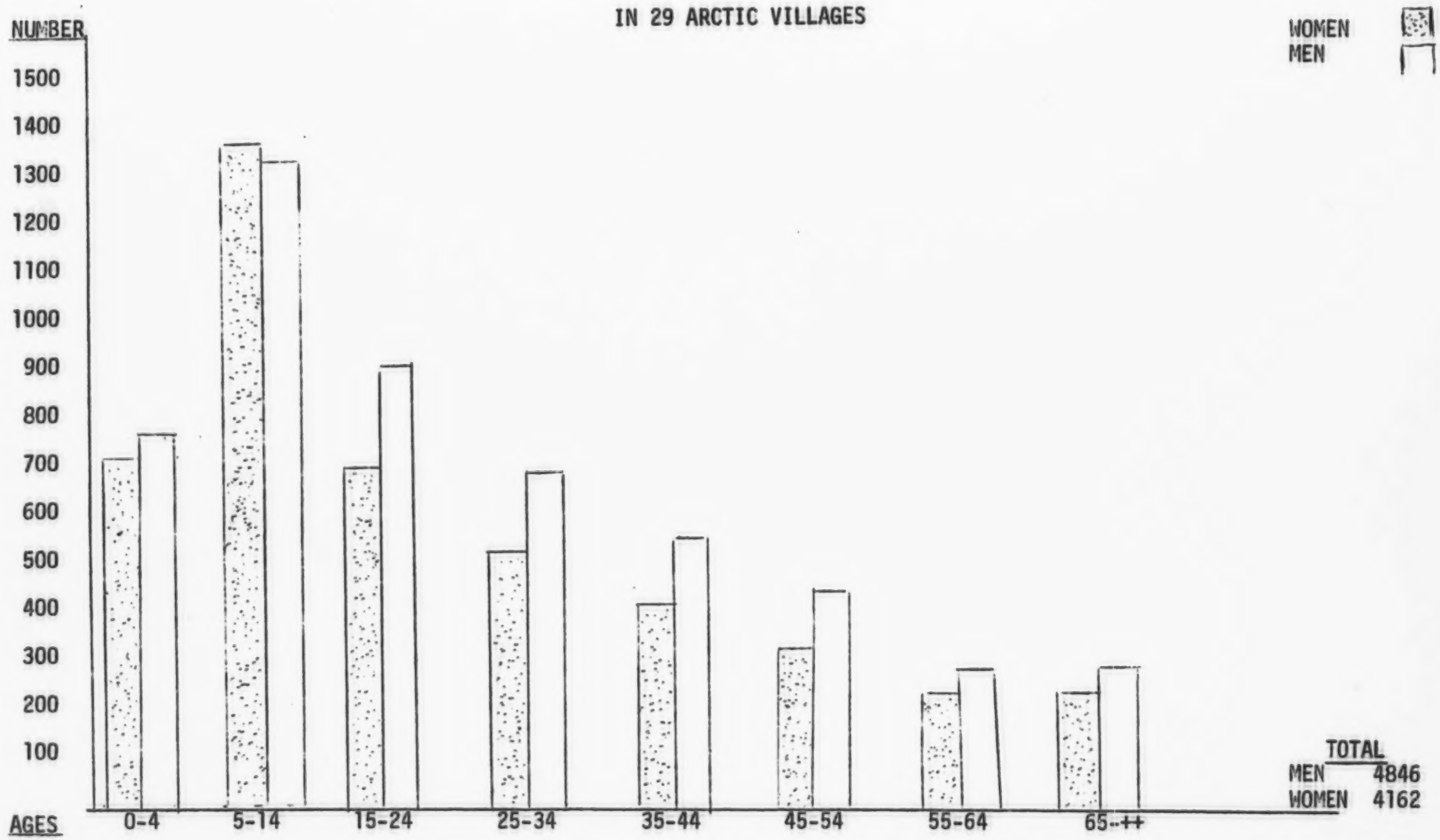
PERCENT WITH 6 YEARS SCHOOLING OR LESS: 72.8%

PERCENT FEMALES WITH 4 YEARS HIGH SCHOOL: 6.39%
(Average for U.S: 44.4%)



AGES OF MEN AND WOMEN

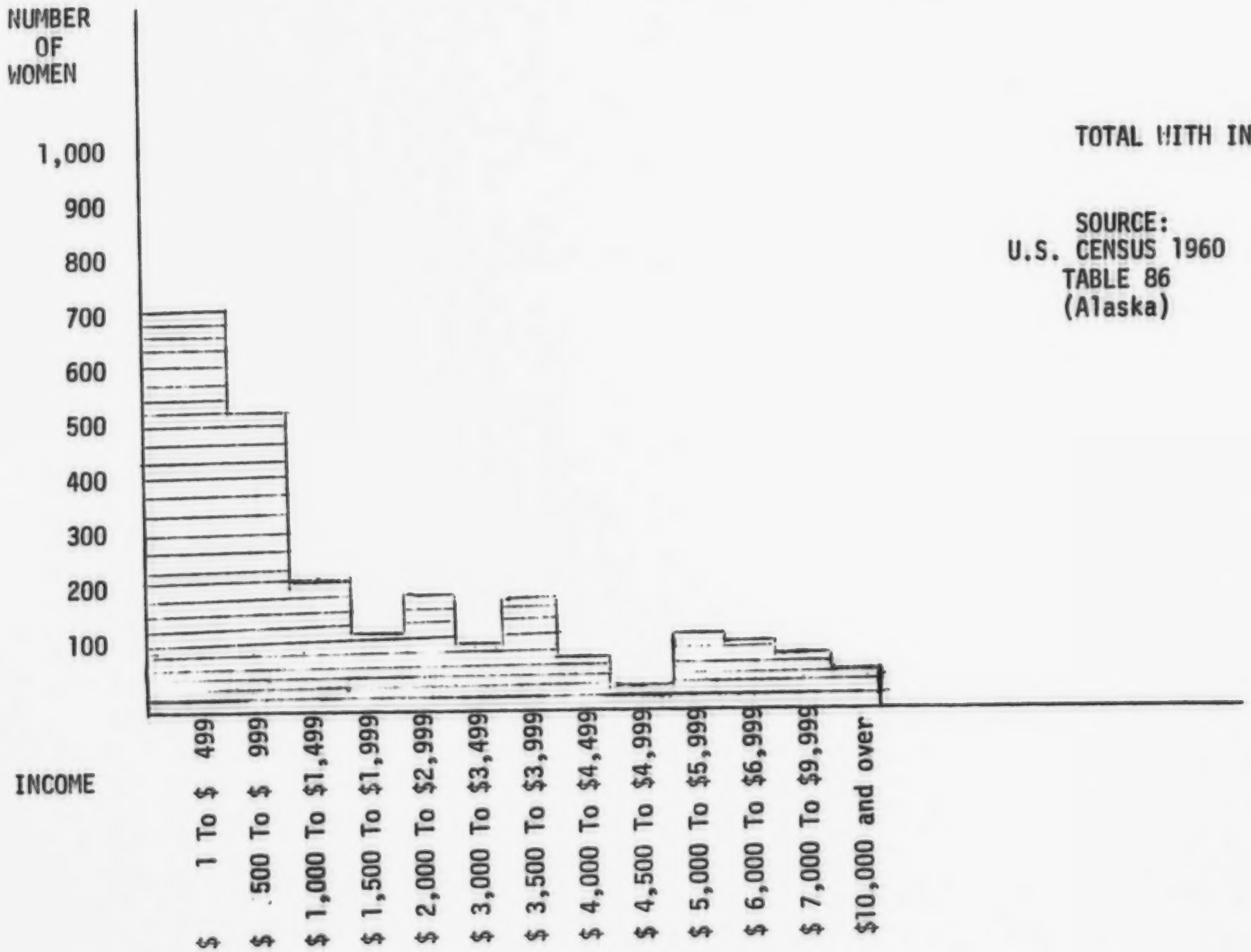
IN 29 ARCTIC VILLAGES



BASED UPON BIA POPULATIONS, NOME AREA, EX.A

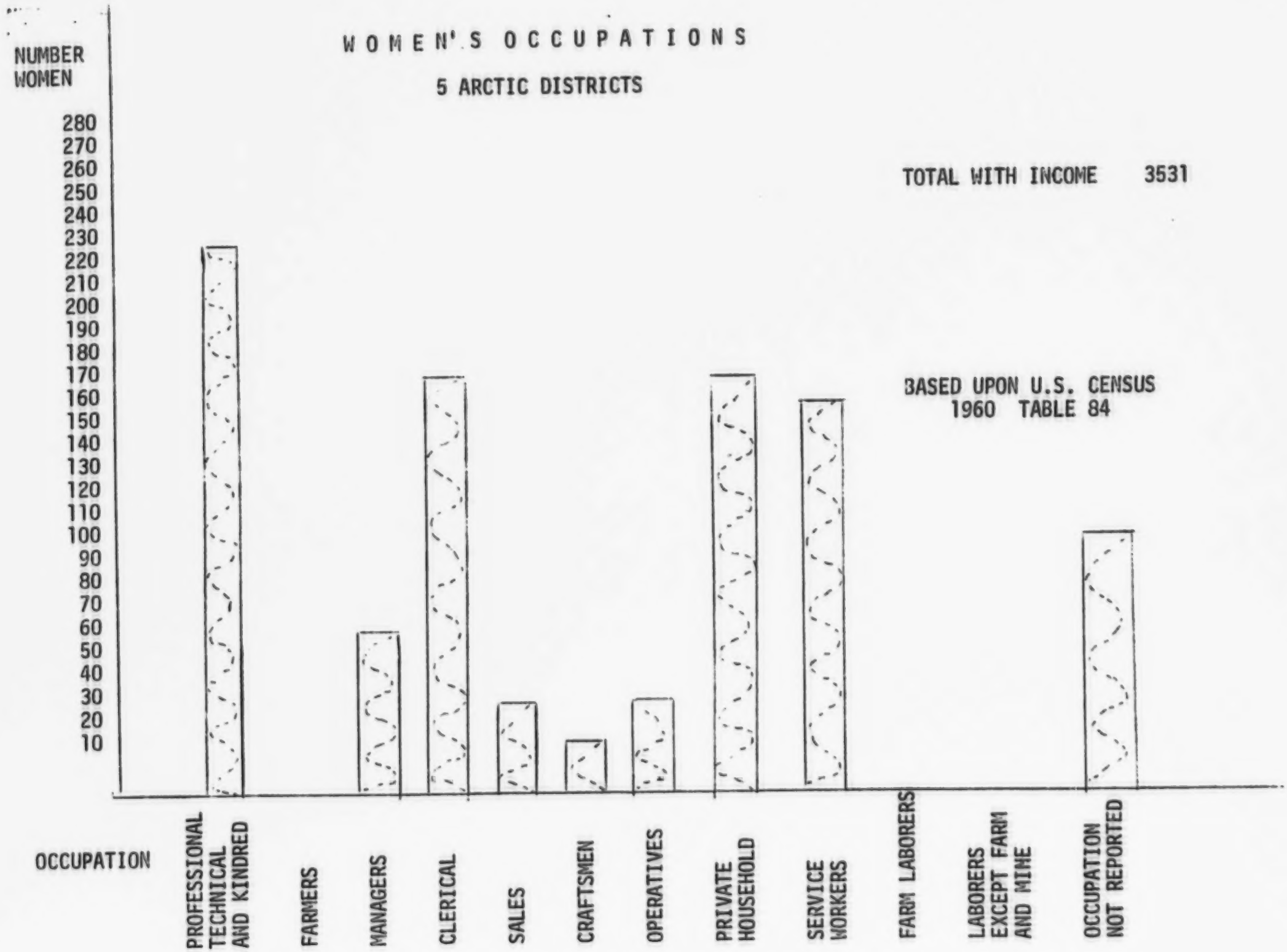
INCOME OF FEMALES

5 ARCTIC DISTRICTS



TOTAL WITH INCOME: 3531

SOURCE:
U.S. CENSUS 1960
TABLE 86
(Alaska)


WOMEN'S OCCUPATIONS
5 ARCTIC DISTRICTS
NUMBER WOMEN
280
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
TOTAL WITH INCOME 3531
BASED UPON U.S. CENSUS 1960 TABLE 84
OCCUPATION
PROFESSIONAL TECHNICAL AND KINDRED
FARMERS
MANAGERS
CLERICAL
SALES
CRAFTSMEN
OPERATIVES
PRIVATE HOUSEHOLD
SERVICE WORKERS
FARM LABORERS
LABORERS EXCEPT FARM AND MINE
OCCUPATION NOT REPORTED

DILLINGHAM

Economy and geography. This fishing village at 59° 02' N., 158° 33' W., had 424 inhabitants in 1960 and was the largest town in the Bristol Bay area. Canneries were kept busy during the height of the salmon run; but many of the workers were hired "Outside" so that the village during the off season did not reflect the income that had been realized there during the summer. Off-shore and bottom fishing were discussed, but had not developed as an industry as they had in similar locations fished by the Japanese and Russians. When the salmon run was poor, the village economy suffered drastically. At one time, Dillingham was designated to receive an allocation of surplus food from the Federal government.

State and Federal activities provided most of the steady jobs. An Alaska Native Service hospital at Kanakanak (about seven miles from Dillingham), a Fish and Wildlife Office, and the public schools were the main governmental facilities.

Dillingham was "wet" and had several liquor stores and bars. The town had been recently incorporated and activities related to water supply and sewage disposal were providing jobs for men.

Educational facilities. A public high school and elementary school and two parochial schools were operating in 1964-1965. There were no day care facilities nor adult education classes being held at the time of the research.

Health services. The Alaska Native Service hospital at Kanakanak took care of the medical needs of the native population. For the others, there was a station for a public health nurse in Dillingham.

Employment for women. Canneries, the largest employers of women,

hired for forty-five days with a guarantee of $864.44, $736.71, or $694.77 depending on job classification. No previous training was necessary for the operators, although frequently women would work up from a Class B, or low-skill job, to Class A.

Other Bristol Bay canneries hired more people than those in Dillingham, but fewer women. These were in places where the housing situation would have been complicated by the presence of women, an employer said. Some women were brought in from "Outside" for work in canneries or to serve as waitresses. A Dillingham fisherman said that it was very important to develop off-shore fishing to provide more year-around income. The costliness of gear and freezer ships appeared to deter development of bottom fishing.

Two hotels and several restaurants provided steady employment for several women. Most of them had worked at their jobs for less than three years. They ranged in age from eighteen to fifty. An employer mentioned undependability because of drinking or temperament as the largest employee problem.

Trained secretarial help was scarce. The city needed an experienced bookkeeper. Every employer who was asked about the need for a day care center replied that one was badly needed. The school hired a physically handicapped woman and several crippled women were hired in the cannery for labeling and marking cases. The Alaska Native Service hospital at nearby Kanakanak provided a source of employment for women in the area.

TYPICAL WOMEN'S EMPLOYMENT IN DILLINGHAM, 1964

Cannery (Summer only)	
Canning and related	30
Food service	8
Laundry	1
Housekeeper	1
Public School	8
Fish and Wildlife	2
City Administration	2
Airline	2
Hotel and Restaurant	8
Retail Establishment	3

BETHEL

Economy and geography. Bethel, with 1,258 people, was the transportation center for the lower Kuskokwim and the Bering Sea coast from Hooper Bay to Eek, including Nunivak Island. It had an airstrip which accommodated bush aircraft and prop-jets. The river served as a base for float plane operations. It was possible to bring in large supplies by ship, tug, and barge. The reindeer and musk oxen range on nearby Nunivak Island affected some of the traffic and supplies going through Bethel.

Salmon fishing, particularly for kings, provided income and subsistence activities. Bethel supplied some laborers for canneries in the Bristol Bay area and others worked at the king salmon plant in town. Governmental activities---Federal Aviation Agency, Bureau of Indian Affairs, Alaska Native Service, State schools, and the United States Weather Bureau---accounted for most of the salaried income.

Industry was hampered by the shortage of a pure water supply and adequate methods for sewage disposal. Water sold for two and one-half cents or three and one-half cents per gallon, according to the amount bought at one time, which could amount to twelve and one-half cents or seventeen and one-half cents every time a toilet was flushed.

Educational facilities. The State had a school building for elementary and secondary students and a kindergarten program was offered.

For the outlying area, according to Bureau of Indian Affairs figures, there were 102 girls attending high school elsewhere, plus ten studying at Haskell, and two in art school "Outside". Twelve others were taking

part in the Bureau of Indian Affairs' Employment Assistance Program

In the villages under the Bethel Bureau of Indian Affairs Education Office's jurisdiction were thirty-two elementary schools. These hired, in addition to the male teachers, forty-six women. Thirty-two other women worked in the school lunch program which was offered in each school.

One official pointed out the correlation between age and education. Women older than forty could be expected to have a second or third grade education; twenty to thirty years old, sixth to eighth grade; and eighteen to nineteen year olds, at least eighth. Census figures correlating age and education bear this out.

Health services. There was a doctor at the time of the survey, a woman who had previously been with the Alaska Native Service hospital. There was also a half-time public health nurse.

The Alaska Native Service hospital on the outskirts of town, provided health services for the native population in Bethel and up the Kuskokwim River. Staff doctors took turns in the field, going out for a week at a time and traveling by air and by dogsled for the shorter trips between villages.

Women's employment. Native girls hired by the stores and offices were those who had been trained in office work or had had other secondary schooling. Non-native women, many of whose husbands had government jobs in town, filled some of the positions. The need for well-trained secretarial help was frequently mentioned by employers. There were at least four unfilled secretarial positions in early September, 1964.

One general store hired six women; another, three. A restaurant-hotel employed six women; the Bureau of Indian Affairs office, twelve, all clerical.

Twenty women worked in the cannery during the summer. The State school hired thirteen women as teachers and two as office workers. One woman was working for an airline.

The largest single employer of women in the town was the Alaska Native Service hospital, which used them for the following jobs:

Registered nurses	10
Practical nurses	9
Nursing aides	11
Food service	5
Dietician	1
Director of nurses	1
Assistant director of nurses	1
Educational services	2
Laundry	2
Seamstress	1
Clerical	7
Housekeeping	4
Total	54

These women ranged in age from nineteen to fifty-eight years.

One employer remarked that undependability of the employee in reporting for work was his biggest problem with labor. Another said that a day care center was needed.

Only two employed physically handicapped women were brought to the writer's attention. One suffered a speech defect; the other, deafness. Tuberculosis, orthopedic problems, and accidental crippling accounted for the majority of the handicapped. Accidental crippling occurred more fre-

quently among men than women.

One isolated village had an unusual amount of mental retardation. One official thought it was due to intermarriage. This was not checked.

ANIAK

Aniak was a village of 308 people in 1960, according to United States census figures. It was about eighty miles up river from Bethel. There was a Federal Aviation Agency station there and a small inn and restaurant on the airstrip's edge.

There was little in the way of employment for women. An inn had hired one or two, and occasionally some found jobs as domestics for the Federal Aviation people.

This village, as were many places along the river, was constantly threatened by spring and summer floods.

The economy was largely based on subsistence activities.

STONY RIVER

Economy and geography. In 1964 there were 114 people living at Stony River, located on a seven-mile-long island at the junction of the Stony and Kuskokwim Rivers above Bethel. There was an airstrip suitable for bush plane landings, a coffee shop, a trading post, a sawmill, and a small industry in manufacturing prefabricated cabins. Some of these buildings were shipped down river as far as Bethel.

Educational facilities. A two-room, State-operated school had an enrollment of twenty-seven students during 1964-1965.

Health services. A Public Health Service dentist lived in the village and provided dental care for the villagers of the lower Kuskokwim. Routine and non-professional health care and record-keeping were done by his wife. A training program had been started whereby the village councils paid the fare for one or two of their people to go to the hospital at Bethel for a six-week training course in health services. Their room and board were provided by the Public Health Service while they were learning.

Women's employment. The few available jobs in the village usually went to those with the education for record-keeping related to the job and with the self-discipline necessary to meet the schedule.

ESKIMO VILLAGES

Summary

Since the purchase of Alaska a century ago, the Eskimo people and their problems had been a subject of interest to American anthropologists, sociologists, physiologists, and economists. Their ancient villages had been excavated, their health problems studied; they had been weighed and measured, their basal metabolism had been tested, their food habits analyzed, their family life and interpersonal relationships observed, their psyche had been probed, and their mode of subsistence reported.

There appeared to be agreement on the fact that the Eskimo had demonstrated an almost perfect adaptation to his physical environment, shown by his ingenuity in utilizing available resources.

The cause of concern had been that of acculturation to a society suddenly thrust upon him. The influence of outsiders, particularly during and since World War II, was so disruptive to the old way of life, which was primarily a nomadic, hunting existence, that some seemingly insurmountable problems arose.

Although the Eskimo's activities became more dollar-directed, survival in the harsh environment still demanded that he carry on a cycle of activities to fit the seasons.

The criticism by newcomers to the Arctic of his undependability as a worker were perhaps valid from the employer's point of view. It had to be recognized, though, that a people long-accustomed to depending upon nature to provide for their very subsistence could justifiably be reluctant to make a complete change in their way of life and to come to depend

upon the fluctuating economy of the newcomers to provide for their survival on the Arctic coastal plains.

The most successful employers appeared to be those who could and would allow the native men and women to fit their hunting and fishing activities into the employer's schedule, with an understanding as to limitations. These were usually the businessmen who offered strong, dependable, and effective leadership in their community.

Human behavior, it was recognized, was not easily understood, and it would have been presumptuous for this researcher to suggest that any program of education could provide all the answers to the individual's personal problems related to employment.

Poor money management, personality and family maladjustments, and the misuse of alcohol, whether the town was legally "wet" or "dry", were serious problems and were the concern of many agencies.

At the conclusion of the work, during which the villages were surveyed and people interviewed in their homes and at work, the following recommendations were made relating to the place of vocational education in training women for job opportunities.

ESKIMO VILLAGES

Conclusions:

1. The Eskimo race in Alaska is increasing and more young Eskimos are remaining in and returning to the villages than are moving away permanently.
2. The basic economy of the Eskimo is based upon subsistence activities and the women play an important part in these activities.
3. The role of the woman in the Eskimo village indicates that for many training for part-time or piece work would be more practical than for full-time employment.
4. The Bureau of Indian Affairs can and does provide vocational training for young women who want to work at jobs other than those available in the villages.
5. Less than two per cent of the female Eskimo population regularly receive Aid to Dependent Children or Old Age Assistance.
6. The development of the native industries (fur farming, tanning, and reindeer herding) is technically feasible, but economically unfeasible.
7. Eskimo women trained in health education could earn money as nurse's aides and at the same time contribute substantially to the welfare of their community.
8. Wives of government workers who are stationed in villages are holding office jobs that could be done by trained Eskimo women.
9. Development of adequate water and sewage systems by the proper authorities could add to women's employment opportunities by making it possible to install laundromats, beauty parlors, coffee

shops, bakeries, and other industries using large supplies of water and requiring good waste disposal systems.

10. There is a need for training women to produce high quality, standardized fur products for which there is already a consistent market.

11. Eskimo men are not averse to employment for their women as long as it follows accepted patterns for women's activities.

12. Only the women in their twenties or younger can be expected to have an eighth grade education.

13. Eskimo women in the smaller villages do not place a high money value on their work and may be underpaid for goods and services.

ESKIMO VILLAGES

Recommendations:

1. The Division of Vocational Education, Department of Education, should provide job training for women.
2. The programs should be chosen with due consideration for other vocational training in effect, such as those of the Manpower Development and Training Act or the Bureau of Indian Affairs.
3. Vocational counseling should be given in the seventh and eighth grades.
4. Pilot training programs should be introduced in the fields of health education, food handling, hotel services, and clothing construction using highly qualified instructors who are familiar with Eskimo culture.
5. Programs offered should, where possible, be in areas that would allow the individuals to remain in their own villages if they so desire.
6. Training programs should be based on surveys of the village, taking into consideration the psychology, sociology, and previous training of the inhabitants, as well as present and projected businesses and industries that would affect women's work opportunities.
7. Local inhabitants who qualify should be given the first opportunity for jobs.
8. Each training program should include indoctrination to instill high standards, pride in workmanship, and a professional attitude toward the job.

9. Women should be helped to realize the worth of their work and the value of their time.

10. Money management courses should be offered for all adult women in the community.

11. Certificates should be issued at the completion of definite occupational training programs upon evidence that the people have developed the skills and understanding necessary to qualify as trained employees for that occupation.

12. Every village that provides a substantial amount of employment for women should have a State-supervised day care center for the children of the working mothers, if a private day care arrangement with trained help and reasonable prices is not available.

13. There should be closer coordination among governmental agencies serving the needs of the Eskimos.

14. Eskimos should be helped to maintain a pride of their own culture.

CHAPTER IV

FAIRBANKS

Economy and geography. Fairbanks, on the Chena River in the Tanana Valley, 150 miles south of the Arctic Circle, at 147° 44' W., 64° 50' N., was the second largest city in Alaska. Towns in the election district and their populations were as follows in 1960:

Aurora	293
College	1,755
Dot Lake	56
Ester	81
Fairbanks	13,311
Graehl-Hamilton Acres	2,162
Island	659
Lemeta-Johnston	1,227
Northway	196
South Bjerremark	231
Tanacross	102
Tetlin	122
Tok	129

Although Fairbanks had extremely low temperatures in the winter, the long, warm summer days made it possible to grow some commercial crops such as potatoes, cabbage, and grain. Dairying had become well established. The discovery of gold in 1902 gave Fairbanks its start, but played a minimal role in the community's economy after 1920.

The Alaska Railroad connected Fairbanks with Anchorage, 365 miles to

the south. A road from Valdez made trucking possible from that seaport to the Interior. The Alaskan Highway was an important link to the main body of the United States through Canada. As in most Alaskan cities, air travel increased greatly after World War II. Bush flying to the remote Interior and Arctic Coast accounted for much of Fairbanks' airlines business.

An Army base, Fort Wainwright, on the outskirts of town, and Eielson Air Force Base and Fort Greely to the south, affected Fairbanks trade.

Indians from the interior valleys and Eskimos from the coast were drawn to the metropolitan center for employment, but the move was not always successful economically nor culturally.

Strong industries in December, 1964, were government, transportation, communication, and utilities. At that time, the unemployment rate was 6.9 per cent.[1] In mid-August, 1964, it was 3.7 per cent.[2]

Educational facilities. The North Star Borough School District had a 1,523-student high school with eighty-two teachers; six elementary schools, including kindergartens; and a junior high school. There was a program for special education for the handicapped. The high school offered vocational education courses and there were some work-study classes. A Catholic high school had 110 students and a faculty of eleven. Their grade school had nine teachers.

The district offered adult evening classes. Students were at least eighteen years old and were not enrolled in a regular, full-time day school

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[1] Alaska Monthly Review of Business and Economic Conditions. March, 1965.

[2] Ibid., January, 1965.

pre-college program. The offerings related to domestic skills were described as follows:

Foods: Designed to teach preparation of foods--appetizers, canapes, hors d'oeuvres.

Flower arranging: How to arrange flowers according to need--decoration type of flower.

Interior design: A basic course in principles of interior decoration based upon color and fabric selection, room planning.

Millinery: Basic millinery--new hats for the Easter season.

Knitting: Beginning and advanced instruction.

Sewing I and II: Fabrics, patterns, cutting and sewing; designed to teach clothing construction; alterations, buttonholes, and pleating.

These were offered for different lengths of time, ranging from five weeks to eight weeks, usually meeting for two hours two days a week. The fees were from seven and one-half dollars for the shorter courses to twenty dollars for the longer ones.

The University of Alaska was experimenting, through its extension service, with a three-month course in homemaking to train women to qualify as professional homemakers to manage households with children in the absence of the mother. A professional home economist was teaching the course, using guest lecturers to teach nutrition, home management, credit, child care, and sewing. In April, 1965, sixteen women were enrolled. Some were new to Alaska, others had recently moved to Fairbanks from northern villages.

The University of Alaska had opened as a Land-Grant college in 1922 and was designated as the University of Alaska in 1935. It covered 2,250 acres and had an enrollment in 1964-1965 of 1,416 on-campus students (during the first semester).[3] It was approved by the Federal Office of Vocational

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[3] University of Alaska Catalog 1965-1966, College, Alaska. p. 28.

Education for teacher training in Vocational Home Economics.

The minimum requirements for a bachelor of science in home economics were 130 credits. The 1964-1965 University catalog stated that the course in home economics was designed primarily to train the student for marriage and family life. It also stated that by proper selection of courses, graduates were enabled to find employment in related vocations. Home economics courses were: meal management, college orientation, related art, textiles, advanced clothing, family health, home management, clothing construction and selection, marriage and family life, advanced foods, nutrition, child development, house planning and furnishing, and home management residence.[4]

The summer session for 1965 offered no home economics courses on campus or in Fairbanks. An evening class program for 1964-1965 listed a marriage and family life class that could be taken on the main campus, at Fort Wainwright or in other parts of the State where there were extension courses.

Health services. A seventy-bed hospital, used by fourteen doctors, was operated by the Sisters of Providence.

Employment for women. During the month of April, 1965, these requests were made for women employees:[5]

Contract Construction	4	Service Industry, Except Private	13
Public Utilities	6	Private Household	31
Wholesale and Retail Trade	18	Federal Government	3
Finance and Insurance	9	State Government	2

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[4]University of Alaska Catalog 1964-1965, College, Alaska. p. 69.

[5]Figures supplied from State Employment Office, Fairbanks, Alaska, April, 1965.

Businesses in Fairbanks related to domestic skills and services were:

Alterationists	2	Furniture Dealers	3
Beauty Parlors	17	Grocers	12
Catering	1	Interior Decorators	1
Children's Clothing Stores	4	Laundries	1
Women's Clothing Stores	3	Self-service Laundries	6
Cosmetic Shops	2	Motels	5
Department Stores	2	Nurseries, Licensed	1
Drapery Shop	1	Restaurants	17
Drugstores	5	Sewing Center	1

In 1959 one-fourth of the working women were employed in eating and drinking places, personal service, or hospital work. This fact, in addition to that of the demand for private household workers as indicated by the requests to the employment office, showed that there were a significant number of openings for skilled domestics and service workers. Salaries were comparable to those of food service workers or retail trade clerks, but the low status associated with the job apparently caused many women to avoid this kind of work. Some people involved in placement said that employers needed training in employee relationships to make the jobs more desirable.

CHAPTER V

FORT YUKON

Economy and geography. This village of some 650 people on the Yukon River, eight miles north of the Arctic Circle and 125 miles northeast of Fairbanks had been established as a trading center for furs by the Hudson's Bay Company, and later was the site for an Episcopalian mission and hospital. The activities of these agencies gave the isolated village a permanency that continued long after the fur-bearing animals were depleted and the Federal government assumed responsibility for medical treatment of the natives.

A White Alice site helped the economy, but not as much as the villagers had hoped. The site employees' most obvious contribution to village income was the purchase of native beadwork. The science and technology involved in maintaining the site contrasted sharply with the simple village life.

The people of Fort Yukon were plagued by many problems: an expensive supply of pure water, limited sewage disposal facilities, high prices for basic commodities, threat of flood and erosion, distant source of medical care, absence of work opportunities, low educational level of adults, and the emotional disintegration and social problems related to poverty, i.e. drinking, poor personal management, and trouble with law enforcement agencies. Many families were crowded in small, sod-roofed log dwellings. A great deal of time was involved in subsistence activities---hauling wood, carrying water, fishing for personal use in unproductive waters.

Work opportunities were related to the school, airlines, trading outlets, utilities, and lodge. Trapping and fur selling still provided money income.

Businesses included a coffee shop, a small movie house, a lodge and restaurant, two stores, a family-run bakery, an oil dealer, and a supplier for electricity.

Fairbanks offered opportunities to earn money and to "get ahead", but going there to work was sometimes an expensive undertaking. For a man to rent a room and eat out, or to rent an apartment and take his wife and children there, to join a union, to buy special work clothes or tools, and to enter into any of the social life offered by the city sometimes made it economically unfeasible for the people of Fort Yukon to go there to work.

The village was nominally "dry", but everyone interviewed mentioned drinking as being a real problem. The ready access to liquor in Fairbanks may have affected the natives' ability to adapt successfully to urban life and have caused many of the villagers to return home disillusioned.

The women and girls who might have found work in offices or households in the larger towns had the disadvantage of being virtually untrained for the work available. The fifty-one-student high school, housed in a clean, modern attractive building offered no home economics, office, or shop classes. The students were taught music, English, social studies, mathematics, and science.

It was not part of the cultural pattern for mothers to teach their daughters the domestic skills. Living conditions were so simple that there was very little housekeeping that could be taught which might help the girls find jobs as domestics in homes with modern appliances and interiors.

Leather used for skin sewing and beadwork was purchased from local traders or "Outside" suppliers. A complaint was made that commercial skins

were too expensive, but that the hunters did not bother to save hides anymore.[1]

Most of the homes had electricity for lights. Although there were complaints about the price, it was a popular addition to the home.

Family money problems were easily analyzed. There just wasn't enough income. Of the 179 families having an income in 1959, 126 had less than $3,000 a year. Any beyond that amount necessary for bare survival was often spent on materials that brought immediate gratification: sweets, baked goods, liquor, and coffee.

It was not customary for women to sew for their children, although there were several households with sewing machines. Local stores and catalog houses provided sources for ready-made garments. The main requirement was that the clothing should be warm and that it should be cheap. Launderability was not a determining factor in purchases since there was no dry cleaning establishment and laundry facilities were limited or absent in most homes.

Women's work, as in many Alaskan villages, was monotonous and difficult because of the unhandy method of getting water and fuel and the lack of sanitary facilities, as well as crowded housing conditions. Since the men were more often unemployed than employed, they spent a great deal of time at home, thus adding to the burden of the housewife's work.

Considering all the factors that limited the money-making ability of the villagers, it appeared that any program of training for wage-earning occupations would be an improvement. Such a program would have to be

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[1]"Fort Yukon Woman Changes Moose Hide to Work of Art", Fairbanks Daily News-Miner, April 21, 1965.

realistically based upon the culture, history, and future plans of the community and should take care of the needs of the in-school youth as well as those who had terminated.

A survey made in the spring of 1965 by a Long-Range Planning Committee of the City Council showed that the women were interested in training for child care, housekeeping, secretarial work, nursing, sewing, cooking (particularly baking), and laundry work.

Hospitalization for the seriously ill was provided at the Alaska Native Service facility in Tanana located many miles away. A public health nurse was usually stationed at Fort Yukon, but the people complained about not having a hospital.

A Community Action Program was being organized. Operation Headstart for disadvantaged children was underway for the summer of 1965.

The possibility of Rampart Dam's being built should be considered in long-range plans for the village.

POPULATION OF ELECTION DISTRICT

UPPER YUKON

District 20, Upper Yukon	1,619
Fort Yukon	701
Beaver	101
Stevens Village	102
Rampart	49

FAMILY INCOME IN 1959

UPPER YUKON

All Families	179
Under $1,000	35
$1,000 to $1,999	52
$2,000 to $2,999	39
$3,000 to $3,999	8
$4,000 to $4,999	--
$5,000 to $5,999	8
$6,000 to $6,999	8
$7,000 to $7,999	17
$8,000 to $8,999	--
$9,000 to $9,999	--
$10,000 and over	12
Median Income: Families	--
Families and Unrelated Individuals	$1,617

INCOME OF PERSONS IN 1959

UPPER YUKON

Total		638
Total with Income		438
$1 to $499 or less		101
$500 to $999		128
$1,000 to $1,499		90
$1,500 to $1,999		36
$2,000 to $2,499		14
$2,500 to $2,999		9
$3,000 to $3,499		--
$3,500 to $3,999		8
$4,000 to $4,499		--
$4,500 to $4,999		9
$5,000 to $5,999		9
$6,000 and over		34
Median Income:	Both Sexes	$ 961
	Male	$1,125
	Female	--

EMPLOYMENT STATUS

UPPER YUKON

Female, 14 Years Old and Over	344
Labor Force	102
Employed	55
Unemployed	47
Not in Labor Force	242
Inmate of Institution	--
Enrolled in School	34
Other, Under 65 Years Old	178
With Own Children Under 6	109
Married, Husband Present	97
Other, 65 Years Old and Over	30

LAST OCCUPATION OF UNEMPLOYED

UPPER YUKON

Total Experienced Unemployed	101
Professional, Technical, and Manual Workers	18
Clerical and Sales Workers	4
Craftsmen, Operatives, and Kindred Workers	22
Private Household Workers	18
Service Workers, Except Private Household	22
Farm Laborers and Foremen	--
Laborers, Except Farm and Mine	12
Occupation Not Reported	5

OCCUPATION OF EMPLOYED

UPPER YUKON

	Male	Female
	158	25
Professional, Technical, and Kindred Workers	27	--
Clerical and Kindred Workers	--	4
Sales Workers	10	5
Craftsmen, Foremen, and Kindred Workers	13	--
Operatives and Kindred Workers	53	8
Service Workers, Except Private Household	18	4
Laborers, Except Farm and Mine	22	4
Occupation Not Reported	15	--

CHAPTER VI

McGRATH

Economy and geography. McGrath, at 62° 58' N., 155° 38' W., with a population of 241, was about halfway between Bethel and Fairbanks by air and nearly 350 miles northwest of Anchorage. It had prospered as a trading and freighting center during the peak of gold mining activity in the Folger and Ophir districts and was still the most important trading center in that remote area.

A Federal Aviation Agency station, a post office, and a State elementary school provided most of the salaried income. Other year-around work was provided by two airlines offices, a cafe, two stores, and three bars. Transportation (there were two freight lines on the river), food service, lodging, general merchandising, trapping, and woodcutting were the main businesses.

School and Federal Aviation Agency construction were providing employment for men during the summer of 1964. The inn was full and the restaurant was doing a good business. There was no evidence of plans for further industry.

McGrath had several older residents who had stayed on after mining activities had diminished. Many of the homes were well built in the old Scandinavian style, and vegetable gardens were common.

Educational facilities. A new elementary school was being built in 1964. Three teachers handled the eight grades. Beyond elementary, some students went to Copper Center Catholic High School, others to Bureau of Indian Affairs schools, and still others made arrangements to attend secondary schools in other towns. Of the four eighth grade graduates during the

preceding year, all had gone on to high school.

Health services. A public health nurse was stationed there. Natives were eligible for medical care at the Alaska Native Service hospital in Anchorage.

Women's employment. Other than one store, owned by an "Outside" company, all the stores, bars, the eating place, and inn were owner operated. The post office employed two women and an airline hired one. There were two women teachers.

One family-run establishment employed a cleaning woman, a waitress, and a cook. The mother and daughter both indicated an interest in education for job training. Neither had finished high school and both expressed dissatisfaction with their present work.

Another woman, born in the area, served as welfare agent, assisted in health activities, and worked at cleaning and odd jobs. Her daughter, who had attended secondary school away, was assistant postmistress. Another daughter had taken the practical nursing program in Anchorage and was working and studying in Sitka.

A Federal Aviation Agency station was on one end of town and the families there sometimes hired women for domestic help. Residents remarked that the Federal Aviation Agency wives as a rule did not become involved in village affairs.

CHAPTER VII

TYONEK

This fishing village with 180 residents on Cook Inlet, fifty miles west of Anchorage, had a community hall, a cooperative store, and a fifty-one-pupil Bureau of Indian Affairs school. Transportation to towns across the Inlet was by private boat or chartered plane. A graveled airstrip for small planes was within walking distance of the village. The economy had always been dependent upon the fishing season, but recent oil exploration had brought business to the community and discoveries on Indian land had led to a settlement of several million dollars to the natives for their oil rights. A council was administering the income so that all the inhabitants could benefit. Long-term investments in real estate in Anchorage were included in their plans. Sixty-two family dwellings were under construction during the summer of 1965, providing employment for some of the men.

The school was to be transferred to a borough, and three classrooms were being built in 1965, eliminating the necessity for operating shifts. One village leader felt that the lack of facilities had been responsible for some students not being accepted in high school. Six students attended Mt. Edgecumbe in 1964-1965.

Changes in the economic situation in Tyonek promised to be interesting, since these people who had been living a partially subsistent life on marginal income had suddenly achieved some affluence. That there would be social and emotional effects appeared obvious. How they would adapt to the changes would make an interesting study.

CHAPTER VIII

ANCHORAGE

Economy and geography. The city, with 44,327 people, was the center of trade and transportation for the Anchorage election district, population 93,902, as well as much of interior and southwestern Alaska. Located at 61° 14' N. and 149° 54' W., on the eastern side of Cook Inlet between Turnagain and Knik Arms, the town covered some 40,000 acres from the bluffs of the Inlet to the foothills of the 8,000-foot Chugach Range. Two military reservations, Elmendorf Air Force Base to the northeast and Fort Richardson on the east, were contiguous to the greater Anchorage area.

Yearly average rainfall was slightly over fourteen inches and the annual snowfall sixty inches. Most of the snow fell from November through January and there was seldom more than sixteen inches on the ground at any time.

Maximum weather conditions were: record high, eighty-six degrees Fahrenheit; record low, minus thirty-eight degrees Fahrenheit; maximum monthly snow fall, forty-eight and five-tenths inches. The greatest amount of rain was expected between the beginning of July and the end of September. The growing season averaged one hundred days, with the longest days having a maximum daylight of nineteen and one-half hours. The shortest day provided five hours and twenty-eight minutes of daylight.[1]

Railroading was responsible for the birth of the city in 1915 and remained by far the most important business until the coming of World War II

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[1]United States Weather Bureau.

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when defense activities provided jobs for thousands. The discovery of gas and oil in the 1960's brought more business to this largest Alaskan city. Still, governmental activities provided over two and one-half times as much employment in Anchorage as any other one industry in August, 1964.[2]

During the 1960's, Anchorage earned a reputation as "the air crossroads of the world". Three domestic airlines scheduled flights to the other states; three others served the Alaskan interior and western coast; four carriers took passengers to Europe or the Orient; and four others used the airport for refueling, maintenance, and crew changes.

The total in-out air passengers for 1963 was 306,693, and the total through passengers 171,763. In and out freight came to 43,057,484 pounds.[3] Housing, feeding, and other services for the crews and tourists provided business for the community. A 450-room hotel was completed in 1964, and another with 150 rooms was opened in the spring of 1965. Some thirty other hotels and motels were operating at the time of the survey.

During the summer of 1962, 25,000 tourists passed through Anchorage on business or pleasure. Of that number, 4,800-5,000 came on planned tours.[4] Big game hunts, ski facilities, night clubs, and guided bus tours as well as sport fishing provided entertainment for the tourists and employment for the citizenry. Businesses in the city offered services comparable to those in any town of the same size in other sections of the

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[2]Alaska Monthly Review of Business and Economic Conditions. September, 1964. p. 8.

[3]Anchorage Chamber of Commerce Report, Anchorage International Airport. October, 1964.

[4]Ibid., p. 27.

United States.

Anchorage was primarily a working person's town with a notable absence of a leisure class. Of the total number of employable persons fourteen years old and over, 45 per cent were employed. There were 17,183 women over fourteen years of age not in the labor force and 12,631 were working at the time of the 1960 census.[5]

"Mobile" was the word that could best describe the Anchorage employees. The men who came in to build the railroad were followed by the engineers and construction crews for military bases, highways, and airports and more recently by oil drillers and geologists. In 1960, 49.9 per cent of the persons living in southcentral Alaska had lived in another state in 1955.[6]

Service industries provided many work opportunities. Of 259 placements made by the Anchorage Employment Service during a period in 1962, one-fourth were in service: 29 in hospitals, doctors' offices, and other service establishments and 27 in private households as housekeepers, maids, or yardmen. Eighteen per cent found jobs in wholesale and retail trade and 14 per cent of the total were in service industry firms. Fifty-eight of these persons were placed in government jobs.[7]

Educational facilities. Under the administration of the Greater Anchorage Area Borough School Board, public schools started the 1964-1965 year with

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[5]George W. Rogers and Richard A. Cooley, Alaska's Population and Economy: Regional Growth, Development, and Future Outlook. Report to Division of State Planning, Office of the Governor. March, 1962. p. 78.

[6]Ibid., p. 47.

[7]Anchorage Job Seekers Survey, Employment Security Division, Alaska Department of Labor, 1964. pp. 13-14.

an enrollment of more than 18,900 students between the first and twelfth grades.[8] Of this number, the Chugiak and Eagle River schools accounted for 1,080 and the Girdwood Elementary School for forty-five. There were twenty elementary schools, three junior high schools, and three high schools in the Anchorage district with a total certificated staff in 1964 of 820.[9] Forty per cent of the girls continued schooling after high school graduation.

The non-certificated staff in 1964 numbered 323. The school lunch program throughout the borough employed eighty-two women who served as cooks, bakers, managers, or office workers.

One supervising principal was in charge of special services which included the following faculty:[10]

Speech-Hearing Therapists	5
ANS Hospital Teachers	4
Teachers of Brain Damaged	5
Teachers of Mentally Retarded	12
Teachers of Physically Handicapped	1
Hearing Teachers	3
Visiting Teachers	2
School Nurses	14

Advanced study was available at the Anchorage Community College, the University of Alaska military base programs, and Alaska Methodist University.

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[8] Facts Digest, 1964-1965, Greater Anchorage Area Borough School District, p. 7.

[9] Ibid., p. 10.

[10] Ibid., p. 8.

The Anchorage Community College of the University of Alaska was operated in cooperation with the Anchorage Borough School District. It was accredited as a part of the State University and offered the first two years of college academic work. On behalf of the School District, it offered terminal courses in general education, vocational-technical education, and continuing education for the adults of all ages in the greater Anchorage area.[11]

The enrollment in October, 1964, was 1,555. The college was approved by the Veteran's Administration under Public Law 550 for veterans desiring to attend college. Tuition assistance was available for members of the Armed Services under Public Law 413. Counseling services were offered and tests regarding ability, aptitude, personality, interest, and achievement were administered for a small fee to members of the student body requesting them. Apprenticeship classes were sponsored in cooperation with the Joint Apprenticeship Committees.

In June of 1964, a grant of $890,000 was given the Anchorage Community College for a multi-occupational project under Public Law 88-214 of the Manpower Development Training Act of 1963. Programs offered during 1964-1965 were based upon surveys made by the State Department of Labor and included: clerk-steno, clerk-typist, practical nursing, drafting, waitress, retail sales, airline reservations, food service, and health occupations.

Four private nursery-kindergartens and a Catholic Junior-Senior High School, grades seven to ten, were operating in 1964.

Alaska Methodist University, a four-year liberal arts college, had 349 students enrolled in full-time classes in the fall of 1964 and sixty-six

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[11]Anchorage Community College, Catalog and Announcements, 1964-1965.

students in the night program. Expansion plans included a four-year nursing education program to make it possible for individuals to obtain all their training in Alaska. Classes in speedwriting, shorthand, secretarial training, business machines, real estate, and card punch instruction were offered by a private business college. Three accredited beauty colleges were attended by students from outlying towns as well as Anchorage.

Health services. There were two church-owned hospitals, two private nursing homes, and an Alaska Native Service Hospital. Providence Hospital (Catholic) had 150 beds; Presbyterian, 45; and the Alaska Native Service Hospital, 395.

The State had offices for public health, mental health, and a child study center. In addition, it operated a 225-bed Psychiatric Institution.

Women's employment. The high cost of living and a desire to improve the family's standard of living appeared to be the main incentives for women to work. In spite of improvement in shipping, increased competition among retail businesses, and greater efficiency in marketing, the cost of living in Anchorage was substantially higher than in the nearest "Outside" city, Seattle. According to the Bureau of Labor Statistics, the indexes of intercity differences in the cost of equivalent goods and services, with the cost in Seattle equaling one hundred, were as follows in October, 1963:[12]

Food	123	Apparel	111
Housing	135	Other Goods and Services	115
Rental Housing	172		

[12]United States Department of Labor, Bureau of Labor Statistics.

Of the 8,053 women with income in 1959, 2,192 earned less than $1,000 indicating that more than one-fourth of the working women in the Anchorage area were employed part time. Most of the women applying for jobs during the 1962 Employment Service survey had had high school educations or more. Those from twenty-one to thirty-four were the best educated. Of 413 applicants, 316 had twelve years' education.[13]

A survey had been made by the State employment Service for the purpose of acquiring information pertinent to setting up occupational courses for up to one thousand trainees who would come from Anchorage and other south-central Alaskan communities hardest hit by the quake as well as some from other parts of Alaska. The study indicated that there was a need for more trained waitresses, seamstresses, cooks, and other kitchen help such as salad makers and pantry girls. Counter girls were being trained in a small apprenticeship program. The Restaurant Employees' Union had sponsored a waitresses' course and a spokesman said that they might do so again.

Domestic help, particularly for child care or substitute mother, was in continual demand. Day care for children of working mothers was offered by an accredited nursery school for $80 per month. Classified advertisements in the two Anchorage papers on the same day in November, 1964, showed a need for:*

Private Household Workers	22	Waitress	1
Seamstress	1	Counter Saleswoman	1
Presser	1	Floral Designer	1

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[13]Alaska Department of Labor, Employment Security Division, Anchorage Job Seekers Survey, July-October, 1962. p. 56.

*The Anchorage Times had notices for sixteen domestics; the Anchorage Daily News for 6. There may have been some overlapping.

According to a release by the Anchorage Chamber of Commerce, the wage rates for jobs ordinarily held by women as of August 1, 1963, were as follows:

TYPE OF JOB	GOVERNMENT	ALL OTHER INDUSTRY
Medical Technician	$475-577 Mo.	$350-500 Mo.
Nurse, General Duty	470-545 Mo.	400-450
Nurse, Office		375-425
Teacher, Grade & High School	558-705	550-750
Bank Teller		300-350
Bookkeeper	445-510	400-535
Cashier	3.02-3.28 Hr.	350-440 Mo.
Clerk-Typist	300-445 Mo.	350-450
Dental Assistant	370-428	350-420
Grocery Checker	1.71-3.19 Hr.	3.25-3.57 Hr.
Key Punch Operator	398-428 Mo.	400-450 Mo.
Receptionist	415-445	350-425
Salesperson, Clothing	1.62-3.28 Hr.	1.97-2.94 Hr.
Secretary	410-545	400-500 Mo.
Stenographer	406-480	350-455
Telephone Operator	390-420	20.00-23.25 shift
Stewardess		365-425
Child Monitor		1.00 Hr. or $25-$35 week
Day Worker		2.00 Hr.
Housekeeper		5.00 to 7.00 day or 150-220 Mo.

The foregoing figures were secured from the Alaska State Employment Service with the following note:

> These wage scales are largely based on starting salaries. They are based on a 40-hour week and do not include overtime rates, zone rates, supervisory or foreman rates, or any fringe benefits such as board and lodging. The Federal government rates include 25 per cent tax-free cost-of-living allowance on the government schedules.[14]

The telephone directory of June, 1965, listed privately-owned establishments who had work related to domestic skills:

TYPE OF BUSINESS	NUMBER OF ESTABLISHMENTS
Restaurants	68
Hotels and Motels	36
Women's Wearing Apparel, Retail	15
Cleaners and Laundromats	14
Furniture Upholsterers and Refinishers	10
Janitorial Services	11
Draperies	3
Sewing Centers	3
Interior Decorators	4
Dressmaking and Tailoring	4
Hospitals	3
Nurseries for Children	3
Bakeries	4
Diaper Service	1
Knitting	2
Confectioners	1
Department Stores	7
Home Furnishings	6

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[14] Going Wage Rates of Various Employers, August 1, 1963: Anchorage Chamber of Commerce Paper.

One hospital hired the following in November, 1964:

Registered Nurses	65
Licensed Practical Nurses	12
Hospital Aides	61
Clerical	16
Secretaries	1
Administrators	1
Food Service	20
Technicians	12
Librarian	1
Housekeepers	7
Laundry Workers	8

In addition, there were seven Sisters: two in administration, three in nursing service, one in food service, and one in the pharmacy. It was remarked by an administrator that there was a high rate of turnover among the paid workers.

Alaska Psychiatric Institute hired many women. Jobs related to domestic skills were:

Cooks	6
Waitresses	10 (on-the-job training)
Kitchen Helper	4 (on-the-job training)
Housekeeping Aide II	2
Housekeeping Aide I	5 (on-the-job training)
Laundry Foreman	1
Laundry Worker II (Washman)	1
Laundry Worker II (Supervised) ironing and filling linen orders)	1

Laundry Worker I	6 (on-the-job training)
Seamstress	1
Planned additions:	
Kitchen Helper	2
Waitress	7

The following comments were made:

"Turnover is greatest among waitresses, nursing aides, and Nurse I."

"The shortage of practical nurses is particularly acute, and there is a continuous high percentage of vacancies in these positions. At present, [November 10, 1964] there are thirteen vacancies in fifty-seven budgeted positions, a not unusual circumstance."

JOB APPLICANTS BY EDUCATION AND AGE
FEMALE

ANCHORAGE, ALASKA

JULY TO OCTOBER, 1962

Years of Education Completed	Total Number of Applicants	Age Groups: 20 and Under	21 to 34	35 to 44	45 to 54	55 to 64	65 and Over
TOTAL	563	132	213	102	77	36	3
No Education	1	0	0	0	1	0	0
1-7 Years	32	0	6	7	8	10	1
8 Years Only	44	2	7	11	17	6	1
9-11 Years	124	43	34	17	22	7	1
12 Years Only	212	54	89	44	16	9	0
13-15 Years	107	32	45	18	9	3	0
16 Years Only	28	1	23	1	2	1	0
Over 16 Years	15	0	9	4	2	0	0

Alaska State Employment Service, Employment Security Division, Department of Labor

CHAPTER IX

MATANUSKA VALLEY

Palmer and Wasilla

Economy and geography. The word "Matanuska" became associated with homesteading and farming in Alaska when the Federal government set up an agricultural colony there in the 1930's. It should be noted that there were some well-established communities, Knik and Wasilla, before the colonization. Palmer, at the upper end of Knik Arm on the Glenn Highway less than fifty miles northeast of Anchorage, was the trade center for the area in 1965. Paved roads led to Fairbanks and to Tok Junction from where they continued as the Alaska Highway. A railroad spur ran to Palmer; Wasilla was on the main line. An airstrip in Palmer was used by charter planes and private pilots. A small gravel airfield was located near Wasilla.

Dairy farming and other agricultural pursuits had been practiced since the Valley was first settled, but there had been many obstacles that prevented them from becoming as successful as many of the settlers had envisioned. Short seasons limited varieties of crops that could be grown to maturity; development costs ranged from sixty dollars to five hundred dollars an acre; regulations limiting the size of homesteads made some of them too small to operate as an economic unit; freight rates which made it possible to import milk and vegetables from "Outside" as cheaply as they could be produced in Alaska and high costs for farm labor made competition with stateside products difficult.

Since World War II, the population of the area had outgrown employment opportunities and many family heads had to find work in Anchorage or on

military bases. Johnson and Stanton mentioned in Matanuska Valley Memoir that after nearly twenty years, forty-nine couples of the 185 colonist families still lived in the Valley; seventy-seven couples had left Alaska; and that of the 130 men and women still living in Alaska in 1953, their occupations were as follows:

Housewife	47
Farmer	25
Laborer	11
Carpenter	10
Retail Clerk	5
Store Manager	4
Office Worker	3
Heavy Equipment Operator	3
Miner	2
Domestic	2
Miscellaneous*	13
Occupations Unknown	5

*One each of blacksmith, cafe operator, contractor, postmaster, bus driver, bricklayer, trapper, trucker, sawmill operator, plumber, telephone operator, bartender, and retired.[1]

Since 1960, Matanuska Valley had produced about 70 per cent of the total value of agricultural products in Alaska. There were 176 farms with 39,715 acres, of which 10,369 acres were harvested cropland and 1,221 cropland pasture.[2]

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[1]Hugh A. Johnson and Keith L. Stanton, Matanuska Valley Memoir. Palmer, Alaska: University of Alaska, 1955. pp. 92-93.

[2]Alaska Monthly Review of Business and Economic Conditions, July, 1964. p. 2.

There were many State and Federal offices in Palmer. A partial list follows:

Agriculture Experiment Station

United States Geological Survey

United States Conservation Service

Farmers Home Administration

Alaska Communication System

State Division of Agriculture

Extension Service, U. S. Department of Agriculture

Alaska Department of Fish and Game

State Division of Roads

A paved road connected Palmer with Wasilla, twelve miles to the west, where some one hundred people lived in the village or on nearby farms. Summer tourists, sawmills, and dairy farming contributed to the economy, although most of the 'farmers' had to find work elsewhere.

Educational facilities. Three hundred and ten students attended Palmer High School and 135 went to Wasilla. Both offered vocational home economics. There were two elementary schools in Palmer and one in Wasilla. The Palmer Community College offered courses as interests warranted. During the spring of 1965, the following were scheduled: education (audio-visual), intermediate typing, advanced typing, shorthand, mathematics, psychology, education (principles and practices of guidance), ground school, drivers' education, and civil defense monitoring.

Twenty-seven of the thirty-three girls in the 1964 graduating class of Palmer High School continued their studies; two from Wasilla went on to college.

Health services. The public health nurse at Palmer covered the Valley. A community hospital for twenty-five patients was staffed and equipped for general medical care. Proximity to Anchorage made that town's hospitals and doctors readily available.

Women's employment. About fifteen women, including the school teachers, found work in Wasilla. The greatest need for trained help was said to be in food and hotel service and clerical work. Businesses in Palmer hiring women were:

Hospital	1
Hotel and Coffee Shops	2
Child Care Center	1
Department Stores	2
Seamstress	1
Washeteria and Cleaner	1
Dry Cleaner	1
Florist Shop	1
Beauty Parlors	3
Dress Shops	2

Many of these were small owner-operated establishments.

Palmer had a private child care center, but there was no public facility in the area.

WASILLA

Economy and geography. In 1916, railroad workers cleared a site for a camp between Lake Lucile and Wasilla Lake at 61° 35' N., 149° 26' W. In 1965, there were over a hundred permanent residents in or near the town and several hundred more who did some trading there. Although many lived on "farms", most heads of families earned a living at some other work. Coal mining, school teaching, retail sales, railroad work, and sawmills provided local employment. Summer tourist trade contributed to the economy. Improved roads had made Palmer and Anchorage more accessible so that many people drive there to trade or work.

Educational facilities. There were a grade school and a high school that offered vocational home economics. No adult education classes were being taught there in 1964-1965, but some residents took courses at the Palmer Community College. Of the seven girls who were graduated from high school in 1964, two went on to college.

Health services. The Palmer public health nurse served Wasilla, and tha community hospital in that town was available to all Valley residents.

Women's employment. The schools hired nine women teachers and two secretaries. About fifteen other women worked in or near the town. Occasionally there were openings for cooks and waitresses and clerical help.

WILLOW

Economy and geography. This community near the Susitna River, some thirty miles from Wasilla by railroad and highway, had formerly been an important freighting post for the miners in the Talkeetna Mountains. The railbelt in that area had long been a favorite with sport fishermen and had enjoyed more recent popularity for winter sports, particularly dog mushing. Trading posts, service stations, bars, general stores, cafes, and other tourist facilities had been built along the road and in the village.

Some of the homesteaders drove to Anchorage to work daily, while others stayed there during the week and returned home weekends. Requests were made in 1965 for a commuter train service to Anchorage for the benefit of those who were employed there. Some interviewees remarked that boredom and loneliness were an important problem with the women who sometimes had to live on the land to meet homestead requirements while the husband worked elsewhere. One suggested that a strong program of adult education during the winter could help to alleviate emotional problems as well as to provide training for wage-earning skills.

Willow was a favorite spot for military families to spend weekend vacations with their 'campers'. It was difficult to determine how much they contributed to the economy, since this arrangement often precluded purchases in the vacation area.

Besides the usual roadside businesses mentioned earlier, there were a washeteria, a hatchery, and one enterprising person was growing pigeons commercially. There was a good business in the sale of lots as the population pushed out from the urban areas of Anchorage, and good roads made summer homes more attractive in these outlying areas.

Educational facilities. There were eighty-two pupils in the Willow elementary school. High school students went to Wasilla, a round trip of over fifty miles daily for some of them.

Women's employment. Work opportunities were very limited. Most of the small businesses were family operated. There were a few openings in motel work and food service. Construction camps sometimes used women cooks during the summer.

TALKEETNA

Economy and geography. Railroading, road construction, charter plane service, tourist trade, mining exploration, and some sawmill work were the main businesses in Talkeetna, a village of about 150 adults on the Alaska Railroad 125 miles north of Anchorage. The trade area was made up principally of three or four hotels and motels, two stores and three bars serving homesteaders on both sides of the Susitna River and those scattered along the gravel road and railway from Willow.

Summer brought some overnight tourists from Anchorage and some Fairbanks people traveling by rail or plane stopped there. Hunters, fishers, and mountain climbers used the facilities of the community. Mining had ceased to be of great importance.

Educational facilities. There were twenty-five students in the high school and fifty-seven in the grade school, a part of the Matanuska-Susitna Borough School District. There were no adult education programs.

Health services. A part-time public health nurse was assigned to the community from Palmer. There were no hospital facilities and no doctor.

Women's employment. Ten or twelve women worked the year around. Much of the work was by owner-operators. Construction camps used food service workers during the building season. A need for an automatic laundry service was mentioned by several women.

CHAPTER X

KENAI PENINSULA AND KODIAK

Seward

Economy and geography. In 1965, Seward residents estimated the town's population to be 2,300. The 1960 census figures for Election District 11 were:

Seward	1,891
Cooper Landing	88
Hope	44
Moose Pass	136

Seward was a seaport at 60° 06' N., 149° 27' W., on Resurrection Bay off the Gulf of Alaska.

The people of this community were searching for ways to replace earthquake damage and to develop new industry. The town's port facilities had been wiped out with $1,000,000 damage to docks and warehouses.[1] The highway, bridges, and railroad between Seward and Anchorage had not been completely rehabilitated in 1965. Longshoring and fishing, the main businesses before the disaster, had given way to government work and construction which employed an estimated 700 in 1965. Many longshoremen and unskilled laborers were unemployed, or had part-time work which averaged $3,000 yearly. Most of the unemployed were in the thirty-five to fifty-five year range. Transportation was expected to regain its position as the largest source for

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[1] Alaska Monthly Review of Business and Economic Conditions. May, 1964.

employment.[2] A Corps of Engineers project and Forest Service activities partially accounted for the large number of government workers.

The Employment Service was actively engaged in community affairs and was interested in the development of new industry. A citizens' committee was working with the City Council to find ways to increase business opportunities.

Educational facilities. There were a kindergarten, two elementary schools, and one high school. The latter had an enrollment of 186 in 1965. The enrollment in other area elementary schools was as follows: Hope, 9; Moose Pass, 59; Cooper Landing, 26. There were no local programs for training beyond high school and no vocational education in the secondary school. A few young people were taking Manpower Development and Training courses in Anchorage. A school officer indicated that 60 per cent of the seventeen girl graduates the previous year had continued schooling.

Health services. One of the two hospitals, owned by a church, could care for sixteen patients, specializing in the care of tuberculars. The other, a 30-bed general hospital, was owned by the city of Seward and provided employment for nineteen women. There was some desire expressed in the community to have it serve as a "half-way" house for convalescents.

Women's employment. Of the approximate one hundred regular jobs for women, many involved the use of domestic knowledge and skills. These were:

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[2] Report of Local Study Group on Mental Health in Seward. January 11, 1964.

School lunch	3
Hospital, non-professional	10
Children's home	4
Private housekeepers	4
Hotels	10
Bakery	4
Restaurants	14
Cannery (seasonal)	50

There were openings for an experienced drug clerk and one or two beauty operators at the time the survey was made.

Several persons mentioned that almost any kind of job training would be beneficial for girls who do not go on to college.

There were an estimated ninety full-time and twenty part-time working mothers between Seward and Cooper Landing. One-third to one-half of the labor force was female in January, 1964. It is interesting to note that there were forty-eight private household workers in 1959. No doubt this was because many of the working mothers hired full-time child care.

INDUSTRY GROUP OF EMPLOYED FEMALES

SEWARD

Female	369
Manufacturing	59
Machinery	--
Transportation and Equipment	--
Other Durable Goods	3
Food and Kindred Products	52
Textile Mill Products	--
Apparel and Other Fabricated Textile Products	4
Transportation, Communication, and Other Public Utilities	15
Wholesale Trade	4
Food and Dairy Products Store	12
Eating and Drinking Places	39
Other Retail Trade	34
Finance, Insurance, and Real Estate	4
Personal Services	60
Entertainment and Recreation	4
Hospitals	32
Educational Services: Government	19
Private	--
Other Professional and Related Services	35
Public Administration	20
Industry Not Reported	32

EDUCATION

SEWARD

Female, 25 years old and over		704
No School Years Completed		4
Elementary:	1 to 4 years	12
	5 and 6 years	40
	7 years	24
	8 years	86
High School:	1 to 3 years	147
	4 years	234
College:	1 to 3 years	98
	4 years	59
Median School Years Completed		12.2

AGES OF PERSONS IN LABOR FORCE

SEWARD

Female:	14 to 17 Years Old	48
	18 to 24 Years Old	35
	25 to 34 Years Old	72
	35 to 44 Years Old	114
	45 to 64 Years Old	130
	65 Years Old and Over	14
Married Women in Labor Force, Husband Present		252
Women in Labor Force with Own Children Under Six Husband Present		71
Married, Husband Present		59

OCCUPATION

SEWARD

Female, Employed	369
Professional, Technical, and Kindred Workers	23
Managers, Officers, and Proprietors, Except Farm	12
Clerical and Kindred Workers	69
Sales Workers	23
Operatives and Kindred Workers	59
Private Household Workers	48
Service Workers, Except Private Household	95
Occupation Not Reported	40

FAMILY INCOME IN 1959

SEWARD

All Families	687
Under $1,000	8
$1,000 to $1,999	20
$2,000 to $2,999	24
$3,000 to $3,999	40
$4,000 to $4,999	53
$5,000 to $5,999	50
$6,000 to $6,999	66
$7,000 to $7,999	62
$8,000 to $8,999	41
$9,000 to $9,999	70
$10,000 and Over	253
Median Income: Families	$8,500

INCOME OF PERSONS

SEWARD

Female: Total	866
Total with Income	581
$1 to $499 or Less	186
$500 to $999	103
$1,000 to $1,499	72
$1,500 to $1,999	28
$2,000 to $2,499	46
$2,500 to $2,999	24
$3,000 to $3,499	20
$3,500 to $3,999	8
$4,000 to $4,499	24
$4,500 to $4,999	36
$5,000 to $5,999	14
$6,000 to $6,999	12
$7,000 to $9,999	4
$10,000 and Over	4
Median Income:	$1,010

In 1959, there were 1,558 persons who worked. Seven hundred and eight of them worked less than forty weeks during the year.

KENAI

Economy and geography. This town was on the west shore of the Kenai Peninsula, on Cook Inlet, seventy air miles and some 160 miles by road south of Anchorage. Fishing and fish canning and service industries were the most important business activities. Kenai businessmen were searching for ways to improve the town's economy. Small Business Administration financing had been used for projects there and in Soldotna. A fish processing plant that could hire fifteen to twenty-five women and a business involving motel, cocktail lounge, and restaurant that could hire six or more were being planned. A $350,000 hospital and a $340,200, thirty-unit motel were approved by the agency for Soldotna, near Kenai.[1]

Educational facilities. An elementary school, a junior high school, a high school with an enrollment of 316, and evening courses from the University of Alaska provided education for area residents.

Health services. There was a clinic in town which did not have a doctor at the time the survey was made. A public health nurse covered the peninsula between Homer and Seward jurisdiction.

Employment for women. Most of the businesses were husband-wife operated. Women who had been trained elsewhere held most of the jobs requiring skill. The canneries, which hired local women, operated only during the salmon runs. The schools hired twenty-two teachers, five office workers, and five for food service. The bank used six women whom they trained; the laundromats, three; another nine to twelve worked in restaurants. Some

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[1] Anchorage Daily Times, July 27, 1965.

of the latter were also owners. Three women worked for the city.

HOMER

Economy and geography. The 1,247 people that made up the Homer trade area lived along the Kachemak Bay at 59° 39' N., 151° 33' W., on Cook Inlet on the southeastern side of the Kenai Peninsula. The open, grassy countryside and the relatively high temperatures made commercial livestock growing possible. A long spit made a quiet harbor which was used by numerous fishing boats. Docks and other harbor facilities were being replaced after earthquake damage. Fishing and tourist trade were the main businesses. A ferry from Kodiak stopped there twice a week. The town was available by highway from Anchorage, and there was frequent air service. Residents were looking for ways to increase tourist trade. Some said that an improved ferry schedule allowing more time for stop-overs would help.

Educational facilities. The Kenai Peninsula Borough School District high school in Homer had 141 students, the grade school, eighty-four. The Extension Service of the University of Alaska offered adult classes through the home demonstration agent's office in Homer. The agent had covered the peninsula from Seward to Afognak Island and Old Harbor during the summer of 1964 teaching classes in low-cost meal planning, repairing and salvaging of furniture, and planning for repair and replacement of homes.

Five of the eight girls who were graduated from Homer High School in 1964 continued their training---three in business school and two in college. One class in home economics was being taught in the high school. It was not a popular subject with the parents, a school administrator said.

Health services. Homer had a doctor and a public health nurse. A health clinic was open for scheduled public services.

Employment for women. Most of the employment for women was found in schools, canneries, State offices, the Homer Electrical Association, banks,

and small businesses with a husband and wife operation. There appeared to be enough women to fill all available jobs. Some women earned money picking berries for a well-established business which processed local products. Others knitted sweaters for sale; the local magistrate was a woman. The local schools hired thirteen teachers, one and one-half secretaries, and three school lunch workers. Their ages were from twenty-three to fifty-five.

Some restaurant owners expressed a wish that there were more trained food service workers. Cabin crafts were popular with many women, but the market for their products was limited and sales slow. A person who had worked in this area for four years said that there were some real pockets of poverty in some of the village areas and it would be very worthwhile for the women to be able to supplement the family income.

Some of the married women in Homer had been trained for skilled work that was not available there. For example, a woman who had worked for ten years as an instructor in data processing and other business machine techniques was unable to use her training in Homer because of the small size of the businesses.

A forty-four year old woman had come down from the Arctic years before, married, raised a family, and found steady work in a cannery. She said that she would like to have become a nurse. Her lack of formal education limited her to unskilled jobs. Many of the married women in the area were formerly nurses, so that there were many more available than there were openings.

KODIAK

Economy and geography. Kodiak was a well-established fishing town on the eastern side of Kodiak Island in the Gulf of Alaska at 57° 47' N., 152° 24' W., with an adjoining Naval Base which served as Alaskan headquarters for the United States Navy. Fishing had been the main business in Kodiak since long before the purchase of Alaska by the United States. The principal seafood had been salmon until the development of crab processing plants. There were three kinds of crab of economic importance: king, dungeness, and tanner. Scallops, halibut, shrimp, and herring were available in commercial quantities.

At the time of the survey, Kodiak was busy with reconstruction after the seismic wave of March 27, 1964. Agents from the Small Business Administration, Urban Renewal, and the Bureau of Fisheries were assisting in planning. Night clubs, restaurants, and a shopping center were scheduled for the city.

Educational facilities. Church and public elementary schools, a 340-student high school serving town and Navy Base children, University of Alaska extension courses offered on base but open to Kodiak residents, and evening courses at the high school provided education for the people of Kodiak. Office training was popular in the extension and evening classes.

Of the twenty-eight girls who were graduated from high school in 1963, nineteen went on for further training. An agent with Public Health and Welfare estimated that about one-fourth of the girls from villages near Kodiak went to school beyond the eighth grade, and of that number about one-third finished.

Health services. Medical facilities for the island consisted of an eighteen-bed hospital administered by Catholic sisters, and a public health center with a full-time nurse. Physically handicapped women and girls on public health records were: two crippled from accidents on a job, one mentally retarded, one mentally affected, one cardiac patient, one with defective vision, and four congenital heart cases.

Women's employment. Forty to forty-five women on the island received Aid to Dependent Children. In the town there were nine, with one receiving Old Age Assistance, and three on general relief. None of the mothers receiving ADC had an education beyond the ninth grade and several had less. Five of the nine had had from one to five children outside of marriage. One mother of five had never been married. Poor money management and drinking were problems. Many had a strong sense of motherhood and were reluctant to go to work until their children were several years old, according to a social worker.

The largest employers of women were the canneries. Many operated all year long, providing regular employment in processing for nearly 75 women. Other women were hired for marketing the seafood.

Motels, hotels, restaurants, and canneries provided work opportunities for the under-educated women. An observation of local restaurants showed that there was an obvious need for upgrading the standards of those in food service. State and Federal agencies, service industries, small businesses, the hospital, and schools provided most of the employment for women who were not cannery workers. There were two jobs open for office managers. The practice of hiring the wives of military personnel for State and private businesses indicated that there were not enough trained local

women to fill job requirements. A ruling in effect on the base prohibited the hiring of domestic helpers, although wives of Navy and Coast Guard personnel held some of the more important administrative jobs off base.

In mid-September, 1964, the Employment Service office had openings for one skilled and thirteen unskilled females. Since the salaries in the fish processing plants were higher than the going rate for waitresses, many preferred the former work.

The Kodiak school system, including the outlying elementary schools, hired forty-five women teachers, one nurse, two clerks, and three and one-half cafeteria workers. One female employee had a vision handicap.

CHAPTER XI

SOUTHEASTERN ALASKA

An understanding of the economy and sociology of the Tlingit Indians was pertinent to a study of Southeastern Alaska. Indian villages were scattered from Ketchikan to Katalla. Each village was part of the complicated social structure characteristic of the Tlingits. Before the invasion of outsiders they had reached a high level of culture, second to the Aztecs and Incas, though agriculture was not a part of their lives. Their crafts included the making of wooden bowls and other carvings of bone, horn, or wood as well as ornamented baskets made of spruce root and grass fibers.[1]

The current status of Indian crafts was recently reviewed in a report to the Bureau of Indian Affairs, which pointed out the factors that should be considered in developing native arts for commercial purposes.[2] Fishing was the basic source of livelihood in Tlingit villages, and the economy of the people was primarily dependent upon the yearly runs of salmon.

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[1] The Eskimos, Indians, and Aleuts of Alaska. United States Department of the Interior, Bureau of Indian Affairs. Juneau, Alaska, April 1963.

[2] Alaska Native Arts and Crafts, Potential for Expansion. Final Report to the Bureau of Indian Affairs, University of Alaska, July, 1964, pp. 65-69.

KETCHIKAN

Economy and geography. Ketchikan, with 6,483 people in 1960, was the fourth largest and southernmost city in Alaska. The Alaska Business and Economic Review, January, 1965, gave the population within the city limits as 6,900 and in the trade area as 10,500.[1] Ketchikan was on the southwest side of Revillagigedo Island, above the Tongass Narrows, at 131° 39' W., 55° 21' N., with Canada less than a hundred miles away and Seattle some seven hundred miles to the southeast. Temperatures were relatively mild, the yearly average being 46.2°. Rainfall at the rate of 151.93 inches a year made the area one of the wettest in the United States.

The salmon industry in Seattle had long used Ketchikan as an important base of operations and fishing was for many years the most important reason for the town's existence. As a result, the town identified in many ways more closely with Washington State than with northern and western Alaska.

Since 1954, the pulp industry had surpassed fishing as the basis for Ketchikan's economy. In 1964, the Ketchikan Pulp Company's mill operated continuously and directly employed approximately 500 persons. In addition, about 200 men were engaged in the company logging operations and some 400 other loggers were employed by companies supplying the mill.[2]

The Ketchikan labor market included the city of Ketchikan, the residential communities of Mountain Point, Herring Cove, Saxman, Survey Point, Ward Cove, Carlanna, Shoreline Drive, Refuge Cove, Mud Bay, Port Higgins,

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[1] Alaska Monthly Review of Business and Economic Conditions. January, 1965. p. 7.

[2] Ibid., September, 1964. p. 3.

Metlakatla, Annette, and the interconnecting highways.[3]

In September, 1964, there were 5,010 employed persons in the Ketchikan area. There was an unemployment rate of 2.5 per cent at that time. Employment classifications were as follows:[4]

Classification	Number of Persons
Mining	0
Contract Construction	350
Manufacturing	1,400
Transportation, Communication, and Public Utilities	700
Trade	590
Finance, Insurance, and Real Estate	100
Service and Miscellaneous	410
Government	810
Other	650
Total Employment	5,010

Educational facilities. The Ketchikan High School had an enrollment in 1964-1965 of 598; the junior high, 188. There were 2,594 students enrolled in Gateway Borough School District schools. The previous year, twenty girls, about half of those graduating, went on for further schooling. Metlakatla, a part of the Ketchikan trade area, had 106 students enrolled in high school. The only woman on the staff was the vocational home economics teacher.

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[3]Ibid., September, 1964. p. 7.

[4]Ibid., January, 1965. p. 7.

A community college was established in 1954 to offer collegiate courses for academic credit. The courses were offered in the late afternoon and evening, and the courses and instructors were approved and supervised by the University of Alaska. In addition, the college offered vocational and interest courses under the sponsorship of the local school district.

Manpower Development Training courses were taught as requested. Recently there had been a steward-waitress course to train workers for the ferry and another in longshoring. The high school offered vocational courses at the undergraduate level. A retail sales class with work experience was part of the curriculum for 1964-1965. Vocational homemaking was taught in the high school. A counselor expressed the opinion that more job training in the high school with related experience in industry would help curb the dropout problem among fifteen- to sixteen-year old girls.

Health services. The health center of the Department of Health and Welfare employed a full-time public health nurse; and an itinerant nurse covered Annette, Cape Pole, Marguerite Bay, Metlakatla, Red Bay, Thorne Bay, 12 Mile Arm, Craig, Hydaburg, and Klawock.[5]

There was a full-time nurse at the Ketchikan High School. A sixty-five-bed hospital was owned by a church and administered by a board of townspeople.

Welfare. Women receiving welfare aid in the Ketchikan district, covering the area south of Frederick Sound, were as follows:

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[5]Nursing Personnel List, Department of Health and Welfare, Division of Public Health, January, 1965.

Aid to Families with Dependent Children	83
Old-Age Assistance	55
Aid to Disabled	13
Aid to Blind	2
General Relief	2

Women's employment. Businesses in Ketchikan affecting women's employment related to domestic knowledge and skills as listed in the telephone directory were:

Beauty Parlors	6
Restaurants	19
Hotels	6
Grocery Stores	12
Canneries	6
Laundries	3
Cleaners	5
Department Stores	2

A thirty-unit motel with cocktail lounge and dining room was scheduled for completion in 1966.

The hospital employed women for these jobs:

Food Service Workers	14	Licensed Practical Nurses	7
Housekeepers	8	Laboratory Technicians	1
Aides	10	X-Ray Technicians	1
Seamstress	1	Physiotherapist	1
Laundry Workers	4	Clerks	9
Registered Nurses	13	Total	69

An employment service agent stated that supply and demand for women employees was about balanced. Employers interviewed suggested the following were always in demand: clerk-steno, office machine operators, bookkeepers, baby sitters, part-time housekeepers, licensed practical nurses, trained waitresses, skilled cannery workers, and retail clerks. Several employers said that although these jobs were filled, it was often by untrained women. An employer indicated that most women employees had worked at their jobs less than four years.

There had been no public day care center for children of working mothers. Some private homes took in several children at a time. The main need for child care was during the fishing season. Centers to care for children (ages six to twelve) of working mothers were started as part of a Community Action Program by the Salvation Army in Saxman, Metlakatla, and Klawock during the summer of 1965. Each center was to hire two teachers, three student aides, one cook, and one custodian.[6] The program was offered for seven weeks during the canning season. Some younger children were enrolled in Operation Headstart in these communities.

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[6]Telephone conversation with Captain Pack, Salvation Army, Juneau, Alaska, July 16, 1965.

SOCIAL AND ECONOMIC CHARACTERISTICS OF THE POPULATION FOR URBAN PLACES OF 2,500 to 10,000: 1960

KETCHIKAN

Total Population	6,483
Native	5,987
Native Parentage	4,932
Foreign or Mixed Parentage	1,055
Foreign Born	496
Female Employed	784
Professional, Technical, and Kindred Workers	116
Farmers and Farm Managers	--
Managers, Officials, and Proprietors, Except Farm	58
Clerical and Kindred Workers	239
Sales Workers	67
Craftsmen, Foremen, and Kindred Workers	4
Operatives and Kindred Workers	57
Private Household Workers	70
Service Workers, Except Private Household	154
Farm Laborers and Foremen	--
Laborers, Except Farm and Mine	7
Occupation Not Reported	12

PETERSBURG

Economy and geography. Petersburg, population 1,600, on Kupreanof and Mitkof Islands, at 56° 49' N., 132° 57' W., was considered for many years to be one of the most economically stable communities in Alaska. This reputation was partially earned because of the size of bank deposits in relation to the number of inhabitants. The Norwegians who had settled there had carried with them their habits of frugality as well as resistance to change, noticeable in the buildings and businesses of the town.

The Alaska Marine Highway traffic did not have the positive effect on the economy of the town that some people had expected. There were several vacant business buildings along the main street. Restaurants serving downtown customers in February, 1965, did not make use of some of the modern methods used by similar establishments in other Alaskan towns of the same size.

Government assistance was criticized by many, yet the rate of insured employed was nearly the highest in the State. A State legislator had recently forwarded a resolution to the United States Department of Agriculture asking that Federal support for the Petersburg Experimental Fur Farm be continued for at least one year while State personnel studied the problem. Another resolution was to go to the University of Alaska Board of Regents asking that they investigate the problem and, if necessary, plan for a complete State-supported operation, even if it were on a reduced scale.[7]

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[7] The New Petersburg Press. Petersburg, Alaska, February 5, 1965.

Petersburg had been built upon the fishing industry, with facilities for processing halibut, salmon, shrimp, crabs, and clams. In 1965, local businessmen formed a corporation to buy a large cannery. It was to be operated in connection with gill net fishing and king crab processing. The use of the mess hall and bunk houses was to be discontinued.[8] Some logging was done in the Petersburg area for the Wrangell mill. There were a new, modern motel and a hotel in the main part of town that were open the year around. To be started in 1965 were twelve low-income and twenty-four medium-income housing units.[9]

Educational facilities. The incorporated school district had an elementary school and a high school with 132 students. Vocational home-making was taught in the secondary school. A bond issue of $65,000 was proposed to build a technical arts building for a high school so that a comprehensive vocational education program could be initiated for those students not planning to go to college.[10]

A University of Alaska extension course in mining was offered at the time of the survey. Occasionally short courses for women were given by an Agricultural Extension agent.

Health services. A twenty-one-bed hospital served the community. A public health nurse, who also served Wrangell, was stationed in Petersburg.

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[8] The New Petersburg Press, op. cit.

[9] Figures furnished by Alaska State Housing Authority by telephone, July 22, 1965.

[10] The New Petersburg Press, op. cit.

Women's employment. Businesses hiring women in fields interesting to this study were:

Cleaner	1
Laundry	1
General Stores	8
Grocery Stores	2
Hotels	2
Restaurants	4

The hospital hired women, whose ages ranged from twenty to sixty, as follows:

Registered Nurse	5
Aide	1
Housekeeper	1
Secretary	1
Cook	1½

An employment service agent stated that there was a good balance between supply and demand for women employees. Canneries provided much of the work, but there was virtually no activity between February and May first in this industry.

There had been no organized child care for children of working mothers although several people said that it would be a very good thing during the canning season. The Salvation Army, working with the Community Action Program, was to conduct one for six- to twelve-year olds during the summer of 1965 for seven weeks.

WRANGELL

Economy and geography. Wrangell, the second oldest settlement in southeastern Alaska, was on the northern tip of Wrangell Island at 56° 28' N., 132° 23' W., twenty miles from the Canadian border. The processing of seafood had been the main business for many years. The fishing industry supported canneries for shrimp, crab, and salmon. The largest catches were of halibut and salmon which sometimes exceeded 2,000,000 pounds annually.

The output of a Japanese-owned lumber mill comprised over 50 per cent of Alaska's yearly lumber production. It exported about 67.7 million board feet in 1963.[11] Non-saw logs were towed to the Ketchikan and Sitka pulp mills.

A Wrangell businessman stated that it was difficult to get mill employees up from the lower states because of limited housing. Construction of a twenty-four-unit housing project to be rented to families with yearly incomes of $13,500 or less and of a twenty-unit project for low-income families was to be started in 1965.[12]

Educational facilities. An incorporated school district included an elementary school and a 121-student high school that offered vocational home economics. Extension courses in school finance and art under the sponsorship of the University of Alaska had recently been taught. Occasionally, adult classes were led by an Agricultural Extension agent.

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[11] Alaska Monthly Review of Business and Economic Conditions. September, 1964. p. 4.

[12] Figures furnished by Alaska State Housing Authority by telephone, July 22, 1965.

Five of the fifteen girls graduated in 1964 had gone on for further schooling.

Health services. A community hospital with fourteen beds was housed in what had formerly been an Episcopalian mission facility. A public health nurse stationed at Petersburg was assigned to Wrangell.

Women's employment. Women's work was seasonal and largely dependent upon fishing and provided jobs for 108 females during the peak of the canning season. The number of women over sixteen years of age was estimated by one of the town leaders to be 375 to 400. Employment for women was low during the winter, the main jobs being those with professional training requirements such as teaching and nursing. Businesses were small and many were family owned and managed. There were thirteen women teachers and two female secretaries working for the school district.

The community hospital hired women for the following jobs:

Registered Nurse	3
Practical Nurse	1
Cook	1
Laundry Worker	1
Cleaning Woman	1

OCCUPATION GROUP AND CLASS OF WORKER OF EMPLOYED PERSONS BY SEX

WRANGELL-PETERSBURG

Female, Employed		466
Professional, Technical, and Kindred Workers		95
Medical and Other Health Workers:	Salaried	18
	Self-Employed	--
Teachers, Elementary and Secondary Schools		46
Other Professional, Etc.:	Salaried	20
	Self-Employed	11
Managers, Officials, and Proprietors, Except Farm		8
Salaried		4
Self-Employed:	Retail Trade	4
	Other than Retail Trade	--
Clerical and Kindred Workers		62
Secretaries, Stenographers, and Typists		4
Other Clerical Workers		58
Sales Workers:	Retail Trade	16
	Other than Retail Trade	11
Craftsmen, Foremen, and Kindred Workers		4
Operatives and Kindred Workers		107
Non-Durable Goods Manufacturing		95
Non-Manufacturing Industries		12
Private Household Workers		57
Service Workers, Except Private Household		44
Waiters, Bartenders, Cooks, and Counter Workers		25
Other Service Workers		19
Laborers, Except Farm and Mine		9
Occupation not Reported		53

EDUCATION CHARACTERISTICS

	Ketchikan	Wrangell-Petersburg
Female, 25 years old and over	2,342	964
No school years completed	27	46
Elementary: 1 to 4 years	70	53
5 and 6 years	86	28
7 years	124	35
8 years	235	165
High School: 1 to 3 years	589	267
4 years	768	172
College: 1 to 3 years	279	143
4 years or more	164	55
Median School Years Completed	12.1	10.7

SOCIAL CHARACTERISTICS OF THE POPULATION

	Ketchikan	Wrangell-Petersburg
Total Population	10,070	4,181
Nativity and Parentage		
Native	9,372	3,847
Native Parentage	7,725	3,244
White	5,924	2,086
Non-white	1,801	1,158
Foreign or mixed parentage	1,647	603
White	1,248	434
Non-white	399	169
Foreign born	698	334
White	556	237
Non-white	142	97

INCOME IN 1959 OF FAMILIES AND PERSONS

		Ketchikan	Wrangell-Petersburg
All Families		2,260	962
Under $1,000		60	31
$1,000 to $1,999		59	39
$2,000 to $2,999		112	63
$3,000 to $3,999		143	54
$4,000 to $4,999		130	74
$5,000 to $5,999		189	113
$6,000 to $6,999		172	109
$7,000 to $7,999		204	102
$8,000 to $8,999		272	87
$9,000 to $9,999		203	75
$10,000 to $14,999		547	177
$15,000 to $24,999		158	34
$25,000 and over		11	4
Median Income:	Families	$8,224	$6,982
	Unrelated Individuals	2,800	2,667
	Families and Unrelated Individuals	6,384	6,082
	Husband-Wife Families, one earner, two children under 18	341	129
Median Income		$8,461	--

INDUSTRY GROUP OF EMPLOYED PERSONS, FEMALE

	Ketchikan	Wrangell-Petersburg
Female	1,087	466
Agriculture, Forestry, and Fisheries	25	6
Construction and Mining	7	4
Manufacturing	48	121
... Durable Goods	8	4
Foods and Kindred Products	16	113
... Non-Durable Goods (Incl. not spec. mnfgd.)	24	4
Transportation, Communication, and other Public Utilities	89	21
Wholesale Trade	22	--
Food and Dairy Products Stores	44	17
Eating and Drinking Places	58	15
Other Retail Trade	124	13
Finance, Insurance, and Real Estate	64	8
Business and Repair Services	15	--
Personal Services	209	70
Entertainment and Recreation Services	12	--
Hospitals	81	15
Educational Services: Government	123	89
Private	24	21
Other Professional and Related Services	74	6
Public Administration	44	7
Industry Not Reported	24	53

AGE OF PERSONS IN LABOR FORCE

	Ketchikan	Wrangell-Petersburg
Female: 14 to 17 years old	93	30
18 to 24 years old	125	70
25 to 34 years old	221	84
35 to 44 years old	291	121
45 to 64 years old	400	202
65 years old and over	30	16
Married Women in Labor Force, Husband Present	775	311
Women in Labor Force with own Children under 6	202	85
Married, Husband Present	180	68
Females, 14 Years Old and Over	2,976	1,263
Labor Force	1,160	523
Employed	1,087	466
Unemployed	73	57

INCOME OF PERSONS

	Ketchikan	Wrangell-Petersburg
Female, Total	2,976	1,263
Total with Income	1,783	836
$1 to $499 or Less	539	177
$500 to $999	247	185
$1,000 to $1,499	115	132
$1,500 to $1,999	131	67
$2,000 to $2,499	142	49
$2,500 to $2,999	100	36
$3,000 to $3,499	124	19
$3,500 to $3,999	56	24
$4,000 to $4,499	92	35
$4,500 to $4,999	65	46
$5,000 to $5,999	71	33
$6,000 to $6,999	68	23
$7,000 to $9,999	22	7
$10,000 and Over	11	3
Median Income:	$1,459	$1,212

SITKA

Economy and geography. Sitka was founded as a Russian village in 1799 near an Indian site on the seaward side of Baranof Island, 57° 03' N., 135° 20' W. It was 1,000 miles from Seattle, 95 miles south of Juneau, and 195 miles northwest of Ketchikan. The population, including that of the government installation, some 500 feet across the channel at Mt. Edgecumbe, numbered 7,000.

The main roads were those connecting the canneries, pulp mills, and airport with the town. Amphibious planes operated by two Alaskan companies served the community. An airstrip was being built. Two steamship lines provided freight service and the Alaska Marine Highway ferry stopped regularly.

The mild climate, with an average annual mean temperature of forty-four degrees, made year-around outdoor work possible. A sixty-six million dollar pulp mill established in 1960 provided employment that exceeded fishing as a source of individual income. The mill, located near town, employed 500 people in 1964 with several hundred engaged in logging operations in the area.[13] The 150,000 tons of pulp produced each year were used in the Japanese rayon industry.

The permanent civilian population at Mt. Edgecumbe was 1,966 in 1960 made up principally of medical and educational professional staff and their families.[14] In 1959, there were 2,793 "non-white" persons living in the

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[13] City of Sitka, Alaska, 1961. Annual Report.

[14] Ibid.

Sitka area. This was almost half of the total population. Residency was fairly stable according to Alaskan standards. Only 1,454 of the 5,825 people five years old and over had lived in a different state five years previously. Since that time, employers at the pulp mill had brought in many workers from other states so the proportion of long-time Alaskan residents had no doubt become smaller since the time of the 1960 census.

Educational facilities. Sitka had been the center for native education in Alaska since the Russians established a school there for Indian children. The Department of Interior operated a boarding school, grades nine through twelve, for students who were at least one-quarter Native. During the school year 1960-1961, 672 children attended. In 1965, there were not enough openings for all of the students who wanted to attend. Preference was given to students from towns and villages in the State that did not have high schools. In 1965, 305 girls were attending and were required to take home economics. In these courses, many girls from remote villages learned to use and care for modern equipment for the first time.

There was a high school, a junior high school, and two elementary schools within the Sitka incorporated district and an elementary school at Mt. Edgecumbe. Vocational home economics was offered in a modern homemaking department in the Sitka High School. Adult education courses were sometimes offered by the Manpower Drvelopment and Training Act, Bureau of Indian Affairs, or extension.

Sheldon Jackson High School and Junior College, a Presbyterian mission, enrolled students from many parts of the State, the majority of whom were Native. Home economics was offered in the high school and the Junior College had classes in foods, clothing construction, the family, general

nutrition, and food service. The food service course was popular with male students. The function of the college, according to its catalog, was "to serve students who desire one or two years of training beyond high school, those who desire the first two years of university parallel courses, and adults who wish to continue their education either with or without college credit".[15]

Health services. The United States Public Health Service maintained a 250-bed tuberculosis hospital for Alaskan natives at Mt. Edgecumbe. A community hospital with twenty-three beds served the town's residents.

Women's employment. Interviews with educators and social workers indicated that there was some need for domestic help, skilled food service workers at Mt. Edgecumbe and the Pioneer Home, hospital aides at the latter, homemaker service, and organized child care. The number of employed females in 1965 was estimated at seven hundred.

In addition to the public agencies that provided women's employment opportunities related to home economics such as the hospitals, boarding school, and Pioneer Home, there were the following businesses:

Beauty Salons	4	Hotels	3
Cleaner and Laundry	1	Janitor Service	1
Laundromat	1	Restaurants	10
Drugstores	1	Sewing Centers	2
Florist Shop	1	Women's Apparel Stores	4
Retail Grocers, Including Two Cold Storages	10		

[15] Sheldon Jackson High School and Junior College Catalog, 1964-1965. Sitka, Alaska.

Many of these were "husband-wife" enterprises that used help seasonally or not at all. Female income was not high as indicated by charts following this section. A large number of women were in service work, private households, or retail selling. The higher-paying women's jobs were those requiring professional or technical training in medical and health services. Of 982 female residents in 1959, there were 195 employed in professional, technical, and kindred occupations; 89 in medical and health services; and 57 in education. It would seem reasonable that the native girls attending the Mt. Edgecumbe boarding school should be encouraged to train for these jobs.

INDUSTRY GROUP OF EMPLOYED PERSONS

SITKA

Female	982
Agriculture, Forestry, and Fisheries	5
Manufacturing	46
Food and Kindred Products	4
Apparel and Other Fabricated Textiles	5
... Non-Durable Goods	37
Transportation, Communications, and other Public Utilities	23
Food and Dairy Products Store	13
Eating and Drinking Places	52
Other Retail Trade	52
Finance, Insurance, and Real Estate	27
Business and Repair Services	13
Personal Services	79
Hospitals	212
Educational Services: Government	82
Private	45
Other Professional and Related Services	48
Public Administration	21
Industry Not Reported	264

INCOME OF PERSONS

SITKA

Female, Total	2,260
Total with Income	1,523
$1 to $499	491
$500 to $999	217
$1,000 to $1,499	81
$1,500 to $1,999	93
$2,000 to $2,499	59
$2,500 to $2,999	49
$3,000 to $3,499	46
$3,500 to $3,999	105
$4,000 to $4,499	137
$4,500 to $4,999	70
$5,000 to $5,999	55
$6,000 to $6,999	64
$7,000 to $9,999	43
$10,000 and Over	13
Median Income:	$1,330

OCCUPATION GROUP AND CLASS OF WORKER

SITKA

Female, Employed		982
Professional, Technical, and Kindred Workers		195
Medical and Other Health Workers:	Salaried	89
	Self-Employed	4
Teachers, Elementary and Secondary Schools		57
Other Professional, Etc.:	Salaried	45
	Self-Employed	--
Managers, Officials, and Proprietors, Except Farm		43
Salaried		31
Self Employed:	Retail Trade	8
	Other Than Retail Trade	4
Clerical and Kindred		119
Secretaries, Stenographers, and Typists		26
Other Clerical		93
Sales Workers		54
Retail Trade		41
Other Than Retail Trade		13
Craftsmen, Foremen, and Kindred Workers		7
Operatives and Kindred Workers		28
Non-Durable Goods Manufacturing		4
Non-Manufacturing Industries		24
Private Household Workers		61
Service Workers, Except Private Household		210
Waiters, Bartenders, Cooks, and Counter Workers		63
Other Service Workers		147
Laborers, Except Farm and Mine		5
Occupation Not Reported		260

JUNEAU-DOUGLAS

Economy and geography. The capital of Alaska, population 6,797, was on the mainland of the southeastern part of the State about 900 miles northwest of Seattle on the Gastineau Channel at 58° 18' N., 134° 25' W. Three miles away, across the Gastineau Channel by bridge, was the city of Douglas with 1,042 inhabitants. A Chamber of Commerce estimate placed the area population at 13,000 in May, 1965. This included areas along the North Douglas and Glacier Highways, Mendenhall Valley, and Auke Bay. Annual mean temperature was 42°; the July mean, 56°; and January, 29.5°. There was an annual rainfall of eighty-five inches and annual snowfall of one hundred inches. The rain and relatively mild temperatures usually prevented a heavy accumulation of snow.

The economy was primarily dependent upon governmental activities, fishing, forestry, tourists, transportation, trade, and mining. Four airlines served the area, and a steamship company maintained year-around freight service. Two Canadian and one American steamship offered summer passenger service.

Employment within the Juneau labor market was 5,840 in May, 1965. The unemployment rate was 3.6 per cent at that time. Job openings at that time were for civil engineer, social welfare worker, stenographer, typist, and baby sitter.[16] A Youth Opportunity Campaign was expected to affect summer employment. A Neighborhood Youth Corps supplied work for clerical aides, nurses' aides, Operation Headstart, and recreation workers.

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[16] Labor Market Newsletter, "Characteristics of the Insured Unemployed", Table IV. Employment Security Division, Alaska Department of Labor, Alaska State Employment Service, Juneau. Volume V, Number 5, May, 1965.

Employment for May, 1965, was:[17]

Mining	10
Contract Construction	280
Manufacturing	160
Transportation, Communication, and Public Utilities	490
Trade	560
Finance, Insurance, and Real Estate	130
Service and Miscellaneous	500
Government	3,090

Seasonality was typical for some occupations. The number of insured jobless persons was down 35 per cent in May from the previous month due mainly to contract construction and manufacturing activity.

Educational facilities. There were 874 students in the high school, 230 in the junior high school, and 2,060 in elementary schools in the Greater Juneau Borough School District in 1964-1965. Community college courses were held at night in cooperation with the University of Alaska. Daytime freshman college courses were planned for the following year. There were two parochial schools, one Seventh Day Adventist and the other Roman Catholic.

Health services. An eighty-bed hospital was run by the Roman Catholic Church. A United States Public Health Center was in operation with two full-time nurses.

Women's employment. Since 3,090 of the 5,840 persons employed in May of 1965 were in government, it was obvious that opportunities for

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[17] Ibid.

women would be mainly in the clerical field. Employers' requests during the month of June were as follows:

Type of Work	Placements	Unfilled
Domestic and Cleaning	10	1
Child Care	5	9
Service	20	2
Draftsmen	--	1
Clerical	25	16
Professional	6	1
Retail Sales	2	--

There were four private day nurseries for children.

HAINES

Economy and geography. A cluster of small business and government buildings, family residences, and an Army post that had been adapted to civilian use made up the area known as Haines-Port Chilkoot with a population of 512 at 59° 14' N., 135° 26' W., on the northern end of Lynn Canal about eighty miles north of Juneau and twenty miles southwest of Skagway. At one time it had been an Indian village, later a mission, then an Army fort, and finally an important link for road and ferry travel between the Interior, southeastern Alaska, and states to the south.

The climate was typical of southeastern Alaska with high average annual rainfall. This weather encouraged the growth of forests, most of which had been untouched, although a few sawmills were in operation. Mineral deposits had been discovered but were virtually undeveloped.

Tourist trade, fishing, lumbering, and light manufacturing of arts and crafts were the main businesses. An Area Redevelopment Administration technical assistance project for developing enterprises to mass produce Alaskan craft items was approved in 1965. Forty workers, mostly Indians, were being trained under the Manpower Training and Development Act. Women were studying art, lapidary work, and textile design. The buildings of the former Army post were used for those projects as well as for tourist facilities. An interest had been developed for the preservation of Indian folk customs as well as native crafts and this area had become somewhat famous for activities of that nature.

Agriculture on a small scale had been practiced since the time of the first Outside settlers. The area had become particularly well known for its strawberries and some small businesses had been based upon the sale

of plants and berry products.

Educational facilities. There were an elementary school and a seventy-seven-student high school with vocational homemaking. Manpower Development and Training was offered, as mentioned earlier. Some of the students involved in that program came from other parts of Alaska. Some of those from the local area had been dropouts. Several were girls who had married early and had families. Some physically disabled were being trained.

Seven of the ten girls graduating from high school the previous year were continuing their studies.

Health services. There were a doctor, a dentist, and an X-ray technician as well as an itinerant public health nurse. The short flight to Juneau made it possible for people in this area to make use of hospital service there.

Women's employment. Besides the eight women school teachers, there were around twenty others regularly employed. This number included: three grocery clerks, three dry goods clerks, two bookkeepers, three secretaries, three bank employees, one hotel maid, an X-ray technician, and a part-time nurse. Other women workers were helping with family-owned businesses. The number of women involved in food service varied with the seasons and tourist travel.

A day care center was planned as part of a Community Action Program for the summer of 1965 for twenty-five to thirty-five children under eight years of age.

HOONAH

Economy and geography. This Tlingit Indian village on the northeast coast of Chichagof Island in southeastern Alaska had a population of 686 in 1960 and nearly 800 in 1965. The estimated 125 families in the town lived along three streets at the foot of heavily wooded mountains. A mild climate and ice-free waters made year-around seine fishing possible. During a good season, fishermen could expect to make several thousand dollars. Fish processing provided work for many men and women. Some residents went to Excursion Inlet, twenty miles south, for the summer fishing season. Others found employment in Juneau or Sitka. The standard of living was considered high for a small fishing community. Sturdy frame houses with modern furnishings, many with indoor plumbing, reflected the prosperity enjoyed during good fishing years. A White Alice site added about twenty-five non-Indian people to the community. Other than these, most of the Hoonah residents were natives. Members of an active chapter of the Alaska Native Brotherhood made frequent use of a large community hall.

Wharves with docking facilities, an oil and fuel business, three general stores, a small hotel, a coffeehouse, a luggage store, and two movie houses made up the business community. Daily plane service to Juneau and fishing villages enroute was scheduled the year around. A large amount of travel between villages was by boat.

Subsistence activities still played an important part in the economy. Birds, deer, and other animals as well as fish were stored for winter use. Most of the opportunities for paid employment were available in the summer.

There was no welfare agent in Hoonah since cases were handled out of Juneau. Ray stated that welfare payments were low during the summer months

and mounted steadily until early spring, and that in 1961 a State work relief project for depressed communities was initiated in Hoonah. At that time, sixty-three families received some sort of financial relief from the Bureau of Indian Affairs.[18]

Ray also pointed out that there was more reliance on cash for purchasing food, clothing, furniture, and luxury items than in Eskimo villages included in his study. He said, furthermore, that "It . . . appears that expenditures for alcoholic beverages are high in Hoonah and that they constitute a considerable drain on the existing limited income."[19] It will be recalled that similar remarks by residents of the Arctic villages were quoted earlier in this report.

Educational facilities. The Hoonah School District had one elementary school and a high school with 190 students. The latter had been operating for two years. Prior to that time, most of the students had gone to Mt. Edgecumbe High School after completion of the eighth grade, or to Sheldon Jackson, a parochial school in Sitka. A vocational homemaking teacher was hired for 1965-1966. The high school had been well received by the community. School basketball games were a popular social event and helped dispel the tedium of village life.

The District had offered courses for adults in Spanish, leather work, and typing the preceding year and a Manpower Training course in fishing. Two of the three girls graduated from the high school had gone on for

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[18]Charles K. Ray, Joan Ryan, and Seymour Parker, Alaskan Native Secondary School Dropouts; A Research Report. University of Alaska, 1962. p. 213.

[19]Ibid.

further study---one to beauty school and the other for secretarial training. The third had married.

Women's employment. Opportunities for women's work were found to be greatest from April to November. Crab and salmon catches were processed during those months providing employment for about fifty women. A woman could expect to earn at least a thousand dollars for a summer's work during a good year.

The small businesses were family owned hiring little help. Winter jobs were available for about eleven women. Around twenty women sewed craft products for the Bureau of Indian Affairs.

A day care center for children of working mothers administered by the Hoonah Public Schools in cooperation with the State Division of Public Welfare and other agencies was offered for the second year. Seventeen women, some part-time employees, had worked with the demonstration day care center in 1964. The popularity of the center seemed to be based as much on the fact that it provided employment for women as on the care it gave to the children. Women of the community were very anxious to see it offered every summer.

CORDOVA

Economy and geography. According to the 1960 census, the Cordova-McCarthy Election District included the following populated areas:

Boswell Bay	32
Cordova	1,128
Meakerville	48
Point Whitshed	28
Yakataga	48

Cordova was on the eastern side of Prince William Sound at 60° 33' N., 145° 46' W. Fishing and fish processing were the main businesses of the community. Road building and the construction of a small boat harbor provided employment in 1965. Many of the businesses in town were service or trade establishments and were family operated.

At the time of the 1960 census reporting, 905 of the 1,759 residents had recently moved into their houses. A fourteen-unit, low-rent and a twenty-four-unit, medium-income housing project were to be built.[20]

Both north and southbound planes stopped daily. During the summer, there was a weekly ferry from Seward. Another Alaska Marine Highway ship made two round trips each week between Valdez and Cordova. Privately owned steamships provided regular freight service.

Educational facilities. A kindergarten, an elementary school, and a high school with 106 students were administered within an incorporated school district. There was no hot lunch program. One year of non-vocational home economics was offered. According to the superintendent, adult

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[20]Figures furnished by Alaska State Housing Authority by telephone July 22, 1965.

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education was offered as demanded. Recently, a Manpower Development and Training class in diesel engines had been taught.

Of the eleven girls graduated in 1964, four had entered college, two were taking a nursing course, and another was attending beauty school.

Health services. There was a twenty-two bed, church-owned hospital. Many of the patients were elderly men receiving Old Age Assistance. Food service was provided under contract with meals being prepared in another place and brought in.

Women's employment. The number of women working in canneries during the height of the season was estimated to be two hundred. The season was from May until September. During the winter, canneries could be expected to hire twelve to twenty women. There were around twenty women who fished commercially, usually on a family-owned boat.

The hospital hired the following women:

Administrator	1
Nurse's Aide	1
Dishwasher	1
Registered Nurses	4
Technician	1
Secretary	1
Laundress	1

Most of the employees had worked there less than four years.

Eleven women teachers and two female secretaries were working for the school district in 1965.

Hotel and restaurant trade was highly seasonal. The number of women working in these service industries in 1959 are given in the tables at

the end of this section. The telephone directory listed four hotels, one motel, three grocery stores, four restaurants, two beauty parlors, one bakery, one laundry and cleaner, and one washeteria.

OCCUPATIONS OF EMPLOYED FEMALES

CORDOVA

Female, Employed	130
Professional, Technical, and Kindred	32
Managers, Officials, and Proprietors, Except Farm	8
Clerical and Kindred Workers	33
Sales Workers	11
Operatives and Kindred Workers	19
Private Household Workers	3
Service Workers, Except Private Household	20
Occupation Not Reported	4

The 1959 census figures show the seasonality of all labor. Of the 998 persons who were reported as working in 1959, 663 worked less than thirty-nine weeks.

AGES OF FEMALE PERSONS IN LABOR FORCE

CORDOVA

Age in Years	Number
14 to 17	--
18 to 24	21
25 to 34	42
35 to 44	45
45 to 64	42
65 Years Old and Over	--
Married Women in Labor Force, Husband Present	88
Women in Labor Force with Own Children Under 6	40
Married, Husband Present	28

YEARS OF SCHOOL COMPLETED

CORDOVA

Female, 25 Years Old and Over		360
No School Years Completed		10
Elementary:	1 to 4 Years	6
	5 and 6 Years	10
	7 Years	28
	8 Years	51
High School:	1 to 3 Years	74
	4 Years	99
College:	1 to 3 Years	33
	4 Years or More	49
Median School Years Completed:		12.0

These figures show that over one-fourth of the women twenty-five years old and over had an eighth grade education or less.

INCOME OF PERSONS

CORDOVA

Female, Total	434
Total with Income	280
$1 to $499 or Less	66
$500 to $999	55
$1,000 to $1,499	29
$1,500 to $1,999	7
$2,000 to $2,499	15
$2,500 to $2,999	22
$3,000 to $3,499	15
$3,500 to $3,999	4
$4,000 to $4,999	26
$4,500 to $4,999	8
$5,000 to $5,999	13
$6,000 to $6,999	12
$7,000 to $9,999	8
$10,000 and Over	--
Median Income:	$1,328

INDUSTRY GROUP OF EMPLOYED FEMALES

CORDOVA

Female	130
Agriculture, Forestry, and Fisheries	5
Manufacturing	15
Food and Kindred Products	15
Transportation, Communications, and Other Public Utilities	15
Eating and Drinking Places	9
Other Retail Trade	15
Personal Services	13
Entertainment and Recreation Services	4
Hospitals	8
Educational Services: Government	24
Educational Services: Private	--
Other Professional and Related Services	4
Public Administration	14
Industry Not Reported	4

CONCLUSIONS

After this study was started, the Economic Opportunity Act had begun to function effectively in many communities with the following programs helping to combat poverty in Alaska: Youth Corps, Project Headstart, Work-Study for College Students, Work Experience for Welfare Recipients, VISTA, Day Care Centers, Farmers' Home Administration Loans, and Technical Assistance in Community Action Programs. However, there was still much to be done toward providing more and better employment for women so that the standard of living in many families could approach the norm that has become accepted in America as decent living.

In summary, the study showed that:

(1) There are enough opportunities for women's employment in the domestic-related field to justify training programs.

(2) Women in Alaska cannot be expected to make enough money at native craftwork to contribute substantially to the family's economic welfare.

(3) Many women seeking work in Alaska are unskilled.

(4) Many Alaskan families are living in substandard housing because of inadequate income to pay for available higher quality living quarters.

(5) Job opportunities in the larger Alaskan towns are plentiful for trained women but are scarce for the untrained.

(6) Domestic work has such low social status that many women prefer to work for less money at other low-skill jobs.

(7) The status of domestic employment should improve if employers were more aware of the necessity for a professional relationship with employees.

(8) Emotional instability and the misuse of alcohol are factors that limit the ability of many women to hold jobs.

(9) A wife's choice of work is still often dependent upon her husband's approval.

(10) Most native women in the work force are in lower-paying, unskilled jobs.

(11) Food and hotel service throughout Alaska would improve with more trained workers.

(12) The physically handicapped are benefiting from vocational rehabilitation training programs.

(13) There is a large turnover among Alaskan working women.

(14) There are few job-oriented courses in home economics for high school students or adults in Alaska.

(15) Home economics courses of any kind are absent from many communities in Alaska where the standard of living indicates that individuals could well benefit from this type of training.

(16) Federal and State agencies can help provide more employment opportunities for women, as well as a community service, by setting up more day care centers and hot lunch programs.

RECOMMENDATIONS

In conclusion, the following recommendations are made:

(1) The effort to prevent high school dropouts should be increased.

(2) High schools should offer intensive courses in home economics for wage earning in schools where the dropout rate is high.

(3) Training programs should be based upon a study of community needs and consultations with prospective employers.

(4) Vocational education staffs should work closely with social welfare personnel to plan programs that will help decrease the number of recipients of welfare payments.

(5) Vocational education for women should include courses in money management and the use of credit.

(6) The number of public-supported day care centers should be increased.

(7) Employers of women in low-skill jobs should pay adequate wages while upgrading job standards to provide an incentive for better work.

(8) More job counseling should be done for students and adult job seekers.

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APPENDIX
A

EMPLOYER SURVEY

Employer_____ Population_____ Women Employees_____

Type of work done by women:

_____ Agriculture
_____ Construction
_____ Manufacturing
  _____ Durable Goods
  _____ Food and Kindred Products
  _____ Apparel
  _____ Other
_____ Transportation, Communication and other Public Utilities
_____ Wholesale Trade
_____ Food and Dairy Products Stores
_____ Eating and Drinking Places
_____ Other Retail Trade
_____ Finance, Insurance and Real Estate
_____ Business and Repair Services
_____ Hospitals
_____ Educational Services
  _____ Government
  _____ Private
_____ Other Professional and Related Services
_____ Public Administration
_____ Other

If women's work seasonal, during what time of year?
Spring_____ Summer_____ Fall_____ Winter_____

Typical monthly earnings of the individual woman:
Dollars: 100____ 200____ 300____ 400____ 500____
600____ 700____ 800____ 900____ 1,000____

Does the job require skill? Yes____ No____

Is previous training necessary for the job? Yes____ No____

What are the ages of the women employed? _____

How many women have been on this job for:

Less than one year_____
Less than two years_____
Less than three years_____
Less than four years_____
Less than five years_____
Less than ten years_____

Number of physically handicapped employed_____
Type of Handicap_____

APPENDIX
B

COMMUNITY DESCRIPTION

Name of Town_____ Population_____ Date_____

Geographical location_____

Main business or industry_____

Number of women over 16 years of age_____

Child Care Facilities_____

Schools_____

Hospital: Yes_____ No_____

Adult Education Programs in Action:
- Manpower Development
- BIA
- Vocational
- Extension

Employment Service Office here: Yes_____ No_____

Number of women receiving welfare aid_____

Number of girls attending schools elsewhere_____

Indicated training needs for available occupations:
- Domestic_____
- Clerical_____
- Food Service_____
- Hospital_____
- Sewing_____
- Institutional child care_____
- Other_____

Current employment, female_____

Unfilled vacancies for female employment_____

Enough trained women available: Yes_____ No_____

Projected female worker requirements 12 months hence_____

APPENDIX
C

INDIVIDUAL SURVEY

Town_____ Population_____ Date_____

Married: Yes____ No____ Husband deceased_____ Divorced_____

Age_____ Years of residence in Alaska_____ Children_____ Ages_____

Years of education_____ Age at termination of education_____

Husband's Occupation_____ Part time_____ Full time_____

Type of work:

____White Collar
____Manager, Official, or Proprietor
____Sales
____Operative
____Laborer
____Professional, Technical, and Kindred
____Clerical or Kindred
____Craftsman, Foreman, or Kindred
____Handicraft
____Service

Jobs you have held since termination of schooling:

____Agriculture
____Construction
____Manufacturing
  ____Durable goods
  ____Food and Kindred Products
  ____Apparel
  ____Other
____Transportation, Communication, and other Public Utilities
____Wholesale Trade
____Food and Dairy products stores
____Other Retail Trade
____Eating and Drinking Places
____Finance, Insurance, and Real Estate
____Business and Repair services
____Hospitals
____Educational services
  ____Government
  ____Private
____Other Professional and Related services
____Public Administration
____Other

If you work regularly, what type of work?_____

What percentage of the family income do your contribute?_____

What organizations do you belong to?

___Social ___Political ___Professional
___Church ___Union ___Community Service

Did your training in school prepare you for the main jobs you have held?
Yes____ No____

Have you had job training since school? Yes____ No____
If so, check type:
On the job_____
Adult Education Courses_____
Private Schools_____

If not working:
Are you planning to work this year? Yes____ No____
Within the next five years? Yes____ No____

If a training course for wage-earning occupations were offered, would you care to attend? Yes____ No____

APPENDIX
D

COMMUNITIES VISITED

Barrow

Kotzebue

Nome

Savoonga

Gambell

Dillingham

Bethel

Aniak

Stony River

Fairbanks

Fort Yukon

McGrath

Tyonek

Anchorage

Palmer

Wasilla

Willow

Talkeetna

Seward

Kenai

Homer

Kodiak

Ketchikan

Petersburg

Wrangell

Sitka

Juneau-Douglas

Haines

Hoonah

Cordova

VT 000 053

VT 000 053

Job Cluster Curriculum, A Blueprint for Technical-Vocational Education in Lane County, Oregon.

Lane County Intermed Dist Board of Educ, Eugene, Oreg.

65

DOCUMENT NOT AVAILABLE FROM EDRS 67p.

*PROGRAM EVALUATION, *VOCATIONAL SCHOOLS, OCCUPATIONAL SURVEYS, *SCHOOL SURVEYS, OCCUPATIONAL CLUSTERS, SECONDARY SCHOOLS, *CURRICULUM DEVELOPMENT, LABOR FORCE,

Lane County, Oregon,

A broad, multifaceted study was conducted in Lane County (1) to provide the knowledge necessary to improve the present technical-vocational offerings, (2) to develop plans that would coordinate the high school programs with the community college, (3) to provide the school districts with a blueprint for establishing local technical-vocational facilities and curricula, and (4) to consider the feasibility of an area technical-vocational high school. Data from the Oregon Employment Department, the Lane County Youth Survey, the Lane County Board of Education, and other sources were examined. From this came 11 recommendations, including -- (1) Improve articulation and assignment of responsibility, (2) Secure more qualified technical-vocational teachers, (3) Hire a regional technical-vocational consultant, (4) Initiate cooperative work experience programs, (5) Develop technical-vocational libraries, (6) Coordinate the apprenticeship program with school and college curricula, and (7) Define a policy for publicly supported occupational education. Tables covering student aspirations, employment needs, enrollment data, program offerings, financial data, school statistics, etc. are given. (EM)

ED015348

JOB CLUSTER CURRICULUM

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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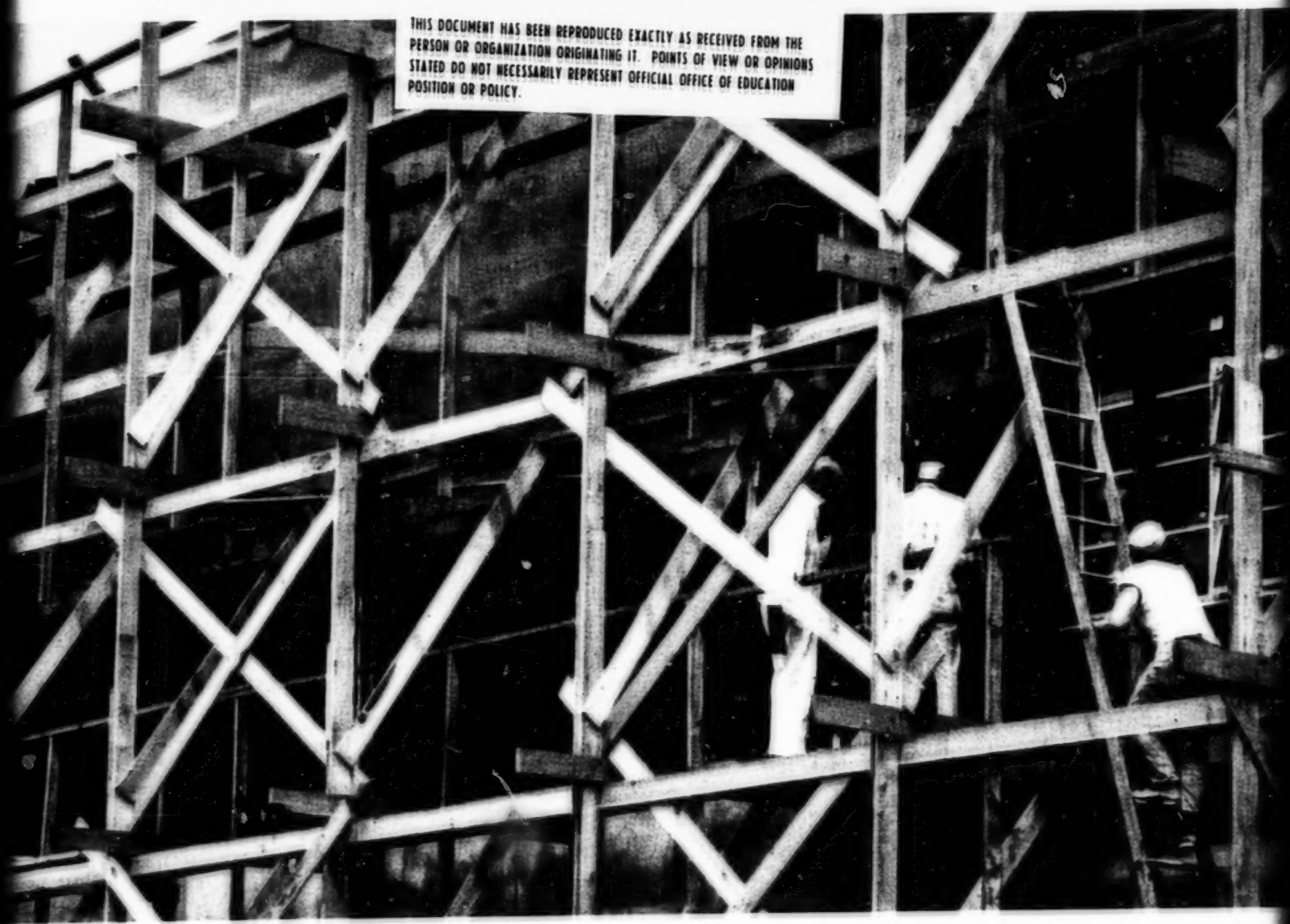

A Blueprint for Technical-Vocational Education in Lane County, Oregon

VT000053

A Cooperative Research Study of Technical-Vocational Education in the Public Schools of Lane County, Oregon

Under the Sponsorship of the Lane County Intermediate District Board of Education
748 Pearl, Eugene, Oregon

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The research reported herein was supported by the State Department of Education, Division of Community Colleges and Vocational Education.

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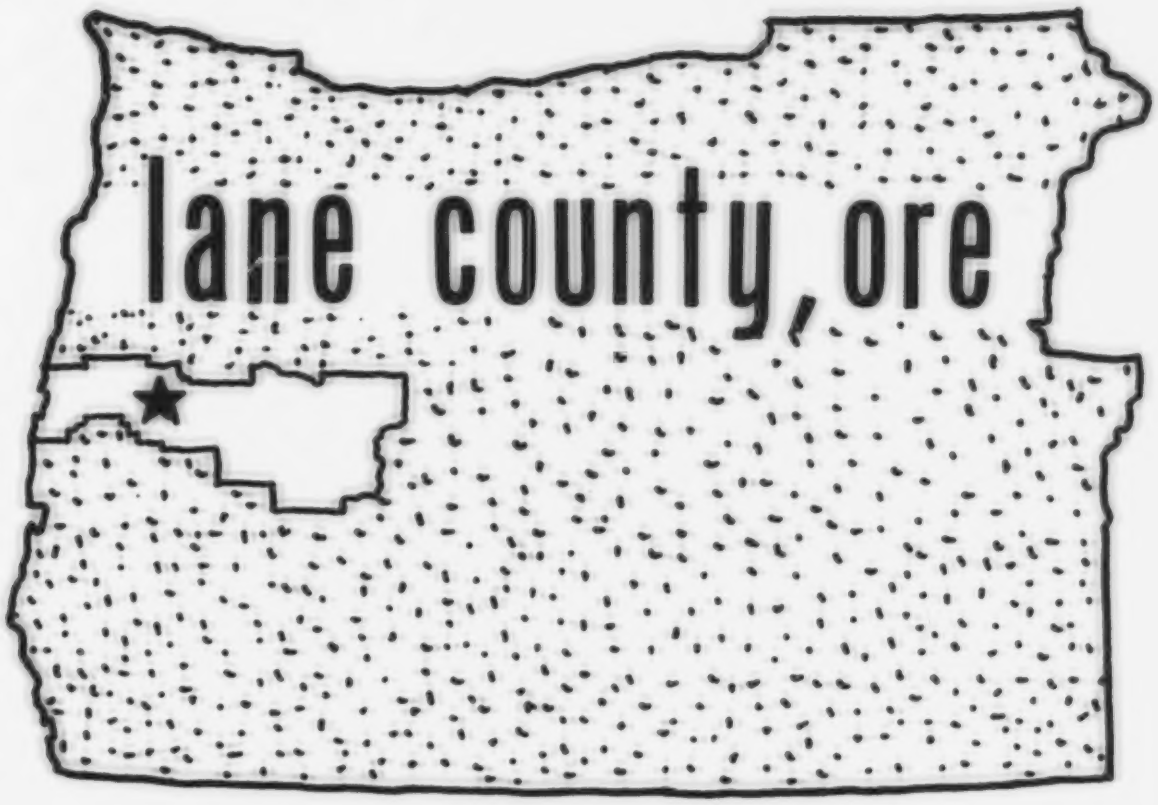

FOREWORD

This study originated with the superintendents of seventeen school districts in Lane County, Oregon.

It was coordinated under the direction of the office of the Lane County School Superintendent.

Local school districts have long felt the need for more highly-developed and adequate vocational-technical education. But many perplexing problems have retarded the growth of this phase of education. Obsolescence, automation, regional manpower needs, financing, relationship of secondary schools to higher education, lack of curricular articulation and continuity have all contributed to the dilemma of providing a comprehensive program.

The passage of the 1963 Vocational Education Act made federal funds available so that a region could study its vocational-technical educational needs. With this opportunity the Lane County School Superintendents urged the Lane County Board of Education to apply for research funds to conduct an area-wide study.

A proposal was submitted to the Oregon Department of Education, and funds were granted for such a study.

The study began March, 1965, directed by a committee which brought many varied backgrounds and disciplines to bear on the project: Charles Smith, Ad. Asst. to the Superintendent for School District No. 19, Springfield, was the assistant project director; George Ruby, Vocational Coorddinator for School District No. 4, Eugene; G. R. Bloomquist, Assistant Dean of Instruction of Lane Community College; and Bruce McKinlay, Labor Analyst with the Oregon State Employment Service, were other members of the working committee.

This group met regularly as a committee to discuss the entire project, individual projects, and various recommendations. There was a large degree of coordination throughout.

The report was improved in large measure by the editing work of Dan Sellard, Eugene news report, illustrations by Jim Brick, and proof reading by Laura Johnson.

Many thanks are due district superintendents, high school principals, personnel of the State Department of Education, representatives of labor, business and industry in Lane County, and members of the Lane County Board of Education.

The report is not intended to be the last word on vocational-technical education in Lane County, but rather is intended to serve as a guide, beginning to point the direction, and to serve as a basis upon which individual school districts can build for the future.

The public schools of Lane County have a new challenge, as well as a new opportunity, in the opening of an area-wide Lane Community College. Students who do not go from high school to a four-year college can attend Lane Community College and become prepared for specific occupations.

Vocational-technical education can broaden perspectives and prepare a person for new opportunities and further growth. Today, there is an open door to the future for the person who has the advantages of a sound, well-coordinated vocational-technical education program. It is, we sincerely believe, up to the public schools to keep open this gateway to opportunity and we can do no less than assure the citizens of Lane County a program which offers great opportunity to ALL our citizens.

DALE PARNELL
Project Director
President, Lane Community College

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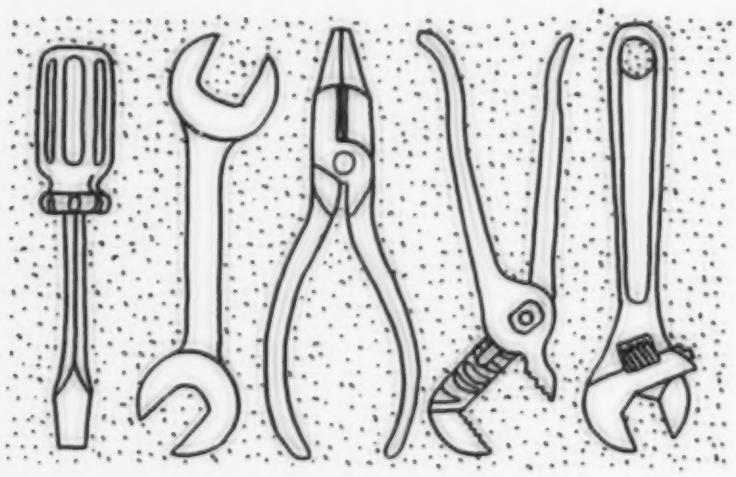
CHAPTER I — INTRODUCTION

By the very nature of its organization, education in America today is constantly faced with a dilemma: How can it know what best to do, how can it maintain a core of consistency yet be flexible to changing times, and once it has an answer, how can it then gain support from the community whose children it serves?

At the very heart of a democracy, in the very soul of a modern nation, is the educational system. The system simply must serve the nation, it must provide the community with its skilled artisans, its workmen, its professions, and it must provide the community with citizens who are possessed with the proper tools of citizenship. For surely, the nation which is not governed by intelligent voters, the nation which cannot realize its productive potential, the nation which cannot hold its head high amongst its world neighbors because of a dearth of knowledge and understanding, cannot succeed.

"There has come an understanding that in this country the cause of the poverty which still remains is not the maldistribution of wealth, but a shortage of education. The more we study and ponder the nature and the dangers of our society's poverty, the more we have to face the fact that as a whole, with only some conspicuous exceptions, our system of education—public, parochial and private—is starved."



So spoke Walter Lippman recently in the Washington Post. He continued:

"My own belief is that in the days to come our paramount duty is to persuade the American voters that a second-rate system of education is no more tolerable than a second rate system of national defense."

"For they will realize that they are quite able to afford both," Lippman concludes.

How can education best serve? How can it be best guided?

This report addresses itself to a problem believed to be one of the most complex of all—vocational-technical education. Its sponsors are unswerving in their belief that there is a large deficiency in this area of education, yet are confident that the problem can be faced and overcome.

Pendulums swing in education, just as in any phase of life. We are apt to overemphasize, to catch a popular fancy, meanwhile neglecting to look hard at where the arrow should be pointed and how our values may be in need of readjustment.

Today, there is a vast need, for instance, for skilled and semi-skilled workers. Much has been said but not enough done about this. The pendulum is at the opposite side of the swing. Emphasis is given, often at the expense of vocational-technical education, to college and preparation for college.

There is, regrettably, a social stigma attached to the person who doesn't go on to college from high school, and even to the person who in high school expresses a desire not to follow that educational route.

In "From High School to Job," John Gardner, in the 1960 annual report to the Carnegie Corporation of New York, said:

> "The heavy emphasis on college is, of course, very pleasant for those whose abilities and motivations will lead them to complete four years of higher education. Until recently it was considerably less pleasant for those who wished or needed only a year or two beyond high school; but today such youngsters are increasingly well served by junior or community colleges, two-year technical institutes, and two-year programs in universities. For all other young people, the emphasis on higher education is apt to be a source of considerable strain. All too many are led to believe that in failing to go on to college they have missed the high road of American life."

To Gardner, this "is unfortunate and unnecessary. Properly understood, college or university is merely the instrument of one kind of further education for those whose interest and capacities fit them for that kind of further education. It should not be regarded as the sole means of establishing one's human worth. It should not be seen as the unique key to happiness, self-respect and inner confidence."

Gardner and others decry that today attendance at college has become the only "passport to happiness."

Our colleges are crowded to the point that physical facilities are impairing the quality of their educational offerings. But Gardner states that "the crowding in our colleges is less regrettable than the confusion of our values . . . Human dignity and worth should be assessed only in terms of those qualities of mind and spirit that are within the reach of every human being."

This following statement is reproduced from an article written by Robert W. Young, published in "School Shop News" and submitted by a local school administrator as the best statement of this problem he has ever read:

> "The person who has never engaged in work to produce or to provide materials or services cannot fully appreciate his fellow beings, most of whom work in this manner. Talking about the dignity of work is not a suitable substitute for experiencing it."
>
> "Opportunities to use logic, to solve problems, to be a functional member of a group, are abundantly present in vocational classes. These are sufficient reasons for involving all students in vocational education, but when one considers the forty percent national drop-out rate, there can be little doubt about the importance of vocational classes."
>
> "Most of the drop-outs are 'fugitives' from a college-prep program or a general education course so closely

related that the two are indistinguishable. It is also clear that colleges and universities have a drop-out problem of their own. Strangely, however, attempts to broaden education have resulted in increases in academic requirements. Paradoxically, students who need the most help are expected to gain it by indulging in more of what originally frustrated them."

In order to fully understand the scope of the problem facing school staffs in planning for the future, it seems important to review our thinking, especially in the area of the worth and value or prestige and importance of technical-vocational education.

One could ponder at length the conditions that have wrought this very present attitude—that every child must go to college or be thrown on the junk pile—but the committee chooses instead to address itself to the commanding need of providing better educational opportunity to the youth who has neither the ability, the money, nor the desire to enter a university. In fact, the committee expresses a desire for a new definition of "Higher Learning."

SCOPE OF THIS STUDY

While those who conducted this study do not think of their findings and recommendations as revolutionary, they do feel that there will have to be a change in the minds of some of the public, of some leaders, of some teachers, before the role of vocational-technical education is recognized, and a program of correction placed into action.

The panel of consultants on vocational education which reported to the President of the United States on "Education for a Changi World of Work" in 1962 pointed out that:

> "By 1970, 87 million persons will be employed full-time. Of these, 58 million now at work will still be employed; 26 million young workers will start work during the decade 1960-1970; and 3 million women will switch from housework to jobs outside the home.
>
> "Schools must help the 26 million youngsters work their way through the challenging decade now with us. Out of every ten youngsters in grade schools in 1960, three were destined not to finish high school; of the seven who did finish, three would go to work (or try to) and four would continue their education; and of the four who went on, only two would finish four years of college. Of the original 10, then, eight would not complete four years of college. In fact, six would not even attempt to."

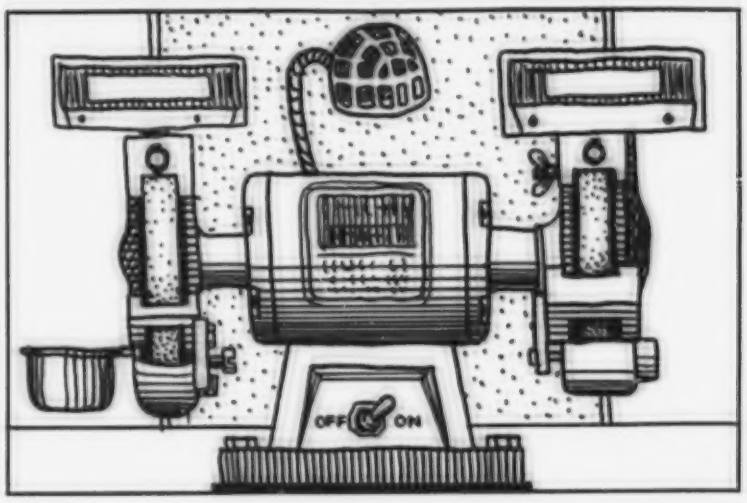
Those who conducted this study firmly believe that more educational opportunity should be afforded those youth who are not university-oriented. This nation needs them to be productive and they need assistance in becoming productive. Sociologists, psychologists, educators all are aware of a problem, a growing social problem, a growing technological problem, a here-and-now economic crisis.

It is to this large problem, in this community, that your committee has addressed itself.

The purposes of this Cooperative Research Study of Technical-Vocational Education in the Public Schools of Lane County, Oregon, are several: (1) to provide the knowledge necessary to effect improvement in the present technical-vocational offerings in the high schools of the area, (2) to develop plans that will coordinate the high school programs with the newly-organized Lane Community College, (3) to provide the school districts of Lane County with a blueprint from which they can make valid decisions about the establishment of local technical-vocational facilities and curricula, and (4) to consider the feasibility of a central high school technical-vocational facility for the area.

No attempt is made here to dictate a lock-step curriculum, a "this is the only way" plan. Rather, this report will serve well as a guideline, a blueprint on which a curriculum for technical-vocational education can be mounted. At each turn, the curriculum has been connected with the occupational potential, and the responsibility for such development has been assigned.

We have found in this study much evidence pointing to the need for more articulation and continuity in the vocational-technical curriculum. Forty-three high schools, junior high schools and community colleges indicated that they needed help and direction in the development of such curriculum—a vacuum seems to exist.



In many instances, "lip service" is being given to technical and vocational training, simply because too few have been concerned and of those concerned not many have had the directional tools with which to work. The development of courses in this field is no easy matter; there has been little pressure to accomplish such development; and key officials in the various school systems admitted themselves to be in somewhat of a quandary.

This report, we believe, will initiate the proper steps and provide guidance to the goal desired: an integrated, coordinated educational system designed to provide our youth with not just an alternative to "university" but good training leading into the many vocational and technical fields this community and this nation needs.

ARTICULATION

The major specific conclusion of this report is that vocational-technical education be integrated and coordinated as rapidly as possible grades seven through fourteen in and between the various educational institutions of the Lane County region. One word has been used to describe this integration and coordination, the word "articulation." Since this study has devoted so much emphasis to the subject of educational articulation, it is essential to give definiton to the term.

The term "articulation" means the act of joining parts, or the condition of being joined or jointed. Bone articulation is considered poor if after injury the bones do not connect as smoothly and function as well as before. Artic-

ulation is considered good if the joint functions smoothly and efficiently.

Articulation in education has been most frequently used in the sense of transition from one school unit to another: elementary school to junior high school, junior high school to high school, high school to community college or university.

The term has also been used to describe relating learning experiences from one situation to another, e.g., learnings in one curricular area, let's say social studies, may seem unrelated or even contradictory to learnings in another curricular area such as industrial arts or natural sciences. The term can also mean a smooth flow or connecting of experiences within a single subject area on a day to day basis.

Articulation as used in this report encompasses all of these meanings. It can mean the problems young people face when moving to a new school community, it can mean the student frustrations developed from school subject matter that is contradictory and confusing, it can mean the educational linkage between grades, schools, different school communities and levels of education.

OCCUPATIONAL EDUCATION

Another term used often in this report is "occupational education." There are 23,000 different occupational titles in the United States. Some 6,000 of these occupations have been born within the last 12 years alone. Education for the professions has long been provided as a part of the total educational program. However, education for other occupations is neither as time honored nor as well developed in the American educational system.

Occupational education is often begun in the senior high school and continued in community colleges, apprenticeship programs, on-the-job training programs, and technical institutes. Federal legislation aids occupational education in six major areas: agriculture, distributive occupations (all aspects of marketing), homemaking, industrial fisheries, practical nursing, and other non professional health occupations, trades and industry (machine shop, auto repair, plumbing, food service, sheet metal, barbering, carpentry, drafting, and other highly skilled technical occupations).

Many other forms of specialized occupational education have developed, including business education and various forms of technical education outside the industrial field.

Like the professions, all of these occupations are vital to American life. The school system that has as its objective to prepare the student for life in the United States cannot ignore the non-professional occupations.

This committee likes the term occupational education rather than vocational-technical education becaause it is more descriptive for our purposes. The two phrases have been used interchangeably in this study.

WHAT THIS STUDY DID NOT DO

The statement has been often made that specific occupational training programs in high school tend to force students into early career choices which they are not adequately prepared to make. In fact, a brief analysis of this problem has been included in this study (Chapter V).

This study makes no attempt to force specific early occupational choices. Even as students now must plan for their next educational step this study suggests an orderly occupational education program that will offer students many alternatives without missing many steps (pages 14-15). A plea is made here for adequate vocational guidance that will help students set broad goals. This study is suggesting an occupational training program that will help a host of students to attain their realistic goals.

This study does not delay occupational training until post high school. A recent survey of businesses undertaken by the Pittsburgh, Pennsylvania, Chamber of Commerce, the Pittsburgh Employment Office, and the Pittsburgh Board of Education pointed toward the fallacy of delaying occupational education until after high school. They found:

(1) In order to meet the recruiting requirements of industries currently operating in the Pittsburgh area, 109 vocational programs are needed of which 48 can be provided within the high schools in the area, 61 require post-high school programs. This was as evaluated by the industries themselves.

((2) Educational requirements by industry for future job placements were:

a. 6% require less than high school education.
b. 14% require general high school education
c. 23% require high school graduation including specialized training, such as clerical, business, distributive occupational or vocational.
d. 33% require one to three years of post-high school education and training
e. 24% require four years or more of college training.

(3) To meet the requirements of the future, it was determined in this survey that Pittsburgh high school graduates should be trained approximately in the following amounts:

a. 20% in occupational programs
b. 20% in vocational programs
c. 20% in pre-technical programs
d. 40% in college preparatory programs

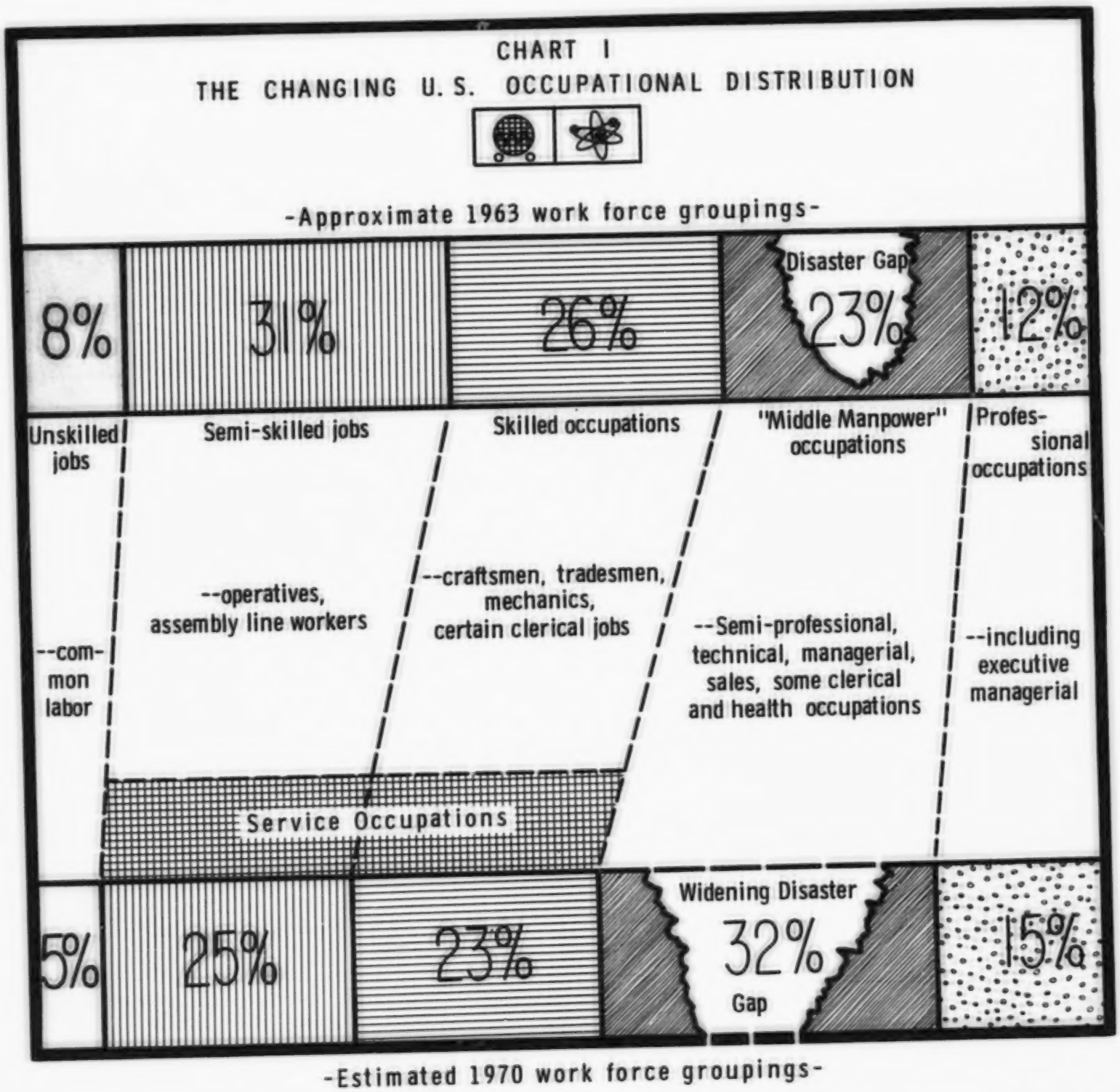
It is interesting to note that less than 4% of the high school students in Pittsburgh attend vocational schools at the moment. At least 20% should be in such programs at the high school level and 20% in technical programs leading to post-high school education. In addition, 20% of the student population must be trained in semi-skilled occupational areas in high school in order that they will have something to sell when they complete the amount of formal education they are able to take.

This Lane County study has not attempted to indicate what percentage of students should enter given programs, but only that programs should be available in the students' own social setting.

This study committee has not suggested a separate occupational curriculum, but rather an integration of general education with occupational education. Patterns have been suggested and programs outlined, but they all call for liberally educated students. This committee does, however, press for educational experiences that relate more directly to life, and general education courses that connect the practical with the abstract. Even as the so-called college bound student is told he must take this, this, and this in order that he may enter the college of his choice, so must the student desiring to enter a non-professional occupation be given guidance in preparing for entry into that occupation.

The view of occupational education as an integral part of general education holds large potential for future study and development. Motivation of students has long been a problem in education. Perhaps as general education relates more closely to occupational needs, the interest and energies of many students will rise concurrently.

A RAPIDLY CHANGING OCCUPATIONAL STRUCTURE IN AMERICA COULD LEAD TO AN EDUCATIONAL DISASTER GAP. MANPOWER PROBLEMS ARE REALLY EDUCATIONAL PROBLEMS.



Source: Technical Education in Michigan Community Colleges as edited by Norman C. Harris and William R. Yencso, State Board of Control for Vocational Education, Lansing, Michigan, 1965.

CHAPTER II — THE OCCUPATIONAL PICTURE IN LANE COUNTY

Lane County, Oregon, is located in western Oregon midway between the Columbia River and the California stateline. It runs 120 miles from the Pacific Ocean on the west, crosses the low, wooded coast range, spans the upper end of the fertile Willamette Valley, and extends to the summit of the rugged, heavily-timbered Cascade Mountains on the east. The more mountainous area of the county is covered with virgin and second-growth Douglas Fir forests; about one third of the county's area is fertile valley floor.

The county's population is centered in the valley; the largest urban area and major trade center is the Eugene-Springfield area where nearly 60 per cent of the population lives. The county, roughly the size of the state of Connecticut, has a total population of just over 190,000.

From the time that Eugene Skinner built his first cabin here in 1846, lumber has been the backbone of the area's economy and still is, despite a substantial diversification of economic activity.

Population growth here has been rapid in recent decades. In 1930, there were 54,493 people living in the county; by 1940, 69,096. The war and post-war years brought a large migration to the Northwest and Lane County reflected this immigration: in 1950, 125,776 persons lived here—by 1960, this figure was 162,890, a growth of nearly 30 per cent in just ten years. By 1964, population was more than 190,000.

With a labor force of 72,000 persons, the county is the second largest labor market in the state and the fifth largest in the Pacific Northwest!

In most respects, the economic structure of Lane County is similar to other metropolitan areas throughout the country, and is subject to the same forces which are changing the job structure of the nation.

But, in at least one respect, Lane County is exceptional. The recent economic growth of the county has been truly outstanding. This is the fastest growing economic area in Oregon, and its employment is expanding at nearly three times the national rate. The effect of this on the educational picture will be shown later; it is great.

While the employment rate in the nation grew 7 per cent from 1959 to 1964, Lane County's grew 20 per cent. This compares with 12 per cent for Portland, 9 per cent for Salem, and 9 per cent for the state as a whole.

The level of prosperity during the single year of 1964 exceeded all but the highest expectations. Employment increased 5 per cent during the year to a record 68,800, continuing the trend that produced the 20 per cent increase in the five year period. Manufacturing payrolls are now nearly half again as large as five years ago.

While to a large extent this growth is the result of the rising national economy, it also reflects the county's own growth as a center for transportation, trade and education.

This economy has provided well for the growing population. The median annual income for the county rose 70 per cent from 1949 to 1959. So the economy not only supported 30 per cent more people, it provided each family with a substantially higher money income. (The consumer price index rose 23 per cent while the median income went up 70 per cent.)

Unemployment, a serious national problem, has not been so acute in Lane County. With only one exception, the county's rate of unemployment has been below the rest of the state and the nation for the past five years.

While the rapid growth of the economy has eased the area's unemployment problem, it has also made the supply of trained manpower more crucial yet harder to maintain. The rapid expansion of certain industries has long since used up the supply of experienced personnel and has forced employers to hire and train new workers. A conservative estimate indicates that there are currently about 500 persons in training positions with the county's businesses, and the need is not being fully met.

There exists in this community an urgent need for better technical and vocational training, and, happily, there is also present a splendid opportunity.

Education has always been a crucial element in the employment process and each day this is more evident. No man is born knowing how to work, each must learn the skills he will use to earn his livelihood and pursue his happiness. And of course the man who learns most, does the best.

The better educated man is the more likely to find his job, to be able to keep it and to earn a good living while doing it.

The tie between education and employment is stronger today than ever before and will be stronger in the tomorrows than today. As knowledge grows and productive systems change, education becomes more than an element in the employment process; it indeed becomes a prerequisite.

The question of the day is not whether vocational-technical education will be provided, but how, for it must be. Industry's traditional, in-plant training is no longer sufficient. Moreover, vast numbers of young people—the baby boom of the 1940s—are coming into the labor market. To prevent a surplus situation, to employ the mass of job seekers in a productive manner, the nation has turned to the school system, a system which in many cases is not geared to meet the demand.

The consensus today is that the schools are best able to provide the fundamental skills necessary if their graduates are to succeed in the labor market. Thus, this education for work is falling in line with the historical educa-

tional aims of equipping young people for successful living and responsible citizenship.

Changing technology and changing markets are bringing about a gradual transformation in the area's economic profile. While most industries have grown, the growth does not extend equally to all types of business activity.

GOODS-PRODUCING INDUSTRIES

The lumber industry is the largest of all goods-producing industries in the county and accounts for 22 per cent of its employment. Here, the county is an exception, for its expansion took place during a period when lumber employment was declining in other areas of the state. The industry's employment increased 18 per cent in the past five years, a growth credited to the expansion of advanced wood processing, notably in the making of plywood. Without this exceptional growth, employment would surely have declined.

Lumber industry technology is constantly improving in this county. In a recent study of mechanization and manpower needs in sixteen large plywood plants in the area, the Oregon State Employment Service found that over half had installed at least one major piece of new equipment within the past year or had definite plans to modernize their plants.

To date, most technological advances have been absorbed without a serious loss of jobs, but such changes require an adaptable work force.

These industry trends have important consequences for the structure of jobs. On the one hand, jobs are more stable, and seasonal unemployment, though serious at times, is gradually becoming less severe. But equally important is the obvious trend toward higher skill requirements. While the lumber industry is by far the largest source of unskilled jobs here, skilled production jobs in lumber firms are growing twice as fast as unskilled jobs. The difference is expected to become even greater in the near future; also important is that non-production workers are accounting for a major share of the newly-created jobs in the lumber industry.

Other goods-producing industries are undergoing equally important employment alterations. Though they employ but 2,100 persons, metals, paper, publishing and other manufacturing firms have grown substantially in recent years.

These firms require a large proportion of highly skilled workers and their growth has substantially increased the need for metal and machine trades and other skills in this area.

A continued growth of such manufacturing, and the ensuing demand for skilled labor, is expected. Machinery and chemicals for the lumber industry will be increasingly needed. Moreover, the population growth brings the requirement for more foods and beverages, more printing and more of the various other manufactured goods produced locally.

Construction activity has run at a rapid pace for ten years or more. Such employment has increased a fourth in the years 1960 to 1965, spurred by a combination of federally financed hydroelectric projects and local demand for housing and commercial buildings. This industry provides 800 more jobs now than five years ago and skilled craftsmen are essential to the construction industry. This demand will increase as the industry grows.

The only industry in which unskilled jobs are growing faster than skilled is agriculture. The increased plantings of crops such as berries and nuts, which require a large amount of temporary harvest help, have produced this unusual situation.

All in all, these goods-producing industries employed about 27,000 people. Because of increased productivity, the number of jobs in these goods-producing activities has risen less rapidly (16 per cent in five years) than have those in the distributive field (20 per cent) and service industries (36 per cent).

DISTRIBUTION

The firms engaged in the distribution of goods and services employ some 21,000 people in Lane County. They include the rail, motor and air transport carriers, the communication firms such as newspapers, radio and television stations and the non-governmental public utilities.

Distribution includes both wholesale and retail trade and sales in financial institutions, real estate and insurance firms.

All in all, this activity accounts for a third of our employment and it is a rapidly growing segment. In the past five years, employment in these industries has grown twenty percent, a gain of 3,500 jobs.

Take the growth of retail trade: there has been at least a 49 per cent increase in retail sales during the five years from 1958 to 1963. During the 1960-1965 period, employment in wholesale and retail trade firms rose 2,400 and is expected to grow another 1,100 in the next two years.

But it is not growth so much as change that is the point here. These firms demand a high-type employee, one that can meet and influence people and one that can adapt to a changing environment.

In the banking industry, the volume of checks written against accounts in Eugene rose 14 per cent during the year 1964 alone. This volume, here and nationwide, has caused the financial institutions to turn to mechanical sorting, routing and record-keeping equipment. Hardly anywhere else has so much been done to mechanize systems. The impact on jobs has been substantial—more and more personnel must be familiar with the office equipment which performs routine clerical duties.

Eugene's strategic location as a trade center for southwest Oregon and its importance as a major producer of timber products makes it an equally important transportation center. The city is now the center of all Oregon operations for the Southern Pacific Railroad and its yards in Eugene handle an average of sixty trains a day. The area is also served by the Oregon Electric Railroad and numerous other lines have offices in the Eugene area.

Here again, in the transportation industry, as well as in the communications field and public utilities, management has installed machines for the sake of efficiency and the employee must know how to run them and work with them.

So, in the distributive industries, the financial institutions and others, there is a large demand, a growing demand for trained people—clerks who can work with mechanical aids, sales personnel who can deal with people in a helpful, business-like manner, and technicians who can work with mechanical aids in order to increase their productivity.

SERVICE INDUSTRY

The remaining third of our employment is engaged in service industries. These include personal services, maintenance and repair, recreation, education and professional services.

Many service persons are self-employed and many firms are small. Employees perform many tasks in addition to their own specialties. A skilled repairman, for instance, often must wait on customers, do some record-keeping and deal with other personnel.

Included in the service category is education, a major source of employment in Lane County, as well as other governmental activity.

Of the three categories, goods-producing, distributive, and service, this latter is the most expansive. Growth among these firms has created a 36 per cent increase in jobs over the five-year period ending in 1964. Greater gains are expected in the future, as the other industries attract more people to the region.

Education by itself today represents one of the county's largest industries. Each September brings 2,000 additional students into grade and high schools over the previous September. Public school enrollments now exceed 48,000; in five more years, this figure will exceed 55,000.

At the same time this increase in public school enrollment has burgeoned, the University of Oregon has developed into an institution with 12,000 students and a staff of 2,600.

Constantly, the demand is increasing on the school systems, and they in turn need more teachers, administrative and service personnel.

In the other service types: personal, professional, business, repair, amusement-recreation and so on, the same growth has been recorded and is anticipated. It is estimated that in these endeavors, there will be 300 new jobs created each year for at least the next two years.

The trend is a movement away from the simple handling and processing of material; rather, it is a movement toward jobs which involve some significant relationship to people.

In summary: there is little reason to believe that the period of rapid and diversified growth in our economy will be short-lived. Expansion will remain the vital force and mechanization will be the instrument.

As is true generally, the goods-producing industries, although vital to the economy, are not creating employment at the same rate as the distributive and service industries. Yet they by themselves are creating a new labor market—they need fewer unskilled yet more skilled workmen.

Even if the overall skill level were not rising—and it is—the rapid changes occurring in the economy require a great deal of adaptability in the work force. Ewen Cleague, Commissioner of Labor Statistics for the U.S. Dept. of Labor, has said:

> "I see a growing need for a better-educated work force. A good background is becoming more essential, even for those in the least-skilled jobs, in order to enable the individual workers to make frequent shifts as technological and other factors increase the tempo of industrial change. This is true, not so much because the duties performed in these occupations require more skill than they did a decade or two ago, but because in our rapidly changing economy, workers in these types of jobs are faced with frequency of change—from one occupation to another, from one employer to another, from one environment to another. Employers prefer the worker who can not only perform the immediate job, but who can learn quickly to operate new equipment or perform new functions and adjust to technological changes."

Consequences for the community must not be overlooked. National data show, for instance, that unemployment among persons with less than a high school education is fully four times as high as among college graduates and at least half again as high as among those who complete high school.

Also, the educational level of the work force is important to the community which wants to compete for new industry.

More and more women and young persons make up the Lane County labor pool. A woman returning to work after raising her family needs training, else she goes onto the unemployment roll. So it is with the very young. It behooves the community to offer these persons good vocational guidance and education. It is an investment with great chance of return.

It is difficult for the very young to find a job—he must compete with older persons. If, in addition to being young, he is also untrained and unskilled, then his chance to compete is slimmer even yet. In the United States as a whole, the unemployment rate for workers in their early twenties is twice as high as among older workers, and teenaged workers are at least three times as likely to be unemployed as are their older counterparts. In this young age bracket, as nowhere else, technical and vocational education is a paramount need.

John P. Koval, Chief of Research Operations for the Lane County Youth Project, by using a system of questionnaires, followed a group of Lane County high school seniors from the time of graduation until they were two years out of high school.

He found that most were "wandering around" during the first few months after graduation; that very few realized their ambitions in the two years; and that the majority of females and 44 per cent of males had a major change in status from the first year to the second.

> "For some, this represents a necessary and desirable testing of oneself and the 'real world'," he summarized.

"For others, this change probably represents a 'reality shock' in the form of an inability to succeed in college and dropping out, or chronic and sporadic unemployment. For this latter group of graduates a teen-age dilemma has turned into a young adult trauma."

This wandering around, this indecision and the resultant unemployment, represents a loss both to the individual and to the community. Later in this study, a case is made for better counseling, as well as for better articulated technical and vocational education.

TABLE 1

LANE COUNTY SENIOR SURVEY: POST-HIGH SCHOOL ASPIRATIONS OF LANE COUNTY'S CLASS OF 1965

Expected Post High School Activity	Eugene & Spfl. Area N	Eugene & Spfl. Area %	County N	County %	Lane Co. Schools N	Lane Co. Schools %
Four Year College and Two Year College other than Lane C.C.	735	67.2	227	45.0	962	56.7
Lane Community College	171	15.6	94	18.6	265	15.6
Oregon Technical Institute	18	1.7	14	2.8	32	1.9
Business-Secretarial School	77	7.3	29	5.8	106	6.2
Barber-Beautician School	40	3.7	23	4.6	63	3.7
Military						
School	10	1.0	12	2.4	22	1.2
General	19	1.8	13	2.6	32	1.9
Total	29	2.7	25	5.0	54	3.1
Work	112	10.2	71	14.0	183	10.8
Other	12	1.0	21	4.2	33	1.9
Total Number Students	1194		504		1698	

Source: Information furnished by Lane County Youth Study.

JOB CLUSTERS

In this compilation by the Eugene Office of the Oregon Employment Dept., job clusters show the relationship of one job to another, one skill to another and thence the relation of teaching skills essential to the several job clusters.

These are samples of job clusters: many more are obtainable.

BUSINESS MANAGEMENT
- MANAGERIAL
- OFFICE OPERATIONS

TECHNICAL ANALYSIS
- TECHNICIANS
- MECHANICS

PRODUCTION
- AGRICULTURE
- TIMBER PRODUCTS
- METAL WORKING
- CONSTRUCTION
- OTHER PROCESSING

DISTRIBUTION
- TRANSPORTATION
- STOCK CONTROL
- SALES
- FOOD SERVICE

SERVICE
- HEALTH
- SOCIAL
- PROTECTIVE
- DOMESTIC AND CUSTODIAL
- ART AND ENTERTAINMENT

Job opportunities and the current Lane County occupational picture are presented in the following tables:

TABLE 2

Employment Needs in Lane County 1965-67 by Occupation and Job Cluster

MANAGERIAL CLUSTER

Managerial Occupations	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Total	2750	2880	130	125	255
Company Officials	130	130	0	10	10
General Managers	180	185	5	5	10
Personnel Managers	35	40	5	0	5
Credit Managers	25	30	5	0	5
Advertising Agents	20	25	5	0	5
Office Managers	340	340	0	20	20
Administrative Secretaries	100	100	0	10	10
Plant Superintendents	330	345	15	10	25
Wholesale Managers	50	55	5	0	5
Retail Store Managers	350	380	30	10	40
Buyers and Department Heads	155	170	15	10	25
Purchasing Agents and Brokers	190	190	0	5	5
Sales Managers	195	195	0	5	5
Floor Managers—Store	40	45	5	5	10
Hotel and Restaurant Managers	45	50	5	5	10
Finance and Insurance Officials	180	215	35	5	40
Transportation Officials	85	85	0	5	5
Communications Officials	30	30	0	5	5
Utilities Officials	30	25	-5	5	0
Service Managers	45	50	5	0	5
Hospital and Institutional Sup.	60	60	0	5	5
Union Officials	50	50	0	5	5
Postmasters and Other Public Officials	60	60	0	0	0
Radio Programming Officials	25	25	0	0	0

OFFICE OPERATIONS CLUSTER

Office Operations Occupations					
Total	6420	7165	745	560	1305
Accountants and Auditors	200	225	25	10	35
Escrow Officers	20	25	5	0	5
Real Estate Appraisers	65	75	10	5	15
Bookkeepers	1090	1160	70	85	155
Librarians	55	60	5	5	10
Librarian Assistants	60	70	10	5	15
Bank Tellers	225	265	40	20	60
Credit Clerks	115	125	10	10	20
Payroll Clerks and Timekeepers	35	35	0	5	5
Meter Readers	40	40	0	0	0
Receptionists	490	580	90	40	130
Cashiers	155	165	10	15	25

TABLE 2 (Continued)

	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Employment Interviewers & Other Office Oper.	255	290	35	15	50
Secretaries	760	860	100	70	170
Stenographers	585	680	95	60	155
Typists	70	70	0	10	10
Clerk Typist	430	505	75	45	120
File Clerks	45	45	0	5	5
Desk Clerks	55	55	0	5	5
Bookkeeping Machine Operators	150	165	15	15	30
Office Machine Operators	85	95	10	10	20
Telephone and Telegraph Operators	310	320	10	30	40
General Office Clerks	1125	1255	130	95	225

MECHANICS CLUSTER

	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Mechanic Occupations					
Total	2885	3135	250	75	325
Automobile Mechanics	455	510	55	10	65
Tractor Mechanics	100	105	5	5	10
Truck and Bus Mechanics	215	220	5	5	10
Diesel Mechanics	140	150	10	5	15
Auto-body Repairmen	90	100	10	5	15
Automobile Wreckers	50	55	5	0	5
Mechanics Helpers	35	35	0	0	0
Service Station Attendants	680	770	90	10	100
Auto Garage Foremen	65	65	0	5	5
Oilers	75	75	0	0	0
Millwrights	385	405	20	10	30
Maintenance Men & Maintenance Mech.	335	350	15	10	25
Household Appliance Servicemen	115	135	20	5	25
Office Machine & Instrument Repairmen	145	160	15	5	20

AGRICULTURE CLUSTER

	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Agriculture Occupations					
Total	1075	905	-170	30	-140
Farmers	805	655	-150	0	-150
Farm Hands	190	155	-35	20	-15
Grounds Keepers and Landscape Gardeners	80	95	15	10	25

TIMBER PRODUCTS CLUSTER

	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Timber Products Occupations					
Total	11,170	11,500	330	295	625
Fallers and Buckers	665	695	30	15	45
Riggers and Climbers	105	105	0	5	5
Donkey Puncher	370	400	30	10	40
Logging Laborers	660	665	5	15	20
Logging Foremen	225	230	5	5	10
Log Scaler	80	85	5	5	10
Log and Lumber Graders	290	300	10	10	20
Pondmen	220	220	0	5	5
Headsaw Operators	95	120	25	5	30
Sawyers	200	200	0	5	5
Resawyers and Trimmermen	265	270	5	5	10
Green Chainman	520	510	-10	20	10
Sorters and Stackers	190	190	0	5	5
Sawmill & Planermill Off-Bearers	305	310	5	5	10
Kiln Operators	20	20	0	0	0
Sawmill Laborers	585	590	5	20	25
Sawmill Foreman	30	30	0	0	0
Barker Operators	65	65	0	0	0
Veneer Clippers	245	250	5	5	10
Veneer Drier	125	130	5	5	10
Patching Machine Operator	225	230	5	10	15
Plywood Patcher	170	170	0	5	5
Gluemen	55	55	0	0	0
Plywood & Veneer Press Operators	130	130	0	5	5
Veneer & Plywood Graders	295	300	5	15	20
Veneer Laborers	2,470	2,495	25	35	60
Veneer & Planingmill Foremen	325	330	5	10	15
Woodworking Sawyers	170	170	0	5	5
Woodworking Machine Operators	100	120	20	5	25
Hand & Machine Sanders	105	105	0	5	5
Woodworking Shapers & Assemblers	225	255	30	10	40
Door & Frame Makers	75	75	0	0	0
Furniture Assemblers	30	45	15	0	15
Planer Mill Laborers	820	830	10	20	30
Pulp Machine Tenders	35	35	0	0	0
Paper Cutters	20	25	5	0	5
Pulp & Paper Laborers	135	145	10	5	15
Pulp and Paper Foremen	15	15	0	0	0
Hoistmen	75	75	0	0	0
Tool Setters and Grinders	25	25	0	0	0
Shingle Packers	40	70	30	5	35
Boiler Tenders	190	190	0	10	10
Powder Monkeys	30	30	0	0	0
Cabinetmakers	150	195	45	5	50

METAL WORKING CLUSTER

	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Metal Working Occupations					
Total	1160	1260	100	30	130
Sheet Metal Workers	95	95	0	5	5
Sheet Metal Laborers	50	50	0	0	0
Boilermakers	65	65	0	0	0
Machinists	225	240	15	10	25
Welders	230	270	40	5	45
Metal Working Machine Operators	135	160	25	0	25
Metalworking and Machineshop Foreman	130	130	0	5	5
Tool Sharpener & Dressers	90	90	0	5	5
Machineshop Laborers	25	30	5	0	5
Metal Working Laborers	80	95	15	0	15
Foundry Workers	35	35	0	0	0

CONSTRUCTION CLUSTER

	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Construction Occupations					
Total	3990	4240	250	170	420
Carpenters	1030	1085	55	30	85
Plumbers and Steamfitters	390	405	15	10	25
Painters	185	195	10	10	20
Electricians	535	545	10	35	45

TABLE 2 (Continued)

	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Brick and Stone Masons	45	55	10	0	10
Plasterers	55	60	5	0	5
Cement and Concrete Finishers	70	75	5	0	5
Carpet and Linoleum Layers	110	120	10	0	10
Roofers	60	55	-5	5	0
Cat Skinner	410	435	25	10	35
Construction Foremen	135	160	25	5	30
Excavating and Grading Equip. Operators	125	135	10	5	15
Construction Equipment Operators	120	130	10	10	20
Construction Laborers	720	785	65	50	115

OTHER PROCESSING CLUSTER

Other Processing Occupations					
Total	2430	2700	250	170	420
Seamstresses	30	30	0	5	5
Sewing Machine Operators	55	60	5	5	10
Compositors and Typesetters	150	165	15	5	20
Pressmen and Plate Printers	60	75	15	0	15
Printing and Publishing Workers	135	155	20	5	25
Photograph Developers and Finishers	105	135	30	5	35
Paint and Chemical Workers	155	185	30	15	45
Laundry and Drycleaning Workers	260	260	0	25	25
Markers and Packers	180	205	25	10	35
Upholsterers and Furniture Repairmen	45	50	5	5	10
Mine Workers	45	45	0	5	5
Crusher Operators and Concrete Workers	75	80	5	20	25
Transportation Equipment Workers	110	110	0	0	0
Transportation Equipment Workers	110	110	0	0	0
Tire Recappers and Repairmen	50	60	10	10	20
Utility Workers	175	180	5	15	20
Municipal Services Foremen	45	45	0	0	0
Municipal Services Laborers	150	175	25	5	30
Grain Mill Workers	60	65	5	5	10
Bakers and Helpers	100	120	20	5	25
Butchers and Meat Cutters	160	180	20	5	25
Poultry Processing Workers	55	60	5	5	10
Dairy Product Processors	105	110	5	5	10
Canning and Other Food Processors	145	150	5	10	15

TRANSPORTATION CLUSTER

Transportation Occupations					
Total	3440	3600	160	115	275
Truck Drivers	1565	1700	135	35	170
Bus Drivers	350	350	0	15	15
Chauffeurs	105	105	0	0	0
Routemen	320	335	15	5	20
Delivery Boys	30	35	5	5	10
Railroad Trainmen	995	1000	5	40	45
Truck Driver Helpers	25	25	0	10	10
Transportation Foremen	50	50	0	5	5

STOCK CONTROL CLUSTER

Stock Control Occupations	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Total	2560	2750	190	80	270
Traffic Managers	55	60	5	0	5
Shipping and Receiving Clerks	210	215	5	5	10
Tallymen	105	105	0	5	5
Auto Parts Managers	30	35	5	0	5
Stock Clerks	265	310	45	10	55
Grocery Checkers	485	525	40	25	65
Jitney Drivers	225	240	15	5	20
Lumber Carrier Drivers	175	180	5	5	10
Car Loaders	265	275	10	5	15
Retail Laborers	160	190	30	0	30
Warehouse Laborers	260	290	30	10	40
Post Office Clerks	145	145	0	5	5
Mail Carriers	180	180	0	5	5

SALES CLUSTER

Sales Occupations					
Total	3950	4405	455	205	660
Retail Supervisors	60	60	0	0	0
Apparel Salespersons	90	100	10	5	15
General Salespersons	595	640	45	35	80
Sales Clerks	1210	1350	140	85	225
Solicitors and Peddlers	20	20	0	0	0
Recreation Attendants	30	30	0	0	0
Ticket Agents	170	170	0	10	10
Appliance Salesmen	315	355	40	10	50
Auto Parts Salespersons	180	200	20	10	30
Insurance Salesmen	450	545	95	20	115
Real Estate Salesmen	295	315	20	20	40
Advertising Salesmen	75	75	0	0	0
Wholesale Food Stuffs Salesmen	45	60	15	0	15
Wholesale Dry Goods Salesmen	35	55	20	0	20
Wholesale Auto Accessories Salesmen	45	45	0	0	0
Wholesale Housefurnishings Salesmen	15	15	0	5	5
Wholesale Building Supplies Salesmen	200	240	40	5	45
Wholesale Mach. and Equip. Salesmen	120	130	10	0	10

FOOD SERVICE CLUSTER

Food Service Occupations					
Total	2625	2870	245	210	455
Bus Boys	155	165	10	5	15
Dish Washers	160	180	20	10	30
Kitchen Helpers	200	210	10	20	30
Cook Helpers	60	70	10	5	15
Waiters and Waitresses	1080	1220	140	100	240
Bartenders	135	140	5	5	10
Cooks	810	860	50	60	110
Dieticians and Other Food Service	25	25	0	5	5

TABLE 2 (Continued)

HEALTH SERVICE CLUSTER

Health Service Occupations	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Total	1905	2140	235	125	360
Physicians and Surgeons	200	225	25	5	30
Dentists	105	115	10	0	10
Veterinarians	15	15	0	0	0
Pharmacists	130	135	5	5	10
Embalmers	10	10	0	0	0
Nurses	510	580	70	50	120
Practical Nurses	100	110	10	0	10
Nurses' Aides & Orderlies	410	485	75	25	100
Veterinary Hospital Attendant	25	35	10	0	10
Dental Assistants	130	160	30	20	50
Opticians	40	40	0	0	0
Barbers & Beauticians	205	205	0	15	15
Matrons	25	25	0	5	5

SOCIAL SERVICES CLUSTER

Social Service Occupations					
Total	6850	7775	925	455	1380
Clergy	160	165	5	5	10
Lawyers	180	210	30	0	30
College Professors	1920	2365	445	70	515
Social Scientists	20	35	15	0	15
Primary, Secondary, and Special Teachers	3035	3185	150	215	365
Social Workers	210	255	45	15	60
Housemother	75	80	5	5	10
Ushers, Bellhops and Elevator Oprs.	45	45	0	5	5
Baby Sitters	1205	1435	230	140	370

PROTECTIVE SERVICES CLUSTER

Protective Service Occupations	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
Total	535	580	45	10	55
Law Enforcement Officers	180	210	30	5	35
Firemen and Fire Chiefs	160	175	15	0	15
Watchmen and Lot Attendants	195	195	0	5	5

DOMESTIC AND CUSTODIAL SERVICES CLUSTER

Domestic and Custodial Services Occupations					
Domestic and Custodial Occupations Total	2810	3070	260	195	455
Building Maintenance Foremen	30	35	5	5	10
Building Maintenance Men	150	155	5	10	15
Janitors and Porters	1250	1315	65	85	150
Charwomen and Cleaners	310	345	35	30	65
Hotel Maids and Housemen	225	235	10	20	30
Housekeeper and Dayworkers	750	890	140	30	170
Park and Camp Attendants	70	65	-5	15	10
Transportation Equipment Cleaners	25	30	5	0	5

ART CLUSTER

Art Occupations					
Total	165	190	25	5	30
Commercial Artists and Decorators	35	35	0	0	0
Photographers	25	35	10	0	0
Musicians and Other Artists	105	120	15	5	20

TABLE 3

TOTAL EMPLOYMENT AND MANPOWER NEEDS BY JOB CLUSTER IN LANE COUNTY

Job Clusters	Employment 1965	Employment 1967	Expansion	Replacement	Total Need
TOTAL, ALL CLUSTERS	58,345	62,865	4,520	2,920	7,440
Business Management					
Managerial	2,750	2,880	130	125	255
Office Operations	6,420	7,165	745	560	1,305
Technical Analysis					
Technicians	1,605	1,700	95	65	160
Mechanics	2,885	3,135	250	75	325
Production					
Agriculture	1,075	905	-170	30	-140
Timber Products	11,170	11,500	330	295	625
Metal Working	1,160	1,260	100	30	130
Construction	3,990	4,240	250	170	420
Other Processing	2,450	2,700	250	170	420
Distribution					
Transportation	3,440	3,600	160	115	275
Stock Control	2,560	2,750	190	80	270
Sales	3,950	4,405	455	205	660
Food Service	2,625	2,870	245	210	455
Service					
Health	1,905	2,140	235	125	360
Social	6,850	7,775	925	455	1,380
Protective	535	580	45	10	55
Domestic & Custodial	2,810	3,070	260	195	455
Art & Entertainment	165	190	25	5	30

CHAPTER III — SUMMARY OF RECOMMENDATIONS

- **BETTER ARTICULATION AND ASSIGNMENT OF RESPONSIBILITY**

If the Lane County region is to take full advantage of all the educational institutions in the area, and if vocational-technical education is to achieve any degree of articulation; it is vital that some assignment of responsibility be made.

- **SECURE MORE QUALIFIED TECHNICAL-VOCATIONAL TEACHERS**

All of the surveying, analyzing, planning and other preparing for an expanded system of technical-vocational education will be nearly useless unless one main consideration is faced squarely: where and how to get adequate technical-vocational teachers?

- **PROVIDE ADVANCED PLACEMENT OPPORTUNITIES FOR TECHNICAL-VOCATIONAL STUDENTS**

Past experience by students, colleges, and high schools indicate that the advanced placement program, which allows the student to work and study at an advanced level, can be of value to students, can improve the quality of instruction, and has caused few problems.

With the cooperation of labor, business, industry, secondary schools and community colleges, such a program could be developed for technical-vocational education at the 12th grade level.

- **ISSUE COMPETENCY CERTIFICATES REPRESENTING MINIMUM JOB ENTRY SKILLS**

As an incentive to the student and as advice to his or her prospective employer, schools should consider issuing competency certificates. These should be based on objective test data and demonstrated performance skill in a specific area, and would be an indication of competency to enter the labor market with a minimum job entry skill.

- **HIRE A REGIONAL TECHNICAL-VOCATIONAL CONSULTANT**

Employment opportunities do not follow school district boundary lines. Employment and preparation for employment are regional problems larger in scope than any one school district.

There is a need for a person who is knowledgeable about and responsive to local needs to spend full time in Lane County to aid schools in developing their technical-vocational programs.

- **REJECT THE SINGLE AREA CENTER CONCEPT—ESTABLISH SUB AREA CENTERS**

The alternative of putting selected technical-vocational curriculums in certain high schools within the geographic area normally served by a single central vocational school will to a large extent overcome the handicap of labeling technical-vocational students as "non college bound."

In order to accomplish the sub area center plan, it will be necessary to arrange inter-district transfer of students without an overwhelming financial burden on any of the districts involved.

- **INITIATE COOPERATIVE WORK-EXPERIENCE PROGRAMS WITH BUSINESS AND INDUSTRY**

Cooperative work-experience education is a school directed program through which students obtain practical experience in producing useful goods and services. This experience must be a part of the regular school curriculum in addition to academic learning. The work situations may be in business, industry, the community at large, or in the school.

- **ANALYZE THE ADEQUACY OF LOCAL VOCATIONAL GUIDANCE PROGRAMS**

Some discussion must take place among all school personnel, grades one through fourteen, about their own attitudes toward vocational-technical education. Vocational guidance is the responsibility of all teachers and administrators at all levels of education; it cannot be delayed until grade ten. How well do primary teachers understand the aims and needs of technical-vocational education?

- **DEVELOP TECHNICAL-VOCATIONAL LIBRARIES**

Adequate inventories of library materials, instructional materials, and occupational information are conspicuous because of their absence in most secondary and higher schools of Lane County. The shortage of building code manuals, trade journals, periodicals, current technical-vocational bulletins and manuals, up-to-date curriculum guides, is one of the major problems facing teachers and administrators in development of technical-vocational courses.

- **COORDINATE APPRENTICESHIP PROGRAM WITH SECONDARY SCHOOL AND COMMUNITY COLLEGE CURRICULA**

It should be pointed out that apprenticeship programs in Lane County have operated in a cooperative and friendly manner with the schools. However, just as there is little relation between the secondary and community college curriculums, the apprenticeship program is usually unrelated to the individual's prior education at the secondary school and community college level.

- **WELL DEFINED POLICY IS NEEDED FOR PUBLICLY SUPPORTED OCCUPATIONAL EDUCATION**

The development of a coherent policy defining the nature and extent of public responsibility for occupational education is needed. Questions such as the boundary between public and private responsibility; on-the-job training vs. institutional programs; the role of different public agencies, must be answered.

TABLE 4

PROGRAMS FOR GRADES 10, 11 AND 12 IN LANE COUNTY SCHOOLS

In Grades 10, 11 and 12 every student could enroll in a special program. The programs outlined here follow the blueprint for technical vocational education proposed by Lane County Research Study. Not every Lane County school will offer the courses proposed. A student wishing to take a course not offered at his school could apply for a transfer to a school offering the course; a student wishing to take advantage of this arrangement should consult his school counselor.

ENGINEERING AND TECHNICAL

Requirements to Enroll:

Grades 8 & 9 completed including:
- Mathematics 8 & 9
- Science 8 & 9
- French, German, Spanish, or Russian
- Industrial Arts
- Orientation to Careers

All students must take:
- English 10, 11 & 12
- Modern Problems, U.S. History
- P.E. 10 & 11
- Biology
- Math

All students on this program must take:
- Algebra and Geometry II
- One of Chemistry, Physics
- One of French, German, Spanish, Russian

All students on this program must take a Specialty

ART SPECIALTY

Three courses from the following:
- Art I & Drafting I
- Applied Design
  - Drawing & Painting
  - Commercial Design
  - Graphic Design
- Advanced Art
- Advanced Design

SECRETARIAL SCIENCE AND BUSINESS MANAGEMENT

Requirements to Enroll:

Grades 8 & 9 completed including:
- Mathematics 8 & 9 or alternate courses
- Science 8 & 9 or alternate courses
- Typing
- General Business
- Orientation to Careers

All students must take:
- English 10, 11, 12
- U.S. History, Modern Problems
- P.E. 10 & 11
- Biology
- Math

All students on this program must take:
- Business Law
- Business English
- Principles of Data Processing

All students on this program must take a Specialty

SECRETARIAL SPECIALTY

All students in this specialty must take:
- Typing I & II
- Shorthand
- Adv. Shorthand or Stenography
- Office Management
- Office Practice
- Business Machines (Including Automation)

PRODUCTION AND CONSTRUCTION

Requirements to Enroll:

Grades 8 & 9 completed including:
- Mathematics 8 & 9 or alternate courses
- Science 8 & 9 or alternate courses
- Industrial Arts
- Orientation to Careers

All students must take:
- English 10, 11 & 12
- Modern Problems, U.S. History
- P.E. 10 & 11
- Math
- Biology

All students on this program must take:
- Consumer Mathematics
- Business Law
- Lumber Economics

TIMBER PRODUCTS SPECIALTY

All students in this specialty must take:
- General Forestry
- Basic Agriculture
- Ag. Science
- Adv. Forestry (Including Safety)

CONSTRUCTION SPECIALTY

All students in this specialty must take:
- Drafting I & II
- Construction I & II
- Industrial Science
- Tool Care and Maintenance
- Welding

SERVICE OCCUPATIONS AND DISTRIBUTION

Requirements to Enroll:

Grades 8 & 9 completed including:
- Mathematics 8 & 9 or alternate courses
- Science 8 & 9 or alternate courses
- Gen. Business
- Orientation to Careers

All students must take:
- English 10, 11, 12
- U.S. History, Modern Problems
- P.E. 10 & 11
- Math
- Biology

All students on this program must take:
- Business Law
- Business English

All students on this program must take a specialty:

FOODS SPECIALTY

- Home Economics
- Adv. Home Economics
- Consumer Math
- Typing I or another commercial course
- Nutrition
- Basic Agriculture

DISTRIBUTION SPECIALTY

- Retail Selling
- Typing I
- Bookkeeping

PRODUCTION AND PROCESSING

Requirements to Enroll:

Grades 8 & 9 completed including:
- Mathematics 8 & 9 or alternate courses
- Science 8 & 9 or alternate courses
- Arts & Crafts, Introduction to Arts
- Gen. Business
- Orientation to Careers

All students must take:
- English 10-11-12
- U.S. History
- Modern Problems
- PE 10 & 11
- Math
- Biology

All students on this program must take:
- Algebra or Consumer Math
- Applied Chemistry or Physical Science
- Business Law

DATA PROCESSING SPECIALTY

- Intro to Data Processing 11-12
- Key Punch
- *Machine Operation & Repair
- *Programming & Computer Theory

TEXTILES SPECIALTY

- Home Economics
- Adv. Home Economics
- Textiles I
- *Tailoring
- *Seamstressing
- *Garment Care
- Upholstery
- Applied Chemistry

MECHANICAL

Requirements to Enroll:

Grades 8 & 9 completed including:
- Mathematics 8 & 9 or alternate courses
- Industrial Arts
- Gen. Business
- Orientation to Careers

All students must take:
- English 10, 11 & 12
- Modern Problems, U.S. History
- P.E. 10 & 11
- Math
- Biology

All students on this program must take:
- Consumer Mathematics
- Drafting I & II
- Business Law

AUTO & DIESEL SPECIALTY

- Power Mechanics
- Basic Electricity
- Welding
- Auto Maintenance

AIRCRAFT & JET SPECIALTY

- Algebra I & II
- Power Mechanics
- Basic Electricity
- Welding

SCIENCE SPECIALTY

Three courses from the following:

- Adv. Math or Algebra II
- One of: Chemistry, Physics
- One more science course from Biology II or Electronics

TECHNICAL SPECIALTY

Three courses from the following:

- Adv. Math or Algebra II
- Speech
- Drafting I, II
  - *Applied Electronics
  - *Appliance Repair

PROGRAM LEADS TO

Universities, Community College, and Technical Vocational Schools provided the admission requirements are met. Students are advised to become familiar with these requirements. Information is available from school counselors.

ACCOUNTANCY SPECIALTY

All students in this specialty must take:

- Typing I & II
- Business Math
- Bookkeeping I & II
- Accounting I
- Office Management

CLERICAL SPECIALTY

All students in this specialty must take:

- Typing I & II
- Business Math
- Bookkeeping I
- Office Practice
- Office Management
- Business Machines

PROGRAM LEADS TO

direct employment, Community College and vocational schools provided the admission requirements are met. Students are advised to become familiar with these requirements. Information is available from the school counselors.

MECHANICS SPECIALTY

All students in this specialty must take:

- Drafting I & II
- General Metals I & II
- Power Mechanics
- Intro to Auto Mechanics
- Welding

ELECTRICAL SPECIALTY

All students in this specialty must take:

- Drafting I & II
- Power Mechanics
- Basic Electricity
- Electronics I
- Welding

PROGRAM LEADS TO

direct employment, apprenticeship training, vocational schools, Community College provided admission requirements are met. Students are advised to become familiar with these requirements. Information is available from school counselors.

HOME CARE & INDUSTRIAL SERVICES

- Home Economics I & II
- Textiles I
- Vocational Homemaking
- Child Care
- *Hotel, Motel, Resort Management
- *Institutional Cleaning & Maintenance
- *Practical Nursing

HEALTH SPECIALTY

- Chemistry
- Algebra & Geometry
- One of French, German, Spanish, Russian, Oriental
- Biology II

LAW ENFORCEMENT SPECIALTY

- Typing I & II
- Speech
- First Aid & Safety

PROGRAM LEADS TO

direct employment, vocational schools, Community College provided the admission requirements are met. Students are advised to become familiar with these requirements. Information is available from the school counselors.

LUMBER PROCESSING SPECIALTY

- Gen. Forestry
- Lumber Economics
- First Aid & Safety
- Basic Electricity or Drafting
- Applied Chemistry

GRAPHIC ART SPECIALTY

- Photography
- Drafting I & II
- Art I & II
- Commercial Design
- Applied Chemistry

PROGRAM LEADS TO

direct employment, vocational schools, Community College provided the admission requirements are met.

WELDING SPECIALTY

- Gen. Metals I & II
- Welding
- Algebra

SMALL ENGINE SPECIALTY

- Power Mechanics
- Basic Electricity
- Electronics I
- Welding

MACHINE SHOP SPECIALTY

- Gen. Metals I & II
- Welding
- Algebra I

PROGRAM LEADS TO

on-job apprenticeship training, vocational schools, and direct employment. Information on apprenticeship training and on further educational opportunities is available from school counselors.

Career Training Opportunities Offered by Lane Community College

- Civil & Structural Engineering
- Electronic Engineering
- Radio & TV Broadcasting
- Forestry Aide
- Mechanical Technology
- Chemical Technology
- Lab. Technology
- X-Ray Technician
- Instrumentation
- Technical Drafting
- Graphic Arts

- Secretarial Science
  - Legal
  - Medical
  - General
  - Lumber
  - Educational
- Mid-Management
- Data Processing
- Bookkeeping
- Insurance
- Real Estate
- Retail Selling

- Cabinet Making
- Carpentry
- Metallurgy
- Forestry Aide
- Civil & Structural Engineering
- Electronic Engineering
- Machine Shop
- Technical Drafting
- Heavy Equipment
- Trade Apprentice
- Upholstery, Commercial
- Heavy Construction
- Medium Construction

- Law Enforcement
- Practical Nursing
- Dental Assistant
- Instructional Aide
- Nurses Aide
- X-Ray Technician
- Nursing R. N.
- Culinary Arts
- Hotel-Motel Management
- Fireman
- Retail Clerk
- Salesman
- Service Station Oper.
- Insurance Adjustment
- Health Careers

- Commercial Art
- Photography
- Graphic Arts
- Sign Painter
- Key Punch Operator
- Data Process Machine Oper.
- Programmer
- Tailor
- Seamstress
- Clerk
- Upholstery
- Sawmill Worker
- Plywood Worker
- Pulp & Paper Worker

- Airframe & Power Plant Mechanics
- Appliance Repair (large & small)
- Auto Body & Fender
- Auto Mechanics
- Metallurgy
- Diesel Mechanics
- Machine Shop
- Radio & TV Repair
- Technical Drafting
- Welding
- Trade Apprentice
- Marine Mechanics
- Office Machine Repair
- Vehicle Maintenance & Operation

*Offered by Community College to selected High School seniors.

SOME RECOMMENDATIONS AND UNANSWERED QUESTIONS

This chapter is somewhat of a potpourri of recommendations and unanswered questions. It is intended to supply food for thought as well as concrete recommendations for the area.

This study committee is recommending a "job cluster sharing plan" with a coordinated vocational-technical curriculum pattern for all high schools in Lane County. The community college must also share in this coordination. The significant elements of this plan are:

1. There must be much cooperation among various school districts.
2. The Community College must be willing to enroll for specific courses some high school seniors.

DIVISION OF RESPONSIBILITY AMONG VARIOUS INSTITUTIONS

In order to use the job cluster teaching approach, it is necessary to define the areas of responsibility for our teaching institutions. Each level, each school, must be aware of such duties and how it fits into the general pattern.

The junior high school is for exploratory and general education programs, the high school for further exploration plus specific, terminal education, the community college for teaching of the higher skills.

It is clear, by the national trend, that the community college is to be the hub of the whole technical-vocational educational system of tomorrow. Most high schools cannot offer the variety of programs needed, and more and more courses beyond high school will be desired.

Employers seem to favor the older employee and the person who has taken his vocational training at a post high school institution. This is not to negate the value of such training at high school, but more to bring into focus the rather "new" concept of community college. Generally, this college will have better staff and better services to teach the more specialized skills.

Adults, of course, will favor the community college over the high school, and many high school students will want to postpone their advanced training until they are ready for the community college.

With Lane Community College becoming an area-wide institution, it becomes most imperative that there be a great deal of coordination in this field.

What follows here is the outline of a system that is flexible and yet lends itself to a minimum of duplication of effort and money.

Much time and effort will be saved by the public school districts of Lane County by having such a blueprint for the future.

1. Every high school, regardless of how small or large, should offer course work leading to occupations in the secretarial science and business management field. The Community College should offer courses which build on these high school classes.

2. In the Technical-Mechanical Field, programs should be limited to certain large schools and the Community College. Most students would take their regular courses at their own high school and attend half-day sessions at a nearby, larger high school or at the Community College. They would remain members of their home student body and participate in local activities, and simply attend the other institution for technical-mechanical course work. Tuition agreements could be arranged between school districts. Costs should be worked out according to guidelines laid down by the State Department of Education.

3. High schools now offering an agricultural program should continue but also investigate addition of courses in landscaping, horticulture, farm machinery maintenance and sales. Eventually, as agricultural occupations decrease, such teaching should be confined to a few select large high schools. Students from smaller schools would attend these classes on a part-time basis.

4. Timber products courses should be offered in every high school in Lane County. This is the major industry and much more should be done to familiarize students with the timber economy and the job potentials of this industry.

The timber products curriculum as presented in the appendix to this report is a sample of the type of instruction program that could be developed in grades seven through fourteen. This curricular outline is not a developed, fully sequenced curriculum, but rather, a sketchy outline, a starting point. It is geared to meet the needs of the timber industry. This program could lead to the development of a minimum job entry skill at the completion of the 12th grade, or could be aimed at further development of forest technology at the community college level.

5. The study committee believes that every Lane County high school could offer a metal products curriculum. Students should at least know about job opportunities and necessities to succeed in a metal products job cluster.

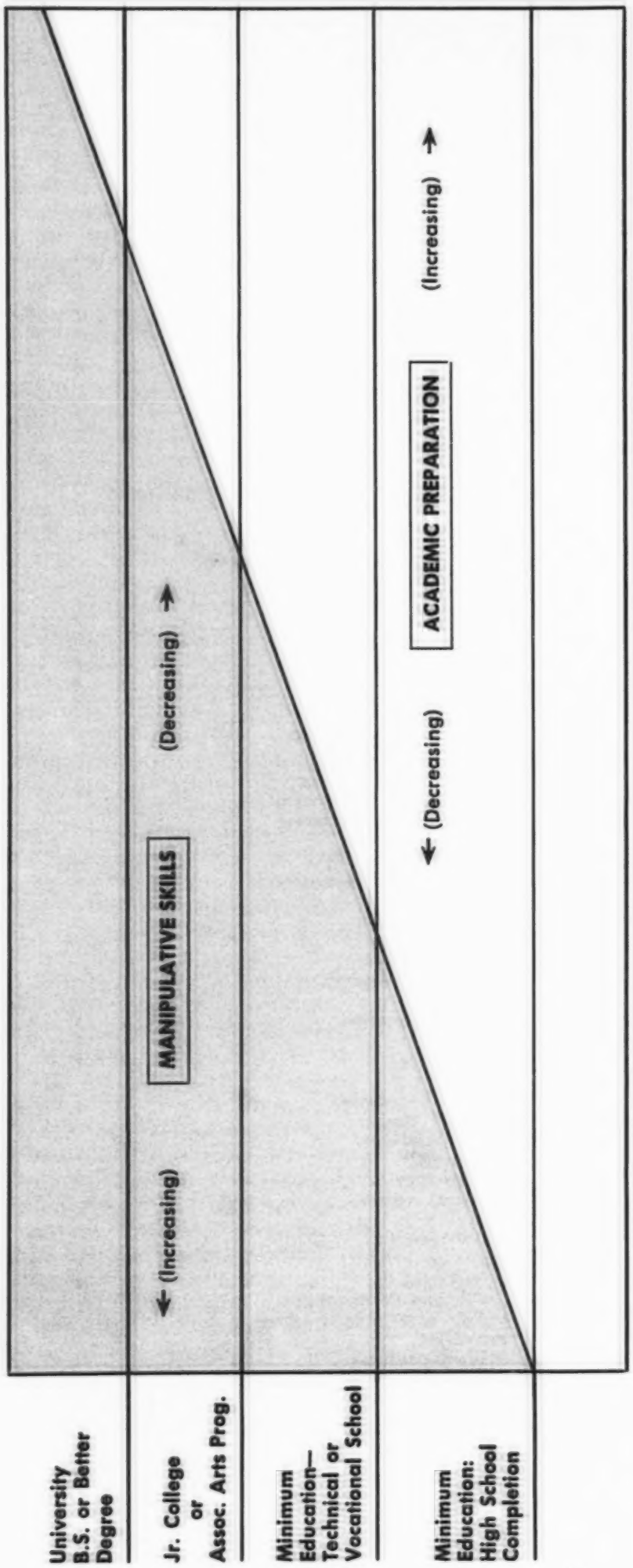
6. It is recommended that a course, such as "Introduction to Construction Skill" now being offered at Cottage Grove High School, be considered by all senior high schools of Lane County. In view of the varying needs of light, medium and heavy construction, the present wood shop curriculum is not meeting the manpower needs of the construction industry. It is recommended that the junior high school wood shop program be exploratory and that the grade 11 and 12 wood shop program be designed to prepare students for job entry skill into the construction industry.

7. In the two job clusters of service and distribution much of the basic job entry education can be done at the high school level. Specific occupational training could then be developed by the Community College.

What follows here is an assignment of training and education responsibility by job cluster. If the Lane County region is to take full advantage of all the educational institutions in the area, and if vocational-technical education is to achieve any degree of articulation, it immediately becomes apparent that some assignment of responsibility is necessary. It should be emphasized again that the committee does not intend to dictate a lock-step curriculum. Rather, this report is intended to serve as a guideline, a blueprint from which a curriculum for technical-vocational education can be developed.

TABLE 5

RELATIONSHIP OF MANIPULATIVE SKILLS TO ACADEMIC PREPARATION IN OCCUPATIONS IN THE TIMBER HARVESTING AND PROCESSING INDUSTRY



RESEARCH CHEMIST OR TECHNICIAN

TAX ACCOUNTING AND COMPTROLLER

PRODUCTION COORDINATION

PERSONNEL AND PUBLIC RELATIONS

MANAGEMENT

SALES AND PROMOTION

PLANT SUPERVISION
PURCHASING AGENT AND MATERIAL CONTR.
TRANSPORTATION CONTROL
CIVIL ENGINEER
DISTRIBUTION
CONSERVATION AND FOREST MANAGEMENT
ROAD AND LAND USE AND MAINTENANCE
QUALITY CONTROL
DIVISION SUPERVISORS
CREW FOREMEN
PAYROLL AND BOOKKEEPING
TIMBER CRUISING AND CONTROL
SHIPPING AND RECEIVING SUPERVISOR
SUPERVISORS OF EQUIPMENT AND MACHIN.
LUMBER GRADING AND PLYWOOD GRADING
ELECTRICIAN
TRANSPORTATION MAINTENANCE
MACHINIST
RAILROAD CREWMEN
MILLWRIGHT
SECRETARIAL AND CLERICAL WORKERS
MACHINE AND EQUIPMENT OPERATORS
POND MEN AND UNLOADERS
SAWYERS AND PLANERS
DONKEY OPERATORS
WOODS PRODUCTION
PRESS OPERATIONS
FALLERS AND BUCKERS
GLUE TECHNICIANS
TRUCK DRIVERS
PLYWOOD SANDERS AND PATCHERS
CHOKER SETTERS
MACHINE AND EQUIPMENT SERVICING
LUMBER PULLERS PLYWOOD LAY UP
WAREHOUSE LABOR AND CARLOADERS
PLANT AND OFFICE CLEANUP
MISC. COMMON LABOR

TABLE 6

ASSIGNED RESPONSIBILITY FOR EDUCATION BY JOB CLUSTER

	Jr. High	Senior High Lge.	Senior High Med.	Senior High Sml.	Com. Coll.
SECRETARIAL SCIENCE AND BUSINESS MANAGEMENT					
General Ed.	x	x	x	x	x
Orientation to Careers	x	x			
Typing I	x	x	x	x	x
Typing II		x	x	x	x
Shorthand & Transcription		x	x	x	x
Office Practice		x	x	x	x
Business Machines (including automation)		x	x		x
Bookkeeping I		x	x	x	x
Accounting & Bkkpg. II		x			x
Business Law		x	x		x
General Business (should include some Computer Theory)	x	x	x	x	
Data Processing and Computer Theory					x*
Advance Secretarial					x*
Legal					
Medical					
Technical					
Educational					
Office Management (including supervisory training courses and mid-management programs)					x
CONSTRUCTION					
Shop Skills	x	x	x	x	
Wood Fabrication	x	x	x	x	
Power Mechanics		x	x		
Basic Electronics		x	x		x
Intro. to Const. Skills		x	x	x	
Lumber Economics		x	x	x	x
Welding		x	x		x
Cabinet Making & Furniture					x
Carpentry					x
Electrician					x
Plumbing					x
Trowel Trades					x
Lathing					x
Masonry & Cement					x
Steel Construction					x
Heavy Equipment Operation					x
TECHNICAL-MECHANICAL					
General Ed.	x	x	x	x	x
Orientation to Careers	x	x	x	x	x
Shop Skills	x	x	x	x	
Ind. Arts	x				
a. Woods	x	x	x	x	
b. Metals	x	x	x	x	
c. Plastics	x	x	x	x	
d. Electricity	x	x	x	x	
Power Mechanics		x	x	x	x
Auto Mechanics		x			x
Welding		x	x		x
Adv. Auto Mechanics					x*
Body and Fender					x
Diesel Mechanics					x
Aircraft Mechanic					x
Marine Mechanic					x
Basic Electronics		x			x
Basic Electricity		x	x	x	x
Electrical Construction					x
Appliance Repair					x*
Applied Electronics					x*
Introduction to Data Processing		x	x	x	x*
Key Punch		x			x
Machine Operation & Repair					x
Programming & Computer Theory					x
General Drafting	x	x	x	x	x
Arch. Drafting		x	x		x
Mech. Drafting		x			x
Layout & Blueprint					x
Lab. Technician					x*
Service Station Operation		x			x
Office Machine and Instrument Repair					x

PROCESSING	Jr. High	Senior High Lge.	Senior High Med.	Senior High Sml.	Com. Coll.
1. Textiles					
a. Home Ec.	x	x	x	x	x
b. Adv. Home Ec.		x	x		x
c. Tailoring and Seamstress		x			x
d. Garment Care		x			x
e. Upholstery					x
2. Graphic Arts					
a. Printing		x			x
b. Design and Layout		x			x
c. Photography		x			x
d. Sign Painting		x			x
e. Display					x
3. Lumber Processing					
a. Gen. Forestry		x	x	x	x
b. Lumber Economics		x	x	x	x
c. First Aid & Safety		x	x	x	x
d. Basic Electricity		x	x	x	x
e. Drafting		x	x	x	x
4. Data Processing					
a. Intro. to Data Processing		x	x	x	x
b. Key Punch		x			x
c. Machine Operation and Repair					x
d. Computer Programming					x
SERVICE OCCUPATIONS AND DISTRIBUTION					
1. Transportation					
a. Driver Education	x	x	x	x	x
b. Maintenance and Operation of Commercial Vehicles					x*
2. Sales					
a. General Business	x	x	x	x	
b. Business Law		x	x		x
c. Retail Sales		x	x		x
d. Distributive Ed.		x	x		
e. Adv. Distributive Ed.		x	x		x
f. Insurance Sales					x
g. Real Estate Sales					x
h. Adv. Marketing					x
i. Adv. Merchandising					x
j. Adv. Inventory Control					x
k. Business Management					x
3. Foods					
a. Home Economics	x	x	x	x	x
b. Adv. Home Economics		x	x		x
c. Nutrition		x			x
d. Chef Training					x
e. Baking					x
f. Meat Cutting					x
g. Food Processing					x
4. Health					
General Education	x	x	x	x	
Biology	x	x	x	x	x
Adv. Biology		x	x		x
Sanitation					x
Medical Technician					x
Dental Technician					x
X-ray technician					x
Barbering					x
Cosmetology					x
Practical Nursing					x
Nurses Aide		x			x
5. Social Services					
Home Ec. I	x	x	x	x	
Adv. Home Ec.		x	x		x
Child Care (Vocational)		x			x
Hotel, Motel, Resort Mang.					x
6. Protective					
Police Procedures					x
Fire Fighting Skills					x
Investigative Techniques					x
Accident Investigation					x
7. Domestic					
Home Ec. I	x	x	x	x	
Adv. Home Ec.		x	x		
Housekeeping (Inst.)					x
Inst. Cleaning and Maintenance					x*

*Open to selected high school seniors on tuition basis.

WHERE AND HOW TO GET VOCATIONAL TEACHERS

All the surveying, analyzing, planning and other preparing for an expanded system of vocational teaching will be useless unless one main consideration is faced squarely: where and how to get adequate vocational teachers.

Despite the growing recognition of the need for more and better vocational preparation, including considerable attention and some financing by the federal government and the Congress, the recruiting and retention of competent vocational instructors has been unsuccessful. Thus, it has slowed down the desired development of programs.

Two major factors must be considered: There is a high market demand for people qualified to be vocational teachers and since they possess different and more varied qualifications they are different, and as such must be judged and paid differently than academic teachers.

In our competitive market situation, business and industry seek the services of the same type of individual that education seeks as vocational teachers. Therefore, school systems must offer salaries to potential vocational instructors that are competitive with those offered by the private segment.

There are many persons now in industry who would like to teach, who are attracted because of the satisfaction of rendering public service. But they don't teach because the lesser salary offered by education makes it too great a sacrifice.

But schools can compete and in many areas are doing so. And the systems doing it are keeping the uniform salary schedule as desired by most school districts today.

What must be done is to give trade and industrial educators credit for their different but necessary training and experience.

The American Vocational Association has published a brochure called "Salary Incentives for Teachers of Industrial and Distributive Education," which gives a number of examples of successful methods used to attract and retain competent vocational educators.

The Association's proposed solution can be related to the present situation in Oregon and Lane County.

The uniform salary schedules in effect in Lane County and most of Oregon are generally based on the accepted pattern of academic preparation required for academic teachers plus the number of years of teaching experience the teacher has. Reprinted below is an example of a fairly typical salary schedule.

Years of Exp.	Level	Bachelors	Masters
0	1	$5,000	$5,400
1	2	5,200	5,625
2	3	5,400	5,850
3	4	5,600	6,075
4	5	5,800	6,300
5	6	6,000	6,525
6	7	6,200	6,750
7-8	8	6,425	7,000
9	9	6,650*	7,250
	10	6,875	7,500
	11	7,100	7,750
	12	7,325	8,000
	13	7,550	8,250
	14		8,500
			8,750

*Highest Entering Salary

Note there is no provision for placement of a teacher who has not attained at least a bachelor's degree, therefore there is no set schedule, no allowance, for a person without that formal distinction.

It takes about four years of study at a recognized university to attain a bachelor's degree. It takes from four to six years of schooling, on-the-job training, apprenticeship or a combination of all to produce a skilled person in trade or industry, a person capable of teaching a vocational-technical program, using his education and experience.

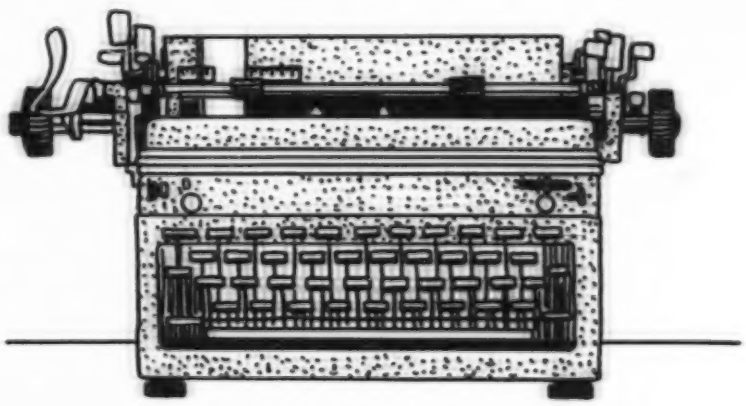
Where in this salary schedule could a person with the background necessary to teach a vocation be placed? How, in other words, can we equate experience with formal education on a pay scale?

In Oregon an individual must have had at least three years of experience beyond the four years learning period (sometimes this is longer) in order to hold a certificate to teach vocational training. This adds up to seven years, about the same length of time generally recognized as necessary for an academic student to get a doctorate.

Seven years, and yet an unimaginative application of the uniform salary schedule would offer this person $5,000 a year starting salary. In many school systems, he would not be allowed to teach, or if he did he would be offered less money, because he does not hold a bachelor's degree.

This same individual, having spent seven years in his chosen field, has established himself in his field at a salary considerably higher than the teacher's beginning salary. Frequently he has a salary higher than the highest pay on the teacher's salary schedule.

Some school systems have found a simple solution to this dilemma. With some variations, they generally follow the rule that each year of training is weighted the same



as a year of college, and that each year of experience in work is weighted equally with a year of experience that a teacher receives.

Also, some systems provide the vocational teacher with opportunity to attain the educational training as he teaches. This is vital and must be faced squarely by school districts and training agencies.

The American Vocational Association has said:

> "There has been much talk in America about the dignity of work and yet in practice, deference has always been shown the man with the liberal arts education who does not callus his hands with manual labor. It is time we put theory into practice—and a good way to start is to give equal recognition to training acquired in college and that gained in business and theory."

Question: Are we in Lane County ready to practice this, that the dignity of work is such that we can offer voca-

tional teachers the same respect, consideration, and remuneration that we afford our regular academic teachers?

AN ADVANCED PLACEMENT PROGRAM

This next concerns the proposition that some sort of an "advanced placement" program can be designed in the vocational education program.

Past experience by students, colleges and high schools indicates that the advanced placement program, which allows the advancement of a student on an accelerated level, can be of value to students, can improve the quality of instruction, and has caused few problems.

With the cooperation of labor, industry and the school system, such an advanced placement program might be worked out for the vocational student—allowing him to work at an accelerated level.

High schools would, with the direct aid of labor union educational officers and industry, modify the existing high school programs to make them compatible with the union apprenticeship program and the needs of industry.

As an example—the senior year in electricity could be modified to parallel the first year of apprenticeship in the electrical trade. At the completion of the year's work, the student could request an examination. The Apprenticeship Council would prepare, give, score, and evaluate the exam and could then decide how much apprenticeship credit to give for the year of schooling.

The union could control the intake of apprentices by adjusting the cutting scores et al of the examination.

Many advantages would accrue from this approach:

1. Good public relations. Such a plan would bring industry and labor closer to the school.

2. Helping the student find his ability level. This would help decrease the number of drop-outs because the program could be more closely geared to the individual.

3. Helping students find employment. When the student takes his examination, a prospective employer might take special interest in him and help guide him through further education.

4. Establish a stable labor pool. With the closer cooperation of education, organized labor, and industry, a constant reservoir of trained people could be maintained.

5. Help in curriculum development. With the expert, interested help available from industry and labor, the technical-vocational school administration could be well advised on how to teach general and specific subjects.

CERTIFICATES OF COMPETENCY

One procedure that would add quality to the technical-vocational program of Lane County schools would be the use of a "Certificate of Competency."

These certificates would be awarded to students who, in the opinion of their instructors, based on objective test data and demonstrated performance skill in a specific area, are competent to enter the labor market with a minimum job entry skill.

This system would be of value to students and employers alike since it would be a reward to the student and advice to his prospective employer.

For instance, a student wishing a job in the business management field could take with him a certificate which would attest to not only his classroom study, but also his manners in meeting the public, his ability to work in a team situation, his good grooming practices, his reliability, good health and his ambition and initiative. In other words, his competency, his personality, and his abilities would be certificated by his school training instructor.

REGIONAL VOCATIONAL-TECHNICAL CONSULTANT

Continuity of subject matter and articulation of the various curricula among the many school districts and levels of education are major problems impeding the development of vocational-technical education. Employment opportunities do not follow school district boundary lines. Employment and preparation for employment are regional problems larger in scope than any one school district.

One of the often mentioned desires of teachers and administrators, especially of small and medium sized school districts, was the need for consultant help in the vocational-technical area.

There appears to be a need for a person, who is responsive to local needs, to spend full time in Lane County to aid schools in developing their technical-vocational programs.

If the recommendations of this study are to be implemented into an action program, some individual must give constant attention to the vocational needs of the entire Lane County region. It is the recommendation of this committee that the State Department of Education finance such a consultant service in cooperation with the Lane County Intermediate Education District and local school districts. Such a person, locally employed and readily available, could help districts propose and develop programs, secure funding for programs, and maintain liaison with labor, business and industry on a regional basis.

PHYSICAL FACILITIES

In the location of physical facilities for vocational-technical education there are three major considerations: (1) the educational quality provided, (2) the social implications of the facilities, and (3) the economic implications. Generally speaking, the latter factor, economic concern, has received the most attention from planners making decisions on facilities for vocational-technical education.

This has usually resulted in the development of a central vocational-technical facility to serve the needs of a district or geographical area. These facilities are now often known as area centers. An example is Benson Technical High School provided to furnish vocational-technical education for the students wishing this type of education from the entire Portland area. Another example is Minneapolis Vocational High School which for many years provided the vocational training for all the students of Minneapolis, Minnesota. Closer to home we have the example of the Lane Community College (formerly Eugene Technical-Vocational School) which is now the central facility for post-high school vocational-tecnical education in the Lane County area and beyond.

For many highly specialized occupational areas the community college must continue to serve as the central training facility. This is true not only for post-high school training but also for certain high school programs. It should be possible for a limited number of selected high school seniors to attend the community college on a part-time basis and begin training in certain highly specialized occupational programs. Some of the programs that might fit this pattern are: Data Processing and Computer Programming, Major Appliance Repair. Nursing, Auto-Diesel-Aircraft and Machine Shop Mechanics, Upholstery, Heavy Vehicle Maintenance and Operation.

Lane Community College is within thirty minutes driving time of 90 per cent of the secondary school population in Lane County and therefore can logically serve the highly specialized training needs of most Lane County high school

students. However, this will necessitate a high degree of coordination and curricular cooperation. It also will not relieve the secondary schools of their responsibility for occupational training.

The desirability of a central facility for vocational-technical education and the advantages thereto has been stated. But there is evidence that the central facility will not adequately serve the social or educational needs of high school students. Many students will not transfer to a separate vocational-technical facility and therefore will not benefit from the educational opportunity.

James B. Conant stated in his book, "The American High School Today," his conclusion that vocational programs should be offered in the comprehensive high school.

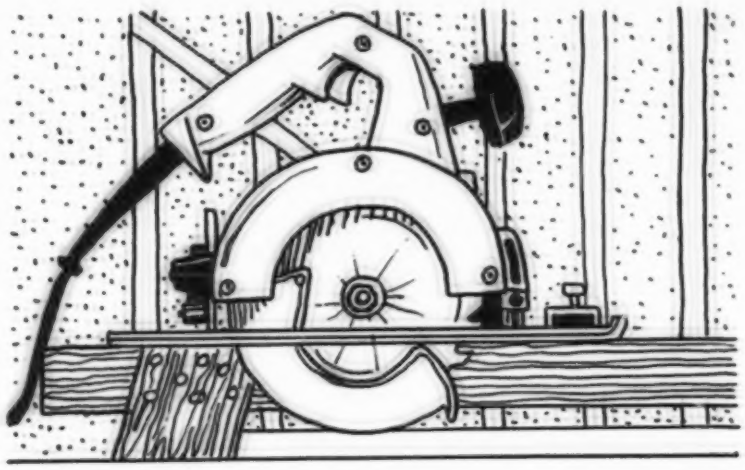
> "My inclination is strongly in favor of including vocational work in a comprehensive high school instead of provding it in a separate hgh school. My reasons are largely social rather than educational. I believe it is important for the future of American democrary to have as close a relationship as possible in high school between the future professional man, the future craftsman, the future manager of industry, the future labor leader, the future salesman, and the future engineer. As I have often stressed in my writings and earlier in this report, I am convinced that one of the fundamental doctrines of American society is equality of status in all forms of honest labor as well as equality of opportunity."

There is a recent trend across the nation which retains the benefits of the centralized area center and yet does not utilize this method of organization. Although not universally labeled, this alternative method has been often called sub-area centers. Courses which would not be utilized fully in a single high school in a geographic area are placed in only one, or more, if necessary, high schools in the geographical area. Students desiring this course can transfer their enrollment from their neighborhood school to the comprehensive school offering the particular curriculum in which they are interested. An example of this can be drawn from Minneapolis, Minnesota, where North High School has a complete culinary arts training facility. There are no plans to duplicate this facility in the broad geographic area of the District. Instead, students desiring this particular curriculum will transfer their enrollment to North High School. This sub-area center system is in full operation in Dade County, Florida where eight comprehensive high schools offer a wide selection of vocational curriculums and courses. (See Table 7)

Why should we consider the sub-area center method? It should be considered because of the implication of the third aspect of central facilities for vocational-technical education—the social aspect. The ramifications of the sub-area center approach from the instructional point of view must also be considered.

It is generally recognized by educators that a person going on to a four-year degree-granting institution, college must start to make choices and decisions concerning his education in junior high school. This necessity to choose an objective, although the choice is not irrevocable, applies also to those persons who would find satisfaction and service in the life of a skilled craftsman, technician, or other non-professional occupations. The student who will find his place in life through vocational or technical education must then choose to follow the educational preparation that will best suit him for this life. Presently there are many pressures within the school system, the community, from parents, and especially from the student peer groups for the student to appear at least to be planning to go on to a university education. Consequently, many students who through temperament, ability, and desire are not suited for the professional life of a university graduate are pressured into continuing the pretense of following a university preparatory curriculum. Such a curriculum may be very inadequate to prepare students for occupations that require types of training other than university.

If vocational-technical education is in large part offered in a central facility a student desiring this type of education must through his choice to attend this central facility openly display to all those who know him that he has forsaken educational preparation for university. Many students will not make this choice in spite of the fact that the student may recognize that he has neither the desire nor the temperament to accept a university education and that vocational-technical education would provide him with the type of life he would like. Consequently, many educators have found that it is nearly impossible to help



students to make a rational decision about choosing a vocational-technical curriculum which is offered in a separate institution with the sometimes unjustified, but attached label of non-college bound.

The alternative of putting vocational-technical curricula in certain high schools within the geographical area normally served by the central facility will to a large extent overcome the handicap of accepting a non-college bound label. A hypothetical example might be that if Thurston High School in Springfield offered electronics in a well equipped lab with a competent instructor along with their other curricula of the comprehensive high school, there would be less hesitancy on the part of a student who would normally attend Springfield High School to transfer his enrollment to Thurston High School. He still has available to him at Thurston High School all of the courses normally accepted as university prep courses and in addition he has available the particular vocational area he is interested in, electronics. The student transferring from Springfield High School to Thurston High School, to participate in the particular curriculum he is interested in, will still receive his diploma from a recognized comprehensive high school without the imagined stigma of a non-college bound school being attached to the diploma.

The advantages of the central facility, economy and competent instructors, are retained in this plan. It is the

TABLE 7

COMPREHENSIVE HIGH SCHOOLS
Dade County Florida

1. HIALEAH SENIOR HIGH SCHOOL
   251 East 47 Street
   Hialeah, Florida
   — Mr. E. G. Pease, Principal
2. MAYS SENIOR HIGH SCHOOL
   11700 Hainlin Mill Drive
   Goulds, Florida
   — Mr. Earl Wells, Principal
3. MIAMI CAROL CITY SENIOR HIGH SCHOOL
   3422 N.W. 187 Street
   Opa Locka, Florida
   — Mr. Charles Foster, Principal
4. MIAMI CENTRAL SENIOR HIGH SCHOOL
   1781 N.W. 95 Street
   Miami, Florida
   — Mr. Tom Carter, Principal
5. MIAMI NORTHWESTERN SENIOR HIGH SCHOOL
   7007 N.W. 12 Avenue
   Miami, Florida
   — Mr. Samuel Cohen, Principal
6. MIAMI SENIOR HIGH SCHOOL
   2450 S.W. 1 Street
   Miami, Florida
   — Mr. Hal Black, Principal
7. NORTH MIAMI SENIOR HIGH SCHOOL
   800 N.E. 137 Street
   North Miami, Florida
   — Mr. Dale Boggy, Principal
8. SOUTHWEST MIAMI SENIOR HIGH SCHOOL
   8855 S.W. 50 Terrace
   Miami, Florida
   — Mr. Hugh Allsworth, Principal
9. GEORGE T. BAKER AVIATION SCHOOL
   3275 N.W. 42 Avenue
   Miami, Florida
   — Mr. William F. Smith, Supervisor

TECHNICAL AND INDUSTRIAL SECTION PROGRAM OFFERINGS
1965-66

Training Area	Specific Offerings	Where Offered	Entrance Grade Level
TECHNICAL	Basic Technology	Miami Central	Nine (Only)
	Architectural Technology	Miami Central	Ten or Eleven
	Data Processing	Miami Central	Ten or Eleven
	Electronic Technology	Miami Central	Ten or Eleven
	Mechanical Design Technology	Miami Central	Ten or Eleven
INDUSTRIAL SHOPS	Air Conditioning, Refrigeration and Heating Mechanics	Miami Central, Miami Carol City, Miami High	Eleven
	Appliance Service (large)	Miami High	Eleven
	Automotive Body Repair & Refinish	Miami Northwestern, Miami Carol City	Eleven
	Automotive Mechanics	Southwest, No. Miami, Miami Northwestern, Hialeah, Mays, Miami High, Miami Carol City	Eleven
	Brick and Blocklaying	Miami Northwestern	Eleven
	Business Machines Mechanics	Southwest	Eleven
	Commercial and Advertising Art	Miami Central, Miami High	Eleven
	Commercial Cooking and Baking	Miami Northwestern	Eleven
	Cosmetology	Miami Central, Miami Northwestern, Southwest Miami, No. Miami, Miami High, Miami Carol Cty	Eleven
	Diesel Mechanic	Miami Central	Eleven
	Drafting	Southwest, Hialeah, No. Miami, Miami High, Miami Carol City	Eleven
	Dry Cleaning and Laundering	Miami Northwestern	Eleven
	Electronics Mechanics and Assembly	Southwest, Hialeah, No. Miami, Miami Carol City, Miami High	Eleven
	Industrial Electricity	No. Miami	Eleven
	Machine Shop	Southwest, No. Miami, Hialeah	Eleven
	Printing	Miami Central, Miami Carol City	Eleven
	Radio and Television Repair	Miami Northwestern	Eleven
	Tailoring	Miami Northwestern	Eleven
AVIATION	Aviation Airframes (3 years)	Individual senior high schools with shop classes taken at George T. Baker Aviation School	Ten
	Aviation Powerplants (3 years)		Ten
	Aviation Sheet Metal (3 years)		Ten

Source: Dade County Public Schools, Florida
Curriculum Bulletin 19A, 1965-66

recommendation of this committee that this placement of selective curricula in comprehensive schools be considered. In order to accomplish this it will be necessary to arrange inter-district transfer of students without an overwhelming financial burden on any of the districts or individuals involved. It is hoped that this could be coordinated through the Intermediate Education District and the State Department of Education.

COOPERATIVE WORK-EXPERIENCE PROGRAM

For many years prominent educators have recognized the educational value of work. Work provides youth an opportunity for growth which is not provided by any other part of the school curriculum. Although the need for youth to obtain work experience is today as great or greater than ever, many changes in our society have operated to reduce the opportunities. Through the cooperation of the home, the schools, business, and industry, work-experience education can be provided for our youth.

Every student should have the opportunity to develop good work habits and mature attitudes toward work. In earlier years, youth learned to work by performing the many necessary constructive tasks around the home. In today's industrial society, most adults work away from their home and children. There are fewer chores available around the home for young people to do. At the same time entry into full time employment has been delayed. Work-experience programs have been developed to cope with these changes. The feeling of worth one gains from performing on a real job and the opportunity to acquire good work habits are a necessary part of the training of every youth.

No school can successfully duplicate actual work conditions. Neither can business and industry slight its main goal of production for purposes of training learners. However, through enlightened self-interest the schools and community can cooperate to better serve goals of learning and production.

Cooperative work-experience education is a school directed program by which students obtain practical experience in producing useful goods and services. This experience is part of the regular school curriculum in addition to academic learning. The work situations may be in business, industry, the community at large, or in the school.

In a cooperative work-experience program, about two thirds of a student's time would be spent at school and one third on the job in the community. The student receives educational credit for his work experience, job related subjects, and general school subjects. Also the student is usually paid the going rate for any of his labor. Although the committee has no recommendation in this area there is a need for a new and creative approach to the pay angle for students while in training. It is not inconceivable that the employer should be paid for training the student rather than the student being paid.

The key to this community-school cooperation is the work-experience coordinator. He has a background of successful work-experience in the fields he is supervising. The coordinator is also a qualified teacher. About half of the coordinator's time is devoted to working with employers, students on the job, and parents. The rest of his time is spent at school teaching work-experience students job-related subjects.

The potential value of work-experience programs is great. The few work-experience programs that are now operating in Lane County schools, principally in distributive education and special education, are just a beginning. There is an excellent opportunity to expand vocational education programs through the addition of many more cooperative work-experience opportunities for students. The 1963 Vocational Education Act has greatly increased the financial assistance available for the expansion of cooperative work-experience programs in all fields. The Lane County Youth Study Project has recently received a grant from the U.S. Department of Labor to initiate a work-experience program with out-of-school alienated youths.

All youth can benefit from an opportunity to learn good attitudes and useful habits of work. This can best be done while skilled and understanding supervision is available. Guidance and supervision is an integral part of work-experience programs. Work experience will help youths who are aiming at vocations calling for college training to better see the relationship between their studies and their vocational choice. Research has shown that students who took vocational subjects in high school are not unduly handicapped when they go on to university. Those youths who are not going on to university need work experience that will better prepare them for choosing, securing, and advancing in an appropriate occupation.

The consensus is that all youths need to acquire self-discipline and good work habits. The desired objectives are more likely to be achieved when school districts follow the policy of granting credit toward graduation for work-experience received through participation in approved programs. Such action also supports the contention that credit should be given for learning wherever and whenever such learning may occur.

Some of the specific objectives of the work-experience programs are:

1. To provide youths an opportunity for a sense of worthwhile accomplishment.
2. To promote the attainment, by youth, of good attitudes and habits for work.
3. To provide an alternative or supplement for students who find the traditional curriculum inadequate.
4. To furnish exploratory experiences that provide the basis for vocational choices.
5. To promote a method for smoothing the transition from school to work.
6. To help some students with economic needs.
7. To motivate students by establishing connection between vocational life and school subjects.

Many communities have found that work-experience programs result in generally improved relations between school and community through processes listed below:

1. Increased confidence of the community in the ability of the schools to prepare youths for a useful life.
2. Teachers will be more aware of the work of the community, and thus be able to more closely relate their instruction to community life.
3. The social adjustment of youth will be aided by the development of desirable attitudes toward themselves, work, employers, and fellow workers.
4. Fewer youths will drop out of school because they will gain self-respect and self-confidence through work experience, as well as interest in school subjects relating to work experience.
5. Both the employer and the community will benefit from

having more satisfactory beginning employees and more efficient regular employees to serve the needs of society.

VOCATIONAL GUIDANCE

It is not within the scope of this report to thoroughly discuss the element of guidance in vocational education. However, a statement of facts and opinions on guidance ranges all the way from those who feel that it is a totally unnecessary frill to the opinion that it is the most essential ingredient involved in education and development of the individual. Guidance generally is recognized as an essential service for the optimum development of the individual in our society.

Not many years ago vocational guidance was an informal procedure. This is simply illustrated by the fact that many sons worked alongside their fathers for extended periods, thus becoming familiar with their father's occupation. Girls worked alongside their mothers preparing for the principal occupation of women. As the technological society changes at an increasingly rapid pace, fewer opportunities are available for youth to learn about occupations by working alongside their parents. Today many young people know little more about the occupations of their fathers or working mothers than what they frequently overhear as complaints about the work day of the parent.

A more formal system of guidance and exploration must now be substituted for the less formal but effective parental guidance of the years past. The educational system is the most logical portion of our society to provide the more formal guidance needed today. This is not intended to usurp the prerogatives of the parents, but simply to recognize the inability of many parents to furnish opportunity for effective occupational exploration in a rapidly changing occupational world. Their offspring are being prepared for occupations twenty years in the future. The rapidity of occupational change requires the services of vocational guidance specialists who devote all their efforts to an attempt to keep ahead of the changing vocational opportunities.

Vocational guidance is not just the imparting of occupational information to human computers who will then automatically evolve the right answer. Rather, vocational guidance consists more of a developmental function. It is a process which must be started at an early age and is always a process and never an end. Some key factors are the providing of exploratory experiences for students when they indicate an interest in such things. A development of attitudes for work, earning a living, being of service to others, the components of a satisfying life, etc., are key factors of vocational guidance which presently receive too little systematic and continuous attention.

Unless proper guidance provides students with the basis for intelligent selection of their educational opportunities and occupational choices, other vocational education provisions will be poorly utilized. There are several concepts which should be given consideration: (1) the concept that educational development must come before vocational development; (2) the concept that working with the hands and wearing a blue collar denotes low status; (3) the lack of occupational knowledge and experience of the majority of elementary and even secondary teachers; (4) the concept that college is for the successful and vocational education is for the unsuccessful; (5) the relationship of a person's occupation to his way of life; (6) the methodology of helping young people develop sound occupational choices; (7) the point of view or lack of it concerning occupational choice help by guidance personnel.

It is the recommendation of this committee that every school district analyze the adequacy of the local vocational guidance program. Some discussion must take place among all teachers, grades one through twelve, about their own attitudes toward vocational-technical education.

DEVELOP TECHNICAL-VOCATIONAL RESOURCE CENTERS

The development of Resource Centers for Technical-Vocational Education is essential. Adequate inventories of instructional materials and sources of technical-vocational information are conspicuous because of their absence in most public schools in Lane County.

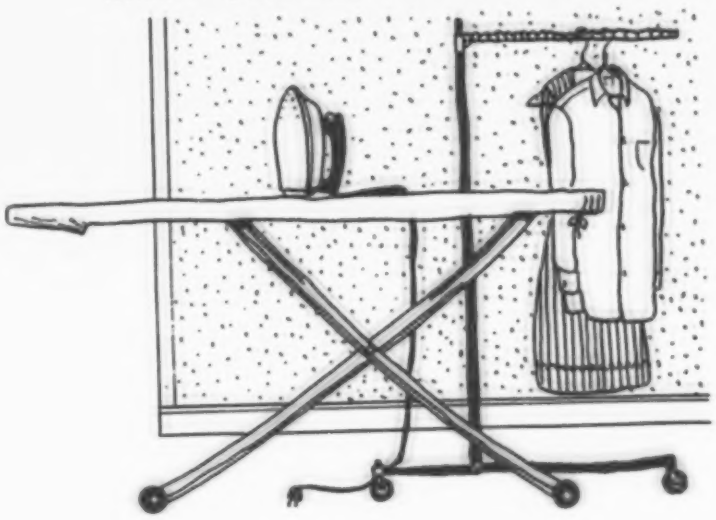
The shortage of library materials, trade journals, periodicals, current technical bulletins and manuals is one of the major problems facing teachers and administrators in development of quality courses in technical vocational subjects.

The study group recommends that:

Administrators and librarians dedicate thought and effort in building well-stocked resource centers and libraries for Technical-Vocational Education.

These centers should include:

a) Copies of Federal, State and local building and construction codes.
b) Trade journals and periodicals for the areas of Construction, Electronics, Distribution, Manufacturing and Processing, Service Industries and Agriculture.
c) Selected copies of Department of Defense training materials.
d) Free and inexpensive career and occupational information such as New York Life Insurance Company's Occupational pamphlets.
e) Technical bulletins and manuals available from most major producers and manufacturers.
f) Current copies of Commercial Reference Manuals published for the various trades and occupations, such as "Chilton's Auto Repair Manual" etc.
g) Professional texts and references from educational publishers and associations in the field of Technical-Vocational information.
h) Copies of courses of study in Technical-Vocational subjects from Universities, Colleges and



Public School Districts should be obtained and made available to professional staff working in the area of curriculum development.

i) Current vertical file materials in the area of "Vocational Guidance" should be available in each library and resource center.

j) Current copies of Bureau of Public Documents U.S. Printing Office's catalogue of manuals and pamphlets.

COORDINATE APPRENTICESHIP PROGRAMS WITH SECONDARY SCHOOLS AND COMMUNITY COLLEGE CURRICULA

It must be pointed out that business, labor, industry and education in the Lane County region have enjoyed a most friendly and cooperative relationship. As a result, the apprenticeship programs in Lane County have also been operating in a harmonious manner with the schools.

However, just as there is little relation between the secondary and community college curricula, the apprenticeship program is usually unrelated in any direct way to the individual's prior education at the secondary school and community college level.

The entire field of apprenticeship in Oregon has been discussed and studied well beyond the scope of this study. The 1965 legislative session spent many hours in hearings and in debate on developing new patterns for the apprenticeship program.

This study committee wishes to mention only in a brief way those observations that have not been covered by other reports.

(1) Much work must be done in convincing employers to take apprentices into their businesses. As one apprenticeship field worker has said, "You give us the employers and we'll give you the apprentices."

(2) Pre-apprenticeship programs must be coordinated more closely with apprenticeship as it actually operates from day to day. Too few students graduating from community college pre-apprenticeship programs are actually entering apprenticeship training. Counseling and follow-up is vital to not only entry but continuance in the program.

(3) Instructional materials for the classroom work of the apprentice training program must be constantly up-dated. The State Department of Education might investigate this need with an eye toward systematically providing fresh instructional materials.

WELL DEFINED POLICY IS NEEDED FOR PUBLICLY SUPPORTED OCCUPATIONAL EDUCATION

The development of a comprehensive policy defining the nature and extent of public responsibility for occupational education is needed. This study has revealed the need for multi-agency decisions on:

(1) Establishing occupational education programs related to regional and statewide job opportunities.

(2) Developing guidelines for determining those experiences needed in the classroom, and those more economically and efficiently obtained in on-the-job training

(3) More clearly defining the role of different public agencies in providing occupational education.

(4) Boundary lines between public and private responsibility for occupational education.

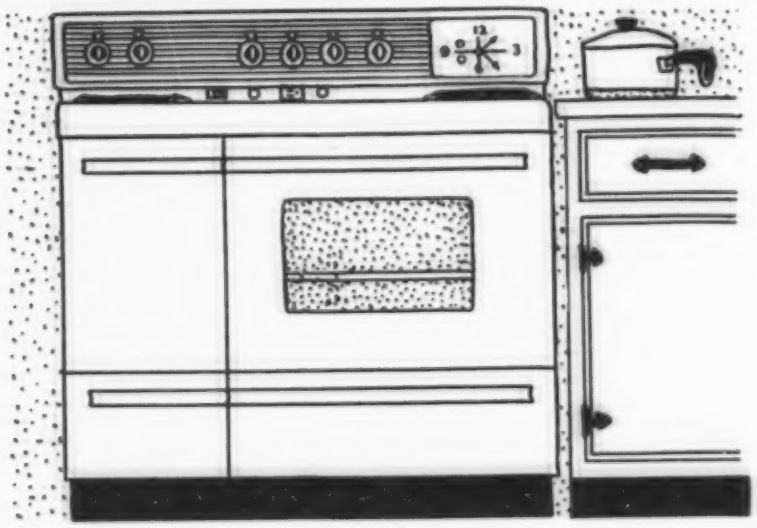
CHAPTER IV — A PICTURE OF LANE COUNTY SECONDARY SCHOOLS AND METHODOLOGY OF THIS STUDY

High Schools in Lane County range in size from the smallest, with an enrollment of 59 students, to the largest, with about 1,800 students.

With this range in size and scope of offering, it was difficult to approach the problem of what is currently being taught in the area of technical and vocational education.

The survey sought answers to two broad questions: What do we have to work with, and how effective a job are we doing?

The study was divided into two phases—an inventory and an evaluation.



Alternate approaches were offered each school. The principal could meet with his staff and fill out the forms; or a member of the study committee could go to each staff member and complete the form, returning it to the principal for his inspection; or a member of the study committee could attend a prearranged meeting of the staff and principal to discuss the forms and the proper method of filling them out.

The third alternative was the most desirable in most cases.

A modification of the National Secondary School Evaluative Criteria was used in the areas of agriculture, arts and crafts, business education, distributive education, industrial arts, technical-vocational subjects, home economics and guidance.

The original intent was to form evaluation teams of teachers to visit each of the county's 41 secondary schools. But time ran out and this was not done. In most cases, each school principal was given the choice of what method of evaluation was most acceptable to him. This amounted in most cases to self-evaluation.

Results of the tabulation and statistical analysis of these evaluations appear in the appendix of this report.

These are the patterns apparent to the study group:

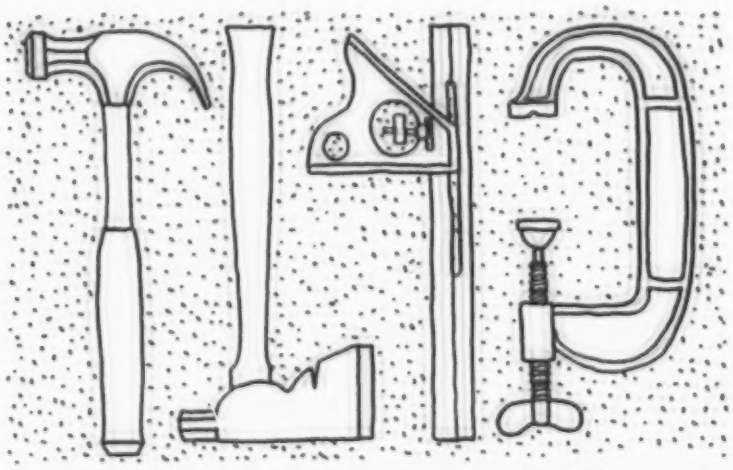
CURRICULA

1. **Trade and Industry.** Several patterns were revealed here. Few high schools in the county are offering courses in the Trades and Industry area at the present time but most of the schools indicate desire to expand these courses. They were in the process of planning and deciding what courses they should offer and what would be needed to do it. Small and medium size high schools indicated they would have major problems in developing any quantity of trade and industrial curricula. Even in the larger high schools the problem appears to be one of direction. Which program is needed and which program can be developed?

2. **Commercial Education.** Nearly all schools expressed a desire, and had plans, to develop commercial courses or expand what is now being offered. Most want to expand secretarial courses, especially at the senior level. Even the smaller schools feel this is an area of technical-vocational education that would fit their facilities and curriculum.

This is also one area in which almost all schools had sufficient equipment, facilities, and staff to present a comprehensive program. But there is a pressing need for more information: Most of the schools are dependent upon commercial equipment salesmen to bring them up to date on new materials, techniques and job opportunities. How to teach these courses and how to keep the curricular offerings up to date and in tune with the times is the big problem here.

3. **Distributive Education.** Here is an area begging for expansion. There seems to be a real and pressing need for more consultant services and curriculum construction help. Administrators and teachers agree there is a need for training students in this field, and studies indicate a demand in the local labor market for persons trained in the distributive skills. The problem seems to be in finding



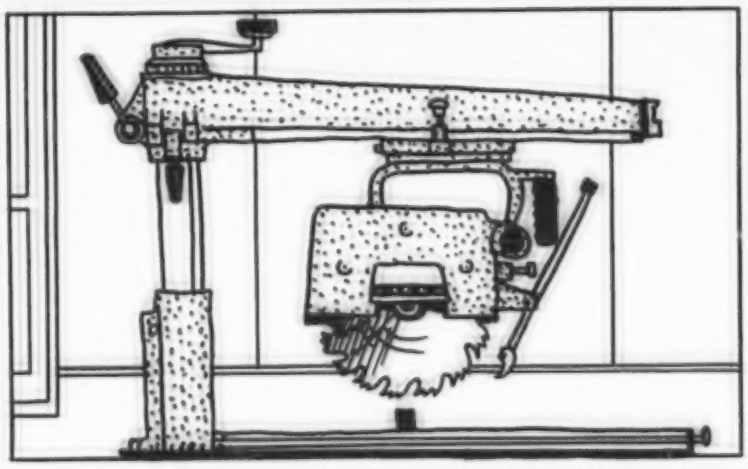
teachers and consultants trained in merchandising, salesmanship, and other phases of instruction. Local administrators, while willing, need more help in setting up functioning programs.

4. **Vocational Homemaking.** Training in the domestic service occupations is a new and unexplored educational area in our county schools. Again there is interest, but a strong lack of information on how to develop courses. Also, there appears to be a shortage of teachers trained in this area. The major emphasis in homemaking appears to be on meeting personal and family living needs. Student interest and enrollment also appear to be a problem.

5. **Graphic Arts.** No real course in graphic arts is being offered in any of the Lane County schools. Most of the courses in related areas, such as arts and crafts and photography, are not being presented as vocational, but

rather as cultural or avocational. Several schools expressed interest in development of Design and Commercial Art courses, but feel inhibited by lack of consultant service as well as a shortage of qualified teachers.

6. **Agriculture.** Four secondary schools in Lane County are offering vocational agriculture courses but enrollment is on the decline. However, there is a demand for young workers in jobs related to agriculture. Teachers and administrators feel that this is an area undergoing revision at the present time. Oregon State University is currently conducting a program aimed at revision of the vocational agriculture programs at the secondary school level. The "new program" appears hopefully to offer students opportunities to develop skills in sales and service of equipment; horticulture; landscaping; forestry; timber harvesting, as well as agricultural production.



COMMENTS FROM TEACHERS AND ADMINISTRATORS

Here are some of the comments given the study committee by Lane County teachers and administrators:

1. Consultant services are needed in the areas of commercial education, distributive education, graphic arts, trade and industry, and domestic service.

2. A professional library with the newest vocational-technical professional books, catalogs and study courses should be readily available to all administrators and teachers.

3. There should be a standard "scope and sequence" to serve as a guide for all people working in the area of curriculum development in these fields. There is a need for definition, for some standardization, what sequence should be offered. For example, teachers feel that a course called Typing I should be basically the same wherever it is taught. Another example brought up is in the field of Home Economics. These courses, while they vary but little, are called many things and it is difficult for inter-school communication when so many titles are used.

4. Perhaps "minimum lists" of equipment and supplies needed in specific courses should be developed centrally to aid administrators and teachers in planning new programs or expanding and modernizing old ones.

5. One respondent said, "there is a real need for our teachers, administrators and consultants to agree on a common vocabulary and stop the "battle of semantics." What is a prevocational course or a vocational course? What is an industrial arts course? What is general education?

6. There was a need expressed by several teachers and administrators during the survey for the Lane County Board of Education to establish a new position within the Intermediate Education District: This position could be called Consultant in Technical and Vocational Education. He would act as an advisor or consultant to teachers and administrators in this rapidly expanding area of vocational education. He could also help coordinate funding efforts in this geographic region.

7. Many expressed a desire for an investigation into sharing facilities and staff and exchanging students. In essence, this would be the establishment of sub-area centers for certain courses, and an area center for others. This need was especially voiced in the field of trade and industry courses. Large tuition payments appear to be a major deterrent in the free exchange of students.

8. More guidelines are thought to be needed in the general area of vocational-technical education. Not enough educators know what to do, when to do it, and how. The regional nature of employment opportunities make this a problem of more than one school district.

9. Closer relations should be established with employers, the potential consumers of our products.

This one comment reflected the feelings felt by others:

> "We know that sixty-five percent of our students are terminal and need to be given either a minimum job entry skill or incentive to continue in a technical or vocational program, yet we continue to devote the major part of effort and money in promoting the college preparatory program . . . Why can't we get our heads out of the sand?"

The results of the entire survey have been tabulated and appear in the appendix.

METHODOLOGY OF THE STUDY

Inventory and Survey forms were constructed, rejected and reconstructed, and it was finally decided that it was impossible to construct an instrument that would do a really effective job in analyzing the curricula, equipment and facilities in all the schools in Lane County due to the range in size and course offerings. The final instrument was labeled the "Muu Muu"; it would fit each situation but was not really tailored to any. This form was distributed to each school and procedures for filling out the form explained to the principals. These forms were tabulated and the results were produced in table form. Several interesting patterns emerged in this phase of the survey. One pattern that became apparent was schools are not really poorly equipped, in small hand and power tools. The needs seem to be in the area of a variety of large mounted power tools in adequate numbers so that a unit in operation and care of power driven tools can be effectively presented. Space for adequate numbers of larger power tools seems to dictate the number available, more than the availability of funds to purchase the tools.

GENERALIZATIONS

Several generalizations could be made from the Inventory Phase of the Survey:

1. Consultants are needed to work with administrators and teachers in the areas of Commercial Education, Distributive Education, Art, Trade and Industry and Homemaking.
2. A professional library containing newest professional books, catalogs and copies of vocational-technical courses of study should be made available to all administrators and teachers.
3. A standard "Scope and Sequence" should be available to all people working in the area of curriculum

TABLE 8

GROWTH IN LANE COUNTY SCHOOL POPULATION FROM SEPT. 30, 1963 TO JUNE 30, 1965 (Quarterly Reports).

	GRADE SCHOOL			HIGH SCHOOL			TOTAL		
	1963	1964	Percent Change	1963	1964	Percent Change	1963	1964	Percent Change
APPLEGATE	346	369	7%	148	161	9%	494	530	7%
BETHEL	2,055	2,122	3%	905	948	5%	2,960	3,070	4%
BLACHLY	139	147	6%	47	59	25%	186	206	11%
CRESWELL	599	608	2%	265	303	14%	864	911	5%
*EUGENE	12,371	13,425	8%	5,311	5,830	10%	17,682	19,255	9%
FERN RIDGE	1,068	1,072	0%	447	477	7%	1,515	1,549	2%
FLORENCE	961	998	4%	385	416	8%	1,346	1,414	5%
JUNCTION CITY	1,183	1,213	2%	499	537	8%	1,682	1,750	4%
LOWELL	356	344	(3%)	143	138	(3%)	499	482	(3%)
McKENZIE	379	430	13%	194	198	2%	573	628	10%
MAPLETON	450	466	4%	193	209	8%	643	675	5%
MARCOLA	212	228	8%	79	98	24%	291	326	12%
OAKRIDGE	768	773	0%	333	346	4%	1,101	1,119	2%
PLEASANT HILL	771	899	17%	315	346	10%	1,086	1,245	15%
SOUTH LANE	2,191	2,230	2%	980	983	(0%)	3,171	3,203	1%
SPRINGFIELD	5,867	6,286	7%	2,574	2,720	6%	8,441	9,006	7%
WESTFIR	176	187	6%	68	61	(10%)	244	248	2%
LANE CO.	30,130	31,797	5%	12,910	13,820	7%	43,040	45,617	6%

Source—Lane County Board of Education

*Eugene increased approximately 290 students from Coburg by annexation, these account for 1.5% of the increase. Thus Eugene's school increase consists of 7.5% by growth and 1.5% by annexation.

TABLE 9

PER PUPIL
GENERAL FUND EXPENDITURES
1963-1964

Data Sources: (1) Clerk's Annual Financial Report, 1963-64
(2) Quarterly Attendance Report, June 1964

**—6 yr. Secondary Program (7-12)
*—2 yr. Junior High Program (7-8)

School District	Total Gen. Fund	Elem. Gen. Fund 1-8	Elem. Gen. Fund 1-6	Jr. High Gen. Fund 7-9	Sr. High Gen. Fund 10-12	High Schl. Gen. Fund 9-12
1 — Pleasant Hill	$557.00	$	$514.00	$468.00	$780.00	$
4 — Eugene	547.00		478.00	548.00	629.00	
19 — Springfield	514.00		512.00	512.00	520.00	
28J— Fern Ridge	479.00	462.00				519.00
32 — Mapleton	615.00	560.00				722.00
40 — Creswell	533.00	509.00				583.00
45J— South Lane	591.00		561.00	544.00	718.00	
57 — Bethel	598.00		540.00	749.00	679.00	
66 — Applegate	602.00	556.00				708.00
68 — McKenzie	978.00	920.00				1093.00
69 — Junction City	541.00		497.00	474.00	743.00	
71 — Lowell						
76 — Oakridge	586.00		470.00		**541.00	
79 — Marcola	652.00	487.00				1112.00
90 — Blachly	691.00	542.00				1129.00
97J— Florence	496.00		458.00	351.00	774.00	
117 — Westfir	765.00		533.00	*772.00		1111.00

Source—Lane County Board of Education

TABLE 10

STATEWIDE ENROLLMENT DATA—A MEASURE OF HOLDING POWER

Enrollment figures for the last 13 public high school graduation classes (1952 through 1964) in Oregon, are shown by grade levels. Each year's figures do not include transfers within the state. Transfers into the state are included with the assumption that these approximately equal transfers leaving the state.

Data for the following table were obtained from attendance records in the State Department of Education. The percentage figures in parentheses in each instance indicate the cumulative survival from the ninth grade.

Class of	Ninth	% Lost	Tenth	% Lost	Eleventh	% Lost	Twelfth	% Lost	Graduated
1952	18,918 (100%)	7.7	17,457 (92.3%)	9.4	15,687 (82.9%)	12.4	13,331 (70.5%)	6.7	12,071 (63.8%)
1953	18,971 (100%)	6.0	17,834 (94.0%)	10.2	15,894 (83.8%)	11.8	13,659 (72.0%)	6.0	12,526 (66.0%)
1954	19,994 (100%)	6.8	18,627 (93.2%)	10.4	16,559 (82.8%)	9.8	14,603 (73.0%)	6.7	13,266 (66.4%)
1955	20,918 (100%)	7.7	19,326 (92.3%)	8.0	17,634 (84.3%)	9.9	15,578 (74.4%)	6.5	14,223 (67.9%)
1956	21,932 (100%)	4.9	20,846 (95.1%)	8.4	19,616 (86.7%)	10.2	16,776 (76.5%)	6.9	15,256 (69.6%)
1957	22,686 (100%)	4.9	20,846 (95.1%)	7.7	19,826 (87.4%)	10.8	17,372 (76.6%)	6.7	15,853 (69.9%)
1958	23,226 (100%)	4.1	22,278 (95.9%)	7.3	20,577 (88.6%)	9.6	18,358 (79.0%)	7.8	16,645 (71.2%)
1959	23,923 (100%)	3.9	22,989 (96.1%)	7.4	21,209 (88.7%)	8.7	19,125 (79.9%)	8.2	17,144 (71.7%)
1960	26,696 (100%)	4.0	25,627 (96.0%)	5.7	24,124 (90.3%)	9.3	21,734 (81.0%)	7.8	19,560 (73.2%)
1961	27,969 (100%)	3.1	27,104 (96.9%)	5.2	25,637 (91.7%)	8.1	23,376 (83.6%)	7.6	21,261 (76.0%)
1962	26,762 (100%)	2.5	26,089 (97.5%)	5.3	24,668 (92.2%)	7.5	22,680 (84.7%)	7.2	20,750 (77.5%)
1963	26,603 (100%)	2.1	26,037 (97.9%)	4.5	24,847 (93.4%)	6.8	23,031 (86.6%)	8.4	20,800 (78.2%)
1964	30,264 (100%)	1.9	29,701 (98.1%)	3.3	28,692 (94.8%)	5.6	26,998 (89.2%)	8.4	24,463 (80.8%)

These enrollment figures show that 80.8% of the ninth graders survived through graduation for the 1964 class compared to 63.8% for the 1952 class. The drop-out rate has progressively decreased between grade levels for each of the 13 years shown, but there has been some increase in loss after entering the 12th grade. This means that those who do drop out are staying in school longer.

Source: Oregon State Department of Education, 1964.

TABLE 11

LANE COUNTY SCHOOL DISTRICT STATISTICS

School Districts	True Cash Value		Property Tax Budget Levy		Budgeted General Fund Expnd.		Millage	
	Per ADM	Rank	Per ADM	Rank	Per ADM	Rank	Mills	Rank
Pleasant Hill	$14,755.00	3	$207.00	2	$493.00	1	69.1	8
Eugene	24,694.00	12	346.00	9	611.00	10	73.6	13
Springfield	19,970.00	6	250.00	5	517.00	4	72.9	11
Fern Ridge	11,330.00	1	207.00	2	536.00	6	69.0	7
Mapleton	19,892.00	5	363.00	10	626.00	11	77.4	14
Creswell	11,424.00	2	182.00	1	495.00	2	58.9	5
South Lane	23,849.00	11	338.00	8	545.00	7	70.2	10
Bethel	28,477.00	13	371.00	11	607.00	9	72.9	11
Applegate	31,227.00	14	382.00	12	647.00	12	61.8	6
McKenzie	61,775.00	17	571.00	16	905.00	17	51.6	1
Junction City	22,887.00	10	260.00	6	530.00	5	56.7	2
Lowell	22,651.00	9	442.00	14	720.00	15	86.6	16
Oakridge	32,883.00	16	337.00	7	596.00	8	58.3	3
Marcola	20,959.00	7	445.00	15	669.00	13	69.8	9
Blachly	21,701.00	8	409.00	13	704.00	14	79.4	15
Florence	18,130.00	4	226.00	4	508.00	3	58.7	4
Westfir	32,174.00	15	598.00	17	793.00	16	98.3	17
Lane County Average	23,340.00		349.00		617.00		69.7	

Source—Lane County Board of Education

development for commercial and industrial courses. A need for definition of what content, in what progressive sequence constitutes a course is apparent when one looks over the courses and talks to teachers and administrators. There is no desire to establish a lock-step type curriculum; however, both administrators and teachers alike expressed the thought that it would be desirable to know that the content and structure of courses would be basically the same in various schools. An example mentioned by many school people was the variety of course names and content in the Home Economics area. Some schools in the same district have different course titles and slight variation in introductory Home Economics courses, i.e., Home Economics I in one school, Homemaking I in another—Senior Homemaking in one school, Advanced Home Economics in another, etc.

4. Perhaps "minimum lists" of equipment and supplies needed in specific courses could be developed to aid administrators and teachers in planning expansions of the vocational-technical program.
5. There is a real need for teachers, administrators, and consultants to agree on a common vocabulary. What

is a prevocational course? What is an avocational course? What is an Industrial Arts course? What is general education?

6. There is some thought that possibly the Lane County Board of Education through the Intermediate Education District could establish a position: Consultant in Vocational and Technical Education, to act as an advisor or consultant to teachers and administrators in Lane County in the rapidly expanding area of Vocational Education.
7. There was an expressed desire to investigate in detail the possibility of "sharing" facilities and staff and equipment in some areas, and "trading" students. In essence, establish Sub-Area Centers in certain areas of the curriculum and development of an Area Center for other areas particularly in the "Trade and Industry" type courses.

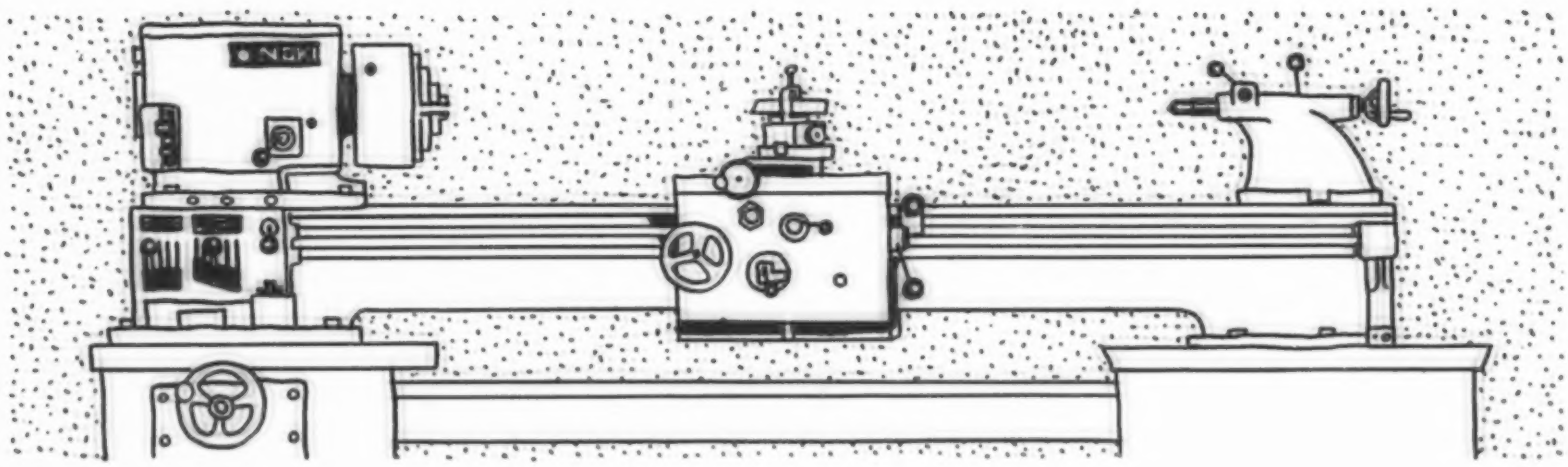
EVALUATION

The results of the evaluation phase of the study were tabulated and placed on charts. The results seemed to indicate most schools were doing an average job in teaching the courses offered, the quality of the staff was generally very good, the courses of study seemed to be more than adequate, materials were in ample supply and usable, equipment was a problem in some schools, but on the whole it was generally adequate. Facilities, opportunity for expansion, and articulation seemed to be the greatest problems.

Most schools in Lane County are doing a creditable job, however, almost all schools indicate they feel there is real need for:

1. Improvement of Vocational Guidance services.
2. Curriculum revision of all courses and development of a related vocational or terminal program in the academic as well as the vocational laboratory offerings.
3. Need for strong leadership in the vocational-technical field and establishment of stable, dependable guidelines.
4. Closer relations with the employers and firms hiring the products of the secondary schools.
5. Agreement between Industrial Arts people and Vocational people to put aside differences and opinions and cooperate in the establishment of a sound educational program for the vocationally oriented student.
6. More realistic viewpoints on the part of the public, school boards and administrators regarding the needs of students.
7. Secondary schools must make greater efforts to remedy educational weaknesses. It is not sufficient to blame the elementary schools when students come to high school unable to read or compute. High schools must intensify their efforts to provide remedial education. Programmed learning may hold some hope for the future in dealing with these problems.

Note: All statistical information from the survey may be found in Appendix B at the conclusion of this study.



CHAPTER V — SOME NEW PRACTICES IN VOCATIONAL-TECHNICAL EDUCATION

Today, the role of the high school in preparing students for employment is getting more and more attention by educators everywhere.

The American Association of School Administrators, in a convention at Atlantic City in February, 1965, passed a resolution urging all administrators to strive for more effective technical-vocational programs.

The need for adequate vocational preparation in secondary, as well as post-secondary schools, is well documented in a study by Harold T. Smith of the W. E. Upjohn Institute for Employment Research at Kalamazoo, Michigan.

Smith's research includes a report of developments in other states besides Michigan and points out that "in order to provide the right kind of vocational programs for the two-thirds of our youth who now enter the world of work with no skill, and in order to help carry the increased load of adult education that now exists and that lies ahead, our facilities for offering secondary as well as post-secondary vocational education must be greatly expanded."

Since this is a new effort on the part of public education, various patterns have emerged. But in general, it is accepted that the junior high school should provide courses of an exploratory nature. The student is allowed to explore various fields, all the while guided and counseled so that his interests are found. This phase may continue into the 10th grade—the first year of high school.

Considerable flexibility must be allowed at this level. The student who may have embarked on a course of college preparation may find, after exploration, that a vocational training program is more to his liking and more to his aptitude. Some students may elect to go into an occupational exploratory program at a later period in high school.

In some cases, of course, a combination of occupational exploration and college preparation can be planned for a more comprehensive education. Smith points out that "it is generally misleading to call one course college prep and another business or vocational when the evidence is clear that many high school graduates who have followed a business course of study or a vocational course of study are admitted each year to the college of their choice and make good records in higher education."

It goes almost without saying that the reverse is true: Many students who follow a college prep course through secondary school do not go on to college but rather find themselves a vocation after high school graduation.

Assisting the high school student in "finding himself" is not an easy role for educators, yet research indicates that much more can be done, not only in this exploration, but in actual vocational training so that by the time he graduates from high school the student not only has a good idea of what he wants to do but also that he knows how to do it.

A SUGGESTION FOR OREGON

A plan for vocational training in the high school and post-high school area seems to be emerging and is becoming more and more generally accepted throughout the country. The Oregon State Department of Education has provided much leadership in developing this approach to vocational education. Table 12 gives an example of the scope and general sequence.

It is readily seen that the program provides for the necessary exploration at the higher elementary grades, junior high and early high school. The courses include such as Industrial Arts, General Shop, General Business, General Foundation Agriculture courses and Beginning Homemaking courses.

During this exploratory phase, the guidance personnel and teachers (in both vocational and general education) should be able to help the student plan for the 10th, 11th, and 12th grades and for his future, either employment or further education.

Consideration should also be given to the success of the student in his other courses such as English, mathematics, and science. Occupational areas in which math and science are essential, such as engineering-technician field, should be determined largely by the student's accomplishment in these areas.

In the 9th or 10th grade, the student could select a pre-vocational or pre-technical program in a broad "cluster." An example of this would be the electrical-electronic field, woodworking, metals or graphics.

Then, as he goes into the 11th and 12th grades, the student would specialize more. From the general metals area he could progress into machine shop, or from power mechanics into the specifics of drafting in the architectural field, from electrical-electronic he could move to the electronic area in the pre-technical or pre-engineering area.

The student who is in the pre-technical field could narrow his pursuit down to a specific job area in the last year of high school or in community college, so that when his education terminates he would have had the broad experience of several classes in the cluster and finally, the one specialty he has sought as he found out more about the field.

Job entry would come at the termination of high school for some, at the termination of community college for others. The important thing is that he would be prepared —he would know more about himself and his skills. And, meanwhile, he would have been given a general education for citizenship and a better life.

In an Industrial Arts curriculum guide developed by a committee of Industrial Art teachers and the Oregon Department of Education in 1964, exploration is suggested for junior high school, specialization in high school.

Again, the plan allows the student to find his interests in junior high school and his level of ability in the higher grades. High school would either prepare him for a job or encourage him to seek higher education.

THE CALIFORNIA INDUSTRIAL SYSTEM PROGRAM

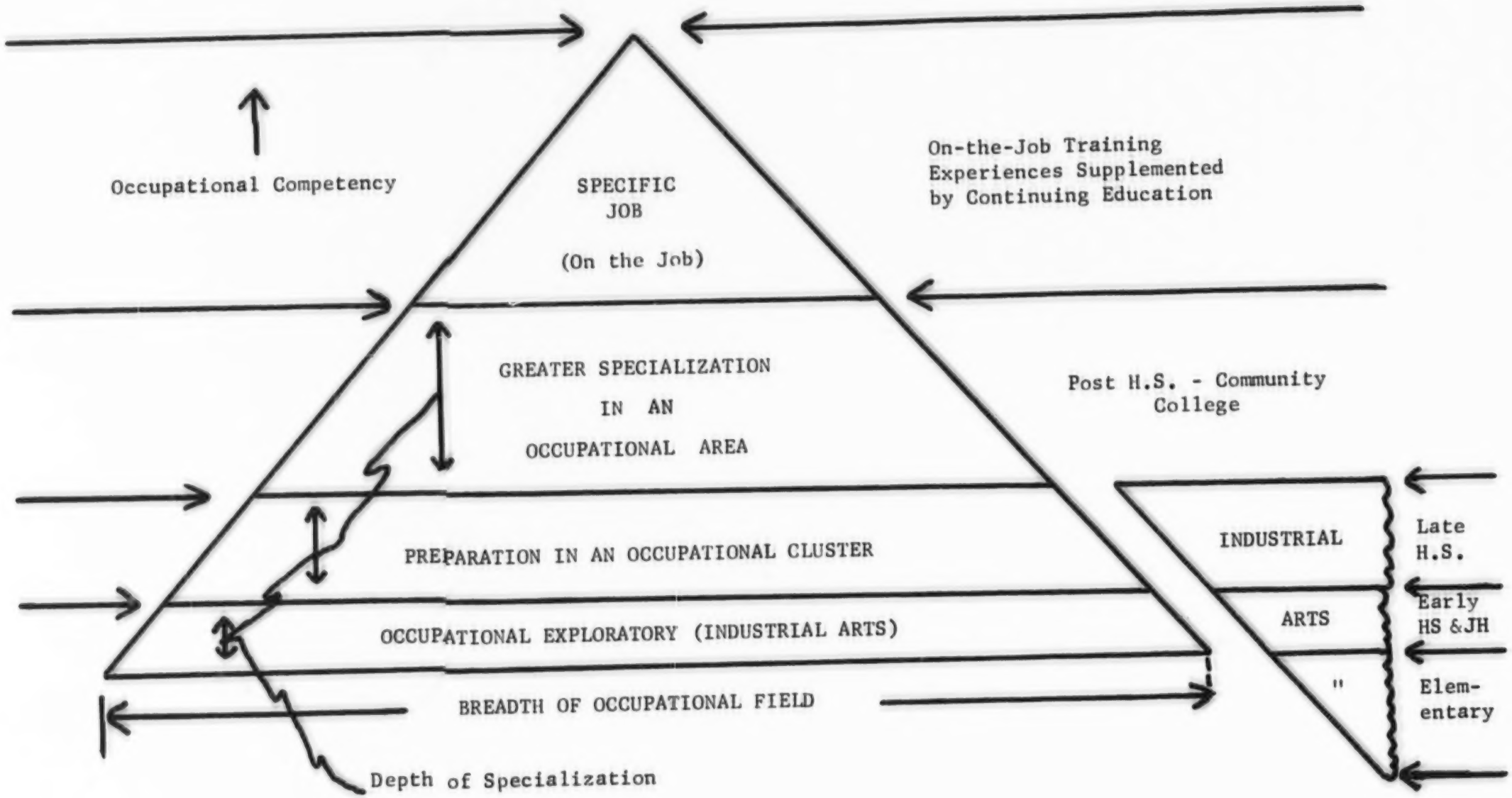
California has developed a "three track" system in industrial education. Table 13 gives a graphic illustration.

This program provides for general exploration in industrial arts in the junior high school. From interests developed at this level, selection and guidance would put the student on one of three tracks in high school. The selection of which track would be made according to aptitude shown in industrial art courses and also in the related courses such as mathematics, physical sciences, general sciences, and English.

A student who has shown considerable aptitude in science and mathematics might be encouraged to follow the track of the technical-occupational system.

TABLE 12

AN EMERGING CONCEPT
OF THE
ROLE OF VOCATIONAL EDUCATION IN OCCUPATIONAL PREPARATION



The student who is not quite as interested in the abstract sciences and theory would be guided along the track toward trade and industrial occupation.

The student who is university-oriented and has shown interest in the industrial arts field might follow the track of industrial arts general education. This could lead him into teaching or might serve as a general background for a professional industrial field where he needs a basic understanding.

TRACK I

As the chart shows, the technical education track might lead into a junior college engineering-technician program and then job entry. Or the student may elect to take further college education.

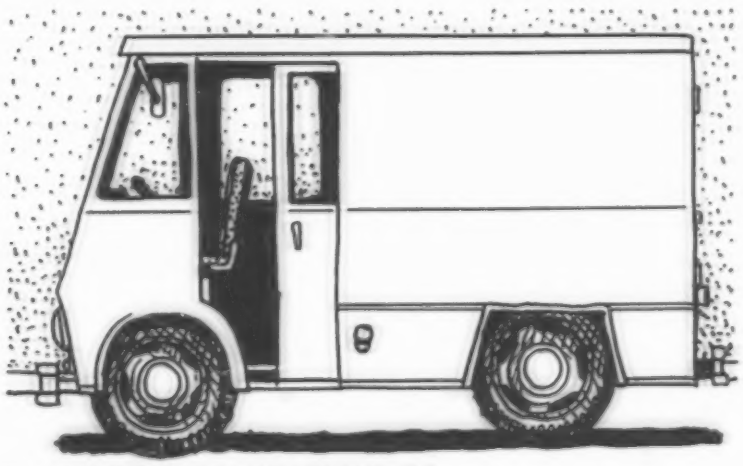
TRACK II

He who followed the industrial arts education path would take additional industrial arts of a broad nature in high school and go on into junior college industrial arts work and follow this with a professional education and a baccalaureate degree. He could enter a professional field or seek further education and teach.

TRACK III

The third track is the trade and industrial occupational system. This would give preparation to a person going into a job after high school. This could be an apprenticeship, or a job requiring no further training. Courses offered would be machine shop, drafting, et al, which would equip the student for a job upon graduation. But this person could also elect to pursue his craft at the junior college, taking advanced courses in drafting, carpentry, cabinetmaking and the like.

This track system employed by the California school system is adaptable for agriculture, homemaking, business education, distribution and others. It provides for finding levels of attainment in any of the occupational preparatory fields and has the advantage of routing a student according to interest and ability. It is systematic yet allows flexibility.



CLUSTERING OCCUPATIONS TO DETERMINE TEACHING AREAS

Clustering jobs, that is, collecting them into groups, is an aid to working up vocational and technical educational curricula. Similar jobs are clustered so that courses can inter-relate and have meaning one to the other.

Again, as we suggest "exploratory" courses in junior high school, we have suggested broad cluster-programs at the lower level and the pyramid would narrow in the higher grades.

The general occupation clusters seem to fall into the following categories:

1. Business Management. Includes managerial, secretarial, office jobs.

2. Technical-mechanical. Includes engineering and highly-skilled technical and mechanical jobs that require considerable skill and technical background.

3. Production. Includes pre-vocational study in agriculture and agriculture service; timber or lumber production; metal fabrication and repair; construction, including carpentry and cabinetmaking; and food processing.

4. Distribution. Includes the several occupations such as sales work, stock control, warehousing and transportation.

5. Service. Includes jobs in health, social service, food service, protective, domestic and custodial work.

These are broad occupational clusters. From them would evolve more closely-related clusters in which there is a cross-pattern of skills and knowledge.

ANALYZING CLUSTERS FOR CURRICULUM CONTENT

Considerable study must be made of the work skills and related general education before an analysis can be made of the occupational cluster. This should be done by a committee of persons employed in the occupations, by educators and by other experts acquainted with the placement routine for employment. Such studies should be made on a statewide basis so that the general courses would apply to many schools within the state.

There should also be consideration of the requirements of pre-vocational training essential to standardization between the several states. Our population today is mobile, our people are migratory. A person trained in Lane County should be equipped to accept employment in other parts of the country or in foreign fields. Exceptions to this—such as specialization in timber and lumber fields—will be few.

Attention must also be paid to the general education courses such as English, mathematics, sciences, etc., so that they have relationship to the student's functioning in the occupational cluster. Reorganization of these general fields is essential to make them more useful within the concept of technical and vocational training.

This study project staff and advisors have been constantly reminded that the old way of teaching vocational skills is often no longer appropriate. There is much interrelationship between vocations—hence, the cluster for today. Isolation of a single course is not practical.

"Already, we are seeing close coordination of such vocational instruction as agriculture and distributive education, trade and industrial education," according to John P. Walsh and William Selder in "Vocational Education in the Secondary School," published in the 64th Yearbook of the National Society for the Study of Education.

OCCUPATIONAL EXPLORATORY COURSES

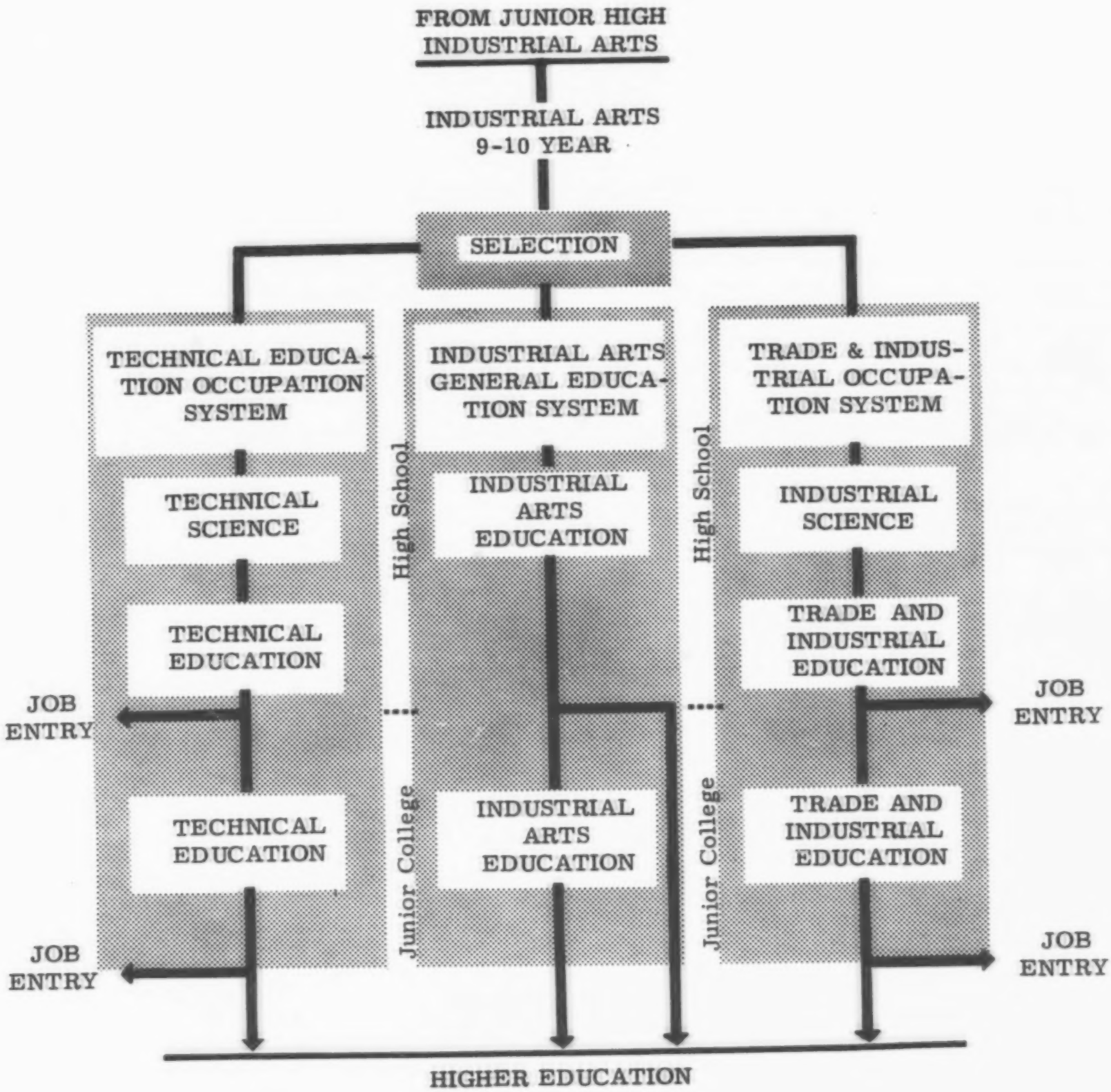
As the more general areas are offered as a means of exploration for the student in the junior high school, and sometimes 10th grade, there is paramount a need for a team approach between the guidance counselor and the English department head, between the guidance counselor and the head of the mathematics department and so on.

In many cases, the general courses will need to be "bent" a little, so that they fit into the occupational training.

In the past, we have failed too many times to help the youth in his preparation for vocational training. We have by the selection and placement system eliminated many

TABLE 13

Industrial Education System Programming



California State Department of Education
Bureau of Industrial Education

who needed education of a vocational nature. Now we can approach the problem from a new direction—allowing the student to first explore and then find himself.

"Education in general has failed to help the disadvantaged youth, and vocational education has largely eliminated the group by imposing selection devices," Walsh and Selden stated.

It should be said here that flexibility is a desire. It should be possible to give direction to a student so that he may plan his senior high program for an occupation cluster, but without narrowing preparation to a specific job or occupation level.

Considerable counseling of parents may be necessary. Often, a student's motivation and achievement alters when he enters senior high school. And parents insist, generally, on so-called college prep courses.

A very important and difficult part of guiding the child is counseling with his parents. The prestige of going to college is so great in our society that almost all parents want their children to go to college.

A new definition of college is needed. With the increasing demand for post high school education the meaning of the word college has changed dramatically. A resolution from the 1963 AFL-CIO Convention stated:

> "The time has come when education beyond the 12th grade should be the right of every young person. More than a century has passed since 12 years was set as the standard for free public education. Since that time, there has been a vast multiplication of knowledge and a greatly increased demand for higher levels of education. The 12th grade can no longer be accepted as the standard for a completed education. Free public education should be extended at least through the 14th year."

However, a note of caution is sounded by many of the experts in this field: Rigidity is to be avoided wherever possible. Change must be allowed. A person who has shown considerable interest in a vocational-technical school at the junior high school level may show high proficiency in the academic pursuits once he is in high school. Encouragement must be given him to change over to a university preparatory course or to pursue some other education within the vocational cluster. Changes in career course planning must be made possible when the facts justify such action. His years of exploration will not have been wasted, for even after college he may find himself happier and better suited to the occupation he found out about in the earlier years.

Selection of students to go into specialty fields—the narrower job cluster—with the high school course terminal, must be made on the basis of the person's maturity as well as his aptitude. Will he be sufficiently mature, upon graduation from high school, to take on the job once he is trained for it?

Generally speaking, only a large high school or an area center is able to provide a full line of vocational-technical programs, but the smaller school can do much to provide the guidance, the push, for the student to seek his education in some other way.

In the school able to afford it, such courses as auto body repair, auto mechanics, carpentry, machine shop, mill work, and cabinet making would equip the student for employment. In this case, he should be able to attend the vocational part of his course for several consecutive hours, or half a day, so that intensified, blocked out training is given.

There is evidence today that the time-honored apprenticeship program is less than satisfactory and that some kind of combination apprentice-classroom education will have to serve the needs of industry.

"It is apparent that apprenticeship is not meeting and will not meet the manpower needs of the nation nor the needs of the youth. The system at its best is slow and inefficient; and as it is now in operation, it is probably more a barrier than a bridge between youth and jobs," Norman C. Harris stated in "Redoubled Efforts and Dimly Seen Goals," printed in Phi Delta Kappan, April, 1965.

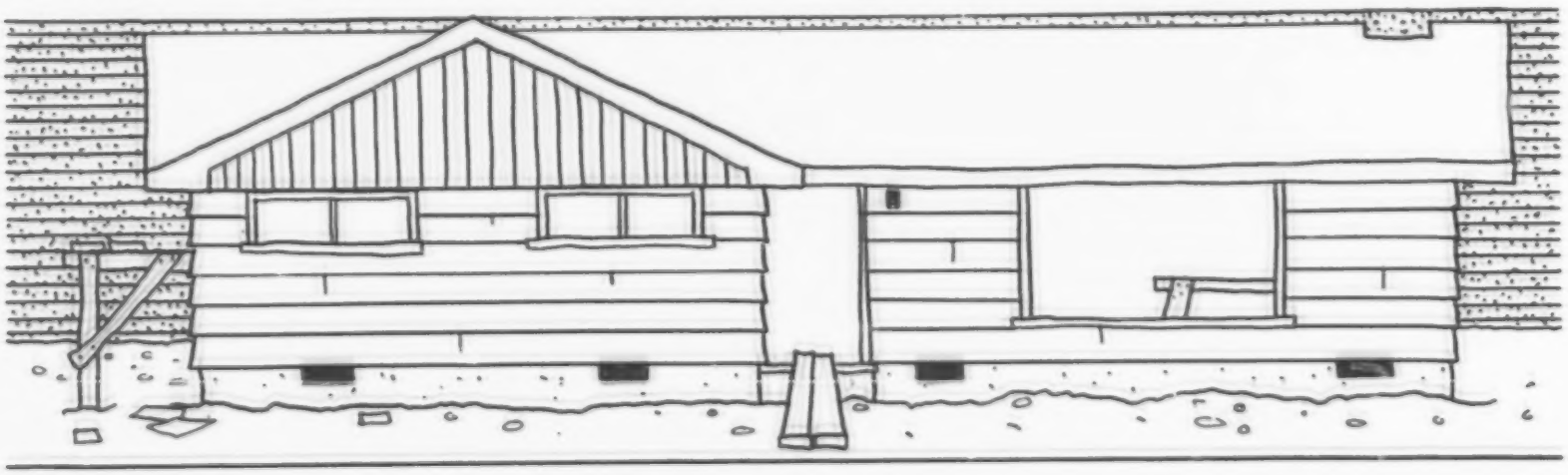
Considerable attention must be paid in the future to technical training, i.e., electrical-electronic-chemical technology, air conditioning and so on. This is a nearly completely overlooked field of education today, perhaps due to lack of teachers and administrators who can handle the problem.

"When equipment and controls are primarily mechanical, it takes about 10 per cent of the job time to find the trouble and 90 per cent to fix it; when electronics and hydraulics are involved, the percentages are reversed," Robert Auther pointed out in the American Vocational Journal, April, 1965.

For the student aiming at a technical field, a good aptitude test is essential to find his level in algebra, basic science and his ability to absorb abstract material.

In an article entitled "Vocational Education in the Curriculum of the Common School," in the 64th Yearbook for the National Society for the Study of Education, the author said:

> "Studies are revealing that more, not fewer, technological skills demanded by modern industry can be handled by high school youth; their capacities for training in skills have perhaps been as under-exploited as those for traditional academic training."



There is a large chance for coordination among the technical courses and the vocational course. A student studying auto mechanics, body and fender work, etc., should learn to weld. Also, a technical course such as machine shop process should be of importance to the auto mechanic or the farm mechanic.

As in the case of pure vocational training, the student studying a technology must be offered the right kind of academic courses. The mathematics and the science he studies should be shaped to help him in his technical pursuit. To develop courses of this nature would mean some duplication of general education courses, as there would be some courses for those planning the professional and college degree program and those who are planning a technical or vocational competency program. To develop such general education courses, it would be advisable to approach this on an area wide basis.

In the smaller high school, such development would depend on the instructor of the math and science course and the instructor in the technical or vocational course. To these would fall the responsibility of making the general course applicable to the student's pursuit.

A well planned vocational program integrates vocational education and general education. The vocational education should be built on a sound base of general education.

As one considers that the high school graduate of today will change jobs four or five times in his lifetime, the value of general education in the vocational training becomes apparent. While the student is to be taught a job skill, so he may find a job, still he must be given a broad enough base so that he can adapt to changing circumstances. For instance, the communication skills should not be overlooked.

Also, as technology changes, the manipulative skills become less important. Merely being able to do something with one's hands is not going to be able to serve him well in the future. The plumber has learned to use plastic pipes instead of metal pipes, but he continues to need to communicate, to read instructions, to use arithmetic.

The general education courses cannot be neglected. They can, however, be reshaped to the needs of the student who will benefit from pursuing technical and vocational subjects. Reading, for instance, must never be devalued—for in the fluid situation a worker finds himself today, it demands that he read in order to constantly improve himself. The technician must read technical journals to keep abreast of developments, others must read the many offerings from outside their own spheres so that they can know of opportunities.

PROVIDING FACILITIES FOR PREVOCATIONAL AND VOCATIONAL TRAINING

Finding the space, the place to teach these courses, we have mentioned, is a large problem, something of the magnitude of finding people to teach them.

In many of the vocational-technical areas it is hard for the traditional high school to provide the equipment and the facilities, plus the instruction and sharing program.

In these cases, many times, a sharing program could be worked out. One school would contract with another school for the use of services and facilities, and the other school would reciprocate in some other field.

If the sharing program is the answer, a master plan for all high schools in the area is a must. This could be county-wide or cover a smaller or larger geographic area. The savings of such cooperation and coordination are readily seen. The provisions could be made for many different types of programs with a minimum of duplication.

The large problem of organizing this type of program would be one of "selling" the various school boards to make the necessary financial outlay for facilities and equipment on the basis of reimbursement from the other districts who use them. And scheduling becomes a complex operation.

PROGRESSIVE CURRICULUM AT SEVERAL SCHOOLS

Another plan for providing the facilities, equipment and instruction in some of the more involved vocational programs would be to offer the broad preparatory courses at the comprehensive high school, and to plan the specialized, extensive 12th grade courses at the larger high schools, area center, or community college.

This would be a combination of the sharing plan with a coordinated curriculum pattern for all high schools in the county.

AREA CENTER

An area center school for vocational and technical training would serve all high school students within a reasonable commuting distance and could offer superior training.

Such a facility would provide one half day of vocational courses with the other half day of general education classes being provided in the home school. Some of this programming was accomplished between the Eugene area high schools and the Eugene Technical-Vocational School.

The area center could also provide the general education courses, thus eliminating the need for transportation between the two schools.

An example: the Sussex Vocational Technical School in Sussex County, Delaware.

This institution is similar to the former Eugene Technical-Vocational School. It could be copied here: either by the use of one countywide area center or by regional centers such as in the Oakridge area, the Eugene-Springfield area, the Florence area and the Cottage Grove area. If taken on the regional basis, with several in the county, the student could attend his own high school for his general education and attend the regional center for his or her vocational-technical course and lab work.

Because the center would draw from a larger tax base, and serve more students, it could afford the expensive machinery, the larger classrooms, the specialized structure that the ordinary high school could not.

The building itself would provide for departments, shops, laboratories and related classrooms. For instance, in areas such as chemical technology, metallurgy technology, and other such courses, labs of the type to be found in engineering schools, and not in the conventional high school, would be furnished.

Not only in Sussex County, Delaware, is this found, but another good example is the Allegheny County Area Technical School at Pittsburgh. Here, the school has provided a two year course for high school juniors and seniors in electronics, chemical technology, marketing technology, data processing, computer programing, instrumentation, civil construction and others.

Other areas have tested these types of programs and found them satisfactory, both from the standpoint of cost

and the quality of education. Bus transportation is furnished in the situation where the area center is used by the student for only half a school day.

The major disadvantage of providing the total program at an area education center is one of social consequence. The student becomes segregated from his friends that he has known throughout his school experience. This separation tends to place the vocational student in a separate classification; he loses the social value of working and moving with students he has known and the system tends to stratify society.

But the advantages of an area center are great. Not only can expensive courses be offered at an economical saving, but the center can also be used as an adult, after-hours, training center. It can also be used for some of the exploratory courses for the younger student.

The large area center can bring in specialists as instructors—the larger number of students make it economically feasible to hire experts, paying them a wage commensurate with what they could get in outside industry.

Using the large area center, it would be easier to fit courses into sequence with the community college courses and these courses could be tailored to meet the specific demands of industry.

Area wide advisory committees could be formed for specific clusters, thus community support would be built in. It would be difficult to draw up an advisory committee, for instance, in agriculture chemistry unless the center was large and centrally located. On the other hand, it is unlikely that the traditional high school, or even a smaller regional center, could offer such a specialized course.

Guidance, counseling, and placement would be more effective at an area training center. It is often a problem for the smaller high schools to obtain counselors who are versed in the technical and vocational fields. And, too, the demand in the comprehensive high school is for college-bound counseling and the vocationally-oriented youth is often slighted.

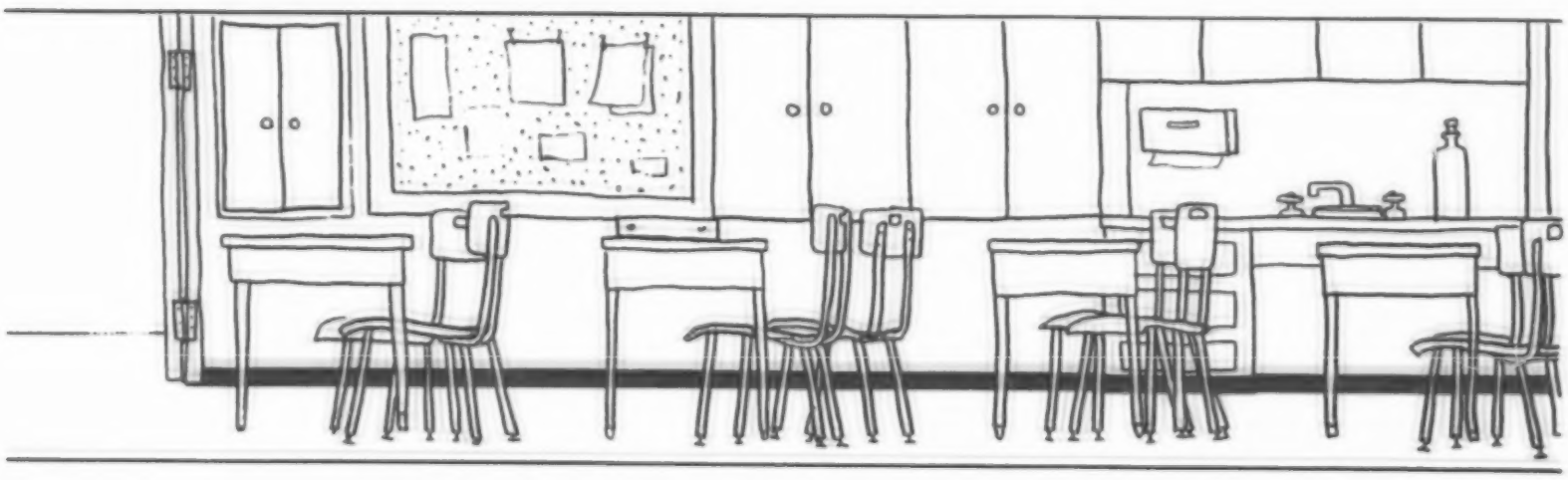
A placement service can be furnished at an area center. A person, or persons, can be given the tasks of finding jobs. Because he is connected with an area center, he is in contact with the industry that wants his graduates.

OCCUPATIONAL CHOICES CHANGE

Another factor that must be taken into consideration is the transitory nature of the secondary school student's occupational desires. Specific high school occupational training programs tend to force students into early career choices which they are not usually adequately prepared to make. This leads many students into frustration, failure, and waste of time.

Project Talent, a research project sponsored by the University of Pittsburgh School of Education, recently summarized what had happened to high school juniors of 1960 two years later (a year after they had been scheduled to graduate from high school). They found that only 27 percent of the high school junior year career choices of boys remained unchanged.

One of Project Talent's major goals is development of a comprehensive counseling guide which will indicate certain patterns of aptitude and ability on the basis of which predictions can be made of success in various careers. Studies years hence will be necessary before that can be developed in comprehensive fashion, but Project Talent researchers discovered from the material in this study that the patterns for certain occupation (electricians, carpenters, machinists, mechanics, sales clerks, clerical workers, draftsmen, military servicemen, service workers, and unskilled workers) could be reliably differentiated. It was even possible to differentiate between the aptitude and ability patterns of such closely related occupations as accountant and businessman. This was done by analyzing tests administered in the junior year of high school and comparing those records with groups found in the supplementary study to be working two years later in a particular occupation with the intention of remaining in that line of work.



CHAPTER VI — CURRICULUM DEVELOPMENT PROPOSAL

The development of a way to incorporate technical and vocational teaching into the school system is the key to the problem of equipping the younger population for a lifetime of productive work.

This is no easy problem—the solving of it requires a new look into the goals of education. We must use the contributions of educators from all segments; we must seek and accept the advice of the community; we must strive to blend this type of teaching into educational systems which are for the most part obsessed with the idea of university preparation.

If it is possible to broaden local school district curricula and incorporate the many suggestions in this report, then satisfaction from education for a large percentage of our citizens will accrue.

Psychology has shown that success and satisfaction give an individual the courage to continue to try. A broadened curriculum will lessen the proliferation of educational failures; a broader choice, especially in the field of practical application, will provide for opportunities for more people.

In Milwaukee, Wisconsin, figures tell a good story. This city has the most extensive program of secondary vocational education in the nation; and one of the highest rates of high school graduation. Ninety-four per cent of its students graduate from high school.

Isn't the goal of education still to make a better society—a society of individuals who are happy because they contribute to the society? Education has always been charged with giving to all who desire the skill and the knowledge necessary to make for themselves, their families, their neighbors a better life.

We mustn't shrug off those who aren't motivated towards the university. We should, rather, seek to challenge them, and to do this we must create an environment which not only allows, but encourages the setting of goals and greater output on their part.

Here then is a suggestion on how Lane County schools can develop a broadened technical-vocational curriculum without diminishing the effort placed on those students who wish university-type academic pursuits.

THE PROBLEM

The problem is to make students want to accept a general education and occupational education resulting in maximum individual development and preparation for work.

It is generally accepted that the best basis for occupational sufficiency and citizenship is for a student to become proficient in communication, skills, and ability to handle quantitive relationships, command of problem solving processes, etc. In essence then, the answer to all educational problems is to teach students to read and write and figure; easily said, but often not easily achieved.

It is imperative that the curriculum be made meaningful and purposeful to each student. Far too many students are now dropping out of school, or disinterestedly languishing in the secondary and post-secondary classrooms, simply because they have no self-satisfying alternative. It is necessary to make the reinforcement for successful behavior in school more immediate rather than a nebulous promise of a distant reward. The curriculum must give the student immediate satisfaction in terms of the present realities in his life situation. Only in this way can the school have meaning and purpose for all students.

Although the activities and concerns of men are by no means limited to a vocation, preparation for an occupation is a strong motive in the American culture. The problem is to more fully utilize the occupational desire of the individual to foster development for self-fulfillment and the maintenance of a robust society.

OBJECTIVES OF THIS CURRICULUM DEVELOPMENT PROPOSAL

The basis of this proposal is to gain the support necessary to develop more detailed plans for accomplishing the following objectives:

1. To form a Regional Vocational-Technical Curriculum Development Institute.
2. To develop and implement curriculum based on occupational opportunities.
3. To develop and implement curriculum based on an analysis of the required skills and knowledge needed for present and future occupations.
4. To develop vocational-technical curriculums that have meaning and purpose for students who are unmotivated or unsuccessful in present curriculums.
5. To utilize an interdisciplinary approach to technical-vocational curriculum development.
6. To implement, in demonstration schools, vocational-technical curriculums that have meaning and purpose for each student.
7. To utilize interdepartmental or interdisciplinary teams to instruct in the new vocational curriculum.
8. To combine the capabilities of educators with the resources of the community, business, industry, and parents for the development of optimum occupational learning.
9. To utilize a strong occupational motive in the American culture to furnish students motivation for learning.
10. To provide curriculums in which all students can find achievement and success, thus preparing them to seek and accept further learning.

PROCEDURES

Only a general outline of procedures will be developed here. There would appear to be a need for much more research, planning, and the careful selection of personnel before the project could begin. It is proposed that a principal investigator and appropriate assistants be engaged to complete the study of the needs, the methods, and to make the arrangements for the personnel necessary to proceed with a full-fledged technical-vocational curriculum development.

It should be emphasized at the outset that the Institute is designed as a cooperative undertaking in which secondary school-teachers and college specialists covering the spectrum of the secondary curriculum will work as equals, each person drawing on his specialized knowledge and experience so that the results will have a validity that could not otherwise be achieved.

More specific steps for the organization of the Regional Vocational Curriculum Development Institute and the achievement of the objectives listed are arranged below in an order similar to the order of the objectives.

1. The Institute could be guided by Oregon State Uni-

versity specialists from various subject areas with vocational emphasis. Participants in the Institute would be teachers on loan from their various local districts. This would be a format similar to "Project English" at the University of Oregon.

2. Occupational opportunity surveys have been completed by the Oregon State Employment Service and the U.S. Department of Labor. The Oregon State Employment Service and the Institute would need to cooperate closely.
3. An essential ingredient is the development of comprehensive, meaningful information about the vocations for which curricula are to be developed. This job information will be obtained through cooperation with the Oregon State Employment Service or by including labor market research specialists on the Institute staff.
4. Curricula and course content would be developed on the basis that there must be an obvious and close relationship between the course content and the realities of the students' life situation. It is further proposed that course content emphasize application which will provide tangible achievement and thus frequent reinforcement. The curriculum created should be based on the proposition that vocational-oriented content can serve as a vehicle for motivating students to learn related disciplines, in addition to student achievement of occupational competencies.
5. Since the requirements of present and future occupations do not fit the present educational departmentalization, it is proposed that teachers from various disciplines be used in the development of the vocational curricula. This would be an interdepartmental or team approach. An example might be a mathematics teacher, working with a shop teacher to provide coordination so that the mathematics being taught in the classroom would be the same mathematics the student would be using in the shop in completing a shop project. Another illustration might be the joint efforts of a shop and English teacher. The English teacher should be the best prepared to instruct the student in clear but concise communication needed for such shop related activities as the preparation of materials lists. Thus, specialists, each current in his discipline, would pool their capabilities to develop and maintain modern vocational-technical curricula.
6. Curriculum and course content is no better than the instructor who uses it. Instructors must be flexible enough to adapt the scope, sequence, and content to individual student needs. Some methods that might aid this adaptation to individual needs would be limited class size and the development of instructional aids for independent student use. The Institute could and should develop a broad spectrum of instructional aids.
7. Teachers developing the interdisciplinary vocational courses would return to their local districts to head teams implementing the courses in their schools. Although districts would agree in advance to allow the teachers to return to try the new approach to vocational courses, it would seem that it may be necessary to give the district some financial assistance for experimentation with the anticipated change in the assignment of teacher time. New materials and equipment may also be necessary and beyond the financial abilities of the local districts. Perhaps federal or foundation funds could be obtained for this purpose.
8. In addition to educators, the interdisciplinary approach could include specialists from the community at large. This has been attempted in the past by having individuals serve as resource speakers and through the use of advisory committees. Both of these methods could be expanded along with the expansion of such tried-and-true methods as field trips and cooperative work-experience programs. However, it is also proposed that community resource persons be used to advise in the planning of curricula.

   Expanded use of the community resources mentioned could become an overwhelming burden on the community, unless new methods are tried. Some suggested adaptations are the use of closed circuit television, video-tape television, and the conference telephone system. The adaptations could serve the function of field trips and resource speakers without normal limitations on the use of these resources.
9. Student motivation for learning could be greatly enhanced by keying curricula and course content to the students' normal desire to acquire skills and knowledge required to enter and progress in an occupation. This could be accomplished by starting with occupational opportunities and job analysis studies when devising curriculum and course content. Also, course content could be designed to appeal to student interests rather than "teacher knows best" determinants.
10. Student evaluation would depend less upon the labeling of students with letter grades, and more on the promotion of progressive performance leading to vocational competence. Competition would be against the individual student's past performance, with occupational competence as the principal goal.

    The evaluation procedures by which to judge the success of the innovations in vocational curriculum might be developed and directed by University of Oregon specialists in research and evaluation.

The seventeen Lane County School Districts, comprising the Lane County Intermediate Education District, would contribute teachers to the work of the Institute and open their classrooms to the experimental use of new curricular procedures and materials produced by the Institute. The Lane County Intermediate Education District includes 39 secondary schools. Lane County's total high school enrollment is approximately 14,000 students.

The Lane County high schools range from the smallest, with an enrollment of 59 students, to the largest, with an enrollment of approximately 1,800 students. These schools should furnish a sufficiently broad base for the demonstration work that would be undertaken.

Lane County has a labor force of approximately 72,000 persons. This makes it the second largest labor market in the state and the fifth largest in the Pacific Northwest. The county's basic employment is concentrated in agriculture, wood and food products, transportation, wholesale trade, and educational services. These provide an economic base for the area by exporting a large part of their business services to markets outside Lane County. Other industries primarily serve either these basic producers or the market created by the area's own population.

APPENDIX A

GLOSSARY OF TERMS

GLOSSARY OF TERMS USED IN TECHNICAL-VOCATIONAL EDUCATION

(Adapted from publication "Definitions"
Published by American Vocational Association, Inc.
Washington, D.C.)

ADULT VOCATIONAL EDUCATION—Instruction offered day or evening to adults or out-of-school youth over 16 years of age who are engaged in or are preparing to enter an occupation. Vocational education for adults is chiefly of an upgrading and updating nature, offered on a part-time basis, or of a retraining nature for persons displaced by automation or technological changes.

ADVISORY COMMITTEE—A group of persons, usually outside the educational profession, selected for the purpose of offering advice and counsel to the school regarding the vocational program. Members are representatives of the people who are interested in the activities with which the vocational program is concerned.

APPLIED ART—An area of study dealing with the principles of art as related to the planning, designing, manufacturing, or arrangement of such commodities as clothing, shelter, household furniture, and equipment

APPRENTICE TRAINING—An organized system for providing young people with the manipulative skills and technical or theoretical knowledge needed for competent performance in skilled occupations. The program usually involves cooperation among school, labor, and management, since apprentices learn the skills of the craftsman through on-the-job work experiences and the related information in the classroom. The minimum terms and conditions of apprenticeship are regulated by state and local statutes or agreements.

AREA VOCATIONAL SCHOOL OR PROGRAM—A school or program involving a large geographical territory usually including more than one local basic administrative unit. It offers specialized training to high school students, who are preparing to enter the labor market. It also provides vocational or technical education to persons who have completed or left high school and are available for full-time study. These schools are sponsored and operated by local communities or by the state.

AVOCATIONAL INTERESTS—Those pursuits or hobbies which are distinct from the regular work or occupation of the individual and which are followed for recreational purposes.

BUSINESS EDUCATION—A program of instruction which consists of two parts: (a) office education, a grading education leading to employability and advancement in office occupations, and (b) general business education, a program to provide students with information and competencies which are needed by all in managing personal business affairs and in using the services of the business world.

COMMUNITY COLLEGE—A junior college operated by the board of education of a local basic administrative unit (including the independent local board for one or more community colleges.) Instruction is adapted in content, level, and schedule to the needs of the local community.

COURSE OF STUDY—An inclusive outline of the objectives, experiences, skills, projects, demonstrations, related information, and methods involved in teaching a school subject, covering a specified period of time.

CURRICULUM—The series of courses designed to cover the instruction in a designated field. It may refer also to the whole body of courses offered in an educational institution.

DISTRIBUTIVE EDUCATION—A program of instruction in marketing, merchandising, and management. The program is concerned with training needed for purposes of updating, upgrading, career development, and operational management.

DISTRIBUTIVE OCCUPATIONS—Those occupations followed by proprietors, managers, or employees engaged primarily in marketing or merchandising of goods or services. Such occupations are found in various business establishments, including, without being limited to, retailing, wholesaling, manufacturing, storing, transporting, financing, and risk bearing.

EVALUATION—A term used in education indicating the procedure for determining the effectiveness of instruction.

EXPLORATORY COURSES—School subjects designed to provide the student with a broad, general, over-all view of the knowledges and skills involved in a field of learning or an occupation. Courses which provide students with exploratory and introductory experiences in a wide range of occupations serve as aid in choosing a vocation.

GENERAL INDUSTRIAL COURSE—A class organized to give specific preparation for an occupation in a group where shop instruction in several closely allied trades is conducted simultaneously. Courses may be organized to give preparation for one or more production jobs that do not fall into the trade classification.

GUIDANCE, VOCATIONAL—The process of assisting individuals to understand their capabilities and interest, to choose a suitable vocation, and to prepare for, enter, and make successful progress in it.

HOME ECONOMICS—The term used to designate the discipline at the college level which prepares students for such professional fields as: home economics teaching, dietetics, cooperative extension, social welfare, public health, institution administration, research.

HOME ECONOMICS EDUCATION—A program of instruction which is planned for the purpose of assisting youth and adults to understand and solve problems in home and family living and/or to prepare for employment and upgrading in occupations involving knowledge and skills in home economics subjects. Subject-matter areas include: Child development; family relationships; food and nutrition; clothing and textiles; family economics and home management; housing, home, furnishings, and equipment; and, family health.

HOMEMAKING EDUCATION—A term frequently used to designate secondary and adult programs which have as their goal education for home and family living. (see home economics education)

INDUSTRIAL ART—Application of the principles of design to the planning and production of manufactured products.

INDUSTRIAL ARTS EDUCATION—Instructional shopwork of a non-vocational type which provides general educational experiences centered around the industrial and technical aspects of life today and offers orientation in the areas of appreciation, production, consumption, and recreation through actual experiences with materials and goods. It also serves as exploratory experiences which are helpful in the choice of a vocation.

INDUSTRIAL EDUCATION—A generic term applying to all types of education related to industry, including industrial arts education, vocational industrial education (trade and industrial education), and much technical education.

JOB ANALYSIS—A detailed listing of duties, operations, and skills necessary to perform a clearly defined, specific job, organized into a logical sequence which may be used for teaching, employment, or classification purposes.

OCCUPATIONAL INFORMATION—Systematically organized data used by guidance personnel for the purpose of helping persons make a vocational choice. Material concerns the nature of the work, duties, responsibilities, and compensations involved in the several vocations, including information about employment outlook, promotional opportunities, and entrance requirements.

OFFICE EDUCATION—A vocational education program for office careers through initial, refresher, and upgrading education leading to employability and advancement in office occupations.

OFFICE EDUCATION CURRICULA—A series of related and required courses leading to vocational competency in a specific occupational category which is taken in addition to the required subject matter taken by all students. Typical occupational curricula include: (a) stenographic, typing, filing, and related occupations, (b) computing and accounting occupations, (c) material and production and recording occupations, (d) information and message distribution occupations, (e) accounting, auditing, budget, and management analyst occupations, (f) personnel and training administrative occupations, (g) administrative specialization occupations, (h) miscellaneous clerical occupations, (i) supervisor office position occupations, (j) management office facilitation function, (k) data processing occupations.

OFFICE OCCUPATIONS—Those activities—performed by individuals in public and/or private enterprises—which are relataed to the facilitating function of the office. They include such items as recording and retrieval of data, supervision and coordination of office activities, communication, and reporting of information regardless of the social, economic or governmental organization in which they are found. The "Dictionary of Occupation Titles" provides a source of information concerning the nature of office occupations.

ON-THE-JOB TRAINING—Instruction in the performance of a job given to an employed worker by the employer during the usual working hours of the occupation. Usually the minimum or beginning wage is paid.

PRACTICAL NURSE EDUCATION—A program offering training in approved schools and leading to licensure as a practical or vocational nurse. The trainee is being prepared to (a) give direct nursing care to patients whose health situation is relatively stable, (b) assist qualified professional nurses in caring for patients whose health situation is more complex. The minimum requirements are set by the state board for vocational education while it is accredited by the profession for meeting desirable standards and licensed by the state in order to protect society from malpractice and incompetent individuals.

PRIVATE VOCATIONAL SCHOOL—A school established and operated by an agency other than the state or its subdivisions, and supported by other than public funds, which has as its purpose the preparation of students for entrance into or progress in trades or other skilled occupations.

PROJECT—An article, activity, investigation, or problem chosen by or assigned to a student. The student is assisted by the teacher in its planning and completion.

PUBLIC VOCATIONAL SCHOOL—A secondary school under public supervision and control and supported by public funds which provides instruction that will enable high school youth and adults to prepare for, enter, and make progress in a skilled trade or occupation of their choice.

SKILLED MECHANIC—One competent to perform, with a high degree of expertness, the work in one or more specialized divisions of a given trade.

SKILLED OPERATOR—One competent to perform efficiently and expertly one or more kinds of repetitive production or single purpose jobs on machines or other special equipment demanding manual dexterity.

SURVEY, COMMUNITY—A fact-finding study of socio-economic conditions and resources, community agencies, industries, business, farming, institutional practices, problems and practices of families, etc., as they exist at a given time in a given community. It is used by the school as a guide in revising school offerings to meet local needs.

SURVEY, OCCUPATIONAL—An investigation and evaluation to gather pertinent information about a single industry or the occupations of an area to determine the need for training, the prevalent practices, the labor supply and turnover, for the purpose of maintaining the vocational program at a realistic level.

SURVEY, VOCATIONAL EDUCATION—A study to obtain necessary information as a basis for the proper development of programs of vocational education. It serves to identify the needs for vocational training, recommend suitable types of classes, assist in the development of new instructional processes, and evaluate the results of work already done.

TECHNICAL EDUCATION—Education to earn a living in an occupation in which success is dependent largely upon technical information and understanding of the laws of science and principles of technology as applied to modern design, production, distribution and service.

TECHNICIAN (INDUSTRIAL)—A worker on a level between the skilled tradesman and the professional scientist or engineer. His technical knowledge permits him to assume some duties formerly assigned to the graduate engineer or scientist. For example, technicians may design a mechanism, compute the cost, write the specifications, organize the production, and test the finished product. There are technicians in other occupational fields.

TERMINAL COURSE—One which completes the subject matter of a specific area with employment as the immediate objective.

TRADE AND INDUSTRIAL EDUCATION — Instruction which is planned to develop basic manipulative skills, safety judgment, technical knowledge, and related occupational information for the purpose of fitting persons for initial employment in industrial occupations and upgrading or retraining workers employed in industry.

UNIT OF INSTRUCTION—The smallest division of instruction for which a full lesson is taught. A single operation in a trade may constitute a unit of instruction.

VOCATIONAL CURRICULUM—A carefully selected group of courses or a sequence of subjects the content of which will provide the necessary skill and knowledge for success in a specific occupation.

VOCATIONAL EDUCATION—"Vocational or technical training or retraining which is given in schools or classes (including field or laboratory work incidental thereto) under public supervision and control or under contract with a state board or local educational agency, and is conducted as part of a program designed to fit individuals for gainful employment as semi-skilled or skilled workers or technicians in recognized occupations (including any program designed to fit individuals for gainful employment which may be assisted by federal funds under the Vocational Education Act of 1946 and supplementary vocational education acts, but excluding any program to fit individuals for employment in occupations which the Commissioner determines, and specifies in regulations, to be generally considered professional or as requiring a baccalaureate or higher degree). Such term includes vocational guidance and counseling in connection with such training, instruction related to the occupation for which the student is being trained or necessary for him to benefit from such training, the training of persons engaged as, or preparing to become, vocational education teacers, teacher-trainers, supervisors, and directors for such training, travel of students and vocational education personnel, and the acquisition and maintenance and repair of instructional supplies, teaching aids and equipment, but does not include the construction or initial equipment of buildings or the acquisition or rental of land." As defined in Public Law 88-210.

VOCATIONAL EDUCATION ACT OF 1963—Enacted "to authorize federal grants to states to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the states—those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps—will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training." As defined in Public Law 88-210.

VOCATIONAL SCHOOL—A school which is organized separately under a principal or director for the purpose of offering training in one or more skilled or semi-skilled trades or occupations. It is designed to meet the needs of high school students preparing for employment and to provide upgrading or extension courses for those who are employed.

VOCATIONAL SUBJECT—Any school subject designed to develop specific skills, knowledges, and information which enable the learner to prepare for or to be more efficient in his chosen trade or occupation.

WORK EXPERIENCE—Employment undertaken by a student while attending school. The job may be de-

signed to provide practical experience of a general character in the work-a-day world.

WORK EXPERIENCE EDUCATION (OCCUPATIONAL EXPERIENCE)—Employment undertaken as part of the requirements of a school course and designed to provide planned experiences, in the chosen occupation, which are supervised by a teacher-coordinator and the employer.

NEIGHBORHOOD YOUTH CORPS

WORK STUDY PROGRAM—Administered by the local educational agency and made reasonably available (to the extent of available funds) to all eligible youths in the area served by such agency. Employment under the program may be for the local educational agency or some other public agency or institution and will be furnished only to students who (a) have been accepted for enrollment as full-time students in an approved vocational education program, (b) need earnings to continue their vocational education, and (c) are at least 15 and less than 21 years of age. No student shall be employed under the program more than 15 hours in any class week or paid more than $45 in any month or $350 in any academic year, except in special cases.

APPENDIX B

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APPENDIX C

METHODOLOGY, INVENTORY AND EVALUATION

INVENTORY PHASE

TABLE 14

SCOPE AND ENROLLMENT

Title of Course	Enrollment	Number of Schools
AGRICULTURE (1A)		
Agriculture I	83	4
Agriculture II	85	4
Agriculture III	35	3
Forestry	15	1
Basic Agriculture	24	1
Production Agriculture	13	1
Advanced Agriculture	8	1
Non-Farm Agri. Occup.	13	1
ART (1B)		
Art I	1193	23
Art II	528	16
Art III	286	12
Art IV & V	37	2
Design		
Ceramics	159	1
Photography I	20	1
Crafts III	45	2
Crafts I	266	5
Crafts II	292	5
Arts & Crafts	860	19
Handicrafts	15	1
BUSINESS EDUCATION COURSES (1C)		
Personal Typing	215	3
Typing I	3045	26
Typing II	788	17
Shorthand & Briefhand	555	17
Shorthand II	47	3
Stenography	223	5
Business English	42	2
Business Machines	180	7
Bookkeeping I	824	19
Bookkeeping II	120	2
Accounting	84	2
General Business	283	7
Office Practice I	120	5
Data Processing	89	1
Secretary Practice	93	3
Business Law	258	8
Business Economics	104	4
Bank Business	38	1
Library Training	52	1
Consumer Math	222	5
DISTRIBUTIVE EDUCATION COURSES (1D)		
Distributive Education I	98	2
Retail Selling	172	2
INDUSTRIAL ARTS (1E)		
Drafting I	505	16
Drafting II	70	6
Woodshop I	592	16
Woodshop II	841	22
Metals I	447	6
Power Mechanics	164	5
Basic Industries	27	2
General Shop I	553	6
Shop Skills	212	4
Junior High Industrial Arts	655	12
Industrial Plastic	16	1
TRADE AND INDUSTRY COURSES (1F)		
Woodshop III	323	14
Boat Building	7	1
Carpentry	64	4
General Metals II	76	2
General Metals III	29	2
Technical Drafting	375	5
Architectural Drafting	130	5
Engineering Drafting	58	4
Electronics	72	4
Mechanical Drafting	38	1
Drafting III	13	1
Furniture Const.	33	2
Maintenance (Shop)	2	1
HOME ECONOMICS (1G)		
Home Economics I	128	5
Home Economics II	208	6
Home Economics III	102	4
Homemaking I	769	18
Homemaking II	850	18
Homemaking III	672	15
Senior Homemaking	38	3
Family Living	59	2
Home Furnishings	19	1
Homemaking IV	131	4
Home Nursing	13	1
Jr. High Home Ec.	718	17
Home Management	35	2
Foods II	39	1
Clothes II	47	1
Clothes III	50	1

TABLE 15

EQUIPMENT INVENTORY

Considerable time and discussion was devoted to the areas of existing equipment inventories and facilities. It was concluded that if we were to attempt to analyze our present program in the light of adequacy and directions, we not only needed to know what we are teaching but also what equipment and facilities we had to work with.

Each Principal was visited and inventory sheets were distributed and procedures for conducting the inventory discussed. Information gathered in the equipment and facility portion of the Inventory Phase is presented in Tables 15 and Tables 16.

AUTOMOTIVE TEST EQUIPMENT	Number of Schools Reporting	Quantity on Hand
a. Dyna Vision	1	2
b. Electrical system	3	4
c. Fuel system	1	1
d. Generator & starter	1	3
e. Battery		1
f. Motor analyzer	2	4
g. Small Engine Handkit	1	10
h. Timing Light	1	1
i. Dwell Tach.	2	2
j. Vacuum Indicator	2	2
k. Compression Gauge	2	2
Kits Automotive Handtools	4	29
Kits Body & Fender Handtools	3	2
Tap & Die Sets	11	23
Jacks (Hydraulic)	4	14
Jacks (Mechanical)	1	1
Benches w/vise	7	80
Test Benches	1	4

AUTOMOTIVE TEST EQUIPMENT (continued)

	Number of Schools Reporting	Quantity on Hand
Creepers	4	31
Stands	2	34
Porta-powers		5
Spray paint equipment	6	10
Forge	3	4
Foundry	1	3
Heat furnace	1	1
Testers (metal)	2	2
Electric saw (portable)	4	5
a. ¼"	3	3
b. ½"	2	2
c. ⅜"	3	2
d. Larger		
Buffers (electric portable)	3	4
Air Wrench		
Electric Wrench		1
Air Compressors	6	10
Steam Cleaners	1	3

TRADE AND INDUSTRY

Metals—Equipment

	Number of Schools Reporting	Quantity on Hand
Welders (Arc)	9	55
Spot Welders	3	10
Welding Equip. (Acet.)	8	54
Drill Presses (Bench)	6	21
Grinders (Bench)	12	45
Metal Lathes (Bench)	3	10
Presses (Bench)	3	6
Milling Machines (Bench)	3	9
Valve Grinders	3	6
Brake Drum Lathes	1	121
Metal Lathes	6	36
Drill Presses	11	35
Metal Shapers	3	12
Metal Sanders	1	4
Metal Saws (Band)	4	11
Metal Saws (Oscillating)	3	5
Shears (Electric or hydraulic)		1
Shears (Manual)	6	23
Metal Buffers (Bench)	3	16
Metal Polishers (Portable)	2	6
Sheet Metal Rolls	5	5
a. Slip Rolls		2
b. Metal Bender	2	2
c. Bar Folder	1	1
d. Floor Grinder	2	2
Sheet Metal Brakes		
a. Pan Brake	6	12
b. Box Brake		2
c. 24" Brake	1	1
d. Rotary Machine	1	1
e. Stake Set	1	1
Buffer Floor	1	1

Woods—Equipment

	Number of Schools Reporting	Quantity on Hand
Table Saws	21	35
Radial Saws	16	19
Jig Saws	19	28
Band Saws (small)	12	16
Band Saws (large)	10	12
Portable Saws		
a. Circular	10	17
b. Saber	13	16
Sanders (belt)	16	26
Sanders (Disc)	14	21
Sanders (Portable)	14	44
Sanders (Spindle)	3	6
Lathes w/tools	20	79
Joiners (small)	13	21
Joiners (large)	9	17
Planers (size)	12	34
Shapers & Formers	9	9
Milling Machines	1	
Steaming tubs	2	1
Drying Ovens		
Kits, Hand Tools (Wood)	17	135
Kits, Hand Tools (Crafts)	7	73
Kits, Hand Tools (Mechanical)	3	21
Blow Torches	3	3
Torches (Propane)	5	11
Polishers & Buffers	9	74
Benches w/vise	17	174
Drill Press	12	12
Hand Drill	2	1
Grinder	4	11
Paint & Sprayer	2	8
Dust Control Unit	1	1
Compressor & Gun	1	1

Plastics—Equipment

	Number of Schools Reporting	Quantity on Hand
Laminating Press (small)	2	2
Laminating Press (large)		
Band Saw (small)	1	4
Band Saw (large)	1	1
Drill Press (small)	2	4
Drill Press (large)	2	2
Spindle Sanders	1	1
Band Sanders		
Disc Sanders	1	2
Portable Sanders	1	5
Turning Lathes	2	8
Heat Furnace	2	5
Press (small)		1
Press (large)		
Jig Saw	3	4
Buffers & Polishers (portable)	2	3
Saws (Saber)	1	3
Saws (Skill)	1	2
Drills, portable	1	
¼"	5	2
½"		3
Other	3	
Grinders (Bench)	1	8
Grinders (Portable)		
Kits, Hand Tools		12
Propane Torch	1	4
Gasoline Torch		
Air Compressor	1	4

Electronics—Equipment

	Number of Schools Reporting	Quantity on Hand
Power Supply	2	19
Square Line Generator	1	27
6-12V Power Supply	1	7
D-35V Power Supply	1	6
K & K V.O.D.	2	25
Transistor Power		10
Kits, Hand Tools	2	37
Soldering guns	6	36
Drills (portable)	3	7

	Number of Schools Reporting	Quantity on Hand
Electronics (continued)		
Simpson Scopes	1	27
Crow-Motor-Trainer	1	1
Work Bench w/vise	3	8
Benches (Test)	1	16
Benches (Assembly)	1	2
Vocational Agriculture & Forestry Equipment		
Welders (Gas)	5	11
Welders (Arc)	5	22
Kits, Hand Tools (Mechanical)	4	11
Kits, Soil Testing	6	11
Kits, Tools (Hand tilling)	1	1
Incubators	1	1
Forge	2	3
Blacksmith Tools	4	71
Electrical Portable	1	
Drills	4	10
Saws	6	22
Grinders	6	10
Sanders	3	4
Polishers & Buffers		2
Gasoline Portable		
Tillers	3	
Saws	1	3
Diggers (Post Hole)	2	2
Plows	2	2
Cultivators	1	3
Drills, Seed	2	1
Disc-harrow	1	2
Planters	1	1
Combines or Harvester		1
Vehicles		
Increment Borers		2
Diameter Tapes		6
Surveyors' Transits	3	9
Tree Spray Guns		2
Hand levels	4	15
Kits (asstd.) Hand Tools	1	7
Fire Fighting Pumps		
Greenhouse	2	4
Land for Planting Lab acres	3	10
Homemaking Equipment		
Cooking Units (Sink, range, refrigerator, work space)	15	143
Sewing Units	14	275
Freezer	7	14
Washer & Dryer	13	71
Ironing & Pressing units	16	67
Tailoring Equipment		
a. Tailoring Hams	8	21
b. Sausage	1	9
c. Point Pressor	4	10
d. Pounding Block	3	6
Serving Units		
Silver	4	111
China	2	99
Graphic Arts Equipment		
Drafting Tables	7	235
Drafting Kits (Includes T-squares, triangles, instruments, etc.)	8	702
Pantagraphs	2	3
Dry Print Machine	3	7
Blue Print Machine		

	Number of Schools Reporting	Quantity on Hand
Glass Copy Tables	2	3
Drawing tables	4	211
Kilns	11	27
Printing Press		
Paper Cutters	12	27
Silk Screen Equipment	9	74
Poster Sho-card Press		
Potter's Wheel	6	12
Clay Drying Slabs	6	15
Rock Saws	3	4
Rock Tumblers	2	4
Rock Buffers & Polishers	4	6
Propane Torch	4	10
Gas Torch	1	5
Enamel Furnace	6	44
Kits, Asst. Craft Tools (Leather)	7	103
Kits, Asst. Craft Tools (Metal)	5	181
Kits, Asst. Craft Tools (Sculpture)	6	77
Enlargers (small)	5	25
Enlargers (large)	3	5
Photo Printers	4	7
Photo Dryers (Rotary)		
Photo Dryers (Manual)	5	8
Sets Developing Trays (Printing)	5	17
Sets Film Drying Racks	2	12
Sets Developing Trays (Film)	4	17
Distributive Education Equipment		
Shelf Display Units		1
Window Display Units	1	2
Show Card Press	1	1
Bin & Table Display Units	1	4
File Cabinets	2	6
Adding Machines	1	5
Cash Registers	1	2
Typewriters (manual)	2	15
Typewriters (electric)	1	3
Fluid Duplicators	1	1
Drawing Tables	1	3
Calculator	2	1
Commercial Education—Equipment		
Typewriters (Manual)	14	1012
Typewriters (Electric)	14	155
Calculators (Manual)		
Calculators (Electric)	1	7
Adding Machines (Manual)	2	11
Adding Machines (Electric)	12	54
Posting Machines		
Fluid Duplicators	13	14
Mimeo Duplicators	9	111
Multilith Machine	1	
Dictating & Transcribing Units	6	18
Tape Records	9	19

TABLE 16

FACILITY SURVEY

PHYSICAL PLANT

Facility	Ave. Pupil Stations	No. of Schools Reprtg.	Laboratory 1000-1500 Sq. Ft.	Laboratory 1500-2000 Sq. Ft.	Laboratory Over 2000
TRADE & INDUSTRIAL					
Metals	5	24	2	7	
Woods	11	24	2	19	
Mechanics	2		2	1	
Electronics	1		2	1	
VOCATIONAL AGRICULTURE AND FORESTRY					
Ag. Shop	15	4	3	1	
Forestry	15	1			
Greenhouse	10	1			
Experimental Land Plot		1			
COMMERCIAL EDUCATION					
Typing	33	20	2	1	
Typing II	30	4	2		
Business Machines	5	5			
Shorthand	20	6	1		
Stenography	20	2			
Bookkeeping	24	8	1		
Business Law	20	3			
Office Education		3			
Economics		1			
DISTRIBUTIVE EDUCATION					
Retail Selling	24	2	2		
Distributive Education	24	2	2		
HOMEMAKING					
Foods	15	11	4	2	
Sewing	15	10	5	1	
Serving	6	7	1		
GRAPHIC ARTS					
Drafting	24	7	1	3	
Art	24	10	4	4	
Crafts	24	7	4	3	
Ceramics	22	2		1	
Photography	6	3			

EVALUATION PHASE

EVALUATION TABULATIONS

The following tables are the result of the series of evaluative studies conducted on the secondary level in the Lane County Technical-Vocational Survey.

A modification of the National Evaluative Criteria was used in the areas of agriculture, arts and crafts, business education, distributive education, industrial arts, technical vocational subjects, home economics and guidance.

TABLE 17-1 — BASIC PUPIL DATA ENROLLMENT TABLE

No. of Schools Reporting—16

Grade	1961-62	1962-63	1963-64	1964-65
12	1738	1780	2484	2252
11	1890	2200	2571	2481
10	2181	3324	3096	3047
9	2828	2795	2996	4184
8	2698	2772	2985	3720
7	2671	2906	3199	3744

TABLE 17-2 — MENTAL ABILITY (ITED TEST 8 COMPOSITE)

No. of Schools Reporting—18

Range Percentiles	9	10	11	12
Over 94	128	96	89	97
85-94	140	144	96	108
70-84	192	278	207	172
31-69	347	520	440	305
16-30	87	160	103	83
6-15 and below	81	104	96	75

TABLE 17-3 — AGRICULTURE

No. of Lane County schools offering classes in agriculture—4
No. of students enrolled in agriculture—317

Sections	Number of Schools Poor	Average	Good
Instructional Media & Materials	1	3	
Instructional Facilities	2	2	
Staff	1	3	
Instructional Activities		4	
Instructional Materials	2	2	

TABLE 17-4 — ARTS & CRAFTS

Number of Lane County Schools offering courses in Arts & Crafts—18
Number of Students enrolled in Arts & Crafts—2,780

Sections	Number of Schools Poor	Average	Good
Instructional Media & Materials	5	13	
Physical Facilities	9	9	
Staff	3	14	1
Instructional Activities	7	11	
Instructional Materials	6	12	

TABLE 17-5 — BUSINESS EDUCATION

Number of Lane County schools offering courses in Business Education—19
Number of students enrolled in Business Education Courses—5,417

Sections	Number of Schools Poor	Average	Good
Instructional Media & Materials	8	11	
Physical Facilities	1	18	
Staff	1	16	2
Instructional Activities	4	15	
Instructional Materials	4	15	

TABLE 17-6 — DISTRIBUTIVE EDUCATION

Number of schools offering courses in Distributive Education—4
Number of students enrolled in Distributive Education courses 98

Sections	Number of Schools Poor	Average	Good
Instructional Media & Materials	1	1	
Physical Facilities	1	1	
Staff		2	
Instructional Activities	1	1	
Instructional Materials	1		1

TABLE 17-7 — INDUSTRIAL ARTS

No. of schools in Lane County offering Industrial Arts program —20
No. of students enrolled in Industrial Arts courses—2232

Sections	Number of Schools Poor	Average	Good
Instructional Media & Materials	3	17	
Physical Facilities	5	15	
Staff	2	17	1
Instructional Activities	5	15	
Instructional Materials	6	13	1

TABLE 17-8 — TECHNICAL & VOCATIONAL

No. of Lane County Schools offering Extensive Technical & Vocational courses—1

Sections	Number of Schools Poor	Average	Good
Characteristics of Program		1	
Part Time Cooperative Program			
Scope of Program			
General Information		1	
Outline of Program		1	
Physical Facilities		1	
Summary of Physical Facility Survey		1	
Staff			
a. General		1	
b. Coordinators		1	
c. Staff summary		1	
Instructional Activities		1	
Instructional Materials	1		

TABLE 17-9 — GUIDANCE

No. of Schools offering organized Guidance services—20

Sections	Number of Schools Poor	Average	Good
Organization of Program	4	15	1
Staff (counseling)	4	15	1
Staff Participation (teaching)	4	16	
Student Records	7	13	
Student Information	2	17	1
Personal Data	5	15	
Vocational Guidance	5	14	
Placement Services	6	10	
Counseling Services	3	16	1
Specific Practices	4	13	1

TABLE 17-10 — HOME ECONOMICS

No. of Schools in Lane County offering Home Economics courses —19

No. of students enrolled in Home Economics courses—2,041

Sections	Number of Schools Poor	Average	Good
Scope of the Program	5	6	
Instructional Media & Materials	1	18	
Physical Facilities	3	15	
Staff	2	17	
Instructional Activities	2	17	
Instructional Materials	4	15	

TABLE 17-11 — DEPARTMENT SUMMARY

Departments	Number of Schools Poor	Average	Good
I Agriculture	1	3	
II Arts & Crafts	4	14	
III Business Education	3	16	
IV Distributive Education	1	3	
V Industrial Arts	5	15	
VI Technical-Vocational		1	
VII Guidance	4	16	
VIII Home Economics	1	18	

APPENDIX D

HOW TO TEACH SKILLS ESSENTIAL TO WORK IN THE TIMBER INDUSTRY

Note: One of the most specific recommendations of this report is that all high schools should teach courses related to employment in Lane County's primary industry—timber harvesting and processing. Therefore, here is the result of considerable research compiled into a suggested course of study, along with a program outline for a basic course.

TABLE 18

CLUSTER ANALYSIS FOR TIMBER PRODUCTS INDUSTRY

Assignment of Responsibility for Education Courses Compatible With Occupations in "The Timber Products Cluster of Occupations"

COURSE UNITS	Jr. High	Senior High Lge.	Senior High Med.	Senior High Sml.	Com. Coll.
General Education	x	x	x	x	
Orientation for Career	x	x	x	x	
General Science and Conservation*	x	x	x	x	
Shop Skills*	x	x	x	x	
Tool Care and Maintenance	x	x	x	x	x
Mathematics Skills and Basic Economics	x	x	x	x	
Marketing and Economics		x	x	x	x
Biology and/or Botany	x	x	x	x	x
Wood Uses and Wood Fabrication	x	x	x	x	x
Drafting and Map Reading	x	x	x	x	x
Communication Skills	x	x	x	x	x
General Forestry		x			x
Use and Care of Power Equipment	x	x	x	x	x
Basic Electricity	x	x	x	x	x
Maintenance and Care of Commercial Vehicles					x
Metals	x	x			x
Metal Fabrication and Processing					x
Metallurgy					x
Tree Identification	x	x	x	x	x
Work Laboratory Type Activities					
A. Safety		x	x		
B. Firefighting Skills		x	x		
C. Stand Improvement		x	x		
D. Reforestation		x	x		
E. Road Construction		x	x		
F. Harvesting Process		x			x
Plastics and Finishing Agents		x	x	x	x
Forestry Drafting					x
Forest Products and Uses		x	x	x	x
Silvicultural Practices					x
Industrial Economics		x	x	x	x
Forest Field Operations		x			x
Forest Measurement					x
Logging Planning					x

*Since the teaching of attitudes, responsibilities and work dynamcs is an essential part of this program, it is strongly urged that work laboratory programs be incorporated into the educational program at a relatively early level.

A SUGGESTED PROGRAM OF STUDIES IN TIMBER HARVESTING AND PROCESSING OCCUPATIONAL SKILLS

Grades 9, 10, 11, 12

GOALS AND OBJECTIVES OF THIS PROGRAM:

1. Create academic and work experiences in the program that will lead to employment and success for the individual in the forest products industries.
2. Teach safety and care of equipment and personal property.
3. To teach how to prepare for the job and develop responsibility for care of personal property on the job.
4. To develop sufficient skill and understanding to read and understand the material that must be understood in order to perform as a member of our labor force.
5. Teach responsibility to:
   a. Himself
   b. His group
   c. His leader
   d. His class
6. To teach the student how to:
   a. Plan work
   b. Plan his personal economy and spending
   c. Coordinate work with others
   d. Respond to "work cues" from foreman or other leaders
7. To develop a future citizen worthy of a place in a democratic society such as ours, with a basic understanding of an economy and factors affecting economic growth.
8. To encourage the student to pursue education to develop technical skills in orlder to obtain better jobs.
9. To create interest in the world around us, to understand nature and natural resources.
10. To place our graduates in jobs in the local labor market—"forest products industry," and to evaluate their

SUGGESTED CONTENT OF EDUCATIONAL COURSE OFFERINGS FOR THE JUNIOR AND SENIOR HIGH SCHOOLS TO DEVELOP SKILLS NECESSARY FOR ENTRY INTO THE TIMBER PRODUCTS INDUSTRY

1—Shop Skills:

A. Hand tools, identification, care and proper use
B. Basic operations using hand tools
C. Project planning, layout and construction
D. Finishing materials and their use
E. Identification, grading and proper use of
   1. Wood Products
      a. "Hard wood" lumber
      b. Various "soft wood" lumber
      c. Plywoods and veneers
      d. Particle and chip boards
      e. Pressed boards
      f. Laminated woods
   2. Metals
      a. Fastening devices
      b. Structural materials
      c. Fabrication and construction
   3. Plastics and Resins
      a. Adhesives
      b. Finishes and surfacing materials
      c. Reinforcing and coating resins
      d. Structural plastics
      e. Decoration and trim
   4. Sharpening devices, abrasives and finishing papers
   5. Identification and instruction in proper use of lubricants and anti-friction agents in operation of tools and equipment
F. Introduction and instruction in care and use of portable power equipment
   1. Electric saws, sanders, drills, etc.
   2. Air driven tools
   3. Hydraulic tools
G. Introduction and orientation in care and use of stationary, heavy duty power tools
H. Projects to gain practice and proficiency in use of media, materials, and equipment
I. Introduction to layout, plans and general drafting
J. Introduction to principles of electricity and magnetism

2—WOOD USES AND FABRICATION

A. Instruction in kinds of woods—identification and grading
B. Introduction to wood products and uses
C. Instruction in basic hand tools and portable power tools
D. Instruction in structural carpentry
F. Instruction in sheeting
G. Instruction in roofing
H. Instruction in carpentry and cabinet making

3—METALS AND METALS FABRICATION

A. Basic instruction in processing of iron ore
B. Basic instruction in pattern layout—measurements
C. Instruction and practice in cutting of metal—folding and forming
D. Instruction and practice in filing and piercing—drilling, tapping, seams
E. Instruction and practice in fabrication and conduit work
F. Instruction and practice in riveting and finishing
G. Instruction and practice in tubing and pipe—threading and installation—plumbing
H. Instruction and practice in welding and machine tools

4—PLASTICS AND FINISHING MATERIALS

A. Instruction in related information
B. Instruction in cutting plastics
C. Instruction in laminating plastics
D. Instruction in finishing plastics
E. Instruction in cementing plastics
F. Instruction in clear seams
G. Instruction in structural plastics, synthetic finishing agents

5—BASIC ELECTRICITY

A. Principles of electricity
B. Dry cell battery
C. Direct current and magnetism
D. AC-DC generators and transformers
E. Simple electrical repairs
F. Electric motors
G. Electrical layout and installation—Ohms law
H. Basic electronics
I. Series and parallel circuits

6—DRAFTING AND BLUE PRINT READING

The student should acquire ability to read and make working drawings. He should acquire basic knowledge of various fields where mechanical drawing is used, and ability to make three-view drawings to scale with full dimensions, with accuracy and acceptable drawing techniques.

Students make working drawings of advanced projects including sketches and tracings. They design and make assembly and detail drawings of small machines, articles of furniture, house plans, or other industrial products, and use tables, handbooks, and standard reference material.

Emphasis is given to the development of the ability to use the common drafting instruments in making working drawings and the development of habits of careful, precise workmanship.

Students should develop ability to describe the shape and size of objects through the language of drawing, and to understand and read drawings and blueprints. They should gain knowledge of the occupational opportunities and requirements of industry.

Students engage in lettering plates, geometric construction, isometric and oblique drawings, orthographic projection (three views), sections, auxiliary views, developments, and perspectives (two-point) drawings.

7—SCIENCE

We should plan to develop a functional science program related to the Timber Products Industries and offer instruction in the following basic areas:

A. The scientific method and problem solving
B. Animal life—game management, as related to forestry
C. Water—effects, erosion, control, hydraulics
D. Weather—humidity, effects of temperature change
E. Light
F. Sound
G. Use and control of fire, care of combustibles, heat
H. Electricity and magnetism
I. Industrial chemistry
J. Foods and nutrition
K. Tobacco, alcohol and narcotics (required by State Law)
L. Plant life—botany, forestry
M. First aid and safety
N. Force and motion
O. Mechanical energy
P. Human body—disease, reproduction, heredity
Q. Metallurgy

8—COMMUNICATION SKILLS FOR NON-ACADEMICALLY ORIENTED STUDENTS

A. Provide remedial instruction in reading to all enrollees who have demonstrated an inability to function adequately in this area, concentrating on materials that are functional to these needs, i.e., technical bulletins, instructions, morale, current communication media, elementary quasi-legal matter, fiction and other entertaining material.
B. Develop a functioning competency in written and oral expression especially in the areas of: requests for information, letters of application, descriptive summaries, personal correspondence, fluency in the use of oral expression and procedures to enable the enrollee to participate in union meetings, church, school, and other community affairs.
C. Improve listening comprehension skills in order that the student can profit from participating in lectures, discussions, demonstrations, and community forums.

9—MATHEMATICS

Regardless of what additional mathematical skills might be necessary, the students must be familiar with all the basic skills of arithmetic, of addition, subtraction, multiplication and division of whole numbers, fractions and decimals.

In addition to these basic mathematical skills, the following concepts are necessary to various areas of the program:

A. Measurement (linear, square, volume)
B. Bookkeeping—scheduling of work hours (in perhaps a graph or matrix form)
C. Basic trigonometric concepts (for surveying, etc.)
D. Equation solving, ratio and proportion, tolerances, estimation of quantities, graphing
E. Geometric concepts (in relation to construction)
F. Lumber measurement and estimation (board feet, etc.)

10—GENERAL FORESTRY PRODUCTS AND USES

(Course of Study in Forestry attached)

11—INDUSTRIAL ECONOMICS

Industrial Economics deals with the principles involved in the operation of the American economic system. The role of business and industry in the total economy is studied. Basic economic principles are applied to the re-

lationship of employer and employee. Topics considered include historic trends, business organization, price and competition, imperfect competition and monopoly, price levels, business cycles, taxation, labor unions, management associations, labor-management relations, and social and private security.

12—FOREST FIELD OPERATIONS

A general course in Forest Measurements starting with log scaling, going into log grading, and finally cruising methods. The necessary theory will be presented along with practical work in each field.

13—ORIENTATION FOR CAREERS

Screening of students by counselors to determine the desires, goals and basic talents of each. This should be done in individual counseling sessions with each student at the 9th grade level. As a product of this counseling session, or sessions, plus careful study of cumulative records, parent interviews should be conducted, followed up with a specific test program: i.e., Kuder Interest Inventories, D.A.T. Test, or any other instrument that would aid the counselor and student to arrive at a planned high school program that is both compatible in the schools. The screening, an analysis part of the guidance program, should not terminate with the setting up of a program of study and work. One of the real values of this secondary vocational program should be the value of negative experience. By that, we mean a student has the talent, aptitude, and expressed desrie for an area such as construction work. After some experience working this area in the project, certain negative attitudes develop. These can be very valuable to the student, inasmuch as he has positive knowledge he does not like this area. If the staff maintains contact, this knowledge can be valuable in helping the student select another occupation or course of instruction to pursue. The analysis and orientation process should continue through the entire secondary school career.

14—SUGGESTED CONTENT FOR WORK LABORATORY EXPERIENCES

A. Instruction in care and preparation of hand tools. Description of nomenclature and proper uses for specific tools.

B. Assembly of tools and materials for specific jobs and development of procedures for storage and protection of tools and materials.

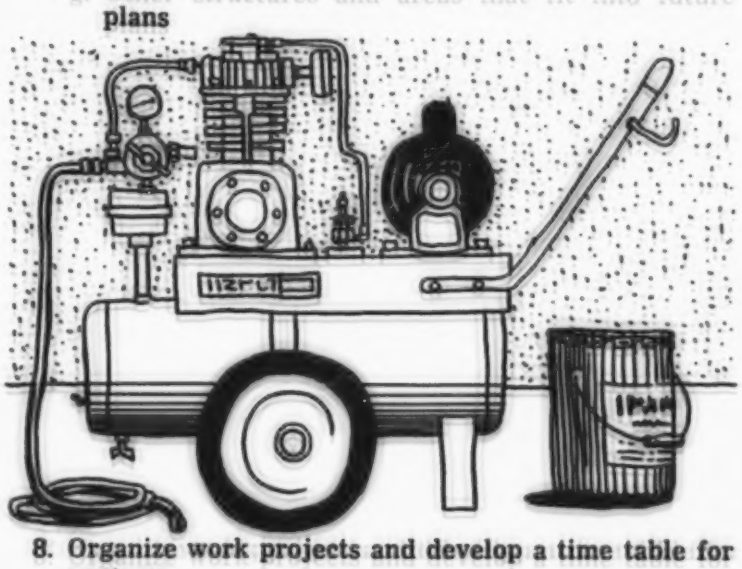
C. Safety instructions
   1. First aid
   2. Protective clothing
   3. Working as a team
   4. Protective procedures when dealing with reptiles, poison plants, exposure to weather and job hazards
   5. Firefighting

D. Social Dynamics of working together in work activities
   1. Social instructions for group activities
   2. Response to cues by leaders and "foreman"
   3. Responding to friction and learning to develop mutual respects and trusts when working in a small group.
   4. Importance of reinforcement within the groups of positive experiences.

E. Planning progressive work projects and meeting time schedules
   1. Absenteeism and its effects on work programs
   2. Working at a steady pace in order that different teams can work together in a coordinated program.
   3. Discussing the importance of coordination of labor and materials in order to progress in an orderly, effective manner
   4. Learn importance of developing realistic time schedules.

F. Learning to prepare for work experiences
   1. Adequate clothing
   2. Lunch
   3. Bring proper tools to job

G. Projects and activities for work laboratory activities
   1. Construct and install benches, cabinets, storage racks
   2. Install and use machinery for care of tools (stones, grinders, oil, etc.)
   3. Prepare and use clothing storage facilities and learn importance of care of facilities
   4. Learn to operate portable generators to supply power for machinery and lighting.
   5. Install and operate communication equipment.
   6. Learn to perform duties and accept responsibilities for the job of:
      a. Tool room clerks
      b. Cleanliness
      c. Foreman for crews
      d. Safety and first aid crews
   7. Study and use of transits, levels, tapes, squares in planning and developing project areas and buildings
      a. Drainage
      b. Construction of sanitary facilities
      c. Workshop
      d. Recreation area
      e. Parking area
      f. Administration center
      g. Other structures and areas that fit into future plans



   8. Organize work projects and develop a time table for projects
      a. Order materials
      b. Assemble tools
      c. Develop work schedule
   10. Develop a surface drainage plan for land areas
      a. Construct terrain contour maps
      b. Read planning commission, health authority, and government bulletins on drainage and construction of septic tank drainage fields
      Construct drainage line blueprints
      d. Order diameter of tile and gravel for bed needed for drainage lines

e. Plan drainage and sanitation projects and deter-
yards of dirt that need to be moved to lay drain
age fields
f. Prepare excavation and beds, install tile, and re-
cover

11. Prepare and develop areas for recreation and general usage
    a. Layout parking area, establish size and shape of present and future needs
    b. Determine surfacing problems and materials
        1 - Calculate needed yardage of different dimensions of surfacing rock
        2 - Use transits and levels to determine grade of parking area
        3 - Using power and hand tools, level area and prepare for receiving surfacing materials
        4 - Coordinate orders and delivery of material in order to have adequate material on site for each day's work
        5 - Develop plans for finishing of parking area including use of natural shrubs in landscaping and placing of small timbers to designate and mark off parking spaces

12—BUILDING STRUCTURES FOR SCHOOL OR PUBLIC USE

13—INSTRUCTION, DEMONSTRATION AND PRACTICE IN THE BASIC SKILLS AND TECHNIQUES UTILIZED IN THE TIMBER HARVESTING INDUSTRY

A. Learn firefighting skills
B. Learn to "thin" and "prune" timber
C. Learn to use, care for, maintain power equipment, ie., power saws, fire tanks, trucks, tractors, choker setting, post hole digging, etc.
D. Learn to cruise timber, use increment borers, diameter tapes
E. Learn to repair and maintain trails and fire breaks

COURSE OF STUDY FOR FORESTRY I

The manufacture and sale of forest products is a basic economic activity in Oregon and Lane County. Our economic structure depends partly upon our forest.

OBJECTIVES AND GOALS:

1. Show the vital importance forestry plays in our national welfare
2. Show the vital importance forestry plays in our local welfare
3. To have the boys gain an appreciation for the forests by knowing:
    a. Identification of trees
    b. Conservation of our resources, including game and water
    c. How to survey forests from the standpoint of:
        (1) measuring timber
        (2) road construction, etc.
    d. The ways that forests are destroyed and the results in not only dollar losses, but intangible losses
    e. How to reforest areas that have had the timber removed.

FACTORS TO BE CONSIDERED IN UNIT CONSTRUCTION:

A. Oregon
    1. Land area (total) 62 million acres
    2. Forest land area 30 million acres
    3. Oregon has 1/5 nation's timber production
    4. Oregon ranks first in the production of logs, lumber, plywood and particle board
    5. Forest industries give direct employment to 74,000 persons, and a pay roll of more than $410,000,000
B. Lane County
    1. Land area (total) 3 million acres
    2. Forest area 2½ million acres
    3. Lane County has more timber than any STATE, except Washington, Oregon, California, or Alaska
    4. 22% of all employees work in the forest products, with a payroll of over $82,000,000

SCOPE AND SEQUENCE OF INSTRUCTIONAL PROGRAM FORESTRY I

Unit I. The forest
    1. Definition of a forest
    2. Kinds of forests
    3. The forest community
Unit II. Forests and men
    1. Man's dependence on forest through the ages
        a. Forests and ancient civilization
        b. Forests in the middle ages
        c. Forests during the colonial period
        d. Forests and modern civilization
Unit III. Forest values
    1. Forest products
        a. Manufactured wood products
        b. Poles, piling, posts
        c. Pulp and paper products
        d. Naval stores
        e. Fuelwood
        f. By-products: plastics, tanning materials, food, nuts, nursery stock, charcoal, medicinal products, alcohol, etc.
        g. Fish and game
        h. Forage for domestic animals
Unit IV Water conservation
    1. Effect on economy
    2. Growing problems
    3. Legal aspect
    4. Conservation practices

LABORATORY EXPERIENCES FOR FORESTRY I

I. Wood use and identification
    A. Classification
    B. Leaf and foliage
    C. Soil treatment
    D. Use of common forestry tools
II. Climate belts and related growth
    A. Types of wood and usages
        Lectures and demonstrations
    B. Plant culture
    C. Effects of natural enemies on forest growth

VT 000 061

VT 000 061

Leadership Education, Individual and Group.

Robertson, Dean * and others

Montana State Univ., Bozeman. Dep. of Agr. Education

65

DOCUMENT NOT AVAILABLE FROM EDRS 119p.

MEETINGS, *STUDY GUIDES, *LEADERSHIP, ORGANIZATIONS (GROUPS), BIBLIOGRAPHIES, GROUP DYNAMICS,

A 1965 summer school class used suggestions from teacher educators and supervisors from most of the states and articles in "Agricultural Education Magazine" and "Adult Education Magazine" in developing this study guide. Such organizational problems as meetings, attendance, facilities, officer selection, parliamentary problems, work programs, committees, recruitment, resource materials, social activities, financial activities, communication, and evaluation are examined. Group dynamics, citizenship, advisory duties, teamwork, decision making, democratic principles, moral leadership, attitudes, listening, oral communication, personal appearance, hard work, and personal traits as components of leadership are explained. Study questions are given at the end of each chapter and additional readings are included. (EM)

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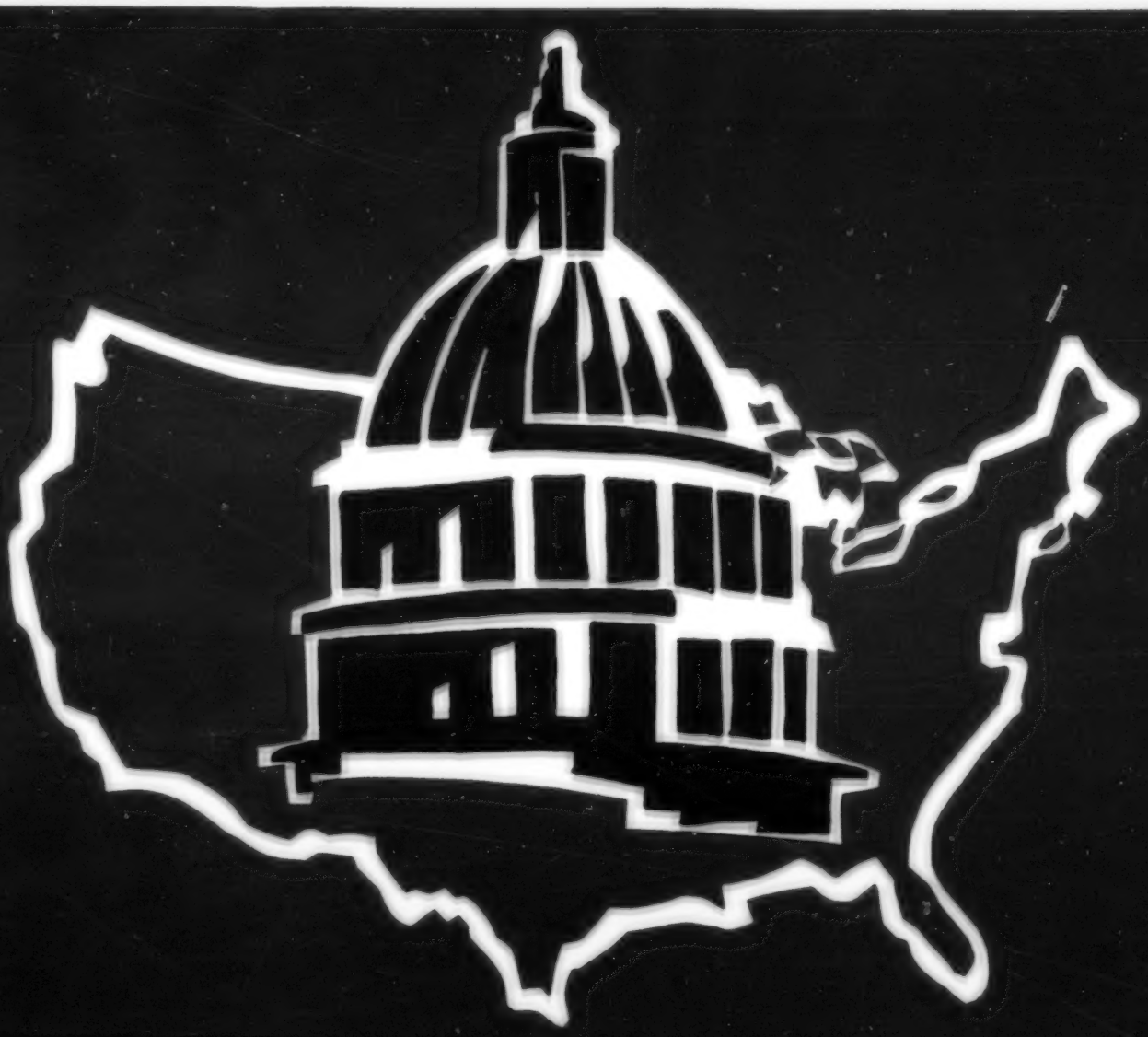
LEADERSHIP EDUCATION



INDIVIDUAL AND GROUP

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IN APPRECIATION

This work on leadership represents the group effort of a number of persons and institutions. Most of the fifty states sent in their contributions. Teacher Educators and Supervisors in Agricultural Education were most generous and encouraging with their ideas and written materials based on years of experience with the FFA and other youth and adult organizations.

The Agricultural Education Magazine was a rich source of articles on leadership training and performance. The Adult Leadership Magazine of the American Adult Education Association was tops on group leadership concepts. Several books proved very helpful. A certain synthesis needed to be done. Our first concept of leadership embodied the image of the individual leader. In contrast, our emphasis gravitated much, much more to the power and influence of group or corporate leadership.

This publication is a 1965 summer school project with an editing committee of Dean Robertson, Wesley Budke, Bill Chiesa and other class members: Harold Brown, Vernon Dahlstrom, Leonard Enander, Glenn Gore, Cedric Huesby, Alden Irish, Harold Johns, William Kober, Robert Marlenee, Howard Pearson, Don Elser, and Luther Lalum.

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1 THE NEED AND DEVELOPMENT OF INDIVIDUAL AND GROUP LEADERSHIP

NEEDS

Business, agriculture, politics and international affairs are all in competition for well-trained leaders. Corporate organizations realize there is no foreseeable limit to progress under competent leadership. Changing conditions in our society bring about the need for action in critical situations. More and more dependence is being placed on individuals and groups who have the ability to guide others in their actions and decisions.

LEADERSHIP EDUCATION

A vast storehouse of leadership may be found in the young people of every community and country. Only by a well-coordinated program of leadership development may this potential energy be released into useful leadership energy. This is truly an educational process whereby the individuals are exposed to the various facets of leadership. Then they are given the opportunity to develop the necessary attitudes, interests and appreciations of leadership as well as the development of the necessary skills and abilities. Likewise, they need the opportunity to comprehend the importance of leadership in its various forms and the opportunity of applying or practicing their newly gained knowledge.

LEADERSHIP CAN BE LEARNED

It is the purpose of this publication to highlight various components of leadership education. There is a need to teach leadership, just as there is a need to teach mathematics or history. And, to stress the value and importance of corporate leadership without neglecting the importance of individual leadership.

2 GROUP LEADERSHIP OBJECTIVES

WHY OBJECTIVES

Objectives are what give direction to a program. Objectives are further needed to supply a basis for evaluating efforts and activities. Every program should be periodically evaluated. The same is true of individual efforts. Following are separate statements of objectives for both group and individual leadership. Programs of work and study should reflect objectives. Evidences need to be identified of the accomplishment of objectives. The overall objective of group leadership is to use our democratic processes to develop organizations composed of a few or many individuals skilled in the arts of group effort to achieve desirable goals.

SPECIFIC GROUP LEADERSHIP OBJECTIVES ARE TO:

1. Realize the value of well-organized committees and meetings and the important part that group dynamics can play in their success.
2. Learn the art of officer selection and training.
3. Develop challenging programs of work and adequate financing.
4. Secure adequate numbers of new members and maintain the interest of old members with emphasis on both work and fellowship.
5. Practice evaluation of group efforts by advisors, officers and members.

3 MEANING OF LEADERSHIP

To be able to define leadership in a way that would be applicable to all situations is almost an insurmountable task. In examining the literature, one can find almost as many definitions as there are writers. We need to distinguish between the words "leaders" and "leadership" and their meanings as individuals and groups.

DEFINITIONS OF A LEADER AND OF LEADERSHIP

Leadership has been described as: "A social phenomenon requiring an interaction between two or more persons."[1] A leader is said to be a person who has the know-how required at different times in a group situation and who can help the group achieve its ends. Leadership is said to be "the cement unifying men for cooperative action in order to achieve given objectives."[2] What can be learned from these definitions? A very short summary definition would be to say, "A leader is a guide." Most persons can readily conceive a picture of a guide. Someone who shows the way. Someone who helps us find the right path. One who will take the time to explain. One who is not afraid to put his shoulder to the wheel and push if others become stuck.

LEADERSHIP IN THREE DIMENSIONS

We can easily visualize a "dictator-type" of leader, shouting and waving his arms from a balcony to a group of people down below. In second dimension we see the man on a white horse with a group tagging along behind. The "high and mighty-type" individual. This picture is also easy to paint or see.

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[1] Bogardus, Emory S., "Leaders and Leadership," New York, D Appleton Century Co.
[2] Titus, Charles H., "The Processes of Leadership," Dubuque, W.C. Brown Co., 1950, p. 52.

However, in our third dimension the leader is not so easily visualized. There is a picture of a group of people. They are accomplishing things, but where is their leader? One of them must be a leader, but which one? Possibly several are leaders. By putting on the so-called third dimension glasses, the ones with the built-in definition of a leader, it is easy to see the true picture. The group is doing the leading, not just an individual.

GROUPS: THE KEY TO EFFECTIVE LEADERSHIP

The idea that the individual leader runs the organization should be minimized, for there would be no organization without the group. Only in extreme situations, such as in war, is it necessary for individual leadership to prevail. Even then, the military staff work as a group to plan the battle with only the final order to proceed being given by an individual. Group leadership is really the key to success for any organization. Of course, there is usually someone in the group who acts as a "guide," but it is the group that is responsible for getting the job done. Effective group leadership should be sought for by all organizations.

KINDS OF LEADERS

Leaders are most commonly recognized on the basis of the roles they perform. Some of these are as follows: Advisory Leaders, Business Leaders, Area Leaders, Music Leaders, Community Leaders, Group Leaders, Political Leaders, Junior Leaders, Military Leaders, Institutional Leaders.

On the basis of their decision-making function, leaders are sometimes classed as Autocratic, Democratic, and Laissez-faire. The Autocratic Leader is the person who uses more absolute power than the other types. He alone makes major plans, dictates the activities of the members and seeks power at any cost. He merely uses people to reach his own goals. The Democratic Leader treats the individual with dignity and respect. He strives to obtain maximum participation from every

member in the group. He seeks to spread responsibility and reduce conflict within the group. The Laissez-faire leaders have little knowledge of leadership and care little for the group they represent. They are the "do nothing-type" leaders. They allow unlimited individual freedom and, as a result, little is accomplished. Perhaps for our potential leaders, the three dimensional pictures of leadership would be easier to keep in mind:

In 1st dimension: The "dictator-type" - shouting and waving his hands.

In 2nd dimension: The "high and mighty-type" - riding his big white horse.

In 3rd dimension: The "group and their guide" - getting the job done to the satisfaction of everyone concerned. This concept also includes the principles of democratic leadership.

STUDY QUESTIONS

1. What is the common error in describing leadership?
2. Explain why the group is more important than the individual in leadership.
3. Define advisory leaders, business leaders and community leaders.
4. Define autocratic leaders, democratic leaders, and laissez-faire leaders.
5. What are the three dimensions of leadership?

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4 ORGANIZATIONS PERSONIFY LEADERSHIP

Organizations provide an excellent means of furthering individual and group leadership. This may be a youth group or an adult church or civic group. Organizations are a major part of our American way of life. An organization embodies many factors related to group success. Organizations encourage freedom of speech and the birth of new ideas. It makes it possible for an individual to be identified as a part of the group, and be able to understand the responsibilities and objectives of the group. Organizations have purposes or objectives. Regardless of the kind of group, there are certain leadership abilities and education and opportunities for service which an organization offers its members and its community.

CONTRIBUTIONS OF AN ORGANIZATION TO ITS MEMBERS

It is natural to assume that most people join organizations to receive some personal gain or satisfaction, but they should not lose sight of the over-all group objectives. Leadership training and education should be a major reason for belonging to organizations. Individual and group leadership may be developed in a variety of ways by an organization. Communication in the form of speaking skills and writing can be learned through groups. Parliamentary procedure or recommended practices for conducting business can best be learned in organized groups. A cooperative attitude will develop when working with and exchanging ideas with other people. Responsibility goes hand-in-hand with cooperation. Membership duties and responsibilities will be appreciated and accepted. Maturity is developed as a trait of the members and usually leads to effective group leadership. A mature person is sensitive to his own needs, the needs of other members and the needs and goals of the group.

Educational benefits derived from group association will depend somewhat on the initiative and participation by the individual. New facts on particular subjects may be found through research for problem solutions. Whenever two or more people get together there may be an exchange of ideas which are useful to all parties involved. Also, the benefit of the knowledge and personal experiences of other people are received which usually cannot be found in books alone.

CONTRIBUTIONS OF AN ORGANIZATION TO ITS COMMUNITY

The number and types of organizations are long and varied, without clear-cut boundaries. Examples of community organizations are Chamber of Commerce, civic, recreational, youth, fraternal, educational and study, religious, hobby, political and governmental, professional and grievance groups. All organizations are developed to fulfill some need. Many times this need is concerned with the community. We will interpret the community to mean all of the surroundings in which the organization finds itself. A school is a miniature community. The service rendered by an organization to the community may be educational, community service - as park beautification - fellowship and citizenship.

The distribution of information and facts on special projects and new concepts can be effectively carried on by groups that are well-organized and dedicated. The encouragement for the use of various public facilities and community improvement programs can be best accomplished by groups.

Organizations are often developed for the explicit purpose of serving their community. Most of this work comes in the form of community service projects. Some of these services are clean-up campaigns, tree planting, development of recreational areas, etc. Most organizations usually include at least one community service project in their program of work for publicity purposes and civic pride.

The air of freedom within groups stimulates the birth of new ideas and participation by all members. Group goals are usually such that they can be achieved by the group and are drawn-up and accepted by the majority. Individual members can feel that they are contributing to the group when cooperation and participation is provided. Participation in planning and decision making is a prerequisite to responsibility. All members can be kept posted on the group progress toward desirable goals. Each member of the group can find ways of satisfying his personal needs for self-expression, prestige, personal achievement, social contacts, and group recognition. Groups can function in an informal atmosphere free from tension and frustration. The groups must learn to believe in goals and accept responsibilities as members.

Businesses are generally group organizations as is a family and both personify the idea of corporate leadership which is the parent surrogate for individual human leadership.

STUDY QUESTIONS

1. How can the basic needs of an individual develop within a group?
2. What contributions does an organization make to its members?
3. What contribution does an organization make to its community?
4. List ten or more organizations in your community.

5 MEETINGS

Good meetings are not an accident, but they must be planned in order to fulfill the needs of the group. All meetings must have a purpose or purposes to be successful. There may be general and specific purposes for meetings. General purposes would include: Fellowship, citizenship, patriotism, and leadership. Specific purposes could be items of business and special features, such as movies, slides, and demonstrations. The heart and soul of all organizations are their interesting and well-conducted meetings.

PLANNING

Good meetings are planned meetings. Planning will result in a challenging program of activities. Participation by all members encourages the development of their leadership abilities. Meetings should be planned and arranged well in advance. Long-range planning will enable the organization to schedule important speakers, secure needed facilities and pinpoint membership responsibilities. Important considerations in conducting meetings are: (1) Officer planning, (2) Order and conduct of business, (3) Paraphernalia and room arrangements, and (4) Attendance.

RESPONSIBILITIES

Officer Responsibilities: The executive committee, which usually consists of the officers and committee chairmen, is responsible for planning each meeting. They should develop the agenda and post the items of business. Officers should know

their parts and be able to lead, but not dominate the meeting. They should also have a knowledge of parliamentary procedure and its working application. Goals and objectives of the organization should be kept in mind at all times.

Members' Responsibilities: Members often have the feeling that they have no responsibilities. Nothing could be further from the truth. They should be familiar with the basic rules of parliamentary procedure. They should also be aware of the items of business and be prepared to discuss and vote on them. Attendance is one of the most important responsibilities that a member needs to practice and develop into a habit.

ROOM ARRANGEMENT

The meeting room atmosphere is dependent upon the room preparation. The chairs should be spaced far enough apart to have freedom of movement, and so that everyone can see and hear the speaker. Adequate ventilation, lighting and heat should be provided. A sentinel or sergeant-of-arms should see that all members and guests are comfortable and that the paraphernalia is in proper order.

PARAPHERNALIA

The proper paraphernalia includes such items as the United States Flag, club banners, officer stations and symbols, a podium and amplifying equipment for groups of 75 or more persons. Chalk boards are generally a part of all meeting rooms. One frequently hears speakers make the statement, "I don't need this loud speaker." Nine times out of ten, he is wrong, as speakers often drop their voice and can only be heard by the use of proper voice amplifying equipment.

ORDER OF BUSINESS

Every organization needs an order of business to be used in planning and conducting a meeting. It should be planned to fit the organization's needs and to establish a good atmosphere. The following order of business has proven beneficial and can

be used in most organizations:

1. Opening ceremony (official ceremonies should always be used when applicable).

   Call to order.

   Roll call of members and guests.

2. Minutes of previous meeting (read by the secretary and approved by the membership).

3. Reports:

   Officers' (Treasurer's at every meeting, others as needed).

   Committee reports by standing regular committees and by special committees (All committee reports should be in writing. After a report has been given, it should be filed with the secretary. Often committee reports are posted for membership information.).

4. Unfinished business.

5. New business.

6. Special feature - speakers, panel reports, and movies.

7. Closing ceremony (when applicable).

8. Recreation or entertainment and refreshments.

TYPES OF MEETINGS

Regular Meetings: All the members participate in regular meetings. They are held monthly or more often, depending on the specific organization. A varied program of business, education and recreation is presented. The methods used are a combination of formal and informal presentations and discussions.

Board of Directors or Executive Meetings: These meetings are generally small, consisting of 5 to 15 members. They generally meet before the regular meeting to make plans and suggestions for the organization.

Committee Meetings: The standing or special committees are small groups containing from 3 to 10 members. How often they meet is variable. They study selected problems intensively, collect facts, prepare reports and recommendations, and carry-out decisions of the organization.

National, Regional, State or District Meetings: These meetings are generally very large, consisting of delegates from local groups or states. They are held annually to consider and vote on resolutions and coordinate activities of larger groups.

Special Meetings: These meetings may have any number of the members present. Their purpose is to conduct items of business which cannot wait for the regular meeting. They may be called at any time by the President.

STUDY QUESTIONS

1. What are the different types of meetings?
2. What is the responsibility of an officer?
3. What is the responsibility of a member?
4. Why is it important to have an Order of Business?

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6 ATTENDANCE

The importance of keeping good attendance at meetings cannot be overemphasized. Many organizations have had problems with membership and attendance at meetings. In many cases, the success or failure of these organizations could have been related to attendance.

PROBLEMS OF ATTENDANCE

Although most organizations pursue prospective members, few are concerned with discovering why members lose interest and fail to attend or drop out entirely. There are reasons why a sound policy, concerning drop-outs, is essential to the work of any organization. Members who have dropped out or who no longer attend meetings may many times be persuaded to renew their interests. Knowledge of why people drop out or no longer attend meetings will help in assessing the general condition of the organization, in opening to inspection any reasons for dissatisfaction, and in determining future policy. Sometimes poor attendance means that members have become less active than before; sometimes it means they have lost interest entirely and no longer desire to continue membership. It should be remembered that every organization has some turnover in membership, thus affecting attendance.

SUGGESTIONS FOR ATTENDANCE

Have you ever noticed that some organizations are able to keep a higher percentage of attendance than others, even though the two groups are made-up of the same people? Having high attendance at meetings means more than having common objectives or interests. Promoting of attendance may be accomplished by having (1) dynamic programs, (2) notifying members about meetings, (3) member participation, (4) publicity, and (5) attendance recognition.

Dynamic programs: By having a good program of activities, a leader has insurance of a successful, well-attended meeting. A large turnout is insured if a member feels that something is lost by not attending.

Notify members of meetings: Sometimes attendance is small because members have forgotten the meeting was to be held. Notifying members of each meeting not only serves as a reminder but makes members feel their own importance. Notification could be by any one of the following: Personal letters, mimeographed letters, postcards, telephone calls, radio announcements, personal contacts, and others. Notification should include time, place, and reason for meeting.

Membership participation: The skillful leader will make the members feel wanted and needed. Many times an individual will remain silent because he is afraid others are not interested in the same things he is. The contributions of these individuals are important for the success of a group.

Publicity: People like others to know what they and their organizations are doing. Good publicity leads to prestige. Publicity may include activity reports in newspapers, magazines, radio, television, and newsletters.

Attendance recognition: Some organizations strive for perfect attendance by offering special awards. In some cases people have had perfect attendance for many years and have developed a great deal of self-satisfaction from this record. It should be kept in mind that attendance is something you learn and develop into a habit. Attendance recognition may be in the form of awards, pins, plaques or recognition at banquets. Recognition for continuous membership such as 5, 10, 15, and 20 years' service awards are often used. In some cases, organizations drop members from their roles for missing a certain percentage of meetings. Others use gimmicks such as door prizes, fines, or lunch to encourage attendance.

STUDY QUESTIONS

1. Why is attendance important to the success or failure of an organization?
2. What are some of the factors or conditions which affect attendance?
3. Why is a dynamic program probably the most important contributor to organizations with high attendance?
4. What is the importance of a sound drop-out study?

7 MEETING ROOMS

A meeting room should have certain aids, facilities and equipment to provide an effective atmosphere for successful and enjoyable group meetings. A well-arranged meeting room and a well-equipped room adds dignity and enthusiasm to the organization. Appropriate paraphernalia are a necessary part of all organization meetings.

The room should have ample space in order that business can be conducted with freedom of movement. The room should be equipped with a ventilating fan or windows to keep fresh air in the room. A room often times becomes stuffy and this causes mental fatigue. Lighting should be such that it causes no glare to anyone situated in the room. Also, it should be sufficient enough for clear visibility in all parts of the room.

ROOM EQUIPMENT

The seating arrangement should be orderly and not crowded. The speaker's podium should be at the front of the room and the seating facilities well-spaced and orderly throughout the rest of the floor space. This could be in a half-circle or rows.

The American Flag should be displayed in the room in its proper manner. When used on a speaker's platform, the flag should be displayed above and behind the speaker. If flown from a staff, it should be in the position of honor on the right end of the platform. It should never be used to cover the speaker's desk or to drape over the front of the platform.

Projectors for slides, movies, drawings, etc. should be available. There should be a chalk board at the front of the room, also other aids that are helpful. A public address system should be present at the podium even in a small room, for there are some people who cannot be heard even in this situation.

MEETING PARAPHERNALIA

A podium should be present at the front of the room for the chairman. A gavel should be on the podium for directing meetings. If the organization has a banner, it should be displayed in its proper manner. Some organizations have appropriate symbols and stations for their officers. Emblems create pride in an organization. A manual of parliamentary practice should be available in case that a question arises in parliamentary procedure usage. The responsibility for setting-up the paraphernalia for a meeting usually lies with someone who is elected or appointed to that job.

STUDY QUESTIONS

1. Why is it important to give consideration to selection of a meeting room?
2. What equipment is generally needed for most meetings?
3. How can the assignment of responsibility for the arrangements for the room and equipment best be handled?

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8 OFFICERS

Because officers are the backbone of any organization, officer selection is one of the most important duties of an organization. Officers must be well-qualified and enthusiastic in order to lead a challenging program which will benefit the needs of the group. Important considerations on officers are these: (1) Selection, (2) Qualifications, (3) Duties, and (4) Training.

SELECTING OFFICERS

Securing capable officers is a difficult task that requires a great deal of planning. Popularity is too often used to select officers with little or no consideration given to interest, qualifications and time available for the job. There are several different methods of selecting officers. The two most frequently used methods of selecting officers are (1) the nomination committee and (2) nomination from the floor. The nominating committee is usually made-up of past officers, the advisor or advisory committee. Their duty is to review all applications and interview the officer candidates. They present a slate of the candidates they feel are best qualified. Nomination from the floor consists of individual members nominating the candidate of their choice. Appropriate speeches for candidates are popular with youth groups as well as at large conventions. Some groups have no nominations from the floor.

OFFICER QUALIFICATIONS

In selecting officers there are several basic qualities that must be kept in mind. They are: Desire and willingness to work, enthusiasm, ability to learn correct

procedure, ability to express oneself, ability to get along with others, self-confidence, humility, ability to lead, and adequate time to perform the duties of the office. Different offices require different abilities.

OFFICERS REQUIRED

Every organization has a required amount of officers which they must elect. The four common officers of an organization are President, Vice President, Secretary, and Treasurer. There are several other offices that may be added if the organization finds an interest and a need. They are: Reporter, Sentinel, Historian, Parliamentarian, Song Leader, Recreation Leader, Chaplain and Student Advisor. In large organizations it is a common practice to have assistant officers to help carry-out the work of the office. Junior officers or class officers are also used to provide training for potential leaders in becoming better prepared for assuming responsibility as a regular officer.

ELECTIONS

The time for officer elections will vary with each organization, depending on when they complete their year. In school organizations it is best to have the elections in the spring. This will give the newly elected officers time to adjust to their responsibility and become fully acquainted with their duties before school is out. They will then be prepared to start off with an active program when school starts. The time of the election meeting and the date of the meeting should be established so every member can be present if possible.

Nominations should be posted at least a week previous to election. This will give the members an opportunity to study the candidates and vote intelligently. Voting by secret ballot is the best method of voting. This assures that a member votes by his own choice and not to "go along with the gang." It is up to the organization to decide what type of vote will be required for a candidate to win.

Organizations may find it desirable to close nominations and elect one officer at a time. This permits the members that lost to be nominated for another office. If only one person is nominated for an office, a motion can be presented to elect the person by acclamation.

INSTALLATION

Officers should be installed at the first regular meeting following elections. It is advisable to invite guests and parents, when appropriate, to this meeting in order that they may better understand the responsibilities involved in an office and may be able to provide assistance and guidance when needed. This should be an impressive formal meeting and a charge can effectively be given to the newly elected officers by the advisor or adult leader in care of youth groups.

DUTIES

All officers have definite roles which they must abide by to be successful in their position. Besides these specific roles, there are general roles which apply to all. Some of these are: Attend meetings regularly and take an active part, keeping informed, being ready to represent your organization at all occasions, cooperating with members and other officers, and keeping in touch with the advisor or advisory group.

Duties as President: See that the meeting place is acquired and adequately prepared, plan the meetings with an executive committee, and take charge of the meeting to see that it is conducted in an orderly manner. Know the order of business, constitution and by-laws, and parliamentary procedure. Keep the meeting moving and appoint committees and serve as ex-officio members. Be fair and just in decisions, call special meetings when needed and do not give your own opinions.

Duties as Vice President: Learn the duties of the president, be able to take over these duties in the absence of the president, serve as chairman of committees, and be able to express himself well before meetings.

Duties of Secretary: Keep records for the organization, keep minutes of all meetings and handle the correspondence. Preside over meeting in absence of president and vice president, have an order of business available at each meeting and check the roll of attendance.

Duties as Treasurer: Present ways of raising money, receive money and give a financial report at each meeting. Pay bills promptly, keep accurate records and accounts and assist in preparing a budget.

Duties of Parliamentarian: Assist the president when needed in the orderly conduct of business, have a working knowledge of parliamentary procedure and have reference to Roberts Rules of Order. Call attention to serious errors in parliamentary procedure and give advice to the president on parliamentary matters but leave the decision to the president.

Duties of Sergeant-at-Arms, Sentinel or Usher: Set-up the meeting room and care for paraphernalia and equipment. Welcome guests, make the room comfortable, take charge of candidates for initiation ceremonies and assist with entertainment features and refreshments.

STUDY QUESTIONS

1. Why is it important to have good officers?
2. What are some procedures in selecting officers?
3. How should officers be voted upon?
4. When should officer elections be held?
5. What method is best for electing officers?

9 LEADERSHIP TRAINING SCHOOLS

The primary purpose of leadership training schools is to make individuals and groups aware of the processes of leadership. Such schools are designed to develop skills in public speaking, parliamentary procedure, conduct of meetings and evaluation through practice and classwork. Leadership schools stress the duties of the officers, committee chairman and members as well as their responsibilities to the group. The advisors or training school directors plan the curriculum or agenda for the leadership training school.

TYPES OF LEADERSHIP TRAINING SCHOOLS

There are many types of leadership schools available to members of organizations and individuals. The more common leadership schools are leadership camps or one-day conferences. Contrasted to a camp or conference type program would be that of an in-school course or portion of a course on leadership per se. Each of the programs could make their unique contribution to individual and group leadership education.

Leadership Training Camps: The leadership camp is where members learn the different types of leadership by taking part in the activities of the camp. Most camps have periods where groups will hold panel discussions on a particular phase of leadership. Group discussions may also be held on ways to improve leadership in their organization. Class study in parliamentary procedure and actual practice in conducting meetings, using correct parliamentary procedure, are valuable procedures used in training schools. Recreation is an important feature of camp programs.

Day or Evening Conferences: The day conferences are ones where resource people are used to teach members good leadership. This can be done by panel discussions, symposiums, and lectures. The duties of officers and committee chairmen are given

major stress at one type of leadership conference. Time is set aside for special instruction for each officer. The duties and responsibilities of each officer are covered in detail.

ATTENDANCE AT A LEADERSHIP SCHOOL

A member or officer attending a leadership training school should have the purpose of the school definitely in mind before the school starts. A program of the material to be covered at the school should be studied and notes made of the most important phases the member feels he would like to learn. If the attendant is a member of an organization, he or she should have the history and the purposes of the organization well in mind. A familiarity of the constitution, by-laws and program of work attained before attending a leadership school is very desirable.

Classroom Instruction: As more text materials become available stressing both individual and group activities, leadership can become a fruitful classroom course. Leadership education is more than a study of officer duties and parliamentary procedure. Leadership education in the past has been achieved largely through experience rather than a combination of experience and study. Many outstanding books and periodicals are devoted to leadership. Classroom efforts in leadership education can stress the development of abilities and understandings on the part of each individual person. This concept of individual personal development is in reality the major function of our elementary and secondary schools and of leadership courses and training. Special courses on leadership are subjects of study in colleges and in universities.

Individual classroom education in leadership can stress knowledge of (1) speaking, (2) reading, (3) listening, (4) parliamentary practice, (5) meetings, (6) committees, (7) programs of work, and (8) objectives and evaluations and many other facets of individual and group leadership.

LEADERSHIP EDUCATION

Leadership education can be studied to depth. Communications between individuals and groups is a broad subject. Items discussed here for possible leadership school subjects are (1) officers' duties, (2) programs of work, and (3) individual membership skills.

OFFICERS' DUTIES

Most leadership camps and one-day conferences stress officers' duties. These duties are generally stated in detail in organization, club manuals. Officer training can be important to the success of an organization but a broader concept of the total organization involving the total membership is desirable.

President: One of the most important duties of the president would be to know the correct procedure in conducting a meeting. He should have a working knowledge of parliamentary procedure. He must be responsible for the adjenda of a meeting and have a knowledge of the constitution and by-laws.

Vice President: The duties of the president should not over-shadow those of the vice president. The vice president needs to know the duties of the president for he will take over in the absence of the president. The vice president also has charge of all committee work.

Secretary: It is the duty of the secretary to prepare the minutes and adjenda of a meeting. He must write all organizational records and count and record votes. It would be suggested that the secretary have the following items with him at all meetings: Secretary's book and minutes, constitution and by-laws of the organization, list of all committees, both standing and special.

Treasurer: The treasurer shall pay all bills and collect all moneys of the organization. He prepares an accurate financial statement and gives a report at each meeting. It is suggested that the treasurer prepare a budget of all income and expenses.

Reporter: The main duty of the reporter is to keep the public informed on the local, state and national levels of the activities of the organization. He should also keep a scrapbook or permanent record of all activities during the year.

Parliamentarian: The parliamentarian serves as an advisor to the president on procedural matters. The parliamentarian gives the decision, however the president makes the ruling.

Sergeant-at-Arms: He may be called a sentinel or tiler also. This person is an important auxiliary officer of many organizations. He may introduce guests, check on those seeking admittance, prepare the meeting room and at times makes provisions for refreshments.

PROGRAM OF WORK

The meat of any organization is its program of work. This refers to a plan of activities the group will carry-on during the year. A suggested practice would be to have each member as an active participant in one or more activities. Items that would fall under this heading would be:

Finance - The program of work should give in general all the activities that will pertain to finance.

Service - Included under this heading would be all activities that are connected with service to the individual, state, community and nation.

Relations - Any activities that are related to the public or the group.

Conduct of meeting - Actual practice by members in carrying-on a meeting.

Leadership or citizenship - Practice in giving talks and reports. Also the responsibilities of members and organizations to the community and nation.

Recreation - All functions that the group participates in which are recreational in nature.

DEVELOPMENT OF SKILLS

Each leader needs to develop leadership skills. Many of these skills will be stressed during the leadership training school. Some of the skills that could be introduced are:

Speaking - This can be done through panel discussions, reports, symposiums, and writing reports.

Reporting of Committee - It is accepted practice to choose a member of the committee to record the proceedings of a committee meeting. This member then would submit this report to the regular meeting. This policy should be practiced for recording the proceedings or business.

Reporting on Conventions, Trips or Special Functions - This type of report should not be a chronological report such as boarding the train at 3:15, leaving at 4:20, etc. It should be concise yet long enough to explain the event. Special events or main topics should be noted. In some cases, acknowledgements for the trip should be included at this time.

Parliamentary procedure - This may include learning terms, kinds of motions and practice running a meeting.

Others - Such things as reporting meeting activities, developing personal traits and the use of group dynamics are skills which are important kinds of training given at leadership conferences.

STUDY QUESTIONS

1. Who should attend a leadership training school?
2. What are the types of leadership training schools?
3. Give the duties of the president.
4. What skills can be brought out at a school of this type?
5. Explain the purpose of the program of work.
6. How does the training take place?

10 GROUP DYNAMICS

Group dynamics is a term applied to methods and processes used to communicate ideas between groups and individuals within groups. Well-known group dynamics processes include use of panels, role playing, brainstorming and "buzz" sessions.

"Group dynamics" is the perpetuating of interactions within a group. The success of groups depends on individual abilities and skills of the leaders to perpetuate group interactions. Groups are formed to perform a specific function. Group dynamics encompasses any size of gathering. This may include the public at large but specifically groups of people. Consciencious leaders are interested in how they can best involve members and to create action. An understanding of the various facets of group dynamics is the first major step in creating democratic action for problem-solving purposes.

THE CRITERIA OF GROUP SUCCESS

Growth means the process through which an immature organism reaches maturity. Knowing the quality factors of the organism or the group, knowing the strength of the environment and the complexity of the task, we may then predict its growth - or in the case of an organization, its success. We must be tolerant, or in other words receptive to all viewpoints, be active, responsible contributors, not be class or status conscious, be oriented towards reality, be seeking the facts, maintain a friendly atmosphere, have objectives that are of group interest and make every

effort to carry-out the groups' decisions. These group qualities are the qualities of an ideally democratic system. This indicates that having an ideally democratic system of group actions would insure success if the reasons for having the group or organization were real and challenging.

PRINCIPLES AFFECTING THE DEGREE OF SUCCESS

Success is a broad term. What appears to be a success to one group may be a failure to another group. But regardless of to what degree of success we strive, there are certain principles that affect the degree of this success. The problem must be real and not a doing, just to be doing, activity. The leadership should be team leadership with each individual woven into his area of leadership responsibility. The membership of action groups should be based upon willingness to work. Dead weight in a group has a detrimental affect on the remaining members. The amount of participation will depend on the gratification derived from accomplishments. The group should determine its own self-government. The decisions should be subject to revision based upon the action taken.

WHY GROUPS FAIL

To be successful we must understand why groups fail. To recognize the general causes of failure is the basic step toward group success. In many groups that have failed the following reasons were probably contributing factors: A democratic atmosphere had not been developed. The wrong group of people were combined to form the group. The group may have had too wide an area of interests and too narrow an area of skills and abilities. The group may have lacked the knowledge and skill to carry-out the objectives of the group. The organization may not be so designed to solve the problems that were failures. The "problems for action" must be of total interest to the group and not of specific interest to individuals. Individualism cannot be a characteristic of a prospectively active and successful group.

STEPS IN PROBLEM SOLVING

Whether or not an individual or group makes progress largely depends on the steps followed to solve a problem. When action is needed the group must see the need and develop the challenge within their minds. When this personal challenge has developed, the group must formulate and state a set of acceptable objectives or philosophies. The group must define the problem or problems and place them in their order of priority. The group must examine the suggestions for all possible solutions and select the most probable alternative of these solutions. To do this they must (1) collect and classify the pertinent data, (2) critically evaluate each proposed solution, and (3) decide upon the course of action. When the course ofaction has been decided upon, it would be most beneficial to integrate the activities of person and agencies capable of working upon the solution.

HOW TO GET PARTICIPATION

The heart of group dynamics is participation. Problems of groups can normally be quite easily solved if all members would take an active part in searching for the solution. Many individuals do not participate because the goal seems unimportant, they may have a fear of the solution, they may think that the group lacks the skill to solve the problem. They may feel that their work may be useless or they may be involved in a personal conflict with the general attitude or solution prescribed by the group. To obtain high-quality participation, leaders must be sure that the members help design their own plans. Plans should develop out of members' needs and wants. These plans must be based on true facts and not fantacies. Proficient leadership will stimulate participation. No group can be expected to materialize into anything beyond the ability and sincerity of its leadership.

DEVICES EFFECTIVE IN STIMULATING GROUP PARTICIPATION

The interest approach is probably the most important device available to promote participation. All groups can be encouraged to demand a solution and to strive for that solution if they truly see the need, purposes and objectives of their challenging endeavor.

To explore the problems and to discover the interests and attitudes of groups, a leader could use the quiz method to draw-out this information. Particular and professional care must be taken in developing these questions so that they truly express the information that is needed.

Some individuals may like to use the questionnaire method to obtain the topics necessary for discussion.

A forum or symposium which consists of several speakers that present different aspects of the problem and having their presentation followed by questions from the audience is usually a very effective method. It is particularly effective if the speakers are able to reach each member of the group with challenging thoughts.

A panel is quite effective in opening up the audience because of its informal approach to a problem.

A hearing with a judge and a jury listening to witnesses who give testimony on both sides of the question may be aimed at discovering the important problems, giving facts and evaluating the proposals.

Some particular problems can sometimes be best approached by providing a clinic where experts hear the case and they prescribe the remedy or treatment to the problem at hand.

This clinic system can be easily converted to an interview approach to finding a solution to a problem. These experts are brought together for interview by selected group members. This often brings about participation of a greater number of people than does the clinic system.

If the problem involves personal or emotional problems a private interview and play-back may be used to overcome shyness or personal objections to group exposure of personalities.

The most effective method of developing ideas is to use the system called buzz sessions. Groups are divided into smaller groups of 6 to 8 persons. These groups are asked to discuss definite questions and to report their selected answer within a given time. Many individuals unwilling to speak before larger groups will often take an active part in small group discussions.

Some groups may use observers that mingle with the groups to listen for problem discussions that are being carried-out during recesses or coffee hours. These problems may be group problems that deserve group action.

Brainstorming is a system used in a small group. This system encourages anyone to speak-up with what comes to mind, irregardless of practicability or consequences of the statement. This system must be carried out informally. It tends to reduce the chance of overlooking some possible answers to the problems at hand. Ideas are generally written on the chalkboard.

Dramatization of a problem by role playing may motivate a group into action. The role players try to enact the conditions that would exist if no action were taken on the problem or if particular action is taken.

Professional groups often use workshops, conferences, or institutes to discuss and obtain information about specific problems or solutions to problems.

Any one of these devices can be very effectively used in an organization to determine the problems that need action or to provide information on the solutions to specific problems. Promoting group action in a democratic fashion is group dynamics.

STUDY QUESTIONS

1. For what reasons do groups fail?
2. In what way does atmosphere affect a group?
3. How can we improve atmosphere?
4. How can you as an individual help make an activity a success?
5. How can you as an individual help make an organization successful?
6. For what reasons do some individuals fail to participate in an organization?
7. What are some of the devices that would be most effective in bringing about participation?
8. What are some of the devices that could be used to draw-out problems or ideas for action?

11 PARLIAMENTARY PRACTICE

A system whereby people can arrive at group decisions is made possible through a media known as parliamentary practice. Correct parliamentary practice or procedure is most effectively learned through practice in real-life situations. Parliamentary procedure is an orderly means of transacting business which allows majority to rule but the minority is heard. It accomplishes items of business in the least time and is the accepted form for transacting business of all formal groups.

Perhaps the secret of using parliamentary procedure successfully is that of simplification. Leaders need to follow a set of rules when conducting a meeting, but they need not be complicated.

Parliamentary procedure can be relatively simple and should be used according to the ability of the group. Everyone has the ability to learn parliamentary procedure. People desire "democratic action" and parliamentary procedure is democracy in action. Many groups and individuals have little knowledge of parliamentary procedure and do not follow the accepted form. Parliamentary procedure is aimed at fairness to all and getting most done in least possible time. Actural doing or practice is one of the better ways of learning parliamentary procedure.

Many groups tend to place too great an emphasis on correct parliamentary procedure. The only real purpose of parliamentary procedure is to "get done what needs to be done." Any group could select one of several references like Roberts' Rules of Order to serve as their guide. In an article in the Adult Leadership Magazine entitled "Move Over Mr. Roberts," Malcolm Knowles suggests that Roberts' Rules of Order have for too long a time dominated group meetings.

Suggested means of learning and teaching -- Teach a unit of parliamentary procedure in class; use film strips on parliamentary procedure; use demonstrations; use drill or practice; use correct parliamentary procedure at all meetings and use parliamentary procedure in contests.

BASIC PARLIAMENTARY PRACTICES

Steps in presenting business -- When motions are presented, it is necessary to complete the following steps.

(1) Obtaining the floor -- Member rises and addresses the president: "Mr. President," "Mr. Chairman" (or "Madam Chairman") - in large assemblies give name and representation.

(2) Assign the floor or recognition -- President recognizes the member by stating his name. This helps to establish order - "Mr. Jones has the floor."

(3) Stating business -- Correctly stated motions: I move that . . ." Avoid saying, "I make a motion that . . ." or "I so move . . ." The last two statements are not according to accepted parliamentary procedure.

(4) Second by another member -- "I second the motion." To second a motion, a member need not rise unless in a large assembled group. Chairman may also call for a second: "Do I hear a second to the motion?" If motion requiring a second does not receive one, the motion is lost.

(5) Statement of question -- After a motion has been made and seconded, the president then restates the motion before the group. "It has been moved and seconded that . . ." Restating the motion keeps the group informed.

(6) Presenting the motion for discussion -- Motions made and seconded are open for discussion. "Is there any discussion?"

(7) Voting on the question -- When debate is ended, the presiding officer should rise and ask, "Are you ready for the question?" Or, if no member wishes

to discuss question further, chairman can proceed to vote. "All those in favor of motion that we buy a tractor say, 'Aye' - those opposed say, 'No.'" If a member wishes to stop debate on a motion, he moves the previous question, "I move the previous question." Vote is taken on stopping debate. If this passes, then group votes on main motion.

(8) Announce decision-- Simple method - "Motion passed" or Motion lost." This keeps the group informed; at this time it is also very effective to tap the gavel.

Making Ammendments-- The person having the floor may wish to modify the original motion. This can be done by adding words, by striking out and inserting words, or by substituting. Amendments can be made only to the second degree (an amendment to an amendment to a motion). The third degree is not allowed since it adds to confusion. Often a main motion is made and seconded or during discussion, a member wishes to amend a motion. He addresses the chair, is recognized and given the floor. "Mr. Chairman, I wish to amend the main motion to read that the picnic be held at 8 p.m. (He adds to the motion "that we have a picnic.").

Chairman - "Do I hear a second?"

Floor Member - "Second."

Chairman - "Any discussion?"

Floor Group - "Question."

Chairman - "All those in favor 'that we hold a picnic at 8 p.m.' say, 'Aye.'

Opposed, 'No.' Amendment is passed."

Now act on the original motion.

KINDS OF MOTIONS

Main Motions or Principle Motions-- These motions bring business before a group. Example: "I move we send two delegates to the leadership school." Main motions yield to subsidiary, privileged, and incidental motions, are debatable and amendable.

Subsidiary Motions-- Subsidiary motions are motions that modify or dispose of a main motion. These motions must be decided before the main motion can be brought to a vote. Subsidiary motions in order of importance are:

(1) Lay on the table - lays aside business for more pertinent matters.

(2) Call for the previous question - stops debate.

(3) To limit or extend debate - sets time limit on debate.

(4) To postpone - lays aside business to specified date.

(5) To commit or refer - places business in hands of a few.

(6) To amend - changes or adds to a motion.

(7) To postpone indefinitely - kills action.

Incidental Motions-- Incidental motions are ones that arise from a pending question. They may, therefore, come-up at any time. Incidental motions must be decided on before the question they are incidental to. Incidental motions yield to privileged motions. Some of the most common incidental motions are:

(1) Point of order - corrects mistakes or disorder.

(2) Appeal from decision of chair - group asks chair opinion.

(3) Suspend rules - allows variation from order of business.

(4) Division of house - calls for accurate check on vote.

(5) Nominations - to close - requires a 2/3 vote - no debate.

(6) Nominations - to open - majority vote required.

(7) Parliamentary inquiry - asks questions of parliamentary procedure.

(8) Withdraw a motion - prevents action on motion.

Privileged Motions-- Privileged motions have the highest order or rank and are motions that affect the convenience of the group or one of its members. These motions do not refer to the pending question. Examples are not debatable:

(1) To fix time at which to adjourn - sets the time of adjournment.

(2) To adjourn - closes meeting.

(3) To take a recess - allows for freedom of smaller groups during a session without adjournment.

(4) To raise a question of privilege - concerns the health and well-being of the members.

(5) To call for orders of day - order which the assembly has decided to do business.

Unclassified Motions-- (cannot be readily classified)

(1) To take from the table - opens discussion on business put aside.

(2) To reconsider - means whereby a decision once made and later seems wrong can be changed.

(3) To rescind - to nullify action.

(4) To ratify - confirms.

Resolution-- Often wishes of a group are written-up in the form of a resolution to be presented to executive committee so it can receive action.

Use of Gavel-- The gavel has certain traditional uses which every chairman should understand. It is a symbol of authority to be used with discretion by the chairman. The following taps mean: one tap - to sit, adjourn, announce completion of item of business; two taps - calls meeting to order; and three taps - members are to rise.

Parliamentarian -- (if used) The parliamentarian of a group serves as advisor to the president on procedural matters. The parliamentarian advises the chairman; the chairman or president, however, gives the ruling.

SUMMARY OF MOTIONS*

(Adapted from Robert's Rules of Order)

Kind of Motion	Second Required	Debatable	Amendable	Vote Required	Purpose
Privileged Motions					
Adjourn	Yes	No	No	Majority	To end the meeting.
Take a Recess	Yes	No	Yes	Majority	To interrupt a meeting for a short time or provide an intermission.
Raise a Question or Privilege	No	No	No	None	To obtain action immediately in an emergency.
Subsidiary Motions					
Lay on the Table	Yes	No	No	Majority	To set aside an item of business temporarily.
Previous Question	Yes	No	No	Majority	To close debate immediately.
Postpone to a Certain Time	Yes	Yes	Yes	Majority	To delay action.
Refer to a Committee	Yes	Yes	Yes	Majority	To place business in hands of a committee.
Amend	Yes	Yes	Yes	Majority	To modify or alter a motion.
Postpone Indefinitely	Yes	Yes	No	Majortiy	To kill a motion without bringing it to a vote.
The Main Motion					
Main Motion	Yes	Yes	Yes	Majority	To introduce new business

*Highest ranking motions are at the top of the list. While any motion is pending the motions above are in order and the ones below are out of order. While this list is not complete it does contain those motions which members should understand and possess some skill in handling. For a complete list see Roberts' Rules of Order.

Kind of Motion	Second Required	Debatable	Amendable	Vote Required	Purpose
<u>Incidental Motions</u> Nonranking					
Point of Order	No	No	No	None	To enforce the rules of the organization.
Appeal from the Decision	Yes	No	No	Majority	To insure that a majority of the group agrees with the ruling of the chairman.
Suspension of the Rules	Yes	No	No	Two-thirds	To facilitate business ordinarily against the rules of the organization.
Division of the Assembly	No	No	No	None	To secure a counted vote.
To Close Nominations	Yes	No	Yes	Two-thirds	To limit number of nominees.
Parliamentary Inquiry	No	No	No	None	To provide members with correct parliamentary information.
Request for Information	No	No	No	None	To answer questions of members.
To Withdraw a Motion	No	No	No	None*	To withdraw a motion before it is voted on.
<u>Unclassified Motions</u>					
Take a Motion from the Table	Yes	No	No	Majority	To bring before the group a motion previously tabled.
Reconsider	Yes	Yes**	No	Majority	To secure a new vote on a motion previously voted on.
Rescind-Repeal	Yes	Yes	Yes	2/3 without previous notice	To void previous action of the organization.

**Yes, if motion to be reconsidered is debatable.

STUDY QUESTIONS

1. What is the purpose of parliamentary procedure?
2. Give the steps in procedure of passing a motion.
3. In transacting business, which is voted on first - the motion or the amendment?
4. List the classification of motions.
5. What are subsidiary, incidental and privileged motions?
6. What would you do if two members wished to gain the floor at the same time?
7. What is the purpose of tabled motions?
8. How can a member stop debate?
9. What is the purpose of amending a motion?
10. What is the difference between tabling and postponing?
11. Give the purpose for rising to a point of order.
12. How does a group go about getting an opinion from the chair?
13. How does a parliamentary group leave-out part of the order of business?
14. How are nominations made and need they be seconded?
15. What is a question of privilege?
16. For how long are motions tabled? When must they be taken from the table?
17. What is the signal by gavel for members to rise?

12 PROGRAM OF WORK

A program of work is the same as a calendar of events. It may be defined as "an outline of activities" or "a plan of action" covering a definite period of time, usually one year. Most, if not all, organizations need a program of work, or at least some type of plan for group activities, if they are to accomplish the goals set by the members. A program of work is the backbone of any organization and gives an organization a plan so they can carry out their activities efficiently, timely, and systematically.

SUGGESTIONS FOR SETTING-UP GROUP ACTIVITIES

A good program of work includes a specific set of goals and a definite plan on how these goals are to be reached. It should also be well planned and carefully weighed and meet the needs of the group. The goals should be set high enough so you have something to strive for but within reach of the organization if they are determined.

Major areas to be included in a well-planned program of work may be any part or all of the following:

Financing Group Activities
Service (Community, State & Nation)
Relationships (Public & Group)
Cooperative Activities
Meetings
Leadership-Citizenship
Recreation or Fellowship
Individual & Group Welfare

COMMITTEES

A program of work needs various committees that are well informed and sincerely concerned with the welfare of the organization. The chairman should try to include every member on one of the committees. In this way, members will develop a sense of belonging and learn the operation of the organization. One standing

committee should be appointed for each major area of the program, and it may be desirable to have various special committees for some of the more important activities planned under each area of the program. It would be desirable to rotate committees each year so that members get a broader knowledge of the organization. The committees should be expected to give oral reports periodically at meetings, as well as hand in a written report which would become part of the organization records.

These committees could be elected by the group, but in most cases it may be more desirable to have the committees selected by the president or executive committee. When selecting members for a committee, one should keep in mind the interests and capabilities of each member.

DIVISIONS OF PROGRAM ACTIVITIES

Each major division of the program of work should include:

Objectives of each division.
List of committee members and chairman.
List of activities to be carried out.
All goals should be listed for each area.
Each activity should have a plan or ways and means of carrying-out each activity.
Recording of accomplishments.

Examples of formats:

Financing Group Activities

Objectives: To raise enough revenue to adequately finance all organizational activities.

Committee: Chairman - Joe Jones, Bill Smith, Jack Doe.

Activity	Goals	Ways & Means	Accomplished
Sponsor a teenage rodeo.	Raise at least $500 for Club treasury.	1) Advanced ticket sales. 2) Give prize money to top riders. 3) Send winners to State rodeo.	

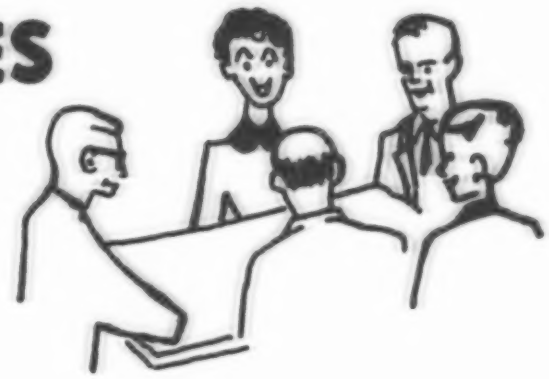
Calendar of Events for July

Day	Activity	Committee
1		
2	July meeting at City Hall, 8:00 p.m.	
3		
4	4th of July Picnic	Chairman: Joe Jones, Bill Smith, Jack Doe.

STUDY QUESTIONS

1. What is a program of work?
2. List several items that should be considered in formulating a program of work.
3. What is the purpose of a plan of group activities?
4. List several major areas that should be included in a calendar of events.
5. What committees are needed for a program of work?

13 COMMITTEES



The committee is the work horse of an organization. The committee meeting is the ultimate in the expression of the democratic process where individuals meet as equals and strive to reach a common decision or solve a problem for the benefit of all. It is essential that we develop an understanding of the leadership qualities and personal traits needed for effective committee work. A committee is a miniature organization.

Described as the force that makes things go for an organization, the committee may be thought of as a starting point in developing leadership. A committee where many members make no contributions should be avoided. These committees can best be described as a group of do-nothing individuals who meet as a group and make no decisions. The success of the committee can best be measured by how well it serves the parent organization and how well it serves the members of the committee. Small groups through the process of informal thinking and talking things over, accomplish what a large group cannot. This participation tends to develop the individual's speaking ability and other leadership traits. A committee tends to weld individuals into a group. It can also foster the feeling of belonging and encourages the individual to be a participator. A committee can best handle hard jobs that lead to a doing activity. The committee may stimulate action by the organization in carrying-out the organization's goals. The committee must serve its members and its members must serve it.

SELECTING COMMITTEE MEMBERS

Committees are usually appointed by the organization's president, but - in some cases - they may be elected by the group. In organizations where committees are needed for a special function and all members are well-known to each other, the popular choice may add prestige to the group. In large organizations where individuals have a wide variety of interests and abilities, the organization chairman may appoint the committee chairman and allow the chairman to select his committee. The organization chairman must avoid personality conflicts within the committee. This may require him to check with the potential committee members before announcing the appointments. A few simple rules will aid the president in selection of a committee: Select for a cross-section of interests; for a cross-section of status; for a cross-section of seniority; for geographic distribution; members that have an interest in the particular work of the committee; for known abilities and talents within the group.

SIZE

The committee should be small enough for effective work yet large enough that the individual work load is not burdensome; small enough for ready communication but large enough to represent the parent organization. There may be some advantages to an uneven number; 3-5-7 members are frequently used, but the committee may be effective with larger groups of 15-17. Remember, the larger the committee, the greater the need for skill in handling.

COMMITTEE ACTION

The work of the committee will depend largely on the skill of the leader in group dynamics. The meetings may be simply the leader giving information to the group, or they may be non-specific where the members are free to agree on the work of the committee. These two extremes imply a great difference in the degree of member

participation. Most committees will function somewhere between these extremes and often the individual will function all the way from a listener to a participating speaker. To function effectively, the committee must evaluate its accomplishments. The committee should use an accepted form for reporting. The committee may be a permanent committee that functions all year or a special committee that functions for the accomplishment of a single objective. The number of meetings will depend on the needs of the committee. Quarterly or monthly meetings should be considered a minimum.

THE CHAIRMAN

The committee chairman is responsible to see that the room is properly heated, lighted and ventilated. He should be aware of the number of chairs needed and the facilities desired for the transaction of business (paper and pencils may be needed). The chairman should notify members of time and place of meeting. Formal meetings should be held in a public building to avoid obligations. Informal meetings may be held in the living room of some member's home. In informal meetings, the chairman need not be concerned with such things as heat and light. The chairman should help the committee members to understand the objectives. He must become one of the group and remain one of the group if the true democratic process is to prevail. He must guide the group to a decision so the members have a feeling of accomplishment.

MEMBERS

Each member of the committee should give the group the benefit of any special talents or skills he may possess. The success of any committee will depend on the degree of leadership qualities developed within the individuals of the group. Each member should make an effort to develop these individual leadership traits and in so doing help the committee to develop group leadership traits. Informal leadership is the

force that rises within a group that determines the action. Persons who develop these qualities will be persons of influence. Members should avoid monopolizing the conversation; listen and respect the opinions of others; avoid personal prejudices; and strive for achievement of purpose. All members should participate but some members may serve in special capacities. All committees should have a chairman and a recorder. Some committees may need a vice-chairman and possibly a parliamentarian.

SUMMARY

Objectives should be clearly understood and within the authority of the group to make the decision that results in action. Goals should be set that are easily understood by all members. Aim for positive decisions. Summarize the results. Report all activities and accomplishments to the parent organization. Evaluate in terms of leadership objectives.

STUDY QUESTIONS

1. What type of meeting best represents the democratic process?
2. Who determines the need for a committee?
3. What special committee members are needed?
4. How can leadership be developed by committees?
5. How can a committee be organized?
6. What leadership traits are needed by members?

14 RECRUITMENT

The life blood of any organization is an adequate and meaningful membership. Too often new members are recruited and then left to sink or swim. Finding good membership material is very important, however, the induction and training of new members is also very important. Unless new members are made to feel wanted and are kept active, the whole job of recruitment may be lost.

Many organizations die for the lack of membership. How do we get members? Everything an organization does directly or indirectly influences potential members, such as, news reports, items of membership interest, dues, public meetings, endorsement of civic projects, etc. It must be kept in mind that as recruitment is taking place, there is an optimum number of people needed for maximum effectiveness.

MEMBERSHIP RECRUITMENT

Here are some considerations that should be kept in mind:

* Are the organization's goals and aims clear?
* Do the community and prospective members know the organization's goals?
* Is there a conflict between the policy of the membership committee and the policy of the organization?
* Is there an organized method of recruitment?
* Is quality or quantity most important in recruiting members?

WHAT KIND OF RECRUITS DO YOU WANT?

The answer to this question would depend upon the type of organization. For example, a 4-H Club would solicit boys and girls from the ages of 9-21 who were interested in agriculture and home-making. A P.T.A. would be looking for parents and teachers or persons interested in school welfare. The quality of members should be kept in mind. Quality, not quantity, determines a group's success. Heterogenous groups tend to be more successful than homogenous groups.

WHERE FOUND

Prospective members can be found in about every community. These people or prospective members may be in the community, but the programs, goals, and achievements of the organizations must reach them. They have to be informed before the desire to join is initiated.

CONTACTING NEW MEMBERS

There are many ways of contacting prospective members. A close friend or a member with the same interests might make personal contact with the prospective member. The use of membership committees will also be advantageous. An analogous situation of a membership committee might be a complete recruitment department and personnel solely for the purpose of recruitment.

RECRUITMENT PROCEDURES

Here are suggestions for recruitment of new members. Many of the following can be used by many organizations. By no means is the list complete.

Personal Letters: A letter to the prospective member should include an expressed invitation from the organization. Items that might also be included would be aims, purposes, and what may be gained from joining.

Personal Contact: This may be a follow-up from a form letter. This is a desired method when using a form letter. Personal contact should be by a close friend or member having similar interests. Many times an individual is able to explain the goals and purposes and what he had gained as a member.

Orientation Meeting: This may or may not be a regular business meeting; however, the purpose is to inform the prospective member of the organization. A panel, or question and answer period of old and new members might be very effective.

News Reports: The purpose of the news report is to inform the public of the aims, purposes and accomplishments of the organization as well as explain the need for new members. This may be done via television, radio and newspaper.

Banquets: A banquet provides a medium whereby special speakers or officers can outline outstanding achievements of the organization. Prospective members could be introduced as guests.

Social Functions: This type of recruitment is the informal type whereby recreation or entertainment may be the central topic.

Use of Membership Committees: The membership committee should have the primary responsibility for recruiting, orienting and keeping members. It should be the membership committee's duty to:

1. Organize recruitment
2. Prepare materials for distribution to potential members
3. Orient new members
4. Work with the executive board

It should be noted this is usually the most successful method of recruitment.

HOW CAN ORGANIZATIONS KEEP MEMBERS INTERESTED?

In order for a person to continue as a member it is of utmost importance to keep the member PARTICIPATING. Every member should be delegated responsibility and

recognized when completing the job. An active participating member will not have to be re-recruited.

STUDY QUESTIONS

1. Where can members be found?
2. What are some procedures for recruiting members?
3. How could an orientation meeting recruit members?
4. What is the job of the membership committee?
5. When should members be recruited?

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15 CITIZENSHIP AS LEADERSHIP

Leadership education is designed to imporve citizenship. Citizenship embraces many phases of an individual's relationship to his community, state and nation. It encompasses the dignity of the individual on one hand and our national heritage on the other.

INDIVIDUAL CITIZENSHIP

Citizenship begins with the individual. The personal traits of leadership are also the traits associated with citizenship. Such traits as loyalty, respect, fair-play, courage, integrity, honesty and determination are essential to the individual if fulfillment of citizenship obligations are to be realized. These traits are developed by participation at all levels and in all kinds of activities. The give-and-take of participation is probably the one thing that contributes most to the development of good citizenship.

FAMILY CITIZENSHIP

Being a member of any group incurs responsibilities as well as privileges. Privileges such as the family car or the family camper carry with it the responsibility of protecting the property and keeping it available for other members of the family. The family is the basic unit of our civilization and culture.

COMMUNITY CITIZENSHIP

Community citizenship includes school citizenship and also organizational citizenship. As a member of this larger group, an individual may have more rights and privileges; but to maintain those privileges, he must accept greater responsibilities and obligations. The democratic process calls for active participation by the individual.

Many organizations list among their objectives citizenship training. The "Ten 4-H Guideposts"[1] include sharing responsibilities for community improvement and serving as citizens in maintaining world peace. The eighth purpose of the FFA is "to develop character, train for useful citizenship and foster patriotism."[2] The National Education Association included good citizenship as one of the seven cardinal principles of secondary education.[3]

Each individual when seeking citizenship in any community must offer service to the community and strive to make it a better and safer place to live.

NATIONAL CITIZENSHIP

The objective of our citizenship training program is ultimately Americanism. The principle, that the interests of all people are above those of any special interest or any class or section of the population, should be maintained. To accomplish this, the individual must understand the principles of American government. Organizations should promote an understanding of the democratic process and bring more individuals into a participating role. The democratic process is participation. Citizenship as an American gives the individual certain inalienable rights, such as: Freedom of worship; freedom of speech and press; freedom of assemblage; freedom to work in such occupation as the experience and qualifications enable him to secure and hold; freedom to enjoy the fruits of his work; and the right to pursue happiness as long as it does not harm others. These rights carry great responsibilities. The individual as a citizen is charged to that end, that all individuals have these rights.

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[1] ABA Bulletin, 7, "Building for the Future with Farm Youth."

[2] Ibid.

[3] U.S. Office of Education, Bulletin 35, "Cardinal Principles of Secondary Education."

A citizen, as opposed to a subject, implies allegiance to a state in which the power of government is retained by the people.

TRAINING FOR CITIZENSHIP

It is important to develop loyalty to family, friends, school, organizations, community, and country. Loyalty is developed by being made to feel a part of the group. Individuals also need to be reminded of the part they play in the government. Pride, in whatever part the individual might have in any activity, tends to make that individual proud of this association. Repsect for and support of the laws and those persons in authority is developed within the individual in direct proportion to the individual's feeling or participation. This respect may be developed in an athletic contest or in a student council meeting. Individual allegiance to the Flag is a must when that individual may be called on to defend it against an enemy. Allegiance to the Flag may be a mental attitude and can be developed in the individual that understands and believes in the democratic process and the American way of life. Allegiance to the Flag should be practiced and developed by not only potential leaders but every individual.

SUMMARY

Responsibilities of citizenship should not be confused with blind obedience. The citizen has the responsibility not to castigate but to evaluate and serve in whatever capacity is most beneficial to the greatest number - not to decry but to have faith in the destiny of the United States of America. John F. Kennedy emphasized this responsibility by saying, "Every citizen holds office."[4]

STUDY QUESTIONS

1. What is the goal of leadership education?
2. What might be said to contribute most to citizenship?

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[1] Kennedy, John F., "Every Citizen Holds Office," Minnesota Journal of Education, 45:20 (Dec., 1963).

3. How does membership in a group effect one's status as a citizen?

4. In what way do responsibilities increase as size of the group increases?

5. How is citizenship fused with education?

6. How can Americanism be achieved?

7. How can every citizen be considered an office holder?

8. What is the difference between a citizen of a country and a subject?

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16 RESOURCE MATERIALS AND THEIR USE

A vital part of leadership is knowing how to locate, select and use resource materials. People represent a rich source of program resources. Resource materials are becoming increasingly popular in the educational field as well as in carrying-out group studies and surveys. Resource materials are interest builders, provide clarification, aid problem solving and authoritative information in a specific area. A resource is valued because it is useful in achieving objectives. It is a means to an end, although many times it is considered an end in itself. It is not self-sufficient. It should be thought of as a means of "enriching a program or meeting" rather than taking the place of it. A speaker is an example of a resource person.

KINDS OF RESOURCES

Resource materials can generally be classified two different ways. They may be placed in two major categories or four smaller classifications. The two major categories are concerned with experiences received from them. Direct experience involves the group members taking part in mechanical operations, drawing plans or traveling. The second-hand experience refers to a speaker, book or film which stirs the imagination of the members and enlarges their understanding of the subject matter.

The four smaller classifications are based on the type of resource. Examples of these are as follows:

Human resources are guest speakers, debates, symposiums, panels, group interviews, chalk talks, dramatics, consultants, specialists and demonstrations.

Printed material is composed of books, pamphlets, study guides, discussion guides, manuals, newspapers, magazines, periodicals, catalogs and reading lists.

Audio-visual aids include the blackboard, motion pictures, slides, filmstrips, charts, graphs, maps, globes, photographs, exhibits, bulletin boards, puppets, radio, television, phonograph records and tape recordings.

Group activities refer to field trips, pageants, role playing, discussion, arts and crafts activities, and skits.

SELECTION AND USE OF RESOURCE MATERIALS

The selection and use of resource people and materials is of great importance. Because the selection and use cannot be easily separated, we will discuss them together.

Before selecting any resource, the goal or objective should be clearly in mind. Ask this question: Just what am I trying to accomplish? The use of irrevelent material has often retarded or completely destroyed any learning or accomplishments up to the time of its use.

It is well to remember several steps to follow when using resource material or people. Such as:

1. Put the group or audience in the proper frame of mind so they will be receptive and able to understand the presented material.
2. Give them a brief preview of what is to be accomplished and urge them to write down or ask any questions which may come-up during the presentation or activity.
3. After the material or activity has been used, an evaluation must be conducted to determine if the desired objectives have been reached.

If a guest speaker is to be used, keep in mind that he must know what is expected of him, and he must know the type of group he will be facing. The speaker should be extended all the courtesy possible and be properly thanked for sharing of his time and experiences. Although the guest speaker furnishes the material for the program, the group leader is still in charge of the meeting. It is his responsibility to see that the necessary equipment is present, that discipline is maintained and that proper courtesy is given to the speaker. It should be quite clear that the use of

resource materials is not a substitute for the leader, but a supplement. The proper use of resource materials may require more time and effort on the part of the leader than it would have if he had presented it himself.

LOCATING RESOURCE MATERIALS

There is an abundance of resource people and materials if you know where to look. Often these materials are so near that they are overlooked. Most communities have an abundance of resources from which to make a selection. Just as there are resources in any community, there are also resources in any group. Individual members have different kinds of knowledge, skills, abilities and experiences. The problem lies in locating these skills. If the group is to function for a long period of time it would be wise to learn the special skills and abilities of the individual members. This can be done by having them fill-out questionnaire cards or by verbal means. Excellent resource people and materials can be located in community enterprises, institutions and agencies, many of which are not directly associated with education. Other sources are National Organizations, local Branches of Federal Agencies and local organizations.

National Organizations include city, county and state boards, bureaus and departments; health, welfare and civil services; budget and finance; elected officials; and police. Also, there are judicial administrations; highways; sanitation; recreation; building and zoning; education; commerce; labor; agriculture and legislature.

Local Branches of Federal Agencies can be found by referring to the phone book. Some of these are the Agricultural Extension Service, Soil Conservation Service, Economic Research, Farmer's Home Administration and the Forestry Service.

Local Organizations will vary depending on the size of the community and the area it serves. In the community, it is often possible to find universities and colleges, public and private schools, settlement houses and group work organizations, welfare and charitable organizations, community and adult education councils. In addition, you may find commercial and industrial concerns, professional societies, business

associations, libraries, museums, churches and labor unions willing to lend assistance.

It must be remembered that educational resources for use in classes and other groups covers much more than resource speakers; and to be effective, proper steps must be taken in preparation and follow-up. It cannot be over-emphasized that the use of these resources should not be abused; they are meant to assist rather than replace the group leader.

STUDY QUESTIONS

1. How are resource materials used?
2. What are the four main types of resource materials?
3. What kind of preparation and follow-up is recommended when using resource materials?
4. What kind of preparation and follow-up is recommended when using resource people?
5. What are some sources of resource people and materials?

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17 SOCIAL ACTIVITIES

Social activities or entertainment lend an air of relaxation to a usually tense meeting or gathering. Social activities do not always mean stiff formal affairs, but can be used advantageously at meetings as an "ice breaker" at the beginning; or they may be used to end a meeting on a note of gaiety or good will. Therefore, it is necessary that we lend some time to the role that socializing and entertainment play in the overall individual and group leadership plan.

NEED FOR SOCIAL ACTIVITIES

Very few people can live the life of a hermit and withdraw from society. Because people are gregarious, it will be necessary for them to learn how to enjoy their relationships with others as well as carrying on sober business dealings. Most group meetings incorporate some type of entertainment in their programs. In the case of youth groups and some adult groups, there is a need for training in the art of friendly conversation and being able to relax with other people. Group entertainment such as group singing often encourages many people to participate in the activity and usually "breaks the ice" for the discussion period to follow. Many meetings open with group singing. Entertainment or light lunches and refreshments at the end of the meeting gives the group a "change of pace" from the business session. Lunch or entertainment often encourages members to attend. Often individuals will attend a meeting for the lunch, party or refreshments. In so doing, they become exposed to the business meeting. There are probably many individuals who have become interested in the objectives of the organization because they were lured to it by lunch and social affairs.

KINDS OF ENTERTAINMENT OR SOCIAL ACTIVITIES

Entertainment or social activities may be utilized by groups in two ways: They may be the main purpose for the gathering, or they may be a part of the meeting. Entertainment meetings may take the form of banquets, picnics, or pot-luck dinners. They may promote fellowship among the members or often they can be used effectively to recruit new members. New individuals introduced to an organization in this manner may develop a bond of friendship with the members in this informal atmosphere. Banquets are often used by organizations to give recognition to its outstanding members or to helpful people in the community. This close community association may bring the organization favorable publicity.

Entertainment or refreshments for some individuals are the highlights of any meeting. As was mentioned previously, many individuals will attend meetings only if entertainment is provided or refreshments are served. Lunch and refreshments usually are served at the end of the meeting. This tends to hold members after the business is transacted and possibly the best and most fruitful discussions of business occur at this time. Group singing helps get many members in high spirits and opens the door for free discussion later on. It is advisable to have a piano or other instrumental accompaniment whenever possible. Always furnish the group with song books or song sheets. Many meetings open and close with group singing. Speakers and movies are effective interest-builders. They are usually used as entertainment or relaxation and this is what the audience will expect. It will be necessary to obtain the services of some speaker whose experiences or informational material is of great interest to everyone. The same is true of motion pictures. Movies should be carefully selected when used as entertainment. Games and dancing are enjoyable to certain groups, expecially youth or family groups. Recreational games of the

indoor or outdoor variety are recommended where friendly competition among the group can be established. Square dancing or folk dancing are usually popular forms of recreation. This recreation takes place after all business has been completed.

PLANNING AND CARRYING-OUT ENTERTAINMENT AND SOICAL ACTIVITIES

To be effective, entertainment must be carefully planned and carried-out. This insures maximum participation and enjoyment by everyone and will reduce confusion and disorder during the activity. It is not necessary to provide a large amount of entertainment; if it is emphasized too much, the attention of the organization may revert from the business to entertainment as being the major objective. The place on the program must be carefully selected so that the maximum benefit may be received. Group singing may be most effective at the beginning; whereas, refreshments should be served afterwards to eliminate competition with and distraction from the business items. A committee or some responsible individual should always be in charge of making arrangements, serving and cleaning-up. In the case of banquets and picnics, it may be necessary to appoint special committees to be in charge of such items as food, program, arranging for suitable facilities and clean-up. Many of the activities will require financing to varying degrees. Some organizations budget for entertainment and social functions, while others operate on a donation basis. When sending out meeting notices, it is always a good idea to include the entertainment on the billing. When organizing meetings, don't overlook the importance of entertainment. It behooves the group leader to make ample plans for this portion of the program. By doing so, he will usually have a happier and more cooperative organization.

STUDY QUESTIONS

1. Why are social activities and entertainment desirable parts of leadership?
2. What purposes do entertainment meetings serve?
3. What kinds of entertainment can be organized?
4. Why should extreme care be exercised in selecting the place on the program for entertainment.

18 ADVISORY DUTIES

The advisor's function to an organization is to help the organization help itself. The advisor should guide, encourage and assist members of an organization. Advisors have specific functions such as helping members learn their responsibilities. Programs can profit from advisory functions as well as organizations. Many organizations have advisory councils or a board of directors while other organizations have advisors, such as the Boyscouts, F.F.A. and Campfire Girls.

TRAITS OF A GOOD ADVISOR

The person taking over as an advisor of a club, organization or as one of the directors should have the following traits: Be a respected member of the community; have an interest in people, the community and the organization; and have available time that he can spend on the job. The advisor should also have a knowledge of the goals of the organization, be a mature individual, have a working knowledge of parliamentary procedure and be a student of group dynamics.

ROLE OF THE ADVISOR

In every organization the advisor has specific responsibilities that he must carry-out and see that they are accomplished. Some of these functions are: Coordinate the policies of the organization; offer guidance to the individuals and group; provide material for the group that will be needed in carrying-out projects; train leaders through group dynamics; help develop a code of ethics and policies for the organization, and help evaluate the program.

EVALUATION OF THE PROGRAM

Every advisor, director or member must be able to evaluate the program of the organization to determine if the goals and objectives that are outlined in the program are being accomplished. A good evaluation may come from the state officials or other outside people. Some points to consider in evaluating the program are: Does it include every member? Does it meet the objectives of the organization? What are the accomplishments? This can be done with the help of the state officials, advisory committees, resource people, and the organization itself.

GROUP RESPONSIBILITIES TO THE ADVISOR

Officers and members need to realize that the advisor is there to help them if the need should arise. Each member should have a familiarity with the organization and what it is designed to do.

Officer meetings: The executive committee represents the steering and planning committee. It includes officers and the major committee chairmen. It is the duty of the executive committee to indicate to the other committees the aims, purposes and goals of the organization. Remember, the advisor should offer guidance in helping the group make decisions.

Decision making: Too often the advisor or directors make some of the major decisions without first consulting the group. All persons in an advisory capacity should refrain from doing this as much as possible. Similarly, it would be wrong for individuals or the group as a whole to make decisions effecting the organization's welfare without consulting their advisor.

ADVISOR'S DUTY AT MEETINGS

Committee meetings: He must have clearly in mind the problems to be discussed. He should have an idea of the decision that should be made (one that is of benefit to the organization and not just to a few). Development of good leadership traits will

take place if the correct procedure is used. The advisor should see that every member of the committee takes part, that a report is written and that satisfactory parliamentary procedure is used.

Group meetings: Offer advice only when the need arises; he should not try to dictate to the organization. Be ready to offer suggestions for the correct procedure. Give direction to the program and not lose sight of the educational values. He should never abdicate his office or role.

Program planning: He should provide reference material to aid in program planning. Analize needs and stimulate members to assume goals as well. Program planning is a continuous thing, but it must be evaluated periodically.

Special functions (trips, exhibits, banquets, etc.): Guidelines for special functions should be set-up by the group and the advisor should see that these are carried-out. At many organization functions, the advisor or leader sets-up all the rules for trips, awards and banquets, causing the members to become disinterested.

Group participation: The advisor should make available opportunities and information of events to the group. He should encourage member-participation from the standpoint of leadership training available to the individuals and group.

PARENTS' ROLE IN LEADERSHIP TRAINING

It should be stressed that parents have an important part in training leaders in the home through guidance, correct discipline and encouragement. There is a high correlation between successful leaders and interested parents. It would be suggested that these interested parents in a leadership school be oriented on leadership.

LAY ADVISORS

Lay advisors include such people as local leaders of the 4-H, Boyscouts and Campfire Girls. They should become familiar with the duties and responsibilities of an advisor. In many cases the professional advisor is the public relations or executive secretary of the organization. Other professional advisors are teachers that have organization incorporated into the school curriculum. A board of directors or an executive committee can function as advisors.

STUDY QUESTIONS

1. Give the traits an advisor should possess.
2. Who should be an advisor?
3. How would the advisor go about evaluating his program?
4. How much time should be set aside by the advisor?
5. Who can help the advisor with the evaluation program?

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19 FINANCING ACTIVITIES

Adequate financing is essential to the accomplishment of worthwhile purposes for any organization. While money may not automatically cause an organization to be a fire-ball of activity, it may help remove the barriers that otherwise stand in the way of success. The needs of the organization should be the determining factor in deciding what the financial needs are. Money should serve as a means to an end but should never be allowed to become an end in itself. An active organization engaged in many worthwhile activities will need more money to carry-out its program than the do-nothing organization. Activities such as club tours, trips, dinners, paraphernalia, donations to charity, publicity programs, awards and scholarships cost money; but these activities add much to the worth of any organization. Money to finance the activities should be the goal of any organization.

METHOD OF FINANCING

The methods of financing used by most organizations can be described under two broad categories as dues and activities. Dues may be a satisfactory method of financing the organization that needs little money to carry-out its program of activities. Dues should be kept to a minimum and should serve as a ticket to membership rather than a method of financing. Dues serve a purpose if they give the member a sense of belonging. A form of dues sometimes used is a member assessment to finance a single activity. Dues in itself do little to encourage member participation. Activities conducted to raise funds are of value in many ways. The activity may contribute to the organization's leadership and educational objectives by furnishing worthwhile activities that offer opportunities for participation by many members. Fund-raising activities often will raise large sums of money in a short time to finance ambitious programs that would be difficult to finance in other ways.

SELECTING ACTIVITIES

Activities should be selected on the basis of their contributions to the objectives of the organization. These activities can be evaluated according to the following criteria: Does the activity conform to the nature and purpose of the organization? Does it compete with activities of other worthwhile organizations or local businesses? Does the activity offer a fair return in terms of service tothe community or to the people who are asked to support the activity? Does the activity serve a need or render a service to the school or the community? Does the activity furnish opportunity for member participation? Is the activity morally acceptable to all members? Avoid activities that fail to raise money commensurate with the time and effort expended; that have been overworked in the community; that may be legally questionable; and which may cause adverse publicity.

SUGGESTED ACTIVITIES

Any list of activities will necessarily be inadequate and can only serve as examples. Some that may be acceptable for some organizations are completely foreign to the nature and purposes of others. The following list is no exception.

Organization Calendars
Slave auctions
Christmas card sales
Livestock & crops production
Raffles
Athletic contests
Fair exhibits
Install seat belts
Barbeques
Bazaars
Stunt night
Bingo
Baby chicks
Rummage sale

Birthday calendars
Building equipment
Contests
Box socials
Breakfasts
Talent shows
Hootenanny
Turkey shoots
Barn dances
Pot-luck dinners
Banquets
Agricultural signs
Transplants

Concession stands
Magazine sales
Cooperative buying & selling
Dances
Pancake suppers
Record hops
Mutural insurance
Rodeos
Square dances
Carnivals
Community auctions
Machinery hire
Rodent control

BUDGET

The first step and perhaps the most important step in financing is preparing the budget. The budget should be prepared to serve needs of the organization in carrying-out its program of activities for the year. When the financial needs have been

determined, select activities that best meet the needs of the organization.

AUDITING

Whenever financing is necessary, an audit is also necessary. Each organization should keep a record of all finances and be able to account for all moneys expended during the year. If no tax moneys are involved this audit can be done by a committee appointed by the president of the organization.

STUDY QUESTIONS

1. How can money help spell success for an organization?
2. Why do some of the most active organizations require the most money?
3. Name some activities that require money.
4. Name some activities that add worth to an organization.
5. What are two general methods of financing the activities of the organization?
6. What value to the organization may be served by dues?
7. In what way does the money-raising activity serve the organization?
8. List 30 ways of raising money for organizations.

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20 NEWS MEDIA

Every organization, at least almost every, should publish a periodic news report to its membership and affiliated group. This media may be a magazine, a bulletin, or a news letter. This is generally a monthly publication or may be weekly, bi-weekly, quarterly or annually.

The purpose of a news media is to stimulate interest in the organization among its membership and to highlight important activities in its program of work. A good club news publication serves a purpose similar to that of the local newspaper. Its publication serves as an historic record of club activities and as a basis for evaluating the club's program. A good news publication will serve its greatest purpose in stimulating active membership and encouraging the work of individuals and groups.

FORMAT

Bulletins or newsletters are either duplicated or printed. Some groups may print their masthead and duplicate the body of their newsletter or bulletin. An 8½" x 11" sheet is the most common size for duplicated bulletins. Heavy paper stock permits utilization of both sides.

There are two printing processes - letter press and offset. Letter press is printing on paper direct from type or engraving. Offset is a photographic process in which the matter on the printing plate is first printed on a rubber-covered cylinder which then transfers it to the paper.

FINANCING

A one- or two-page duplicated news media need not be an expensive item. A major cost may be postage. If a large number of copies are produced, printing may be

most favorable and is versatile for using photos. Available finances will provide a quick decision on the type of bulletin or magazine which can be produced. Financing may come from (1) club funds, (2) dues, (3) subscriptions, and (4) advertising. Most organizations use little or no advertising.

CONTENT

A favored item for news media is that of coming events - listing dates, speakers, and programs. Reports on work of committees and affiliated groups is a major item. Pictures are always welcome and well received. Biographic sketches of new and old members serve an historic purpose and stimulate fellowship. Attendance is a major item to stress in all news media. This may be attendance at meetings, conferences, and on special occasions. Club information is a major item for club membership. This may relate to objectives, activities, history, items to buy, scholarship programs and educational materials.

EDITOR

Each news publication is dependent for its continuous life and content on its editor and his staff. These people usually get paid wholly as a contribution of service. In larger organizations they are paid for their services, often a nominal fee.

STUDY QUESTIONS

1. Why have a club bulletin?
2. How can club news media be duplicated or printed?
3. What items should be included in organization magazines or bulletins or newsletters?

21 INDIVIDUAL LEADERSHIP OBJECTIVES

The overall objective of individual leadership is to cultivate those desirable personal traits and abilities which will best fit the individual to grow in knowledge and understanding to meet life's situations in our democratic society.

Specific Individual Leadership Objectives Are to:

1. Practice and develop personal traits and attitudes - such as friendliness, appearance, sincerity, humility and depend-abiltiy - which are all admired by co-workers.
2. Develop the arts of speaking, writing and listening.
3. Develop a working knowledge of group processes and the role of the individual in group programs and efforts.
4. Recognize the need for hard work, experience and continuous learning.
5. Develop more fully those individual qualities of citizenship which are achieved by leadership training and practice.

22 TEAMWORK

Almost everyone appreciates the efforts of a winning team on the playing field. It is almost sheer beauty to observe the individuals, captains, and coaches functioning as a closely-knit unit. Likewise, it is a thing of beauty watching the lift-off of a space craft as it prepares to go into orbit. We all know this would not be possible without teamwork between the workers, the technicians, and the scientists. Coordination is the key in leadership through teamwork.

TYPES OF TEAMWORK

Already the athletic form of teamwork has been mentioned and also the scientific type of teamwork. In other areas the team might consist of members, officers, and advisors of an organization; or teachers, administrators, and a school board; or possibly salesmen, supervisors, and a board of directors. Whatever the case, it is becoming more and more important to give each part of the team equal rating in over-all importance.

COORDINATION

It is all too easy to separate the parts of the team into their own little groups and then argue over who is going to do what. Too many groups operate under the authoritarian procedure of pointing the finger and saying, "You do this or you do that."

Coordination between the three major components of a team will not only mean more effective leadership but also that more will be accomplished. Coordination among community groups, organizations, or agencies produces a sense of togetherness and harmony. In some instances there is evidence that several groups are trying to achieve the same goal but are all pulling on a different rope. They need coordination in order to tug together. Coordination tends to raise the whole level of leadership to a higher plane.

SUMMARY

Almost without exception, in our rapidly changing world, the cry for leadership is becoming louder and louder in all groups and organizations. More needs to be done and in less time than seems possible to accomplish the task. If the challenge is to be met, it must be done through teamwork.

Teamwork needs to be practiced, not preached.

STUDY QUESTIONS

1. What are some values of teamwork?
2. What types of teamwork may be found?
3. Explain how coordination is an important factor in teamwork.

23 DECISION MAKING

If each individual's destiny were predetermined, his need to make decisions would be nonsense. However, as we all well know, it is not. Therefore, it becomes necessary for one to make decisions in order that he may establish steps in determining his own destiny. Decision-making is the settling of a matter to satisfy the needs of an individual or of a group. More accurately, it should be defined as the settling of a matter to satisfy the needs of an individual; because it more often than not does just that.

FACTORS WHICH AFFECT DECISION-MAKING

The human being possesses great abilities to determine his own destiny. However, the following factors limit this ability:

Man is limited to making decisions by his own heredity and environmental exposures. If he has neither the intelligence nor had the environment necessary to make positive decisions; this becomes a handicap.

Moral choice limits man to opinions or free choice. He is granted freedom to choose only in order that he may reveal his religious and ethical qualities and demonstrate his moral stamina.

Some people are puppets, which limits their decisions to the options of others because of the invisible strings attached. Yet, they take the responsibility for their decisions.

Cultural influences effect the freedom of choice. Social codes and social pressures would fall under this. This type of person, or group, would make decisions concerning themselves as well as the social effect it would have because they are part of a group.

Psychological status of an individual has an effect on an individual's interaction to decision-making. This involves a feeling of insecurity because of psychological difficulty. There is a feeling of guilt over treatment of others and an interaction in jurisdiction over these feelings results.

DEVELOPING THE ABILITY TO MAKE DECISIONS

Have determination. The more determined one conceives his choices to be, the more sure he will be of his decisions. Don't question your own integrity but become increasingly aware of your unacknowledged and acknowledged personal interests. Have motivation. Decisions are related to motives and when you can evaluate these, you have good motives. Examine thoroughly all possibilities of a problem. Listen carefully and consult often. Explore where feasible and experiment boldly. Don't pussyfoot, sidestep, straddle or walk the fence. Take sides and always know where you stand. Feelings are related to decision-making. If you can understand your own feelings you will be better able to make a free decision and a more accurate one.

DECISION-MAKING AS A GROUP

Decision-making as a group is based on the ability of each individual in that group to make decisions. In general, there is a minority that expresses the decision but each individual has an influence on it. If a group is dominated by fatalistic-type people, people who make decisions through influence from other people, it will be a group that has small actual authority of its own. If a group is dominated by free-will type people, its authority in decision-making will be more than empty gestures in behalf of the group.

24 DEMOCRATIC PRINCIPLES

Democracy means a way of living, an effort to run society by its members deciding what should be done.

A democratic group is one in which the control of the group resides in the members. It is a government of the members, by the members, and for the members. The nature of our society is such that democratic leadership is a sound choice. It develops people, it is consistent with our way of life, and it works. Our society is one in which the concept of individual opportunity and individual worth is recognized. Efforts are continually made to maintain that freedom for the individual.

BASIC CONCEPTS OF DEMOCRACY FOR ORGANIZATIONS AND SOCIETY

This we believe, that:

1. The individual person is of infinite worth.
2. Each person has capabilities and talents that can make worthwhile contributions to his group.
3. Society should make adequate use of all the many talents of its members.
4. Each person should have a high sense of moral obligations to strive for the common good.

Principle of Habit - We tend to be comfortable in repeating the way things are done. We may follow a group used to a dictator-leader or use the laissez-faire approach.

Principles of Group Consensus - Group process can be like a chain reaction - one idea can stimulate many new ideas. Leadership is essential to effective group effort. Someone must lead in order for a group to function as a group. Within this group leadership may be either democratic or autocratic leaders. In a democratic group, the group decides what action it is to take and how the action is to be carried-out. In the autocratic group, the members have little choice on how the actions are to be carried-out. Autocratic leaders do not derive their power from the will of the group. The autocratic form of leadership cannot compete with the democratically led people in all-round productivity. The democratic process favors group leadership as well as individual leadership. Within the democratic groups we find more friendliness, less discomfort and more interest in the problems of the fellowman and more group consensus. The democratic leader does not attempt to influence the people, but to aid the people in solution to the problem at hand.

THE IDEAL OF DEMOCRATIC LEADERSHIP

The opportunity for everyone to participate in the deliberations and actions of the group is the most important ideal. Our American tradition emphasizes equality for all group leadership situations. Many leaders lose sight of this in an effort to gain favor. The strength of democratic participation lies in the fact that different individuals have equality in all situations. The respect of one for the others, even though there is a difference of opinion, is basic to the ideals of democracy. Without this, we could not live in a democratic society. This ideal must develop a give-and-take attitude in arriving at decisions. In a democratic society the group is the authority, while the leader serves the group. We will not survive as a democratic group or nation unless this authority is carried-out. The process of group dynamics exemplifies the basic concepts of democratic principles.

5. The individual should be a self-directed and a self-responsible person.
6. Each person should have a fair and equal chance to live fully and have the opportunity to develop his capabilities to their utmost.
7. The group has both the right and capacity to choose its own leaders and to determine their function.
8. The group has both the right and the capacity to make its own decisions.
9. Decisions reached by an informed group are usually more sound, better understood, and more likely to be carried-out.
10. Democracy involves control of both individual and group conduct for the common good. That control is vested in the individuals constituting the group and comes from a sense of moral obligation.
11. Arbitrary control by an individual over the lives and fortunes of others is morally wrong.

BASIC CONCEPTS STATED AS DEMOCRATIC PRINCIPLES

Principle of Challenge - It is through challenge that individual group members and leaders themselves move to the forefront of knowledge and obtain creative ideas. Challenge develops enthusiasm and leads to exchange of ideas.

Principle of Participation - Principle of participation is built on the concept of individual faith in oneself. Even the simple tool of voting on minor issues gives one the feeling of satisfaction.

Principle of Sharing - A leader who is willing to share the responsibilities of leadership is one who will find that hard work of getting results can just as readily be shared with those with whom he works.

Principle of Knowledge - In addition to knowledge of subject, the democratic leader must have knowledge of the individuals with whom he works.

25 MORAL LEADERSHIP

One of the objectives of leadership education has been listed as one's own self-improvement. This includes moral leadership or character development. People as well as groups need to practice and develop moral habits.

HABITS AND THE MORAL LAW

A habit is said to be a condition of the mind or body which results from a frequent performance of an action. Animals learn to walk, swim, and fly by instinct. Man acquires the arts of walking, swimming, and talking by practice. Habits are said to be good or bad as they are the results of actions that are right or wrong.[1] A person of good habits is said to be a person of good morals. Bad habits are the results of wrong actions and are violations of good morals. If our conscience tells us that any habit is wrong, it is our duty to change it. This is not always easy. Avoiding temptation, keeping busy, and being honest with yourself are steps to take in breaking bad habits.

Knowing right from wrong is usually found within one's own conscience, which in turn comes to us from the Moral Law. This law may be defined as a rule of action prescribed by God to mankind concerning their duties to Him and to each other.[2] Of course this is referring to the Ten Commandments which remain unchallenged in our society as the absolute as far as moral principles are concerned. All great leaders

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1 Gow, Alex M., "Good Morals and Gentle Manners for School and Families," Amer. Book Co.

2 Ibid.

and groups have shown a high degree of conformity to the Moral Law. Reverence, manners and actions are fundamentals in our way of life and need to be practiced at all times.

CHARACTER BUILDING

There are four cardinal virtues related to character building which should be kept in mind not only by potential leaders but by everyone. They are as follows:

1. Prudence - being able to conduct and discipline oneself by reason.
2. Fortitude - refers to having courage, backbone, and firmness of convictions.
3. Temperance - would be to practice moderation not only in appetite but in other passions as well.
4. Justice - is to practice integrity and to be just when dealing with others.

PERSONAL CHARACTER TRAITS

Self-Control: This is an important character trait which needs considerable practice. Controlling one's temper, keeping a cool head, and avoiding rash decisions are abilities very much desired in leaders.

Patience: Is a quality of self-control which is of the utmost importance and requires almost continuous practice. Many have failed to reach the top as a leader because they had little patience or self-control.

Honor: Honor has an important place in the Moral Laws. One who seeks to live by an honor code will command a high degree of respect from others. Lack of veracity has been the downfall of many potential leaders. Failure to practice honesty leads to many of the so-called vices of life. Dishonesty, intemperance, jealousy, suspicion, wastefulness, vulgarity, bragging, drinking, irreverence, selfishness, laziness are but a few of the vices due to lack of one's honesty.

Manners: Good manners assist not only potential leaders but also leaders in reaching their goals more easily. People are quick to respond to a person who shows

politeness and good breeding. These are two important character traits which usually require practice and further development. Civility, consideration, and politeness give a person a great advantage when dealing with people; therefore, they should be practiced and studied conscientiously.

CODE OF ETHICS

Many groups, organizations, and even individuals develop a code of ethics or set of rules to live and work by.

Benjamin Franklin, as a young man, developed a plan to prevent himself from committing faults. He merely set down some character traits in a little book which he always carried with him. Franklin developed the habit of checking-off those virtues he was able to accomplish, adding new ones and then trying to master them. He developed his own personal code of ethics.

An example of items to include in a code of ethics for an individual or for a group would be as follows:

1. Being honest and not taking unfair advantage of others.
2. Be active in religious, community, and civic affairs.
3. Strive for self-improvement.
4. Be polite and courteous at all times.
5. Honor thy father and mother (The Ten Commandments).
6. Attend meetings promptly and participate in the meeting.
7. Dress neatly and appropriately for all occasions.
8. Take pride in your organization, your community and your country.

STUDY QUESTIONS

1. How are habits formed?
2. Name the four cardinal virtues of character building.
3. What is the Moral Law?
4. Explain how self-control, honor, and manners enter into leadership.
5. What is a code of ethics?

26 ATTITUDES

Attitude is defined as a manner of acting, feeling or thinking that shows one's disposition or opinion. Attitude has been said to be the key to success or the ball and chain of failure. There are many attitudes which are desirable in leaders. Some of these are dependability, courteousness, promptness, industriousness, cheerfulness and competency. Because leadership begins within oneself, it is up to the individual to be aware of and develop those attitudes which are most beneficial. Many employers consider attitude as important as a job skill in their employees. Good attitude makes for more harmonious working conditions.,

DEVELOPING ATTITUDES

A good attitude will attract and interest people while a poor attitude will repel them. The difference between a good and a poor attitude is not always readily apparent. Sometimes a rather critical evaluation is required to find what is missing in a leader's attitude. There are many attitudes which are important factors in good leadership. Leaders as well as the group should develop a positive attitude toward the job at hand. It has been said that no one ever sold a product with an apology.

Altruism: Leaders and the group should have an altruistic attitude toward each other. Everyone should have an opportunity to state his interests and opinions if he desires. This cannot happen if certain individuals have no regard for the rest of the group.

Friendliness: A friendly attitude is a valuable asset when managing people. Being friendly invites people to be friendly in return. "People are like mirrors: Smile and the world smiles back, scowl and the whole world scowls." (Donald A. Laird, The Technique of Handling People)

Directness: When talking to people, do not talk to the ceiling or out the window. Look them in the eye periodically and talk directly to them. This will establish a personal contact between the speaker and listener or listeners. Everyone likes to be looked at when being spoken to. However, do not try to stare them down. This may cause an uncomfortable feeling.

Sincerity: A leader should be very sincere about his job. An earnest and sincere attitude will tend to draw interest and enthusiasm for the task ahead. If a leader is not sincerely interested, the job or project is likely to be passed off as unimportant.

Knowledge: To do a good job of leading, a thorough knowledge of the job at hand is required. Also, a knowledge of the individuals' interests and capabilities. This will enable the leader to control and guide the group toward the desired goals.

STUDY QUESTIONS

1. Why is it difficult for an individual to evaluate his personal attitudes?
2. What are some of the attitudes which are desirable in leaders?
3. What is altruism?
4. Why does sincerity on the part of a leader draw enthusiasm from the group?

27 COMMUNICATION

Communication includes all methods of conveying any kind of thought or feeling to other people, or of receiving expressions of thought or feeling from others. In order to communicate effectively and efficiently, a leader must understand the basic communication process. Communicating is a daily problem in our ordinary living. How are we to be understood by our fellowmen without clear communication? In communicating effectively, we achieve personal success and satisfaction as well as improving the society in which we live.

BASIC FACTORS IN COMMUNICATION

Thinking: Thinking is a fundamental factor in communication. Thinking is not easy. Many times people do not think before saying something. Usually it is a case of blurting out the first thing that comes to mind. Ideas are a result of thinking and the quality of the idea is dependent upon the amount of careful thinking used.

Ideas: To convey an idea or thought is the whole purpose of communication. Everyone has many ideas, whether constructive or destructive. When conveying ideas they should be designed to accomplish one's purpose. Careful thinking before stating an idea is necessary for it to convey the desired meaning.

Emotions: Emotions can influence the kind of thinking as well as the ideas expressed. Therefore, the individual must try to be rational with emotions and not let them influence clear thinking and good ideas.

A FORMULA FOR COMMUNICATION

A formula is thought of as something which works every time it is used; but, remember that the right items must be used in a formula in order for it to work. This is especially true in communicating ideas. Determine what the answer or end-

product of the communication formula is to be, then put the right ingredients into the formula through careful thinking and the answer will come out correctly.

FORMS OF COMMUNICATION

Most people are past the state of communicating basic wants by a long howl such as a six-month-old baby might use. This is the first means of communication in life.

Writing: Writing is an expression of a thought or an idea on paper in readable form. Here again we encounter the basic fundamental factor in communicating, that of thinking. Time spent thinking while writing an article is the hard part. Once you have an idea or ideas firmly in mind, putting them on paper is easy. Thinking about what you want to write pays dividends two ways.

> "You know what you want to say, and the expressions come more easily and rapidly when you do not have to plan as you write. Moreover, the planning will be reflected in the quality of your expression, both because your mind will be free to concentrate on the details of expression and because your ideas will be clearer."[2]

Paragraphing: Paragraphs divide a paper into its various units of thought. A unit of thought should be clearly stated in the first sentence and then further developed in the remainder of the paragraph. An article should be made-up of paragraphs which tie all the thoughts together. This can be done with transitional words, such as - therefore, consequently, etc.

Sentencing: Sentences make-up the content of a paragraph and must contain information, be clear, and have a logical order. Sentences can be of varied length and structure in order to obtain desired effects. A short sentence is desirable to a longer one as long as the idea is conveyed to the reader. Wordiness should be avoided in sentence structure. This can be done by removing unnecessary words or by combining sentences which convey the same meaning.

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1 Laird, Donald, The Technique of Handling People, Whittlessey House.

Editing: Proper editing in writing an article is the most important step to success. Good ideas and thoughts can be present, but if they are not in good sentence and paragraph form, they often go unnoticed. To successfully edit an article it is necessary to concentrate on one thing at a time. Too much interest should not be placed on the subject matter or the grammer, but carefully analyze the two together. Following are some basic steps to editing after an article has been written:

Proof-reading by the writer - It is best to go through the article paragraph by paragraph to check for content and method of expression. Then check the article sentence by sentence for style and content. Finally, check for grammar, punctuation, and spelling.

Re-write the article in corrected form after it has been re-read.

Have the article corrected by someone else, using the same steps as described above.

Re-write the article as agreed upon by the author and the proof-reader.

Speaking: Speaking is the process of expressing an idea or ideas orally. In speaking, just as much care must be exercised in selecting content as in writing. Remember, more time is spent speaking than any other form of communication. Important but often overlooked methods of communication are gesturing and facial expressions. Often a gesture or expression can take the place of many words, but careful thought should be given before using a gesture or expression.

READING AND LISTENING

Reading and listening are forms of communicating, but instead of giving forth information, it is received. Being a good listener or reader is just as important as being a good speaker or writer. When reading or listening, the individual should formulate his own thoughts and ideas on the presented material. If we expect to be listened to, we should be able to listen.

COMMUNICATION AND GROUP DYNAMICS

Communication is a vital part of group dynamics. There are three parts to communication in group action. They are (1) the sender, (2) the message, and (3) the receiver. Those three parts are necessary so that facts or knowledge can be transferred from those who know to those who don't know.

Sender - the sender of communication can be a leader or a follower, but is often a leader sending facts which may influence individuals or a group. The purpose may be for self-expression, for immediate use, for influencing, or for their human-worth value.

Message - a message consists of two parts, (1) content and (2) media. The content part consists of facts, opinions, or it may be emotional. The media part is further divided into mass and individual means of communicating. The purpose of mass media messages is to enable senders to widen their influence. Messages are transferred through many different types of mass media. These include visual methods, audio methods, and audio-visual methods. Individual means of communicating are such things as the telephone, the conference, the interview, and various small group activities.

Receiver - A receiver is a person in society who acts or interacts to a message. A person is motivated in various ways by the message sent. How the person is motivated depends on his social status, the group he is present in when he bears the message, his life cycle position, and his economic status. The situation in which the message is heard may be a combination of the various factors listed above.

SUMMARY

It must be remembered that in communicating, the goal is to put thoughts into written or spoken words as clearly as possible. Good communication is necessary for individual leadership as well as for group dynamics.

STUDY QUESTIONS

1. What is communication? A definition.
2. What factors should a communication formula contain?
3. What factor in developing communication is most important? Why?
4. Do you agree or disagree with the steps in editing? Tell why you agree or disagree.
5. Which form of communicating do we use most? Does this make it most important? Why?
6. What three things are considered in group dynamics communication?

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28 LISTENING

Much knowledge is acquired through listening. A good speaker possesses a very outstanding leadership quality; however, at times, listening may be <u>even more important than speaking</u>. Listening at the right time tends to win more friends and influence more people than talking.

It has been estimated that we spend 70 per cent of our time in some form of communication. Of this, 42 per cent is by listening, 32 per cent by speaking, 15 per cent by reading, and 11 per cent by writing. Developing one's listening ability will make a substantial contribution to his over-all effectiveness as a member and as a leader.

LISTENING AND OUR DAILY LIVES

The ability or need for listening begins early in life. The classroom situation, the church, or even that of receiving instructions from a policeman on how to find a certain house in a city, all rely heavily on the individual's ability to listen. The student who listens attentively in the classroom usually has little trouble in completing the assignment. The parents who listen carefully during church services are more apt to have a richer and more complete family life. The soldier who listens to his commanding officer is less apt to lose his life on the battle field. A salesman will profit well by listening at a sales conference. These are but a few examples of how listening affects our daily lives.

TRAITS OF A GOOD LISTENER

To be a good listener, one must know when to listen and when to speak-up. He must pay close attention and concentrate on what the speaker is saying. He should try to maintain eye-to-eye contact with the speaker. This is an indication of interest. A good listener can express denial, amusement, grief, annoyance, agreement, disgust, and joy without saying a word. This type of expression can invite confidence in the speaker and will also let him know if he is being listened to. A good listener will try to erase his prejudices so personal feelings do not interfere with his evaluations.

AIDS TO GOOD LISTENING

Mental alertness - It is very necessary for individuals to be in a receptive frame of mind and to be mentally awake if they expect to be able to comprehend. It is important for leaders to make it easy for a group to listen effectively.

Facilities - Such things as a meeting room which is not too hot or too cold; well-ventilated; comfortable chairs that are well-spaced; a public address system for use in large rooms are all aids to increasing listening effectiveness.

Individual responsibility - Listening improvement begins with a desire to understand the other person. A willingness to appreciate the other person. A willingness to give-up our prejudices and to give credit to what the speaker has to say.

LISTENING AND LEADERSHIP

Leaders are sometimes classed as follows: The dominator or "know-it-all-type." This type never gives the members a chance to express themselves or present their ideas. He accomplishes very little except talk. The "listening type." This type realizes that his task is to develop group thinking. He skillfully brings each member into the discussion and listens to his ideas and viewpoints. He then tactfully guides him to a conclusion.

Calvin Coolidge, past President of the United States, was considered to be one of the greatest listeners of all time.

NEGATIVE LISTENING TRAITS

Many people fail to improve their listening ability because they do not acknowledge the fact or recognize the fact that they are self-centered. That they know all the answers or that they are unwilling to accept change seems to influence their reaction to really listen. Instead, they pretend to listen while their minds wander. They may daydream, read a newspaper, whisper, look out the window, move about the room, or plan how they are going to refute what the speaker is saying. All of these may be classed as negative listening traits. Sometimes such traits may insult others and in many cases prevent individuals from becoming accepted into a group, an organization, or perhaps even to obtain employment.

Negative listening traits need first to be recognized by the individual and then positive traits should be substituted through practice.

"A GOOD LISTENER IS NOT ONLY POPULAR EVERYWHERE, BUT AFTER A WHILE HE KNOWS SOMETHING." (Wilson Misner)

STUDY QUESTIONS

1. How important is listening in our communication with others?
2. Explain how listening may affect our daily lives.
3. What are some traits of a good listener?
4. What are some aids for good listening?
5. What are some of the common negative listening traits to avoid?

29 ORAL COMMUNICATION

Oral communication is the basic criteria for effective public speaking. Being "lost for words" is generally the inability to organize thoughts in a manner so desired to express your ideas. A speaker is said to be one who has "a head to contrive, a tongue to persuade, and a hand to execute." This abiltiy can only be acquired by the study and the practice of public speaking. Until these abilities are developed, we should spend our time developing our ability to communicate orally.

Developing Oral Communication: Developing this speaking ability is a progressive transition. To be able to "crawl before a person can walk" is the type of progress that is to be developed in this transition. To develop this ability, a student could learn to take part in group and classroom discussions. An intelligent discussion can be started by asking a question. Once a barrier has been broken, a person will find himself progressively taking part in more lengthy discussions and before larger groups of people. Through extemporaneous participation, thoughts are being formulated into words for the purpose of expressing an idea.

Additional Activities for Improvement: Many activities that are available in school or organization functions can be used as a tool for self-improvement. Taking part in a panel, giving a report, a forum, or buzz sessions will provide valuable experience. These program activities are generally informal and tend to provide a relaxed atmosphere. More advanced activities may be a school assembly, school play and choral program. These activities would be a good test on the ability to perform before an audience.

WHY PEOPLE LISTEN

In communicating, a person must bear in mind some points on what makes people listen. The voice is probably the first characteristic that induces listening. The voice needs to command authority, be rich in tone, have expression and must be heard. These characteristics can be developed as a person communicates with people. To have enthusiasm will produce interest within the listening audience and at the same time aid in the command of voice and subject. To have knowledge of the subject demands respect from the listeners. This knowledge with a good voice, and with enthusiasm, will make any audience sit-up and take notice if the discussion is presented directly to the eyes of the people. Eye contact is the final prerequisite for good listening. Without eye contact, audiences have the feeling that the speaker does not have interest in their problems and is not talking to them.

SELECTING A SUBJECT

The purposes of speaking can be divided into five general objectives. These objectives are to entertain, to impress, to convince, to gain action and to provide information. Some talks may be combinations of these categories and, in general, they should be kept in mind when the subject is being selected.

The talk needs to be of interest to the person presenting it. It would be rather difficult to do an admirable job with a subject that was of no interest to the speaker.

The type of audience is a consideration in the subject to be chosen. Are they young, old, or fellow club members? Initial interest from the audience will have a big affect on the success of the presentation.

Does the talk fit the occasion? If it is National Safety Week, it would be in order to consider a talk on safety.

How much time does the speaker have to prepare and give the talk? A talk containing a lot of research material cannot be prepared on the spur of the moment. In

the same respect, short time allotments make it rather difficult to present a broad subject.

Selecting a subject of timely interest will grasp the attention of the audience much more completely than a subject of an obsolete nature. Choosing a good topic and choosing it early will contribute a great deal in having time and interest to organize ideas, locate information and to develop the self-confidence that is necessary for a successful talk.

DEVELOPING THE SPEECH

The first speech should be presented to a group that is not above the speaker's level of ability or knowledge. The most difficult talks are those given before groups that are well-versed on the topic to be covered. Being well-versed on the subject will give the speaker a feeling of authority as well as a relaxed feeling.

PARTS OF A SPEECH

The introduction, main body and the conclusion are the three major divisions of a speech. The introduction should get the attention of the audience and to explain the purpose of the presentation. Failure to attract the audience to the talk in this area will cause a lack of communication in the main portion of the talk.

The main portion of the talk is said to be the discussion or main body. The main body is to be directed at the target. Do not deviate from this area with eye or content. After the heart of the subject has been presented, the talk should work into a short conclusion. The conclusion is a brief summarization for the purpose of drawing their thoughts into the bull's eye of your target.

Developing and organizing these areas should be done with a systematic outline. With an outline it is easy to re-organize any areas of thoughts into the order that will be most effective. In the process of outlining, many thoughts and ideas are brought together and what seemingly was a shortage of material often needs to be condensed for the time allotted.

Rehearsing the talk is necessary to organize your delivery and to check the speech coherency. This should first be done in the privacy of a room. After learning the contents, the speaker may want to practice before other members of the family or to himself before a mirror.

STUDY QUESTIONS

1. What do we mean by the statement that a speaker has the "head to contrive, a tongue to persuade and a hand to execute"?
2. What is the major factor that should affect the selection of a topic?
3. For what basic reason should speech development be a progressive development?
4. How do you learn to relax before a group?
5. What hints may help a person get over the initial stage fright?

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30 PERSONAL APPEARANCE

A leader is a symbol - an example to others. Poor personal appearance can almost nullify all traits of leadership. Personal appearance can be more easily changed than other abilities such as public speaking. Personal traits are an integral part of personal appearance, such as - language, manners, voice, personality, courtesy, and dependability.

SUGGESTIONS CONCERNING PERSONAL APPEARANCE

Appropriate Dress - The personal appearance of a leader depends a great deal upon the type of clothing worn for each occasion. It should be appropriate as to color and style, neatness, and general physical attractiveness. The person should feel at home in the different types of appropriate dress. This person should be at home in both formal and casual clothes. If the leader is addressing a group of workers, his dress could be casual, while one talking to a formal group should be dressed along more formal lines.

Grooming - One of the most important aspects of personal appearance is grooming. This should include keeping your hair from becoming shaggy. Your hands and nails should be clean and you should bathe at least once a day - at least partially.

PERSONAL TRAITS

The personal traits of a leader are very important. Some traits that should be developed in leaders are as follows:

Manners are very important to the leader. A leader with good manners gains the respect of his audience.

Voice is important to the leader. He or she should speak clearly and enunciate all words articulately.

Personality should be pleasant and not overbearing.

Tact is a very important aspect of leadership. A good leader should use tact in bringing out discussion among all members of a group.

Promptness should be considered by every leader and member. They should be at the meeting place at least ten minutes early. The leader should start and end the meeting on time.

Courtesy and Dependability are assets that every leader and potential leader should try to achieve.

Undesirable traits - There are also some traits which a leader should try to avoid. He should try to avoid the use of slang words and foul language. He should avoid habits such as smoking, wearing clothes that do not fit the occasion, toe-tapping, finger-pointing, and other similar habits.

A CHECK LIST FOR GOOD GROOMING

Hair

_____Is your hair neatly combed and brushed?
_____Do you shampoo your hair at least once a week?
_____Do you have an appropriate hair cut?

Hands

_____Are your hands and nails clean?
_____Are your nails short and neatly shaped?

Cleanliness

_____Do you bathe often?
_____Do you use a body deodorant?
_____Do you brush your teeth at least twice a day, especially on arising and before going to bed?
_____Are you clean-shaven?
_____Do you avoid bad breath?

Outer-Dress

_____Are your clothes clean and pressed?
_____Are your clothes conservative?
_____Are you dressed appropriately for the occasion?
_____If in uniforn, is it worn properly?

Shoes and Hosiery

_____Does your hose harmonize with your clothes?
_____Are your socks long enough to avoid exposing bare shins?
_____Are your shoes polished at all times?
_____Are the heels neat (not worn down)?
_____Do your shoes harmonize with your clothes?

Accessories

_____Does your tie harmonize with your suit?
_____Is your tie neatly knotted?
_____Do you carry a clean handkerchief?

The preceding check list is simply a guide and may be altered to fit the occasion or need.

STUDY QUESTIONS

1. What are some of the prerequisites of good grooming for a leader?

2. How can poor personal appearance hamper your effect as a leader?

3. What determines the appropriate dress for each occasion?

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31 HARD WORK - A MUST IN LEADERSHIP

In attempting to accomplish any job, the most important aspect to keep in mind is that it's going to take a considerable amount of just plain hard work. Nothing is accomplished efficiently or effectively without hard work. Physically and mentally, leadership is perhaps the most demanding of all enterprises. Leaders must be prepared to work hard. However, hard work can be the object of a job being done and the effectiveness of its actual quality or purpose unseen. People often exert mental or physical capacity in doing a job when with substantial knowledge or a few intelligent observations and organization, it could have been done much easier. Also with much more proficiency.

HARD WORK AND EFFICIENCY

It is important that when a lot of hard work is applied to a job that it also be accomplished by efficient work. The following are some steps we can use in developing our ability to be efficient in hard work: Have a main objective. Plan your job in spirit and in body. Do your work on time. Get started and keep going until it is done. Concentrate on the job to be done. Don't let your mind wander to something else. Remembering and understanding what you do is important to hard work and efficiency. If you are sure of what you are doing, this becomes easier. Continually think about each step as you go. Taking notes may help you accomplish this. Never start a job without a plan. Organize your job and carry through with it. Make every hour count. A schedule of work to be done would aid you in doing this. People get their best work done by working intensively for a time, then resting or changing to something else. Have confidence in the job you're doing. If you feel

that your efforts are in vain, then your efficiency deteriorates and hard work has no further meaning. Regard emotional outbursts and lack of consideration of others as symptoms of anxieties. Control your own personal emotional outbursts also, for they only confuse your understanding of a problem. This may effect your efficiency for only a short time, however. Many people have habits of dependency and irresponsibility. These should be overcome before good hard work can be accomplished. Practice making your own decisions. Strive for improvement and perfection. Learn to recognize when you have passed your efficiency peak and be able to relax.

HARD WORK AND INEFFICIENCY

In many cases people work hard but get little accomplished because of inefficiency. The following characteristics are associated with an inefficient job when hard work can be or is the main objective in achieving the goal:

*Insufficient knowledge of the subject or job to be accomplished.
*Poor planning and organization.
*Day-dreaming while you are working.
*Letting things distract you.
*Poor analysis of work, if there is any work done at all.
*A slave attitude to a job is often a factor in poor efficiency.
*Rigidity in our feeling about a subject becomes a handicap.
*Poorly planned time is a very poor working condition.

STUDY QUESTIONS

1. What is just plain hard work?

2. What is the main objective in hard work?

3. Why concentrate on a job to be done?

4. What are some abilities you can develop in order to do good hard work?

5. What is inefficient hard work?

32 PERSONAL TRAITS

It is often said that a leader is a person with a "pleasing personality." Personality or personal traits are important and need to be cultivated; however, leadership traits are not all personal or confined solely to the individual. Another common saying is that leaders are BORN not MADE. However, as we examine some of the leader traits, it is easy to see that there are some things which must be developed. People are not born with all of these traits. Not all leadership traits fit all leaders nor do all leaders need every trait. For example, a politician requires different traits than does a research leader working with a group in atomic energy. Both are important leaders, but each has a different leadership role, with different traits involved.

POSITIVE LEADER TRAITS

Let us examine some of the traits leaders need or perhaps use under a variety of circumstances.

Humility: Perhaps if we were to single out any one personality trait to head the list it would be that of humility. A person must develop within himself a sense of humility. One should be able to start off on level ground with any given group without a feeling of arrogance or superiority, or without a pretentious attitude of wanting to make a big show for purely selfish reasons. Others can sense humility in a person quite easily and if found lacking will usually become non-receptive and non-cooperative. Humility enters into many of the so-called traits of leaders. For example, many say "speaking ability" is a "must trait." However, is the person with

a fine command of the language, a flowery voice, and theatrical showmanship really speaking with humility? Or rather, is he being somewhat arrogant and ostentatious? Perhaps this is why the people made the choice between Stephen A. Douglas and Abraham Lincoln. Lincoln was said to have been the most humble man of his time. Let us keep the trait of humility in mind as we examine some of the other leader traits.

Other Major Traits: Speaking ability cannot be over-emphasized. Leaders must cultivate not only their voices, but also their EXPRESSIVENESS and their SELF-CONFIDENCE. To speak well a person needs KNOWLEDGE of his subject in order to COMMUNICATE with his group. Leaders need to develop POISE, ENTHUSIASM, and a SENSE OF HUMOR as well as learn how to be GOOD LISTENERS. The ability to ORGANIZE and get things done is all important to leaders. Leaders must also learn to take the INITIATIVE or show the way and to have CONFIDENCE in the ability of others. Leaders must be COMPATIBLE and willing to GIVE OF THEMSELVES TO OTHERS; also, willing to put forth that EXTRA EFFORT in order to finish the job. Leaders need to develop a STRENGTH OF CONVICTION and not be afraid to take a stand or defend it. However, they should be OPEN-MINDED and willing to accept change when it is for the good of the group. Some leaders need to practice the spirit of service to others. To become PUBLIC SPIRITED as well as strong believers in DEMOCRACY AND THE DEMOCRATIC PRINCIPLES. Perhaps one other very important trait of leaders would be that of FAITH. Faith in themselves and in their work; faith in others, and faith in God. There are, of course, many other traits which could be added to any traits leaders need and should be developing.

HOW LEADER TRAITS AFFECT LEADERS

People become leaders in various ways. Some come up through the ranks and because of age and seniority finally assume the role of a leader. They are thought of as STATIC LEADERS or LAISSEZ-FAIRE ones who know all the answers but fail to develop

a working relationship with others. They are usually famous for their do-nothing term of office. Leaders who emerge out of the ranks are thought of as DYNAMIC LEADERS because of the bond they have developed while associating with those around them. Some leaders are classed as FUNCTIONARY. People follow them out of habit. They are the INSTITUTIONAL TYPE leaders. Because they hold certain positions or are wealthy, people just naturally assume that they are leaders. Some leaders are classed as ADHESIVE, IMPRESSIVE, or AUTOCRATIC LEADERS. This refers to persons who assume leadership to gain power. They use others to better themselves. Then we find NATURAL LEADERS, EXPRESSIVE LEADERS, or DEMOCRATIC LEADERS. They are the ones who have developed positive leadership traits and recognize the importance of relying on the group in order to accomplish things. Usually only the EXPRESSIVE or so-called NATURAL LEADERS have developed a good share of the positive leader traits with perhaps very few, if any, of the negative traits. All the other types of leaders we have identified possess some positive traits but have one or more serious negative traits which prevent their complete success as a leader.

NEGATIVE LEADER TRAITS

Some of the negative traits potential leaders should be aware of and work to overcome are as follows: A don't care attitude; a feeling that they must put up with people; a desire to be impressive; or a preference to work in cliques. Other negative traits include: Tendency to be arrogant; ostentatious; boorish; unprepared; discourage new ideas; fail to allow potential leadership to develop; garrulous; flamboyant; and gaucheness. These are but a few of the negative traits potential leaders need to know exist and that they have to practice to avoid just as they must practice the positive traits to keep.

STUDY QUESTIONS

1. How do personality and leader traits differ?
2. Why is humility considered an important trait?
3. What are the major positive leader traits?
4. How may traits identify kinds of leaders?
5. Which of the negative traits do you consider most important to overcome or avoid?

33 EVALUATION

An organization cannot be sure how much it is accomplishing until the effects of its program can be traced in the lives of individuals, of groups, or of communities. Evaluation occurs whenever people make value judgements about the things they do or experience.

COMPARING EVALUATION WITH MEASUREMENT

An obstacle to evaluating the human effects of leadership training is a feeling that evaluation is the same as measurement. "Anything which exists, exists in some quantity and is hence susceptible to measurement." (Scientist's Maxim) Measurement is useful in evaluating our dealings with things. Educators have devoted a great deal of time and energy to the development of tests, examinations and a vast array of other methods for evaluating the consequences of their work. When measurements are available, evaluators still have to make judgements about what the measurements mean, in terms of changing the program or keeping it as it exists. Measurements can support judgements about strengths and weaknesses in a leadership program.

EVALUATING THE PROGRAM

It is hard to determine how effective a program is unless the intended effects of the program are clearly seen and formulated. Evaluation requires answers to two questions about the leadership programs. First, what changes in people and things are expected. Second, whether these changes are taking place or whether they are not.

To answer these questions, it would be a direct aid to improving the program. There needs to be continued self-examination and evaluation as well as group evaluation. The desire to evaluate begins in some dissatisfaction with the way we carry

on activities, and the results which are achieved, or the goals that are reached. Evaluation is an essential part of the process of intelligent direction and control of human activities. One may evaluate, not to reward or punish, but to help others set more adequate goals and to discover more effective methods of achieving them.

STEPS IN EVALUATION[1]

Getting accurate information about the extent to which we are doing what we set out to do is an essential step in evaluation. Evaluation requires a number of different operations and the following seem to be essential:

*Stating the objectives of a group or organizational program in specific terms so that evidence of the degree to which objectives are being achieved can be obtained.

*Securing evidence of the degree to which objectives are being achieved.

*Securing facts about what is being done to achieve the objectives.

*Developing ideas about what factors might be helping and hindering the achievement of objectives.

*Securing evidence for and against these ideas.

*On the basis of the evidence obtained, revising ideas about what is helping and hindering the achievement of objectives.

*Developing and trying-out methods of remedying weaknesses in the program.

WHO SHOULD EVALUATE

One of the things that makes some people shrink from the idea of evaluation is the fact that evaluating is often something that a superior does to a subordinate. Much of this element of threat is removed if it is clear that the purpose of an evaluation is to improve the performance of all the persons involved in an undertaking. Then it is reasonable for everyone concerned to take an active part in the evaluation process. This is important in order to increase the sources of useful information and ideas, and to enable people to learn and change.

[1] Adult Leadership Magazine, "Evaluating Program and Performance," April, 1953, Vol.1, No. 11.

If a person takes part in the evaluation of an activity and works out plans for improving the activity, he is likely to have confidence in the evaluation process. He should understand what affects his own work has on the success of the activity, originate or accept suggestions for improving his work and be willing to make changes or to learn to make the changes that seem desirable.

WHAT DO WE EVALUATE

Evaluation procedures should be designed to measure changes in ability in terms of the objectives developed. Changes in ability are manifested in changes in phases of behavior. Phases of behavior include interests, attitudes, ideals, appreciation, desirable habits, understandings, fundamental information, problem solving, managerial skill, and self-confidence.

What the student has learned can be evaluated by the teacher, instruction group or the individual himself. Answers to the following questions about the learner will help evaluate the value of our leadership program. Has the program increased the usable fund of reliable information? Has the program changed their vocabulary? Have the students acquired new skills? Have the students learned to make reliable generalizations? Has the program altered their attitudes? "An attitude is a predisposition to act in a certain way in response to a given stimulus."

METHODS OF EVALUATION

Evaluation should be a continuous process. The evaluation process begins as a part of the program planning. The development of objectives becomes meaningful as methods and criteria for evaluating them are considered. The entire group may engage in orderly discussion to evaluate the program. Each participant may be asked to engage in self-evaluation by means of questionnaires. An evaluation committee may be developed and the standard check list could be utilized. A few questions included in a sampling survey of public opinion will determine what people think

about the program. Participation charts, check lists, evaluation forms are materials and techniques used in evaluation processes.

STUDY QUESTIONS

1. What is the difference between measurement and evaluation?
2. Why do we need evaluation?
3. What are some important steps in making an evaluation?
4. Who should make an evaluation?
5. What are we evaluating?
6. What are some methods of evaluation?

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*VOCATIONAL AGRICULTURE, *OFF FARM AGRICULTURAL OCCUPATIONS, *CURRICULUM DEVELOPMENT, EMPLOYMENT OPPORTUNITIES, AGRICULTURAL SKILLS, OCCUPATIONAL CLUSTERS, CONFERENCES, ADVISORY COMMITTEES, ORNAMENTAL HORTICULTURE OCCUPATIONS, AGRICULTURAL SUPPLY OCCUPATIONS, AGRICULTURAL MACHINERY OCCUPATIONS, AGRICULTURAL CHEMICAL OCCUPATIONS, POLICY FORMATION, COOPERATIVE EDUCATION, OCCUPATIONAL GUIDANCE, *PROGRAM DEVELOPMENT, *INSTRUCTIONAL

MATERIALS, OCCUPATIONAL SURVEYS,

The major purpose was to determine changes necessary in high school and post high school vocational agriculture programs of off farm agricultural occupations. Specific objectives were to -- (1) identify major occupations, (2) determine what agricultural competencies were needed, (3) cluster occupations needing similar competencies, (4) examine data for other implications, and (5) train key state leaders to use materials which were developed. Two national research coordination conferences were held and an advisory committee assisted in planning the project. Horticulture, agricultural supply, agricultural machinery, and agricultural chemicals occupational areas were selected for study. A task force was assembled to develop curriculum materials at four levels of preparation and related publications in policy making, general and program information, research, cooperative occupational experience, occupational guidance, and program organization. A national conference for state leaders presented the project and materials, and planned five area conferences. After the area conferences, the task force members completed refinement of the course outlines and instructional modules. (JM)

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FINAL REPORT
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A DETERMINATION OF NEEDED ADJUSTMENTS AND EXTENSIONS IN THE CURRICULAR PATTERNS OF VOCATIONAL EDUCATION IN AGRICULTURE

March, 1966

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

VT 000 071

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Robert E. Taylor

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INTRODUCTION

The major objectives of this project were accomplished through the series of specialized publications listed on Pages 19 to 23 of this document. This publication constitutes a report of the project and the procedures used in developing these specialized publications.

Purpose

The major purpose of this project was to determine the adjustments and extensions needed in the high school and post high school curricular patterns of vocational education in agriculture to more effectively meet preparatory training needs in off-farm agricultural occupations. The summarization, interpretation, and resulting synthesis of the studies on agricultural occupations completed by twenty-six states provided the basis for determining extensions and adjustments in the curricular patterns.

Objectives

The following six specific objectives were established for the study :

1. To identify the major occupations which require competency in agriculture;

2. To determine the agricultural competencies needed by workers in these occupations;

3. To cluster the major agricultural occupations which require similar competencies;

4. To develop and refine the curricular guides and supporting materials which were most needed and feasible for the major clusters of agricultural occupations;

5. To examine the data from the studies on agricultural occupations for other implications, giving particular attention to:

   a. Programs for disadvantaged youth

   b. Projected employment opportunities in major agricultural occupations

   c. Needed adjustments in administrative and supervisory procedures

   d. Organizational structure for providing vocational education in agriculture

   e. Needed adjustments in teaching and coordinating methods

f. Pre-service and in-service education of teachers

g. Selection, placement, and follow-up of students

6. To train key state leaders in the use of the curricular guides and supporting materials.

Background

In recent years, agricultural educators and others have become increasingly aware that (1) agriculture and farming are no longer synonymous and (2) a broad complex of agricultural businesses and services have evolved which facilitate the work of the farmer and rancher in production agriculture. Consequently, leaders in agricultural education, in consort with other key groups, have undertaken an extensive research program to identify workers who require a knowledge of agriculture to perform their jobs successfully and to identify major agricultural competencies they might need. The need for such a program was further underscored by passage of the Vocational Education Act of 1963 which gave vocational education in agriculture a broadened responsibility to prepare workers ". . . in any occupation involving knowledge and skills in agricultural subjects, whether or not such occupation involves work of the farm or of the farm home. . ."

The National Center for Advanced Study and Research in Agricultural Education, in cooperation with the Agricultural Education Branch of the U. S. Office of Education, sponsored two national research coordination conferences to facilitate research in this area.

The first of these conferences was held May 27-29, 1963, with state staff members from fourteen states participating. The following were the major purposes of the conference:

1. To maximize the possibilities for coordinating and achieving commonality in the agricultural occupations studies being conducted by the several states without violating the integrity of individual state studies;

2. To provide other states with resulting materials and to encourage comparable studies.

The Second Research Coordination Conference was held at The Center on January 13-15, 1964, with state-staff representatives of twenty-one states participating. The major purposes of this conference were:

1. To develop summarization procedures which would facilitate national interpretation of data;

2. To develop guidelines for establishing and evaluating pilot programs growing out of the studies on agricultural occupations.

The rationale underlying these two conferences and this particular project was: (1) that individual states were faced with the common problem of identifying needed adjustments and modifications in their curricular offerings in vocational agriculture; and (2) that by pooling resources and talents, it would be possible to supplement and reinforce individual state efforts. Furthermore, it was apparent to agricultural educators and others, that a sustained, coordinated national effort would be more effective in serving the agricultural industry than would a series of isolated individual projects. The broader base provided by the coordinated approach minimized duplication of effort and provided individual states with greater confidence in developing their own programs than if intrastate data were utilized.

By December 15, 1964, six states had completed or were completing surveys concerning the needs for education of persons seeking employment opportunities in agricultural occupations.

METHOD

Development of the Project

In December of 1964, Dean Roy M. Kottman and members of the College of Agriculture and Home Economics of The Ohio State University, recognizing the importance and immensity of the task being undertaken, made available a short-term allocation of funds for initiating this project. On December 1, 1964, the director and the two associate project leaders began outlining activities and the schedule to be followed in attaining the project's objectives.

Dr. H. M. Hamlin, Professor Emeritus of Vocational Education, University of Illinois, assumed responsibilities as an associate project leader. Dr. Hamlin is a nationally recognized leader in vocational and technical education and a former Chairman of the Division of Vocational and Technical Education at the University of Illinois. Dr. Glenn Z. Stevens, Professor of Agricultural Education, Pennsylvania State University, and Chairman of the Research Committee of the American Vocational Association, agreed to serve as a co-leader of the project and began work in December as an associate project leader.

During the first week of December, 1964, plans were made to invite fifteen teacher educators, teachers of vocational agriculture, supervisory staff personnel, and a representative of the National Academy of Sciences to an advisory meeting with the task force personnel.

The second week in December was used by task force personnel to hold personal conferences with directors of the different state occupational need surveys, supervisors, and teacher educators in attendance at the professional meetings of the Agricultural Education Division of the American Vocational Association Convention in Minneapolis, Minnesota. Representatives of more than thirty states were contacted at this meeting.

First Project Advisory Committee Meeting

The first advisory committee meeting was held on January 14 and 15, 1965, to make recommendations to the project task force. Committee members worked on two major problems: (1) summarization of employment opportunities, and (2) direction to be taken in the development of curriculum materials.

Reactions to the following specific questions were sought from advisory committee members:

1. What procedures should be employed to effectively summarize state studies?

2. For what major occupational clusters should training be offered?

3. What are the implications for Standard Industrial Classification of Agricultural Occupations? (Prepare a master list of job titles.)

4. What are the entry opportunities in agricultural occupations?

5. What are the implications for high school and post high school curricular offerings?

6. How many programs of a given type should there be in a state?

7. What should be the relationship of educational offerings for job entry and continuing education in that program?

8. How should the length of training programs and the level of preparation be determined?

9. What should be the relationship between course offerings and occupational experience programs?

10. What consideration should be given to the problem of intensive short courses versus part-time evening classes?

11. What can be done to cope with the situation where workers are residing in locations distant to job centers?

12. Who should assist in curriculum development (agricultural education, agricultural industry, other vocational services, trade associations, manpower economics, economics, sociology, etc.)?

13. Should the concern of the committee include the total spectrum of agricultural occupations (professional to semi-skilled)?

14. What administrative requirements should be considered in program development?

    a. Organizational structure

    b. Policy formation

c. Finances

d. Setting and type of institution

15. What factors should be considered in state-wide master planning?

16. What should be the function of the teacher-training institution?

17. What kind of people should be reached with occupational education programs in agriculture?

18. What factors should be considered in program development below the baccalaureate level?

Four suggested curriculums, based on the preliminary data available from ten state studies, were presented to the advisory committee for their consideration. These suggestions were:

1. Horticulture

   a. High school level program for disadvantaged youth

   b. Continuing education for adults

2. Agri-Business

   a. Continuing education for adults on a part-time basis

   b. Cooperative occupational experience programs for high school students

3. Agri-Mechanization and Automation

   a. High school level program

4. Conservation, Forestry, Wildlife, and Recreation

   a. For the post high school preparation of technicians

It was the consensus of the advisory committee that examples of curricula in four areas at different "levels" of preparation should be developed by the project task force. The committee recommended that primary attention be given to developing a post high school program in the area of agricultural machinery. The committee also recommended fifteen items or factors to consider for the agenda of the national conference on agricultural occupations to be attended by agricultural industry representatives, head state supervisors, and teacher educators from each state. These were:

1. Report of state studies - What do the studies show?

2. Examples of varying kinds of programs already in operation.

3. Curricular patterns that might be followed.

4. Guidelines for introducing new programs.

5. Relationship of existing and future occupational programs.

6. Pilot or experimental programs which might be designed to give direction for the future.

7. Suggestions for broadening and extending present programs.

8. Problems of recruiting, selecting, and training personnel, including inservice training of present teachers.

9. Public information (dissemination - public relations).

10. Responsibilities of state staff personnel.

11. State-wide master planning.

12. Facilities needed for training programs.

13. Development of future curricular guides.

14. How to finance training programs.

15. Evaluation procedures that may be followed.

Persons who attended the January advisory meeting are listed in Appendix "B."

Selection of Key Areas and Curricular Materials to be Developed

As a result of the January advisory committee meeting, the project task force personnel agreed during the staff meeting on January 19 that the following items were basic to the project's success:

1. Occupational areas should be identified that afford the greatest number of entry opportunities.

2. These occupational areas should be further delineated into categories which have the greatest implications for agricultural training.

3. Occupational areas should be identified that are common to the greatest number of states.

4. Training programs that have a record of successful operation should be identified and utilized in developing curricular materials.

5. Materials developed should emphasize the personal attributes needed for successful job entry and tenure as well as the occupational competencies.

On January 20, 1965, the project task force decided to develop curricular materials in four separate areas and in four different levels of preparation. This was done on the basis of advisory committee recommendations and summarization data available pertaining to training needs in agricultural occupations.

Three criteria were followed in selecting these areas and levels: (1) they were to be broadly applicable to all parts of the nation; (2) they were to be typically illustrative of the type of program which could be developed by local schools with needs in these areas or in similar areas; and (3) they were not to duplicate previously completed efforts.

It was considered necessary to develop materials which would be illustrative of the type of program which could be developed for socio-economically handicapped individuals within the secondary school setting. The area of horticulture was selected for this purpose.

Preliminary data and the opinions from representatives of agricultural business on projected needs were deciding factors in the preparation of illustrative materials for a technician program in agricultural chemicals technology at the post high school level. Further, recent materials produced by other agencies in the forestry area seemed to indicate less urgent needs for development in that area. The areas and types of programs finally selected to be developed follow.

1. Horticulture - Service Occupations

   a. Grades 11 and 12 for a program at the "semi-skilled" level of preparation for students with a disadvantaged background

   b. Duration of program to be one to two years

2. Agricultural Supply - Sales and Service Occupations

   a. Grades 11 and 12 for a two-year program at the "skilled" level of preparation

   b. Post high school program at the "skilled" level of preparation which could be extended over several years

3. Agricultural Machinery - Service Occupations

   a. Post high school level cluster of training needs for five different occupational titles

   b. Duration of program could be extended over several years

4. Agricultural Chemicals Technology

   a. Post high school program in a community college setting at the technician level of preparation

   b. Duration of program to be two years

At this time basic procedures were identified to be followed by the task force in the development and preparation of instructional materials. The general procedures follow:

1. Conduct a nationwide search to identify personnel and/or programs that are capable of making contributions to the project.

2. Visit successful programs, interrogate persons associated with these programs, and prepare detailed critiques of the programs visited which could be the guidelines for the development of curricular materials. Identify problems and successful features of these programs.

3. Synthesize materials that have been assembled.

4. Critically analyze, modify, rewrite, and develop materials emphasizing the competencies identified as being necessary for successful job performance in the different state studies of occupational needs.

5. Prepare materials in depth in each area specified and include examples of a number of programs in other areas.

At the task force meeting in January, sites were selected for the five area meetings which were to follow the national meeting in May. These meetings were designed to assist the different states in planning and evaluating pilot programs in agricultural occupations. Sites tentatively selected were: Montgomery, Alabama; Denver, Colorado; Chicago or Champaign, Illinois; New York City, New York; and Seattle, Washington. Dates for these meetings were to be determined later.

Dr. Stevens was asked to contact and solicit the services of persons who could assist him in the summarization of the different state studies. February 22, 1965, was set as the meeting date for sharing data from the state studies in agricultural occupations with other vocational services, employment agencies, and industrial personnel to secure their reactions and comments.

Related publications

As the project evolved, it became apparent that there was a need for an additional set of publications which would complement the four sets of curricular materials. The titles for the accompanying publications had not been determined, but the general content would be developed to:

1. Provide information to laymen on the need, pioneering achievements, progress of individuals who have been so trained, the demand for trained personnel, the scope of the field, conditions needed for success, and the cooperation with different industries and educational agencies. This publication would be of value to employers of workers in agricultural occupations, state and national legislators, editors, and others important in shaping public opinion.

2. Adapt portions of the off-farm agricultural occupations materials for use by the newspapers, radio, and television.

3. Assist state-level policy-making bodies, state superintendents, state department personnel, college and university administrators, and college personnel in occupational education.

4. Assist state boards and administrators in local and area schools with the policy and administrative decisions to be made in launching new programs.

5. Provide material for teachers in local and area schools to assist them in organizing and conducting programs in off-farm agricultural occupations, especially the occupational experience phase of such programs.

6. Report the research findings of cooperating states in the area of off-farm agricultural occupations.

7. Organize the research data into possible instructional areas and provide occupational guidance information for teachers and counselors.

At the end of January, 1965, steps were taken to identify persons in the different states who would be available to work at The Center with the project leaders in summarizing data from state studies and preparing the developmental materials outlined above.

Staff Personnel

The project was funded on February 15, 1965, permitting the project leaders to complete arrangements for task force personnel. Dr. George Luster, Associate Professor of Vocational Education, University of Kentucky, began working on March 1, on the overall development of curricular materials. This included working with task force personnel to develop a format for the materials and to coordinate the instructional materials development. He later developed specific materials in the agricultural supply - sales and service occupational area.

Mr. Alan Kahler, former teacher of vocational agriculture in Nebraska and teaching assistant in the Department of Agricultural Education at Iowa State University, came to the Project on March 1, 1965. His primary responsibility was to develop curricular materials in agricultural machinery -

service occupations at the post high school level. Mr. Howard Nowels, teacher of vocational agriculture in Fremont, Ohio, began working March 1, developing materials for the area of agricultural supply - sales and service occupations. Mr. Nowels first concentrated his efforts on the high school programs. Mr. James Utzinger, a teacher of vocational horticulture in the Grove City, Ohio, schools began working on March 22, to develop the curricular materials in horticulture - service occupations. He was assisted during the month of July by Mr. Peter J. Wotoweic, teacher of vocational horticulture at West Technical High School, Cleveland, Ohio. Mr. William Becker, teacher of vocational agriculture at Janesville, Wisconsin, had developed a program in off-farm occupations in cooperation with the Department of Agricultural and Extension Education of the University of Wisconsin. Mr. Becker began working with Mr. Nowels in the area of agricultural supply on April 5, 1965. All of these men were recognized as outstanding teachers and had experience in the specific area in which they were developing materials.

Mr. Donald Seaman, graduate student in agricultural education at The Ohio State University, began assisting Dr. Stevens on April 1 with the summarization of data from the different state studies. Mr. William Stevenson, Oklahoma State University staff member and director of a state occupational needs study, spent two months, beginning June 1, working with Dr. Stevens summarizing and analyzing occupational data from the different states.

Mr. Nowels became ill and upon doctors' advice resigned from the project on April 30. Mr. Becker then assumed primary responsibility for the area of agricultural supply and was assisted by Dr. Julius H. Lintner, former assistant state supervisor of agricultural education in Ohio, who began working on the project on May 1.

Dr. Jerry J. Halterman, Dean of Agriculture, Chico State College, Chico, California, was responsible for developing materials in agricultural chemicals technology.

Mr. Harold Anderson, formerly Assistant Professor of Agricultural Education, Colorado State University, began working July 1, on materials for planning and conducting occupational experience programs in off-farm agriculture.

Mr. Ramsey M. Groves, formerly teacher of vocational agriculture in New Mexico and a doctoral candidate at The Ohio State University, worked part-time on the total project.

Mr. Robert V. Kerwood, formerly Assistant Professor of Agricultural Education, West Virginia University, and currently a doctoral candidate and Research Associate at The Center, assisted in coordinating the final publication of all materials in the project.

Dr. Glenn Stevens, Professor of Agricultural Education at Pennsylvania State University, assumed the major responsibility for the publication in Guidance for Off-Farm Agriculture.

In August, 1965, Dr. James W. Hensel, formerly Assistant Professor, University of Wisconsin, joined the professional staff at The Center as Specialist in Agricultural Education. He assumed the role of coordinating the final publication of the Agricultural Chemicals Technology and Guidance materials and of completing the final requirements of the project grant.

Dr. James E. Christiansen, Assistant Professor, University of Florida, worked as a project staff member during his final year of graduate work at The Ohio State University. His major responsibilities were in preparing the final drafts for publication, based on the technical and editorial reviews. Dr. Christiansen also wrote the original draft for the final report of the project and served as a reviewer for the Agricultural Chemicals Technology publication.

In addition to the task force personnel, other persons served as consultants or prepared specific materials for the project. These persons and their areas of specific contributions were:

Dr. Homer V. Judge Department of Agricultural Education University of Massachusetts Amherst, Massachusetts	Summarization of State Data March 15-20
Robert E. Steffy Department of Agricultural Education Pennsylvania State University University Park, Pennsylvania	Agricultural Supply-Salesmanship March 22-26
Dr. William Hull Department of Agricultural Education Pennsylvania State University University Park, Pennsylvania	Agricultural Supply-Human Relations March 28-April 9
Dr. J. R. Warmbrod Department of Vocational Education University of Illinois Urbana, Illinois	Agricultural Supply April 12-22
V. B. Hairr, State Supervisor Agricultural Education State Department of Public Instruction Education Building Raleigh, North Carolina	Agricultural Machinery April 12-16
Dr. Le Roy Barker Professor of Agronomy Chico State College Chico, California	Agricultural Chemicals Technology
Dr. H. Dean McNeilly Chairman, Department of Agriculture Delta College Stockton, California	Agricultural Chemicals Technology

Dr. E. D. DeRemer, Director Special Agriculture Programs Northeastern Junior College Sterling, Colorado	Agricultural Chemicals Technology
Dr. Jordon Smith Professor of Agronomy Chico State College Chico, California	Agricultural Chemicals Technology
Dr. E. A. Tarone Chairman, Department of Agriculture Modesto Junior College Modesto, California	Agricultural Chemicals Technology
Earl Scott MDTA Instructor Jefferson City Schools Jefferson, Ohio	Agricultural Machinery Tractor Repair July 19-28
Martin Rehmert Teacher of Vocational Agriculture New Knoxville, Ohio	Agricultural Machinery Metal Fusion August 2-6
Robert H. White Graduate Assistant The Ohio State University Columbus, Ohio	Agricultural Supply Farm Petroleum September 14-28
C. G. Dawson, Consultant North Carolina Department of Community Colleges Department of Public Instruction Raleigh, North Carolina	Program Visitation, Analysis, and Preparation of In-depth Critiques for Project Staff Members
Linwood Bailey, Manpower Coordinator Defense Activity Staff Policy and Program Appraisal Division Agricultural Stabilization and Conservation Service U. S. Department of Agriculture Washington, D. C.	Guidance
Emanuel Weinstein Occupational Analyst Program Services Branch U. S. Office of Education Washington, D. C.	Guidance

It will be noted that the project staff, including those actively involved and contributing to the publication series, included staff members from fifteen states.

Second Project Advisory Committee Meeting

As task force efforts progressed, it was thought advantageous to again invite people knowledgeable in the area of off-farm agricultural occupations to an advisory meeting on March 15, 1965. The purpose of this meeting was to test the plans, proposals, and alternatives suggested by staff with the advisory group. It was hoped that the group would offer comments and suggestions concerning the plans for the development of materials for programs of off-farm occupational education that were being considered by task force personnel. The list of persons attending this advisory meeting is included as Appendix "C." The group included representatives of agricultural machinery dealerships, teacher educators working with programs in depressed areas of the deep South, representative of a curricular materials service, representatives from the division of vocational guidance in a state department of education, a personnel development director for a large Farm Bureau cooperative, a teacher educator from the field of distributive education, and the Chief, Agricultural Occupations, United States Office of Education.

The persons attending this advisory meeting provided task force personnel with specific direction in the program development and curricular aspects of the project. The general format of the curricular materials proposed by task force personnel was accepted and endorsed by this advisory group. A specific outgrowth of the advisory meeting was the design for a national advisory meeting to be held in April.

Another outgrowth of this meeting was the establishment of channels of communication between persons in education and persons representing different power structures in agricultural business and industries. The two-way line of communications established here paved the way for increased understanding and appreciation of mutual concerns in both the national meetings and area meetings which followed. These contacts with people from industry reinforced and accentuated the need for establishing programs in off-farm occupations.

Activities Prior to April Advisory Meeting

During the month of March, dates and locations were established for five regional conferences on developing programs for off-farm agricultural occupations to be held during the months of May and June. It was necessary to shift the southern area conference from Montgomery, Alabama, to Atlanta, Georgia. These conferences were to serve state staff and local level personnel who would be developing new types of programs in off-farm occupations. During March, most of the project staff personnel responsible for developing curricular materials began their work. Schedules were established for visits to key programs in off-farm occupations across the nation. Among the programs visited during March and the following months were:

Agricultural Supply	Forsyth Technical Institute Winston Salem, North Carolina

Agricultural Supply	Reidland High School Paducah, Kentucky
Agricultural Supply	Springfield Senior High School Springfield, Ohio
Agricultural Supply and Agricultural Chemicals Technology	Northeastern Junior College Sterling, Colorado
Horticulture	Camden County Joint Vocational School Merchantville, New Jersey
Horticulture	Rockland County Center of Technology and Education West Nyack, New York
Horticulture	Philadelphia High School for Horticulture Philadelphia, Pennsylvania
Agricultural Machinery	Alexandria Area Technical School Alexandria, Minnesota
Agricultural Machinery	Jefferson High School Jefferson, Ohio

These programs were identified on the basis of recommendations made by persons acquainted with the needs in off-farm agricultural occupations and emerging programs. In addition, an examination of materials concerning these programs prepared by people involved in them served as a basis for selection. Materials were graciously furnished to the project staff by persons conducting the programs.

Also, during March, decisions were made concerning the length of the programs for which materials were to be developed on the basis of the preliminary data already received and summarized from state occupational studies. In analyzing data from the different states, task force personnel were reminded that a lack of comparative data made the process of analyzing information for nation-wide application extremely difficult. It was obvious that it would take longer than had been originally anticipated to develop usable conclusions based upon these data. Based upon factor analysis and extrapolation, common elements from the developmental research studies were drawn and synthesized for use by project personnel.

Priorities were established for the development of the specific materials which were to be outgrowths of this project. High priority was given to the preparation of the publication pertaining to the research findings of the various states. High priority was also given to the development of those materials which would serve as guidelines in policy and administrative decisions for persons undertaking new programs in off-farm occupations. It was necessary to put greater emphasis on

these program developmental materials because people in schools across the nation would need this type of assistance before they could intelligently plan new programs and utilize the instructional materials being developed. It was also necessary during this period to develop working definitions of terms such as "technical education," "vocational skills," and "occupational education" to furnish a common ground of understanding.

National Advisory Meeting for Developing Programs of Education in Off-Farm Agricultural Occupations

On April 5 and 6, 1965, forty-one persons from across the nation met on the campus of The Ohio State University as a national project advisory committee to give direction to the development of educational programs in this area. These people represented vocational agriculture, trade associations, other vocational services, different institutional settings, supporting disciplines, and business and industrial organizations directly associated with off-farm agriculture. Representatives from sociology, rural sociology, agricultural economics, teacher education, state supervisory staffs, community colleges, land grant colleges, and area vocational schools attended this conference. A complete list of those who attended has been included as Appendix "D."

The persons participating in this conference were charged with providing task force personnel with specific counsel and suggestions to be considered in preparing program development and curriculum materials. Among the items presented by the advisory committee to the task force for consideration were the following:

1. Materials to be developed must consider the age and maturity level required by prospective employers.

2. There is a need for more programs at the post high school level.

3. Successful programs cannot be developed unless cooperation with the off-farm business or industries concerned is obtained.

4. A joint responsibility exists between industry and education for the in-service education or retraining of present employees. Because more vertical integration is taking place among companies engaged in off-farm agriculture, fewer companies with larger numbers of employees needing more uniform programs of pre-employment and in-service education will result.

5. Programs such as those proposed cannot operate effectively unless local or area advisory councils are utilized to help guide and direct the program.

6. Attention should be given to procedures for updating the materials developed by this particular project.

7. In some instances, it is necessary to seek out the advice of persons in those businesses and industries in off-farm occupational areas who are on the "growing edge," and are facing problems in training personnel that the vast majority of such businesses have not yet faced.

8. There is a need for continuing, systematic research on both the immediate employment and long-range projected needs.

9. Schools have a responsibility for teaching occupational "fundamentals"; industry has the responsibility for moving men and women ahead within the job and organization.

10. The need for competency in communications skills, such as reading, writing, working with people (human relations), and developing proper personal attitudes, was also expressed by some business and industry people attending the conference.

11. Duplication among agencies in providing off-farm occupational training programs needs to be limited, thereby resulting in increased savings and improved educational effectiveness.

12. More precise and comprehensive terminology is needed by people developing these programs so that they are universally understood.

13. School people present expressed the viewpoint that "we expect industry to absorb our product, therefore we must have a product that industry wants. Consequently, we must expect industry to explain what skills and abilities are needed for entry as well as advancement in occupations."

14. The programs being established will not be of fullest value if the students enrolled in them do not secure adequate vocational guidance. Consequently, vocational guidance counselors and teachers working with individual students need to: (a) determine interests, (b) expand on knowledge about jobs available, (c) note the students' individual abilities, and (d) explore different occupations for which a person would be best fitted.

15. While being concerned with working with business and industry, it is imperative that persons planning such programs not overlook the possibility of cooperating with other vocational and educational services. The Department of Labor, employment security agencies, the Agricultural Extension Service, four-year educational institutions, privately operated educational institutions, and the general public are all vitally concerned with off-farm occupational education.

16. The advisory meeting members endorsed the format for materials and general plan of operation being followed in the project.

17. The problem of low-entry wages in some agricultural occupations was identified as a deterrent to program development. The opinion was expressed that entry wages should improve as the qualifications of entry workers improve.

Activities Prior to National Conferences on Off-Farm Agricultural Occupations

At the conclusion of the April advisory committee conference, selected supervisors and teacher educators stayed to assist staff members in planning the National Conference on Off-Farm Agricultural Occupations. These men also assumed leadership roles in the May conference.

After the April meeting, project task force personnel standardized course titles by description and by areas. It was decided to categorize job titles. By the beginning of May complete summarization data had been received from fifteen states.

Programs in operation in the different states were evaluated as task force personnel began preparing program development and curriculum materials. The time between the April conference and the May national conference was devoted to preparation of project materials in all areas. By the time the national conference was held in May, preliminary program development materials concerning policies and administrative decisions in off-farm programs as well as a tentative summary of research findings had been completed. Instructional materials had been prepared in tentative form for approximately 40 percent of the modules in horticulture, agricultural supply, and agricultural machinery. Content in the area of agricultural chemicals technology had been outlined.

The National Conference on Off-Farm Agricultural Occupations

From May 4 to 7, 1965, 153 individuals from 49 states, not including task force personnel, attended a national conference on off-farm agricultural occupations on the campus of The Ohio State University. A complete list of the persons attending appears as Appendix "E." The conference was developed primarily for teacher educators and state supervisory personnel in agricultural education. Representatives from agricultural business and industry, state colleges and universities, the U. S. Office of Education, area vocational schools, community colleges, state employment services, and state departments of public instruction also attended this conference.

The primary purposes of the conference were:

1. To present to personnel from the respective states an outline for developing new programs in off-farm agricultural occupations.

2. To show the nation-wide need for such programs.

3. To present the preliminary materials pertaining to development of such programs as well as illustrative curricular materials already developed by project personnel.

4. To plan five area meetings which would focus on the development of local pilot programs.

In the evaluation of this conference, the persons attending reflected an interest in and a need for developing such programs in their respective states. They also sought specific help in establishing such programs, especially in states which had small state staffs. One common feeling expressed was that the conference itself should have been held a year earlier.

In analyzing the evaluation instruments returned by conference participants, it was interesting to note that some persons had not been aware, until this conference, of the willingness of business and industry to cooperate with education in establishing needed programs. It was the judgment of the task force that some conference participants were ignoring study data and viewing needed developments in this area in light of modifying existing traditional programs rather than developing new or parallel programs focusing primarily on off-farm agricultural occupations. That is to say, some apparently felt that "some instruction" could be injected into certain years of the present production-oriented program and do the job that needed to be done. The task force, recognizing the impact of the data, the training requirements for present and emerging occupations, and counsel from agricultural occupations employers, resolved to place increasing emphasis during the remainder of the project on the development of programs devoted primarily, if not exclusively, to off-farm agricultural occupations.

In summarizing the comments of the participants, task force personnel expressed concern that materials being developed for this purpose would be "prostituted" by being "inserted in" existing programs in many states. Developing occupational competency in off-farm occupations requires a complete, coordinated program of education which is tailored for occupational entry. This type of program cannot be developed by adding a module or two to an existing traditional program. To help foster this idea of developing a complete program in any given area, task force personnel decided that the curriculum materials now growing out of the work of the project would be sold to the states only as complete sets.

Conference participants discussed extensively the following leadership tasks of state staff personnel in developing programs in off-farm agricultural occupations: (1) determining administrative responsibility; (2) changing existing programs; (3) developing and evaluating departmental programs; (4) providing qualified personnel for such work; (5) providing occupational experience; and (6) providing vocational education in agriculture to those not benefiting from the regular program. In addition, time was spent by state staff personnel on the problem of the establishment of priorities within states in developing this type of program.

Activities Subsequent to National Conference on Off-Farm Occupations

The two weeks following the national conference at Ohio State were spent by task force personnel in the preparation of project materials and in preparation for five area meetings on off-farm occupations to be held across the country. The rationale among project staff personnel was that time spent in activities which helped the dissemination of materials and the resulting establishment of local pilot programs was time well spent. These meetings took place in New York City on May 17-19, 1965; Chicago on May 24-26; Pullman, Washington on June 2-4; Denver, Colorado on June 9-11, 1965; and Atlanta, Georgia on June 21-23, 1965.

Area Meetings

While the National Conference in Ohio had focused attention on responsibilities and activities of state staff personnel in the respective states, the area meetings focused on the responsibilities and activities in which local school administrative officers, local boards, vocational coordinators, vocational teachers, and lay personnel could engage to determine the needs for initiating such programs at the local level. The role of state staffs in initiating pilot programs was also included.

A total of 332 persons, excluding task force personnel, attended area meetings. Thirty percent of these persons were local teachers, 50 percent of those attending were the state staff personnel, who, by and large, would be responsible for providing guidance for these programs in their respective states. Representatives from agricultural industries, other vocational services, and educational institutions in the different areas attended these meetings. The roster of those attending area meetings is attached as Appendix "F."

The Development of Curricular and Supporting Materials

Following the last area meeting, the task force personnel devoted their energies to completing the curricular and program development materials. One of the major objectives of the project was to develop curricular guides and supporting materials which were determined to be most needed in the area of off-farm agricultural occupations. Therefore, the completion of a series of publications was given high priority by the task force.

The following publications were prepared during the summer of 1965 to assist educators in developing programs in off-farm agricultural occupations:

1. Policy and Administrative Decisions Needed When Introducing Vocational and Technical Education in Agriculture for Off-Farm Occupations (for boards and administrators of local schools, area schools, and colleges)

2. Vocational and Technical Education in Agriculture for Off-Farm Occupations (for counselors, teachers, board members, and administrators at all levels)

3. Summary of Research Findings in Off-Farm Agricultural Occupations

4. Planning and Conducting Cooperative Occupational Experience in Off-Farm Agriculture

5. Occupational Guidance for Off-Farm Agriculture (for teachers, guidance counselors, and students)

6. Organizing to Provide Agricultural Education for Off-Farm Occupations (of primary value to state staffs when working with groups planning programs in off-farm occupations. This consists of 18 mimeographed sheets from which transparencies can be made.)

In addition, curricular materials were developed by the task force to assist teachers in developing courses in four subject areas:

A. Agricultural Machinery - Service Occupations

These materials were created for a course designed to develop at the post high school level the competence needed for occupational entry and advancement in service occupations in agricultural machinery dealerships.

The complete set of curricular materials in this area consists of a detailed course outline including suggestions for developing this course as well as sixteen instructional modules. These modules are as follows:

1. Organization and Management of Agricultural Machinery Dealerships

2. Agricultural Machinery Service Department Operating Procedures

3. Agricultural Machinery Parts Department Operating Procedures

4. Agricultural Salesmanship

5. Human Relations in Agricultural Occupations

6. Metal Fusion and Fabrication Welding

7. Agricultural Machinery Assembly and Lubrication

8. Mechanical Power Transfer Systems

9. Hydraulic Power Transfer Systems

10. Adjustment, Maintenance, and Repair of Tillage, Planting, Spraying, and Fertilizing Machinery

11. Adjustment, Maintenance, and Repair of Crop Harvesting Machinery

12. Adjustment, Maintenance, and Repair of Small Gasoline Engines

13. Tractor Tune-up and Maintenance

14. Gasoline Tractor Engine Systems

15. Diesel Engine Systems

16. Tractor Repair

B. Agricultural Supply - Sales and Service Occupations

These materials have been prepared for a course at the high school level to prepare high school students for successful job entry in retail businesses that sell agricultural supplies and services. The course is largely limited to preparing students to sell production agricultural supplies, such as feeds, seeds, fertilizer, chemicals, and small items and equipment of a similar use. The course is not intended to prepare workers to sell major agricultural items or supplies such as farm machinery, tractors, heavy building materials.

The complete set of curricular materials in this area consists of a detailed course outline including suggestions for developing this course as well as twelve instructional modules. These modules are as follows:

1. Career Opportunities in Agricultural Sales and Service

2. Orientation to the Supervised Occupational Experience Program

3. Human Relations in Agricultural Occupations

4. Agricultural Salesmanship

5. Organizations and Functions of Agricultural Businesses

6. Business Procedures

7. Feeds - Sales and Service

8. Crop, Lawn, and Garden Seeds - Sales and Service

9. Fertilizers - Sales and Service

10. Agricultural Chemicals - Sales and Service

11. Petroleum and Petroleum Products - Sales and Service

12. Miscellaneous Agricultural Supplies and Small Equipment - Sales and Service

C. Horticulture - Service Occupations

These materials have been prepared for a course at the high school level to develop the degree of competence needed for occupational entry as service workers in such establishments as nurseries, garden centers, greenhouses, golf courses, and grounds maintenance departments.

The complete set of curricular materials in this area consists of a detailed course outline including suggestions for developing this course as well as twelve instructional modules. These modules are as follows:

1. Exploring Occupational Opportunities in Ornamental Horticulture

2. Identifying Horticultural Plants

3. Propagating Horticultural Plants

4. Growing Horticultural Plants

5. Using Soil and Other Plant Growing Media Effectively

6. Recognizing and Controlling Plant Pests

7. Constructing, Maintaining, and Using Plant Growing Structures

8. Agricultural Salesmanship

9. Establishing and Caring for Lawns and Turf

10. Operating, Repairing, and Maintaining Small Power Equipment

11. Using and Caring for Ornamental Plant Materials and Landscape Structures

12. Human Relations in Agricultural Occupations

D. Agricultural Chemicals Technology

These materials were designed to provide an intensive two-year full-time program of study and work experience for students in agricultural chemicals technology. The courses in this post high school program are planned and organized to provide the chemical, biological, business, mathematical, and agricultural theories combined with procedural and technical skills involved in their application to the broad field of agriculture.

A complete set of curricular materials in this area include a suggested two-year post high school curriculum and course outlines and eight instructional modules. These modules are as follows:

1. The Use of Chemicals as Fertilizers

2. The Use of Chemicals as Insecticides - Plants

3. The Use of Chemicals as Soil Additives

4. The Use of Chemicals as Fungicides, Bactericides and Nematocides

5. The Use of Chemicals to Control Field Rodents and Other Predators

6. The Use of Chemicals as Herbicides

7. The Use of Chemicals in the Field of Farm Animal Health (Nutrition, Entomology, Pathology)

8. The Use of Chemicals as Plant Regulators

In the development of instructional materials and supporting publications, a general procedure was followed to maximize validity and acceptance. Drafts of materials were prepared based on findings of the agricultural occupations studies, site visits to outstanding programs, and the best available materials. These drafts were submitted to vocational education teachers experienced in the specific area, to subject matter specialists in universities and industry, and to prospective employers. These technical reviews were then refined and synthesized before a final editorial review was given the publication.

Copies of all publications were mailed to head state supervisors and head teacher educators in agricultural education throughout the United States. Vocational agriculture teachers, vocational educators, subject matter specialists, agricultural businessmen, and others who reviewed the materials for accuracy and appropriateness of content also received copies of the publications. Twenty-five copies of each publication were mailed to the Office of Education to fulfill contract obligations.

Evaluating the Project

Several techniques were utilized to evaluate the worth of the overall project.

1. Participants in the May, 1965, national conference were asked to evaluate the strengths and weaknesses of the project in detail.

2. Evaluation sheets were included with each set of materials distributed to persons in the respective states; these sheets were to be returned by the user after completion of each module taught or after using each publication.

3. Plans are underway for monitoring and evaluating pilot programs in operation which are using the materials developed as an outgrowth of this project.

4. During the week of June 27 - 30, 1966, The Center sponsored a National Seminar on Evaluation and Program Planning in Agricultural Education. A significant portion of the seminar was devoted to the evaluation of the off-farm agricultural occupations project materials. One of the major purposes of the seminar, supported by the Sears-Roebuck Foundation, was to provide an opportunity for state leaders in agricultural education and representatives of other vocational services to pool their resources and thinking in planning for effective measurement and evaluation of pilot programs in off-farm agricultural occupations. The authors of each of the several publications acted as chairmen of small group discussions during the seminar for the purpose of gaining firsthand information from teacher educators and supervisors concerning the value and utility of the materials.

5. An extensive review of materials was made by persons qualified in the respective areas of specialization. These reviewers provided much valuable assistance and guidance in the development of materials resulting from this project. Those persons who served as reviewers of materials are listed as Appendix "A."

Strengths of the Project

1. States were provided assistance in completing and synthesizing their studies of agricultural occupations.

2. Persons from disciplines outside agriculture who could bring fresh, and, hopefully, unbiased viewpoints were involved to give direction to the programs to be undertaken. This involvement took place at the advisory committee meetings, during the National Conference on Off-Farm Occupations, and at the five area meetings. Persons were involved from the areas of sociology, rural sociology, agricultural economics, economics, manpower

economics, the National Academy of Sciences, community colleges, four-year colleges and universities, area vocational schools, technical institutes, and agricultural industries representing private concerns or trade associations.

3. Area meetings with primary emphasis on the development of local and area pilot programs permitted the active involvement of persons at the "action" level who would not have been able to benefit as quickly if they had been left to their own devices, especially as it permitted reduction of the time lag between awareness and decision making.

4. An awareness was created on the part of state staff personnel that cooperation and assistance can be secured in establishing these programs from other educational areas and from agricultural industry or businesses.

5. The national conference and the following area meetings provided a setting for the face-to-face interchange of ideas and discussions of mutual problems in developing new programs which would not have been possible in another manner.

6. One outcome of the project was the ability to entice personnel uniquely qualified in their respective fields to join the task force on a short-term basis to prepare specific materials. Also, the ability of the task force personnel to utilize extensively the experience of persons in agricultural businesses and industries who were aware of and were facing the problems in the preparation of employees contributed to the validity of the materials produced. The wholehearted cooperation provided by other vocational services permitted task force personnel to benefit from their experience and avoid previous errors. Another strength of the project was the opportunity to project efforts at an accelerated rate on a national basis.

7. Interstate cooperation was fostered in the development of instructional materials and supporting activities.

8. Materials developed were based on the recent research findings and advice from national leaders in agricultural industry who were able to project employment requirements.

Problems Associated with the Project

1. The lateness in securing project approval for funding from the Office of Education delayed the entire project schedule and made it difficult to have materials ready for the 1965-1966 school year.

2. Limitations of time and resources made it impossible to identify and evaluate all on-going programs in off-farm agricultural occupations.

3. Within this project it would have been desirable to have resources to contract with states and local districts for the conducting of pilot programs to carefully field test the instructional materials and supporting publications.

4. If the entire project schedule could have been advanced through earlier funding and accelerated efforts, it would have been desirable to have conducted some extensive workshops for state staff personnel who, in turn, would have been responsible for conducting workshops for teachers initiating programs in their states. This was accomplished to some degree on an informal basis, but not to the degree desired. Such workshops could also have addressed themselves to the operational level problems of involving other vocational services in such programs.

5. States were not able to maintain their schedules for completing research projects; hence, it was impossible to utilize all state research data in the synthesis.

6. Despite the efforts exerted through the two research coordination conferences, individual state project designs varied, therefore, contributing to the problem of developing comparative data.

SUMMARY

The major objectives of this project were accomplished through the series of specialized publications listed on Pages 19 to 23 of this document. This publication constitutes a report of the project and the procedures used in developing these specialized publications.

The major purpose of this project was to determine the adjustments and extensions needed in the high school and post high school curricular patterns of vocational education in agriculture to more effectively meet preparatory training needs in off-farm agricultural occupations. The summarization, interpretation, and resulting synthesis of the studies on agricultural occupations completed by twenty-six states provided the basis for determining extensions and adjustments in the curricular patterns.

Six specific objectives were established for the study. These were:

1. To identify the major occupations which require competency in agriculture.

2. To determine the agricultural competencies needed by workers in these occupations.

3. To cluster the major agricultural occupations which require similar competencies.

4. To develop and refine the curricular guides and supporting materials which were most needed and feasible for the major clusters of agricultural occupations.

5. To examine the data from the studies on agricultural occupations for other implications, giving particular attention to:

   a. Programs for disadvantaged youth.

   b. Projected employment opportunities in major agricultural occupations.

   c. Needed adjustments in administrative and supervisory procedures.

   d. Organizational structure for providing vocational education in agriculture.

   e. Needed adjustments in teaching and coordinating methods.

   f. Pre-service and in-service education of teachers.

   g. Selection, placement, and follow-up of students.

6. To train key state leaders in the use of the curricular guides and supporting materials.

A task force of educational leaders was assembled at The Center early in 1965 to work toward the accomplishment of the objectives. Advisory Committee meetings were held with representatives of agricultural business and industry, teacher educators, and state department personnel to gather suggestions concerning the development of materials for programs in off-farm agricultural occupations. The general format of the curricular materials was endorsed by this advisory group. Various off-farm agricultural programs in operation in the states were evaluated by the task force personnel as they began preparing curriculum materials.

In May, 1965, 153 individuals from forty-nine states attended a national conference at The Ohio State University to discuss the various phases of the off-farm agricultural occupations project. The primary purposes of the conference were:

1. To present to personnel from the respective states an outline for developing new programs in off-farm agricultural occupations;

2. To show the nation-wide need for such programs;

3. To present the preliminary materials pertaining to development of such programs as well as illustrative curricular materials developed by project personnel;

4. To plan five area meetings which would focus on the development of local pilot programs.

Following the national conference at The Ohio State University, the task force personnel prepared project materials for five area meetings on off-farm occupations to be held during May and June in New York City, New York; Chicago, Illinois; Pullman, Washington; Atlanta, Georgia; and Denver, Colorado. The primary purpose of the area meetings was to focus attention on the responsibilities and activities of local administrative officers, school boards, teachers, and the general public in initiating programs in the off-farm occupations. The meetings were attended by a total of 332 persons who also assisted in revising the project materials to make them more effective for their area.

After the last area meeting, the task force personnel devoted their energies to completing the curricular and program development materials. One of the major objectives of the project was to develop curricular guides and supporting materials which were determined to be most needed in the area of off-farm agricultural occupations. Therefore, the completion of a series of publications was given high priority by the task force.

The following publications were prepared during the summer of 1965 to assist educators in developing programs in off-farm agricultural occupations:

1. Policy and Administrative Decisions Needed When Introducing Vocational and Technical Education in Agriculture for Off-Farm Occupations (for boards and administrators of local schools, area schools, and colleges)

2. Vocational and Technical Education in Agriculture for Off-Farm Occupations (for counselors, teachers, board members, and administrators at all levels)

3. Summary of Research Findings in Off-Farm Agricultural Occupations

4. Planning and Conducting Cooperative Occupational Experience in Off-Farm Agriculture

5. Occupational Guidance for Off-Farm Agriculture (for teachers, guidance counselors, and students)

6. Organizing to Provide Agricultural Education for Off-Farm Occupations (of primary value to state staffs when working with groups planning programs in off-farm occupations. This consists of 18 mimeographed sheets from which transparencies can be made.)

In addition, curricular materials were developed by the task force to assist teachers in developing courses in four subject areas:

1. Agricultural Machinery - Service Occupations

   These materials were created for a course designed to develop the competence needed at the post high school level for occupational entry and advancement in service occupations in agricultural machinery dealerships.

   The complete set of curricular materials in this area consists of a detailed course outline including suggestions for developing this course as well as sixteen instructional modules.

2. Agricultural Supply - Sales and Service Occupations

   These materials were prepared for a course at the high school level to prepare high school students for successful entry in retail businesses that sell agricultural supplies and services. The course was largely limited to preparing students to sell production agricultural supplies, such as feeds, seeds, fertilizer, chemicals, and small items and equipment of a similar use.

   The complete set of curricular materials in this area consisted of a detailed course outline including suggestions for developing this course as well as twelve instructional modules.

3. Horticulture - Service Occupations

   These materials were prepared for a course at the high school level developing the degree of competence needed for occupational entry as service workers in such establishments as nurseries, garden centers, greenhouses, golf courses, and grounds maintenance departments.

   The complete set of curricular materials in this area consisted of a detailed course outline including suggestions for developing this course as well as twelve instructional modules.

4. Agricultural Chemicals Technology

   These materials were designed to provide an intensive two-year full-time program of study and work experience education for students in agricultural chemicals technology. The courses in this post high school program were planned and organized to provide the chemical, biological, business, mathematical, and agricultural theories combined with procedural and technical skills involved in their application to the broad field of agriculture.

A complete set of curricular materials in this area included a suggested two-year post high school curriculum and course outline and eight instructional modules.

Copies of all publications were mailed to head state supervisors and head teacher educators in agricultural education throughout the United States. Vocational agriculture teachers, subject matter specialists, agricultural businessmen, and others who reviewed the materials for accuracy and appropriateness of content also received copies of the publications. Twenty-five copies of each publication were mailed to the Office of Education to fulfill contract obligations.

APPENDIXES

APPENDIX "A"

Evaluators of Materials Prepared by
Task Force Personnel

The following persons evaluated selected portions of the program developmental and curricular materials prepared within their area of specialization. Their comments and constructive criticisms aided materially in strengthening the value of these materials.

Policy and Administrative Decisions
Needed When Introducing
Vocational and Technical Education in Agriculture
For Off-Farm Occupations

Harry G. Beard	Associate Professor of Education School of Education	North Carolina State University Raleigh, North Carolina
James Hensel	Specialist in Agricultural Education	The Center for Research and Leadership Development in Vocational and Technical Education The Ohio State University Columbus, Ohio
Robert Kozelka	Chief of Business and Distributive Education	State Department of Education Springfield, Illinois
William B. Logan	Professor and Director Distributive Education Institutes, College of Education	The Ohio State University Columbus, Ohio
Sidney S. Sutherland	Professor Emeritus Department of Agricultural Education	University of California Davis, California
Ralph Wenrich	Head, Department of Vocational and Practical Arts Education, College of Education	University of Michigan Ann Arbor, Michigan

Vocational and Technical Education
in Agriculture
For Off-Farm Occupations

Harry G. Beard	Associate Professor of Education School of Education	North Carolina State University Raleigh, North Carolina
James W. Hensel	Specialist in Agricultural Education	The Center for Research and Leadership Development in Vocational and Technical Education The Ohio State University Columbus, Ohio
Robert Kozelka	Chief of Business and Distributive Education	State Department of Education Springfield, Illinois
William B. Logan	Professor and Director Distributive Education Institutes, College of Education	The Ohio State University Columbus, Ohio
Sidney S. Sutherland	Professor Emeritus Department of Agricultural Education	University of California Davis, California
Ralph Wenrich	Head, Department of Vocational and Practical Arts Education, College of Education	University of Michigan Ann Arbor, Michigan

Summary of Research Findings
in Off-Farm
Agricultural Occupations

William W. Stevenson	Director, Research Coordinating Unit for Vocational Education	Oklahoma State University Stillwater, Oklahoma
Homer V. Judge	Head, Agricultural Education Department	University of Massachusetts Amherst, Massachusetts
Don F. Seaman	Graduate Assistant in Agricultural Education	The Ohio State University Columbus, Ohio
Leonard Giambra	Graduate Assistant in Psychology	The Ohio State University Columbus, Ohio

Joseph W. Duncan	Chief, Manpower and Regional Economics Division	Battelle Memorial Institute Columbus, Ohio

Planning and Conducting
Cooperative Occupational Experience
in Off-Farm Agriculture

Donald Brock	Vocational Agriculture Teacher-Coordinator	Highland Park High School Topeka, Kansas
E. M. Chinnock	Vocational Coordinator	Cloquet High School Cloquet, Minnesota
Raymond Clark	Professor, Agricultural Education Department	Michigan State University East Lansing, Michigan
Mike Cullen	Director	Willmar Area Vocational Technical School Willmar, Minnesota
Stan Lancaster	Assistant State Supervisor Agricultural Education	Denver, Colorado
William B. Logan	Professor and Director Distributive Education Institutes, College of Education	The Ohio State University Columbus, Ohio
Gordon McMahon	Director, Division of Vocational-Technical Education	State Department of Education Oswego, New York
Bernard Nye	State Supervisor of Distributive Education	State Department of Education Columbus, Ohio
Clayton Riley	Vocational Agriculture Instructor	Reidland High School Paducah, Kentucky
Paul Shoemaker	Distributive Education Coordinator	Chillicothe High School Chillicothe, Ohio
Darrel Way	Livestock Specialist Agricultural Education	State Department of Education Little Rock, Arkansas

Agricultural Machinery
Service Occupations

Robert Alfred	Parts Distributor	Massey-Ferguson, Inc. Columbus, Ohio
R. C. Belt	Manager	R. C. Belt, Inc. Washington Court House, Ohio
George B. Blum, Jr.	Assistant Professor of Agricultural Engineering	North Carolina State University Raleigh, North Carolina
C. E. Boggs	District Service Manager	Allis Chalmers Manufacturing Company Columbus, Ohio
Joseph Bradley	Manager	Bradley Implement Company Algona, Iowa
C. E. Bundy	Teacher Educator in Agricultural Education	Iowa State University Ames, Iowa
R. W. Canada	Professor of Agricultural Education	Colorado State University Fort Collins, Colorado
Richard Carr	District Service Manager	John Deere Company Columbus, Ohio
L. A. Coomer	General Supervisor	Farm Equipment Service Chicago, Illinois
Ray Cunningham	Assistant District Service Manager	International Harvester Company Columbus, Ohio
Emory H. Dixon	Educational Consultant	Hobart Welding School Troy, Ohio
Raymond C. Dunlavy	Supervisor of Training	Hobart Welding School Troy, Ohio
Lewis Eggenberger	Teacher Educator Agricultural Education Department	Texas Technological College Lubbock, Texas
J. M. Fare	Agricultural Engineering Department	North Carolina State University Raleigh, North Carolina

Alfred Fozer	Field Engineer	The Lincoln Electric Co. Columbus, Ohio
Cliff Gerstenberger	Secretary-Treasurer	Iowa Retail Farm and Power Equipment Association, Inc. Des Moines, Iowa
L. L. Gibbons	Professor of Industrial Education	Colorado State University Ft. Collins, Colorado
Jerry Halterman	Instructor in Agricultural Engineering	Modesto Junior College Modesto, California
G. E. Henderson	Coordinator, Southern Association for Agricultural Engineering and Vocational Agriculture	University of Georgia Athens, Georgia
Thomas Hoerner	Instructor Agricultural Engineering Department	Iowa State University Ames, Iowa
Van H. Jarret	Associate Professor of Agricultural Education	Utah State University Logan, Utah
Arthur Johnson	Mechanics Instructor	Alexandria Area Vocational School Alexandria, Minnesota
Carlton Johnson	Associate Professor of Agricultural Engineering	The Ohio State University Columbus, Ohio
Robert E. Julian	Vocational Agriculture Instructor	Amphitheater High School Tucson, Arizona
W. M. Kirkpatrick	Associate Professor of Agricultural Engineering	California State Polytechnic College San Luis Obispo, California
Loren Larson	Parts Man Instructor	Alexandria Area Vocational School Alexandria, Minnesota
M. G. McCreight	Assistant Professor of Agricultural Education	University of Nebraska Lincoln, Nebraska
John Miller	District Service Manager	International Harvester Co. Columbus, Ohio
Harold M. Nestor	Instructor in Hydraulics	Columbus Area Technician School Columbus, Ohio

A. F. Otto	District Parts Manager	John Deere Company Columbus, Ohio
Harlan Ridenour	Director of the Ohio Vocational Agriculture Curriculum Materials Service	The Ohio State University Columbus, Ohio
George Schelin	Mechanics Instructor	Alexandria Area Vocational School Alexandria, Minnesota
Ralph G. Schweizer	President	Burlington Equipment Machinery Corp. Burlington, Iowa
Earl Scott	MDTA Instructor	Jefferson Area Schools Jefferson, Ohio
John Shuey	District Dealer Development Manager	International Harvester Co. Columbus, Ohio
T. J. Wakeman	Instructor Department of Agricultural Engineering	Virginia Polytechnic Institute Blacksburg, Virginia
Dan Walton	District Service Manager	Massey-Ferguson, Inc. Columbus, Ohio
Charles Whitney	Secretary	Farm Power and Equipment Dealers of Ohio Columbus, Ohio
Ivan Winland	Coordinator	Jefferson Area Schools Jefferson, Ohio
James W. Zepplin	Instructor	Wausau Technical Institute Wausau, Wisconsin

Agricultural Supply
Sales and Service Occupations

Hugh Aydelotte	Petroleum Manager	Franklin County Landmark Hilliards, Ohio
Roy O. Becker	Secretary-Manager	Ohio Seed Improvement Association Columbus, Ohio
V. A. Bergman	Manager, Salesman Training Division	Ralston Purina Company St. Louis, Missouri

Charles Besse	Director, Vocational Department	Southwestern High School Grove City, Ohio
Donald Brock	Vocational Agriculture Instructor	Park High School Minneapolis, Minnesota
Keith Brum	Field Manager	Geigy Agricultural Chemicals Yonkers, New York
Walter Callahan	Commercial Sales Manager	Landmark Cooperatives Columbus, Ohio
Daniel C. Chase	Head, Department of Agricultural Business Management	California State Polytechnic Institute San Luis Obispo, California
T. P. Christen	Farm Sales and Home Heating Sales	The Standard Oil Company Cleveland, Ohio
Harry L. Cook	Director of Research and Technical Service	Landmark Cooperatives Columbus, Ohio
Rex Cunningham	Vocational Agriculture Instructor	Arcadia High School Arcadia, Ohio
Garry L. Dean	Product Manager Pesticides Farm Supply Division	Landmark Cooperatives Columbus, Ohio
Jack Devitt	Vocational Agriculture Instructor	Ottoville High School Ottoville, Ohio
Alvin W. Donahoo	Secretary	Minneapolis Grain Exchange Minneapolis, Minnesota
James E. Dougan	Assistant State Supervisor Vocational Agriculture	State Department of Education Columbus, Ohio
H. B. Drake	Coordinator, Agri-business Technology	Springfield and Clark Co. Springfield, Ohio
Roger S. Dreyer	Executive Secretary	Ohio Petroleum Marketers Columbus, Ohio
H. E. Edwards	State Supervisor of Vocational Agriculture	State Department of Education Charleston, West Virginia
Dale T. Friday	General Manager, Farm Science Review and Extension Agronomist	The Ohio State University Columbus, Ohio

Clarence A. Gehrig	Executive Secretary	Ohio Council of Farmer Cooperatives, Inc. Columbus, Ohio
J. E. Girens	Assistant General Manager	Southern States Cooperative Richmond, Virginia
George Greenleaf	Executive Secretary	Ohio Grain and Feed Dealers Association Columbus, Ohio
C. Neilsen Griffith	Vice President, Membership and Public Relations	Landmark Cooperatives Columbus, Ohio
Paul Hartsook	Vocational Agriculture Instructor	Bowling Green High School Bowling Green, Ohio
Samuel G. Huber	Professor of Agricultural Engineering	The Ohio State University Columbus, Ohio
Ray M. Kesler	Vocational Agriculture Instructor	Morgantown High School Morgantown, West Virginia
Elton Kile	Elevator Manager	Plain City, Ohio
Ralph E. Kunze	Manager of Seed Services Seed and Fertilizer Division	Landmark Cooperatives Columbus, Ohio
Roy H. Lippert	Instructor, Agricultural Engineering	Modesto Junior College Modesto, California
George Luster	Associate Professor Agricultural Education	University of Kentucky Lexington, Kentucky
Howard P. Moore	Laboratory Supervisor Division of Plant Industry	Ohio Department of Agriculture Reynoldsburg, Ohio
Howard Nowels	Vocational Agriculture Instructor	Fremont High School Fremont, Ohio
Harry Plank	Vocational Agriculture Instructor	Green Local High School Smithville, Ohio
Paul F. Pulse	Director of Short Courses in Agriculture	The Ohio State University Columbus, Ohio
Thomas Pulse	High School Student	Hillsboro, Ohio
O. W. Randolph	Manager, Personnel and Public Relations	Moorman Manufacturing Co. Quincy, Illinois

Harlan Ridenour	Director of the Ohio Vocational Agriculture Curriculum Materials Service	The Ohio State University Columbus, Ohio
Clayton Riley	Vocational Agriculture Instructor	Reidland High School Paducah, Kentucky
William Ruth	Distributive Education Coordinator	Whitehall High School Whitehall, Ohio
Allan E. Settle	Director of Public Relations	Manufacturing Chemists' Association, Inc. Washington, D. C.
Paul Shoemaker	Distributive Education Coordinator	Chillicothe High School Chillicothe, Ohio
Ralph W. Tolbert	Sales Promotion Manager	Geigy Agricultural Chemicals Yonkers, New York
Charles C. Wanke	Manager	Case Feed and Produce Co. Janesville, Wisconsin
Richard E. Wells	Assistant Program Director, Feed Division	Landmark Cooperatives Columbus, Ohio
Jesse Yopp	Manager	Yopp's Seed Company Paducah, Kentucky

Horticulture
Service Occupations

Evan K. Alban	Professor of Vegetable Crops, Department of Horticulture and Forestry	The Ohio State University Columbus, Ohio
Rayalene Brizendine	Guidance Counselor	Pleasant View High School Grove City, Ohio
Ray Brush	Secretary	American Association of Nurserymen, Inc. Washington, D. C.
Donald Casey	Guidance Counselor	Pleasant View High School Grove City, Ohio

Richard D. Clugston	Vocational Agriculture Instructor	Bowie High School El Paso, Texas
C. C. Drawbaugh	Professor, Department of Agricultural Education	Rutgers University New Brunswick, New Jersey
Foster Franks	Supervisor, Parks and Forestry Division	Columbus, Ohio
Clyde Gordon	Superintendent	Spring Grove Cemetery Cincinnati, Ohio
Roy L. Hoffman	Manager	Hoffman Greenhouses Hilliard, Ohio
Robert P. Holdsworth, Jr.	Professor of Zoology and Entomology	The Ohio State University Columbus, Ohio
Allan Keil	Manager	Grove City Garden Center Grove City, Ohio
J. P. Mahlstede	Head, Department of Horticulture	Iowa State University Ames, Iowa
Kennard S. Nelson	Vice President	Jednak Floral Company Columbus, Ohio
Darrell Parks	Graduate Assistant Agricultural Education	The Ohio State University Columbus, Ohio
Robert E. Partyka	Associate Professor Botany and Plant Pathology	The Ohio State University Columbus, Ohio
Harold L. Porter	Chief, Plant Industry	Ohio Department of Agriculture Reynoldsburg, Ohio
E. C. Robert	Associate Professor, Turf Management Department of Horticulture	Iowa State University Ames, Iowa
Lloyd R. Roof	Landscape Superintendent	The Ohio State University Columbus, Ohio
Robert W. Schery	Director	Lawn Institute Marysville, Ohio
Harry K. Tayama	Assistant Professor Cooperative Extension Service	The Ohio State University Columbus, Ohio

E. C. Volz	Professor of Floriculture Department of Horticulture	Iowa State University Ames, Iowa
Ralph J. Woodin	Professor of Agricultural Education	The Ohio State University Columbus, Ohio

Agricultural Chemicals Technology

Dale DeRemer	Director, Special Agriculture Program	Northeastern Junior College Sterling, Colorado
James E. Christiansen	Assistant Professor Agriculture Education	University of Florida Gainesville, Florida

Occupational Guidance
For Off-Farm Agriculture

Linwood K. Bailey	Staff Assistant, Manpower Policy and Program Appraisal Division	United States Department of Agriculture Washington, D. C.
Earl Webb	Associate Professor Department of Agricultural Education	Texas A&M University College Station, Texas
Emanuel Weinstein	Occupational Analyst Program Services Branch	U. S. Office of Education Washington, D. C.

APPENDIX "B"

Participants in Advisory Meeting
of
January 14-15, 1965
on
Developing Programs of Education in Off-Farm Agricultural Occupations

Robert E. Taylor	Coordinator Director	The National Center for Advanced Study and Research in Agricultural Education The Ohio State University Columbus, Ohio
Herbert M. Hamlin	Co-Chairman, Visiting Professor of Education	North Carolina State University Raleigh, North Carolina
Glenn Z. Stevens	Co-Chairman, Professor of Agricultural Education	Pennsylvania State University University Park, Pennsylvania
Harold Binkley	Teacher Educator, Agricultural Education	University of Kentucky Lexington, Kentucky
J. Kenneth Baker	Graduate Assistant Agricultural Education	The Ohio State University Columbus, Ohio
James E. Christiansen	Graduate Assistant Agricultural Education	The Ohio State University Columbus, Ohio
Raymond Clark	Teacher Educator Agricultural Education	Michigan State University East Lansing, Michigan
James Clouse	Teacher Educator Agricultural Education	Purdue University Lafayette, Indiana
John Coster	Teacher Educator Agricultural Education	University of Nebraska Lincoln, Nebraska
Rex Cunningham	Vocational Agriculture Teacher	Arcadia High School Arcadia, Ohio
Richard E. Geyer	Executive Secretary, Commission on Education in Agriculture and Natural Resources	National Academy of Sciences Washington, D. C.

Glenn Griffith	Vocational Agriculture Teacher	Westerville High School Westerville, Ohio
Ramsey Groves	Graduate Assistant Agricultural Education	The Ohio State University Columbus, Ohio
Norman Hoover	Teacher Educator Agricultural Education	Pennsylvania State University University Park, Pennsylvania
Charles Langdon	Assistant Supervisor Vocational Agriculture	State Department of Public Instruction Lansing, Michigan
Ivan McGee	Graduate Assistant Agricultural Education	Pennsylvania State University University Park, Pennsylvania
Lloyd Phipps	Teacher Educator Agricultural Education	University of Illinois Urbana, Illinois
Harry Plank	Vocational Agriculture Instructor	Green Local High School Smithville, Ohio
Harlan Ridenour	Director of the Ohio Vocational Agriculture Curriculum Materials Service	The Ohio State University Columbus, Ohio
James Wall	Executive Secretary	NVATA Lincoln, Nebraska
Ralph Woodin	Teacher Educator Agricultural Education	The Ohio State University Columbus, Ohio

APPENDIX "C"

Participants in Advisory Meeting
of
March 15, 1965
on
Developing Programs of Education in Off-Farm Agricultural Occupations

Robert E. Taylor	Coordinator Director	The National Center for Advanced Study and Research in Agricultural Education The Ohio State University Columbus, Ohio
Herbert M. Hamlin	Co-Chairman, Visiting Professor of Education	North Carolina State University Raleigh, North Carolina
Glenn Z. Stevens	Co-Chairman, Professor of Agricultural Education	Pennsylvania State University University Park, Pennsylvania
Ralph E. Bender	Professor and Chairman Department of Agricultural Education	The Ohio State University Columbus, Ohio
Leon W. Bonner	Teacher Educator Agricultural Education	Alabama A&M College Normal, Alabama
William C. Boykin	Teacher Educator Agricultural Education	Alcorn A&M College Lorman, Mississippi
Theodore Caesar	Personnel Development Director	The Farm Bureau Cooperative Columbus, Ohio
Milton E. Collins	Assistant Supervisor, Guidance	Ohio State Department of Education Columbus, Ohio
Ramsey Groves	Graduate Assistant Agricultural Education	The Ohio State University Columbus, Ohio
H. Neville Hunsicker	Chief, Agriculture Occupations, Division of Vocational and Technical Education	U. S. Office of Education Washington, D. C.

Carlton E. Johnson	Associate Professor of Agricultural Engineering	The Ohio State University Columbus, Ohio
Homer V. Judge	Teacher Educator Agricultural Education	University of Massachusetts Amherst, Massachusetts
Alan A. Kahler	Teacher Educator Agricultural Education	Iowa State University Ames, Iowa
William Logan	Teacher Educator Distributive Education	The Ohio State University Columbus, Ohio
George L. Luster	Associate Professor Agricultural Education	University of Kentucky Lexington, Kentucky
Harlan E. Ridenour	Director of the Ohio Vocational Agriculture Curriculum Materials Service	The Ohio State University Columbus, Ohio
James D. Utzinger	Vocational Agriculture Teacher	Pleasant View High School Grove City, Ohio
Warren Weiler	State Supervisor, Vocational Agriculture	State Department of Education Columbus, Ohio
Charles N. Whitney	Executive Director	Farm and Power Equipment Retailers of Ohio Columbus, Ohio
Ralph Woodin	Teacher Educator Agricultural Education	The Ohio State University Columbus, Ohio

APPENDIX "D"

Participants in Advisory Meeting
of
April 5 and 6, 1965
on
Developing Programs of Education in Off-Farm Agricultural Occupations

Robert C. Anderson	Research Associate Department of Sociology	Michigan State University East Lansing, Michigan
John A. Beaumont	Occupations Branch, Division of Vocational and Technical Education	U. S. Office of Education Washington, D. C.
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R. C. Belt	Manager (Agricultural Mechanics Dealer)	R. C. Belt, Inc. Washington Court House, Ohio
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John Bottum	Assistant Professor Department of Agricultural Economics	The Ohio State University Columbus, Ohio
Ray Brush	Secretary	American Association of Nurserymen, Inc. Washington, D. C.
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James Byrne	Chief, Farm Placement	Bureau of Unemployment Compensation Columbus, Ohio
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Milton Collins	District Supervisor for Southwestern Ohio Guidance Services Section	State Department of Education Columbus, Ohio
Edmund Cox	Agricultural Economist	Bureau of Unemployment Compensation Columbus, Ohio
William Davidson	Executive Assistant	Farm and Power Equipment Retailers of Ohio Columbus, Ohio
Marie Dirks	Professor, Home Economics	The Ohio State University Columbus, Ohio
H. B. Drake	Coordinator, Agri-Business Technology Program	Springfield and Clark Co. Springfield, Ohio
Homer Edwards	State Supervisor Vocational Agriculture	State Department of Education Charleston, West Virginia
Franklin Eldridge	Director of Resident Instruction, College of Agriculture and Home Economics	University of Nebraska Lincoln, Nebraska
T. L. Faulkner	State Supervisor Agricultural Education	State Department of Education Montgomery, Alabama
Norman H. Foote	Chairman, Division of Agriculture and Ornamental Horticulture	State University and Technical College Farmingdale, New York
George G. Greenleaf	Executive Vice President	Ohio Grain and Feed Dealers' Association Columbus, Ohio
Gilbert S. Guiler	Assistant Professor Department of Agricultural Education	The Ohio State University Columbus, Ohio
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Paul M. Hodgson	Assistant State Superintendent for Vocational and Technical Education	State Department of Public Instruction Dover, Delaware
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Donald R. Kaldor	Professor of Economics	Iowa State University Ames, Iowa
Allen Keil	President	Columbus Landscaping Association Columbus, Ohio
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David McClay	Chairman, Department of Agricultural Education	Pennsylvania State University University Park, Pennsylvania
Robert W. McCormick	Assistant Director, Cooperative Extension Service	The Ohio State University Columbus, Ohio
Murry McJunkin	Manager, Industry Relations	U. S. Steel Corporation Pittsburgh, Pennsylvania
E. M. Norris	Teacher Educator Agricultural Education	Prairie View A&M College Prairie View, Texas
L. J. Phipps	Chairman, Department of Agricultural Education	University of Illinois Urbana, Illinois
Paul F. Pulse	Director of Short Courses in Agriculture	The Ohio State University Columbus, Ohio
Harlan E. Ridenour	Director of the Ohio Vocational Agriculture Curriculum Materials Service	The Ohio State University Columbus, Ohio
Byrl R. Shoemaker	Director of Vocational Education	State Department of Education Columbus, Ohio
John T. Starling	Assistant Supervisor Vocational Agriculture	State Department of Education Columbus, Ohio
R.C.S. Sutliff	Chief, Bureau of Agricultural Education	State Department of Education Albany, New York
Warren G. Weiler	State Supervisor Vocational Agriculture	State Department of Education Columbus, Ohio
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Ralph J. Woodin	Professor, Department of Agricultural Education	The Ohio State University Columbus, Ohio

Appendix "E"

Participants
in
National Seminar on Off-Farm Agricultural Occupations
May 4 - 7, 1965

T. L. Faulkner	Supervisor Vocational Agriculture	Alabama
R. W. Montgomery	Teacher Educator Agricultural Education	Alabama
R. W. Cline	Teacher Educator Agricultural Education	Arizona
Carlos H. Moore	Supervisor Vocational Agriculture	Arizona
J. C. Atherton	Teacher Educator Agricultural Education	Arkansas
A. B. Rougeau	Teacher Educator Agricultural Education	Arkansas
Kenneth B. Cutler	Supervisor Vocational Agriculture	California
S. S. Sutherland	Teacher Educator Agricultural Education	California
Irving Cross	Teacher Educator Agricultural Education	Colorado
Paul J. Foster	Supervisor Vocational Agriculture	Colorado
Howard Martin	Teacher Educator Agricultural Education	Connecticut
Phil Masley	Teacher Vocational Agriculture	Connecticut
Ralph Barwick	Teacher Educator Agricultural Education	Delaware
William Dannenhauer	Teacher Vocational Agriculture	Delaware
W. T. Loften	Teacher Educator Agricultural Education	Florida

G. C. Norman	Supervisor Vocational Agriculture	Florida
J. G. Bryant	Supervisor Vocational Agriculture	Georgia
Tamotsu Horii	Supervisor Vocational Agriculture	Hawaii
Ralph Edwards	Supervisor Vocational Agriculture	Idaho
Ralph Guthrie	Supervisor Vocational Agriculture	Illinois
Lloyd Phipps	Teacher Educator Agricultural Education	Illinois
James Clouse	Teacher Educator Agricultural Education	Indiana
Harrison Gardner	Teacher Educator Agricultural Education	Indiana
Avery Gray	Supervisor Vocational Agriculture	Indiana
C. E. Bundy	Teacher Educator Agricultural Education	Iowa
C. W. Dalbey	Supervisor Vocational Agriculture	Iowa
Howard R. Bradley	Teacher Educator Agricultural Education	Kansas
C. C. Eustace	Supervisor Vocational Education	Kansas
Harold Binkley	Teacher Educator Agricultural Education	Kentucky
M. M. Botto	Supervisor Vocational Agriculture	Kentucky
Floyd Cox	Teacher Educator Agricultural Education	Kentucky
Roy Dillon	Teacher Educator Agricultural Education	Kentucky

George Luster	Teacher Educator Agricultural Education	Kentucky
W. C. Montgomery	Supervisor Vocational Agriculture	Kentucky
Charles Curtis	Teacher Educator Agricultural Education	Louisiana
James Hutchinson	Teacher Educator Agricultural Education	Louisiana
Whitney A. Langlois	Program Specialist Agricultural Education	Louisiana
C. P. McVea	Supervisor Vocational Agriculture	Louisiana
C. L. Mondart	Teacher Educator Agricultural Education	Louisiana
Wallace H. Elliott	Supervisor Vocational Agriculture	Maine
Ray Cardozier	Teacher Educator Agricultural Education	Maryland
Claud C. Marion	Teacher Educator Agricultural Education	Maryland
Homer Judge	Teacher Educator Agricultural Education	Massachusetts
Jesse Taft	Supervisor Vocational Agriculture	Massachusetts
Raymond M. Clark	Teacher Educator Agricultural Education	Michigan
Edwin St. John	Supervisor Vocational Agriculture	Michigan
Ernest Freier	Supervisor Vocational Agriculture	Minnesota
Milo Peterson	Teacher Educator Agricultural Education	Minnesota

E. E. Gross	Supervisor Vocational Agriculture	Mississippi
Obed L. Snowden	Teacher Educator Agricultural Education	Mississippi
W. T. Taylor, Jr.	Supervisor Vocational Agriculture	Mississippi
Earl T. Carpenter	Teacher Educator Agricultural Education	Missouri
Max L. Amberson	Supervisor Vocational Agriculture	Montana
Leo L. Knuti	Teacher Educator Agricultural Education	Montana
James T. Horner	Teacher Educator Agricultural Education	Nebraska
Glen H. Strain	Supervisor Vocational Agriculture	Nebraska
T. A. Butler	Teacher Educator Agricultural Education	Nevada
Howard Christensen	Teacher Educator Agricultural Education	Nevada
J. R. Peddicord	Supervisor Vocational Agriculture	Nevada
Neal Andrew	Supervisor Vocational Agriculture	New Hampshire
William Annis	Teacher Educator Agricultural Education	New Hampshire
Charles C. Drawbaugh	Teacher Educator Agricultural Education	New Jersey
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L. C. Dalton	Supervisor Vocational Agriculture	New Mexico
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W. E. Drake	Teacher Educator Agricultural Education	New York

R. C. S. Sutliff	Supervisor Vocational Agriculture	New York
A. G. Bullard	Supervisor Vocational Agriculture	North Carolina
T. R. Miller	Teacher Educator Agricultural Education	North Carolina
Ernest L. DeAlton	Supervisor Vocational Agriculture	North Dakota
Winston H. Dolve	Teacher Educator Agricultural Education	North Dakota
Ralph E. Bender	Teacher Educator Agricultural Education	Ohio
Herbert D. Brum	Supervisor Vocational Agriculture	Ohio
Clarence Cunningham	Teacher Educator Agricultural Education	Ohio
James E. Dougan	Supervisor Vocational Agriculture	Ohio
Gilbert S. Guiler	Teacher Educator Agricultural Education	Ohio
Carlton Johnson	Teacher Educator Agricultural Education	Ohio
Floyd G. McCormick	Teacher Educator Agricultural Education	Ohio
Paul F. Pulse	Supervisor Agricultural Education	Ohio
D. R. Purkey	Supervisor Vocational Agriculture	Ohio
Harlan Ridenour	Supervisor Vocational Agriculture	Ohio
F. J. Ruble	Supervisor Vocational Agriculture	Ohio
Byrl Shoemaker	Supervisor Vocational Agriculture	Ohio
John T. Starling	Supervisor Vocational Agriculture	Ohio

Warren G. Weiler	Supervisor Vocational Agriculture	Ohio
Richard H. Wilson	Teacher Educator Agricultural Education	Ohio
Willard H. Wolf	Teacher Educator Agricultural Education	Ohio
Ralph J. Woodin	Teacher Educator Agricultural Education	Ohio
Byrle Killian	Supervisor Vocational Agriculture	Oklahoma
Robert R. Price	Teacher Educator Agricultural Education	Oklahoma
Leonard E. Kunzman	Supervisor Vocational Agriculture	Oregon
Henry A. TenPas	Teacher Educator Agricultural Education	Oregon
David R. McClay	Teacher Educator Agricultural Education	Pennsylvania
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Rafael Muller	Supervisor Vocational Agriculture	Puerto Rico
Raymond C. Northrup	Supervisor Vocational Agriculture	Rhode Island
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Arthur K. Jensen	Teacher Educator Agricultural Education	South Carolina
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George W. Weigers	Teacher Educator Agricultural Education	Tennessee
Lewis Eggenberger	Teacher Educator Agricultural Education	Texas

John Holcomb	Teacher Educator Agricultural Education	Texas
George Hurt	Supervisor Vocational Agriculture	Texas
Vannoy Stewart	Teacher Educator Agricultural Education	Texas
Elvin Downs	Supervisor Vocational Agriculture	Utah
Stanley S. Richardson	Teacher Educator Agricultural Education	Utah
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M. A. Fields	Teacher Educator Agricultural Education	Virginia
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R. C. Butler	Teacher Educator Agricultural Education	West Virginia
Guy Cain	Supervisor Vocational Agriculture	West Virginia
Lowell Cook	Teacher Educator Agricultural Education	West Virginia
Homer Edwards	Supervisor Vocational Agriculture	West Virginia
Glenn Fogle	Supervisor Vocational Agriculture	West Virginia
Byrl Law	Teacher Educator Agricultural Education	West Virginia
Claude McGhee	Teacher Educator Agricultural Education	West Virginia

Dale C. Aebischer	Supervisor Vocational Agriculture	Wisconsin
Walter Bjoraker	Teacher Educator Agricultural Education	Wisconsin
Marvin Thompson	Teacher Educator Agricultural Education	Wisconsin
Percy Kirk	Supervisor Vocational Agriculture	Wyoming
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L. A. Coomer	Supervisor of Service	International Harvester Co. Chicago, Illinois
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Harold Crawford	Teacher Vocational Agriculture	NVATA
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Roger J. Fritz	Secretary & Director	John Deere Foundation Moline, Illinois
George G. Greenleaf	Executive Vice-President	Ohio Grain & Feed Dealers Columbus, Ohio
Russell L. Guin	Interstate Printers and Publishers	Illinois
Larry Heaton	Branch Manager John Deere Company	Columbus, Ohio
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E. M. Hunt	Instructor, Program in Agricultural Business	Forsyth Technical Institute Winston-Salem, N. Carolina
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William Morris	Manager Dealer Development	International Harvester Co. Lombard, Illinois
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Alvin Oliver		Alexandria, Virginia
Ed Rumps	Assistant Director State Plans and Grants	U. S. Office of Education Washington, D. C.
John Shuey	Manager Dealer Development	International Harvestor Co. Columbus, Ohio
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Ernest Tarone	Chairman, Agriculture Department, Modesto Junior College	Modesto, California
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James Wall	Executive Secretary	NVATA
Emanuel Weinstein	Occupational Analyst	U. S. Office of Education Washington, D. C.

Project Staff

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William Becker
James Christiansen
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Julius Linther
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Robert E. Taylor
James Utzinger

APPENDIX "F"

Participants of Area Meetings
on Off-Farm Agricultural Occupations

Participants
New York Area Meeting
May 17-19, 1965

Robert E. Bennett	Vocational Agriculture Instructor	Womogo Regional High School Litchfield, Connecticut
Kenneth C. Farmer	Vocational Agriculture Instructor	Southington High School Southington, Connecticut
Roger W. Lawrence	Vocational Agriculture Instructor	Woodrow Wilson High School Middletown, Connecticut
Hugh J. Ripper	Vocational Agriculture Instructor	Woodbury High School Woodbury, Connecticut
Philip G. Stiles	Food Distribution	University of Connecticut Storrs, Connecticut
L. L. Turner	State Supervisor Agricultural Education	State Department of Education Hartford, Connecticut
Clarke B. Wood	Vocational Agriculture	Housatonic Valley Regional High School Falls Village, Connecticut
Ralph P. Barwick	Head Teacher Educator Agricultural Education	University of Delaware Newark, Delaware
Tom McGarr	Instructor	Norfolk County Agricultural School Walpole, Massachusetts
H. P. Addison	Teacher Educator Agricultural Education	University of Maryland College Park, Maryland
Martin L. Mitchell	Acting State Director Vocational Agricultural Education	State Department of Education Concord, New Hampshire
C. C. Drawbaugh	Professor, Agricultural Education	Rutgers University New Brunswick, New Jersey

A. J. Juestrich	Vocational Agriculture Instructor	Hammonton High School Hammonton, New Jersey
Robert Kopf	Horticulture Instructor	Freehold Regional High School Freehold, New Jersey
George Lange	State Supervisor Agricultural Education	State Department of Education Trenton, New Jersey
Grant M. Miller	Research Assistant Agricultural Education	Rutgers University New Brunswick, New Jersey
Joe P. Bail	Head Teacher Educator Agricultural Education	Cornell University Ithaca, New York
J. M. Carter	Consultant Agricultural Education	Lyons Falls High School Lyons Falls, New York
George Chrein	Vocational Agriculture Instructor	John Bowne High School Queens, New York
Virgil Christensen	Assistant to the Director of Research	Cornell University Ithaca, New York
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Paul Emerling	Vocational Agriculture Instructor	Griffith Institute Springville, New York
Mr. Everette	New York Botanical Gardens	New York City, New York
Mrs. Hall	New York Botanical Gardens	New York City, New York
Richard Harrison	Vocational Agriculture Instructor	Southern Cayuga Central School King Ferry, New York
David Hartzog	United Nations	New York City, New York
Alan Lamb	Executive Secretary	New York Farm Equipment Dealers' Association Hamilton, New York
Everett C. Lattimer	Associate in Agricultural Education	State Department of Education Albany, New York
Harold L. Noakes	Associate in Agricultural Education	State Department of Education Albany, New York

W. E. Orsont	Bureau of Agricultural Education	State Department of Education Albany, New York
Steve Smith	Agricultural Consultant	State Department of Education Albany, New York
Ernest Stedge	Horticulture Instructor	Rockland County Center of Technical Education West Nyack, New York
R.C.S. Sutliff	State Supervisor Agricultural Education	State Department of Education Albany, New York
Carl Widger	Vice President of Region VI	NVATA Minnsville, New York
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Donald R. Dutrow	Vocational Agriculture Instructor	Western Area Joint High School Mifflinburg, Pennsylvania
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David R. McClay	Professor and Head Department of Agricultural Education	Pennsylvania State University University Park, Pennsylvania
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William A. Robinson	Vocational Agriculture Instructor	Chambersburg Area Joint High School Chambersburg, Pennsylvania

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John Ball	Vocational Agriculture Instructor	Coventry High School Coventry, Rhode Island
John Emin, Jr.	Vocational Agriculture Instructor	Ponaganset High School North Scituate, Rhode Island
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C. S. McLearen	Associate Professor Agricultural Education	Virginia Polytechnic Institute Blacksburg, Virginia
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T. J. Wakeman	Teacher Trainer in Farm Shops	Virginia Polytechnic Institute Blacksburg, Virginia
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Chicago Area Meeting
May 24-26, 1965

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Orval C. Floyd	Supervisor Agricultural Education	State Board of Vocational Education Springfield, Illinois
Gerald R. Fuller	Assistant Professor	University of Illinois Urbana, Illinois
Ralph Guthrie	Chief, Agricultural Education	State Office of Education Springfield, Illinois
H. W. Homann	Supervisor Agricultural Education	State Board of Vocational Education Springfield, Illinois
Kenneth E. James	Teacher Educator Agricultural Education	Illinois State University Normal, Illinois
Max H. Kuster	Head, Agricultural Department	Joliet Junior College Joliet, Illinois
John W. Matthews	Vocational Agriculture Service	University of Illinois Urbana, Illinois
Robert L. McFall	Farm and Industrial Equipment Association	Chicago, Illinois
Don Moeller	Public Relations Department	Swift and Company Chicago, Illinois
William Morris	Dealer Development Manager	International Harvester Co. Chicago, Illinois
Arthur C. Muns	Administrative Assistant to the President	Northern Illinois University De Kalb, Illinois

Lloyd J. Phipps	Professor, Agricultural Education	University of Illinois Urbana, Illinois
Al Redding	Assistant Director	State Department of Education Springfield, Illinois
George A. Richter	Supervisor Agricultural Education	State Board of Vocational Education Springfield, Illinois
W. T. Schnathorst	Supervisor Educational Service	International Harvester Co. Chicago, Illinois
Elliott W. Silver	Farm Equipment Training Division Supervisor	International Harvester Co. Chicago, Illinois
H. M. Struhinger	Supervisor Agricultural Education	State Board of Vocational Education Springfield, Illinois
Allan L. Utech	Supervisor Agricultural Education	State Board of Vocational Education Springfield, Illinois
J. R. Warmbrod	Assistant Professor of Agricultural Education	University of Illinois Urbana, Illinois
Charles L. Watson	Superintendent of Schools	Cessna Park Community Unit Cessna Park, Illinois
W. H. Witt	Teacher Educator Vocational Agriculture Service	University of Illinois Urbana, Illinois
Eugene S. Wood	Associate Professor School of Agriculture	Southern Illinois University Carbondale, Illinois
Ralph R. Bentley	Research Teacher Trainer Agricultural Education	Purdue University Lafayette, Indiana
James T. Black	Vocational Agriculture Instructor	Crothersville High School Crothersville, Indiana
Jon D. Cain	Graduate Assistant	Purdue University Lafayette, Indiana
James P. Clouse	Teacher Educator Agricultural Education	Purdue University Lafayette, Indiana
Harrison Gardner	Assistant Professor Agricultural Education	Purdue University Lafayette, Indiana

Avery Gray	State Supervisor	State Department of Public Instruction Indianapolis, Indiana
Donald Hayes	Superintendent of Schools	Decatur County Schools Greensburg, Indiana
Robert Hewlett	Vocational Agriculture Instructor	Woodburn High School Woodburn, Indiana
Jim McGuire	Teacher Educator Agricultural Education	Purdue University Lafayette, Indiana
Don Pennington	Vocational Agriculture Instructor	Crothersville High School Crothersville, Indiana
Bill Preston	Graduate Assistant	Purdue University Lafayette, Indiana
Bill Schmidlapp	Vocational Agriculture Teacher	Union-North School Lakeville, Indiana
Philip Teske	Teacher Trainer Agricultural Education	Purdue University Lafayette, Indiana
Gerald F. Barton	Assistant Supervisor in Agricultural Education	State Department of Public Instruction Des Moines, Iowa
Duane L. Blake	Assistant Professor Agricultural Education	Iowa State University Ames, Iowa
L. Glenn Brostrom	Superintendent of Schools	Waverly-Shell Rock Schools Waverly, Iowa
Allen A. Carrell	Vocational Agriculture Instructor	Shenandoah Community School Shenandoah, Iowa
Everett L. Clover	Community College	Muscatine, Iowa
C. W. Dalbey	State Supervisor Agricultural Education	State Department of Public Instruction Des Moines, Iowa
Elwood J. Mabon	Consultant in Agricultural Education	State Department of Public Instruction Des Moines, Iowa
Gary McVey	Vocational Agriculture Instructor	Chariton High School Chariton, Iowa
Larry L. Statler	Vocational Agriculture Instructor	Waverly-Shell Rock Schools Waverly, Iowa

Harold M. Byram	Head Teacher Educator Vocational Agriculture Education	Michigan State University East Lansing, Michigan
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Guy E. Timmons	Teacher Trainer Vocational Agriculture Education	Michigan State University East Lansing, Michigan
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J. F. Malinski	Assistant Supervisor Agricultural Education	State Department of Education St. Paul, Minnesota
Gerald F. Page	Vice President	NVATA Nixa, Missouri
G. Ed Henderson	Research Associate	University of Nebraska Lincoln, Nebraska
M. G. McCreight	Teacher Trainer Agricultural Education	University of Nebraska Lincoln, Nebraska
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Kenneth Melin	Vocational Agriculture Instructor	Walsh County Agricultural School Park River, North Dakota
Richard N. Adams	Vocational Agriculture Instructor	Tecumseh High School New Carlisle, Ohio
H. B. Drake	Coordinator, Agricultural Business Technology	The Springfield and Clark County Technical Education Program
Vincent J. Feck	Coordinator, Vocational Horticulture	Cleveland Board of Education Cleveland, Ohio
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James L. Pease	Vocational Agriculture Instructor	Maumee High School Maumee, Ohio
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John T. Starling	Assistant Supervisor Vocational Agriculture	State Department of Education Columbus, Ohio
A. J. Aiello	Farm Equipment Systems Division Manager	Norick Brothers, Inc. Oklahoma City, Oklahoma
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Dale C. Aebischer	Chief, Agriculture Education	Board of Vocational and Adult Education Madison, Wisconsin
Doyle Beyl	Vocational Supervisor	State Board of Vocational and Adult Education Madison, Wisconsin
Arnold Cordes	State Supervisor	Board of Vocational and Adult Education Madison, Wisconsin
Ray Fletcher	Supervisor, Product Training	Allis-Chalmers Mfg. Co. Milwaukee, Wisconsin
James Hensel	Teacher Trainer Agricultural Education	University of Wisconsin Madison, Wisconsin
L. R. Hilterbrand	Teacher Educator Agricultural Education	Wisconsin State University River Falls, Wisconsin
M. L. Steinke	Executive Secretary	Wisconsin Impl. Dealers Association Madison, Wisconsin
Keith W. Stoehr	Instructional Supervisor	Kenosha Technical Institute Kenosha, Wisconsin
Raymond Wall	Instructor Agricultural Education	Wisconsin State University River Falls, Wisconsin

James Zepplin	Supervisor Agricultural Mechanics	Wausau Technical Institute Wausau, Wisconsin
Center Staff		
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A. A. Kahler	Consultant	
W. J. Becker	Consultant	
J. D. Utzinger	Consultant	

Participants
Pullman Area Meeting
June 2-4, 1965

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Douglas Christensen	Vocational Agriculture Instructor	Kendrick High School Kendrick, Idaho
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Kenneth Hansen	State Supervisor Agricultural Education	State Board of Vocational Education Boise, Idaho
Bob Haynes	Teacher Educator Agricultural Education	Idaho University Moscow, Idaho
Robert Hiemgartner	Vocational Agriculture Instructor	Genesee High School Genesee, Idaho
Dwight Kindschy	Teacher Educator Agricultural Education	Idaho University Moscow, Idaho
Kirk Rush	Agricultural Teacher	Moscow High School Moscow, Idaho
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Larry Morrow	Vocational Agriculture Instructor	Bozeman, Montana
Richard Buckovic	Head, Agriculture Department	Mollala Unified High School Mollala, Oregon
Norman Burgess	Vocational Agriculture Instructor	Clackamas High School Milwaukie, Oregon

Norman Koopman	Vocational Director	La Grande High School La Grande, Oregon
Al Pfahl	Local Vocational Director	West Linn High School West Linn, Oregon
Joe Powell	Sales Manager	John Deere Company Portland, Oregon
David Raynalds	Head, Agricultural Education Department	Blue Mountain Community College Pendleton, Oregon
Owen Sabin	Superintendent of Schools	Milwaukie, Oregon
Darrell Ward	State Supervisor Agricultural Education	State Department of Education Salem, Oregon
Walden Wedin	Vocational Agriculture Instructor	McLoughlin Unified School Milton-Freewater, Oregon
Louis Anderson	Vocational Agriculture Instructor	Mead High School Mead, Washington
William Bakamos	Industrial Arts Education	Washington State University Pullman, Washington
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Orville Carnahan	Director of Vocational Technical Division	Yakima Valley College Yakima, Washington
Robert Corless	Supervisor	Sunnyside, Washington

Jerry Gleason	District Manager	Western Farmers Spokane, Washington
John Griffith	Agriculture Officer	Yakima Valley College Yakima, Washington
Vern Hagen	Vice Principal	Tumwater, Washington
Blaine Hardy	Vocational Agriculture Instructor	Wapato High School Wapato, Washington
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Joel H. Magisos	Teacher Educator Agricultural Education	Washington State University Pullman, Washington
Dick Moe	MDTA	Olympia, Washington
Richard Nowadnick	Agricultural Education	Skajit Valley College Mount Vernon, Washington
Ralph Olmstead	Vocational Agriculture Instructor	Battle Ground High School Battle Ground, Washington
Kenneth Owen	Vocational Agriculture Instructor	Franklin Pierce High School Tacoma, Washington
Henry Polis	Supervisor Agricultural Education State Board of Vocational Education	Olympia, Washington

Walter Ritter	Director	Washington Nurserymens' Association Spokane, Washington
Robert Wallenstein	Dean of Applied Arts	Spokane Community College Spokane, Washington
Everett Webb	Teacher Educator, Retired, Agricultural Education	Washington State University Pullman, Washington
John Wilson	Agriculture Teacher	Yakima, Washington
Jay Wood	Vocational Agriculture Instructor	Medical Lake High School Medical Lake, Washington
Center Staff		
Glenn Z. Stevens	Consultant	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
James Christiansen	Graduate Assistant	
William Becker	Consultant	

Participants
Denver Area Meeting
June 9-11, 1965

William F. Hendrix	Principal	Amphitheater High School Tucson, Arizona
Max Huff	Vocational Agriculture Instructor	Casa Grande Union High School Casa Grande, Arizona
Robert E. Julian	Vocational Agriculture Instructor	Amphitheater High School Tucson, Arizona
John R. Williams	Associate Professor of Agricultural Education	University of Arizona Tucson, Arizona
Phillip R. Zurbruck	Vocational Agriculture Instructor	Tempe, Arizona
Mel Adams	Vocational Agriculture Instructor	Greeley High School Greeley, Colorado
James Bohn	Vocational Agriculture Instructor	Rocky Ford High School Rocky Ford, Colorado
Delbert E. Borrelli	Principal	Cortez High School Cortez, Colorado
R. W. Canada	Head, Agricultural Education	Colorado State University Ft. Collins, Colorado
Irving C. Cross	Assistant Professor Agricultural Education	Colorado State University Ft. Collins, Colorado
Robert Datteri	Vocational Agriculture Instructor	Ft. Morgan High School Ft. Morgan, Colorado
Paul Foster	Supervisor Agricultural Education	State Board for Vocational Education Denver, Colorado
Patrick J. Gallavan	Director, Denver Mountain Parks	Denver, Colorado
Earl E. Julson	Associate Professor of Agricultural Education	Colorado State University Ft. Collins, Colorado
Stanley Lancaster	Teacher-Coordinator	Greeley Central High School Greeley, Colorado
M. G. Linson	Supervisor Agricultural Education	State Board for Vocational Education Denver, Colorado

R. E. Lucas	Principal	Ft. Morgan High School Ft. Morgan, Colorado
Charles Neal	Vocational Agriculture Instructor	Montezuma County High School Cortez, Colorado
Orville E. Pieper	Business Instructor	North Eastern Junior College Sterling, Colorado
F. W. Reich	Secretary	Mountain States Hardware and Implement Association Boulder, Colorado
Alton Scofield	Executive Secretary	Colorado Cooperative Council Englewood, Colorado
Robert E. Wall	Area Manager	U. S. Steel Corporation Greeley, Colorado
Raymond J. Agan	Head, Department of Agricultural Education	Kansas State University Manhattan, Kansas
Donald W. Brock	Vocational Agriculture Instructor	Righland Park High School Topeka, Kansas
Harold Shoaf	Executive Secretary	Kansas FFA Topeka, Kansas
James H. Walker	Assistant Director (Local level)	Topeka, Kansas
Mike Cullen	Area Vocational Agriculture Coordinator	Willmar Community College Willmar, Minnesota
John K. Coster	Professor of Agricultural Education	University of Nebraska Lincoln, Nebraska
B. E. Gingery	Consultant Agricultural Education	State Department of Education Lincoln, Nebraska
F. Farrell Higbee	General Manager	Triple S. Lab, Inc. Scottsbluff, Nebraska
Gerald J. Huntvork	Vocational Agriculture Instructor	University of Nebraska Curtis, Nebraska
Leon M. Janovy	Vocational Agriculture Teacher	Pierce High School Pierce, Nebraska
Stanley Matzki, Jr.	Director	School of Technical Agriculture Curtis, Nebraska

Roland Peterson	Agriculture Instructor	University of Nebraska Lincoln, Nebraska
Jack W. Sauder	Vocational Agriculture Instructor	Chase County High School Imperial, Nebraska
Elmer Schrag	Vocational Agriculture Instructor	North Platte High School North Platte, Nebraska
Severin B. Sorensen	Vocational Agriculture Instructor	Nebraska City High School Nebraska City, Nebraska
L. C. Dalton	State Supervisor Agricultural Education	State Board for Vocational Education University Park, New Mexico
Cleo A. Dupy	Graduate Assistant	Oklahoma State University Stillwater, Oklahmoa
Chris White	Assistant Teacher Trainer, Agricultural Education	Oklahoma State University Stillwater, Oklahoma
D. Kim Black	Vocational Agriculture Instructor	Jordan High School Sandy, Utah
Fred H. Cornaby	Vocational Agriculture Instructor	Central Utah Vocational School Provo, Utah
Dee Horton	Vocational Agriculture Instructor	Box Elder High School Brigham City, Utah
Von H. Jarrett	Teacher Educator Agricultural Education	Utah State University Logan, Utah
William E. McKell	Director, Vocational Education	Granit School District Salt Lake City, Utah
Floyd Petty	Vocational Agriculture Instructor	Weber County High School Ogden, Utah
E. J. Johnson	Program Specialist U. S. Office of Education	Department of Health, Education, and Welfare Washington, D. C.
John C. Bishop	Vocational Agriculture Instructor	Huntley High School Huntley, Wyoming
Jim Durkee	Teacher Educator, Farm Mechanics	University of Wyoming Laramie, Wyoming

Percy Kirk	State Director Agricultural Education	State Department of Education Cheyenne, Wyoming
Center Staff		
Glenn Z. Stevens	Consultant	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
William Becker	Consultant	
Alan A. Kahler	Consultant	

Participants
Atlanta Area Meeting
June 21-23, 1965

R. A. Baker	Assistant Professor Agricultural Education	Auburn University Auburn, Alabama
W. E. Cooper	Assistant Teacher Trainer, Agricultural Education	Tuskegee Institute Tuskegee, Alabama
B. P. Dilworth	District Supervisor Agricultural Education	Auburn University Auburn, Alabama
T. L. Faulkner	State Supervisor Agricultural Education	State Department of Education Montgomery, Alabama
H. W. Green	District Supervisor Agricultural Education	Auburn University Auburn, Alabama
J. C. Hollis	District Supervisor Agricultural Education	State Department of Education Montgomery, Alabama
B. F. Rawls	FFA Executive Secretary and Forestry Specialist	Auburn University Auburn, Alabama
L. L. Sellers	District Supervisor Agricultural Education	Auburn University Auburn, Alabama
J. E. Smith	District Supervisor Agricultural Education	State Department of Education Montgomery, Alabama
B. J. York	District Supervisor Agricultural Education	State Department of Education Montgomery, Alabama
K. M. Eaddy	Assistant Teacher Educator	University of Florida Gainesville, Florida
Owen M. Lee, Jr.	Division Chairman Technical Education	Bartow, Florida
Floyd L. Northrop	Area Supervisor Agricultural Education	University of Florida Gainesville, Florida
Clarence J. Rogers	Assistant Professor Agricultural Education	University of Florida Gainesville, Florida
L. A. Sims	Teacher Educator Agricultural Education	University of Florida Gainesville, Florida

J. N. Baker	Assistant Supervisor Agricultural Education	State Department of Education Swainsboro, Georgia
J. L. Branch	Assistant Supervisor Agricultural Education	Abraham Baldwin Agricultural College Tifton, Georgia
T. D. Brown	Assistant Supervisor Agricultural Education	State Department of Education Atlanta, Georgia
J. G. Bryant	State Supervisor Agricultural Education	State Department of Education Atlanta, Georgia
Earl Burkhalter	Vocational Agriculture Instructor	Coffee County High School Douglas, Georgia
Virgil Carter	Vocational Agriculture Instructor	Appling County High School Baxley, Georgia
W. C. Causey	Teacher	Athens, Georgia
E. H. Cheek	Vocational Agriculture Instructor	Perry High School Perry, Georgia
M. T. Daws	Vocational Agriculture Instructor	Rockmart High School Rockmart, Georgia
A. O. Duncan	Associate Professor Agricultural Education	University of Georgia Athens, Georgia
Hailey Fleming	Vocational Agriculture Instructor	Commerce High School Commerce, Georgia
M. C. Gaar	Regional Representative	Department of Health, Education, and Welfare Atlanta, Georgia
Ellis Hite	Vocational Agriculture Instructor	Calhoun High School Calhoun, Georgia
Jimmy Hix	Vocational Agriculture Instructor	Jefferson High School Jefferson, Georgia
Roscoe C. Keaton	Vocational Agriculture Instructor	Vienna High School Vienna, Georgia
G. Y. McManus	Vocational Agriculture Instructor	Heard County High School Franklin, Georgia
J. H. Mitchell	Assistant Supervisor Agricultural Education	University of Georgia Athens, Georgia

J. S. Perry	Teacher	Rentz, Georgia
Harold Power	Farm Replacement Supervisor	Atlanta, Georgia
Joe F. Pruett	Secretary	Georgia Farm Equipment Association Macon, Georgia
Paul B. Salter	President	Georgia Equipment Association Jesup, Georgia
Sammy H. Sanders	Vocational Agriculture Instructor	Oconee County High School Watkinsville, Georgia
Oswell Smith	Vocational Agriculture Instructor	Patterson High School Patterson, Georgia
S. L. Stiles	Vocational Agriculture Instructor	Alfred E. Beach High School Savannah, Georgia
R. H. Tolbert	Head, Department of Agricultural Education	University of Georgia Athens, Georgia
J. T. Trammell	Vocational Agriculture Instructor	North Whitfield High School Dalton, Georgia
Elvin Walker	Vocational Agriculture Instructor	Norman Park High School Norman Park, Georgia
Robert L. Wilcox	Special Teacher	Douglas County High School Douglasville, Georgia
J. O. Williams	Teacher Trainer Agricultural Education	Fort Valley State College Fort Valley, Georgia
McKinley Wilson	Head, Itinerant Teacher Trainer, Agricultural Education	Fort Valley State College Fort Valley, Georgia
John M. Adams	District Supervisor Agricultural Education	State Department of Education London, Kentucky
Jim Bates	Vocational Agriculture Instructor	Warren County High School Bowling Green Kentucky
William R. Bingham	Teacher Educator Agricultural Education	University of Kentucky Lexington, Kentucky
Robert Kelley	State FFA Executive Secretary	State Department of Education Frankfort, Kentucky

George L. Luster	Associate Professor Agricultural Education	University of Kentucky Lexington, Kentucky
C. O. Neel	Supervisor Agricultural Education	State Department of Education Frankfort, Kentucky
J. Lynn See	Vocational Agriculture Instructor	Louisa High School Louisa, Kentucky
Ralph A. Speakes	Vocational Agriculture Instructor	Boyle County High School Danville, Kentucky
Murrell Webb	Vocational Agriculture Instructor	Christian County High School Hopkinsville, Kentucky
C. H. Chapman	Teacher Educator Agricultural Education	Southern University Baton Rouge, Louisiana
M. J. Clark	Teacher Trainer Agricultural Education	Southern University Baton Rouge, Louisiana
Tom S. Colvin	Area Supervisor Agricultural Education	State Department of Education Shreveport, Louisiana
Charles M. Curtis	Associate Professor Agricultural Education	Louisiana State University Baton Rouge, Louisiana
Jasper A. Hayles	Teacher	Lake Charles, Louisiana
J. R. Hodges	Area Supervisor Agricultural Education	Jena High School Jena, Louisiana
C. P. McVea	State Supervisor Agricultural Education	State Department of Education Baton Rouge, Louisiana
John H. Mitchell	Professor Agricultural Education	University of Southwestern Louisiana Lafayette, Louisiana
J. C. Simmons	Area Supervisor Agricultural Education	Baton Rouge, Louisiana
John Vallot	Executive Secretary FFA	State Department of Education Baton Rouge, Louisiana
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Archie G. Gordon	Teacher Trainer Agricultural Education	Alcorn A & M College Lorman, Mississippi

E. E. Gross	State Supervisor Agricultural Education	State Department of Education Jackson, Mississippi
Walter L. Hutchins	Itinerant Teacher Trainer	State Department of Education Jackson, Mississippi
J. Roland Hamilton	Assistant Professor Agricultural Education	Mississippi State University State College, Mississippi
E. W. Holmes	Assistant Supervisor Agricultural Education	State Department of Education Oxford, Mississippi
P. V. Runnels	District Supervisor	Soso High School Soso, Mississippi
O. L. Snowden	Head, Agricultural Education Department	Mississippi State College State College, Mississippi
George M. Walker	Assistant Professor Agricultural Education	Mississippi State University State College, Mississippi
C. D. Bryant	Assistant Professor Agricultural Education	North Carolina State University Raleigh, North Carolina
C. G. Dawson	Consultant	Raleigh, North Carolina
V. B. Hairr	District Supervisor Agricultural Education	State Department of Public Instruction Raleigh, North Carolina
W. W. McClure	Curriculum Specialist for Agriculture	State Department of Public Instruction Raleigh, North Carolina
Carl D. Price	Division Chairman Agricultural Technology	Fayetteville, North Carolina
Cayce Scarborough	Head, Department of Agricultural Education	North Carolina State University Raleigh, North Carolina
Jeter P. Taylor, Jr.	Principal	Jones Central High School Trenton, North Carolina
L. J. Carter	District Supervisor Agricultural Education	State Department of Education Kingstree, South Carolina
C. G. Hutchinson	Vocational Agriculture Instructor	Conway High School Conway, South Carolina
M. P. Nolan	Teacher	Conway, South Carolina

J. P. Hall	District Supervisor Agricultural Education	State Department of Education Jackson, Tennessee
David Hamilton	Head Teacher Trainer Agricultural Education	Agricultural and Industrial State University Nashville, Tennessee
H. S. Moss	Supervisor	Nashville, Tennessee
R. A. Phillips	Vocational Agriculture Instructor	Central High School Savannah, Tennessee
J. Eldridge Price	Vocational Agriculture Instructor	Rogersville High School Rogersville, Tennessee
Nelson J. Senter	Teacher	Nashville, Tennessee
Albert Stone	Vocational Agriculture Instructor	Central High School Columbia, Tennessee
Boyd Trew	Teacher	Delano, Tennessee
Max Walker	Teacher	Huntingdon High School Huntingdon, Tennessee
E. M. Norris	Head, Teacher Trainer Agricultural Education	Prairie View A&M College Prairie View, Texas
J. R. Powell	Teacher Trainer Agricultural Education	Prairie View A&M College Prairie View, Texas
Charles A. Cox	Vocational Agriculture Coordinator	Dryden High School Dryden, Virginia
Lucy C. Crawford	Associate Professor Distributive Education	Virginia Polytechnic Institute Blacksburg, Virginia
D. D. Oliver	Vocational Agriculture Instructor	Abingdon High School Abingdon, Virginia
C. E. Tilson	Vocational Agriculture Instructor	Dublin High School Dublin, Virginia
Center Staff		
H. M. Hamlin	Consultant	The Center for Vocational
Alan A. Kahler	Consultant	And Technical Education
George L. Luster	Consultant	The Ohio State University
J. D. Utzinger	Consultant	Columbus, Ohio

APPENDIX "G"

ADVISORY COMMITTEE MEETING
for
DEVELOPING PROGRAMS OF EDUCATION IN OFF-FARM AGRICULTURAL OCCUPATIONS
at
THE NATIONAL CENTER FOR ADVANCED STUDY AND RESEARCH

IN AGRICULTURAL EDUCATION

April 5-6, 1965

Monday

9:00	Purpose and Expectencies of the Conference	Dr. Robert E. Taylor
	Progress Report: General Background	Dr. Robert E. Taylor
	Summarization of Research Studies	Dr. Glenn Z. Stevens
	Program Development Which is Proposed	Dr. Herbert M. Hamlin
	Proposed Instructional Materials	Dr. George L. Luster
	Introduction to Afternoon Session's Activities	
12:00	Lunch	Stouffer's Inn
1:30-2:45	Small Group Discussions	Auditorium, Room 205, Room 206
2:45	Coffee Break	
3:00-3:45	Reporting Panel of Small Group Discussion Leaders	Homer Edwards, Moderator
3:45-4:30	General Discussion and Reactions	
6:00-9:00	Dinner	Ohio Stater Inn, Room 248
	New Developments in Vocational Education	John Beaumont; United States Office of Education

Tuesday

9:00-10:20	Panel of Representatives from Business and Industry (Relationships to Vocational Education and Reactions to Task Force Proposals)	Agricultural Auditorium
10:20	Coffee Break	
10:35-12:00	Panel of Educators from Different Services (Reactions to Task Force Proposals and Relationships to Business and Industry)	Agricultural Auditorium
12:00-1:30	Lunch	
1:30	General Meeting Followed by Small Group Meetings Consisting of Conference Participants and Staff Members Working on Specific Problems in: a. Program Development b. Research Summarization c. Horticulture d. Agri-Merchandizing e. Agri-Chemicals f. Agri-Mechanics	Agricultural Auditorium and Rooms 205 and 206

APPENDIX "H"

CONFERENCE ON OFF-FARM AGRICULTURAL OCCUPATIONS

Agricultural Administration Auditorium
The Ohio State University

May 4 to 7, 1965

Monday, May 3

8:00 P. M. Early-Bird Registration and Coffee Hour
Ohio Stater Inn, 2060 North High Street

Tuesday, May 4

8:15 A. M. Bus Leaves Ohio Stater Inn for Auditorium

8:30 A. M. Registration

9:00 A. M. Introduction of Participants

9:15 A. M. Welcome to The Ohio State University----------Richard H. Bohning
Associate Dean
College of Agriculture and Home Economics
The Ohio State University

9:30 A. M. What Must and Can Be Done to Develop Programs for Off-farm Agricultural Occupations----------Harry Beard
Acting Director of Vocational Education
North Carolina

10:10 A. M. Coffee Break

10:25 A. M. Background and Development of Project Robert E. Taylor
Director
National Center for Agricultural Education

11:10 A. M. Summarization of Research Studies--Glenn Z. Stevens
Consultant
(Professor of Agricultural Education,
Pennsylvania State University)

Tuesday, May 4 (Continued)

11:45 A. M. Question and Answer Period on Summarization of Research Studies

12:00 Noon Lunch
Ohio Stater Inn

1:30 P. M. Rationale for the Development of Instructional Materials Prepared by Task Force ---------- George L. Luster
Consultant
(Associate Professor of Agricultural Education, University of Kentucky)

2:10 P. M. Presentation of Suggested Program Developmental Materials ---------- Herbert M. Hamlin
Consultant
(Visiting Professor in Education, North Carolina State University)

2:55 P. M. Coffee Break

3:10 P. M. Discussion and Questions

3:45 P. M. Symposium -- Reactions from Industry Representatives to Proposed Developments in Programs for Off-farm Agricultural Occupations --- William Morris
Dealer Development Manager
Farm Equipment Division
International Harvester Company

Alvin E. Oliver
Executive Vice President
Grain and Feed Dealers National Association

Jesse Yopp
Yopp's Seed Company
Paducah, Kentucky

Allen Keil
President
Columbus Landscaping Association

Moderator -- Ralph E. Bender
Chairman, Department of Agricultural Education
The Ohio State University

Tuesday, May 4 (Continued)

7:30 P. M. Proposed Changes in the FFA Organization ------ National FFA Study Committee
T. L. Faulkner, Chariman

Wednesday, May 5

8:15 A. M. The Agricultural Program of Modesto Junior College with Emphasis on a Program in Agricultural Chemical Technology ---------- Ernest Tarone
Chairman, Agriculture Department
Modesto Junior College

9:10 A. M. The Program in Agricultural Mechanics in the Area School at Alexandria, Minnesota ---------- Vernon Maack
Director
Area Vocational School
Alexandria, Minnesota

9:40 A. M. Ornamental Horticulture and Nursery Work for High School Students in Rockland County, New York ---------- Ernest Stedge
Landscaping Instructor
Rockland County Center of Technology and Education
West Nyack, New York

10:15 A. M. Coffee Break

10:30 A. M. Agricultural Business for Eleventh and Twelfth Grade Students at Reidland, Kentucky ---------- Harold R. Binkley
Associate Professor of Agricultural Education
University of Kentucky

11:00 A. M. Agricultural Business in the Forsyth Technical Institute, Winston-Salem, North Carolina ---------- E. M. Hunt
Instructor, Program in Agricultural Business
Forsyth Technical Institute

Wednesday, May 5 (Continued)

11:30 A. M. Lunch

1:00 P. M. Thumbnail Sketch of Curricular Materials Developed ---------- Task Force Personnel

Agriculture Supply Sales and Service Occupations ---------- William Becker

Agricultural Machinery Service Occupations ---------- Alan Kahler

Ornamental Horticulture Service Occupations ---------- James D. Utzinger

Occupational Experience Programs - Harold Anderson

2:00 P. M. Small Group Discussion of Materials Developed in Each Area (Specific materials for each area will be presented in these groups)

Program Development ---------- Herbert M. Hamlin
(Northwest Quarter of Auditorium)

Research Summarization --------- Glenn Z. Stevens
(Southwest Quarter of Auditorium)

Occupational Experience --------- Harold Anderson
(Room 205)

Horticulture ---------- James Utzinger
(Room 250)

Agricultural Mechanization ---------- Alan Kahler
(Room 252)

Agriculture Supply Sales and Services ---------- William Becker
(Northeast Quarter of Auditorium)

3:15 P. M. Coffee Break and Shift from First Group to Second Group

3:30 P. M. Repeat Session of Small Group Discussions (Each person would have attended two groups)

7:30 P. M. Informal Discussion of Program Areas
University High School
Rooms 204, 205, 302, 303

Thursday, May 6

Leadership Tasks for State Staffs in Implementing Programs in Off-Farm Agricultural Occupations

8:30 A. M. Administrative Responsibilities

Position Paper----------R. C. S. Sutliff
Chief, Bureau of Agricultural Education
New York

Discussant----------Harold T. Binkley
Professor of Agricultural Education
University of Kentucky

9:10 A. M. Changing Existing Programs

Position Paper----------T. L. Faulkner
State Supervisor, Agricultural Education
Alabama

Discussant----------Irving R. Cross
Assistant Professor of Agriculture
Colorado State University

9:40 A. M. Developing and Evaluating Pilot or Developmental Programs

Position Paper---------- Lloyd J. Phipps
Chairman of Agricultural Education
University of Illinois

Discussant---------- Max L. Amberson
State Supervisor, Agricultural Education
Montana

10:10 A. M. Coffee Break

10:30 A. M. Small Group Discussion Period Pertaining to the Three Position Papers Presented

12:00 Noon Lunch
Ohio Stater Inn

Thursday, May 6 (Continued)

1:30 P. M. Providing Qulaified Personnel

Position Paper ---------- David R. McClay
Head, Department of Agricultural Education
Pennsylvania State University

Discussant ----------V. Ray Cardozier
Chairman, Department of Agricultural Education
University of Maryland

2:00 P. M. Providing Occupational Experience

Position Paper ---------- C. E. Bundy
Head, Agricultural Education
Iowa State University

Discussant ---------- W. Howard Martin
Head, Department of Agricultural Education
University of Connecticut

2:30 P. M. Providing Vocational Education in Agriculture for Those Not Benefiting from the Regular Program

Position Paper ---------- Homer E. Edwards
State Supervisor, Vocational Agriculture
West Virginia

Discussant ---------- Rafael Muller
Director, Agricultural Education
Puerto Rico

3:00 P. M. Coffee Break

3:15 P. M. Small Group Discussion Period Pertaining to the Three Position Papers Presented

Thursday, May 6 (Continued)

6:00 P. M. Banquet
Franklin Room, Ohio Union

Toastmaster ---------- Warren G. Weiler
State Supervisor, Agricultural Education
Ohio

Emerging Concepts in Vocational
and Technical Education As Seen
by the U. S. Office of Education ------- Ed Rumpf
Assistant Director
State Plans and Grants
Division of Vocational and Technical Education
U. S. Office of Education

Friday, May 7

9:00 A. M. Program for Area Meetings in
Off-farm Agricultural Occupations

9:30 A. M. Planning Area Meetings
Sub-groups by Geographical Location

10:15 A. M. Coffee Break

10:30 A. M. Establishing Priorities Within States
for Programs in Off-farm Agricultural
Occupations ---------- Robert E. Taylor
Director
National Center for Agricultural Education

Duane M. Nielsen
Occupational Research and
Planning Program
Division of Vocational and Technical Education
U. S. Office of Education

11:45 A. M. Luncheon
Franklin Room, Ohio Union

Needs and Directions in
Vocational Education ---------- Grant Venn
Superintendent of Schools
Parkersburg, West Virginia
and Author
MAN, EDUCATION, AND WORK

Friday, May 7 (Continued)

2:00 P. M. Specific Policy Implications for Programs for Off-farm Agricultural Occupations ---------- Ed Rumpf
Assistant Director
State Plans and Grants
Division of Vocational and Technical Education
U. S. Office of Education

H. N. Hunsicker
Head, Agricultural Education Occupations Branch
Division of Vocational and Technical Education
U. S. Office of Education

2:30 P. M. Questioning Panel to Dr. Rumpf and Mr. Hunsicker

3:30 P. M. End of Conference

VT 000 080

VT 000 080 ED

Vocational Education and Changing Needs, A Proposed Comprehensive Area Vocational School to Meet Changing Needs in Kentucky. (Bulletin, vol. 38, no. 1).

McDowell, L. C.

Kentucky Univ., Lexington. Bur. of School Service

Sep65

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*VOCATIONAL EDUCATION, *AREA VOCATIONAL SCHOOLS, *ADMINISTRATOR ATTITUDES, *EMPLOYER ATTITUDES, *TEACHER ATTITUDES, TRADE AND INDUSTRIAL EDUCATION, TEACHER EDUCATORS, AGRICULTURAL EDUCATION, STATE SUPERVISORS, INDUSTRIAL EDUCATION, ADVISORY COMMITTEES, OUT OF SCHOOL YOUTH, TEACHER SUPERVISION, OCCUPATIONAL GUIDANCE, PUBLIC RELATIONS, CURRICULUM, ADULT VOCATIONAL EDUCATION, GUIDELINES, EDUCATIONAL NEEDS, SCHOOL ADMINISTRATION, EVENING PROGRAMS,

Kentucky,

Survey forms were sent to 126 vocational school administrators, 10 state supervisors of trade and industrial education, 54 vocational agriculture teacher educators, 25 trade and industrial teacher educators from Kentucky and 11 southeastern states, and 64 Kentucky employers of graduates of Kentucky area vocational schools. The degree to which they accepted or rejected 60 statements on vocational education was studied to determine the basic principles of vocational education for meeting occupational needs. Statements covered administration, supervision, advisory services, vocational guidance and counseling, course offerings, in-school youth, out-of-school youth, part-time and evening training, public relations, away-from-school activities, and cooperating agencies. Based on the answers from the survey, 60 guidelines were projected for a comprehensive area vocational school. These included -- (1) Only a person who has had considerable experience in at least one of the vocational fields should be appointed head of a comprehensive area vocational school, (2) Continued teacher development is a necessary part of program development, (3) Advisory committees should be used for each of the vocational course offerings, and (4) In every community there are youths and adults out of school who need vocational guidance as much or perhaps more than those still in school. (PS)

BULLETIN

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MAR 29 1966

VOCATIONAL EDUCATION AND CHANGING NEEDS

By

L. C. McDOWELL

VT 00030

VOLUME XXXVIII SEPTEMBER 1965 NUMBER 1

BUREAU OF SCHOOL SERVICE

COLLEGE OF EDUCATION • UNIVERSITY OF KENTUCKY

Editorial Staff for the Bulletin of the Bureau of School Service

Editor: W. Paul Street, Director, Bureau of School Service, University of Kentucky

Editorial Assistant: Jim Peyton, Graduate Assistant, College of Education, University of Kentucky

NEEDED: CONCENTRATION OVER A BROAD AREA

Increasingly the pressing demand is for more specialists *and* more generalists. This pressure creates an obvious but illusionary dilemma which has split American education for some time, and the prospects are for the split to continue. The alignment on either side of this split is sometimes confused by sub-issues, but it represents a gulf between "liberal" or "general" education on the one hand and "utilitarian" education on the other. It is a gulf across which many educators, and amateur thinkers about education, cannot see.

Actually, the "gulf" does not exist except in the imagination of those who, often enough, are the more sophisticated members of the profession. The naive can readily see that today demands a "jack of all trades" who must be "good at something." Common sense suggests that of course we must have persons of breadth who see life whole and steadily, and also persons who have knowledge, understanding and skill in depth in some area relevant to life today—and that if our society is to move toward democratic goals, these must be the same persons.

This understanding is beclouded often, however, by that little point: "in some area relevant to life today"—especially since *today* becomes *tomorrow* in twenty-four hours. Some ardent proponents of general education are quick to condemn specialty education because specialties get so quickly out of date these days—and the condemnation is *not*, it is worth noting, because specialties are not essential! Obviously, society now has few niches which could well be filled by the wheelwright, blacksmith, or harness maker. Consequently people in general education have too often taken a defeatist attitude: "Since we cannot be sure any particular specialty we teach today will be needed tomorrow, let us not teach any. Let us instead seek to produce resourceful, adaptable, resilient, self reliant persons who expect and welcome change—who do not have any special niche to fill in life."

The most partisan generalist is not likely, of course, to welcome major surgery under the knife of another mere generalist, even one who holds a Ph.D. in physiology or some broader phase of biology, who is without a *specialty* in surgery. Conversely, most of us would object to being opened by a "mechanic" who had simply memorized the operation and had no broad understanding of physiology; he might have to adapt himself to the peculiarities of our particular innards— and would need the resourcefulness which only a general education background might, we hope, give him. This is to say: The fact that specialties get outdated does not mean they are not needed! They just need to be kept in a broad context and up to date!

The big weakness in American vocational education, obviously, is the lack of a reliable, unimpeachable crystal ball. If we could foresee exactly what

(*Continued on inside back cover*)

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Vocational Education and Changing Needs

A Proposed Comprehensive Area Vocational School To Meet Changing Needs In Kentucky

By

L. C. McDOWELL

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Volume XXXVIII September 1965 Number 1

BULLETIN OF THE BUREAU OF SCHOOL SERVICE

College of Education, University of Kentucky, Lexington

FOREWORD

Vocational education is an integral part of public education in the schools of Kentucky and the Nation. The national acts in vocational education provide for systematic instruction—class instruction and supervised work experience related to the class instruction. Practice is essential to learning. Participation in the vocation one would learn is necessary to his learning it. School people and the public at large are becoming increasingly aware of the significance of vocation education in preparing people for useful employment and that such programs must be adequately financed.

During the past forty-five years the states have devised various ways of providing vocational education. Some have limited their programs almost entirely to those associated with the high schools. Others have used area schools or community colleges to meet their needs. The Vocational Education Act of 1963 authorizes Federal grants to states to assist them to maintain, extend, and improve new programs of vocational education and to develop new programs of vocational education so that all persons of all ages in all communities of the state will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.

The significance of this study by Dr. Leonard C. McDowell, a member of the faculty of the College of Education, University of Kentucky, becomes more important when one considers the broadened purposes of vocational education and the socio-economic changes in Kentucky and the Nation such as population movements, economic developments, educational developments, and technological developments.

Dr. McDowell, in this study, brings into focus socio-economic changes and accepted principles of vocational education which can be amalgamated so as to provide an organizational structure for comprehensive vocational schools capable of providing for the occupational needs of people in Kentucky. The findings of this study should make a singular contribution to the improvement of vocational education through the development of comprehensive vocational schools in the State and the Nation.

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CHAPTER I

INTRODUCTION

Need for the Study

The purpose of vocational education is to prepare individuals to engage successfully in a socially useful occupation. This implies that the individual will be provided education for the development of skills, attitudes, and knowledge to the extent that he may enter or make progress in his chosen vocation. The way by which this may be accomplished varies from state to state, each state attempting to meet those vocational needs unique to its citizens. The concern for meeting these multiple needs is pointed up in "The Report to the President's Commission on National Goals," which states:

> The status of the individual must remain our primary concern. All our institutions—political, social, and economic—must further enhance the dignity of the citizen, promote the maximum development of his capabilities, stimulate their responsible exercise, and widen the range and effectiveness of opportunities for individual choice.[1]

In the above statement, change is inherently implied. As will be pointed out later in this study, Kentucky has made radical changes in the last half century, and particularly so in the last 25 years. Someone has said, "To stand still is but to retrogress." The question thus arises as to whether vocational education has, in reality, retrogressed by standing still, if it has stood still, or is advancing by meeting the changing occupational needs of the people. Vocational education has an essential service to perform under these changing conditions. "Improvements will have to be made and redirection will have to be given to present educational activities in order that vocational-technical education may do its part adequately . . . . Changing the scope and program of vocational education can provide educational opportunities through which many more citizens can achieve the economic security and social well-being consistent with the goals of the nation."[2]

There seems to be no value in "change for the sake of change." The question begins to pose itself—a change to what? Alteration in the *status quo* of practically any institution is difficult to bring about. It

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[1] *Goals for Americans*, The Report of the President's Commission on National Goals (Englewood Cliffs: Prentice-Hall, Inc., 1960). p. 3.

[2] U.S. Department of Health, Education, and Welfare, *Education for a Changing World of Work*, Report of the Panel of Consultants on Vocational Education (Washington: U.S. Government Printing Office), p. 217.

threatens the pattern of life and work of many. Most persons resent change in patterns of behavior. Therefore, change, if change is necessary, will be more readily accepted if evidence can be produced which justifies the change.

No study has been made of patterns of operations for vocational education which would best meet the occupational training needs of out-of-school youth and adults of Kentucky. Present organization structures of the various vocational services (agricultural, education, distributive education, home economics education, and trade and industrial education) have emerged giving little or no consideration to the benefits that each may derive from the others in meeting the overall training needs of workers.

Thus, it seems apparent that a study should be made to determine the organizational structure which would permit the strengths of each branch of vocational education to be focused on meeting the vocational training needs of individuals.

A Philosophy of Vocational Education

All socially useful labor is honorable, and to each person it is of probable equal importance, although to the wider society the various occupations differ in monetary worth and in social value. If our society is to continue to advance, many types of labor are necessary. This situation seems to coincide with the different capabilities of people who perform these jobs. Fortunately, it is possible for each individual, with proper guidance, source of training, and motivation, to engage in an occupation which he will find satisfying and which will be a challenge to his capabilities, as well as one which will make a worthy contribution to society. To the extent that the individual, for whatever reason, is denied the privilege of occupying this position, to that extent society will be impoverished.

Vocational education connotes seriousness of purpose and assumes democracy. It makes provision for wide differences among individuals. It is an integral part of the total education of a person; however, its emphasis is pointed more directly at what an individual must know and be able to do in his chosen occupation. This fact does not keep the person from gaining satisfaction through creative expression or appreciation of beauty and design or engaging in ethical behavior, but enables him to feel a sense of pride and accomplishment and permits him to have a sense of well-being and worthwhileness.

An individual does not live apart from his occupation. His "job" probably occupies more hours in the total day than any other activity, and even though one may have left the physical location of the job, one's satisfaction or lack of it goes with him. Such considerations tend

to emphasize the need for greater efficiency in vocational education for all workers. Individually, it leads to personal worth; collectively, it leads to the economic strength and fulfillment of democratic ideas.

An individual's occupation approaches sacredness in that, principally, it is through this avenue that he reacts with his fellow man. If this reaction is to be positive, then it behooves society to make provisions for all—"of low and high degree"—to reach their greatest potential in meeting the training needs of their particular vocations.

Statement of the Problem

The various branches of vocational education have many contributions to make in meeting the occupation training needs of people. Some of these needs are minor and may be cared for in a short time; other requirements call for longer time and more detailed treatment. To date, the four branches of vocational education have been concerned almost wholly with meeting the needs of people which are peculiar to the interests of that particular branch. However, vocational requirements of workers today do not group themselves into single categories of needs. For example, the needs of many agriculture workers are of greater variety than those in the scope of farmer training, or the sales person's needs are broader than those of mere salesmanship.

It appears that if vocational education is to be of greater service in meeting the total training needs of workers, the services which make up this phase of education will be required to consider an "interdisciplinary" approach. As no device is now available to cope with this crossing of service lines for meeting the modern worker's occupational training needs, the problem poses itself in this manner: What organizational structure may be devised which will adequately meet the vocational training requirements of Kentucky out-of-school youth and adults and those in-school youth who may not now be effectively cared for under the present organizational structure?

Rationale

In arriving at the proposed organization an inductive chain of reasoning is followed: first, attention is directed to extensive socioeconomic developments that have occurred since the first vocational education act; second, the conclusion is drawn that these changing conditions, all pertinent to effective programs of vocational education, will make necessary a changing organization for meeting occupational training needs of people; third, there are certain principles, or truths, on which a sound program of vocational education may be built, and these principles are not unknown to persons experienced in vocational

education; and fourth, that sound principles and awareness of changing occupations may be so amalgamated that a local organization may be devised that will achieve a maximum effectiveness in meeting the occupational training needs of people.

Elements of change.—An extensive discussion on change seems to be unnecessary, and it is not the intent of the author to itemize all such changes, even if it were possible. However, it is felt that some of the socio-economic developments that have occurred that affect vocational education are so pertinent that their oversight may tend to give a distorted view of the need for a changing vocational education organization at the local level.

The first of these developments pertains to *population movements.* People move, mostly, for economic reasons. Whether this movement is interstate or intrastate, the factor is of prime importance to vocational educators. Individuals move to "jobs" and from "jobs."

Kentucky is becoming more urban and less rural; counties with urban centers gain more people than counties without urban centers. U.S. Census data reveal that there has been an abnormal trend of outmigration during the last three decades, resulting in a much smaller population growth for the state than that of the national average.[1] Movement of population indicates changing needs and it is imperative that programs of vocational education change to meet these needs.

The second of these changes which demands attention, if vocational education is to accomplish its objectives, concerns *economic developments in agriculture, mining, manufacturing, and the service occupations.* Kentucky has altered its employment pattern from one of an agrarian nature to one of an industrial. The trend is away from farming. During the 1950's the number of people employed in manufacturing increased by 46,000; in farming, during this same decade, there was a decrease of approximately 113,000.[2]

Coal mining, an industry on which eastern Kentucky has long depended for employment and general economic stability, is a sick industry—sick not in the sense of production but from the aspect of employment. In 1950, the employment of miners stood at 75,956. In 1963 this employment dropped to less than 29,000. The severity of this loss of wage income and the resulting economic consequence becomes more meaningful when it is known that employment in mining during the deepest depression years of the 1930's never was less than 40,000.

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[1] During the decade 1950-60, the population gain in Kentucky was 3.2 percent while the national population gain was 18.5 percent.

[2] U.S. Bureau of the Census, *United States Census of Population: 1960,* General Social and Economic Characteristics, Kentucky, p. 164.

This unemployment in mining has created a surplus of labor which, in turn, has caused an exodus of population from the Appalachian Area of Kentucky. (During the decade 1950-60, 19 counties in eastern Kentucky suffered population losses of over 5,000. Six of these counties had losses of over 15,000.)

When the Smith-Hughes Law (1917) was enacted, the service occupations were of such little consequence that no provision was made to train people so employed or those to be employed. Employment in these occupations has grown to such extent that in 1960 approximately one out of three workers is employed in wholesale and retail trade; finance, insurance and real estate; personal services; and public administration.

If the training needs of people resulting from changing occupational patterns are to be cared for, then it would seem logical that training agencies should alter their training programs to meet these needs.

A third change that seems to be salient is that of *educational development*—teacher qualifications, facilities, methods, and media for teaching—all resulting in quality education. Various Federal acts have also added a national flavor to education, an aspect that did not exist in 1917. These facts, and others, have changed the expectations of people where education is concerned; a higher level of thinking has resulted; a more critical eye for all education has come about. If vocational education is to thrive (or survive), it must reflect efficiency or others will assume its role.

A fourth aspect of change which greatly concerns vocational education, and which relates to the three changes mentioned above, is that of *technology*. Some of the developments which seem to have greatest impact are radio and television, advanced mechanization and automation, and methods of transportation. Surely it would be impossible to determine the extent of importance of these developments. Suffice it to say that it is tremendous. As a result of the various technologies, jobs both vanish and appear. Sociological problems as well as employment problems are apparent. (The full effects of developments in space exploration and atomic energy have not really been felt by Kentucky citizens.)

Generally, it may be said that the citizen of 1917 is not the citizen of today. His concepts have broadened; he has a greater appreciation for scientific knowledge; he is less satisfied with the mediocre; he thinks less on the local level and more on the national and international levels. He knows more, wants more, and deserves more because of technological development.

Statistical Treatment of the Data

The data were collected and recorded for both subgroup and total group responses. Privilege was given to the respondents to reply to each of 60 statements in one of five possible ways: strongly agree, agree, no opinion, disagree, and strongly disagree. In the determination of acceptance of the statements by the subgroups and the total group, the statistical measure, chi-square, was used. Because "strongly agree" and "agree" are relative (as are "disagree" and "strongly "disagree"), only the positive ("strongly agree" and "agree") and negative ("disagree" and "strongly disagree") were considered in the calculations. Chi-square was figured by using the formula $X^2 = \Sigma \left[\frac{(fo\text{-}fe)^2}{fe} \right]$. Correction for continuity was made by deducting .5 from the difference between the expected frequencies and the observed frequencies[1]

Because the researcher was interested in only the extent of agreement of the respondents, and the chi-square test is one which cares for both ends of the probability curve (a "two-tailed" test), it was necessary to use $P/_2$ to obtain the probability for agreement.

Acceptance was considered significant when agreement was calculated at the .05 level or less.

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[1] Henry E. Garrett, *Statistics in Psychology and Education* (New York: Logmans, Green, and Company, 1947), p. 246.

CHAPTER II

BASIC PRINCIPLES OF VOCATIONAL EDUCATION FOR MEETING OCCUPATIONAL NEEDS

If an organizational structure is to be proposed that will adequately meet the occupational needs of Kentucky citizens, it must be based on a sound foundation. It is the purpose of this chapter to list those principles which may serve as this foundation. This is to be accomplished by determining the extent of acceptance of a list of sixty statements by a panel of experts consisting of 126 vocational school administrators, 10 state supervisors of trade and industrial education, 56 teacher educators of vocational agriculture, 25 teacher educators of trade and industrial education, and 64 Kentucky employers of graduates of Kentucky area vocational schools. In addition to those from Kentucky, the panel is composed of persons from 11 southeastern states: Tennessee, Georgia, Virginia, West Virginia, North Carolina, South Carolina, Florida, Mississippi, Arkansas, Louisiana, and Alabama. It is believed the socio-economic conditions within these states are more nearly like those of Kentucky than those in the states in the North or West, and therefore opinions of respondents from the southeastern states may be more applicable in solving problems in vocational education in Kentucky.

The survey instruments were sent to all of the persons employed in the various vocational education groups in all the twelve southeastern states (including Kentucky). The number of forms sent and the number and percentage returned by group are indicated in Table 1.

In an effort to obtain opinions from a more heterogeneous group, the writer arranged to have the 60 statements of principles evaluated by 64 employers of graduates from the area vocational schools in Kentucky. Even though the association of these employers with vocational education has been only through graduates of present institutions (which may be the best kind of association for evaluation purposes), it was believed their judgements would be of value in determining sound principles on which to base future vocational education efforts.

The Survey Form

The sixty statements of principles were gleaned from various volumes pertaining to principles and philosophy of vocational education, addresses by various persons associated with vocational education,

TABLE 1

Number of Survey Forms Sent and Number and Percentage of Completed Forms Returned, by Group

Group	Number of Forms Sent	Number of Forms Returned	Percent Returned
Agriculture Teacher Educators.	83	56	67.4
Trade and Industrial Teacher Educators. . .	29	25	86.2
State Supervisors of Trade and Industrial Education.	12	10	83.3
Vocational School Administrators	163	126	77.3
Industrial Employers . .	120	64	53.3
TOTAL	407	281	69.0

and from extensive conversations and experiences the writer has had in working with others engaged in vocational education. The statements are divided into 11 categories: administration, supervision, advisory services, vocational guidance and counseling, course offerings, in-school youth, out-of-school youth, part-time and evening training, public relations, away-from-school activities, and cooperating agencies. It is possible that the statements could have been categorized in other ways. The number of principles which might be used to help substantiate a proposed structure are endless. Those used in the survey seemed to the writer to be more pertinent than others. In reality, each principle, or statement, is an hypothesis which is being either accepted or rejected by the panel.

Five choices were provided for checking each statement of principle: (1) strongly agree, (2) agree, (3) I have no opinion, (4) disagree, and (5) strongly disagree. Statements not checked by the respondents were tallied as "I have no opinion." While "strongly agree" and "agree" may be relative, they should offer some insight into the extent of positiveness of the respondents. Likewise, "disagree" and "strongly disagree" should offer some knowledge about the extent of negativeness.

A question may arise in the mind of the reader concerning the relative value of responses by each of the various groups of respondents. Will responses from vocational school administrators, persons directly engaged in administrating a "grass roots" program of vocational education, have more value than those from agriculture teacher educators or industrial employers who have never had such experience? Because of this concern, the responses made by each of the

groups, as well as the entire group, are listed. After considering the opinions of the groups, both separately and collectively, the writer concludes with a statement as to degree of acceptance or rejection for each of the 60 statements.

Acceptance or Rejection of the 60 Statements

1. *The administrative head of an area-type school should be responsible to a higher administrative group.*

Probably all school personnel, finally, trace their responsibility to higher administrative groups: either local boards of education, state boards of education, boards of regents, or some like group. However, the subject statement is concerned with direct responsibility. The respondents accepted this statement in the manner shown in Table 2.

It will be noted that agreement with the statement is rather definite as 129 respondents *strongly* agreed whereas 124 only agreed.

Summing the responses of "strongly agree" and "agree" and of "disagree" and "strongly disagree" reveals that positive agreements total 253, whereas negative agreements total 18. Statistically, the level of significance for agreement with the statement is less than .01, and therefore it may be accepted as a definite principle on which to build a sound vocational education structure.

2. *The administrative head may delegate authority to his assistants commensurate with the responsibility he gives them.*

This statement is considered by many in business administration as a basic principle of organization—the principle of "authority and

TABLE 2

Degree of Acceptance of Statement 1 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	129	124	10	9	9
Agriculture teacher educators	56	38	15	1	2	0
State supervisors of industrial education	10	4	4	1	0	1
Trade and industrial teacher educators .	25	11	13	0	1	0
Vocational school administrators. . .	126	57	55	2	4	8
Employers of Kentucky area vocational school graduates. .	64	19	37	6	2	0

responsibility"—and a principle necessary to the success of all scalar organizations. Table 3 shows that all but two respondents agreed with the statement; the two who did not agree had no opinion.

The significant fact revealed in this table is the definiteness with which the group accepted the principle. Because industrial management has generally accepted the principle of "authority and responsibility," it would seem that responses by this subgroup would have

TABLE 3

Degree of Acceptance of Statement 2 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	154	125	2	0	0
Agriculture teacher educators	56	37	19	0	0	0
State supervisors of industrial education	10	3	7	0	0	0
Trade and industrial teacher educators .	25	14	11	0	0	0
Vocational school administrators. . .	126	69	56	1	0	0
Employers of Kentucky area vocational school graduates. .	64	31	32	1	0	0

been more positive in their agreement. However, the positiveness of the total group in agreeing with the statement would cause it to be considered as a basic principle for an organization providing vocational education.

3. *The administration of the school should be kept close to the people.*

This statement has been made, and heard, by many educators. To some extent it is stated in the vernacular, but it was believed that its meaning would be sufficiently clear in expressing the idea that school administrators should not set themselves aside or hold themselves aloof from the public who support the institution which is actually designed to serve them. Table 4 shows how the total group and subgroups reacted to the statement.

Even though the results of the survey show that the statement can be considered as a general truth, it may appear odd to the reader that as many as 25 respondents have no opinion as to its acceptance. It will be noted that 10 of these responses were made by the employers who may not have understood the meaning of the statement.

TABLE 4

Degree of Acceptance of Statement 3 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	120	121	25	13	2
Agriculture teacher educators	56	31	22	1	1	1
State supervisors of industrial education	10	2	5	3	0	0
Trade and industrial teacher educators .	25	12	10	2	1	0
Vocational school administrators . .	126	58	53	9	6	0
Employers of Kentucky area vocational school graduates. .	64	17	31	10	5	1

A total of 242 answered positively in accepting the statement, while 15 disagreed. The high level of agreement with the principle would indicate its acceptance in projecting a structure for meeting people's needs in vocational education.

4. *The administration of vocational education will be efficient in proportion as it is elastic and fluid rather than rigid and standardized.*

The purpose of vocational education is to meet the training needs of people. As these needs change, it would appear that provisions for meeting them would likewise change. Table 5 shows the extent of agreement the respondents had with the statement.

Overwhelming acceptance of this statement by each subgroup shows that administrative procedures must be susceptible to change if they are to meet vocational education needs. Only the employers indicated a lesser number of "strongly agree" than "agree." This fact, in addition to the seven who had no opinion and the three who disagree, would indicate a greater reservation in acceptance. However, the almost complete acceptance of the statement is significant to such an extent that it should be considered a basic principle in the administration of vocational education.

5. *Only a person who has had considerable experience in at least one of the vocational fields should be appointed head of a comprehensive area vocational school.*

This statement might imply that individuals who are good administrators, in general, and who have no vocational education background,

TABLE 5

Degree of Acceptance of Statement 4 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	153	110	11	6	1
Agriculture teacher educators	56	33	20	0	3	0
State supervisors of industrial education	10	7	2	1	0	0
Trade and industrial teacher educators .	25	14	11	0	0	0
Vocational school administrators. . .	126	78	44	3	0	1
Employers of Kentucky area vocational school graduates. .	64	21	33	7	3	0

would not be successful heads of vocational schools. This thinking is borne out in the present requirements for directors of area vocational schools in Kentucky.[1]

Probably the most significant aspect about the respondents' agreement is the extent of positiveness of their acceptance. Of the 238 who accepted the statement, more than 64 percent *strongly* agreed. The employers were the most conservative subgroup which accepted the statement. However, when the responses are considered on a basis of positive agreement versus negative agreement, even the employers accepted the principle at a level of significance of less than .01. Table 6 shows the extent to which the 281 respondents agreed with this statement.

It may be stated with a high degree of certainty that the statement may properly be accepted as a guiding principle in selecting head administrators for comprehensive area vocational schools.

6. *At least one member of the State Department of Education representing vocational education should be included in any area group which may have administrative functions in an area vocational school program.*

The central idea in this statement is that of providing a liaison between a local administrative group and the State Department of

[1] Directors of Kentucky area vocational schools must have completed 16 semester hours in approved vocational education courses, and have had at least three years experience in teaching or coordinating approved trade and industrial education classes.

TABLE 6

Degree of Acceptance of Statement 5 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	153	85	13	27	3
Agriculture teacher educators	56	32	19	2	2	1
State supervisors of industrial education	10	6	2	1	1	0
Trade and industrial teacher educators .	25	13	10	0	2	0
Vocational school administrators. . .	126	78	32	4	11	1
Employers of Kentucky area vocational school graduates. .	64	24	22	6	11	1

Education from which financial aid and consulative services are provided. Probably the aspects of most interest in Table 7 are the differences of opinion of the state supervisors of trade and industrial education and the vocational school administrators and trade and industrial teacher educators. As shown in Table 7, this statement was less warmly received than were the preceding statements.

All the state supervisors, except two who had no opinion, desired connecting links with local administrative groups, while the local voca-

TABLE 7

Degree of Acceptance of Statement 6 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	79	125	35	29	13
Agriculture teacher educators	56	21	24	6	5	0
State supervisors of industrial education	10	4	4	2	0	0
Trade and industrial teacher educators .	25	6	10	2	5	2
Vocational school administrators. . .	126	31	52	16	16	11
Employers of Kentucky area vocational school graduates. .	64	17	35	9	3	0

tional school administrators were much less opinionated. Almost 25 percent of the administrators who had an opinion did not accept the statement. Agreement by industrial teacher educators, significant at the .05 level, indicates acceptance by this subgroup. The dissentions were not sufficient to prevent over-all acceptance of the statement, the results being significant at less than the .01 level. The statement is therefore an accepted principle.

7. *The genuine concern of people for vocational education will be in proportion to their understanding of its objectives and services.*

This statement, if accepted, would have great implications for an administrator regarding how he might emphasize his public relations program—how he would budget his "working day." Table 8 shows the acceptance of this statement.

TABLE 8

Degree of Acceptance of Statement 7 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	186	90	4	1	0
Agriculture teacher educators	56	34	20	2	0	0
State supervisors of industrial education	10	7	3	0	0	0
Trade and industrial teacher educators .	25	21	4	0	0	0
Vocational school administrators. . .	126	91	34	0	1	0
Employers of Kentucky area vocational school graduates. .	64	33	29	2	0	0

With the exception of one vocational school administrator who disagreed and four other respondents who had no opinion, the total group accepted the statement—186 respondents *strongly* agreeing. The statement should therefore be considered a basic principle for guiding the vocational school administrator.

8. *The head administrator of a vocational school should be totally responsible for all activities in the institution.*

The statement is akin to the basic organizational principle—"One cannot delegate away his responsibility." Even though delegation of responsibility and authority is inherent in the administrative activity,

the feeling exists among some administrators that once responsibility is delegated to another they have no further responsibility for the particular task. Table 9 shows how the total group and subgroups accepted the statement.

TABLE 9

Degree of Acceptance of Statement 8 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	138	105	2	31	5
Agriculture teacher educators	56	24	17	1	12	2
State supervisors of industrial education	10	9	1	0	0	0
Trade and industrial teacher educators .	25	15	10	0	0	0
Vocational school administrators. . .	126	68	44	0	12	2
Employers of Kentucky area vocational school graduates. .	64	22	33	1	7	1

Of the total group who had definite opinions about the statement, 243 accepted it and 36 did not accept it. Perhaps many of those who disagreed did so because of the word, "totally," which was used to describe the head administrator's extent of responsibility. Some of the respondents who disagreed either circled or underscored the word. It seems significant that the state supervisors, themselves administrators, agreed 100 percent with the statement—9 of the 10 *strongly* agreeing. The highest percentage of rejections of the statement came from the agriculture teacher educators. Of this subgroup who had opinions, more than 25 percent declined to accept it. This fact contrasts with the teacher educators of trade and industrial education who gave 100 percent acceptance of the principle, 60 percent *strongly* agreeing.

This principle should be considered as a guiding principle for vocational school administrators.

9. *Vocational education should be provided wherever there is a need to train youth and adults for jobs that exist.*

This statement would imply that vocational education should be widespread because youth and adults are widespread and, jobs existing, their needs would become automatic. Meeting these needs would also imply that particular attention should be given to part-time evening

extension classes. The respondents were positive in their acceptance of the statement, as shown in Table 10.

This was the only one of the 60 statements under study about which all respondents had opinions—either positive or negative. The

TABLE 10

Degree of Acceptance of Statement 9 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	172	98	0	9	2
Agriculture teacher educators	56	27	25	0	4	0
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	18	7	0	0	0
Vocational school administrators. . .	126	87	33	0	4	2
Employers of Kentucky area vocational school graduates. .	64	34	29	0	1	0

high percentage of agreement and particularly *strong agreement* would necessitate the acceptance of the statement as a basic principle for vocational educators to follow in administering a program.

10. *Head administrators of comprehensive area vocational schools should have had special training in administration.*

This statement implies that successful administrators attain the position because of intent and concern for good school administration. The present head administrators of area vocational schools in Kentucky have no such training except that which might be considered as on-the-job training prior to their having accepted the position. Most of them have had previous experience as teacher-coordinators.

The respondents were definite in their acceptance of the statement as shown in Table 11.

The degree of positiveness of acceptance is self-evident with only 9 of the 271 respondents, who had no opinion, disagreeing with the statement. This principle might imply that provisions should be made, either by institutions of vocational teacher education or departments of commerce or management, whereby training in administration may be provided.

TABLE 11

Degree of Acceptance of Statement 10 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	138	124	10	8	1
Agriculture teacher educators	56	27	25	2	1	1
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	15	9	0	1	0
Vocational school administrators. . .	126	63	52	6	5	0
Employers of Kentucky area vocational school graduates. .	64	27	34	2	1	0

The wholehearted acceptance of the statement indicates that it should be a principle that needs consideration in staffing comprehensive area vocational schools.

11. *Provision should be made for supervision of the instructional program in the school.*

The meaning of the word "supervision" has a different connotation from the sense in which it is generally used, especially as it is applied in industry. In education, the term refers to that function of administration which seeks to improve an instructional staff. This would imply that vocational school programs must be kept up-to-date through aid provided by some person or persons responsible for helping teachers with their problems. Table 12 shows the total acceptance of this statement.

The unanimity of the total group seems to be significant in the acceptance of the statement. The complete meaning of the statement may have been unclear to some of the lay group (employers), thus resulting in the 4 "no opinions."

Because of the degree of the acceptance of the principle it would appear almost mandatory that supervision be included in the administrative program of every vocational school.

12. *The function of supervision is concerned with program development and improvement.*

It was thought that the modern concept of school supervision may have got confused with the "overseer" concept. However, the respon-

TABLE 12

Degree of Acceptance of Statement 11 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	193	84	4	0	0
Agriculture teacher educators	56	45	11	0	0	0
State supervisors of industrial education	10	9	1	0	0	0
Trade and industrial teacher educators .	25	21	4	0	0	0
Vocational school administrators. . .	126	90	36	0	0	0
Employers of Kentucky area vocational school graduates. .	64	28	32	4	0	0

dents almost completely accepted the statement. Table 13 shows this acceptance.

Employers were more conservative in accepting the statement than the other subgroups, probably because the statement was foreign to their experiences. However, the overwhelming agreement with the principle would indicate that the purpose of school supervision is known and accepted.

TABLE 13

Degree of Acceptance of Statement 12 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	147	121	9	3	1
Agriculture teacher educators	56	34	21	1	0	0
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	17	8	0	0	0
Vocational school administrators. . .	126	74	51	0	1	0
Employers of Kentucky area vocational school graduates. .	64	16	37	8	2	1

13. *Continued teacher development is a necessary part of program development.*

This statement emphasizes the importance of instruction in vocational education. The need for supervision is inherent in the statement. As in all phases of education, the success of the program depends upon the competency of the teachers. In order for teachers to be competent, their continued growth is necessary. This fact is definitely brought out in the acceptance of the principle, as shown in Table 14.

TABLE 14

Degree of Acceptance of Statement 13 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	199	78	4	0	0
Agriculture teacher educators	56	43	12	1	0	0
State supervisors of industrial education	10	8	2	0	0	0
Trade and industrial teacher educators .	25	22	3	0	0	0
Vocational school administrators. . .	126	97	29	0	0	0
Employers of Kentucky area vocational school graduates. .	64	29	32	3	0	0

Only on one other of the 60 statements which were used was there stronger agreement. This decisiveness prevailed in all the subgroups except the employers who, again, were more conservative in their agreement. However, none disagreed. Lack of more strong agreement by this subgroup probably was caused by incomplete understanding of the statement by these lay persons. Trade and industrial teacher educators and agriculture teacher educators answered as might be expected, as their tasks consist mainly of teacher development.

14. *Supervision is an accepted responsibility of school administration.*

Many people in general education would say that supervision is effective to the extent that it is recognized by school administrators as necessary for effective school programs. The reason for including this statement in the study was to find out whether people in vocational education would make the same assertion. If they did, the statement could then be used as a guiding principle for allocating administrative

responsibilities to vocational school administrators. Table 15 shows the extent of acceptance of the statement by the total group and subgroups.

Again, the most conservative of the subgroups was the employers, while the strongest agreement was by the trade and industrial teacher

TABLE 15

Degree of Acceptance of Statement 14 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	126	132	12	10	1
Agriculture teacher educators	56	24	24	2	5	1
State supervisors of industrial education	10	5	4	0	1	0
Trade and industrial teacher educators .	25	16	9	0	0	0
Vocational school administrators. . .	126	64	56	4	2	0
Employers of Kentucky area vocational school graduates. .	64	17	39	6	2	0

educators. Both of these groups might be expected to take these positions because of association or lack of association with such a theoretical statement. However, the 5 disagreements by the agriculture teacher educators cannot be explained by this reasoning because they, too, are familiar with educational theory. The 258 "agreements" and only 11 "disagreements" and 12 "no opinions" would appear to be highly significant. Therefore, the statement should be considered by the group as a sound principle in determining the placement of responsibility for supervision.

15. *The competent worker as a potential teacher is not aware of the content of his occupation, nor is he generally able to develop courses of study from it.*

This statement, made by a noted author and professor, would imply that help must be had if the skilled worker is to be made an effective teacher. Such aid may find its source in supervisors or teacher educators or some other person skilled in developing teacher materials. The statement might have been worded differently so as to escape the "doubleness" in it.

The writer, in his experience as a teacher educator, finds the state-

ment to be very true. He has encountered few, if any, tradesmen who have recently "turned" teachers who can organize the content of their occupations in a satisfactory manner for teaching. This fact should not be considered as a reflection on the ability of the particular individuals or the lack of knowledge about their occupation. They are merely not accustomed to thinking of their trades as subjects for teaching.

The high amount of rejection for this statement as compared to the other principles is reflected in Table 16.

The highest agreement came from the trade and industrial teacher educators (88 percent) which was significant at less than the .01 level while the least agreement came from the state supervisors of trade and industrial education (60 percent). For this subgroup the level of significance was .15 and therefore unnacceptable. High acceptance by the teacher educators is probably a reflection of their extensive efforts made in aiding competent tradesmen to organize their teaching materials—they may see the problem more clearly. No explanation can be given as to why the state supervisors were the most in disagreement, unless it may be that they were the subgroup farthest from the problem. The employers, also removed from the problem, gave acceptance

TABLE 16

Degree of Acceptance of Statement 15 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	36	133	22	75	15
Agriculture teacher educators	56	8	24	7	13	4
State supervisors of industrial education	10	2	4	0	3	1
Trade and industrial teacher educators .	25	4	18	0	2	1
Vocational school administrators. . .	126	20	59	3	37	7
Employers of Kentucky area vocational school graduates. .	64	2	28	12	20	2

which was significant only to the .17 level and, therefore, unacceptable.

Even though disagreement was greater for this statement than for previous principles, the divergence of observed from expected results for the total group was sufficiently large to be significant at less than

the .01 level. Therefore it may be accepted as a principle for guiding supervisors, teacher educators, and others in providing a particular kind of help for new teachers. Because of the amount of disagreement among some of the subgroups, it would seem that much could be expected from competent workers in the organization of their courses.

16. *Every vocational administrator should make use of a formal administrative advisory committee.*

Much has been written and "preached" about the desirability of advisory committees, both at the administrative level and craft level. In some places in Kentucky these types of committees are used; in some places they are not used. Those who do not use advisory groups seem to think they would be a burden and difficult to work with. This statement is included in the study so as to determine the extent of desirability of advisory committees for any newly proposed type of institution. Table 17 shows the acceptance of the statement.

TABLE 17

Degree of Acceptance of Statement 16 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	115	133	12	18	3
Agriculture teacher educators	56	22	30	2	1	1
State supervisors of industrial education	10	6	3	0	1	0
Trade and industrial teacher educators .	25	16	8	0	1	0
Vocational school administrators. . .	126	51	63	1	10	1
Employers of Kentucky area vocational school graduates. .	64	20	29	9	5	1

Even though 199 vocational educators agreed with the use of administrative advisory committees, 15 did not agree. Of those who did not agree, 11 were vocational school administrators (10 percent), the persons for whom administrative advisory committees were designed.

Because advisory committees provide an opportunity for lay persons to influence school activities, it may appear surprising that 6 employers disagreed (10 percent) and 9 employers had no opinion about the statement. The acceptance of the statement is extensive

enough for it to be a principle to be followed by vocational school administrators.

17. *The only reliable source of content for specific training in an occupation is in the experience of masters of that occupation.*

This statement, taken from the writings of a vocational education philosopher, would, if true, have more implications for trade and industrial education than for the other branches of vocational education. If accepted, it would necessitate a more cooperative working arrangement between craftsmen and vocational school personnel in planning for both day and evening classes. Because much of the accepted content of agriculture and home economics education is derived from experimental work performed at experiment stations or laboratories, the statement may not be so applicable.

This statement brought greater disagreement than any of the other statements. It will be noted that much disagreement was consistent throughout all subgroups (except that of state supervisors), being greatest among the agriculture teacher educators. The state supervisors agreed at a ratio of 9 to 1.

The respondents as a group answered the statement negatively, as shown in Table 18.

TABLE 18

Degree of Acceptance of Statement 17 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	46	97	12	112	14
Agriculture teacher educators	56	5	13	4	26	8
State supervisors of industrial education	10	4	5	0	1	0
Trade and industrial teacher educators .	25	5	9	0	10	1
Vocational school administrators. . .	126	22	47	4	50	3
Employers of Kentucky area vocational school graduates. .	64	10	23	4	25	2

In determining final acceptance on a basis of "agree" and "not agree" the agreement is significant at only the .18 level. Therefore, the statement must be rejected as a guiding principle.

18. *Advisory committees should be used for each of the vocational course offerings.*

The same qualifying comments might be made about this statement that were made about number 16. "Craft" advisory committees have long been considered as not only desirable but almost mandatory if an industrial education program is to be successful. This type of committee would also be applicable to the various programs of agriculture, home economics, distributive education, or business education.

The subgroup giving strongest acceptance was the state supervisors of trade and industrial education, 80 percent of whom approved it. Employers, again, viewed the statement conservatively. It is possible that they did not fully understand the statement. Table 19 shows how the respondents accepted this statement.

Probably the most significant fact about Table 19 is the number of agriculture educators who rejected the statement. Of those having opinions, 33 percent rejected the principle (acceptance significant at the .015 level). Even though there was some disagreement among agriculture teacher educators, the total acceptance was significant at less than the .01 level, and thus the statement is accepted as a principle for use in providing efficient program of vocational education. Further study might be given as to the values of using such advisory committees for agriculture education courses.

19. *The State Department of Education should be more advisory than administrative in its actions with an area school.*

This statement has particular significance for many states that are

TABLE 19

Degree of Acceptance of Statement 18 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	64	146	23	41	7
Agriculture teacher educators	56	9	25	5	14	3
State supervisors of industrial education.	10	8	2	0	0	0
Trade and industrial teacher educators .	25	7	13	1	3	1
Vocational school administrators. . .	126	35	73	3	13	2
Employers of Kentucky area vocational school graduates. .	64	5	33	14	11	1

introducing area schools in their vocational program. It has philosophic implications concerning the question of "state operated" schools versus "area operated" schools. Many of the respondents recognized these implications, as exemplified in Table 20.

TABLE 20

Degree of Acceptance of Statement 19 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	84	127	22	43	5
Agriculture teacher educators	56	19	20	4	12	1
State supervisors of industrial education	10	2	2	1	4	0
Trade and industrial teacher educators .	25	8	13	1	3	0
Vocational school administrators. . .	126	49	55	7	13	2
Employers of Kentucky area vocational school graduates. .	64	6	36	9	11	2

Percentage of acceptance of the statement by the respondents of the subgroups who had opinions ranged from 55 percent (not significant) for the state supervisors to 87 percent for trade and industrial teacher educators. Vocational school admistrators reacted positively to the statement by 87 percent. This may indicate that the administrators at the local schools would see their efforts as being more effective if more autonomy were provided at the area level. It may also be interpreted that the state supervisors, representing the state departments of education, see the area school as being less effective if there is more direct authority at the area level.

However, the acceptance of the statement by the total group indicates that agreement is significant at the .01 level and that it may be considered a guiding principle.

20. *People eventually make greater use of their schools where there is an orderly arrangement for citizens to participate in planning.*

Much has been written about the need for including lay people on various educational committees. It is felt by the writer that this idea is more theoretical than practical. Nevertheless, this judgement should not negate the theory. Persons associated with vocational education have probably been more aware of the theory than those in other

areas of education. In an attempt to gain a clearer determination of this principle, it was submitted to the respondents in this study. Table 21 gives the reaction of the total group and the subgroups to the statement.

TABLE 21

Degree of Acceptance to Statement 20 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	90	160	16	13	2
Agriculture teacher educators	56	29	26	1	0	0
State supervisors of industrial education	10	4	6	0	0	0
Trade and industrial teacher educators .	25	13	12	0	0	0
Vocational school administrators. . .	126	34	82	5	4	1
Employers of Kentucky area vocational school graduates. .	64	10	34	10	9	2

Agreement with this statement is decisive, with only 15 dissenting. Of those disagreeing, 10 were employers or lay people. This appears difficult to justify, as use of the principle would tend to encourage lay participation in the school. It may be that lay people do not desire participation and would rather leave the operation of the school entirely to school people, but this is doubtful. Ten of this subgroup had no opinion. There was high agreement among the vocational education personnel—217 accepted, 5 rejected, and 6 had no opinion. The statement may be considered as a definite principle for program planning.

21. *The adequacy and effectiveness of programs of vocational education are contingent upon the degree of citizen cooperation and participation in planning and evaluation.*

This statement implies greater dependence upon citizen participation for program success than does statement 20. The acceptance of this statement would make almost mandatory the use of advisory committees and cooperating groups in operating vocational schools. Table 22 shows how the respondents accepted the statement.

The similarity of agreement and disagreement of the respondents for statements 18 and 21 is very great. In considering the implications of the two statements, one may see that action implied in statement 21

TABLE 22

Degree of Acceptance of Statement 21 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	55	155	28	41	2
Agriculture teacher educators	56	21	30	0	4	1
State supervisors of industrial education	10	2	5	3	0	0
Trade and industrial teacher educators .	25	9	15	0	1	0
Vocational school administrators. . .	126	21	70	17	18	0
Employers of Kentucky area vocational school graduates. .	64	2	35	8	8	1

would result in advisory committees mentioned in statement 18. Comparison of answers to the two statement would reveal the following similarity:

For statement 18 there 210 acceptance, 48 rejections, and 23 "no opinions."

For statement 21 there were 210 acceptances, 43 rejections, and 28 "no opinions."

Only the state supervisors showed no rejection of either statement. Again the employers showed a reluctance to give significant acceptance to a principle that would involve lay participation. This fact may reflect much misunderstanding or lack of knowledge among lay persons as to their opportunities and responsibilities for participating in programs of vocational education.

The over-all acceptance of the statement is significant to the extent that it should be a principle to be used in effective vocational education programs.

22. *A counselor must be concerned with aspects of the student that are outside his vocational education needs.*

The purpose of including this statement in the study is an attempt to determine the extent of over-all concern for students in vocational education by persons responsible for their vocational education programs. Some have said that vocational educators have been narrow in concepts in caring for the over-all needs of their students. Rejection of the subject statement by the respondents would tend to concur with

this criticism, implying that counseling should be limited to occupational concern. Acceptance of the statement would tend to refute the criticism and would imply that vocational educators are concerned with the welfare of the "total" individual. The acceptance would also serve as a guiding principle in staffing area vocational schools with persons skilled in areas other than mere vocational information. Table 23 shows the degree of acceptance of the statement.

TABLE 23

Degree of Acceptance of Statement 22 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	97	163	11	7	3
Agriculture teacher educators	56	23	29	3	1	0
State supervisors of industrial education	10	4	6	0	0	0
Trade and industrial teacher educators .	25	10	13	2	0	0
Vocational school administrators. . .	126	45	72	3	3	3
Employers of Kentucky area vocational school graduates. .	64	15	43	3	3	3

The extent of acceptance of the statement clearly indicates that it should be a basic principle in caring for needs of students and implies that vocational educators are concerned for the general welfare of their students. Indeed, it would be difficult to separate social, physical, or economic needs from vocational education needs. "Individuals come in wholes, not in parts," and vocational education, according to the responses to the subject statement, is concerned with the whole person.

23. *In each school someone should coordinate all the various guidance activities and furnish leadership in improving guidance services*

This implies that the statement, "everybody's business is nobody's business," is true and that leaving matters to everyone is not the correct procedure in guidance activities. According to the writer's personal knowledge the "everybody's business" is too prevalent in the area vocational schools in Kentucky. It is felt that guidance activities are more "talked about" than "done anything about." The respondents'

reaction to the subject statement should enable the researcher to determine the collective opinion as to whether an individual directly responsible for guidance activities should be associated with the area vocational school. No guidance counselors are now so employed. The respondents gave wholehearted acceptance to the statement as shown in Table 24.

TABLE 24

Degree of Acceptance of Statement 23 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	133	145	2	1	0
Agriculture teacher educators	56	31	25	0	0	0
State supervisors of industrial education	10	2	8	0	0	0
Trade and industrial teacher educators .	25	19	6	0	0	0
Vocational school administrators. . .	126	63	62	0	1	0
Employers of Kentucky area vocational school graduates. .	64	18	44	2	0	0

The almost total group acceptance of this principle would make it axiomatic in the operation of an area vocational school. Few of the 60 statements under study were more completely accepted. Considering such positive reaction the reader (as does the writer) may wonder why the principle has not been acted upon.

24. *Effective vocational education for any profession, calling, trade, occupation, or job can only be given to the selected group of individuals who need it, want it, and are able to profit by it.*

This statement points up the need for selection of students who enroll in programs of vocational education. Some people in education see vocational education as the "answer" for the slow learner, the incorrigible, the dropout, the uninterested, and the general ne'er-do-well. It is probably true that vocational education can do much for many of these. However the subject statement would intimate that these individuals (and others) would need to have certain qualifications if the efforts of vocational education are to be effective. Table 25 reflects the degree of acceptance of the respondents for this assertion.

TABLE 25

Degree of Acceptance of Statement 24 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	145	114	4	18	0
Agriculture teacher educators	56	28	22	1	5	0
State supervisors of industrial education	10	7	3	0	0	0
Trade and industrial teacher educators .	25	15	8	0	2	0
Vocational school administrators. . .	126	65	53	1	7	0
Employers of Kentucky area vocational school graduates. .	64	30	28	2	4	0

The total group's acceptance is quite decisive. However, the possibility of a more general approach in enrollment practices in the future may have merit. At present a plan of selection for student enrollment in programs of vocational education should be a principle to be followed.

25. *Vocational education will be effective in proportion to the degree that it enables each individual to utilize his interest, aptitudes, and intelligence to the highest possible degree.*

This statement implies that every individual is an entity and that individual treatment must be accorded to each. In order to provide this treatment, it is necessary that inventories of aptitudes and learnings be made, that knowledge of progress be known by both student and the teachers, and that each student be made to realize his worth. Table 26 shows the reaction of respondents to these implications. Acceptance of this principle implies guidance and counseling services, well-equipped shop laboratories, and a dedicated school staff. As stated in the principle, vocational education will be effective to the extent that students reach their potential. To gain this potential, facilities and services must be adequate. The wide acceptance of this statement by the panel indicates it as a principle to be followed.

26. *The fact that a youth of the smaller community goes elsewhere to pursue an occupation should not deprive him of help in selecting it intelligently, of training for it, or of aid in securing employment in it.*

TABLE 26

Degree of Acceptance of Statement 25 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	129	141	7	4	0
Agriculture teacher educators	56	26	28	2	0	0
State supervisors of industrial education	10	7	3	0	0	0
Trade and industrial teacher educators .	25	16	9	0	0	0
Vocational school administrators. . .	126	59	65	0	2	0
Employers of Kentucky area vocational school graduates. .	64	21	36	5	2	0

As shown in Chapter I, the mobility in Kentucky is high. The probability exists that this trend will continue at least for the next decade. The subject statement would imply that the migrating youth, because he comes from the smaller community, should not be discriminated against in his guidance, training, and job placement, but that he would make a greater contribution to society if his individual employment needs were satisfied. Table 27 shows almost total acceptance of the principle.

TABLE 27

Degree of Acceptance of Statement 26 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	156	122	2	1	0
Agriculture teacher educators	56	34	21	0	1	0
State supervisors of industrial education	10	7	3	0	0	0
Trade and industrial teacher educators .	25	17	8	0	0	0
Vocational school administrators. . .	126	70	55	1	0	0
Employers of Kentucky area vocational school graduates. .	64	28	35	1	0	0

A greater concern for caring for the occupational needs of all youth seems to have found a new importance in the thinking of many people. The agreement with the subject principle shows the stress which both vocational education leaders and employers are placing on this philosophy.

The statement should be considered a definite principle to follow for a sound program of vocational education.

27. *In every community there are youths and adults out of school who need vocational guidance as much as, or perhaps more than, those still in school.*

If this statement is true, one may ask where and by whom will these people receive this guidance. No vocational school in Kentucky provides this service, and probably few, if any, schools of general education enable out-of-school people to receive such counseling. However, the statement is being studied to determine if, in the thinking of the respondents, there are such needful individuals.

TABLE 28

Degree of Acceptance of Statement 27 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	168	110	3	0	0
Agriculture teacher educators	56	32	24	0	0	0
State supervisors of industrial education	10	7	2	1	0	0
Trade and industrial teacher educators .	25	18	7	0	0	0
Vocational school administrators. . .	126	78	46	2	0	0
Employers of Kentucky area vocational school graduates. .	64	33	31	0	0	0

Only three respondents had "no opinion" about the statement. The high degree of *strong* agreement is significant in itself. One would conclude that vocational guidance services for out-of-school youth and adults are, to some degree, seriously needed. The question poses itself—"Should this be a service of area vocational schools?" The extent of agreement of the respondents might imply that it should be.

28. *Class personnel should make tentative occupational choices on the bases of their interests, capacities, and the requirements of the occupations.*

This statement, in essence, says that the student should decide on his occupation on the basis of knowledge which he has regarding his abilities, of awareness of the content of his occupational choice, and of the coincidence of his interests with this knowledge. The question of where or how he is to obtain this information is not implied, but if the subject statement were accepted as a basic principle the question would arise. The soundness of the statement is indicated in Table 29.

TABLE 29

Degree of Acceptance of Statement 28 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	93	167	15	6	0
Agriculture teacher educators	56	24	29	2	1	0
State supervisors of industrial education	10	3	5	2	0	0
Trade and industrial teacher educators .	25	8	16	1	0	0
Vocational school administrators. . .	126	41	73	8	4	0
Employers of Kentucky area vocational school graduates. .	64	17	44	2	1	0

The high degree of agreement with the statement indicates acceptance by the respondents as a principle. As previously stated, the question arises as to how potential class personnel will have this needed information. The response, as indicated in statement 28, incates little doubt in either the school groups or the lay group that enrollees should "know" what they are doing. How this might be done is discussed in the next chapter.

29. *Specialists should be responsible for special areas of instruction.*

This statement implies that teachers should be comptetent in their areas to the extent that they would be recognized by others in their field as proficient to a high degree. It might also imply that persons who work in supervisory capacities should be recognized in a like

manner. If this principle were accepted, it should serve as a guiding principle for staffing. Table 30 shows the extent of agreement by the various groups.

TABLE 30

Degree of Acceptance of Statement 29 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	100	164	9	7	1
Agriculture teacher educators	56	19	31	1	4	1
State supervisors of industrial education..	10	5	4	1	0	0
Trade and industrial teacher educators .	25	11	14	0	0	0
Vocational school administrators. . .	126	47	73	3	3	0
Employers of Kentucky area vocational school graduates. .	64	18	42	4	0	0

Some of the agriculture teacher educators may have had difficulty in interpreting the statement. Their five disagreements might so indicate. The employers, being aware of needs for specialists, showed more certainty than usual in their agreement. However, all groups seemed to recognize this need and significantly agreed with the statement. Its consideration as a principle should be included in the guidelines for staffing.

30. *Provisions should be made in the area school to take care of the basic educational needs of people so that they may profit from the vocational training requiring those basic skills.*

This statement reflects the thinking of some vocational educators during the past few years. It is a departure from the general idea of "pure and simple" trade teaching. What is "basic" to vocational training could vary from the simplest skills in reading, writing or arithmetic to calculus or physics. The question arises as to whether the vocational school should become more active in providing for these needed educational activities (usually considered as activities of general education) or refrain from providing them and require the enrollees to be competent in them before enrollment. One might then ask: If the enrollee doesn't possess the required skills but needs vocational training, how and where will he obtain the skills? Most of the area vocation-

al schools in Kentucy teach mathematics, science, and drawing as they relate to the students' objective. However, these related subjects are generally not at primary level. Present Federal acts pertaining to vocational education would encourage the teaching of the more-basic skills. Table 31 shows the extent of agreement of the respondents to this question.

TABLE 31

Degree of Acceptance of Statement 30 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	112	144	10	13	2
Agriculture teacher educators	56	25	26	2	2	1
State supervisors of industrial education	10	3	5	2	0	0
Trade and industrial teacher educators .	25	10	12	0	3	0
Vocational school administrators. . .	126	58	60	2	6	0
Employers of Kentucky area vocational school graduates. .	64	16	41	4	2	1

There seems to be little doubt by the panel of experts that basic education should be included in the program of vocational education. The vocational school administrators group (those working at the local level) apparently can see this need more clearly than the other subgroups. Their acceptance of the principle by an agreement of 118 to a disagreement of 6 might appear to be even more meaningful than that of the state supervisors who had no disagreement.

Thus it may be said that the statement should be considered a valid principle in determining vocational school offerings.

31. *Vocational education will render efficient social service in proportion to how well it meets the specific training needs of any group at the time they need it and to the extent it is given in such a way that they can most effectively profit from the instruction.*

This statement implies that vocational education must not be rigid or stereotyped. The time of the year or the day would be of no consequence if the services were meeting a need. Programs would be arranged according to learner needs and not for administrative con-

venience. There are also implications that these programs may be carried on outside the confines of the vocational school complex. The respondents accepted the statement, as shown in Table 32.

TABLE 32

Degree of Acceptance of Statement 31 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Disagree
Total group	281	99	159	21	2	0
Agriculture teacher educators	56	20	31	5	0	0
State supervisors of industrial education	10	3	7	0	0	0
Trade and industrial teacher educators .	25	10	15	0	0	0
Vocational school administrators. . .	126	51	64	0	0	0
Employers of Kentucky area vocational school graduates. .	64	15	42	6	1	0

By showing only two disagreements the group indicates significantly high acceptance of the statement as a principle for organizing vocational classes. They are saying, in effect, that a class session in agriculture may be held in a barn, or a field, and that a class session of home economics may be held in a restaurant kitchen. Their answers state that the "ends justify the means."

32. *For every occupation there is a minimum of productive ability which a person must possess in order to secure (and retain) employment in that occupation. If vocational education is not carried to that point with the individual, it is not effective.*

This statement would imply that the vocational needs of people cannot be half met and be effective. It appears to fall in the category of the "pretty good egg"—which no one wants. The idea would have implications for length of course, as well as clear objectives and knowledge of content of occupations for which courses were being offered. It would also intimate that programs should be organized so as to permit their completion by those enrolled. Table 33 shows the extent of agreement by the panel for these implications.

Even though the agreements for the total group and for all subgroups are significant to a level of less than .01, and the statement therefore can be considered as definitely a valid principle, one may be

concerned by the number of disagreements, particularly those of the vocational school administrators. As these persons have a more direct contact with enrollees, they may see certain concomitant learnings that are valuable for the occupationally inadequate student. Future studies may reveal effectiveness of these learnings. However, for the present, this research would tend to indicate that enrollment in courses that produce occupationally incompetent people is not justified.

33. *A school designed to meet the occupational needs of people should be so organized and conducted that it is able to admit applicants at any time class vacancies exist.*

This statement is somewhat controversial, as indicated by the panel of experts. It may tend to imply that enrollees in vocational courses progress at their own ability rates and that new enrollees may enter the group with profit to themselves and without damage to others. It would also indicate that individual instruction is being carried on to a high degree. There may be a number of additional implications as well as a number of reasons why the procedure would be inept. Table 34 shows the division of opinions among the respondents.

The response shows a wide range of thinking. Statistically, on a basis of agree-disagree, the acceptance of the state supervisors was

TABLE 33

Degree of Acceptance of Statement 32 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	96	144	18	20	3
Agriculture teacher educators	56	18	24	7	5	2
State supervisors of industrial education	10	3	7	0	0	0
Trade and industrial teacher educators .	25	10	13	0	2	0
Vocational school administrators. . .	126	39	67	7	12	1
Employers of Kentucky area vocational school graduates. .	64	26	33	4	1	0

not significant. The acceptance of the remaining subgroups was significant at the .01 level with the exception of the vocational school administrators which was significant at the .02 level. It may be of interest to note that the state supervisors would be further removed from the

TABLE 34

Degree of Acceptance of Statement 33 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group..	281	60	113	23	71	14
Agriculture teacher educators	56	8	25	7	14	2
State supervisors of industrial education	10	3	1	1	3	2
Trade and industrial teacher educators .	25	5	13	2	4	1
Vocational school administrators. . .	126	28	44	6	39	9
Employers of Kentucky area vocational school graduates. .	64	16	30	7	11	0

action to which the subject statement refers than probably any other subgroup, yet they were the only subgroup that refused to accept the statement. The thinking reflected in the statement may not be applicable for some vocational education courses, while for others it may be the most expedient way of organizing the classes.

The statement stands as a guiding principle to be used in those courses where applicable. These courses would possibly be those where manipulative skills, as the learning to be secured, predominate.

34. *Stress should be given to individual and small-group instruction in teaching.*

Many persons in education advocate large groups in teaching-learning; others believe students learn better by individual or small-group learning. Vocational education classes have usually been smaller than general education classes, probably as a result of safety considerations, as well as the nature of the content of the course. Implications in the statement would be that the number of instructors would be greater, and more equipment would be required. This would mean larger budgets for instruction and capital outlay.

Some disadvantages that might accrue, other than taxing a teacher's time, would be the limitation of student interaction within the group thereby lessening those social learnings which many consider to be desirable. The degree of acceptance of the statement by the respondents is shown in Table 35.

The almost complete acceptance of this statement by the total

TABLE 35

Degree of Acceptance of Statement 34 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	120	140	9	3	0
Agriculture teacher educators	56	32	22	1	1	0
State supervisors of industrial education	10	4	5	0	1	0
Trade and industrial teacher educators .	25	9	15	1	0	0
Vocational school administrators. . .	126	55	68	3	0	0
Employers of Kentucky area vocational school graduates. .	64	20	39	4	1	0

group appears to be inconsistent with acceptance of statement 33 with which there was a much lower degree of acceptance. In statement 34, the group accepts wholeheartedly the idea of individual and small-group instruction.

Statement 34 should be considered definitely a principle to follow in classroom procedure.

35. *Courses in the area should be justified on the basis of satisfying needs in this order:* (A) *area needs,* (B) *state needs, and* (C) *out-of-state needs.*

This statement implies that vocational education should be concerned with training needs regardless of where the trainee will apply his skills. One of the bases on which Federal subsidy is given is that it alleviates labor shortages by causing skilled people to migrate to areas in which these shortages exist. The statement under study would imply that local needs should first be cared for, then needs in the particular state, and, lastly, needs elsewhere. Table 36 reflects the thinking of the panel of experts on the statement.

The degree of acceptance of the state supervisors was not sufficient to be significant. However, the acceptance of each of the other subgroups was significant, as well as that of the total group. This fact may result from a more "over-all" concept of the needs for skilled people which persons on the state level may have.

The acceptance by the respondents would cause the statement to become a principle to be used by vocational school administrators in

TABLE 36

Degree of Acceptance of Statement 35 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	107	149	11	11	3
Agriculture teacher educators	56	22	26	5	3	0
State supervisors of industrial education	10	4	3	0	2	1
Trade and industrial teacher educators .	25	7	14	2	1	1
Vocational school administrators. . .	126	53	67	3	3	0
Employers of Kentucky area vocational school graduates. .	64	21	39	1	2	1

considering courses which should be started and courses which should be closed to meet needs on an area, state, or local level.

36. *Because of the increase in population, vocational education must make provision for increased services.*

The statement implies that services must expand, if for no other reason, to care for more people. Some persons have been critical of increased funds to be used for vocational education. It would seem that, because of increases in population, these services must increase. The respondents agreed to the subject statement as shown in Table 37.

Acceptance to a high degree by all subgroups would indicate there should be continuous expansion of vocational education services in order to provide for the increasing population. The number of those having no opinion seems disaproportionately high when the "disagrees" are so few. On only one other statement under study was there a higher ratio. The employers with no opinion (and who disagreed) may have seen a need for apprenticeship to care for increasing occupational training needs of the increasing population.

37. *Vocational classes for in-school youth should provide for promotion on the basis of performance.*

Nearly all classes for in-school youth are set up on a semester basis and, it is feared, too many times promotion is dependent upon time spent rather than objectives attained. The statement under study would imply an "ungraded" type of promotion—the student advances as he becomes proficient in performance. It also implies more individ-

TABLE 37

Degree of Acceptance of Statement 36 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	129	130	18	4	0
Agriculture teacher educators	56	24	26	6	0	0
State supervisors of industrial education	10	7	3	0	0	0
Trade and industrial teacher educators .	25	12	12	1	0	0
Vocational school administrators. . .	126	68	52	4	2	0
Employers of Kentucky area vocational school graduates. .	64	18	37	7	2	0

ual instruction, as the enrollees advance at their own rates. It may also intimate that there will be greater interest from the brighter students who will not be detained by the slower and less frustration of the slower learners who attempt to keep pace with the brighter. Table 38 shows how the respondents accepted the statement.

The panel's extent of acceptance is high, with only five disagreements. If the principle is practiced in vocational education classes, it should not only bring about changes in teaching procedures and stu-

TABLE 38

Degree of Acceptance of Statement 37 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	94	164	18	5	0
Agriculture teacher educators	56	21	29	5	1	0
State supervisors of industrial education	10	4	6	0	0	0
Trade and industrial teacher educators .	25	11	11	3	0	0
Vocational school administrators. . .	126	39	76	8	3	0
Employers of Kentucky area vocational school graduates. .	64	19	42	2	1	0

dent benefits previously listed, but it may cause problems of scheduling for the local high-school principal when he has students who complete their vocational courses before the semester ends.

38. *All youth should develop salable skills, understandings, and attitudes that make the worker an intelligent and productive participant in economic life.*

This statement implies that all should "work." It may be work of a white-collar nature or of a blue-collar nature, but all should contribute through work. If all youth are to behave intelligently, and be productive, this would probably mean that, for most, many of these learnings should be secured during their high-school years. Provision would need to be made to meet these requirements—vocational education for those who most generally will go to work upon graduation and college preparatory curriculums for those who will enroll in institutions of higher learning. The respondents viewed the statement in the manner indicated in Table 39.

Agreement with the statement is high. The disagreements would be difficult to explain, unless the use of the word "all" has a subtle way of bringing about disagreements by some people. Application of the principle would bring a "new look" to most high-school curriculums.

39. *The comprehensive area vocational school should function as a cooperating institution with high schools in the area and should not be a competitive institution.*

TABLE 39

Degree of Acceptance of Statement 38 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	142	129	3	5	2
Agriculture teacher educators	56	33	21	1	0	1
State supervisors of industrial education	10	4	5	0	1	0
Trade and industrial teacher educators .	25	18	7	0	0	0
Vocational school administrators. . .	126	67	56	1	1	1
Employers of Kentucky area vocational school graduates. .	64	20	40	1	3	0

The comprehensive area vocational school would be a complement to, not a substitute for, the existing high school. It would give no high-school diploma but high-school credit would be given by the high schools for courses in which students enrolled. Table 40 shows the high degree of acceptance of the subject statement.

TABLE 40

Degree of Acceptance of Statement 39 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	206	65	7	3	0
Agriculture teacher educators	56	42	11	3	0	0
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	20	5	0	0	0
Vocational school administrators. . .	126	93	28	4	1	0
Employers of Kentucky area vocational school graduates. .	64	45	17	0	2	0

More of the respondents strongly agreed with statement 39 than with any other statement in the study. Thus, the panel does not see an area vocational school as a substitute for the present high school but a cooperative institution doing what the individual high school cannot adequately do.

40. *An institution which attempts to care for the occupational needs of out-of-school youth and adults should be organized so that it can admit persons with a wide range of academic training.*

This statement would imply a wide selection of courses, and programs of varying lengths. It may also imply that basic education be provided for those who need these skills so that they may profit from their occupational training. The institution would need to be versatile in its occupational training. It would need to be diversified as to occupational areas; i.e., industrial, agricultural, home economics, business, and sales. Table 41 shows the degree of acceptance of this proposal.

The panel indicates acceptance of statement 40. It is saying that a comprehensive area vocational school should be broad in its views

TABLE 41

Degree of Acceptance of Statement 40 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	114	152	5	10	0
Agriculture teacher educators	56	24	31	0	1	0
State supervisors of industrial education	10	5	5	0	0	0
Trade and industrial teacher educators .	25	15	9	1	0	0
Vocational school administrators. . .	126	57	67	0	2	0
Employers of Kentucky area vocational school graduates. .	64	13	40	4	7	0

of program and student selection. It may be noted that four of the five who had "no opinion" and seven of the 10 who disagreed were employers. However, it is significant that in the vocational school administrators group, persons who are directly associated with caring for occupational needs of people, only two disagreements were recorded.

41. *Adults enroll in vocational courses because they know what they want and they expect to learn that which they want.*

It is generally thought that adults are more decisive about their desires, probably because of more extensive experiences they have had. High school youths, lacking in experiences, are less decisive and often change their objectives during enrollment. The statement implies that adults enroll in classes for a definite purpose—to get information or skill which they seek. Table 42 shows the degree of acceptance of the statement.

The panel accepted the statement with less assurance than it had some of the previous statements under study. Percentages of disagreement of those having an opinion of each of the subgroups were: agriculture teacher educators—18 percent; state supervisors—11 percent; industrial teacher educators—18 percent; vocational school administrators—10 percent; and employers—36 percent. The employers showed the greatest doubt that adults knew what they wanted when they enrolled for occupational training. Explanations for this trend of thought are difficult to propose. Conservative thinking by this subgroup may have arisen from experiences which some may have had in

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TABLE 42

Degree of Acceptance of Statement 41 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	63	151	27	34	6
Agriculture teacher educators	56	22	18	7	8	1
State supervisors of industrial education..	10	2	6	1	1	0
Trade and industrial teacher educators .	25	6	12	3	4	0
Vocational school administrators. . .	126	25	82	8	10	1
Employers of Kentucky area vocational school graduates. .	64	8	33	8	11	4

the hiring of unskilled persons who were initially interested in learning on-the-job but who, for some reason, failed to continue in their employment. However, the extent of agreement is significant to less than the .01 level for the total group and for each subgroup; thus the statement under study may be considered a general principle.

42. *Adults are more likely to enroll in short-unit courses than in long-term courses.*

Throughout the years many vocational courses designed for adults have been organized to require two years from the starting dates for completion. Some maintain that this length of course discourages many adults from enrollment. They say that adults usually have many responsibilities which youth do not have and these pressing needs prevent them from setting aside such large blocks of time. This group would also argue that, in most cases, the large over-all occupational objective can be divided into smaller objectives which will be acceptable to most adult enrollees—the sum of these smaller objectives being the large objective. The thinking of the panel concerning this rationale is shown in Table 43.

According to the respondents' answers, they agree with the statement under study, even though a time span is not given for "short-term" or "long-term." Apparently most, if not all, of the vocational school administrators have had experience with long-term courses as well as the short-term courses. It would seem that their responses would be particularly valuable in determining the plausibility of the

TABLE 43

Degree of Acceptance of Statement 42 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	89	163	21	6	2
Agriculture teacher educators	56	22	31	3	0	0
State supervisors of industrial education	10	3	7	0	0	0
Trade and industrial teacher educators..	25	13	10	1	1	0
Vocational school administrators. . .	126	46	67	7	5	1
Employers of Kentucky area vocational school graduates. .	64	5	48	10	0	1

statement. The principle should contribute much to the thinking of those who have responsibility for organizing classes of a preparatory nature and evening-extension classes.

48. *The great mass of adult workers attending upgrading classes look to the vocational school for the technical, rather than the manipulative, side of their occupation.*

This statement presumes that workers have greater difficulty in keeping pace with informational and concept improvement than with hand-skill improvement. Supposedly, manipulative skills do not change as rapidly, nor as radically, and when such changes do occur they can generally be learned on the job. The degree of acceptance of this thinking is shown by the panel's response in Table 44.

Only on one other statement in the study was there more disagreement than on this one. Also, only one other statement drew as many "no opinions" from the respondents. This may indicate a need for further investigation by those responsible for organizing upgrading-type classes. Probably the statement is a general truth but not one which would apply to every class. For example, welding with inert gases may not be applicable. However, on the basis of agree-disagree, the acceptance is significant for the total group and for each subgroup to a level of less than .01 with the exception of the agriculture teacher educators whose acceptance was significant at the .035 level.

The subject statement may be accepted as a guiding principle with slight reservation.

TABLE 44

Degree of Acceptance of Statement 43 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	49	153	35	44	0
Agriculture teacher educators	56	6	22	13	15	0
State supervisors of industrial education	10	1	7	1	1	0
Trade and industrial teacher educators .	25	5	13	1	6	0
Vocational school administrators. . .	126	31	71	7	17	0
Employers of Kentucky area vocational school graduates. .	64	6	40	13	5	0

44. *It is increasingly difficult for the worker to keep up with what he must know and do in his work.*

Much has been said regarding changing technologies and the difficulty of obtaining persons qualified in manning modern machines and performing tasks which require particular knowledge. If the subject statement is true, it would imply that the organization of classes designed for upgrading workers should be accelerated. It may also imply the need for a constant survey and revision of course content for classes that are generally operated on a continuous basis. In addition, it has implications for increased advisory committee activity. Table 45 shows how the respondents viewed the statement.

As shown in the table the panel accepted the statement with little reservation. However, 28 percent of the employers either disagreed or had no opinion. Also in this same subgroup, there was a smaller percent of "strong agreement" than in the other subgroups.

The statement may be accepted as a guiding principle with the implications previously mentioned.

45. *Because of technological developments, the need for workers to be retrained will increase.*

This statement correlates with the three preceding statements under study. It implies an ever-increasing effort by vocational education personnel to meet these needs. It may also imply that there is no indication technological development will cease or slow down. Table 46 shows the degree of acceptance by the panel.

TABLE 45

Degree of Acceptance of Statement 44 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	82	168	12	19	0
Agriculture teacher educators	56	19	32	2	3	0
State supervisors of industrial education	10	4	5	1	0	0
Trade and industrial teacher educators .	25	11	14	0	0	0
Vocational school administrators. . .	126	42	77	2	5	0
Employers of Kentucky area vocational school graduates. .	64	6	40	7	11	0

According to 99 percent of the respondents the statement may be considered a basic truth. This truth should aid in making decisions on expansion of vocational education facilities because the tendency toward increased need for training will be greater.

46. *The occupational needs of workers are spread over many occupational areas. For example, the farmer has needs related to mechanics and marketing; the saleslady has needs related to home economics; etc.*

TABLE 46

Degree of Acceptance of Statement 45 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	146	125	7	3	0
Agriculture teacher educators	56	31	23	2	0	0
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	19	6	0	0	0
Vocational school administrators. . .	126	72	53	0	1	0
Employers of Kentucky area vocational school graduates. .	64	18	39	5	2	0

The feeling exists among some people that activities in the various areas of vocational education have been too narrow. This narrowness may have been more justified during the early years of vocational education when occupations were less complicated. The statement intimates that occupational needs are more of a conglomerate nature and cannot be "pigeon-holed" as they have been in the past. If this is a correct assumption, vocational education may need to give greater attention to the composite needs of workers. The panel's reaction to the statement is shown in Table 47.

TABLE 47

Degree of Acceptance of Statement 46 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	93	168	14	6	0
Agriculture teacher educators	56	30	23	1	2	0
State supervisors of industrial education	10	3	3	3	1	0
Trade and industrial teacher educators .	25	14	9	1	1	0
Vocational school administrators. . .	126	38	83	5	0	0
Employers of Kentucky area vocational school graduates. .	64	8	50	4	2	0

It would seem that responses by the employer group would be particularly significant, as they are closer to the labor market than are the other subgroups. Only two of the employers disagreed with the statement. The statement should be considered as a guiding principle in meeting the training needs of workers.

47. *In planning vocational education programs, we should be as concerned, perhaps more, about the needs of the individual as we are about the needs of his potential employer.*

The statement implies that the needs of these two are inseparable when considering vocational education. Two views have been taken in the past: (1) "Vocational education trains for industry," and (2) "Vocational education meets the needs of people." If the first is accepted, less emphasis may be placed on the needs of the individual than indicated in the second, which would include caring for social and personal needs. Table 48 shows how the respondents reacted to the statement.

Even though the acceptance of the total group is significant at less than the .01 level, it appears that the statement brings forth a degree of doubt among the employers. Probably more disagreement among

TABLE 48

Degree of Acceptance of Statement 47 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	87	144	15	33	2
Agriculture teacher educators	56	27	23	2	4	0
State supervisors of industrial education	10	4	6	0	0	0
Trade and industrial teacher educators .	25	10	12	1	2	0
Vocational school administrators. . .	126	39	71	5	10	1
Employers of Kentucky area vocational school graduates. .	64	7	32	7	17	1

this subgroup could have been expected as some may think of employer first and individual second.

48. *Vocational education should continue to provide related instruction to apprentices.*

This activity has been engaged in by trade and industrial education since the passage of the Smith-Hughes Act in 1917. Of the ways which this part of apprentice training may be given, most people consider that which is provided by vocational education to be the most satisfactory. In less populous areas it has been difficult for vocational education to provide this instruction. The panel seems to give wide acceptance to providing related instruction to apprentices to the extent that probably provisions should be made in all geographical areas. This acceptance is shown in Table 49.

Again, it seems significant that the employers are in high agreement with the subject statement, as these persons are the users of workers who are recipients of the instruction. Their agreement implies satisfaction with the service. Acceptance of the statement by the total group would indicate that extensive effort should be made in caring for the related instruction needs of all apprentices in all areas.

TABLE 49

Degree of Acceptance of Statement 48 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	99	159	18	5	0
Agriculture teacher educators	56	17	32	7	0	0
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	12	13	0	0	0
Vocational school administrators. . .	126	55	63	5	3	0
Employers of Kentucky area vocational school graduates. .	64	9	47	6	2	0

49. *If a vocational education program is meeting the occupational needs of people within its geographical area, its evening-class enrollment should exceed its in-school enrollment.*

This statement implies an extensive need for up-grading, retraining, preparatory, or part-time training in all areas of vocational education. The writer is of the opinion that if home economics alone were meeting the needs of its people, the evening enrollment would exceed in-school enrollment. Table 50 shows how the respondents accepted the statement.

The respondents indicated more "no opinions" on this statement than on any other of the 59 statements under study. The high amount of "no opinions" as listed by the employers might be expected as the statement was technical and their information and thought on the subject would be limited. Their acceptance was significant only to the .05 level. There is a strong possibility that many of the agriculture-teacher educators and, to some extent, the vocational-school administrators, were considering only their own fields when answering the survey instrument.

It would seem that evening classes for persons engaged in distributive and business occupations would prove to be particularly valuable. In consideration of the few who are now served in these occupations, it would appear to be highly desirable for vocational education administrators to implement such courses.

Of those having opinions, the acceptance of the agriculture-teacher

TABLE 50

Degree of Acceptance of Statement 49 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	61	113	67	38	2
Agriculture teacher educators	56	11	21	10	14	0
State supervisors of industrial education	10	5	4	1	0	0
Trade and industrial teacher educators .	25	5	12	6	1	1
Vocational school administrators... .	126	37	59	16	14	0
Employers of Kentucky area vocational school graduates. .	64	3	17	34	9	1

educators was significant at less than the .02 level. The other subgroups (except the employers) as well as the total group accepted the statement to a significance of less than the .01 level. The use of this principle in vocational education would indicate a strong evening program to meet occupational needs of out-of-school youth and adults.

50. *Vocational education is needed to provide a supplement to apprenticeship.*

There is a possibility that the statement may not have been fully understood by all respondents even though acceptance by the panel compares well with that of statement 48. The subject statement was meant to imply that vocational education would be needed as pre-apprenticeship training rather than related instruction for apprentices. Many employers have considered vocational education as a desirable prerequisite for apprenticeship; others give credit toward apprenticeship for the training received in the vocational school. Table 51 shows how the respondents accepted the premise.

Possibly the 31 "no opinions" reflect some misunderstanding of the statement as this response seems to be general in all subgroups except the state supervisors. The high degree of acceptance of the total group would indicate that the principle is of significance. It should be of particular concern to vocational educators who desire to place graduates in apprenticeable trades.

51. *The public will take advantage of vocational education services in proportion to the knowledge it has about those services.*

TABLE 51

Degree of Acceptance of Statement 50 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	68	167	31	11	4
Agriculture teacher educators	56	9	35	8	4	0
State supervisors of industrial education	10	5	4	0	0	1
Trade and industrial teacher educators .	25	6	12	6	1	0
Vocational school administrators. . .	126	40	71	9	4	2
Employers of Kentucky area vocational school graduates. .	64	8	45	8	2	1

It would seem that the truth inherent in the statement would be self-evident. However, the information the general public seems to lack about this area of education would indicate that either those who are engaged in vocational education are not aware of the need for publicity or the efforts being made to familiarize the public are ineffective. The panel indicated their acceptance of this statement, as shown in Table 52.

Agreement with the subject is highly significant. Probably of great-

TABLE 52

Degree of Acceptance of Statement 51 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	108	155	14	4	0
Agriculture teacher educators	56	18	36	2	0	0
State supervisors of industrial education	10	5	5	0	0	0
Trade and industrial teacher educators .	25	11	12	1	1	0
Vocational school administrators . .	126	58	61	4	3	0
Employers of Kentucky area vocational school graduates .	64	16	41	7	0	0

est importance is the acceptance given by the employers. This subgroup showed no negative reaction. As this is the only lay group in the survey it would seem that their answer is of particuler consequence. Persons responsible for supplying information about vocational education should be well aware of the significance of the statement.

52. *Understanding on the part of the people is vital to the continued financial support of vocational education on the local, state, and national levels.*

Vocational education enrollments are not composed of captive audiences. Students enroll because they attempt to meet their occupational needs. To the degree that people understand the meaning and purposes of the programs, they may expect to support them. The respondents accepted this reasoning, as reflected in Table 53.

TABLE 53

Degree of Acceptance of Statement 52 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	146	127	7	1	0
Agriculture teacher educators	56	37	17	2	0	0
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	15	10	0	0	0
Vocational school administrators. . .	126	75	50	0	1	0
Employers of Kentucky area vocational school graduates. .	64	13	46	5	0	0

Statement 52 (as well as statement 51) emphasizes the need for widespread understanding of vocational education. Only one respondent disagreed with the statement. If this area of education is providing a needed service and its existence depends on understanding, it would behoove those responsible to consider statement 52 as a principle which should be followed.

53. *Community understanding is vital to teacher morale and to permanence and creativity in the profession.*

This statement implies that social pressures are involved with program understanding—that people like to be associated with those

activities which are acceptable to others. Without job satisfaction teaching would be a difficult vocation for one to follow. The statement intimates that this job satisfaction is dependent upon a knowledgeable community. Table 54 shows how the panel reacted to the statement.

TABLE 54

Degree of Acceptance of Statement 53 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	117	147	16	1	0
Agriculture teacher educators	56	28	26	2	0	0
State supervisors of industrial education	10	5	5	0	0	0
Trade and industrial teacher educators .	25	14	9	2	0	0
Vocational school administrators. . .	126	51	68	6	1	0
Employers of Kentucky area vocational school graduates. .	64	19	39	6	0	0

Almost total agreement indicates that community understanding is necessary for teacher morale. This may not appear as a great discovery in itself, but it adds emphasis to the fact that understanding of vocational education is of prime importance and that such comprehension touches many aspects of the activity. If the people charged with teacher supervision want good programs of instruction, it seems they would be particularly concerned about good teacher morale and they would need to be aware of this principle that reflects community understanding as a prerequisite for morale.

54. *Interpreting the vocational school function to citizens of the area is one of the primary responsibilities of the head administrator of the school.*

This statement does not preclude functions which others may have in promoting this understanding. However, it does intimate that the head administrator has a prime responsibility in this activity, and regardless of how the activity is carried out, the duty is his. Table 55 shows how the respondents accepted this principle.

The respondents indicate a high degree of acceptance of the statement. Particularly significant are responses of the state supervisors and

TABLE 55

Degree of Acceptance of Statement 54 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	125	129	13	11	3
Agriculture teacher educators	56	24	28	1	1	2
State supervisors of industrial education	10	6	4	0	0	0
Trade and industrial teacher educators .	25	14	9	0	2	0
Vocational school administrators.....	126	63	59	0	3	1
Employers of Kentucky area vocational school graduates. .	64	18	29	12	5	0

vocational school administrators. Both of these subgroups indicate strong agreement. The state supervisors, it appears, would delegate this responsibility to the local administrators (those who would come under state supervision) and the administrators agree that the responsibility is theirs. As shown in the table, the other subgroups concur with the opinions of the state supervisors and the local administrators. It is possible that some of those who disagreed did so because of their interpretation of the statement as meaning exclusive responsibility.

55. *Vocational education activities may be carried on adequately in locations outside the vocational school center.*

To many lay persons, and some associated with vocational education, the thought of profitable programs in locations other than the vocational school itself seems impossible. Because of the belief, many schools limit their activities to those that may be conducted within the vocational school building. The statement does not limit the occupational area nor the level of training which may be engaged in. Many have believed that use of community facilities has been a means of extending vocational services to areas which school facilities could not provide. Table 56 shows the reaction of the respondents to the principle.

Agreement with the statement by the total group and all subgroups is significant at less than the .01 level, thereby establishing the statement as a principle which should be considered by those having a responsibility in organizing classes. Because the employers are farther

disagreement may also have resulted from this fact. The six disagreements (one strong disagreement) indicated by the agriculture-teacher removed from the philosophy inherent in the statement, it is possible that some misunderstanding on their part may have evolved. This possibility is reflected in 17 "no opinions." Their higher percentage of

TABLE 56
Degree of Acceptance of Statement 55 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	64	157	29	29	2
Agriculture teacher educators	56	16	30	4	5	1
State supervisors of industrial education	10	2	7	1	0	0
Trade and industrial teacher educators..	25	10	11	1	3	0
Vocational school administrators. . .	126	33	77	6	10	0
Employers of Kentucky area vocational school graduates. .	64	3	32	17	11	1

educators seem significant in consideration of the fact that much teaching of vocational agriculture takes place on the farm (outside the school).

56. *Generally, people who would not travel 25 to 30 miles to attend an evening class would attend the same class if it were held in their immediate community.*

This statement is included in the study in an effort to determine the likelihood of success of classes that might be held in remote areas.

Presently, evening classes in trade and industrial education and classes in distributive education are being held in localities away from the vocational school. In these two educational areas, success seems to be apparent. This success appears to depend entirely on whether the course meets a recognized need of the people in the particular locality. This fact would imply that coordinators should work closely with groups in the outlying sections to ascertain these needs. If vocational education is to be available to all, provision will need to be made for these extended services in all areas. There are some who believe that persons desiring training will avail themselves of it regardless of where

the classes are held. Table 57 shows the range of opinion to be rather widely distributed among the respondents.

Apparently employers have greater doubt about workers' initiative to obtain training than the the other subgroups listed in the table. The vocational school administrators also have some doubt as to the amount

TABLE 57

Degree of Acceptance of Statement 56 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	59	153	28	39	2
Agriculture teacher educators	56	15	35	4	2	0
State supervisors of industrial education	10	1	8	0	1	0
Trade and industrial teacher educators .	25	5	14	3	3	0
Vocational school administrators. . .	126	29	68	12	17	0
Employers of Kentucky area vocational school graduates. .	64	9	28	9	16	2

of effort people will expend in upgrading themselves or learning new occupational skills. However, even with the disagreements shown in the table, the total group and all subgroups accepted significantly to a level of less than .01. The acceptance of the principle should cause vocational school coordinators to look beyond the confines of their own buildings to provide courses for persons living within 30 miles of the vocational school.

57. *Probably all communities have individuals who are interested in the promotion of vocational education activities of a given kind in that particular community.*

This statement implies that interest in the promotion of vocational education may be widespread. Acceptance of this statement would have many implications for advisory committees (both craft and administrative), publicity, public relations, student recruitment, and occupational surveys. The statement also contains implications that people are more interested in their own community than they are in areas outside their environs. Table 58 shows the degree of acceptance of this statement by the panel.

TABLE 58

Degree of Acceptance of Statement 57 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	61	202	16	2	0
Agriculture teacher educators	56	13	41	2	0	0
State supervisors of industrial education	10	2	8	0	0	0
Trade and industrial teacher educators .	25	9	15	1	0	0
Vocational school administrators. . .	126	32	89	5	0	0
Employers of Kentucky area vocational school graduates. .	64	5	49	8	2	0

Almost complete agreement (16 "no opinions") with the statement makes the principle highly significant for vocational school administrators who are responsible for area programs. The administrators themselves voice no disagreement with the statement, only five having no opinion. With the knowledge that there is interest in vocational education in all communities, administrators should envision vocational education horizons as extending far beyond their immediate buildings.

58. *Vocational education should use the services of other agencies in attaining its objectives.*

Not until the past few years did vocational education in Kentucky make much use of other agencies in attaining its objectives. Some personnel in the vocational schools and departments have availed themselves of aptitude tests which are provided by the Department of Economic Security, but other than this service, most cooperation has been "legislated" through the Area Redevelopment Act and the Manpower Development and Training Act. The statement implies that the ends justify the means. The statement and apparent implications are accepted by the respondents, as shown in Table 59.

The few "no opinions" and "disagrees" indicates almost complete acceptance of the statement as a principle to be followed by persons in vocational education in attaining the objectives of this area of education. It may be of interest to note that the employers, who usually have been the most conservative in accepting the statements under study, show no disagreement and only five had no opinion.

59. *Vocational education should not encroach upon the activities of other agencies unless such agencies are not meeting the occupational needs which vocational education may effectively meet.*

This statement is the only negative statement in the sixty statements being studied. It asserts that there should be no encroachment upon the prerogatives of others unless these other agencies are not

TABLE 59

Degree of Acceptance of Statement 58 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	130	142	6	3	0
Agriculture teacher educators	56	40	15	0	1	0
State supervisors of industrial education	10	4	6	0	0	0
Trade and industrial teacher educators .	25	16	9	0	0	0
Vocational school administrators. . .	126	61	62	1	2	0
Employers of Kentucky area vocational school graduates. .	64	9	50	5	0	0

attaining their objectives. The thinking of some vocational educators might be that they would have competition from outside groups in the training field if they (educators) invaded the services areas of these outside groups. The question could be raised as to how sacred the rights of others are if the service needs to be rendered and is not being cared for. Table 60 shows how the respondents accepted the statement. In light of the number who had no opinion and the number who showed disagreement, the statement appears to have caused some consternation in the minds of the respondents. Those who disagreed with the statement are saying that vocational education should invade the prerogatives of other agencies, whether or not their objectives were being met; those who agree would not invade unless the other groups were not meeting the objectives which vocational education could meet.

Agreement by the state supervisors was less than for other subgroups but was still significant to the .04 level, and therefore the statement can be accepted as a principle as far as this group is concerned.

The thinking of this group may be influenced by the desire to get the job done regardless of others' prerogatives. All other subgroups, as well as the total group, agreed with the statement at a significance of less than the .01 level. Even though the agreement of the state supervisors was statistically less acceptable, the acceptance of all other subgroups and of the total group was such that the statement may be accepted as a general principle.

TABLE 60

Degree of Acceptance of Statement 59 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	47	168	24	35	7
Agriculture teacher educators	56	11	35	5	4	1
State supervisors of industrial education	10	3	4	2	1	0
Trade and industrial teacher educators .	25	5	13	3	3	1
Vocational school administrators. . .	126	23	77	8	14	4
Employers of Kentucky area vocational school graduates. .	64	5	39	6	13	1

60. *Vocational school personnel should work closely with labor and management, social services, philanthropic, governmental and other appropriate agencies.*

This statement correlates closely with statement 58. It varies in that vocational education may be expected to aid other agencies in attaining their objectives, whereas statement 58 implies that vocational education should use other groups to attain its goals. The cooperation of agencies seems to be more pronounced in recent years as attempts are made to alleviate substandard economic and social problems through increased employment. Table 61 shows how the panel accepted this statement.

There was complete agreement (except two "no opinions") among all respondents who were associated with vocational education. This apparent desire by vocational educators for the solution of mutual problems and for cooperation with agencies and groups to attain their objectives would appear to aid vocational education in attaining

its goals, both directly and indirectly—directly through screening, selection, and placement of its graduates, and indirectly through publicity and public relations.

TABLE 61

Degree of Acceptance of Statement 60 by Total Group and Subgroups

Group	Number Responding	Response				
		Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
Total group	281	140	131	7	3	0
Agriculture teacher educators	56	22	34	0	0	0
State supervisors of industrial education	10	4	6	0	0	0
Trade and industrial teacher educators .	25	17	8	0	0	0
Vocational school administrators. . .	126	71	53	2	0	0
Employers of Kentucky area vocational school graduates. .	64	26	30	5	3	0

Chapter III

A STRUCTURE FOR MEETING OCCUPATIONAL NEEDS BASED ON ACCEPTED PRINCIPLES

The purpose of this chapter is to propose a design for a local organization of vocational education which will adequately meet the occupational needs of youth and adults. A previous chapter points up considerations that must be given to this organization if it is to care for changing socio-economic conditions, varied occupational interests, and highly mobile populations. Apparently certain definite principles may be used in developing an effective structure. They are listed and briefly discussed in Chapter II. If these factors—changing conditions, occupational interests, scattered populations and definitely recognized principles—can be made to coincide in such a manner that the structure could be reasonably managed, then vocational education will have progressed with the times and society will have profited.

Public institutions are creations of the people to serve the people. They are efficient to the degree that services are provided in the most adequate and successful manner with the least expense. Boards of education have used this thinking in providing secondary schools that make available a greater number of services for more boys and girls. Generally they have been able to provide these enriched programs of education by eliminating smaller school units and incorporating them into larger, comprehensive schools.

Using this same philosophy, it seems reasonable to assume that the vocational education needs of people may be more efficiently served in a similar manner. By bringing more people together, program enrichment may be more efficiently attained. This enrichment should not be limited to caring fcr narrow occupational needs but should spread over the various vocational services. Parts of Chapter I have pointed out that the occupational needs of people are not limited to one-service areas. An institution designed to meet these needs must be comprehensive in nature, and, in most sections of Kentucky, it must provide services over a multi-county area in order to have sufficient school enrollment. It might be termed a *comprehensive .rea vocational school.*

This study does not propose to say how funds shall be provided or allocated, nor the action which might need to be taken to alter existing school legislation so that a different type of institution might be made possible. These things may be considered as problems for future research. However, as this proposal is viewed by the writer, few if any

changes in legislation would need to be made. Additional funds might be helpful.

It should be emphasized that the guidelines which are projected are not all-inclusive, but should be considered as basic. Many duties, responsibilities, and activities necessary to successful vocational school operation will need to be executed. Omission of reference to these necessary activities in this writing should not be considered by the reader as indicating that they are practices at which the researcher looks askance nor which he advocates discontinuing.

In an effort to place reasonable boundaries in projecting an efficient institution, the following aspects will be discussed: (1) administration, (2) supervision, (3) advisory services, (4) guidance and counseling, (5) course offerings, (6) in-school youth, (7) out-of-school youth and adults, (8) part-time and evening training, (9) public relations, (10) cooperating agencies, and (11) organization.

The accepted principles upon which the rationale for each of these aspects is based is listed in italics following the topic headings.

Administration

1. *The administrative head of an area-type school should be responsible to a higher administrative group.*
2. *The administrative head may delegate authority to his assistants commensurate with the responsibility he gives them.*
3. *The administration of the school should be kept close to the people.*
4. *The administration of vocational education will be efficient in proportion as it is elastic and fluid rather than rigid and standardized.*
5. *Only a person who has had considerable experience in at least one of the vocational fields should be appointed head of a comprehensive area vocational school.*
6. *At least one member of the State Department of Education representing vocational education should be included in any area group which may have administrative functions in an area vocational school program.*
7. *The genuine concern of people for vocational education will be in proportion to their understanding of its objectives and services.*
8. *The head administrator of a vocational school should be totally responsible for all activities in the institution.*
9. *Vocational education programs should be provided wherever there is a need to train youth and adults for jobs that exist.*
10. *Head administrators of comprehensive area vocational schools should have had special training in administration.*

The administrative head of an area-type school should be responsible to the people. It seems only natural that individuals have greater concern for those activities in which they have a part. One of the principles which was previously concurred with was, "People eventually make greater use of their schools where there is an orderly arrangement for citizen participation in planning."

The administrative head of an area-type school should be responsible to a higher administrative group. It is likely that the problems of finance and adequate facilities would be fewer if this administrative group were the State Board of Education. However, this board (through its representatives) should not administer without advice and consultation with a group selected from the area. Representatives from the State and area levels should work cooperatively for a strong program. Members of this total group would meet quarterly, or more often if conditions dictate, to discuss policy and make broad, over-all decisions (subject to State board approval) concerning the welfare of the school. They would act much in the capacity of a board of directors of a business enterprise, for indeed a comprehensive area vocational school would be a business enterprise.

The group should do much to aid in bringing about understanding of the objectives and services of vocational education. Genuine concern for this phase of education will be in proportion to these understandings. People cannot be expected to have a concern for something about which they do not know. It is felt that present understandings about vocational education leave much to be desired.

The operation of an area vocational school is a business. It does not produce a concrete commodity but its objective is no less certain. Persons who have responsibilities for administering this business, if they are to be successful, must follow good administrative practices. The time seems to have passed when administrators must perform petty office operations or sweep classrooms. Their working day, however long, must be used in administrative functions. The administrator should delegate responsibilities to his subordinates and, at the same time, give them the authority to carry out these responsibilities.

The administrator should guard against being victimized by standardization and rigidity. He must be continuously aware of changing occupational needs and permit his actions to be elastic and fluid in meeting these needs. The practices should be kept pliable by the use of the administrative advisory group. The State Board of Education should make advisory committee meetings required activities of the head administrator.

The head administrator should have total responsibility for all activities in his program of vocational education. He cannot delegate

away his responsibilities. This is not to say that he, personally, will perform all the duties that are to be performed. The good administrator will delegate and have an accounting from those to whom this delegation is made. His duties will consist of program interpretation, planning, organizing, staffing, directing, coordinating, reporting, and budgeting.

A person who occupies this position in the comprehenisve area vocational school should be one who has had considerable experience in at least one of the vocational services. He must be imbued with a sound philosophy of vocational education. He cannot lead a cause of which his understanding, sympathy, and vision are not a part. But experience in, and worthwhile philosophy about, vocational education are not in themselves sufficient for the administrator. He must have had special administrative preparation for this position. This training may be a period of time in which the individual may act as understudy to a competent administrator, or it may have been formal training in administration. One has little chance of successful administrating a comprehensive area vocational school if he knows nothing of recognized administrative procedures.

He should work cooperatively with the State supervisors of the various vocational education services as he initiates and carries on courses in agricultural, home economics, distributive, industrial, and business education.

Supervision

11. *Provision should be made for supervision of the instructional program of the school.*
12. *The function of supervision is concerned with program development and improvement.*
13. *Continued teacher development is a necessary part of program development.*
14. *Supervision is an accepted responsibility of school administration.*
15. *The competent worker, as a potential teacher, is not aware of the content of his occupation, nor is he generally able to develop courses of study from it.*

Provision should be made for supervision of the instructional program. Even though the head administrator has indirect responsibility for supervision, it is probable that he cannot include this task in his schedule of work. This job must be delegated to persons competent in supervision. They must be as concerned with the improvement of instruction as the head administrator is concerned with administration. It is likely that the supervision may fall to those who must perform

other duties. This person may be called a principal, assistant director, coordinator, or some other such title, but the responsibility for supervision must remain clear.

Teacher development is of particular concern for those new teachers who may not have had professional training. Many are not aware of the actual content of their occupations, nor are they generally able to develop courses of study. If there is a concern for program development, there must be a concern for continuous teacher growth. These two aspects are interdependent.

Occasions will probably arise when the principal or supervisor will need the aid of experts in particular fields. He should not assume a position of expertness in all areas, for indeed he will not be an expert in all areas. His function will be one of program development and improvement. The first step in bringing these things about may be the recognition of his own inadequacies and the request for help on special problems.

Advisory services

16. *Every vocational school administrator should make use of a formal administrative committee.*

    (Statement 17 was rejected by the panel.)

18. *Advisory committees should be used for each of the vocational course offerings.*
19. *The State Department should be more advisory than administrative in its actions within an area school.*
20. *People eventually make greater use of their schools where there is an orderly arrangement for citizens to participate in planning.*
21. *The adequacy and effectiveness of programs of vocational education are contingent upon the degree of citizen cooperation and participation in planning and evaluation.*
22. *A counselor must be concerned with aspects of the student that are outside his vocational education needs.*

Possessiveness must never become a characteristic of vocational school personnel. The tendency for school people to believe that schools were made for them seems to be all too prevalent. Vocational education cannot continue to exist if it does not meet the needs of people. The knowledge of these needs can be greater if persons for whom the school is designed can be brought in for advice and planning. Advisory committees should be mandatory, both on the administrative level (already discussed) and at the teaching level. For every different course that is offered in the comprehensive area vocational

school there should be a group with which the teacher and his superior may counsel so as to provide an efficient program of instruction. The types of persons composing these committees are already well known to vocational education personnel.

The old axiom, "Two heads are better than one" holds true in the use of these groups. It is necessary, however, that all members of all types of advisory committees know their duties and limitations in rendering their services.

It is possible that the administrator may think that advisory committee meetings consume too much of his time. But *this* is his job. He not only receives advice but he interprets programs to others in the same meetings. He explains his objectives, he answers questions, and he makes half truths whole. Possibly the major portion of the administrator's time should be spent in program interpretation.

Guidance and counseling

23. *In each school someone should coordinate all the various guidance activities and furnish leadership in improving guidance activities.*
24. *Effective vocational education for any profession, calling, trade, occupation, or job can only be given to the selected group of individuals who need it, want it, and are able to profit by it.*
25. *Vocational education will be effective in proportion to the degree that it enables each individual to utilize his interests, aptitudes, and intelligence to the highest possible degree.*
26. *The fact that a youth of the smaller community goes elsewhere to pursue an occupation should not deprive him of help in selecting it intelligently, of training for it, or of aid in securing employment in it.*
27. *In every community there are youths and adults out of school who need vocational guidance as much as or perhaps more than those still in school.*
28. *Class personnel should make tentative occupational choices on the basis of their interests, capacities, and requirements of the occupations.*

Every comprehensive area vocational school should have on its staff a person qualified in guidance and counseling.

His services should be available to youths and adults out of school as well as those in the area school. These persons need vocational guidance as much as those enrolled in courses in school.

Vocational education will be effective to the degree that it enables

each individual to capitalize on his interests, aptitudes, and intelligence. Usually the potential enrollee and school personnel must know what these attributes are if the student is to receive the optimum benefits from his enrollment.

In most small communities of Kentucky, youth have never had professional guidance services. When many reach employment age they tend to migrate to areas of employment opportunities only to encounter difficulties of a social as well as economic nature. The fact that a youth of the smaller community goes elsewhere to pursue an occupation should not deprive him of help in selecting it intelligently, of training for it, or of aid in securing employment in it.

Education, for any specific vocation, can be effective only for that selected group of individuals who need it, want it, and can profit by it. If these persons must be able to profit to an acceptable degree, there must be some means of determining who they are. They attempt to make vocational choices based on their capacities and requirements of the occupation. Most are unaware of their true capacities as well as requirements of the job. The discovery of this information would do much toward bringing success to the individual as well as make vocational education efficacious in its efforts to serve the person.

Course offerings

29. *Specialists should be held responsible for special areas of instruction.*
30. *Provision should be made in the area school to take care of the basic educational needs of people so that they may profit from the vocational training requiring those basic skills.*
31. *Vocational education will render efficient social service in proportion to how well it meets the specific training needs of any group at the time they need it and to the extent it is given in such a way that they can most effectively profit from the instruction.*
32. *For every occupation there is a minimum of productive ability which an individual must possess in order to secure (and retain) employment in that occupation. If vocational education is not carried to that point with the individual, it is not effective.*
33. *A school designed to meet the occupational needs of people should be so organized and conducted that it is able to admit capable applicants at any time class vacancies may exist.*
34. *Stress should be given to individual and small group instruction in teaching.*
35. *Courses in the area school should be justified on the basis of*

satisfying needs in this order: (1) *area needs*, (2) *state needs*, (3) *out-of-state needs.*

36. *Because of the increase in population, vocational education must make provision for increased services.*

Courses in the comprehensive area school should not be limited to satisfying the employment needs of its specific area. Because of the high mobility of people in Kentucky, specifically, and of labor, in general, it would seem be a waste of human resources to make such limitation. One of the prime purposes of vocational education is to meet the needs of industry, but a more important purpose is to meet the needs of *people* for industry.

Many will enroll in the comprehensive school who are deficient in education that is necessary for success in the occupations for which they wish to prepare. This education may be limited to reading, writing, or arithmetic, but may include physics, algebra, or trigonometry. These subjects are as necessary to the electronic technician as some of the basic subjects are to a less technical occupation. However, all such courses should be taught with the occupational objective in mind —they should not become major objectives. The inclusion of these courses may necessitate specialists in certain fields.

It is not visualized that the institution would award degrees or provide courses designed for transfer to institutions of higher learning. The courses should be terminal. The school should concern itself with meeting current occupational needs of people. It should consider its placement record as one of the principle criteria for its evaluation.

Flexibility is as necessary in course offerings and class management as it is in administration. All persons associated with vocational education should recognize that vocational classes are only for meeting the needs of people and not for administrative or teacher conveniences. Vocational education will render social service in proportion to how well it meets the needs of any group at the time they need it, and to the extent it is given in such a way that they can most effectively profit from it. This means that courses may open or close at any time during the day or year.

For courses of a continous nature, the school should be organized to accept enrollees at any time class vacancies may exist. This would apply particularly to those classes less technical in nature. The applicant for enrollment should not need to wait until a new semester begins before he is permitted to enroll. He should be allowed to proceed in his course as rapidly as his ability and initiative permits. The time for completion of the courses would thus vary according to the individuals' capabilities in achieving the objectives of the course and

not depend upon a definite time length. For every occupation there is a minimum of productive ability which a person must possess in order to secure and retain employment. If vocational education is not carried to that point with the individual, it is not effective. Setting time limits for enrollment does not assure this proficiency.

Intermittant enrollment will necessitate individual and small-group instruction. It will make real the theory of caring for individual differences and will allow the enrollee to begin training at the earliest possible time. The practice may cause some administrative and teacher problems, but it will likewise solve problems of the need for excessive equipment and of flooding the labor market with school graduates at regular intervals.

In-school youth

37. *Vocational classes for in-school youth should provide for promotion on a basis of performance.*
38. *All youth need to develop salable skills, understandings, and attitudes that make the worker an intelligent and productive participant in economic life.*
39. *The comprehensive area vocational school should function as a cooperative institution with high schools in the area and should not be a competitive institution.*

The comprehensive area vocational school should function as a cooperating institution with high schools in the area; it should not be a competitive institution. It should encourage high-school graduation for all youth. It should supplement their curriculums. Where vocational education classes are effectively provided in the high school, the area school should not provide duplicate facilities. However, in areas where single high schools cannot effectively provide facilities or enroll enough students, the area vocational school should make such provisions and enroll these in-school students for that particular part of the school day. The students' transportation would be provided by the local board of education to which the high school is responsible. Financing for these courses would be by contractual arrangement between the local boards involved and the administration board of the area school.

At present it would appear that no provision would need to be made for home-making classes for in-school youth. For high-school boys desiring vocational agriculture and for business and distributive education the need would exist in some places in the State. For those desiring vocational-industrial training the need would be extensive.

All youth need to develop salable skills and the understandings

and attitudes that make the worker a productive participant in economic life. This does not mean that the total high-school enrollment should be or become students in vocational education classes. It would seem that those responsible for formal guidance in both institutions might consider such philosophy as they work for the benefits of those to whom they render service.

Out-of-school youth and adults

40. *An institution which attempts to care for the occupational needs of out-of-school youth and adults should be organized so that it can receive applicants with a wide range of academic training.*
41. *Adults enroll in vocational courses because they know what they want and they expect to learn that which they want.*
42. *Adults are more likely to enroll in short-unit classes than in long-term courses.*
43. *The great mass of adult workers attending upgrading classes look to the vocational school for the technical rather than the manipulative side of their occupation.*
44. It is *increasingly difficult for the worker to keep up with what he must know and do in his work.*
45. *Because of technological developments the need for workers to be retrained will increase.*
46. *The occupational needs of workers are spread over many occupational areas. For example, the farmer has needs relative to mechanics and marketing; the industrial worker has needs relative to business education; the saleslady has needs related to home economics; etc.*
47. *In planning vocational education programs, we should be as concerned, perhaps more, about the needs of the individual as we are about the needs of his potential employer.*

The comprehensive area vocational school should service primarily out-of-school youth and adults. It should offer opportunities for training in a wide range of occupations. It should care for the occupational needs of the people with varied academic background. Kentucky people have such backgrounds. It should not hesitate to offer courses in the more menial occupations or those of a more exotic nature, if such courses are needed.

The training needs of workers are spread over many occupational areas. For example, the farmer has needs in mechanics and marketing, as well as in soils and crop and animal production; the industrial worker has needs in business education; and the saleslady has needs in

home economics. The projected area school should be efficient in caring for the total needs. The crossing of the vocational service lines should be no problem in meeting these needs. The school should serve the total vocational needs of people, not just the industrial need, or agricultural need, or home economics need. Indeed, the institution should be associated with no particular service, but with vocational education. A farmer may be enrolled in an upgrading-type class in welding; an auto mechanic student may be enrolled in a course in bookkeeping; part of a distributive education student's curriculum may consist of a course in interior decoration.

In planning programs for the student, the individual's needs should be of as much concern as the needs of his potential employer. Surely, he should be capable of performing the skills expected of him, but his attitudes about the job, organized labor, management, democracy, honesty, diligence, cleanliness, regard for his fellow man, and a host of other things will cause him to succeed or fail in his endeavors. His pursuits in the area school should provide for development of attitudes.

Adults enroll in vocational courses because they know what they want and they expect to learn that which they want. They are usually more certain in their objectives than are in-school youth. Because of more responsibilities, they usually are in a greater hurry to complete courses of training. Many will hesitate to obligate themselves for long periods of training—not because they are not cognizant of its value but because of pressing responsibilities. To the extent possible, the comprehensive area vocational school should organize its courses on a short-unit basis. Instead of one course of 1,000 hours, the course likely can be divided into shorter units, the total of which would equate the over-all course.

It is increasingly difficult for the worker to keep up in what he must know and do in his work—mostly with what he must know. This should have implications for persons whose responsibility it is for organizing upgrading types of classes. They should, generally, be classes involving the technical or informational rather than the manipulative phases of the occupation.

Because of technological development, the need for workers to be retrained will increase. The working years of some craftsmen will be greatly diminished because the craft itself will disappear. This retraining activity will need to occur at the convenience of the worker—most likely at night. The night program for preparatory training in the comprehensive area vocational school should be as extensive as the day program. As the nature of retraining is preparatory, it seems that few if any problems would be met in also enrolling potential threshold workers in courses designed for displaced workers.

Part-time and evening training

48. *Vocational education should continue to provide related instruction to apprentices.*
49. *If a vocational education program is meeting the occupational needs of people within its assigned geographical area, its evening class enrollment should exceed its in-school enrollment.*
50. *Vocational education is needed to supplement apprenticeship.*
55. *Vocational education activities may be carried on adequately in locations outside the vocational school center.*
56. *Generally, people who would not travel 25 to 30 miles to attend class would attend the same class if it were held in their immediate community.*
57. *Probably all communities have individuals who are interested in the promotion of vocational education activities of a given kind in that particular community.*

Enrollment in courses for up-grading workers (including homemakers) should exceed preparatory enrollments. The projected school should be responsible for providing the evening classes which are not otherwise provided throughout its assigned multi-county area. This should include all vocational service areas. Coordinators from the comprehensive school should work closely with vocational teachers associated with high schools in the area in determining course needs and promotion and obtaining instructors for such classes.

Vocational education activities may be carried on adequately outside the vocational school center. Many people who would not, or could not, travel 25 to 30 miles to attend an evening class would attend the same class if it were held in their immediate community.

Coordinators should make special efforts to provide related instruction for apprentices in the remote locations in the area. As the Bureau of Apprenticeship has looked particularly to vocational education for this instruction, provision of instructional material through itinerant visitation may be necessary.

Others from whom coordinators may receive assistance in away-from-school programs are those particularly concerned individuals who seem to reside in all communities and who are interested in the promotion of vocational education activities of a particular type. These persons are usually associated with organized labor, management, farm, sales, or homemaking groups.

Public relations

51. *The public will take advantage of vocational education services in proportion to the knowledge it has about those services.*

52. *Understanding on the part of people is vital to the continued financial support of vocational education on the local, state, and national levels.*
53. *Community understanding is vital to teacher morale and to permanence and creativity in the profession.*
54. *Interpreting the vocational school function to citizens of the area is one of the primary responsibilities of the head administrator of the school.*

The public will take advantage of vocational education services in proportion to the knowledge it has of those services. People cannot act on something with which they are not familiar. This being true, it would seem that no effort should be spared in interpreting the philosophy, objectives, and actions of vocational education in general and the area school in particular. This understanding is vital to the continued financial support and use of the school.

Of all the elements that make a sound program of education, probably the most important is good teachers. Instructors in the vocational school must be competent in what they teach and proficient in method in teaching it. The school must attract capable people. To do this, it must have an image that will bring about this attraction. The community must perceive the school as a desirable institution with which a person would desire to be associated. This perception is vital to the morale of the teachers already associated with the school. The high retention of good instructors is probably closely correlated with a desirable school image.

The task of interpreting the functions of the vocational school to citizens of the area should be one of the primary responsibilities of the head administrator. Even though some delegation of this duty may be in order, he should accept the larger portion of this responsibility as his obligation.

Cooperating agencies

58. *Vocational education should use the services of other agencies in attaining its objectives.*
59. *Vocational education should not encroach upon the activities of other agencies unless such agencies are not meeting the occupational needs which vocational education may effectively meet.*
60. *Vocational school personnel should work closely with labor, management, social services, philanthropic, governmental and other appropriate agencies.*

Personnel in vocational education should work closely with other agencies in attaining the objectives of vocational education. Many of

these groups have much to offer, and it seems only reasonable that such organizations be used if the over-all program can be efficiently implemented. The head administrator should use discretion in working with these groups lest he tend to encroach upon others' "domains" or prerogatives. However, if such other agencies are inactive or ineffective in meeting those occupational needs which vocational education may effectively meet, consideration should be given to implementing these needs.

Organization

It is believed that the basic guidelines have been presented by which an efficient program of vocational education can best be provided at the local level. They have not been drawn in detail; such minuteness seems to be unnecessary. In order that the reader may have a clearer concept of the proposed organization, Figure 1 shows an organization chart which reveals various positions and their relationships. This structure implements the principles of vocational education which the panel of experts agreed to be sound. It will also provide a means of meeting the more heterogeneous training needs of workers engaged in a rapidly changing society.

Some Advantages of the Institution

The comprehensive area vocational school offers some unique advantages. The enrichment in program whereby students would be instructed in courses directly related to their principal occupational courses was mentioned in the introductory statements of this chapter. However, it seems that aspects of this enrichment should be pointed out more specifically. Some examples would be providing welding in an adequately equipped welding shop for persons enrolled in agriculture courses (in-school students, young or adult farmers), and courses in sales training (distributive education) and bookkeeping (business education) for students enrolled in curriculums of an industrial nature, who may in time manage their own businesses. Examples would be numerous where program enrichment would more adequately meet the occupational training needs of people.

The projected school would make available services which could not be provided otherwise. This would be true for both in-school and out-of-school students. Courses which could not be justified in a local high school because of lack of funds or enough students could be provided in the area school by enrolling students from two or more surrounding high schools, thereby enabling the operation of a justifiable course.

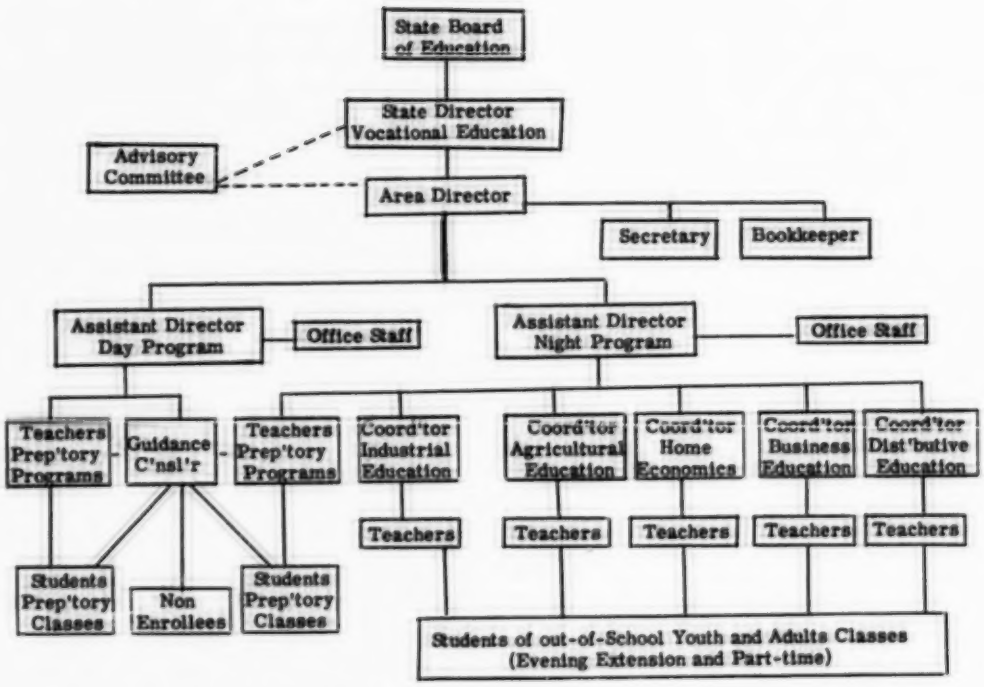

Fig. 1.—Organization Chart for A Comprehensive Area Vocational School.

More technical courses for out-of-school youth and adults may better be made available to persons in a larger area than in a small locality. This is particularly true of those sections of the State which are not metropolitan. For example, it would probably be impractical, perhaps impossible, to provide adequate facilities for a course for teaching electronic technicians on a single county or small-area basis. The cost would be too great, and capable enrollees too few.

Specialists in various fields would be available because of sufficient class enrollments provided from the larger geographical area. For example, in agriculture, specialists in weed control, livestock feeding, artificial insemination, crop diseases, or livestock diseases could be had. In home economics, specialists in interior decoration, nutrition, or child care may be provided.

Greater opportunities may be provided for adequate supervision and in-service training of teachers. The ease and probable efficiency of those activities would, to a large degree, depend on the teachers' proximity to each other. Teachers have many problems. It has been found that many of these difficulties can be alleviated through the aid which itinerant teacher educators may provide while they are engaged in their teaching. This "over the shoulder" aid may also be supplemented by extension classes designed for upgrading the teacher. Prosser and Quigley describe the affort in this way:

> The most successful teacher training for vocational teachers in the day schools has unquestionably been secured by the extension method and the use of the itinerant teacher trainer. Traveling from one community to another he gives training after working hours to prospective teachers already occupationally competent and to those already employed as novices in the teaching service of vocational schools.[1]

Greater efficency in initiating upgrading-type classes for all workers may be obtained by coordinators working from the area school than by the teachers who have full-time teaching responsibilities at local high schools. Cooperation of the local teacher and the coordinator should be instrumental in increasing enrollment many-fold in adult classes of agriculture, business education, distributive education, home economics, and industrial education. Persons who are particularly proficient in certain subjects may be engaged to teach evening classes in locations outside their own immediate environs. Coordinated efforts guided by a single administrative unit in a multi-county area would do much to alleviate the occupational training needs of workers in that area.

Vocational guidance for out-of-school youth and adults would provide a service not now provided by any other type of school. The need for this service is not diminished by the fact that these people are not formally associated with school activities. Their needs are probably greater.

---

[1] Prosser and Quigley, *op. cit.*, pp. 308-309.

specialties are to be needed—or not needed—in our free (which means *unplanned*) society a decade or so from now, we could really get down to the fine points of producing an educational program to support the highly efficient technology we can in general terms see as an emerging possibility. The problem is just that simple.

Another solution, of course, would be to *assign* particular specialties to particular human beings, then assign matching quotas of jobs to produce the matching quotas of goods to satisfy the necessarily matched taste quotas of society. Too many individuals, however, object to such definite quota assignments.

The viewpoint proposed here, and supported in the study reported here, is that *general* and *vocational* education should be of the same piece of cloth, that we have a try at educating people who have at least a modicum (and we should work for more) of both the far and the close perspectives, who have a specialty but see it in relation to the broad needs of society, and who realize that change is inevitable and that shifts in specialty are the rule and not the exception. In other words, people in vocational education are arguing that all education is "vocational," and vice versa. Some of us hold that such talk makes a lot of sense.

And if it does—well, the time has come to be rid of the dichotomy of *general* versus *vocational* education. The time is for both general and vocational education to be done better, both of them!—or, better still, for them to be regarded as *one* and done better!

PAUL STREET

VT 000 084

VT 000 084

Technical Need Study - Vermilion County, Illinois.

Murphy, Christy A. * and others

Illinois Univ., Urbana. Coll. of Engineering

Danville Unit School District 118, Illinois

Illinois State Board of Vocat Educ and Rehab, Springfield

May64

DOCUMENT NOT AVAILABLE FROM EDRS 109p.

*TECHNICAL OCCUPATIONS, *EMPLOYMENT OPPORTUNITIES, EMPLOYMENT TRENDS, JOB SKILLS, *EMPLOYERS, OCCUPATIONAL SURVEYS, *OPINIONS, QUESTIONNAIRES, *EDUCATIONAL NEEDS, TECHNICIANS, TECHNICAL EDUCATION,

Vermilion County, Illinois,

Technician need in this study includes determination of the need for technicians of Vermilion County industries and the qualifications the technicians must have to meet the demands of the industries. There were 262 firms within the county that were potential employers of technicians, and 80 of them employed 512 technicians. An interview form was used to gather information from 80 employers. Of the 512 technicians contacted, 344 returned questionnaires. The findings disclosed that employers were interested in both a local supply of trained technicians and an opportunity for employed technicians to improve their educational qualifications. The majority were operating some sort of training programs and were hiring technicians who had been trained outside the county. The mean salary of technicians who had attended high schools outside Vermilion County was $907 higher than of those who had attended high schools within the county. To meet demands for new personnel between 1963 and 1968 it would be necessary for a technical school to have enrollments of 100-120 in mechanical, 50-60 in electrical-electronic, and 30-40 in chemical technology. Comparison of employers and technicians responses showed -- (1) Both groups felt mathematics, English, and speech were very important to the technicians, and (2) Technicians considered themselves adequate in these subjects, while employers felt they were inadequate. (PA)

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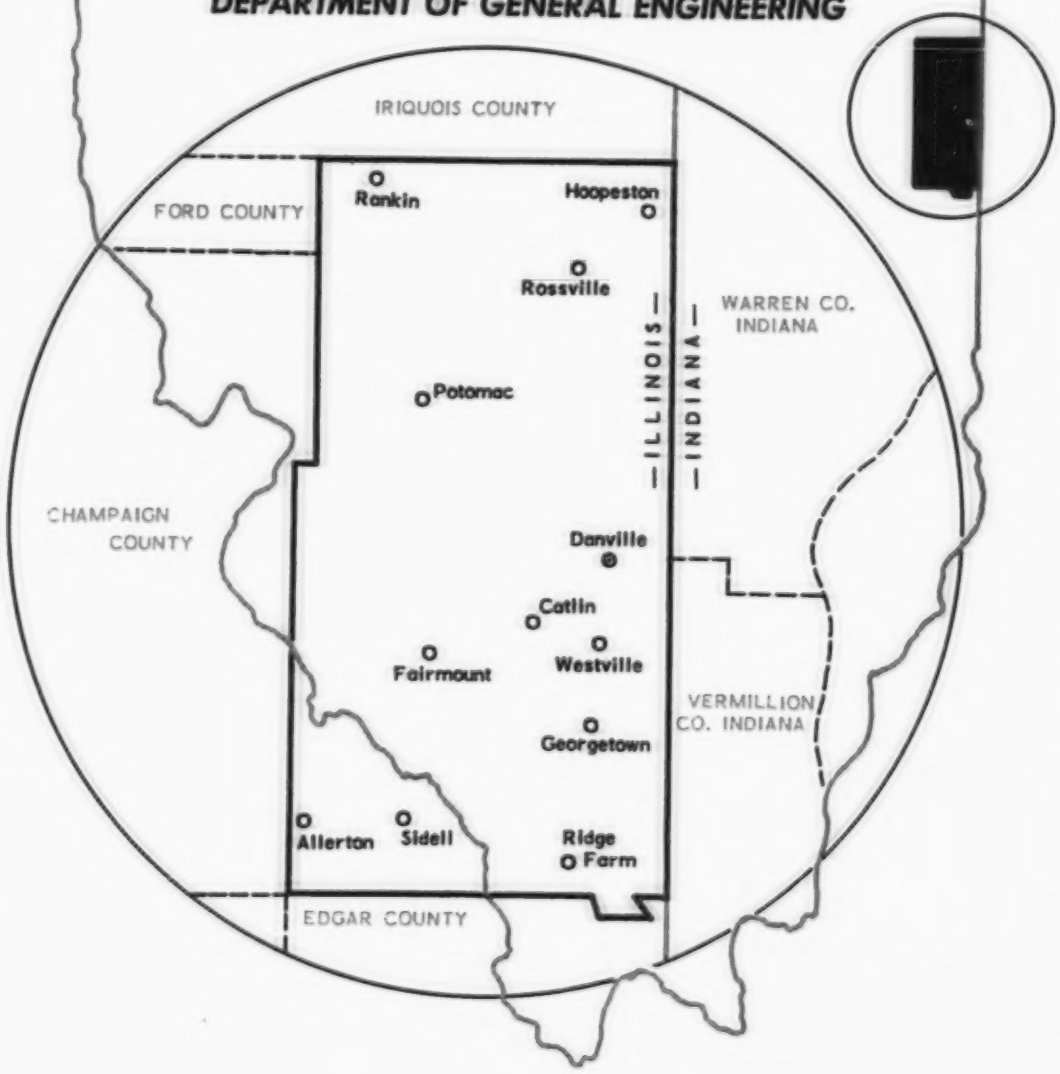
TECHNICIAN NEED STUDY: VERMILION COUNTY, ILLINOIS

a study conducted by
THE UNIVERSITY OF ILLINOIS
in cooperation with
UNIT SCHOOL DISTRICT #118, DANVILLE, ILLINOIS
supported by the
ILLINOIS STATE BOARD OF VOCATIONAL EDUCATION AND REHABILITATION

CHRISTY A. MURPHY

DEPARTMENT OF GENERAL ENGINEERING



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TECHNICIAN NEED STUDY: VERMILION COUNTY, ILLINOIS

a study conducted by
THE UNIVERSITY OF ILLINOIS
in cooperation with
UNIT SCHOOL DISTRICT #118, DANVILLE, ILLINOIS
supported by the
ILLINOIS STATE BOARD OF VOCATIONAL EDUCATION AND REHABILITATION

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May 1964
Under terms of Title VIII, National Defense Education Act

FOREWORD

On February 1, 1963, this project was undertaken by the College of Enineering of the University of Illinois, Danville Unit School District #118, and the Illinois State Board of Vocational Education and Rehabilitation. Funds were supplied by all three in joint sponsorship under the terms of Title VIII of the National Defense Education Act of 1958. The project was executed by the Department of General Engineering and Danville Unit School District #118.

Since 1959, I have been Chairman of the Engineering Technology Curriculum Advisory Committee of the College of Engineering, which has been working in cooperation with the Technical Education Service of the Illinois Board of Vocational Education. The primary responsibility of the committee is to provide guidance and leadership in the development of strong educational programs in Engineering Technology. The cooperative effort of both groups has resulted in the establishment of a number of high level programs in Engineering Technology throughout the State of Illinois. However, much work remains ahead to fully satisfy the educational needs in this type of education.

One important aspect of any educational system is research, and research in technical education within this State has not been extensive. This study is an initial effort in the development of such research. It is intended that there will be subsequent studies of similar nature, and that the net effect will be a firm basis of facutal information which will assist in the development of technical education within the State of Illinois.

Jerry S. Dobrovolny
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Office of the Vermilion County Superintendent of Schools

Office of the Vermilion County Clerk

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Project Director

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Chapter 1

INTRODUCTION

The objectives of this study are closely associated with the title. The term "technician need" has several interpretations, and for the purpose of this study this title was interpreted in two different ways. The first interpretation was that of the needs of Vermilion County industries for technicians; the second interpretation was that of the needs of the technicians to meet the demands of the industries in Vermilion County. Objectives of this study are listed below:

OBJECTIVES

I. To determine for Vermilion County:
   A. The number of practicing technicians in the various technologies.
   B. Specific functions of (or demands upon) technicians in this County.
   C. The present educational qualifications of technicians.
   D. The educational qualifications of technicians as desired by:
      1. Themselves
      2. Their employers
   E. The potential student enrollment for programs in various engineering technologies.

II. To organize and develop the above information in a manner which will lend itself to curriculum development.

III. To discover more efficient techniques for making studies of this kind.

THE NATURE OF THE STUDY

The geographic limitations of this study were the boundaries of Vermilion County. The basic design was directed toward future use of information developed by this study in curriculum development within the County; however, the design was also set up to develop a pattern for future research efforts in technical education. A number of unstructured responses were included in the instruments used for this study with view toward future alteration and refinement of these instruments. Staff

members described this entire project as a pilot study in technical education during their interviews with employing firms and employed technicians, and continually asked for criticisms on procedures and techniques.

Statistical inference from a sample was not used in this particular study; this was a saturation study of technicians and of firms which employed technicians within this County, and the descriptive information contained in this report is parametric information for Vermilion County. Wherever necessary, statistical terms which appear are explained, and familiarity with statistics is therefore not a necessity for understanding this report.

During execution of the study, interviewers were consistently asked the same question, and this question concerned the use to be made in Vermilion County of information and recommendations developed by this study. This question could not be answered by staff members, and cannot be answered by this report.

"Curriculum planning is a political process, just as it is an ideological process of determining ends and means for education. Proposals must find their way successfully through the political structure into educational institutions or slip into obscurity."[1]

The report of a study such as this can only present information and recommendations relating to the nature and extent of a certain educational need. Decisions relating to the solution of any educational problem in Vermilion County remain where they have always been—in the hands of the citizens of Vermilion County.

GENERAL NEED FOR TECHNICIANS

The need for technicians is a problem of national proportions. The fastest growing of all occupational groups during the decade from 1950 to 1960 was the professional and technical group. This trend of growth is expected to continue at an accelerated rate: by 1970 projected figures show a 43% increase in this occupational group, and by 1975 a 65% increase. Within this group the fastest growing has been the technicians. Rates of increase in certain areas of technical work have been reported at a phenomenal figure of more than 600%. The underlying cause of this high rate of increase is the rapid change of the social order in the United States to a society dependent upon science and technology.[2] Such a society needs—indeed demands—of its members an ever increasing amount of technical and scientific knowledge.

Within the State of Illinois, the demand for technicians with post high school training in fields of technology associated with

engineering far exceeds the supply. Accurate totals of the numbers of such technicians being trained by both public and private institutions within Illinois are not available, but estimates based upon published reports place the estimated enrollment at between 6,000 and 9,000, with a maximum (and seldom achieved) number of graduates at between 2,000 and 3,000. Similar estimates of demand are that, by 1965, various industries within Illinois will need more than 15,000 graduate technicians per year.[3]

One major reason for the low ratio of graduation to enrollment has been this extreme demand. Students at technical schools frequently have several attractive job offers before they finish their training, and they often find that the attraction of a job offer exceeds their desire to graduate.

Many large firms have a regular schedule of recruiting visits to institutions of higher education, including technical schools, for the purpose of hiring graduates, and they make these visits to hire highly trained graduates even during times when they are engaged in production cutbacks and major layoffs. It is unpleasant, but true, that scientific and technical advances have already inflicted unemployment and consequent hardship upon people whose talents and skills were in steady and heavy demand in the past. The immediate future holds grim prospects for people who are unable (or who do not have an opportunity) to acquire the additional training demanded by this new order of society.[4]

Chapter 2

IDENTIFICATION OF THE TECHNICIAN

The word "technician" is often used as a generic term to describe a wide range of occupations. Even when used with restriction to the field of engineering, as it is in this study, this term still covers a wide range of job functions. The semantic confusion which surrounds this term is further compounded by the fact that engineering itself covers a wide range of functions in industry, by the fact that engineering is often described as "technical" work, by the fact that technicians are often called engineers, by the fact that some technicians acquire additional training and qualify as engineers, and by the fact that engineers sometimes do the work of a technician. It is quite possible that the current shortage of engineers is only an apparent shortage, that many engineers work as technicians because technicians are not available, and that the real shortage exists in the ranks of the technicians.

Figure I shows a breakdown of the engineering manpower team into engineers, technicians, and craftsmen. In his proper place the technician works in the field between engineering and craftsmanship, and this is a wide field. A technician is not an engineer and he is not a craftsman. He has neither the advanced scientific training of the engineer nor the high level skills of the craftsman. He has, instead, his own peculiar skills which lie in the general area of the application of scientific knowledge to workable and practical reality. For instance: investigation of a problem may lead an engineer to a conclusion or a theoretical solution for the problem; it is the function of a technician to test this theoretical solution, to suggest practical changes, and when possible, to transform this theoretical solution into reality. In doing this he must work with the engineer and with the craftsman. He must therefore be familiar with both engineering and craftmanship, and he must know enough about each to discover how they can be used together in order to create a workable solution to the problem. Engineers are not trained to be technicians. The scientifically oriented engineering graduate of today needs the help of highly trained and competent technicians in order to perform his part of the vast amount of work to be done by the engineering manpower team.

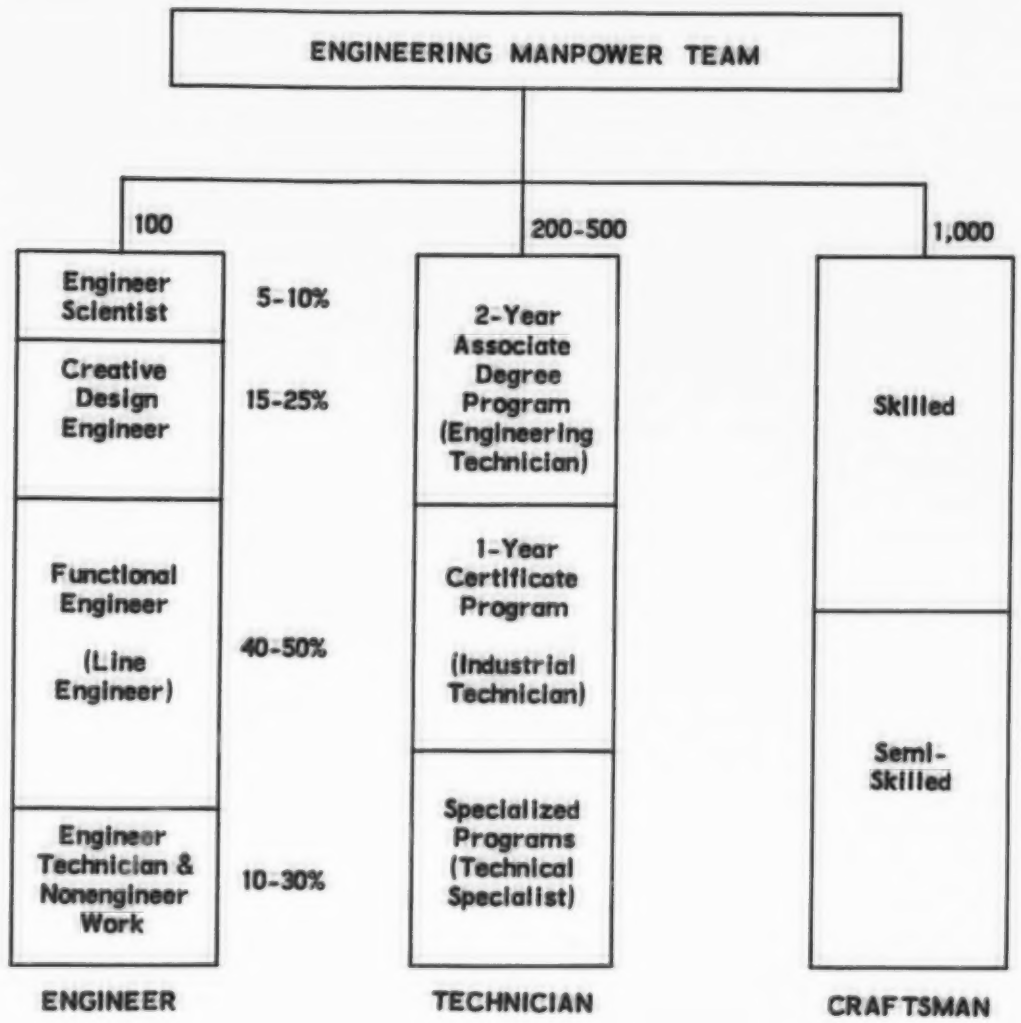


Figure I

The following is material on technicians taken from other sources:

DEFINITIONS

"In general, the engineering technician is a person whose chief interests and activities lie in the direction of the testing and development, the application, and the operation of engineering and scientific equipment and processes. Classified on the basis of educational certification, the engineering technician would be a graduate of a technical institute type of curriculum as accredited by the Engineers' Council for Professional Development, or recognized equivalent. Classified occupationally, the engineering technician performs semiprofessional functions of an engineering or scientific nature, largely upon his own initiative and under only general supervision of a professional

engineer or scientist; he assists the engineer or scientist and supplements his work.

"Typical among the wide array of semiprofessional functions performed by engineering and scientific technicians are: drafting, design, and development of products and of engineering plant; installing and operating equipment; estimating costs; selling; and advising customers on the use of engineering or scientific equipment.

"In many instances, the technician may serve as a liaison between the engineer or scientist, on the one hand, and the skilled craftsman or layman on the other hand. In carrying out these various activities, he may have group leadership responsibilities. Therefore, the technician must be able to communicate mathematically, scientifically, and linguistically."[5]

"Engineering technology is that part of the engineering field which requires the application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities; it lies in the occupational area between the craftsman and the engineer at the end of the area closest to the engineer.

"An engineering technician is one whose education and experience qualify him to work in the field of engineering technology. He differs from a craftsman in his knowledge of scientific and engineering theory and methods and from an engineer in his more specialized background and in his use of technical skills in support of engineering activities.

"An engineering technology curriculum is a planned sequence of college-level courses, usually leading to an associate degree, designed to prepare students to work in the field of engineering technology."[6]

CRITERIA FOR IDENTIFICATION

"The individual in the occupation:

1. Applies knowledge of science and mathematics extensively in rendering direct technical assistance to scientists or engineers engaged in scientific research and experimentation.
2. Designs, develops, or plans modifications of new products and processes under the supervision of "professionals".
3. Plans and inspects the installation of complex equipment and control systems.
4. Advises regarding the maintenance and repair of complex equipment with extensive control systems.

5. Plans production as a member of the management unit responsible for efficient use of manpower, materials, and machines.
6. Advises, plans, and estimates costs as a field representative of a manufacturer or distributor of technical equipment and/or products.
7. Is responsible for performance or environmental tests of mechanical, hydraulic, pneumatic, electrical, or electronic components or systems and the preparation of appropriate technical reports covering the tests.
8. Prepares or interprets blueprints and engineering drawings and sketches.
9. Selects, compiles, and uses technical information from references such as technical handbooks, manuals, and digests of research findings.
10. Analyzes and interprets information obtained from precision measuring and recording instruments and makes evaluations upon which technical decisions are based.
11. Analyzes and diagnoses technical problems that involve independent decisions.
12. Deals with a variety of technical problems involving many factors and variables which require an understanding of several technical fields.

"The criteria are not to be given equal weight in identifying "technicians", and it would not be necessary for a position to require all the competencies implied to be classified as technical.

"The technician must be familiar with the work of the professionals and the craftsman in his area of proficiency, since he may work with professionals at some stages and with craftsmen at others."[7]

GENERAL ABILITIES

"1. Facility with mathematics; ability to use algebra and trigonometry as tools in the development of ideas that make use of scientific and engineering principles; and understanding of, though not necessarily facility with, higher mathematics through analytical geometry, calculus, and differential equations, according to the requirements of technology.
2. Proficiency in the application of physical science principles, including the basic concepts and laws of physics and chemistry that are pertinent to the individual's field of technology.

3. An understanding of the materials and processes commonly used in the technology.
4. An extensive knowledge of a field of specialization with an understanding of the engineering and scientific activities that distinguish the technology of the field. The degree of competency and the depth of understanding should be sufficient to enable the individual to do such work as detail design using established design procedures.
5. Communication skills that include the ability to interpret, analyze, and transmit facts and ideas graphically, orally, and in writing."[7]

TECHNICAL OCCUPATIONS IN RESEARCH, DESIGN, AND DEVELOPMENT

"For the purposes of this project, the Research, Design, and Development Technician is characterized as follows: He works in direct support of engineers and physical scientists, performing tasks which are functional parts of scientific and engineering activities requiring practical application of fundamental theory. The range of activities varies in complexity and is usually in a specialized area of research, design, or development. He usually is concerned with analysis and employs creative skills, and occasionally requires certain manipulative skills. The "technician" as designated herein requires less than the four or more years of college training required of the graduate engineer or scientist.

Sources of Research, Design, and Development Technicians

"The sources of such technicians include workers who can move from related jobs, applicants who complete technical courses for these terminal occupations, and students who qualify at an intermediate stage of advanced education. These technicians usually qualify through special programs of colleges, universities, junior colleges, technical institutes, recognized apprenticeship and journeyman skill improvement programs, vocational schools, in-plant training, and armed forces training. Some of these technician jobs are filled by college students of science and engineering who work part time or leave college prior to graduation; others are filled by skilled craftsmen who have acquired the necessary knowledge of mathematics and science, e.g., through apprenticeship or journeyman programs.

"The Technical Institute

The technical institute primarily provides post-secondary

education. The courses range from 1 to 3 years—usually 2—and usually prepare students for broad categories of technical work rather than for specific jobs. The training combines the practical application of certain engineering and scientific principles to technical problems with the development of manipulative skills needed in drafting and laboratory work. In general, the student receives intensive technical training but less theoretical and general education than is provided by 4-year engineering and liberal arts colleges. Such programs provide certain basic education for entry jobs in these fields in support of engineers and scientific personnel or for entrance into apprenticeship programs with the possibility of advanced standing. In most cases, further training is necessary in the specific jobs these workers are to perform.

"Training by Industry

Industry provides two general types of training programs for research, design, and development technicians; a well-planned, formalized program such as apprenticeship for inexperienced youth which prepares them for specific occupations, and supplementary training designed to make the fullest possible use of qualified technicians' skills and abilities.

Each formalized training program consists of two integrated segments. A portion of the training is of the "on-the-job" variety on a rotation basis to develop an understanding of the job functions and environment. The instruction in the mathematics, science, and fundamental technology related to the field of specialization usually is conducted at or in cooperation with nearby educational facilities.

Supplementary training is used to prepare the technical staff for specific work assignments, to introduce new scientific developments, to develop skills that are in short supply, and for advancement to higher grades."[8]

THE SPECIALIZED NATURE OF THE TECHNICIAN

The preceding was a general identification of a technician and of the area within which he works. The generalities included therein are not meant to imply that a technician is an all around expert at everything. The technician is necessarily a specialist. The time limitations of the proposed two-year post high school curriculum effectively prevent him from delving into a variety of the many different fields of technology.

The following definition, plus material concerning essential characteristics and curriculum for technical education, was developed by the Engineering Technology Curriculum Advisory

Committee of the University of Illinois. Examination of this example will reveal that it is a higly specialized curriculum.

An Example: The Engineering Technologist in Machine Design

Definition:

An individual who has the desire, the interest, the knowledge, and the sociological awareness to take skeletonized plans and transform them into producible components and systems that satisfy a known need both functionally and economically

Essential Characteristics of an Engineering Design Technologist

Fundamental science and engineering knowledge
Effectiveness in communications
Awareness of indutrial materials and practices
Appreciation of human relations
Skill in the solution of engineering problems
Interrelationships of design and economic factors

Education Requirements for Development of Essential Characteristics

A. Science and Mathematics

Mathematics - algebra, trigonometry, applied analytical geometry and calculus
Physics - mechanics, heat, electricity
Chemistry - chemistry of the materials of engineering

B. Communications

Verbal - rhetoric, composition, technical report writing, oral
Graphic - sketching, theory of projections, descriptive geometry, dimensioning, tolerance, sections, assemblies, charts, and graphs

C. Specialized Technology

Statics, dynamics and strength of materials
Manufacturing processes and machines
Materials (their alloys and heat treatment)
Mechanisms and design of machine elements
Electric and hydraulic controls
Machine design projects

D. Sociological

American institutions (sociological, economic, governmental)
Psychology and human relations
Economics of industry
Industrial organization and operation

SUGGESTED TWO YEAR MACHINE DESIGN TECHNOLOGY CURRICULUM

Course	Hours			
	Class	Laboratory	Credit	Contact
1st Semester				
Mechanical Drafting I	1	5	3	6
Materials of Industry	3	0	3	3
Technical Mathematics I	5	0	5	5
Communication (Oral and Written)	3	0	3	3
Technical Physics I (Mechanics and Heat)	4	2	4	6
Orientation	1	0	0	1
	17	7	18	24
2nd Semester				
Mechanical Drafting II	1	5	3	6
Mechanisms	3	6	4	9
Technical Mathematics II	5	0	5	5
Manufacturing Processes	2	2	3	4
Technical Reporting	3	0	3	3
	14	13	18	27
3rd Semester				
Hydraulics and Pneumatics	2	4	3	6
Technical Physics II (Electricity)	4	2	4	6
Machine Design I	3	3	4	6
Strength of Materials	3	2	4	5
Economics of Industry	3	0	3	3
	15	11	18	26
4th Semester				
Metallurgy and Heat Treatment	2	3	3	5
Machine Design II	2	2	3	4
Design Projects	1	8	3	9
American Institutions	3	0	3	3
Industrial Organization and Operation	3	0	3	3
Psychology and Human Relations	3	0	3	3
	14	13	18	27

Curriculum designs for other technologies would look quite different from the preceding design. Each curriculum would be just as highly specialized-but specialized in a different direction.

The courses listed in the preceding Machine Design Curriculum are all post-high school college level courses. It is not possible to educate technicians by merely renaming the courses which students regularly take in high school. Successful technical education is at the post-high school level and the courses given in such a school will pose definite intellectual demands upon the students. The academic demands upon a student enrolled in an engineering technology curriculum are quite similar to the academic demands upon a student enrolled in a 4-year college. It is necessary for a student to be mentally and psychologically capable of two years of hard work in order for him to master the curriculum of a good post-high school technical school.

Chapter 3

DESCRIPTION OF VERMILION COUNTY

GENERAL

Vermilion County includes an area of 898 square miles with dimensions roughly 44 miles long by 22 miles wide. The population in this County totaled 96,176 according to the last census (1960) with an urban concentration of 41,856 in its largest town, Danville.

The County population increased 10.4% during the decade from 1950 to 1960. The population of Vermilion County did not increase at the same rate as the entire State of Illinois. The state population increased 15.7% during this decade. One way, however, in which Vermilion County exceeded the average for the State of Illinois was in the percent of its population under 18 years of age. In 1960, 34.8% of the Vermilion County population was under 18 years of age, while throughout Illinois this figure was a slightly lower 34.1%.[9] Projections using census figure trends, retail sales volumes and the known school population in the County arrive at a present (1963) estimate of population in Vermilion County slightly in excess of 100,000.

INDUSTRIAL

This County is definitely industrial in nature. It contains 143 manufacturing establishments of sufficient stature to be included in the 1963 Illinois Manufacturers Directory, and 19 of these plants were operated by various firms among the 1,000 largest industrial corporations in the United States.[10] Vermilion County contained .81% of the total of the 17,609 manufacturing establishments listed for the state. This fractional percentage might tend to mislead unless this County is compared to other counties in Illinois. Vermilion County was exceeded in the number of manufacturing plants listed by only 14 of the 102 counties in Illinois. In percent increase of new plants listed, however, this County was in 1963 falling behind the state; the rate of increase for Vermilion County was 5.1%; for the entire state, the rate of increase was 7.9%.[11]

During the first quarter of 1963, 799 Vermilion County businesses of all kinds were employing 4 or more people. This was

.86% of such businesses in Illinois. Comparisons with state totals of number of people employed and total wages paid show that Vermilion County's .86% of such businesses accounted for .75% of the people employed in Illinois by such businesses and for .68% of the wages paid by such establishments in Illinois. It is not the purpose of this report to assess general employment and wage rates in Vermilion County, but the figures for this quarter suggest a possibility of the presence in this County of a considerable number of smaller-than-average businesses paying lower-than-average wages.

When considering any grand totals such as those above for the State of Illinois, however, one must always remember the overpowering influence of the Chicago area. For instance, Cook County alone accounted for 11,339 of the 17,609 manufacturing establishments listed in the Illinois Manufacturers Directory. Excluding the 12 counties in the Northeast Section of Illinois, Vermilion County contained 3.4% of the manufacturing plants in the remainder of the state and was exceeded in number of manufacturing plants by only 7 of the remaining 90 counties in Illinois.

MEDIAN AND AVERAGE INCOMES: FINANCIAL COMPARISONS

Another way to assess general income in this County is to consider the median (or midpoint) of incomes. The median income for 1962 of households in Vermilion County was approximately $4,770, while for the entire state the median income per household was approximately $5,780. Stated in another way, this means that one half the households in the state had an income of less than $5,780, while one half the households in Vermilion County had an income of less than $4,770. The effective buying income of Vermilion County, however, was a relatively high average of $6,135 per household. This average was exceeded by only 29 counties in the state, including those in the Chicago area. This high average, together with the fact that there was a higher percentage of per household incomes in the $0 to $4,000 range and a lower percentage in the $6,000 to $10,000 range in Vermilion County than in the entire state, indicates a general pattern of income distribution. In this County, as compared to the entire state, larger numbers were in the lower income range, approximately the same numbers were in the middle range, fewer were in the range immediately above the middle, and a relatively very few had very high incomes. The City of Danville showed similar income distribution except that there were approximately 4% less households in the lower income range and approximately the same number more in the

higher income range. The median income for Danville households in 1962 was approximately $5,020 and the average effective buying income was $6,607.[12] The fact that the Danville average was farther above the Danville median than the County average was above the County median suggests that many of the very high incomes may be located in the Danville area.

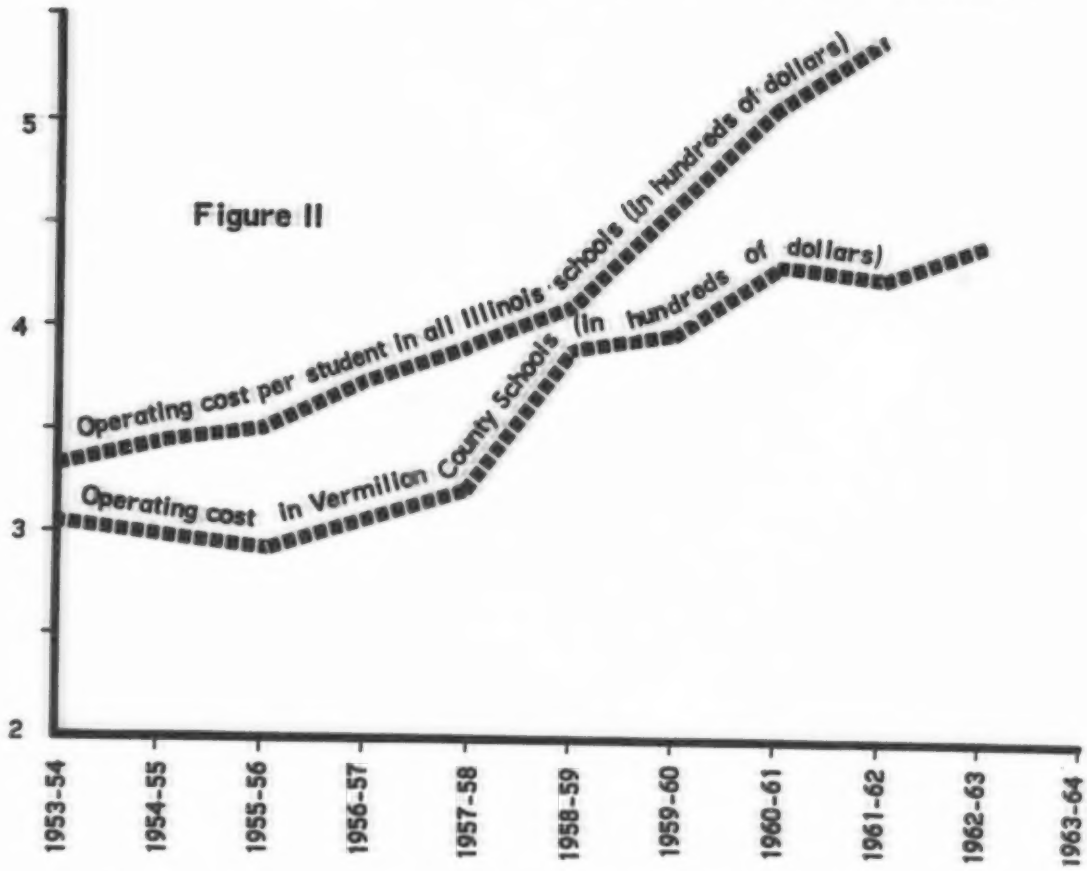
EDUCATIONAL SYSTEM

Vermilion County's public educational system was, in 1963, made up of 44 school districts, two of which were unit school districts. The remaining 42 districts were separate elementary and secondary districts which overlapped each other throughout the entire county. Consolidation of school districts was in progress. Since 1957, eight school districts had been consolidated with districts among the 44 existing in 1963, and plans were for this consolidation to continue. Boundaries of the peripheral school districts of the County did not always follow the County lines, but the overall effect upon the County was negligible.

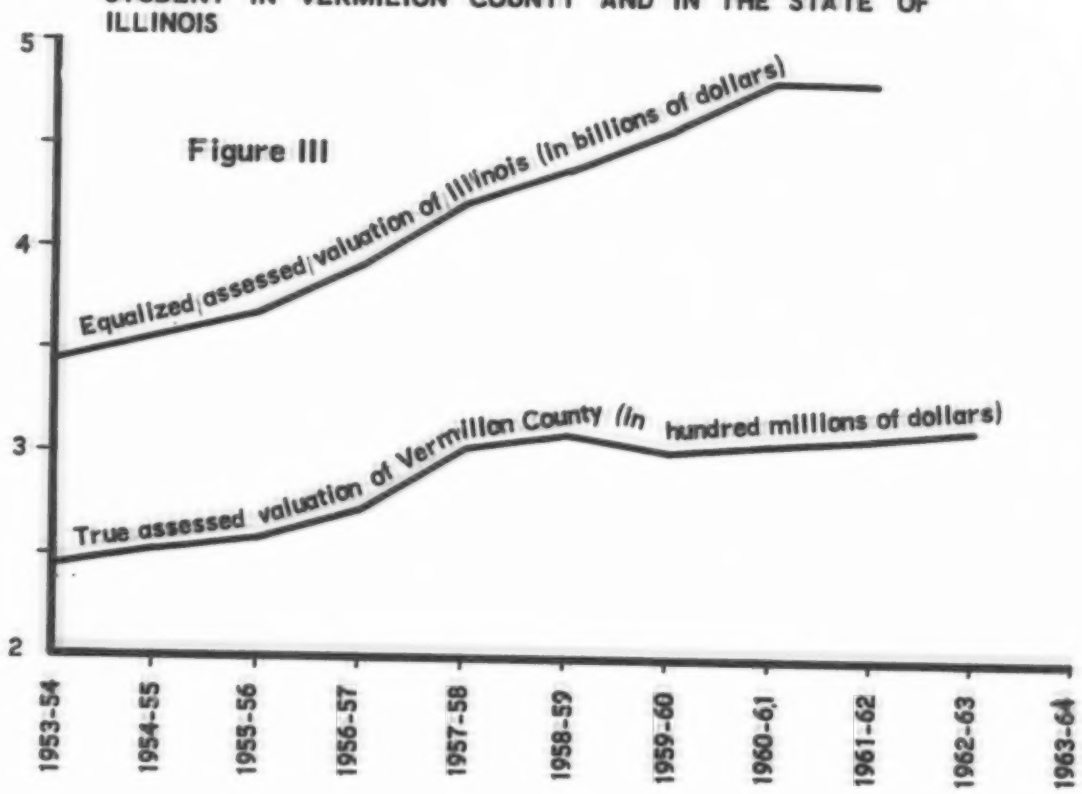
Total 1963 enrollment in all the schools in the County was approximately 20,000 of which approximately one half were enrolled in the County's largest district, Unit District 118 in Danville. Unit Distict 118 also operated Danville Junior College offering two-year post-high school curricula and, through its Division of Applied Sciences, a two-year curriculum in Electronic Data Processing and courses in Mechanical Technology. In 1953 the ratio of high school students to elementary students in Vermilion County was 1/3.12; by 1963 this ratio had increased to 1/2.50, indicating a larger proportion of students continuing into and through secondary education. Enrollment figures for 1964 showed 1,160 high school seniors and 1,600 juniors in attendance at various schools in this County.[13]

Cost and Valuation Comparisons

School costs were increasing throughout Illinois, and Vermilion County was no exception except in its lower rate of increase. Figures II, III, IV, and V show the rate of increase in school operating cost per student and also assessed valuation for Vermilion County and for the State of Illinois.[14] Where cost per pupil appears, it is shown in terms of total operating costs per pupil. Real total cost would in both cases be greater because operating cost is the total expense of operating an existing school; it does not include debt retirement, new equipment, new buildings or new grounds.



TRENDS IN ASSESSED VALUATION AND OPERATING COST PER STUDENT IN VERMILION COUNTY AND IN THE STATE OF ILLINOIS



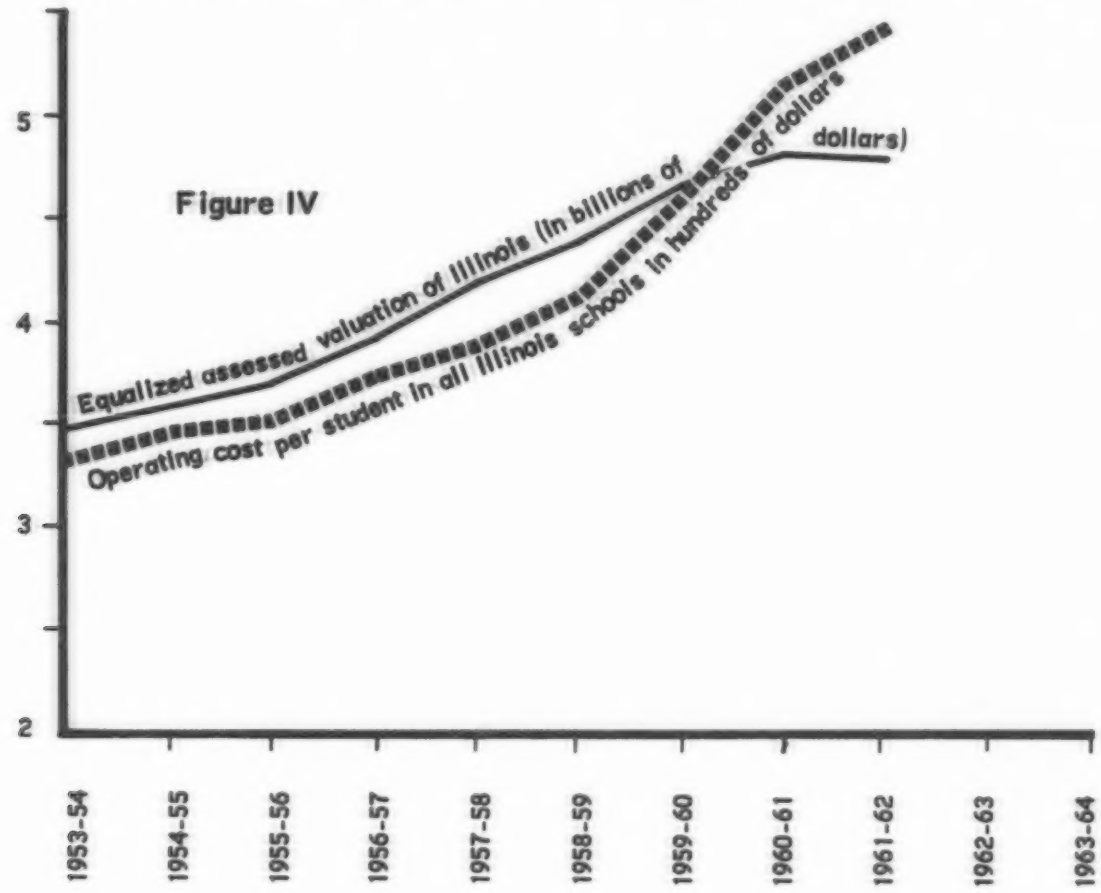
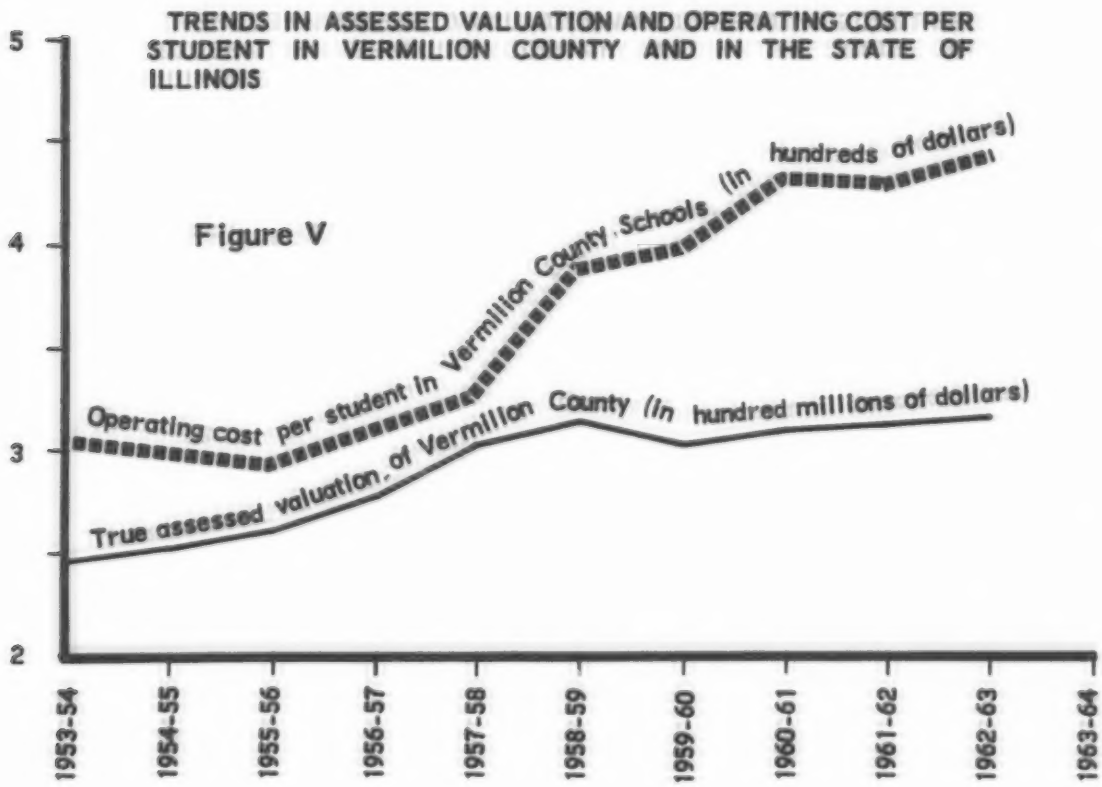


Figure IV
Equalized assessed valuation of Illinois (in billions of dollars)
Operating cost per student in all Illinois schools in hundreds of dollars
5
4
3
2
1953-54
1954-55
1955-56
1956-57
1957-58
1958-59
1959-60
1960-61
1961-62
1962-63
1963-64


TRENDS IN ASSESSED VALUATION AND OPERATING COST PER STUDENT IN VERMILION COUNTY AND IN THE STATE OF ILLINOIS
Figure V
Operating cost per student in Vermilion County Schools (in hundreds of dollars)
True assessed valuation of Vermilion County (in hundred millions of dollars)
5
4
3
2
1953-54
1954-55
1955-56
1956-57
1957-58
1958-59
1959-60
1960-61
1961-62
1962-63
1963-64

Equalized assessed valuation is shown for the state to indicate a trend for comparison with operating cost per pupil. True, rather than equalized assessed valuation is shown for Vermilion County because equalized assessment gives values which include repetitive use of assessment values in taxation by overlying school districts, and this tends to give false impressions about the true total assessed value of all taxable property. Figures II, III, IV, and V are drawn on identical scales to afford comparisons of trends. It is evident from these figures that the rate of change in assessed valuation for the state was similar to the rate of change in cost per student. It is also evident that this was not true in Vermilion County.

In 1957 the assessed valuation of Danville Unit District 118 was $123,977,084, which was 41% of the assessed valuation of Vermilion County. In 1962, Unit District 118 was assessed at a lower figure of $123,051,288, which was 40% of the assessed valuation of the County. This school district contained (in the City of Danville alone) 43% of the population, 49% of the effective buying power, 50% of the total income, and most of the industry.[15] It is a distinct paradox in Vermilion County that Danville Unit District 118 had an assessed valuation of only 40% of the assessed valuation of the County.

School Population Projections

If the overall rate of growth in Vermilion County maintains the average rate it has displayed through the past decade, the approximate total school population in the County will be:

1964-65 ----- 20,300
1965-66 ----- 20,600
1966-67 ----- 21,000
1967-68 ----- 21,400
1968-69 ----- 21,700
1969-70 ----- 22,000

These projections are based upon the assumption of uniform rate of increase. If economic development and a consequent increase in population proceed at an accelerated rate in Vermilion County, the school population will exceed these projections.

Chapter 4

CONDUCT OF THE STUDY

UNIVERSE OF THE STUDY

The first task of the research staff in the conduct of this study was to identify the universe of industries in Vermilion County. Listings of industries were not well developed and available listings had never been consolidated into a master list. Industry listings were gathered from all available sources. Sources of these listings included the Danville Engineers Club, industrial customers of the banks in this County, industrial customers of the public utilities in this area, the Danville Chamber of Commerce, governmental units within Vermilion County, the Vermilion County Clerk's Index to Business Registration, the Vermilion County Credit Bureau, the Illinois State Employment Service, and searches of the city directories and telephone directories. After the elimination of financial, medical and school installations plus many retail installations, there remained a master list of more than 1,000 business and governmental installations which could possibly employ technicians. Caution was exercised, however, in eliminating retail establishments because of the possibility that they might employ technical sales representatives.

SELECTION OF WORKING LISTS

With the identification of the universe in hand, selection proceeded toward the working list of possible employers of technicians. Both of the research staff members from Unit School District 118 in Danville were well acquainted locally and their close acquaintance with industry in Vermilion County allowed the elimination of many business installations on the master list without the necessity of personal contact. Wherever doubt existed, each of these installations was either included in the final working list or contacted by telephone or personal interview. This procedure resulted in the selection of a working list of 262 possible employers of technicians in Vermilion County. Each of these employers was contacted by telephone to determine whether he did in fact employ technicians. Staff members were cautious about eliminating a possible employer of technicians

on the basis of a telephone conversation. Many visits were made to installations where such telephone conversations left doubt about the presence or absence of practicing technicians.

INSTRUMENTS USED IN THE STUDY

Development of Instruments

During the gathering and compiling of the lists of employers, two instruments were developed for use in this study. The first of these instruments was a structured interview for use by staff members in interviewing employers who had been determined to be employers of technicians. The second was a questionnaire to be filled out by technicians located during the interview with the employer. Both of these instruments were revised many times, and after revision were used in two separate pilot studies to determine their efficiency and applicability to this project. The first pilot study was run at the plant of MAGNAVOX CORPORATION in Urbana, Illinois; the second at the plant of CATERPILLAR TRACTOR COMPANY in Peoria, Illinois. Both pilot studies resulted in further revision of both instruments. Highly qualified personnel from both companies were made available for these pilot studies and their criticisms appear as revisions in the final form of each instrument.

Appendix I contains the final form of the structured interview used by staff members as they interviewed the various firms which employed technicians. Appendix II contains alternate forms of the cover letter and a sheet of instructions used with the questionnarie filled out by the responding technicians.

Method of Application

Personal contact was used wherever possible throughout this survey. During the interview with the firms, technicians were identified and listed by name, and if the cooperation of the management of the firm was extended to the interviewers (and this cooperation was extended, except in a very few cases), the technicians were gathered into a group and given a short presentation by the interviewer on the purposes and nature of the project. During this meeting each technician was given a large envelope containing a cover letter, an instruction sheet, and a questionnaire (see Appendix II), plus an addressed and stamped envelope, together with the recommendations that each of them take these home, read the entire questionnaire, and fill out the questionnaire completely before returning it by mail. In the few places where interviewers did not have the opportunity for personal contact with each technician, the names and addresses of technicians were secured and the same material was sent by

mail, using an alternate form of the cover letter when appropriate. Return rate of questionnaires was higher where interviewers were afforded personal contact with technicians.

The vast majority of the firms extended cooperation freely and without limit. The general opinion among management of these firms was that they would be delighted to have a local source of highly trained technical workers, and they saw the report of this study as a possible means of communicating this fact to the general public. The interviewing of firms and contact with technicians proved to be a time consuming task. In some cases it was necessary to make eight or nine visits to the same industrial installation in order to complete the firm interview form and in order to contact technicians who worked on different shifts.

During the use of the firm interview form, it was discovered that some items on this form were not sufficiently developed to obtain accurate information which would lend itself to classification. It was therefore necessary to extend the definitions of some of the terms in this form in order to assure consistent classification of the information gathered. Such extensions of definitions and semantic difficulties noted by the interviewing staff are included in the discussion of the item-by-item response given later in this report.

Information from all forms was placed on IBM cards and analysis was done using the IBM 7094 computer and the IBM 1401 computer located on the campus of the University of Illinois. Details of analyses are given in the item-by-item discussion.

Response rate and Influencing factors

During the initial phase of the contacts with firms and technicians, the return rate of the technicians' questionnaires was a little above 70%. During the course of these contacts, however, the voters of Danville Unit District 118 defeated in referendum a proposal to raise school tax rates. Part of this proposal concerned Danville Junior College. Immediately after the referendum defeat, the rate of return of the technicians' questionnaires fell to below 50%, and interviewers identified the attitude among technicians that the results of this study made little difference - that Vermilion County was not destined to have a school which afforded an opportunity for technical education no matter what the results of this study. Attempts were made by interviewers to point out to technicians that this defeat had occurred in only one school district, and that this was not necessarily an irrevocable decision against technical education; but the effect of this attitude remained in spite of interviewers' efforts.

This unfortunate attitude on the part of the technicians and the consequent fall in the rate of return of the technicians' questionnaires made it necessary to delay the analysis of this project and to implement a far more extensive amount of follow-up by mail to non-responding technicians than had originally been anticipated. When enough time had elapsed, the technicians became more inclined to respond and the percent of return rose to 67%, or 344 responses from a total of 512 technician contacts. It is estimated that mail follow-up would have raised the original 70% response rate to an 85% response rate had it not been for the referendum defeat in Unit School District 118. Enclosed in the mail follow-up were the technician questionnaire and instruction sheet in Appendix II, and the cover letter in Appendix III.

Chapter 5

ANALYSIS OF FIRM INTERVIEW FORMS

The instrument used to gather information from and about the firms which employed technicians in Vermilion County was an interview form which was filled out by the interviewer during his visit to the employing company. This interview form is in Appendix I of this report. The information necessary to fill out this form often came from different sources within the same organization. It was necessary, particularly when dealing with larger companies, for interviewers to gather information from several different people within the company structure.

The first part of this form is concerned with identification of the person or persons contacted by the interviewer during his contact with the management of the company. Identifications of personal contacts within any company were recorded for the purpose of assuring continuity of contact in case it was necessary to make subsequent visits to this firm, or in case a different staff member was assigned the job of completing the contact with any business installation. The contact classification of hired manager and owner-manager appear most frequently as the initial contact with most firms. Interviewing staff members discovered that initial contacts at lower levels of management usually required subsequent contact at higher levels of management to obtain authorization for the necessary cooperation of the firm's personnel.

CLASSIFICATION OF FIRMS

A total of 80 firms employing technicians were discovered in Vermilion County. Each of these firms was visited personally by an interviewing staff member, and the rate of response from these firms was 100%. The products, services, and functions of these firms were quite diverse. Rough classification of these firms was accomplished by use of their occupational code numbers registered with the State of Illinois Employment Service, and this classification was continued by hand using the listed products, services, and functions on the interview form. Some of these firms had several occupational code numbers, and where this was the case the major function of such companies was

selected for classification. Final classification revealed that 31 of these firms operated primarily in the mechanical or machinery field; 20 of these firms were associated to one extent or another with the building trades; 18 of these firms were in the electrical-electronic field, and 11 of these firms were in the general field of chemistry or food processing. This is not to say that there did not exist an overlapping of functions by firms included in any of these rough classifications. The opposite condition was true; many of these firms had extended their operations into various fields, and many of these firms employed technicians who worked in several different fields of technology. The only conclusion available from this classification is that the three important fields in which the employing firms worked were Mechanical, Electrical-Electronic, and Chemical Technology.

FUNCTIONS OF FIRMS

The section of the interview form dealing with functions of these firms revealed by frequency count that manufacturing was the major function of most of these 80 firms, with 13 reporting major operations of job shop nature and 26 reporting major operations of a mass production nature. Many firms reported both of these functions, indicating that they engaged in both job shop and mass production operations. The next largest response was in the major operation of service. Service was defined by interviewers as servicing the manufacturer's product in the field, or servicing this product after it was in the hands of the customer. "Service" is one of the items upon which the interviewing staff agreed that an extension in definition was necessary. Other similar items in this list were the term "constructing", which was defined as building and erecting structures; the term "processing", which was defined as chemical processing or an operation performed upon some object which did not produce a significant change in its physical form; "contracting", which was defined as manufacturing upon order with sale insured before manufacture; and "installation", which was defined as installing the firm's own product. Relatively heavy response in the major category of processing indicated the presence of the chemical industry, and the relatively heavy response in the significant category of purchasing indicated that many of these firms did their own purchasing—that is, they were independent operators who did not have facilities for central purchasing.

ENGINEERS EMPLOYED BY FIRMS

The three items in this interview form concerning engineers

revealed the following: only three of the 80 firms interviewed required professional registration as a prerequisite for employment of engineers. The choice of the word "required" was an unfortunate choice in this item. Many companies stated to interviewing staff members that they would prefer professional registration for engineers, but that they would not require professional registration for employment of engineers.

Responses concerning the percent of engineers who could be replaced by competent, well-trained technicians indicated that 95 of the 184 engineers employed by these companies could have been replaced by well-trained technicians. This was approximatley 50% of the engineers employed by these 80 companies, and such reaction to these items reinforces a statement made earlier in this report: "It is quite possible that the current shortage of engineers is only an apparent shortage, that many engineers work as technicians because technicians are not available, and that the real shortage exists in the ranks of the technicians."

There are two facts which make it quite probable that the total of 95 replaceable engineers was a conservative figure. The first is the fact that only 12 of the 80 firms responded to either of the related questions. The second is the fact that the word "replaced" was used. This word impled to the management of these firms that a "replaced" engineer would be dismissed as a result of replacement by a technician. Staff members noticed during interviews that management objected to this implication of the wording of the interview form, and stated that they had no intention of replacing any of their engineers, but that they would like to release these engineers from tasks which could be done by competent technicians and assign these engineers to work more suited to their training and abilities. Had the wording of this item conveyed the intended meaning of release for reassignment, with no implication of dismissal, the response from management might have been higher.

TECHNICIANS EMPLOYED BY FIRMS

During the execution of this study, discussion with both employers and technicians revealed a fact that serves to further emphasize the unique position occupied by technicians in the engineering manpower team. The first work assignment of a newly graduated and newly hired engineer was often an assignment which placed the recently graduated engineer in a position where he acquired additional training at the hands of experienced technicians. This seemed to be particularly true in the mechanical and electronics field, but it may have seemed this way only because these two fields were heavily represented

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in Vermilion County. Experienced technicians were sometimes assigned to teach newly graduated engineers and to familiarize them with the specific practices of an individual industrial installation. The attitude of management here was that a new engineer must learn the practicalities of the trade and become familiar with the capabilities of the technicians in order to make efficient contribution to the engineering function. However widespread the practice of initially assigning engineers to technicians for a period of learning might be, its very existence points out that engineering graduates are not trained to be technicians, and that a competent technician has his own distinct specialized place in the engineering manpower team.

Classification of Technicians

During identification of technicians employed by the firms, a system of classification of technicians was explained to the management of these firms, and they were asked to classify the technicians whom they employed into three major classifications. (See Figure I.)

The Engineering Technician

The engineering technician was defined as a technician who works primarily in direct contact with creative engineering. He should have two years of college level training in his field, or its equivalent. He is usually capable of original design and of making educated decisions within his specialty, and he may or may not work under the direct supervision of an engineer on projects within his specialized field.

The Industrial Technician

The industrial technician was defined as a technician whose specialty is closer to the production facilities of the industry than to the creative engineering function within the industry. His educational qualifications are set at approximately one year of post-high school level training, or its equivalent. He is not as capable as the engineering technician of working directly with or under the supervision of professional engineers; his specialties are directed toward the intensely practical problems associated with the production capacities of the industry. This technician is likely to be even more specialized than the engineering technician as defined above. Many industrial technicians are the products of many years of experience at one particular operation, and many are deeply involved in assisting with production planning.

The Technical Specialist

The technical specialist was defined as an even more highly specialized technician who has developed a skill or facility, the use of which constitutues his major occupational function. He is usually not a supervisor, but instead a highly competent performer at some particularly complex task. An example of the technical specialist is the technician who specializes in measurement and the use of complex measuring instruments. The instruments he uses may be highly complex mechanical or electronic devices, and this technician probably knows more about their practical application than anyone else. There are a multitude of these specialties. Another example here is the specialist who understands and can use effectively the various items of supporting equipment for an electronic data processing system.

Distribution of Technicians

Table 1 shows the distribution of responses from the firm's classification of the technicians they employed. Many of the technicians listed in Table 1 worked in more than one field of technology, but for classification, only the major field of technology of each technician was used. The frequencies furnish further support to the conclusion derived from classification of the firms. The three most frequently encountered fields of technology in Vermilion County were, in their order of size, Mechanical, Electrical-Electronic, and Chemical Technology. It should be remembered that Table 1 is a representation of employment distribution at the time this study was made, and that it does not imply that any other field of technology is of relative minor importance. It may, indeed, mean that some kinds of technicians were not widely employed in this community simply becuase they were not available in this community.

The high frequency of industrial technicians in Mechanical Technology suggests that this industry in Vermilion County was more oriented toward production engineering than toward creative engineering. This tendency was also observed by the staff of this project, who noticed during contacts with industry that many firms in this County which engaged in high production manufacture did not become individual subjects of this survey because they had no local facilities for the engineering function. There were a noticeable number of companies in Vermilion County who were subsidiaries of larger corporations and whose engineering facilites and associated technicians were not located in this County. These companies used Vermilion County as a

TABLE 1

DISTRIBUTION OF 512 TECHNICIANS IN FIELDS OF TECHNOLOGY BY RESPONSES OF EMPLOYING FIRMS

	Engineering Technicians	Industrial Technicians	Technical Specialists	Totals
Mechanical	78	123	60	261
Electronic	41	17	24	82
Chemical	20	42	15	77
Electrical	32	6	5	43
Data Processing		18		18
Civil	13			13
Architectural	3			3
Ceramic		2		2
Metallurgical	1			1
Unclassified			12	12
TOTALS	188	208	116	512

source of semi-skilled and unskilled labor. When such firms did employ technicians, these technicians were likely to be few in number, and they were likely to be supervisory personnel.

Job Stability and Security

The percent of turnover figures were included in the firm interview form in order to gain some insight into the relative job stability and job security of the technicians in comparison

to the entire working force of the employing firms. The 80 firms interviewed certainly did not employ the total working force in Vermilion County, nor were sampling techniques used in order that statistical inferences could be drawn about the total working force in Vermilion County.

Various turnover figures gathered from the 80 companies interviewed, however, showed a decided superiority in favor of the technicians in job stability and job security. The total turnover rate for the engineering technicians was 1.56%; for the industrial technicians, 2.66%; for the technical specialists, 4.4%. For the entire working force employed by these 80 companies the labor turnover rate was a quite high 14.3%. These figures are not averages of turnover rates. The figures given were computed upon the basis of the total number of employees turned over per year by these 80 companies.

Training Programs

Responses to the last few items on the first page of the interview form indicated that, of the 80 firms interviewed, 50 firms operated a training program for technicians. Data were incomplete on the number of men trained yearly by these firms because 20 of these 50 firms did not report this number. The remaining 30 firms indicated that they had a total of 171 technicians in various types of training programs. Twenty-one firms reported a continuous training program in operation for technicians, and others reported various programs ranging in length from one month to 36 months. Formal or in-class training was reported by four firms, informal on-the-job training was reported by seven firms, and other various types of training were reported by ten firms. These other types of training included financial assistance through tuition refund at various institutions (Danville Junior College was mentioned frequently here), technical seminars, apprentice programs, manufacturers' short courses, adult education classes, and correspondence courses.

There is no kind of training which can be accomplished without expense, and over a period of years the firms who trained their personnel had undoubtedly invested an impressive amount of money in the education of these technicians. When all this is considered, it seems quite logical for these employers of technicians to discourage, in one way or another, a high turnover rate among their technicians. Technicians in Vermilion County were (at the time this study was made) in short supply, and management obviously did not enjoy the prospect of attempting to replace a technician who left his job.

Requirements for Initial Hiring

Educational

In filling out the items in the firm interview form concerning the minimum requirements for technicians employed by the firm, each interviewer was careful to secure the absolutely minimum amount of education acceptable to the firm for initial hiring in the classifications of engineering technicians, industrial technicians, and technical specialists. Employers preferred, of course, to hire personnel with as much training and experience as possible, but there is no indication of such preference in the data collected by these items. These data represent absolute minimums of educational attainment in order for an applicant to be considered for a job as a technician. Under pressure for extreme minimums in educational requirements, 11 of the responding firms admitted that they would consider high school graduates with no post-high school training as possible applicants in the engineering technician classification. Most of the firms who would respond in this manner were careful to point out to the interviewer that this would be true only if absolutely no one else were available, and that much training would be necessary before high school graduates could hope to function in this capacity. The most usual stopping place as interviewers pressed for lower minimum requirements was at the level of the post-high school technical school. The most usual reaction of management at this point was that it was not realistic to hire in this capacity anyone who had not attended such a school. Nine of the reponding firms insisted on a college degree at this level.

The same procedure when applied to the classification of industrial technicians revealed tha 28 of the responding firms would accept high school graduates, one stopped at the level of high school plus post-high school correspondence school, 18 stopped at the level of the post-high school technical school and three firms insisted that a college degree was necessary for satisfactory performance in their particular operation as an industrial technician.

For the technical specialist, 20 firms agreed that they would accept high school graduates, one firm insisted upon post-high school business school, 10 firms insisted upon post-high school technical school and one firm upon a college degree.

Concerning minimum years of work experience as a prerequisite to being considered for employment, 12 firms responded for the engineering technician with a range of from one to five years and a mode (or most usual response) of two years of experience.

For industrial technicians, 16 firms responded with the same one to five year range and the same most usual response of two years of experience. For technical specialists, nine firms responded with the same range of from one to five years and a most usual response of two years of experience.

Age Ranges

The firms in Vermilion County indicated to the interviewing staff members that they were willing to hire technicians in a surprisingly wide age range. Minimum and maximum age ranges within which the responding firms stated that they would hire technicians are shown below. The median ages shown are the middle (or midpoint) of the responses; the modes are the most frequent (or most usual) of the responses.

	Minimum Range: 18-50		Maximum Range: 25-65	
	Median	Mode	Median	Mode
Engineering Technicians	22	25	39	30
Industrial Technicians	25	25	40	35
Technical Specialists	18	18	35	35

The age ranges above should have definite meaning to people who might consider retraining themselves to work in one of the many fields of modern technology. Consideration of the medians, modes and upper limits of the maximum age ranges in these three categories suggests that any person above 40 years of age who wishes to acquire skills to enter a technical field should not be satisfied with a minimum amount of training. Instead, it implies that above the age of 40 years a complete retraining schedule would be more desirable. The relatively high maximum age limit also tends to support the viewpoint that competency was the first and foremost consideration in hiring technicians.

The management of the employing firms was consistent here; the responses given to the items concerning minimum requirements for technicians as prospective employees definitely indicated that these employers did not wish to hire newly graduated high school students and train them as technicians; the response to the starting age range indicated the same thing. These employers preferred that applicants be enough older than the average high school graduate to have had post-high school training.

Additional Requirements and Considerations in Hiring

When employers were asked to state specific additional requirements for employement of technicians, 31 firms re-

sponded. Thirteen of the firms mentioned specific additional requirements concerning the academic background of the applicant, and eight indicated that the firm used some test or series of tests for all applicants. Two responses referred to personality traits which would be useful in meeting the public, and the remaining responses are so diverse as to defy classification.

In reply to questioning about any additional considerations in hiring technicians, 39 firms responded. Twenty-three of these firms mentioned personality, attitudes, and personal appearance as additional considerations. Eleven firms mentioned communication skills and ability to meet the public, six firms mentioned completion of military service as preferable, and five firms mentioned job experience. The remaining responses were, as above, too diverse to classify. In neither the case of additional requirements nor the case of considerations in hiring did other than occasional responses indicate that requirements and considerations were different for any of the three classifications of technicians—except for the minimum education requirements previously stated.

Salary Ranges Stated by Employers

When the salary range of technicians was considered during the interview with management, management personnel were asked to give a low or starting and a high or top salary for the three classifications of technicians. The applicants for the technician's job were defined as the people they ordinarily found available for such work. Because the applicants for this sort of work in Vermilion County displayed such varied degrees of training and competency, the range of responses was quite wide. If these firms had been able to hire technicians with uniformly competent training, the range of responses to these items would not have been so great. These employers, however, stated the salary at which they would expect to hire an applicant for each classification, and they furthermore stated the maximum salary which such an applicant could expect to make if his demonstrated capabilities proved satisfactory in every way. These figures represent the approximate minimum and maximum salaries for each classification of technician.

Salaries are reported by giving only the median (or midpoint) of the range of responses for each classification. One reason for this is that many employers stated that they were not approached by applicants with the qualifications which they desired. Another reason is that staff members occasionally considered the figures that a few employers gave as not quite realistic. Also, some of these salaries were reported in terms of

hourly, weekly, or monthly wage rates, and these may have suffered some inaccuracy in transformation to yearly salaries. Median values are presented in tabular form below:

Table 2

MEDIAN SALARIES FOR TECHNICIANS AS REPORTED BY 80 EMPLOYING FIRMS

	Median Starting Salary	Median Top Salary
Engineering Technician	$5,100	$7,800
Industrial Technician	$4,170	$6,470
Technical Specialist	$4,130	$5,780

The range of responses given by employing firms indicated that it was quite possible for experienced and highly qualified engineering technicians and industrial technicians to earn an annual salary of $10,000 or more in Vermilion County, and this was verified by the salary figures given by the responding technicians.

Influence of Additional Training on Starting Salaries

When employers were asked to state whether additional training to adequate level would make a difference in the starting salary the firm would pay technicians, their responses were quite varied. Many employers gave negative answers and stated that they would prefer for a new employee to earn a raise in his salary. For the 26 firms who did respond positively to this question, the mode (or most usual response), and the median (or midpoint) of the responses was approxiamately $1,200 per year for engineering technicians; for the 34 firms who responded positively for the industrial technician the median was approximately $600 per year; and for the 17 firms who responded positively for the technical specialist the median was approximately $600 a year also.

The remaining portion of the information gathered from the employers of technicians is presented later in this report. The opinion of the management of the employing firms on the training of presently available technicians has been consolidated for presentation and comparison with the opinions of the technicians, who responded to the same questions on the questionnaire which they filled out. Presentation of another portion of this form relating to trends in employment appears in Chapter 8.

Chapter 6

ANALYSIS OF TECHNICIAN QUESTIONNAIRES

The first portion of this chapter is descriptive material composed of facts supplied by responding technicians. The response rate of the technicians in Vermilion County who were contacted during the course of this study was 344 respondents from a total of 512 identified and contacted, or 67% response.

As previously stated in this report, this study was limited to technicians who do work associated with the engineering function in industry. There are many others in Vermilion County who are technicians (or who are called technicians), but no attempt was made to identify, classify, or contact these technicians during the execution of this study.

EDUCATIONAL HISTORY OF TECHNICIANS

By far the most frequent curriculum studied by responding technicians when they were in high school was the college preparatory curriculum, with 136 reporting this curriculum and 86 reporting various other types of curricula. The distribution of responses giving the size of attended high schools indicated that most frequent attendance was in high schools with a student population of more than 1,000, with the next most frequent attendance in high schools with a student population of between 100 and 300. Of the 322 technicians who responded to the item relating to the location of the high school attended, 145 (or 45%) stated that they attended high schools outside of Vermilion County, with 53 stating that they attended high schools within the State of Illinois but outside Vermilion County, and 92 stating they attended high schools outside Illinois

Formal post-high school education was reported by 142 of the responding technicians. One hundred one reported from one to three years of such education with a mode (or most usual response) of two years and 41 reported from four to seven years with a mode of four years of such education. Extensive investigations into the influence of these 41 baccalaureate degree (or four year equivalent) respondents did not discern any significant difference between these respondents and other respondents. It seems that two years of specialized formal post-high school education was the most efficient for technicians, and that addi-

tional education leading to a baccalaureate degree showed no significant advantage for a practicing technician.

Below is a tabular summary of data concerning other forms of post-high school education:

	Mode(s) (most frequent responses(s)	Approximate Median (midpoint of responses)	Range of responses	Number of affirmative technician responses
Extension or night classes	1 year	1 year	1 to 6 yrs.	76
Armed Forces Schools	4 months	6 months	1 to 50 mos.	109
Correspondence courses	4, 12, & 24 months	11 months	1 to 72 mos.	91
Industry schools	1 month	5 months	1 to 48 mos.	68
On-the-job training	70 hours	70 hours	10 to 1000 hrs.	114

Apprenticeship: 59 technicians reported apprentice training; no description or length of training was given.

PERSONAL AND JOB HISTORY OF TECHNICIANS

The 341 technicians who responded to the item regarding age gave their range in ages as 19 to 73 years, with an approximate median age of 34.5 years. Three hundred twelve technicians reported that they were married, 17 reported that they were single, and seven reported that they were divorced or widowed. The most usual number of children in the families of these technicians was two, with 109 of the responding technicians reporting this size family. Two hundred fifty-six technicians reported that they owned their own home, and most of these homes were undoubtedly located in Vermilion County (and probably in the immediate vicinity of the City of Danville), since 304 technicians also reported that they lived within a distance of 10 miles or less from their place of work.

SALARIES REPORTED BY TECHNICIANS

Salaries were reported by 309 of the responding technicians, with 14 of these 309 reporting part-time jobs with annual salaries of less than $2,000. Neglecting these 14 part-time technicians and considering only the 295 full-time technicians, the salary range reported was from $2,000 to $13,000 with an approximate

median of $6,300, an approximate mode of $6,500 and a mean (a computed arithmetic average) of $6,605.

JOB OBJECTIVES AND JOB CHANGES

Responses of the technicians regarding the job objectives they had when they graduated from high school were classified and are listed below in descending order of frequency:

Objectives	Frequency of Responses	% of total
1. No response or no definite objectives.	160	46.5%
2. Objectives comparable to current position but different.	61	17.8%
3. Objectives greater than current position	49	14.2%
4. Objectives same as current position.	42	12.2%
5. Objectives of lesser status than current position.	32	9.3%

Regarding the reasons for following the line of work in which they were engaged, the technicians responded as follows:

Reasons	Frequency of Responses	% of Total
1. Incidental industrial opportunity (including salary attractions).	100	29.1%
2. Individual interest in this type of work.	100	29.1%
3. Armed Forces placement (or training).	19	5.5%
4. Personal influence of a friend	13	3.8%
5. Public school teacher influence.	2	.6%
6. Public school guidance.	1	.3%
7. Unclassified	80	23.2%
8. No response	29	8.4%

One hundred seventy-three of the responding technicians reported that they had made no job changes during the past five years. Ninety-two technicians reported two job changes during the past five years, making a total of 318 of the 344 responding technicians who had made two or less job changes during the past five years. The remaining 25 technicians reported from three to six job changes, bringing the total for the entire group to 286 job changes during the past five years. The responding technicians' lists of the salary ranges associated with job changes revealed that 212 of these job changes involved increases in salary.

It would be easy to assume that technicians changed jobs only for salary increases, but such is not the case. Increase in salary was an important reason for job changes, but it was not the only reason. This is shown by the classification below of reasons given by the responding technicians as major reasons for job changes during the past five years:

Reasons for Job Changes	Frequency of Responses
1. Increase in salary	43
2. Employing firm ceased operations (or lay off)	26
3. More responsibility	20
4. Advancement	19
5. Working conditions	19
6. Personal conflict	10
7. To work in an area for which technician was trained	5
8. Other unclassified reasons	32

When technicians were asked to state the number of years they had been employed by their present employer, 340 responses were given with a range of from less than one year to 48 years and and approximate median of five years of employment by the present employer. The approximate median of these responses can easily be verified by responses previously presented, wherein 173 respondents listed no job changes during the past five years and 170 respondents listed no reasons for job changes during the past five years.

JOB FUNCTIONS OF TECHNICIANS

The first page of the technician questionnaire contains a

list of 53 job functions (see questionnaire in Appendix II). Technicians were requested to respond to each of these as follows:

0	for things you do not do
X	for things you do only occasionally
XX	for things which you do more regularly, but which do not take much time, or which are a minor part of your work
XXX	for things which take major portions of your time, or which are a major part of your work
XXXX	for things which take all, or almost all, your time, or things at which you are normally a full-time specialist

Responses of the technicians to the random arrangement of 53 job functions were used to arrange job functions in relative order of frequency of performance by computation of a ranking factor for each job function. The sums of each of the selective responses indicating frequency of performance of each job function were taken and the ratios of these sums were computed. For rank ordering in relative frequency of performance of job functions, the ratios were approximated and ranking factors were computed as follows:

Responses indicating frequency of performance:	0	X	XX	XXX	XXXX
Sums of responses:	11314 +	3527 +	1963 +	911 +	517 = 18232 = 344 x 53

		Ratios Computed	Approximations used
$\frac{3527}{3527}$	=	$\frac{1}{1}$	$\frac{1}{1}$
$\frac{3527}{1963}$	=	$\frac{1.8}{1}$	$\frac{2}{1}$
$\frac{3527}{911}$	=	$\frac{3.9}{1}$	$\frac{4}{1}$
$\frac{3527}{517}$	=	$\frac{6.8}{1}$	$\frac{8}{1}$

$$\text{Ranking Factor for each Job Function} = \begin{array}{l} 1 \times (\text{sum of X responses}) \\ + 2 \times (\text{sum of XX responses}) \\ + 4 \times (\text{sum of XXX responses}) \\ + 8 \times (\text{sum of XXXX responses}) \end{array}$$

These ratios (1, 2, 4, and 8) place more weight on the technicians' responses as these responses indicate increases in proportion of time each function occupies. The highest ratio (8) used for the XXXX responses was arbitrarily increased from the computed 6.8/1 ratio in order to provide for technicians reporting true full-time specialization in a particular function. Figure VI shows these 53 job functions arranged in rank order by size of the ranking factors computed with this formula. The responses from which this Figure was set up are in Appendix IV.

If one fact is not kept in mind when considering Figure VI, this rank order of frequency of performance of job functions can be misinterpreted. This important consideration is: Figure VI is a representation of the order of job functions performed by the reporting technicians. It does not necessarily represent the relative importance of each job function, or of any single job function as applied to the ideal or desired functioning of a competent technician. For example: 12 technicians reported that data processing took up major portions of their time or that they were full-time specialists in this area. Management of many firms which employed technicians indicated to interviewers, however, an intense interest in data processing, and several firms were investigating the possibilities of the use of data processing in their operations. These firms were all aware of the newly implemented data-processing curriculum offered by Danville Junior College, and many management personnel were pleased at prospects of being able to hire people qualified in this field. It may easily be, then, that the reason that data processing does not rank higher is that there had been no local supply of people trained to perform this particular task. In the job function described as "Applying Mathematics to Design", 217 responding technicians reported that they were not so engaged. Later in this report, it is shown that the employers of these technicians considered them to be, in general, inadequate in mathematics. It is probable that many technicians in Vermilion County did not perform this particular function, and were not assigned to jobs that required this particular function, only because their training left them incapable of "Applying Mathematics to Design".

Thus the rank ordering of the job functions of Figure VI

Figure VI

RANK ORDER OF 53 JOB FUNCTIONS
FROM RESPONSES OF 344 TECHNICIANS

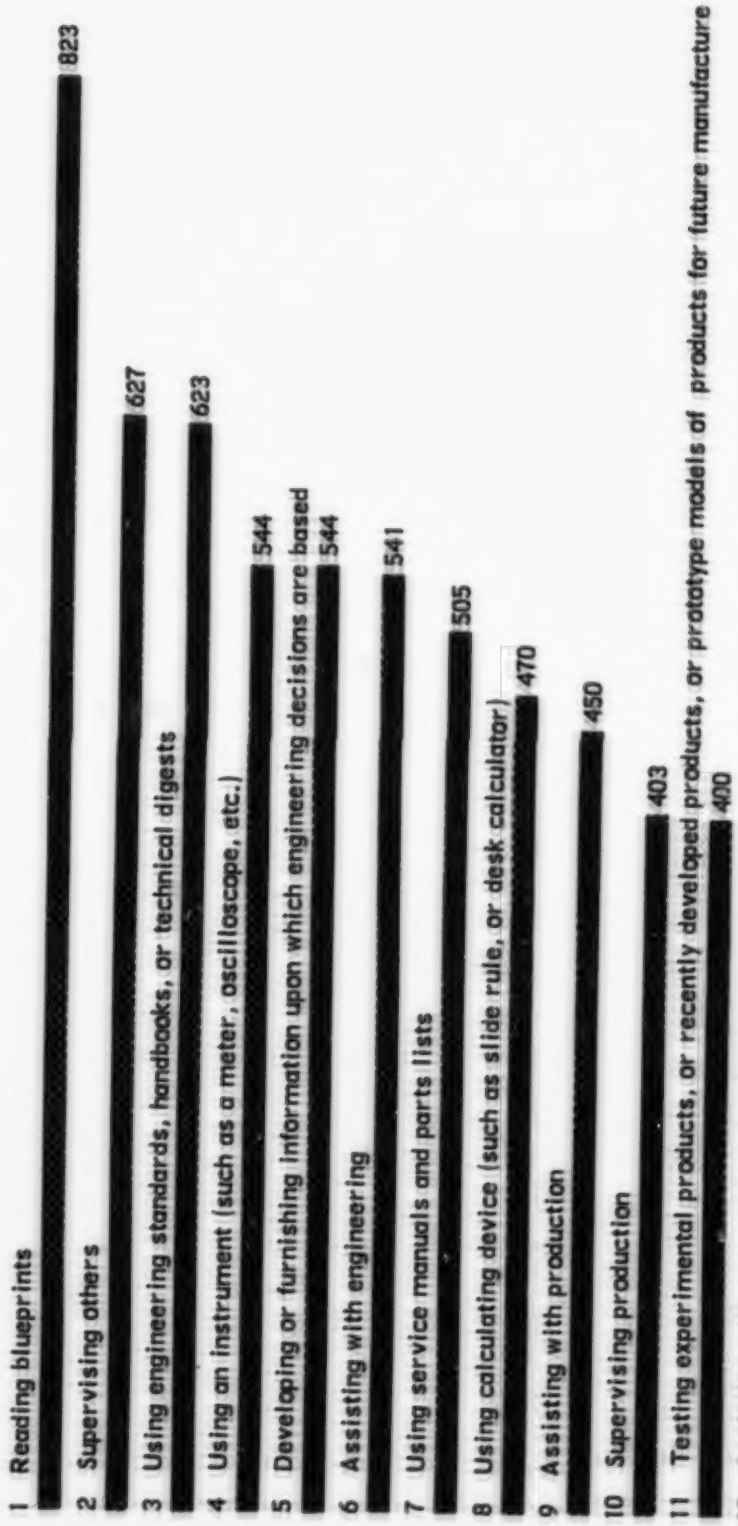
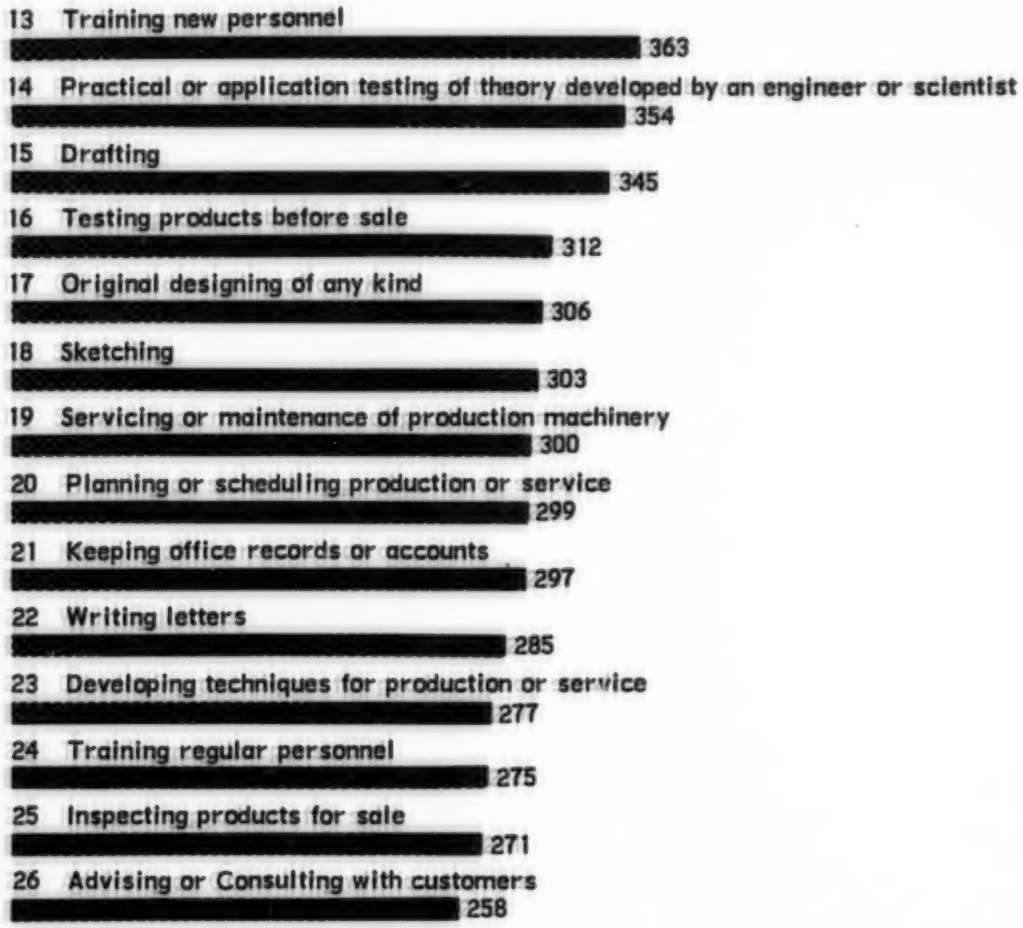


Figure VI (Continued)



(Continued)

Figure VI (Continued)

27 Servicing products after sale
[redacted] 257

28 Technical writing, or writing technical reports
[redacted] 254

29 Policy making, planning, or decision making at management level
[redacted] 246

30 Filing
[redacted] 238

31 Designing tools, jigs, or other production devices used by this firm
[redacted] 236

32 Estimating or computing production costs
[redacted] 233

33 Applying mathematics to design
[redacted] 218

34 Modifying processes used by firm
[redacted] 213

35 Conducting research
[redacted] 212

36 Modifying design of firm products
[redacted] 212

37 Selling firm products or services
[redacted] 205

38 Producing products for sale
[redacted] 202

39 Planning installation of production equipment used by firm
[redacted] 194

40 Estimating costs for customers
[redacted] 185

Figure VI (Continued)

41 Planning installation of firm products
[redacted] 183

42 Purchasing for firm
[redacted] 180

43 Making (not designing) tools, jigs, or other devices for use by this firm in production
[redacted] 167

44 Installing equipment sold by firm
[redacted] 163

45 Using statistical methods for quality control
[redacted] 156

46 Data processing
[redacted] 141

47 Assembling products for sale
[redacted] 139

48 Speaking before groups
[redacted] 106

49 Handling money for firm
[redacted] 97

50 Servicing products before sale
[redacted] 93

51 Programming computer equipment
[redacted] 61

52 Promotion, Publicity, or Advertising
[redacted] 46

53 Using supporting instrument for computer (such as key punch)
[redacted] 18

should be considered as only what it is: an approximation of the relative frequency of the activities in which the technicians in Vermilion County were engaged. Had management of the firms (or the technicians themselves) responded to this list of job functions with regard to desirability of performance by a technician, the rank order of desired performance might have been very different from the rank order of actual frequency of performance.

Using Figure VI as it is intended to be used and keeping in mind its limitations, it is still possible, however, to gain certain impressions about the technicians in the industries of Vermilion County. The relatively low rank order of items which mention or imply contacts outside the firm conveys the impression that most of the work of these technicians was done within the firm and that most of their personal contacts were with other people who work within this firm. The next impression is that many of these people were functioning as supervisory personnel whether or not this was a stated part of their job. Concurrent with this is the impression that these people engaged to a marked extent in the interpretation of engineering or scientific facts, processes or procedures to those whom they supervised. From the relatively high rank order of items 4 through 8 plus items 11, 12, and 14 comes the impression that these people consistently practiced the application of their own skills in conjunction with the engineering function of the employing firm. The high rank order of items such as 9 and 10 and other items which mention or imply job functions allied with the production process suggests the presence of industrial technicians (as industrial technicians are defined for the purpose of this report), and may also suggest that some engineering technicians in Vermilion County functioned in an advisory or supervisory capacity in the production process.

DISTRIBUTION OF TECHNICIANS IN FIELDS OF TECHNOLOGY AS REPORTED BY TECHNICIANS

The even decline in frequency shown by the items included in the lower part of Figure VI suggests a wide dispersion of activities on the part of these technicians, and this is undoubtedly true since these technicians worked in many varied fields of technology and since each technician reported his frequency of activities without regard to the technology in which he worked. This impression is substantiated by the fact that there are only six items on this list of job functions, (numbers 24, 30, 48, 49, 52, and 53) in which no responding technician classified himself as a full-time specialist. Many of these technicians,

moreover, worked in more than one field of technology. The responding technicians classified themselves as follows:

TABLE 3

DISTRIBUTION BY FIELDS OF TECHNOLOGY

Field of Technolgy	Number of Technicians
Mechanical	122
Electrial	26
Electronic	48
Chemical	44
Mechanical-Electrical	29
Mechanical-Electronic	7
Mechanical-Chemical	16
Mechanical-Electrical-Electronic	5
Mechanical-Electrical-Chemical	3
Electrical-Electronic	14
Mechanical-Electrical-Electronic-Chemical	2
Civil	7
Data Processing	5
No response and unclassified	16

The above classifications are the results of grouping from even more widely diverse fields of technical work. The high frequency of mechanical technicians, electrical and electronic technicians, and chemical technicians among those responding again points out the relative importance of these technologies in the industries of Vermilion County. This relative importance is in exact correspondence to the conclusions derived from the information gathered from the firms employing these technicians. Responses from both the technicians and employing firms indicate that approximately 50% of all the technicians who work in Vermilion County work either full time or part time in the field of Mechanical Technology.

Responses by technicians identified in the major fields of technology are shown in Table 4.

One cannot add the columns below and expect meaningful totals. For example: technicians who reported work in both mechanical and electronic fields are included in each of these part-time totals (62 and 76).

TABLE 4

DISTRIBUTION OF TECHNICIANS BY MAJOR FIELDS OF TECHNOLOGY IN VERMILION COUNTY

	Number identified by firms	Number reported full time this field	% response full time this field	Number reported part time this field
Mechanical	261	122	46.7%	62
Electronic	82	48	58.6%	76
Electrical	43	26	60.5%	53
Chemical	77	44	57.1%	21

JOB FUNCTIONS OF TECHNICIANS IN SPECIFIC FIELDS OF TECHNOLOGY

In Tables 5, 6, 7, and 8, job functions are listed in descending rank order of frequency of performace according to responses of technicians in the various major fields of technology (and combinations thereof) which were found in Vermilion County. These are the same 53 job functions shown in Figure VI but they are arranged in different order because of the varying job functions of technicians who work in different fields.

TABLE 5

RANK ORDER OF 53 JOB FUNCTIONS FROM RESPONSES OF 122 MECHANICAL TECHNICIANS

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
1. Reading blueprints	12	13	37	38	22	415
2. Supervising others	41	31	17	15	18	269
3. Using engineering standards, handbooks, or technical digests	17	36	44	21	4	240
4. Drafting	52	31	12	8	19	239
5. Assisting with engineering	29	51	17	15	10	225
6. Supervising production	61	27	13	6	15	197
7. Assisting with production	47	35	21	11	8	185

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
8. Designing tools, jigs, or other production devices used by this firm	51	31	22	9	9	183
9. Using service manuals and parts lists	40	38	29	11	4	172
10. Developing or furnishing information upon which engineering decisions are based	41	45	24	7	6	169
11. Original designing of any kind	45	38	21	14	4	168
12. Sketching	27	53	33	7	2	163
13. Assisting with new product development	43	49	20	5	5	149
14. Using calculating device (such as slide rule or desk calculator)	44	43	21	12	2	149
15. Developing techniques for production or service	61	30	18	10	3	130
16. Training new personnel	38	55	21	8	0	129
17. Estimating or computing production costs	74	24	10	9	5	220
18. Writing letters	51	43	20	8	0	119
19. Applying mathematics to design	61	30	21	9	1	116
20. Making (not designing) tools, jigs, or other devices for use by this firm in production	85	17	8	4	8	113
21. Planning installation of production equipment used by firm	74	22	15	8	3	108
22. Planning or scheduling production or service	76	23	12	7	4	107
23. Modifying design of firm products	67	32	15	6	2	102
24. Policy making, planning, or decision making at management level	74	21	16	10	1	101
25. Modifying processes used by firms	67	37	10	6	2	97
26. Training regular personnel	47	43	19	3	0	93
27. Testing experimental products or recently developed products or prototype models of products for future manufacture	76	27	12	4	3	91
28. Practical or application testing of theory developed by an engineer or scientist	78	27	12	4	3	91

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
29. Servicing or maintenance of production machinery	82	17	15	6	2	87
30. Estimating costs for customers	78	25	11	6	2	87
31. Producing products for sale	92	12	8	6	4	84
32. Advising or consulting with customers	74	32	10	6	0	80
33. Keeping office records or accounts	73	30	15	4	0	76
34. Inspecting products for sale	74	27	18	3	0	75
35. Purchasing for firm	78	23	18	3	0	71
36. Technical writing or writing technical reports	77	26	16	3	0	70
37. Planning installation of firm products	94	15	5	5	3	69
38. Using an instrument (such as a meter, oscilloscope, etc.)	77	31	11	2	1	69
39. Filing	67	43	12	0	0	67
40. Assembling products for sale	93	13	8	7	1	65
41. Servicing products after sale	95	14	6	5	2	62
42. Selling firm products or service	99	11	6	4	2	55
43. Testing products before sale	91	19	10	1	1	51
44. Conducting research	90	22	6	4	0	50
45. Speaking before groups	92	24	5	1	0	38
46. Using statistical methods for quality control	100	15	6	1	0	31
47. Handling money for firm	105	9	6	2	0	29
48. Servicing products before sale	103	13	5	1	0	27
49. Programming computer equipment	115	3	2	0	2	23
50. Installing equipment sold by firm	105	14	2	1	0	22
51. Data processing	109	8	5	0	0	18
52. Promotion, publicity, or advertising	111	10	1	0	0	12
53. Using supporting instrument for computer (such as key punch)	122	0	0	0	0	0

TABLE 6

RANK ORDER OF 53 JOB FUNCTIONS FROM RESPONSES OF 41 MECHANICAL-ELECTRICAL, MECHANICAL-ELECTRONIC, & MECHANICAL-ELECTRICAL-ELECTRONIC TECHNICIANS

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
1. Reading blueprints	8	8	10	9	6	112
2. Servicing or maintenance of production machinery	22	3	4	4	8	91
3. Using engineering standards, handbooks, or technical digests	8	10	14	5	4	90
4. Supervising others	11	10	7	10	3	88
5. Using service manuals and parts lists	5	14	16	4	2	78
6. Servicing products after sale	26	3	2	3	7	75
7. Developing or furnishing information upon which engineering decisions are based	11	19	5	4	2	61
8. Assisting with engineering	12	14	11	3	1	56
9. Using an instrument (such as a meter, oscilloscope etc.)	18	11	6	3	2	55
10. Training new personnel	8	24	5	3	1	54
11. Selling firm products or services	22	8	7	1	3	50
12. Assisting with production	23	9	5	1	3	47
13. Supervising production	31	3	1	2	4	45
14. Planning or scheduling production or service	23	7	5	5	1	45
15. Using calculating device (such as slide rule or desk calculator)	17	13	6	5	0	45
16. Advising or consulting with customers	21	8	8	3	1	44
17. Training regular personnel	15	16	6	4	0	44
18. Keeping office records or accounts	24	6	8	2	1	38
19. Filing	21	9	8	3	0	37
20. Writing letters	20	11	7	3	0	37
21. Policy making, planning, or decision making at management level	21	12	4	4	0	36

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
22. Installing equipment sold by firm	30	6	0	3	2	36
23. Sketching	22	8	9	2	0	34
24. Testing experimental products or recently developed products or prototype models of products for future manufacture	29	6	3	1	2	32
25. Planning installation of firm products	27	6	5	2	1	32
26. Applying mathematics to design	28	6	4	2	1	30
27. Developing techniques for production or service	22	10	8	1	0	30
28. Modifying processes used by firm	20	15	5	1	0	29
29. Original designing of any kind	23	10	7	1	0	28
30. Assisting with new product development	21	14	5	1	0	28
31. Technical writing or writing technical reports	26	9	3	3	0	27
32. Estimating or computing production costs	30	4	5	1	1	26
33. Drafting	29	7	3	1	1	25
34. Estimating costs for customers	24	11	5	1	0	25
35. Producing products for sale	34	2	1	3	1	24
36. Assembling products for sale	36	1	1	1	2	23
37. Testing products before sale	28	11	0	1	1	23
38. Inspecting products for sale	29	7	4	0	1	23
39. Modifying design of firm products	25	12	3	1	0	22
40. Purchasing for firm	28	8	4	1	0	20
41. Planning installation of production equipment used by firm	27	10	4	0	0	18
42. Practical or application testing of theory developed by an engineer or scientist	30	9	0	2	0	17

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
43. Conducting research	30	10	0	1	0	14
44. Designing tools, jigs, or other production devices used by this firm	30	9	2	0	0	13
45. Handling money for firm	31	8	2	0	0	12
46. Speaking before groups	30	10	1	0	0	12
47. Making (not designing) tools, jigs, or other devices for use by this firm in production	34	4	3	0	0	10
48. Data processing	35	5	0	1	0	9
49. Using statistical methods for quality control	35	3	3	0	0	9
50. Servicing products before sale	34	6	1	0	0	8
51. Promotion, publicity, or advertising	37	2	2	0	0	6
52. Programming computer equipment	40	0	1	0	0	2
53. Using supporting instrument for computer (such as key punch)	40	0	1	0	0	2

TABLE 7

RANK ORDER OF 53 JOB FUNCTIONS FROM RESPONSES OF 88 ELECTRICAL, ELECTRONIC, & ELECTRICAL-ELECTRONIC TECHNICIANS

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
1. Using an instrument (such as a meter, oscilloscope, etc.)	16	11	18	23	20	299
2. Reading blueprints	16	13	28	22	9	229
3. Using service manuals and parts lists	23	24	15	17	9	194
4. Developing or furnishing information upon which engineering decisions are based	30	19	17	10	12	189
5. Assisting with engineering	28	26	14	8	12	182

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
6. Using engineering standards, handbooks, or technical digests	10	27	31	18	2	177
7. Testing experimental products or recently developed products or prototype models of products for future manufacture	47	11	10	7	13	163
8. Practical or application testing of theory developed by an engineer or scientist	39	20	14	9	6	132
9. Assisting with new product development	51	11	13	4	9	125
10. Supervising others	41	21	13	8	5	119
11. Using calculating device (such as slide rule or desk calculator)	32	29	16	9	2	113
12. Servicing products after sale	60	6	7	8	7	108
13. Installing equipment sold by firm	63	5	6	6	8	105
14. Testing products before sale	55	14	9	3	7	100
15. Assisting with production	53	14	13	3	5	92
16. Servicing or maintenance of production machinery	64	10	4	2	8	90
17. Training new personnel	19	51	17	1	0	89
18. Sketching	43	26	14	5	0	74
19. Advising or consulting with customers	49	14	21	4	0	72
20. Planning installation of firm products	60	13	5	8	2	71
21. Original designing of any kind	49	25	9	3	2	71
22. Keeping office records or accounts	51	15	17	5	0	69
23. Technical writing or writing technical reports	45	25	14	4	0	69
24. Inspecting products for sale	68	7	6	2	5	67
25. Training regular personnel	39	34	15	0	0	64
26. Modifying design of firm products	57	19	9	0	3	61

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
27. Conducting research	61	15	5	5	2	61
28. Filing	46	27	13	2	0	61
29. Writing letters	47	24	16	1	0	60
30. Designing tools, jigs, or other production devices used by this firm	66	18	3	1	0	58
31. Drafting	57	21	4	5	1	57
32. Planning or scheduling production or service	69	9	3	4	3	55
33. Developing techniques for production or service	60	17	8	1	2	53
34. Selling firm products or services	61	15	8	3	1	51
35. Applying mathematics to design	54	27	5	1	1	49
36. Supervising production	69	10	3	4	2	48
37. Servicing products before sale	71	9	4	1	3	45
38. Modifying processes used by firm	61	19	6	2	0	39
39. Making (not designing) tools, jigs, or other devices for use by this firm in production	75	5	4	2	2	37
40. Assembling products for sale	77	4	2	3	2	36
41. Estimating costs for customers	66	16	5	0	1	34
42. Policy making, planning, or decision making at management level	72	12	0	3	1	32
43. Purchasing for firm	70	12	5	0	1	30
44. Planning installation of production equipment used by firm	71	10	4	3	0	30
45. Data processing	80	3	1	2	2	29
46. Estimating or computing production costs	73	8	4	3	0	28
47. Speaking before groups	66	18	4	0	0	26
48. Producing products for sale	81	3	1	1	2	25
49. Using statistical methods for quality control	77	6	3	2	0	20
50. Handling money for firm	74	8	6	0	0	20

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
51. Programming computer equipment	84	3	0	0	1	11
52. Promotion, publicity, or advertising	81	5	2	0	0	9
53. Using supporting instrument for computer (such as key punch)	84	2	2	0	0	6

TABLE 8

RANK ORDER OF 53 JOB FUNCTIONS FROM RESPONSES OF 44 CHEMICAL TECHNICIANS

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
1. Testing products before sale	15	8	6	9	6	104
2. Using an instrument (such as a meter, oscilloscope, etc.)	9	13	10	9	3	93
3. Using calculating device (such as slide rule, or desk calculator)	9	4	23	7	1	86
4. Testing experimental products or recently developed products or prototype models of products for future manufacture	15	13	9	1	6	83
5. Practical or application testing of theory developed by an engineer or scientist	17	9	10	3	5	81
6. Inspecting products for sale	18	8	8	7	3	76
7. Using statistical methods for quality control	20	5	10	6	3	73
8. Conducting research	19	15	3	3	4	65
9. Assisting with new product development	19	14	6	1	4	62
10. Assisting with production	18	14	6	3	3	62
11. Keeping office records or accounts	17	10	10	7	0	58
12. Supervising others	21	12	4	5	2	56
13. Using engineering standards, handbooks, or technical digests	10	19	12	3	0	55

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
14. Technical writing or writing technical reports	17	14	8	4	1	54
15. Developing or furnishing information upon which engineering decisions are based	16	14	10	3	1	54
16. Training new personnel	9	30	4	1	0	42
17. Filing	17	15	11	1	0	41
18. Producing products for sale	33	5	2	1	3	37
19. Training regular personnel	17	20	6	1	0	36
20. Assisting with engineering	26	13	2	2	1	33
21. Supervising production	32	6	3	1	2	32
22. Writing letters	24	10	9	1	0	32
23. Developing techniques for production or service	29	7	6	1	1	31
24. Using service manuals and parts lists	25	14	3	2	0	28
25. Data processing	30	7	6	1	0	23
26. Modifying processes used by firm	31	8	4	1	0	20
27. Planning or scheduling production or service	36	5	1	1	1	19
28. Advising or consulting with customers	34	4	5	1	0	18
29. Purchasing for firm	35	3	5	1	0	17
30. Policy making, planning, or decision making at management level	34	5	4	1	0	17
31. Modifying design of firm products	36	4	3	1	0	14
32. Sketching	35	7	1	1	0	13
33. Estimating or computing production costs	37	4	2	1	0	12
34. Original designing of any kind	34	8	2	0	0	12
35. Planning installation of production equipment used by firm	34	8	2	0	0	12
36. Selling firm products or services	39	3	0	2	0	11
37. Speaking before groups	36	6	2	0	0	10

	Frequency of Response					
	0	X	XX	XXX	XXXX	Ranking Factor
38. Assembling products for sale	36	6	2	0	0	10
39. Applying mathematics to design	37	5	2	0	0	9
40. Servicing or maintenance of production machinery	38	4	2	0	0	8
41. Servicing products before sale	38	4	2	0	0	8
42. Estimating costs for customers	39	3	2	0	0	7
43. Reading blueprints	38	5	1	0	0	7
44. Promotion, publicity or advertising	38	5	1	0	0	7
45. Servicing products after sale	37	7	0	0	0	7
46. Drafting	41	2	0	1	0	6
47. Handling money for firm	42	1	0	1	0	5
48. Designing tools, jigs, or other production devices by this firm	40	4	0	0	0	4
49. Planning installation of firm products	41	3	0	0	0	4
50. Installing equipment sold by firm	42	2	0	0	0	2
51. Programming computer equipment	43	1	0	0	0	1
52. Making (not designing) tools, jigs, or other devices for use by this firm in production	44	0	0	0	0	0
53. Using supporting instrument for computer (such as key punch)	44	0	0	0	0	0

Chapter 7

COMPARISON OF OPINIONS OF TECHNICIANS AND EMPLOYING FIRMS ON 20 ACADEMIC AREAS

Contained in both instruments used in this study are identical lists of 20 academic areas which both management and technicians were requested to classify with regard to relationship to the job of a technician and with regard to adequacy of training of presently available technicians (see page two of the firm interview form in Appendix I and page four of the technicians' questionnaire in Appendix II).

There is one caution to observe when considering the following discussion; it was possible for a respondent to confuse the terms "adequate" and "unrelated". During interviews with the employing firms, interviewing staff members often found a tendency to classify one or more of the 20 listed academic areas as "adequate" because the employer felt that proficiency in some particular academic area was not necessary for the performance of the technician's job, or that any training a technician had received was "adequate" if he did not need it to perform his job. The intent of the questionnaire and the interview form was, of course, to have such academic areas classified as unrelated to the job of a technician. Interviewers were able to control this semantic difficulty during the interviews with the employing firms. Such control could not be exercised, however, when the responding technicians filled out their questionnaires at home. It is therefore possible that some technicians' responses which should have been "unrelated" have found their way into one of the columns which relate to adequacy.

CORRELATION OF OPINIONS REGARDING JOB RELATIONSHIP

Table 9 contains lists of the 20 academic areas in descending order of high relatonship according to the opinions of the employing firms and groups of technicians identified (by technicians' responses) in various fields of technology encountered in Vermilion County. The rank order of relationship given by totaled responses of the 344 responding technicians is not shown because there is little to be gained by comparing a full or 100%

TABLE

RANK ORDER OF RELATIONSHIP TO TECHNICIANS'

80 EMPLOYERS	122 MECHANICAL TECHNICIANS	41 MECHANICAL-ELECTRICAL MECHANICAL-ELECTRONIC, MECHANICAL-ELECTRICAL-ELECTRONIC-TECHNICIANS
1. English	1. Mathematics	1. Mathematics
2. Speech	2. English	2. Electricity
3. Mathematics	3. Speech	3. English
4. Technical Writing or Reporting	4. Drafting	4. Speech
5. Industrial Relations	5. Industrial Relations	5. Technical Writing or Reporting
6. Design or Mechanisms	6. Manufacturing Processes	6. Electronics
7. Manufacturing Processes	7. Machine Shop	7. Industrial Relations
8. Drafting	8. Design or Mechanisms	8. Design or Mechanisms
9. Electronics	9. Technical Writing or Reporting	9. Drafting
10. Electricity	10. Applied Science	10. Machine Shop
11. Applied Science	11. Metal Shop	11. Metal Shop
12. Machine Shop	12. Electricity	12. Manufacturing Processes
13. Physics	13. Business Training	13. Physics
14. Chemistry	14. Physics	14. Business Training
15. Business Training	15. Electronics	15. Applied Science
16. Metal Shop	16. Chemistry	16. Chemistry
17. Accounting	17. Wood Shop	17. Typing
18. Wood Shop	18. Accounting	18. Accounting
19. Typing	19. Typing	19. Wood Shop
20. Shorthand	20. Shorthand	20. Shorthand

9

JOBS OF 20 ACADEMIC AREAS GIVEN BY:

88 ELECTRICAL, ELECTRONIC, ELECTRICAL-ELECTRONIC TECHNICIANS	44 CHEMICAL TECHNICIANS	49 TECHNICIANS IN VARIOUS LESS FREQUENTLY ENCOUNTERED TECHNOLOGIES
1. Mathematics	1. Mathematics	1. Mathematics
2. Electricity	2. Technical Writing or Reporting	2. English
3. Electronics	3. English	3. Speech
4. Speech	4. Chemistry	4. Industrial Relations
5. English	5. Speech	5. Business Training
6. Technical Writing or Reporting	6. Physics	6. Typing
7. Physics	7. Industrial Relations	7. Technical Writing or Reporting
8. Industrial Relations	8. Typing	8. Manufacturing Processes
9. Drafting	9. Manufacturing Processes	9. Accounting
10. Design or Mechanisms	10. Electricity	10. Chemistry
11. Chemistry	11. Electronics	11. Drafting
12. Typing	12. Business Training	12. Electricity
13. Manufacturing Processes	13. Accounting	13. Design or Mechanisms
14. Business Training	14. Applied Science	14. Physics
15. Machine Shop	15. Wood Shop	15. Applied Science
16. Metal Shop	16. Design or Mechanisms	16. Machine Shop
17. Applied Science	17. Machine Shop	17. Electronics
18. Wood Shop	18. Drafting	18. Wood Shop
19. Accounting	19. Metal Shop	19. Metal Shop
20. Shorthand	20. Shorthand	20. Shorthand

response by the management of the employing firms with varying percentages of responses by technicians who work in different fields of technology.

In order to determine whether basic agreement on job relationships of these academic areas existed between employers and employees, however, a statistical computation of a coefficient of correlation between the rank orders of relationship set forth by the totaled responses was performed. The rank order correlation coefficient used was the Spearman rho, and the value computed for this coefficient of correlation was .91. Perfect agreement would show a coefficient of correlation of 1.00. Further investigation of the values here reveal a level of confidence of more than 99%, which means that there is a mathematical probability of more than 99% that the agreement in rank order set forth by the opinions of the 80 employers and the 344 responding technicians is significant — that it did not just happen by chance.

COMPARISON OF RANK ORDERS OF RELATIONSHIP

The most important of the implications of Table 9 concern those academic areas which consistently appear in extreme positions at the top and bottom of the various rank order lists. The items which consistently appear at the extreme top of the lists are academic areas which were of extreme importance to practicing technicians in Vermilion County. The academic areas which consistently appear at the extreme bottom of these lists were of generally minor importance to the job of a technician.

It would be ideal if a student were able to acquire knowledge in all academic areas which could make any contribution, however small, to his future proficiency in work for which he is preparing, but limitations imposed by available time prevent accomplishment of this ideal. It is always necessary to select for presentation to students the most basic and essential portion of existing knowledge pertaining to any subject. When choices must be made from various academic areas for technical education, the order of relationship of any particular academic area to the job of the technician becomes of paramount importance. The implications of these relationships are applicable to both post-high school technical education and to choices in preparatory or supplementary high school courses which should be considered as prerequisites for entrance into a post-high school technical school.

Implications of Rank Orders

The consistently high order of relationship assigned to mathematics by both employers and technicians should have definite implications for curriculum design in technical education. The relation of mathematics to tl. job of the technician has been investigated by others. Mathematics is of major importance in the work of the technician.[16]

During conversations with interviewers, several technicians and many employers stated the opinion that a technician's progress is limited by his ability in mathematics, and by his ability to apply mathematics. The ability of a student to grasp a curriculum offered in technical education is also limited by his facility with mathematics. In both the study of scientific theory and the study of the application of scientific theory, a student or practicing technician will encounter mathematics as he learns other subjects. If a technician does not develop proficiency with mathematics, this lack of proficiency will impose definite limits upon his ability to develop competency in other subject matter areas. Many different opinions exist about the levels of mathematics necessary for efficient performance by technicians in the varied fields of technology, but the undoubted importance of mathematics plus the suggestion that the technician's progress may be limited by his facility with mathematics should supply sufficient encouragement for a practicing technician (or a student who wishes to become a technician) to acquire all the proficiency with mathematics he possible can.

The high rank order positions of the items "English", "Speech", and (in most cases) "Technical Writing" demonstrates that both technicians and employers considered communication skills of high importance to a technician, with employers considering these items as even more important than they were considered by technicians. This is particularly logical when it is remembered that the technicians in Vermilion County have been previously shown to be involved in supervisory functions. Proficiency with communication skills is of extreme importance to a supervisor.

Implications of Variation in Rank Orders

There are also implications suggested by the variation in the rank ordering of the various academic areas by technicians who work in different fields of technology. For instance, the item "Chemistry" is, of course, of major importance to chemical technicians, of much less importance to electrical-electronic technicians and of relatively minor importance to mechanical technicians, including mechanical technicians who also work in

the electrical and electronic fields. This suggests that curriculum designs for the electrical and electronic fields should select from chemistry only those parts of this academic area which have direct application to this field of technology, and that curriculum designs for Mechanical Technology (if they include chemistry at all) should be even more highly selective.

Another example is the item "Physics". Technicians who work in the field of Mechanical Technology, including those who also work in the electrical and electronic field, rank the item "Design or Mechanisms" above "Physics" in relationship to their jobs. The implication here is that physics should be presented not in the form of a conventional college course, but that selected applicable topics of physics should be presented as prerequisites for courses in mechanisms.

A similar implication in another field of technology is apparent in the order of rank assigned by technicians in the electrical and electronic fields to Electricity, Electronics, Physics, and Design or Mechanisms (see Table 9). The implication here is that curriculum designs for these technologies should also include selected applicable topics of physics.

The topic selections for Electrical-Electronic Technology would not, however, be the same as those made for Mechanical Technology. When limitations imposed by time are considered, it becomes obvious that one standardized conventional college-level course in physics cannot be presented in an extent sufficient to meet all the diverse needs of different technologies. Inconvenient as it may be, technicians are specialists, and they need specialized courses.

CORRELATION OF OPINIONS REGARDING ADEQUACY OF PREPARATION

In order to further compare the opinions of the technicians and the employing firms, a formula was used with the responses relating to adequacy of preparation in the 20 listed academic areas. This formula is as follows:

$$\text{Ratio of inadequacy for each of the 20 academic areas} = \left(\frac{\text{Number of "barely adequate" responses} + 2 \times (\text{Number of "inadequate" responses})}{\text{Number of "adequate" responses}} \right)$$

The arbitrary part of the formula given above is the factor (2) by which the number of "inadequate" responses is multiplied. This factor is necessarily an arbitrary one because there is

no mathematically precise way to find the ratio between a "barely adequate" performance and an "inadequate" performance in any academic area or in any job function. The use of this arbitrary factor weights more heavily the influence of the responses given in the inadequate classification for each academic area. The formula above gives a ratio of overall inadequacy to adequacy, and when used with both the opinions of technicians and the opinions of employing firms, furnishes a basis for comparison of these opinions.

In order to determine whether basic agreement regarding adequacy (or inadequacy) existed between employers and the 344 responding technicians regarding the 20 listed academic areas, the Spearman rho rank order coefficient of correlation was used. Between rank orders based upon ratios of inadequacy set forth by the two different group opinions, the value computed for this coefficient was .65, which is not as high as the value (.91) obtained when relationship was considered. There is, however, the same level of confidence of more than 99% for both coefficients of correlation. Although management of the 80 employing firms and the 344 responding technicians were in basic agreement regarding both relationship and adequacy (or inadequacy) in these 20 academic areas, they agreed more in the order of relationship to technicians' job than in the order of adequacy of academic preparation or performance.

COMPARISON OF OPINIONS REGARDING ADEQUACY OF PREPARATION

In only three of the listed academic areas - English, Speech, and Wood Shop - did the 344 responding technicians (according to the stated ratio formula) feel that they were more adequate than inadequate, and in Chemistry and Shorthand the technicians expressed more feelings of inadequacy than management of the employing firms. With the two exceptions just noted, the ratios of inadequacy according to the employing firms were larger than the ratios of inadequacy according to the technicians. There is nothing unusual in an employer being more critical of an employee than the employee is critical of himself; the only unusual aspect of the opinons on inadequacy is that the responding technicians were so inclined toward self criticism. The technicians' generally well organized and intelligent manner of response, both here and in the unstructured responses, lends a certain aura of authority to their opinions.

Table 10 shows comparisons of the opinions of responding technicians and employing firms regarding inadequacy of the 20 academic areas listed in both the firm interview form and

the technicians' questionnaire. These 20 items are arranged by rank order of high relationship to the job of the technician according to opinions given by employing firms, but the important aspect here is in the ratios of inadequacy, not in the order of listing. Since the two left columns of Table 10 represent opinions of 80 employing firms and 344 responding technicians, these two columns can be considered as a general criticism of the academic preparation of the practicing technicians in Vermilion County.

In several instances there was no significant difference in opinions relating to inadequacy as given by the 80 employers and the 344 responding technicians, and these are indicated on Table 10. Each set of frequency responses for each of the 20 listed academic items was investigated by a statistical test called "chi square". This test was used, in this case, to discover whether the responses given by technicians and employers indicated true (or significant) disagreement concerning each item or whether these two different groups may have been in basic agreement and variations in responses may have occurred just by chance. The level of confidence used for these computations (95%) means only that there exists a 95% mathematical probability that technicians and employers agreed in their expressions of inadequacy of preparation or performance concerning the indicated items. It does not mean that their opinions were not important here; it means that there was basic agreement upon inadequacy concerning these items.

Implications of Comparisons of Opinions

The difference of opinion regarding adequacy in English and Speech shown by Table 10 is more extreme than it appears to be. The technicians considered themselves (according to the ratio formula used) to be generally adequate in English and Speech, while employers responses showed that they considered the employed technicians to be generally inadequate. The divergent directions (from the 1.00 null or balance point) of these differing opinions identify English and Speech as important academic areas where a technician was likely to be satisfied with his own abilities while his employer was not. It is also noteworthy that in Technical Writing, where a technician is required to furnish actual demonstration of his skill at communication, the technicians became noticeably less confident and agreed with employers that performance was generally inadequate.

Mathematics is another important area of high relationship to the technician's job (see Table 9) where the 344 responding

TABLE 10

COMPARISONS OF OPINIONS OF TECHNICIANS AND EMPLOYING FIRMS REGARDING INADEQUACY IN 20 ACADEMIC AREAS

(✓ indicates no significant disagreement regarding inadequacy)

Ratios increasing above 1.00 = Increasing opinions of inadequacy
Ratios decreasing below 1.00 = Increasing opinions of adequacy
(According to ratio formula below)

	Ratios of Inadequacy by Opinions of:					
	80 Employing Firms	Total of 344 Responding Technicians	122 Mechanical Technicians	41 Mechanical-Electronic Mechanical-Electronic and Mechanical-Electrical-Electronic Technicians	88 Electrical, Electronic and Electrical-Electronic Technicians	44 Chemical Technicians
1. English	1.48	.46	.51	.38	.43	.58
2. Speech	1.42	.77	.57	.68	1.05	.86
3. Mathematics	2.90	1.01	1.00	1.13	1.46	.96
4. Technical Writing	2.95	✓ 1.86	1.80	1.71	2.46	1.52
5. Industrial Relations	3.06	✓ 1.80	1.07	1.38	5.00	2.91
6. Design or Mechanisms	4.65	1.80	1.07	2.46	2.74	4.00
7. Manufacturing Processes	4.00	1.85	1.21	2.18	5.00	2.89
8. Drafting	2.34	1.06	.68	1.44	1.54	1.50
9. Electronics	7.18	3.21	18.19	3.17	1.26	5.40
10. Electricity	4.17	1.73	3.72	1.94	.57	2.67
11. Applied Science	6.75	3.38	2.94	5.60	2.92	4.50
12. Machine Shop	1.89	✓ 1.31	.73	3.33	1.63	2.00
13. Physics	5.75	2.10	3.59	1.80	1.29	1.79
14. Chemistry	2.16	✓ 3.21	3.38	4.33	3.53	9.00
15. Business Training	7.82	✓ 4.11	2.89	3.63	9.17	5.25
16. Metal Shop	1.44	✓ 1.14	.77	1.92	1.45	2.00
17. Accounting	2.80	✓ 2.06	2.18	4.00	2.11	1.11
18. Wood Shop	1.11	.79	.56	1.88	.59	.67
19. Typing	4.83	1.61	1.68	1.80	1.29	1.79
20. Shorthand	2.67	✓ 4.62	2.00	9.00	5.33	9.00

$$\text{Ratio of inadequacy for each of the 20 academic areas} = \frac{\text{Number of "barely adequate" responses} + 2 \times (\text{Number of "inadequate" responses})}{\text{Number of "adequate" responses}}$$

technicians expressed a group opinion very close to satisfaction, while their employers expressed a definite opinion of inadequacy.

There is here a suggestion that lack of satisfactory capabilities with Mathematics, English, and Speech may be an important reason, unsuspected by many technicians, for not achieving expected job progress and promotion.

The highest ratio of inadequacy in Table 10 is the ratio for Electronics computed from the responses of mechanical technicians. This high ratio, together with the fact that there was a considerable number of mechanical technicians who also worked in the electrical and electronic fields, implies that practicing mechanical technicians in Vermilion County were becoming involved in electro-mechanical systems. It is quite probable that these mechanical technicians would seek additional training if there were locally available evening classes in the electrical and electronic fields.

Indications of an Exception

There are indications that the responses to the item "Business Training" did not furnish accurate information on the particular academic area with which it is concerned. The most obvious indication of this is that while neither technicians nor employing firms considered this item highly related to the job of a technician (see Table 9), they both agreed (as indicated by the chi square computation) that preparation and performance in this particular area was highly inadequate (see Table 10). Another, and perhaps the most important, reason for doubting the validity of information furnished by responses to this item was that interviewing staff members noticed some difficulty on the part of management personnel as they attempted to respond to this item. Interviewers were several times instructed by management personnel to underline the word "economics" contained in the wording of this item, and it is quite possible that variation in responses was caused by the fact that some respondents were responding to a specific subject matter such as "economics" while others were responding to their conception of "Business Training" as a broad and more inclusive academic area. It is apparent from the rank ordering regarding relationship by both technicians and employing firms (see Table 9) that both considered othere items more highly related to the job of a technician than "Business Training", but it is quite possible that more detailed investigation within this general academic area would reveal some specific subject matter which both employers and technicians might consider highly related to the job of a technician, and in which both would consider preparation or performance highly inadequate.

ANALYSIS OF TECHNICIANS RESPONSES TO UNSTRUCTURED ITEMS ON ACADEMIC AREAS

Technicians' responses to questions concerning other or specific high school courses which they felt would be of value to them mentioned most frequently (in descending order of frequency) mathematics, communication skills, science, and electricity and electronics. Comments in the responses concerning these courses contained the repeated implication that high school physics was not extensive enough for the technicians' needs. Also contained in these comments were suggestions that high schools offer optional advanced courses in electricity and electronics. In response to items concerning valuable courses in other schools which technicians had attended, the unstructured responses became more specific and varied, but mentioned (in descending order of frequency) electricity and electronics, courses from the general area of business training, mathematics, and courses from the general area of industrial relations.

A total of 134 of the responding technicians indicated intentions to take additional courses in the near future. The most frequently mentioned subjects were (again arranged in descending order of frequency) mathematics, electricty and electronics, various engineering curricula, courses in the general area of management training, and courses in communication skills. The most frequently mentioned schools at which these technicians hoped to acquire this additional training were (again in descending order of frequency) Danville Junior College, correspondence schools, and the University of Illinois.

The responding technicians who did intend to take additional work stated most frequently as their purpose for this additional work their intent to prepare for a better job and to increase competency in their present field of work. Among technicians who did not intend to acquire additional training in the near future, the major reasons why they did not so intend were: lack of time, financial reasons, and the fact that courses which they wished to take were not locally available.

Chapter 8

EMPLOYMENT TRENDS

The last page of the company interview form was principally concerned with information relating to employment trends of the 80 companies who were contacted during the execution of this study. In filling out the chart on the last page of this interview form (see Appendix I), interviewers gathered information on the history, present status, and projected trends for each firm. There were two purposes for gathering the historical information: the first was to encourage the interviewed employers to consider carefully their estimates of projected trends as compared with past history; the second was to allow interviewers to judge whether projected trends were realistic in view of past history. The design of this chart was intended to discourage excessive optimism in the employing firms estimates of future production and employment.

Figure VII is a graphical presentation of the total responses given by the 80 interviewed firms. It should be emphasized here that this information is not general information concerning all of Vermilion County; this information (and the trends shown thereby) concerns only the 80 firms in Vermilion County which were employing technicians at the time this study was made. Of the 80 firms interviewed, seven had come into existence between 1961 and 1963, and the influence of the consequent increase in total employment and production is evident in Figure VII. No estimated figures for the year 1970 were gathered during this study; the 1970 projections are simple graphical projections accomplished by straight line extension of the trends between 1965 and 1968.

Figure VII does not show the total dollar volume of production by these 80 companies. Interviewers encountered companies which refused to give actual dollar value of production, but which were willing to give percentages of increase or decrease based upon present production or similar forms of information from which trends could be computed. All dollar values which were given by other companies were converted, therefore, into the same terms, and final result is that Figure VII shows the rate of change in total dollar volume of production by these 80 companies, but not the total amount in dollars.

It is evident that these 80 employers intended to increase

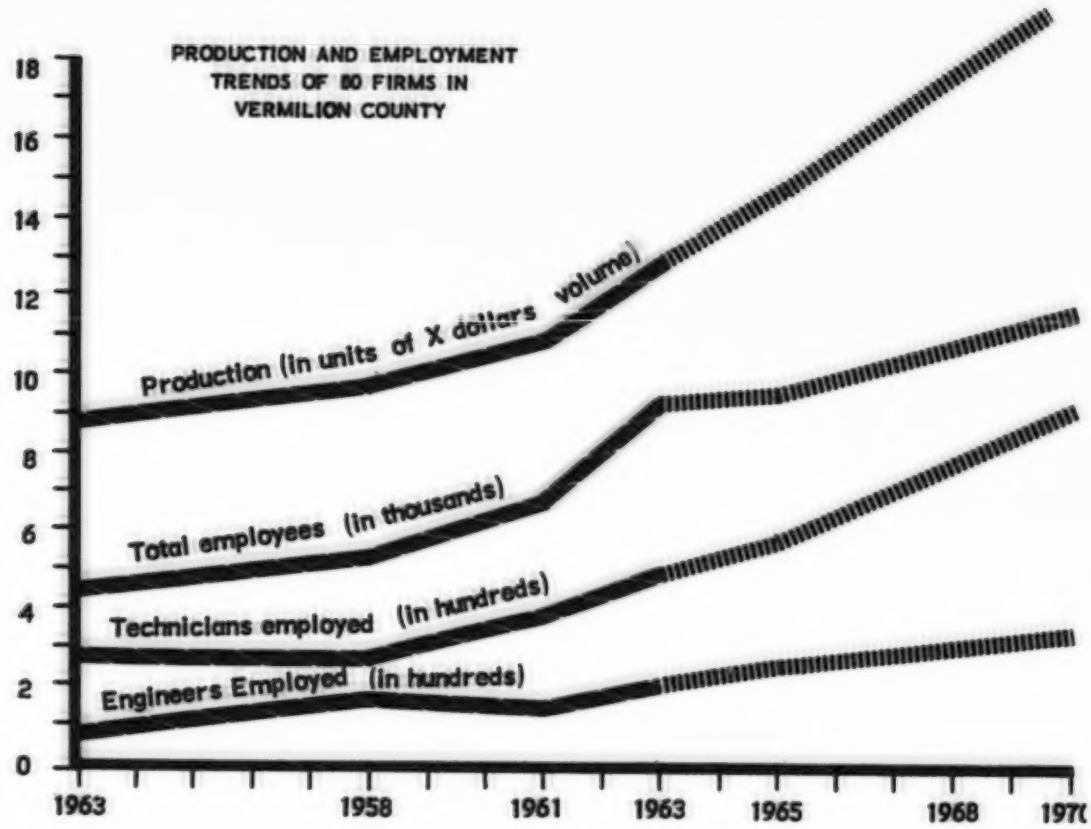


Figure VII

their production and their employment in all classifications shown, and it is also evident that the projected rate of increase in employment in greater for technicians than for any of the other classifications shown. The employing firms obviously intended to increase their production at a higher rate than they intended to increase the size of their work force. Figure VII shows two sets of essentially similar trends: one set is the trends in employment of total employees and engineers employed; the other set is production dollar volume and the technicians employed. Figure VII suggests that these 80 employers sought more efficient production from their total working force, and that one way in which they expected to achieve this increase in efficiency was by increasing the proportion of technicians within their total working force. The totals from which this Figure was constructed indicated the intent of these 80 firms to hire 96 engineers, 268 technicians, and 1144 other workers during the period between 1963 and 1968.

Beyond the demand indicated by the data collected during this study, there existed additional demands for technicians in Vermilion County. The demand for technicians stated above was identified by data collected only from the 80 firms in

Vermilion County which already employed technicians. During the identification of these 80 employers of technicians, a total of 182 other possible employers of technicians were also contacted either by telephone or by personal visit. A noticeable number of these 182 companies informed staff members that they did not employ technicians because technicians were not available. No record was made of the frequency of such responses, and the number of job opportunities which existed for technicians among these 182 firms is consequently impossible to estimate, but this type of response occured frequently enough to assure staff members that there were additional demands for technicians among these 182 firms.

Chapter 9

CONCLUSIONS

Vermilion County firms employing technicians expressed definite interests in technical education. These firms were interested in both a local supply of trained technicians and an opportunity for increased educational qualifications of the employed technicians. The reactions of these employing firms to the lack of technical education within Vermilion County were two courses of action: the majority of these firms were operating some sort of training program for employed technicians, and they were also hiring and bringing into Vermilion County technicians who had gained their training elsewhere.

In conversations with technicians during the execution of this study, interviewers gained the impression that many of the more highly qualified (and therefore more highly paid) technicians were not natives of Vermilion County. This was logical enough, since there had been no local opportunity for technical education, but in order to investigate this impression factually, a computer was programmed to divide the responding technicians into groups according to the location of the high schools they had attended and to compute the mean (arithmetic average) annual salary of each group. *The computer verified the interviewers impression: the mean salary of technicians who had attended high schools outside Vermilion County was $907 higher than the mean salary of those who had attended high schools within this County.*

Considered as a group, the technicians who were working in Vermilion County occupied an above-average economic position. Their salaries (as judged by median values) were higher than generally prevailing rates within this County; their turnover rate was much lower than the turnover rate of the total working force within the employing firms; and their job changes during the past five years were usually accompanied by increases in salaries.

Ages above forty tended to limit occupational opportunities of technicians in Vermilion County, but did not totally eliminate such opportunities. Competency seemed to be the major consideration in the hiring of technicians by the employing firms, with limitations of age at initial hiring being of relatively minor importance.

The employing firms expressed definite preferences, and in many cases definite requirements, that technicians whom they consider hiring have post-high school education. These firms definitely did not wish to hire high school graduates and train them to be technicians, particularly in the case of the engineering technician. Many firms had no choice in this matter, however, because of a lack of qualified applicants.

Educational requirements were not so stringent for industrial technicians and technical specialists, but in all classifications employers displayed a definite tendency to consider post-high school training a prerequisite for employment as a technician.

The 80 firms interviewed in Vermilion County intended to follow a national trend[17] in altering their employment structure during the period between 1963 and 1968. The projected alteration consisted principally of a decrease in hiring rate of total employees and the maintenance of a fairly uniform increase in hiring rate for engineers and technicians. In general, it was the intention of the employing firms to increase the proportion of the professional and technical group within their total work force in order to achieve higher efficiency in production. They intended to maintain an approximate employment rate of three technicians to every engineer within this professional and technical group, with the result that the highest intended rate of increase in employment was for technicians.

The most frequently encountered fields of technology within Vermilion County were, in order of their size, mechanical, electrical and electronic, and chemical. The interviewed employers expressed needs for technicians in each of these fields, indicating that between 1963 and 1968 they intended to hire a total of 268 technicians, most of whom would be hired in the major fields of technology in Vermilion County. It should be emphasized that this figure of 268 technicians is an expression of needs stated by only the 80 firms which were employing technicians. Additional needs for technicians were also expressed by firms which did not employ technicians at the time this study was made. There exists small doubt, therefore, that the five years following 1963 will see more than 268 technicians hired by all industries within Vermilion County. Estimations of needs based upon data gathered during this study and upon projected trends of increase (see Appendix V) are as follows: at least 170 mechanical technicians, at least 81 electrical and electronic technicians, and at least 50 chemical technicians will be needed during this five-year period. In addition there should be a sharp increase in the number of technicians employed in the data processing field by these firms, many of which were investigating the use of data

processing techniques during the time this study was made. To meet these demands (and these are conservative demands, and only by firms within Vermilion County) it would be necessary for a technical school to have enrollments in various technologies as follows:

Technology	Annual Average Enrollment
Mechanical	100-120
Electrical-Electronic	50-60
Chemical	30-40

(See Appendix V for method of estimation of the above)

The above table does not include data processing because there was no reliable estimate possible of the number of data processing technicians in demand.

Conclusions concerning specific curriculum development best adapted to the needs of industry in Vermilion County and the needs of technicians within such industry have not been fully developed in this report. It was the intent of this study to gather and develop information in a manner which would lend itself to curriculum development, and such information has been previously presented within the body of this report.

One cannot, upon the basis of this report alone, make detailed selections of specific course content, but it is possible to state an obvious major conclusion generally applicable to technical education in Vermilion County: a student of technology should consider (at both high school and post-high school level) only a curriculum oriented toward mathematics, communication skills and the sciences; any curriculum not so oriented is an unwise choice for a prospective technician.

The 1963 total high school enrollment in Vermilion County was 6286. Adding an eighth grade registration of 1800 brings the total of the number of students enrolled for possible graduation during the 1963-1968 period to 8086.[18] It is therefore entirely possible that the labor market in Vermilion County will be subjected to the pressure of between seven and eight thousand job seekers between 1963 and 1968. These job seekers will face an employment market which demands increased levels of training as a prerequisite for initial job placement. There is one obvious solution to this, and it is additional education. Opportunity for technical education should not be limited to high school level, and particularly not in a community where established industries have indicated increasing needs for technicians trained at post-high school level. It is also possible that new

industries would be more attracted by a community with a satisfactory local supply of trained technicians than by a community with an existing short supply of such prospective employees.

The educational system of Vermilion County has already reacted to increasing demands for post-high school education through establishment and operation of Danville Junior College and its Division of Applied Sciences. The structure for technical education already exists, and should be further developed to meet both the needs of industry and the needs of the many people who will be seeking work within this industry in the future.

Danville Junior College could better serve its intended and necessary educational functions for Vermilion County if the recommendations of authorities in the field of technical education and the area concept of the National Defense Education Act were here applied.[19] The inevitably expensive nature of post-high school education (including technical education) places an undue financial burden upon any single school district. Unreasonable financial limitations upon any institution of higher learning often produce less than satisfactory results in the quality of education offered to students within such an institution. In order to perform most satisfactorily, the existing structure of Danville Junior College should be reorganized as a County institution. It is inefficient (in both an educational and a financial sense) to have a multitude of schools, each of which is too small to offer its students maximum possibilties in education. This is true with elementary and secondary schools, and that the citizens of Vermilion County are already aware of this is indicated by their continuing consolidation of school districts within this County.

This is also true in higher education, and it is particularly true where it is necessary to equip an educational institution with the expensive equipment necessary to educate competent technicians. Rather than have Danville Junior College with its existing structure for technical education limited to one school district, it would be better to have this institution organized as a consolidated effort by the citizens of Vermilion County to provide for increasing needs for higher education.

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APPENDIX I

INTERVIEWER _____ DATE _____

FIRM NAME, ADDRESS _____

NAMES, PHONES, NUMBERS (below) of INTERVIEWED _____

_____

_____

_____

Position of interviewed: 1 Owner 2 Owner Mgr 3 Hired Mgr 4 Personnel Dir 5 Sales Mgr 6 Service Mgr 7 Eng 8 Chief or Supervising Eng 9 Office Mgr 10 Other _____

Functions of Firm

0 incidental X significant
XX major

_____ Job Shop
_____ Mass Prod } Mfg
_____ Purchasing
_____ Service
_____ Constructing
_____ Retailing
_____ Warehousing
_____ Processing
_____ Wholesaling
_____ Contracting
_____ Installation
_____ Other _____

Firm Products, Service, Functions

_____

_____

_____

_____

_____

_____

_____

_____ Professional registration required for employment of engineers

_____ Percent of graduate engineers who could be replaced by competent, well trained (2 yrs) technicians

_____ Percent of all engineers (as above)

Complexity of Operations

_____ Low _____ Med _____ High

_____ Total number workers (Owners and employees)

_____ % Turnover total employees

Number technicians employed, and field of work (Mechanical, electronic, or other)

_____ Engineering	_____ Industrial	_____ Tech Specialis
Field and Number	Field and Number	Field and Number
_____	_____	_____
_____	_____	_____
_____ % Turnover	_____ % Turnover	_____ % Turnover

_____ Does firm operate a training program for technicians? If so: (Number of mos.)

_____ Formal _____ Informal on-the-job _____ Combination

Other (describe) _____

_____ Number trained yearly (average)

APPENDIX I

Minimum requirements for
Technicians employed by firm

	HIGH SCHOOL	POST HIGH SCHOOL TECHNICAL SCHOOL	POST HIGH SCHOOL BUSINESS SCHOOL	COLLEGE	MILITARY SERVICE SCHOOLS	CORRESPONDENCE SCHOOLS	INDUSTRY SCHOOLS (FORMAL CLASSES, NOT ON-THE-JOB TRAINING IN THE PLANT)	INFORMAL SELF-STUDY	NUMBER YEARS WORK EXPERIENCE	AGE RANGE	SALARY RANGE
Engineering Tech											
Industrial Tech											
Tech Specialists											

Any specific additional requirements (Classify E, I, S) _____

Any additional considerations (in hiring) (Classify E, I, S) _____

Areas where the training of presently available technicians are:

Classify E, I, S	ADEQUATE	BARELY ADEQUATE	INADEQUATE	UNRELATED
English				
Speech				
Technical Writing or Reporting				
Mathematics				
Physics				
Chemistry				
Electricity				
Electronics				
Drafting				
Design or Mechanisms				
Applied Science (such as hydraulics, pneumatics, heat treatment)				
Wood Shop				
Metal Shop				
Machine Shop				
Typing				
Shorthand				
Accounting				
Business Training (such as finance, marketing, economics, management, industrial organization, etc)				
Industrial Relations (such as supervision, psychology, human relations, etc.)				
Manufacturing Processes				
Other (specify)				

APPENDIX I

Would additional training to adequate level make a difference in salary this firm would pay technicians? If so, indicate approximate amount in each classification:

_____ Engineering _____ Industrial _____ Tech Specialist

	PRODUCTION DOLLAR VOLUME	TOTAL EMPLOYEES	NUMBER TECHNICIANS EMPLOYED	NUMBER GRADUATE ENGINEERS EMPLOYED	TOTAL NUMBER ENGINEERS EMPLOYED
10 years ago					
5 years ago					
2 years ago					
Present					
Next 2 years					
Next 5 years					

Reasons for any unusual trends above: _____

Comments: _____

Reverse side: List names of employees to whom questionnaire delivered.

APPENDIX II

Vermilion County Industrial Survey

Phone 443-0260

UNIVERSITY OF ILLINOIS
General Engineering Department
URBANA, ILLINOIS

STAFF
Paul E. Boothe
Donald A. Klokkenga
Christy A. Murphy
Hubert D. Reid
William J. Schill

DANVILLE JUNIOR COLLEGE
Division of Applied Sciences
DANVILLE, ILLINOIS

TO: Selected Employees

SUBJECT: Technician Need Study

The Vermilion County Industrial Survey is organized as a cooperative effort between industry and our public schools. The General Engineering Department of the University of Illinois has joined with the Division of Applied Sciences at Danville Junior College to determine technician needs in Vermilion County. The results of this study will be used as an aid to future curriculum development at Danville Junior College and in other industrial communities in Illinois.

We are asking you to join with us in this industrial survey by completing the attached questionnaire which has been developed by our research group. Your cooperation in reporting sincere and accurate answers will determine the success or failure of this project. Your company has endorsed our contact with you and has given us special permission to solicit this information from you without prejudice. This study is completely impartial to employer-employee relations within your company.

The information given by you is strictly confidential and will be handled as research data available only for analysis by our research staff. You are to mail the questionnaire directly to the University of Illinois upon completion; the form will remain there until destroyed. We want your name only for the purpose of any follow-up work deemed necessary. For instance, if any question should arise in the interpretation of your responses, we would want to be able to contact you personally.

Your cooperation is most urgently solicited and sincerely appreciated. May we take this opportunity to thank you for your time used in fulfilling our request.

Yours for a better tomorrow in Vermilion County industries.

C. A. Murphy
General Engineering Department
University of Illinois

Headquarters: ROOM 205, WOLFORD HOTEL *(Courtesy Second National Bank of Danville)*

APPENDIX II

Vermilion County Industrial Survey

Phone 443-0260

UNIVERSITY OF ILLINOIS
General Engineering Department
URBANA, ILLINOIS

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DANVILLE JUNIOR COLLEGE
Division of Applied Sciences
DANVILLE, ILLINOIS

TO:

The Vermilion County Industrial Survey is organized as a cooperative effort between industry and our public schools. The General Engineering Department of the University of Illinois has joined with the Division of Applied Sciences at Danville Junior College to determine educational needs in Vermilion County. The results of this study will be used as an aid to future curriculum development at Danville Junior College and in other industrial communities in Illinois.

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Your cooperation is most urgently solicited and sincerely appreciated. May we take this opportunity to thank you for your time used in fulfilling our request.

Yours for a better tomorrow in Vermilion County industries.

C. A. Murphy
General Engineering Department
University of Illinois

CAM:dms
ENCLS:

Headquarters: ROOM 205, WOLFORD HOTEL (Courtesy Second National Bank of Danville)

APPENDIX II

Instructions for Questionnaire

Page one:

We suggest you read the entire list of items on this page before marking each item. There should be a response to each item on this page when completed.

Page two and three:

Please notice we ask for the total number of students (grades 9 through 12) in the High School you attended.

Please fill in blanks which apply to you.

Page four:

We suggest you read the entire list at the top of this page and consider each item in relation to your present job before marking in the columns. There should be a response to each item in this list when this page is completed.

Please check this questionnaire to be sure it is complete before mailing.

APPENDIX II

VERMILION COUNTY INDUSTRIAL STUDY, DEPT. OF GENERAL ENGINEERING, UNIVERSITY OF ILLINOIS

NAME_____ ADDRESS_____ PHONE_____

FIRM NAME AND ADDRESS_____ JOB TITLE_____

Major Field of Job: (underline or write in) Mechanical, Electrical, Electronic, Chemical, other (write in)_____

The following blanks to be checked are meant to define the normal course of your work over a period of time. We seek information not just on your work this week, or next, but rather on the work you regularly have done and expect to do in your present capacity with this firm.

Please mark these blanks as follows:

____0 for things you do not do

____X for things you do only occasionally

____XX for things which you do more regularly, but which do not take much time, or which are a minor part of your work

____XXX for things which take up major portions of your time, or which are a major part of your work

____XXXX for things which take all, or almost all your time, or things at which you are normally a full time specialist

____1. Selling firm products or services
____2. Purchasing for firm
____3. Estimating costs for customers
____4. Advising or Consulting with customers
____5. Promotion, Publicity, or Advertising
____6. Writing letters
____7. Technical writing, or writing technical reports
____8. Training new personnel
____9. Training regular personnel
____10. Supervising others
____11. Speaking before groups
____12. Using engineering standards, handbooks, or technical digests
____13. Practical or application testing of theory developed by an engineer or scientist
____14. Policy making, planning, or decision making at management level
____15. Handling money for firm
____16. Keeping office records or accounts
____17. Filing
____18. Using calculating device (such as slide rule, or desk calculator)
____19. Developing or furnishing information upon which engineering decisions are based
____20. Supervising production
____21. Original designing of any kind
____22. Testing experimental products, or recently developed products, or prototype models of products for future manufacture
____23. Programming computer equipment
____24. Using supporting instrument for computer (such as key punch)
____25. Planning installation of production equipment used by firm
____26. Planning installation of firm products
____27. Estimating or computing production costs
____28. Modifying design of firm products
____29. Modifying processes used by firm
____30. Assisting with engineering
____31. Assisting with production
____32. Assisting with new product development
____33. Designing tools, jigs, or other production devices used by this firm
____34. Servicing or maintenance of production machinery
____35. Conducting research
____36. Applying mathematics to design
____37. Sketching
____38. Drafting
____39. Testing products before sale
____40. Assembling products for sale
____41. Inspecting products for sale
____42. Producing products for sale
____43. Installing equipment sold by firm
____44. Servicing products before sale
____45. Servicing products after sale
____46. Developing techniques for production or service
____47. Planning or scheduling production or service
____48. Data processing
____49. Using service manuals and parts lists
____50. Reading blueprints
____51. Making (not designing) tools, jigs, or other devices for use by this firm in production
____52. Using an instrument (such as a meter, oscilloscope, etc.)
____53. Using statistical methods for quality control

APPENDIX II

If for any reason you feel the previous items, as marked on the first page, do not accurately define your job, please explain _____

_____

_____

EDUCATIONAL HISTORY

Please circle highest grade completed: 1 2 3 4 5 6 7 8 9 10 11 12

Please circle the size and location of the High School you attended:

Size (total students): 0-50 50-100 100-300 300-500 500-700 700-1000 more than 1000

Location: Vermilion County In Illinois, outside of Vermilion County Outside of Illinois

Type of High School program (College Prep. Vocational, etc.)_____

Please circle years completed in post High School formal (in class) education (excluding Service, Correspondence, and Industry Schools) 1 2 3 4 5 6

Name(s) of School(s)	City and State	Type of Program

EXTENSION OR NIGHT CLASSES

Name(s) of School (s)	Subject or Type of Program	No. of yrs. attended

ARMED FORCES SCHOOLS

Name(s) of School(s)	Type of Program	No. of mos. attended

CORRESPONDENCE SCHOOLS

Name(s) of School(s)	Type of Program	No. of mos. attended

_____ Did you complete an apprentice program?

APPENDIX II

INDUSTRY SCHOOLS (Regularly scheduled classroom instruction)

Name of sponsoring Company	Type of Program	No. of mos. attended

ON-THE-JOB OR IN-PLANT TRAINING (such as short term training on new equipment)

Name of Company	Type of Program	No. hrs. of instruction

PERSONAL AND JOB HISTORY

Age _____ Married _____ No. of children _____ Own your own home _____ No. of miles you live from work _____

When you graduated from High School, what were your job objectives _____

_____

_____

When and for what reason did you decide to follow the line of work in which you are now engaged? _____

_____

Please list in chronological order the jobs you have held for the past 5 years

Company	Job Title	No. of yrs. employed	Salary Range

Please list (in same order as above) your major reason for job changes shown above. Was your reason salary, working conditions, climate, personal conflict, more responsibility or-???

_____

_____

_____

APPENDIX II

Please check in the appropriate column to indicate whether you feel that your training is:

	ADEQUATE	BARELY ADEQUATE	INADEQUATE	UNRELATED
English				
Speech				
Technical Writing or Reporting				
Mathematics				
Physics				
Chemistry				
Electricity				
Electronics				
Drafting				
Design or Mechanisms				
Applied Science (such as hydraulics, pneumatics, heat treatment)				
Wood Shop				
Metal Shop				
Machine Shop				
Typing				
Shorthand				
Accounting				
Business Training (such as finance, marketing, economics, management, industrial organization, etc.)				
Industrial relations (such as supervision, psychology, human relations, etc.)				
Manufacturing Processes				
Other (specify)				

Please list other or specific High School courses which you now feel would be valuable to you in your present job_____

Are there other courses in other schools you have attended which you feel would be valuable to you (in relation to your job). If so, please list_____

Do you plan to take additional courses in the near future? If so, at what school?

What courses do you plan to take?_____

If you would like to take additional courses and cannot, what are the circumstances which prevent your taking these additional courses?_____

If you plan to take additional course work, what is your purpose? Do you plan to increase competency in your present work, develop your job into a better one with this firm or another firm, change fields of work or - ???_____

If for any reason you feel this questionnaire does not give accurate and/or full information about you or your job, please explain on the reverse side of this page.

APPENDIX III

DEPARTMENT OF GENERAL ENGINEERING
University of Illinois · Urbana, Illinois · Area Code 217 · 333-2730

Re: Vermilion County Industrial Survey

Your name has been furnished as an information source concerning the Technician Need Study our research staff is conducting in Vermilion County.

We need your help. Enclosed is a questionnaire which we hope you will complete and return to us.

It is important that we be able to include your information and your opinions in this study. Please notice we are gathering information not from formal job descriptions or classifications, or from people whose information is second-hand, but from people who actually do certain kinds of work in industry, and who should therefore know more about it than anyone else. This is the reason that your response is so important.

It is our purpose to report complete and accurate information which will be valuable to you, to your community, to your industry, and to the ever-increasing number of young people now coming through your schools.

May we have your cooperation?

Yours truly,

C. A. Murphy
Project Director

APPENDIX IV

TOTAL RESPONSES VERMILION COUNTY TECHNICIAN QUESTIONNAIRE

Response Code:

0 for things you do not do

X for things you do only occasionally

XX for things which you do more regularly, but which do not take much time, or which are a minor part of your work

XXX for things which take major portions of your time, or which are a major part of your work

XXXX for things which take all, or almost all, your time, or things at which you are normally a full-time specialist

(Maximum possible ranking factor = 8 x 344 = 2752

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
1. Reading blueprints	98	87	86	75	38	823
2. Supervising others	132	81	53	46	32	627
3. Using engineering standards, handbooks, or technical digests	65	105	111	51	12	623
4. Using an instrument (such as a meter, oscilloscope, etc.)	151	76	51	40	26	544
5. Developing or furnishing information upon which engineering decisions are based	121	106	63	30	24	544
6. Assisting with engineering	122	117	48	32	25	541
7. Using service manuals and parts lists	118	107	69	35	15	505
8. Using calculating device (such as slide rule, or desk calculator)	122	98	78	38	8	470
9. Assisting with production	161	86	54	22	21	450
10. Supervising production	219	55	24	17	29	403

APPENDIX IV

		Frequency of Responses					
		0	X	XX	XXX	XXXX	Ranking Factor
11.	Testing experimental products, or recently developed products, or prototype models of products for future manufacture	205	60	38	16	25	400
12.	Assisting with new product development	167	97	48	14	18	393
13.	Training new personnel	92	179	56	16	1	363
14.	Practical or application testing of theory developed by an engineer or scientist	197	70	42	20	15	354
15.	Drafting	216	67	25	15	21	345
16.	Testing products before sale	226	56	30	15	17	312
17.	Original designing of any kind	182	94	42	20	6	306
18.	Sketching	159	107	61	15	2	303
19.	Servicing or maintenance of production machinery	241	42	29	14	18	300
20.	Planning or scheduling production or service	229	53	27	22	13	299
21.	Keeping office records or accounts	189	71	61	20	3	297
22.	Writing letters	168	99	63	13	1	285
23.	Developing techniques for production or service	203	73	46	16	6	277
24.	Training regular personnel	153	127	54	10	0	275
25.	Inspecting products for sale	224	55	42	13	10	271
26.	Advising or consulting with customers	203	70	52	17	2	258
27.	Servicing products after sale	265	31	15	17	16	257
28.	Technical writing, or writing technical reports	191	86	51	15	1	254
29.	Policy making, planning, or decision making at management level	224	62	30	25	3	246
30.	Filing	176	112	49	7	0	238

APPENDIX IV

		Frequency of Responses					
		0	X	XX	XXX	XXXX	Ranking Factor
31.	Designing tools, jigs, or other production devices used by this firm	230	66	29	10	9	236
32.	Estimating or computing production costs	243	49	26	19	7	233
33.	Applying mathematics to design	217	78	34	12	3	218
34.	Modifying processes used by firm	210	91	29	12	2	213
35.	Conducting research	239	68	16	14	7	212
36.	Modifying design of firm products	225	74	31	9	5	212
37.	Selling firm products or services	253	45	26	13	7	205
38.	Producing products for sale	279	24	17	12	12	202
39.	Planning installation of production equipment used by firm	241	46	31	13	3	194
40.	Estimating costs for customers	242	63	25	10	4	185
41.	Planning installation of firm products	264	43	16	15	6	183
42.	Purchasing for firm	236	58	41	8	1	180
43.	Making (not designing) tools, jigs, or other devices for use by this firm in production	283	29	15	7	10	167
44.	Installing equipment sold by firm	289	27	8	10	10	163
45.	Using statistical methods for quality control	267	38	25	11	3	156
46.	Data processing	285	29	18	5	7	141
47.	Assembling products for sale	287	27	14	11	5	139
48.	Speaking before groups	256	72	15	1	0	106

APPENDIX IV

	Frequency of Responses					
	0	X	XX	XXX	XXXX	Ranking Factor
49. Handling money for firm	287	31	19	7	0	97
50. Servicing products before sale	293	33	12	3	3	93
51. Programming computer equipment	327	7	3	2	5	61
52. Promotion, publicity, or advertising	308	26	10	0	0	46
53. Using supporting instrument for computer (such as key punch)	334	4	5	1	0	18

Responses: 0 X XX XXX XXXX

Sums of responses: 11314 + 3527 + 1963 + 911 + 517 = 18232 = 344 x 53

	Ratios Computed	Approximations Used
$\frac{3527}{3527} =$	$\frac{1}{1}$	$\frac{1}{1}$
$\frac{3527}{1963} =$	$\frac{1.8}{1}$	$\frac{2}{1}$
$\frac{3527}{911} =$	$\frac{3.9}{1}$	$\frac{4}{1}$
$\frac{3527}{517} =$	$\frac{6.8}{1}$	$\frac{8}{1}$

Ranking Factor for each Job Function = 1 x (sum of X responses) + 2 x (sum of XX responses) + 4 x (sum of XXX responses) + 8 x (sum of XXXX responses)

APPENDIX IV

Responses - Job Relationship and
Adequacy of 20 Academic Areas

Frequency of Responses by:

A. Total responding Technicians

B. Mechanical Technicians

C. Mechanical-Electrical, Mechanical-Electronic and Mechanical-Electrical-Electronic Technicians

D. Electrical, Electronic, and Electrical-Electronic Technicians

E. Chemical Technicians

F. Management of the Employing Firms (Totals for responses regarding all three classifications of technicians)

		Unrelated	Adequate	Barely Adequate	Inadequate
English	A	24	224	89	6
	B	9	77	33	3
	C	2	29	11	0
	D	10	56	18	3
	E	2	26	15	0
	F	3	59	45	21
Speech	A	32	196	84	33
	B	10	77	26	9
	C	4	25	9	4
	D	9	43	25	10
	E	5	22	13	3
	F	5	59	44	20
Technical Writing or Reporting	A	63	118	105	57
	B	26	40	40	16
	C	5	14	12	6
	D	14	26	30	17
	E	2	21	8	12
	F	13	37	41	34
Mathematics	A	10	188	98	46
	B	5	65	39	13
	C	0	23	12	7
	D	4	41	24	18
	E	0	24	15	4
	F	6	40	46	35

APPENDIX IV

		Unrelated	Adequate	Barely Adequate	Inadequate
Physics	A	115	97	56	74
	B	48	22	25	27
	C	14	14	7	7
	D	20	32	13	22
	E	8	18	7	10
	F	50	16	26	33
Chemistry	A	144	66	54	79
	B	59	21	13	29
	C	20	6	6	10
	D	40	15	11	21
	E	4	13	18	8
	F	62	25	18	18
Electricity	A	85	120	70	69
	B	36	25	29	32
	C	2	17	13	10
	D	6	58	13	10
	E	18	9	8	8
	F	42	23	24	36
Electronics	A	125	76	40	102
	B	56	11	8	47
	C	8	12	6	16
	D	7	43	20	17
	E	23	5	3	12
	F	38	17	16	53
Drafting	A	116	134	44	49
	B	19	71	16	16
	C	9	18	4	11
	D	34	26	14	13
	E	31	6	3	3
	F	35	32	36	23
Design or Mechanisms	A	125	98	63	57
	B	24	55	27	16
	C	9	13	8	12
	D	36	19	12	20
	E	31	3	6	3
	F	23	26	29	46

50-1-91

APPENDIX IV

		Unrelated	Adequate	Barely Adequate	Inadequate
Applied Science	A	154	60	53	75
	B	30	32	26	34
	C	20	5	6	11
	D	51	13	8	15
	E	27	4	6	6
	F	48	16	18	45
Wood Shop	A	210	84	32	17
	B	70	36	12	4
	C	24	8	5	5
	D	55	22	7	3
	E	30	9	2	2
	F	92	9	4	3
Metal Shop	A	163	102	40	38
	B	34	57	18	13
	C	12	13	9	8
	D	49	20	7	11
	E	35	4	2	3
	F	72	27	15	12
Machine Shop	A	142	108	45	48
	B	23	66	18	15
	C	9	10	13	10
	D	49	19	7	12
	E	31	5	4	3
	F	48	36	18	25
Typing	A	176	83	34	50
	B	84	19	6	13
	C	21	10	4	7
	D	43	24	9	11
	E	13	14	7	9
	F	102	6	11	9
Shorthand	A	297	13	6	27
	B	108	7	0	7
	C	36	1	1	4
	D	75	3	2	7
	E	37	1	1	4
	F	118	3	0	4

APPENDIX IV

		Unrelated	Adequate	Barely Adequate	Inadequate
Accounting	A	214	54	39	36
	B	80	17	13	12
	C	23	5	8	6
	D	66	9	5	7
	E	26	9	6	2
	F	86	15	10	16
Business Training	A	153	54	50	86
	B	47	27	18	30
	C	17	8	5	12
	D	48	6	11	22
	E	26	4	5	8
	F	63	11	12	37
Industrial Relations	A	74	121	78	70
	B	22	57	25	18
	C	8	16	14	4
	D	25	15	19	28
	E	12	11	8	12
	F	15	36	38	36
Manufacturing Processes	A	112	101	73	57
	B	23	53	28	18
	C	12	11	14	5
	D	44	10	16	17
	E	17	9	8	9
	F	25	21	22	31

APPENDIX V

METHOD OF ESTIMATION OF VERMILION COUNTY NEEDS FOR TECHNICIANS AND TECHNICAL SCHOOL ENROLLMENTS NECESSARY TO MEET THESE NEEDS

Stated demands for technicians by 80 Vermilion County firms during the 5 years from 1963 to 1968: 268 technicians

PROJECTION OF NEEDS FOR TECHNICIANS

Using Vermilion County Trend: Most recent (1962-1963) rate of increase in number of manufacturers in Vermilion County: 5.1%

1964 268 x 105% = 281.4
1965 281.4 x 105% = 295.47
1966 295.47 x 105% = 310.24
1967 310.24 x 105% = 325.75
1968 325.75 x 105% = (342.04)

Using National Trends (Projected by the U.S. Department of Labor): 43% increase in the Professional and Technical Group during the decade 1960 to 1970

$$43\% \times \frac{5 \text{ yrs } (1963\text{-}68)}{10 \text{ yrs } (1960\text{-}70)} = 21.5\% \text{ increase } (1963\text{-}68)$$

$$268 \times 121.5\% = (325.62)$$

Average from Vermilion County Trend and National Trends

$$\frac{(342) + (325)}{2} = \frac{667}{2} = 333$$

THUS: Approximately 333 technicians needed during the 5 years from 1963 to 1968

Distribution of the needed technicians by major technologies based on technician distribution by technologies given by employing firms (see Table 1)

Mechanical Technicians: $333 \times \frac{261}{512} = 170$

Electrical-Electronic Technicians: $333 \times \frac{125}{512} = 81$

Chemical Technicians: $333 \times \frac{77}{512} = 50$

APPENDIX V

TECHNICAL SCHOOL ENROLLMENTS NECESSARY TO MEET VERMILION COUNTY NEEDS FOR TECHNICIANS

Assuming:

1/5 of the graduate technicians needed each of the 5 years 1963 to 1968

1/3 = the ratio of graduates to enrollment (this is a maximum - and seldom achieved - ratio)

		Stated in text as:
Mechanical	$170 \times \frac{1}{5} \times \frac{3}{1} = 102$	(100-120)
Electrical-Electronic	$81 \times \frac{1}{5} \times \frac{3}{1} = 49$	(50-60)
Chemical	$50 \times \frac{1}{5} \times \frac{3}{1} = 30$	(30-40)

The estimates above do not include additional demands for technicians which would be made by:

(1) Above-average industrial expansion in Vermilion County

(2) Vermilion County industries which did not employ technicians because technicians were not available

(3) Industries outside Vermilion County

VT 000 092

VT 000 092

Joint Vocational School Study for the State of Ohio.

Ohio State Dept of Educ, Columbus. Div of Vocat Educ.
Mar66

DOCUMENT NOT AVAILABLE FROM EDRS 123p.

*AREA VOCATIONAL SCHOOLS, *MASTERS PLANS, *VOCATIONAL EDUCATION, *EDUCATIONAL PROGRAMS, *EDUCATIONAL FINANCE, STUDENT ENROLLMENT, EDUCATIONAL FACILITIES, GUIDELINES,

Ohio,

The information and experience in organizing and supervising vocational programs throughout the state and information from private, state, and federal agencies was used in developing this tentative master plan for joint vocational schools. The state was divided into 57 joint vocational school districts. For each district, figures are shown for building costs, gross operating costs, state operating costs, and net operating costs. Each service of the Division of Vocational Education was asked to prepare a program in its area for each of eight typical joint vocational school programs. The recommendations were to include pupil enrollment, shop and laboratory areas, and equipment costs and related classrooms. From this information, the vocational programs and facilities of eight composite schools were constructed. The building cost was calculated at $16 per square foot. Additional allowances were made at approximately $2,500 per acre for cities varying from 20 to 80 acres, architectural fees at six percent, and contingencies at five percent because of the great variance which could occur among localities in the state. Gross operating cost was calculated at $10,000 per unit. State cost as specified was calculated at $5,230 per vocational unit (salary allowance plus 12 percent), plus administrative and supervisory reimbursement. (SL)

ED015348

JOINT VOCATIONAL SCHOOL STUDY FOR THE STATE OF OHIO

March, 1966

Division of Vocational Education Ohio State Department of Education
Columbus 15, Ohio

VT 00092

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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JOINT VOCATIONAL SCHOOL STUDY FOR THE STATE OF OHIO

Recommended Vocational Education Programs With Related
Information for Joint Vocational Schools
March, 1966

Division of Vocational Education Ohio State Department of Education
Columbus 15, Ohio

Ohio State Board of Education

E. E. Holt
State Superintendent of Public Education

Byrl R. Shoemaker
Director of Vocational Education

Division of Vocational Education
State Department of Education

March, 1966

PREFACE

As a result of the impact caused by the last world war, which drew heavily upon vocational education, labor, business and industry and the government to organize and to supervise the work production training program in the consequent emergency, the later impact of unemployment and the poverty problem, but yet the thousands of positions left vacant because of unqualified, skilled and technically trained personnel, considerable interest has been generated in vocational education in Ohio.

As a result of the interest, many smaller forward looking school systems organized vocational programs and have found it difficult to operate the program with a satisfactory breadth of offering. Now, not until the passage of the joint vocational school district legislation in Ohio has the climate been conducive to the consolidation of small school districts into the vocational school district with a sufficient enrollment to provide a program with satisfactory breadth of offerings.

This legislation has further increased this interest and to date, seventeen such districts have been organized. More are in the making. It therefore seemed wise at this time, for the Division of Vocational Education, to prepare a tentative master plan of joint vocational school districts for Ohio which would serve as guidelines in the development and formation of the districts.

The Division of Vocational Education, Ohio State Department of Education, during its many years of experience in helping communities, has accumulated a storehouse of valuable information which they share with local school systems to assist them in making all types of decisions pertaining to Vocational Education. It also has available information on demographic, economic, and employment aspects, and relationship to adjacent areas pertaining to communities from such private, State and Federal agencies as: Sales Management; United States Chamber of Commerce, Ohio Education Association Research Council; Ohio State University Research and Research Foundation; Department of Education, Department of Public Welfare, Department of Health, Division of Vital Statistics, Bureau of Unemployment Compensation, Manpower Development Section Bureau of Unemployment Compensation, and Office of Opportunity, State of Ohio; and Bureau of Employment Security, United States Department of Labor.

In recent years the Division of Vocational Education has assisted many local, exempted villages, cities, counties and multi-county communities in conducting vocational studies. The studies have included student interest inventories, studies of existing school plants and equipment, and summarizations of expressed opinions of interested school and lay personnel through group meetings, correspondence and questionnaires. From the studies, the Division has recommended high school, technical and adult programs, enrollments, physical facilities and costs, equipment costs, number of teachers and similar facts.

To prepare this tentative Master Plan of Joint Vocational Schools for the State of Ohio, the Division of Vocational Education has brought into focus all information and experience in organizing and supervising vocational programs throughout the state and information from private, State and Federal agencies.

Members of the staff of the Division of Vocational Education wish to express their appreciation to the many boards of education in Ohio and their leaders who have so genuinely cooperated in the past through discussion and planning meetings that have built up the great storehouse of information in the state and to those private, State and Federal agencies upon whom the Division has leaned for information.

B. R. Shoemaker, Director
Division of Vocational Education
State Department of Education

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CHAPTER I

SUMMARY OF COSTS AND PUPIL ENROLLMENTS FOR A MASTER PLAN OF JOINT VOCATIONAL SCHOOLS IN OHIO

This chapter is the end result of work performed in other chapters. It may be read alone as a summary or it may be read after the other chapters have been studied.

Each of the per pupil costs for (1) building, (2) gross operating, (3) State operating and (4) net operating for a joint vocational school, for each of the 57 schools was calculated in Chapter IV. Now, from each of these four per pupil costs and the enrollment for each of the 57 joint vocational schools, the total cost for each of the area vocational schools was calculated. They are presented in table one with the total for the State.

Table 1—Cost Factors for Proposed Ohio Joint Vocational Schools

J.V.S. No.	Total Building and Equipment	50% Building and Equipment #	Operating			Pupil Population
			Gross	State Reimbursement	J.V.S. Net	
Total	$174,242,231	$87,121,115	$30,833,051	$13,281,247	$17,551,804	63,717
1	3,180,464	1,590,232	555,100	240,466	314,634	1,157
2	6,477,555	3,238,777	1,282,437	554,524	727,913	2,735
3	2,042,875	1,021,437	337,772	143,631	194,141	657
4	3,323,943	1,661,971	591,853	256,424	335,429	1,234
5	3,088,703	1,544,351	532,654	230,722	301,932	1,110
6	@14,207,293	7,103,646	2,812,379	1,216,224	1,596,155	6,012
7	1,855,251	927,625	274,823	116,206	158,617	530
8	2,328,898	1,164,449	386,906	165,458	221,448	769
9	2,761,646	1,380,823	462,674	199,817	262,857	954
10	4,205,281	2,102,640	799,891	345,511	454,380	1,674
11	2,246,507	1,123,253	372,684	159,107	213,577	736
12	2,660,935	1,330,467	444,862	191,653	253,209	909
13	1,896,638	948,319	292,284	123,768	168,516	564
14	3,395,120	1,697,560	610,936	264,712	346,224	1,274
15	2,390,267	1,195,133	397,537	170,225	227,312	794
16	5,730,961	2,865,480	1,135,929	490,671	645,258	2,377
17	2,809,818	1,404,909	471,238	203,762	267,476	976
18	2,642,725	1,321,362	441,654	190,189	251,465	901
19	6,440,745	3,220,372	1,275,225	551,376	723,849	2,717
20	3,780,271	1,890,135	705,824	305,562	400,262	1,474
21	3,038,603	1,519,301	520,711	225,539	295,172	1,085
22	2,491,335	1,245,667	415,122	178,145	236,977	836
23	3,058,751	1,529,375	525,489	227,612	297,877	1,095
24	4,234,245	2,117,122	806,460	348,294	458,166	1,688
25	1,919,328	959,664	304,085	128,890	175,195	587
26	2,331,370	1,165,685	387,333	165,650	221,683	770
27	3,180,464	1,590,232	555,000	240,466	314,634	1,157
28	3,384,589	1,692,294	608,074	263,469	344,605	1,268
29	1,875,894	937,947	283,043	119,763	163,280	546
30	4,096,799	2,048,399	775,473	335,159	440,314	1,622
31	1,896,638	948,319	292,284	123,768	168,516	564
32	2,719,480	1,359,740	455,202	196,385	258,817	935
33	2,710,537	1,355,268	453,620	195,660	257,960	931
34	2,809,818	1,404,909	471,238	203,762	267,476	976
35	2,927,325	1,463,662	494,907	214,340	280,567	1,031
36	2,472,281	1,236,140	411,799	176,637	235,162	828
37	1,692,120	846,060	226,442	95,368	131,074	436
38	2,304,097	1,152,048	382,619	163,541	219,078	759
39	@ 7,148,546	3,574,273	1,415,077	611,956	803,121	3,025
40	3,686,150	1,843,075	685,547	296,926	388,621	1,431
41	1,748,194	874,097	240,869	101,565	139,304	464
42	2,321,473	1,160,736	385,622	164,884	220,738	766
43	527,256	263,628	68,588	28,852	39,736	132
44	707,002	353,501	91,971	38,688	53,283	177
45	2,573,611	1,286,805	429,511	184,663	244,848	871

Table 1—Cost Factors for Proposed Ohio Joint Vocational School
Continued

J.V.S. No.	Total Building and Equipment	50% Building and Equipment	Operating			Pupil Population
			Gross	State Reimbursement	J.V.S. Net	
46	4,521,576	2,260,788	866,232	374,073	492,159	1,817
47	3,010,155	1,505,077	514,022	222,636	291,386	1,071
48	*1,294,172	647,086	168,353	70,819	97,534	324
49	2,291,642	1,145,821	380,468	162,580	217,888	754
50	1,700,519	850,259	228,504	96,253	132,251	440
51	* 547,227	273,613	71,186	29,945	41,241	137
52	@6,612,110	3,306,055	1,308,888	566,034	742,854	2,798
53	3,020,347	1,510,173	516,411	223,673	292,738	1,076
54	* 850,799	425,399	110,676	46,557	64,119	213
55	2,208,536	1,104,268	366,150	156,198	209,952	721
56	1,928,666	964,333	309,725	131,342	178,383	598
57	* 934,680	467,340	121,588	51,147	70,441	234

Obtained by multiplication.

@ School would probably serve the community better if divided into three or four schools. Allotment has been provided on that basis.

* Schools are probably too small to operate most effectively. They should join another district of their choice. Allotments have been provided on that basis.

CHAPTER II

EIGHT TYPICAL JOINT VOCATIONAL SCHOOLS FOR GUIDELINES

Having decided to use the technique of a series of typical joint vocational schools as guidelines for designing a Master Plan for Joint Vocational Schools in Ohio, each service of the Division of Vocational Education was requested to prepare a program, taking into consideration findings of private, State and Federal labor studies on supply, demand, and related facts, for each of the eight schools in the services. Their recommendations were to include pupil enrollments, shop and laboratory areas, equipment costs and related classrooms.

With the components for each school from the five vocational services, the vocational programs and facilities of eight composite schools were constructed. These are presented in tables 2, 4, 6, 8, 10, 12, 14 and 16.

To the vocational facilities of each school adjustments were made for miscellaneous areas and areas were added for lunchroom and kitchen and library at approximately fifty per cent of a regular high school. The building cost was then calculated at $16 per square foot. Additional allowance was made at approximately $2,500 per acre for sights varying from twenty to eighty acres, architectural fees at six per cent and contingencies at five per cent because of the great varience which could occur among localities in the State.

Gross operating cost was calculated at $10,000 per unit. Vocational administrative and supervisory cost accordingly to the size of the school was included.

State cost as specified in vocational units of foundation reimbursement was calculated at $5,230 per vocational unit (salary allowance plus twelve per cent) plus administrative and supervisory reimbursement.

The net operating cost for the Joint Vocational School District was obtained by subtracting the State reimbursement from the gross operating cost.

The gross operating, State operating and net operating costs are presented in tables 3, 5, 7, 9, 11, 13, 15 and 17.

Table 2:--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 408 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Rm.	No. Gen. Rm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	15	15 3/4			x	x	x		310	408	16	35,115	361,550	16	5 5/12	4
Agriculture Education	2	1 3/4			x	x	x		30	43	2	5,000	21,000	2	1 1/2	
Agriculture Business	1	1					x		10	13	1	1,000	5,000	1	1/2	
Agriculture Production	1	3/4					x		20	30	1	4,000	16,000	1	1	
Business Education	3	3				x	x		60	75	3	4,240	101,550	3	3/4	
Cooperative Office Education	1	1				x			20	25	1	800	8,000	1	1/4	
Entry Business Data Processor	1	1					x		20	25	1	2,000	65,000	1	1/4	
Senior Intensive Core	1	1				x			20	25	1	1,440	28,550	1	1/4	
Distributive Education	1	1			x	x			25	40	1	1,400	7,000	1		
Distributive Education	1	1			x	x			25	40	1	1,400	7,000	1		
Home Economics Education	2	2			x	x	x		35	60	2	5,075	12,500	2	1/2	
Child Care Aide or Child Care Assistant	1	1			x x	x x	x		15	30	1	2,675	4,500	1	1/2	
Homemaker's Assistant or Aide for Nursing and Rest Homes	1	1			x x	x x	x x		20	30	1	2,400	8,000	1		
Trade and Industrial Education	7	8			x	x			160	190	6	19,400	219,500	8	2 2/3	
Automobile Mechanic	1	1					x		20	25	1	6,000	18,000	1	1/3	

Table 2:—Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 408 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Em.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Cosmetology	1	2			x	x			40	40	1	2,000	9,500	2	2/3	
Diversified Cooperative Training	1	1				x			20	25				1	1/3	
Drafting	1	1					x		20	25	1	2,000	10,000	1	1/3	
Electricity/Electronics	1	1					x		20	25	1	2,400	18,000	1	1/3	
Machine Shop	1	1					x		20	25	1	4,000	150,000	1	1/3	
Sheetmetal/Welding	1	1					x		20	25	1	3,000	14,000	1	1/3	

Table 3:--Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related, General, Misc. Areas Sq. Ft.	Shop, Related, General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	47,315	$379,250	408	16	4	6
Shops	35,115	361,550	408	16		
Related Education	4,320	6,000				6
Academic Education	2,880	4,000			4	
Library	1,550	4,000				
Kitchen	1,050	1,700				
Lunchroom	2,400	2,000				

Building Cost	$1,081,486
Equipment Cost	379,250
Sight Cost	50,000
Architectural Fee - 6%	64,889
Contingency - 5%	54,074
Total Cost	$1,629,699

Operating Cost	$ 212,000
Reimbursement	89,180
Net Operating Cost for JVS District	$ 122,820

Table 4 :—Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 620 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Rm.	No. Gen. Rm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	16	24¼			x	x	x		465	620	16	27115	382550	25	9 1/3	5
Agriculture Education	3	3¼			x	x	x		50	75	3	7000	42000	4	3	
Agriculture Business	1	2			x	x			20	25	1	1000	5000	2	1	
Agriculture Production	1	3/4					x		20	30	1	4000	16000	1	1	
Horticulture	1	½					x		10	20	1	2000	21000	1	1	
Business Education	3	4				x	x		80	100	3	4240	101550	4	1	
Cooperative Office Education	1	1				x			20	25	1	800	8000	1	¼	
Entry Business Data Processer	1	2					x		40	50	1	2000	65000	2	½	
Senior Intensive Core	1	1				x			20	25	1	1440	28550	1	¼	
Distributive Education	1	1			x	x			25	40	1	1400	7000	1	-	
Distributive Education	1	1			x	x			25	40	1	1400	7000	1	-	
Home Economics Education	2	3			x	x	x		50	90	2	5075	12500	3	1	
Child Care Aide 1-yr. or	1	2			x	x	x		30	60	1	2675	4500	2	1	
Child Care Assistant 2-yr.					x	x										
Home Makers Assistant 1-yr. or	1	1			x	x	x		20	30	1	2400	8000	1	-	
Aide for Nursing and Rest Homes 1-yr.					x	x	x									
Trade and Industrial Education	7	13			x	x			260	315	6	19400	219500	13	4 1/3	
Automobile Mechanic	1	2			x	x			40	50	1	6000	18000	2	2/3	
Cosmetology	1	2			x	x			40	40	1	2000	9500	2	2/3	

Table 4 :—Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 620 Pupils

Recommended Vocational Education Programs	No. Prod.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Em.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Diversified Cooperative Training	1	1				x			20	25	-	-	-	1	1/3	
Drafting	1	2			x	x			40	50	1	2000	10000	2	2/3	
Electrical	1	2			x	x			40	50	1	2400	18000	2	2/3	
Machine Shop	1	2			x	x			40	50	1	4000	150000	2	2/3	
Welding	1	2			x	x			40	50	1	3000	14000	2	2/3	

Table 5:--Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related, General, Misc. Areas Sq. Ft.	Shop, Related, General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	56,140	$432,550	620	25	5	10
Shops	37,115	382,550	620	25		
Related Education	7,200	10,000				10
Academic Education	3,600	5,000			5	
Library	1,850	7,000				
Kitchen	1,875	25,000				
Lunchroom	4,500	3,000				

Building Cost	$1,283,200
Equipment Cost	432,550
Sight Cost	87,500
Architectural Fee - 6%	76,992
Contingency - 5%	64,160
Total Building and Equipment Cost	$1,944,402

Operating Costs	$ 321,000
Reimbursement	136,250
Net Operating Cost for JVS District	$ 184,750

Table 6 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 1004 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Rm.	No. Gen. Rm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	24	37½		x	x	x	x		761	1004	21	60555	531550	38	12 5/6	8
Agriculture Education	3	3½			x	x	x		66	104	3	9000	46000	4	2	
Agriculture Business	1	½					x		8	15	1	8000	5000	1		
Agriculture Production	1	1					x		30	45	1	5000	20000	1	1	
Horticulture	1	2			x	x			28	44	1	3000	21000	2	1	
Business Education	4	6				x	x		120	150	4	5680	109550	6	1 1/2	
Account Clerk Bookkeeper	1	2					x		40	50	1	1440	8000	2	1/2	
Cooperative Office Education	1	1				x			20	25	1	800	8000	1	1/4	
Entry Business Data Processor	1	2					x		40	50	1	2000	65000	2	1/2	
Senior Intensive Core	1	1				x			20	25	1	1440	28550	1	1/4	
Distributive Education	2	2			x	x			50	80	1	1400	7000	2		
Distributive Education	2	2			x	x			50	80	1	1400	7000	2		
Home Economics Education	3	4			x	x	x		75	120	3	8075	47500	4	2	
Child Care Aide 1 yr. or	1	2			x	x	x		30	60	1	2675	4500	2	1	
Child Care Assistant 2 yr.					x	x										
Food Service	1	1			x	x			25	30	1	3000	35000	1	1	
Homemaker's Assistant 1 yr. or	1	1				x	x		20	30	1	2400	8000	1		
Aide for Nursing and Rest Homes 1 yr.					x	x										

Table 6 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 1004 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Em.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Trade and Industrial Education	12	22		x	x	x			450	550	10	36400	321500	22	71/3	
Automobile Body Repair	1	2			x	x			40	50	1	4500	12000	2	2/3	
Automobile Mechanic	1	2			x	x			40	50	1	6000	18000	2	2/3	
Carpentry	1	2			x	x			40	50	1	4000	14000	2	2/3	
Commercial Food Production	1	2			x	x			40	50	1	4000	16000	2	2/3	
Cosmetology	1	2			x	x			40	40	1	2500	9500	2	2/3	
Drafting	1	2			x	x			40	50	1	2000	10000	2	2/3	
Electrical	1	2			x	x			40	50	1	2400	18000	2	2/3	
Machine Shop	1	2			x	x			40	50	1	4000	150000	2	2/3	
Occupational Work Experience	2	2		x	x	x			50	60				2	2/3	
Printing	1	2			x	x			40	50	1	4000	60000	2	2/3	
Welding	1	2			x	x			40	50	1	3000	14000	2	2/3	

Table 7:--Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related, General, Misc. Areas Sq. Ft.	Shop, Related, General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	85,725	$595,150	1004	38	8	13
Shops	60,555	531,550	1004	38		13
Related Education	9,360	13,000			8	
Academic Education	5,760	8,000				
Library	2,250	9,000				
Kitchen	2,300	30,000				
Lunchroom	5,500	3,600				

Building Cost	$1,959,429
Equipment Cost	595,150
Sight Cost	100,000
Architectural Fee - 6%	117,566
Contingency Fee - 5%	97,971
	$2,870,116

Operating Costs	$ 482,000
Reimbursement	208,740
Net Operating Cost for JVS District	$ 273,260

Table 8 :—Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 1379 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Reimb. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Pupil Enrol. Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Em.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	31	51½		x	x	x	x		1021	1379	27	62295	614550	52	17 2/3	11
Agriculture Education	4	5½			x	x	x		91	149	4	1500	70000	6	4	
Agriculture Business	1	2			x	x			15	25	1	1000	5000	2	1	
Agriculture Equipment and Mechanics	1	½				x			8	15	1	6000	24000	1	1	
Agriculture Production	1	1					x		30	45	1	5000	20000	1	1	
Horticulture	1	2			x	x			38	64	1	3000	21000	2	1	
Business Education	5	8				x	x		160	200	5	7120	124550	8	2	
Account Clerk Bookkeeper	1	2					x		40	50	1	1440	8000	2	1/2	
Cooperative Office Education	1	1				x			20	25	1	800	8000	1	1/4	
Entry Business Data Processer	1	2					x		40	50	1	2000	65000	2	1/2	
High Speed Stenographer	1	2					x		40	50	1	1440	15000	2	1/2	
Senior Intensive Core	1	1				x			20	25	1	1440	28550	1	1/4	
Distributive Education	3	3			x	x			75	120	2	2800	14000	3		
Distributive Education	3	3			x	x			75	120	2	2800	14000	3		
Home Economics Education	3	6			x	x	x		100	180	3	8075	47500	6	2	
Child Care Aides 1 yr. or	1	3			x	x	x		45	90	1	2675	4500	3	1	
Child Care Assistants 2 yr.					x	x										
Homemaker's Assistant 1 yr.	1	1			x	x	x		15	30	1	2400	8000	1	0	
or Aides for Nursing and Rest Homes 1 yr.					x	x	x									
Food Service 1 or 2 yr.	1	2			x	x	x		40	60	1	3000	35000	2	1	

Table 8 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 1379 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Tr.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Trade and Industrial Education	16	29		x	x	x			595	730	13	42800	358500	29	9 2/3	
Auto Body	1	2			x	x			40	50	1	4500	12000	2	2/3	
Automobile Mechanic	1	2			x	x			40	50	1	6000	18000	2	2/3	
Carpentry	1	2			x	x			40	50	1	4000	14000	2	2/3	
Commercial Art	1	2			x	x			40	50	1	2000	7500	2	2/3	
Commercial Food Production	1	2			x	x			40	50	1	4000	18000	2	2/3	
Cosmetology	1	2			x	x			40	40	1	2500	9500	2	2/3	
Dental Assistant	1	2			x	x			40	50	1	2500	10000	2	2/3	
Electrical	1	2			x	x			40	50	1	2400	18000	2	2/3	
Machine Shop	1	2			x	x			40	50	1	4000	150000	2	2/3	
Machine Drafting	1	2			x	x			40	50	1	2000	9500	2	2/3	
Occupational Work Experience	3	3		x	x	x			75	90	-	--	--	3	1	
Printing	1	2			x	x			40	50	1	4000	60000	2	2/3	
Radio, T.V. - Electronics	1	2			x	x			40	50	1	2400	18000	2	2/3	
Welding	1	2			x	x			40	50	1	2500	14000	2	2/3	

Table 9:—Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related General, Misc. Areas Sq. Ft.	Shop, Related General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	109,175	$697,550	1379	52	11	18
Shops	75,795	614,550	1379	52		18
Related Education	12,960	18,000			11	
Academic Education	7,920	11,000				
Library	2,600	12,000				
Kitchen	2,900	37,500				
Lunchroom	7,000	4,500				

Building Cost	$2,495,428
Equipment Cost	697,550
Sight Cost	137,500
Architectural Fee - 6%	131,211
Contingency - 5%	109,343
Total Cost	$3,571,032

Operating Cost	$ 661,000
Reimbursement	286,460
Net Operating Cost for JVS District	$ 374,540

Table 10 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 1719 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Pupil Enrol. Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Tm.	No. Gen. Tm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	39	63½		x	x	x	x		1279	1719	33	89535	693050	65	22½	14
Agriculture Education	6	6½			x	x	x		114	189	6	17800	82000	8	5	
Agriculture Business	1	2			x	x			15	25	1	1000	5000	2	1	
Agriculture Equipment and Mechanics	1	1½				x			8	15	1	6000	24000	1	1	
Agriculture Processing	1	1½				x			8	15	1	800	2000	1	-	
Agriculture Production	1	1					x		30	45	1	5000	20000	1	1	
Forestry Conservation	1	1½				x			15	25	1	2000	10000	1	1	
Horticulture	1	2			x	x			38	64	1	3000	21000	2	1	
Business and Office Education	6	10				x	x		200	250	6	8560	154550	10	2½	
Account Clerk Bookkeeper	1	2					x		40	50	1	1440	8000	2	½	
Cooperative Office Education	1	1				x			20	25	1	800	8000	1	¼	
Entry Business Data Processer	1	2					x		40	50	1	2000	65000	2	½	
High Speed Stenographer	1	2					x		40	50	1	1440	15000	2	½	
Office Machine Operator	1	2					x		40	50	1	1440	30000	2	½	
Senior Intensive Core	1	1				x			20	25	1	1440	28550	1	¼	
Distributive Education	4	4			x	x			100	160	2	2800	14000	4		
Distributive Education	4	4			x	x			100	160	2	2800	14000	4		
Home Economics Education	3	7			x	x	x		125	210	3	8075	47500	7	3	
Child Care Aide 1-yr. or	1	3			x	x	x		45	90	1	2675	4500	3	1	
Child Care Assistant 2-yr.					x	x										
Home Makers Assistant 1-yr. or	1	2			x	x	x		40	60	1	2400	8000	2	1	
Aide for Nursing and Rest Homes					x	x	x									

Table 10:—Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 1719 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Tm.	No. Gen. Tm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Food Service	1	2			x	x	x		40	60	1	3000	35000	2	1	
Trade and Industrial Education	20	36		x	x	x			740	910	16	52300	395000	36	12	
Appliance Repair	1	2			x	x			40	50	1	3500	10000	2	2/3	
Automobile Body and Repair	1	2			x	x			40	50	1	4500	12000	2	2/3	
Automobile Mechanic	1	2			x	x			40	50	1	6000	18000	2	2/3	
Architectural Drafting	1	2			x	x			40	50	1	2000	9500	2	2/3	
Carpentry	1	2			x	x			40	50	1	4000	14000	2	2/3	
Commercial Art	1	2			x	x			40	50	1	2000	7500	2	2/3	
Commercial Food Production	1	2			x	x			40	50	1	5000	20000	2	2/3	
Cosmetology	1	2			x	x			40	40	1	2500	9500	2	2/3	
Dental Assistant	1	2			x	x			40	50	1	2500	10000	2	2/3	
Electrical	1	2			x	x			40	50	1	2400	18000	2	2/3	
Machine Shop	1	2			x	x			40	50	1	4000	150000	2	2/3	
Mechanical Drafting	1	2			x	x			40	50	1	2000	9500	2	2/3	
Metal Fabrication	1	2			x	x			40	50	1	3000	15000	2	2/3	
Printing	1	2			x	x			40	50	1	4000	60000	2	2/3	
Electronics and T.V.	1	2			x	x			40	50	1	2400	14000	2	2/3	
Welding	1	2			x	x			40	50	1	2500	14000	2	2/3	
Occupational Work Experience	4	4		x	x	x			100	120	-	-	-	4	4/3	

Table11:--Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related, General, Misc. Areas Sq. Ft.	Shop, Related, General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	131,150	$795,550	1719	65	14	23
Shops	89,535	693,050	1719	65		
Related Education	16,560	23,000				23
Academic Education	10,080	14,000			14	
Library	2,975	15,000				
Kitchen	3,500	45,000				
Lunchroom	8,500	5,500				

Building Cost	$2,997,714
Equipment Cost	795,550
Sight Cost	175,000
Architectural Fee - 6%	179,863
Contingency - 5%	149,886
Total Cost	$4,298,013

Operating Cost	$ 821,000
Reimbursement	354,450
Net Operating Cost for JVS District	$ 466,550

Table 12:—Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2109 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Tr.	No. Gen. Tr.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	46	78		x	x	x	x		1541	2109	40	104775	927550	79	27 2/3	17
Agriculture Education	6	7			x	x	x		126	209	6	17800	82000	8	5	
Agriculture Business	1	2			x	x			20	35	1	1000	5000	2	1	
Agriculture Equipment and Mechanics	1	1				x			15	25	1	6000	24000	1	1	
Agriculture Processing	1	½					x		8	15	1	800	2000	1	-	
Agriculture Production	1	1					x		30	45	1	5000	20000	1	1	
Forestry Conservation	1	½					x		15	25	1	2000	10000	1	1	
Horticulture	1	2			x	x			38	64	1	3000	21000	2	1	
Business Education	7	12				x	x		240	300	7	10000	189550	12	3	
Account Clerk Bookkeeper	1	2					x		40	50	1	1440	8000	2	½	
Cooperative Office Education	1	1				x			20	25	1	800	8000	1	¼	
Entry Business Data Processer	1	2					x		40	50	1	2000	65000	2	½	
High Speed Stenographer	1	2					x		40	50	1	1440	15000	2	½	
Office Duplicating - Reproduction Specialist	1	2					x		40	50	1	1440	35000	2	½	
Office Machine Operator	1	2					x		40	50	1	1440	30000	2	½	
Senior Intensive Core	1	1				x			20	25	1	1440	28550	1	¼	
Distributive Education	5	5			x	x			125	200	3	4200	21000	5		
Distributive Education	5	5			x	x			125	200	3	4200	21000	5		
Home Economics Education	4	10			x	x	x		150	300	4	10475	62500	10	5	
Child Care Aide 1-yr. or	1	3			x	x	x		45	90	1	2675	4500	3	1	
Child Care Assistant 2-yr.					x	x										

Table 12 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2109 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Em.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Clothing Service 1 or 2-yr.	1	1			x	x	x		15	30	1	2400	15000	1	-	
Food Service 1 or 2-yr.	1	3			x	x	x		45	90	1	3000	35000	3	2	
Home Makers Assistant or Aide for Nursing and Rest Homes	1	3			x	x	x		45	90	1	2400	8000	3	2	
Trade and Industrial Education	24	44		x	x	x			900	1100	20	62300	572500	44	14 2/3	
Appliance Repair	1	2			x	x			40	50	1	3500	10000	2	2/3	
Automobile Body Repair	1	2			x	x			40	50	1	4500	12000	2	2/3	
Automobile Mechanic	2	4			x	x			80	100	2	12000	36000	4	4/3	
Architectural Drafting	1	2			x	x			40	50	1	2000	9500	2	2/3	
Carpentry	1	2			x	x			40	50	1	4000	14000	2	2/3	
Commercial Art	1	2			x	x			40	50	1	2000	7500	2	2/3	
Cosmetology	2	4			x	x			80	80	2	2500	19000	4	4/3	
Commercial Food Production	1	2			x	x			40	50	1	5000	20000	2	2/3	
Dental Assistant	1	2			x	x			40	50	1	2500	10000	2	2/3	
Electrical	1	2			x	x			40	50	1	2400	18000	2	2/3	
Electronics and T.V.	1	2			x	x			40	50	1	2400	18000	2	2/3	
Fabric Service	1	2			x	x			40	50	1	4000	50000	2	2/3	
Machine Shop	2	4			x	x			80	100	2	4000	250000	4	4/3	
Mechanical Drafting	1	2			x	x			40	50	1	2000	9500	2	2/3	
Metal Fabrication	1	2			x	x			40	50	1	3000	15000	2	2/3	
Printing	1	2			x	x			40	50	1	4000	60000	2	2/3	
Welding	1	2			x	x			40	50	1	2500	14000	2	2/3	
Occupational Work Experience	4	4		x	x	x			100	120	-	-	-	4	4/3	

Table13:--Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related, General, Misc. Areas Sq. Ft.	Shop, Related, General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	154,675	$1,049,650	2109	79	17	28
Shops	104,775	927,550	2109	79		
Related Education	20,160	28,000				28
Academic Education	12,240	17,000			17	
Library	3,400	18,000				
Kitchen	4,100	52,500				
Lunchroom	10,000	6,600				

Building Cost	$3,535,429
Equipment Cost	1,049,650
Sight Cost	200,000
Architectural Fee - 6%	212,126
Contingency - 5%	176,771
Total Cost	$5,173,976

Operating Cost	$1,000,000
Reimbursement	432,170
Net Operating Cost for JVS District	$ 567,830

Table 14:--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2339 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Rm.	No. Gen. Rm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	50	86½		x	x	x	x		1718	2339	43	114715	1012550	88	30½	19
Agriculture Education	6	7½			x	x	x		133	219	6	17800	82000	9	5	
Agriculture Business	1	2			x	x			20	35	1	1000	5000	2	1	
Agriculture Equipment and Mechanics	1	1				x			15	25	1	6000	24000	1	1	
Agriculture Processing	1	1					x		15	25	1	800	2000	1		
Agriculture Production	1	1			x	x			30	45	1	5000	20000	2	1	
Forestry Conservation	1	½					x		15	25	1	2000	10000	1	1	
Horticulture	1	2			x	x			38	64	1	3000	21000	2	1	
Business Education	8	14				x	x		280	350	8	11440	209550	14	3½	
Account Clerk Bookkeeper	1	2					x		40	50	1	1440	8000	2	½	
Clerical Service--DAVY	1	2					x		40	50	1	1440	20000	2	½	
Cooperative Office Education	1	1				x			20	25	1	800	8000	1	½	
Entry Business Data Processer	1	2					x		40	50	1	2000	65000	2	½	
High Speed Stenographer	1	2					x		40	50	1	1440	15000	2	½	
Office Duplicating--Reproduction Specialist	1	2					x		40	50	1	1440	35000	2	½	
Office Machine Operator	1	2					x		40	50	1	1440	30000	2	½	
Senior Intensive Core	1	1				x			20	25	1	1440	28550	1	½	
Distributive Education	6	6			x	x			150	240	3	4200	21000	6		
Distributive Education	6	6			x	x			150	240	3	4200	21000	6		

Table 14 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2339 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Tm.	No. Gen. Tm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Home Economics Education	4	11			x	x	x		175	330	4	10475	62500	11	6	
Child Care Aides 1-yr. or	1	3			x	x	x		45	90	1	2675	4500	3	1	
Child Care Assistants 2-yr.					x	x										
Clothing Service 1 or 2-yr.	1	2			x	x	x		40	60	1	2400	15000	2	1	
Food Service 1 or 2-yr.	1	3			x	x	x		45	90	1	3000	35000	3	2	
Homemaker's Assistant 1-yr.	1	3			x	x	x		45	90	1	2400	8000	3	2	
or Aides for Nursing and Rest Homes 1 yr.					x	x	x									
Trade and Industrial Education	26	48		x	x	x			980	1200	22	70800	637500	48	16	
Appliance Repair	1	2			x	x			40	50	1	3500	10000	2	2/3	
Archetectural Drafting	1	2			x	x			40	50	1	2000	9500	2	2/3	
Automobile Body Repair	1	2			x	x			40	50	1	4500	12000	2	2/3	
Automobile Mechanic	2	4			x	x			80	100	2	12000	36000	4	4/3	
Carpentry	1	2			x	x			40	50	1	4000	14000	2	2/3	
Commercial Art	1	2			x	x			40	50	1	2000	7500	2	2/3	
Cosmetology	2	4			x	x			80	80	2	2500	19000	4	4/3	
Commercial Food Production	1	2			x	x			40	50	1	5000	20000	2	2/3	
Dental Assistant	1	2			x	x			40	50	1	2500	10000	2	2/3	
Electrical	1	2			x	x			40	50	1	2400	18000	2	2/3	
Electronics and T.V.	1	2			x	x			40	50	1	2400	18000	2	2/3	
Fabric Service	1	2			x	x			40	50	1	4000	50000	2	2/3	
~~Industrial Lab Assistant~~	1	2							40	50	1	~~5000~~ 3000	~~50000~~ 8000	2	2/3	
Machine Shop	2	4			x	x			80	100	2	4000	250000	4	4/3	
Mechanical Drafting	1	2			x	x			40	50	1	2000	9500	2	2/3	
Metal Fabrication	1	2			x	x			40	50	1	3000	15000	2	2/3	

Table 14 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2339 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enroll. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Em.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Occupational Work Experience	4	4		x	x	x			100	120	--	--	--	4	4/3	
Printing	1	2			x	x			40	50	1	4000	60000	2	2/3	
Small Engine Repair	1	2							40	50	1	3500	15000	2	2/3	
Welding	1	2							40	50	1	2500	14000	2	2/3	

Table 15--Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related, General, Misc. Areas Sq. Ft.	Shop, Related General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	169,580	$1,147,425	2339	88	19	31
Shops	114,715	1,012,550	2339	88		
Related Education	22,320	31,000				31
Academic Education	13,680	19,000			19	
Library	3,465	20,000				
Kitchen	4,400	57,500				
Lunchroom	11,000	7,315				

Building Cost	$3,876,114
Equipment Cost	1,147,425
Sight Cost	200,000
Architectural Fee - 6%	232,567
Contingency - 5%	193,806
Total Cost	$5,649,912

Operating Cost	$1,120,000
Reimbursement	483,740
Net Operating Cost for JVS District	$ 636,260

Table 16 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2779 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 8	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Em.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Vocational Education	58	102			x	x	x		2018	2779	51	136130	1158050	103	36 1/3	22
Agriculture Education	6	8			x	x	x		143	229	6	17800	82000	9	5	
Agriculture Business	1	2			x	x			15	25	1	1000	5000	2	1	
Agriculture Equipment and Mechanics	1	1				x			15	25	1	6000	24000	1	1	
Agriculture Processing	1	1					x		15	25	1	800	2000	1	-	
Agriculture Production	1	1			x	x			30	45	1	5000	20000	2	1	
Forestry Conservation	1	1					x		30	45	1	2000	10000	1	1	
Horticulture	1	2			x	x			38	64	1	3000	21000	2	1	
Business Education	9	16				x	x		320	400	9	12880	224550	16	4	
Account Clerk Bookkeeper	1	2					x		40	50	1	1440	8000	2	½	
Clerical Services--DAVY	1	2					x		40	50	1	1440	20000	2	½	
Cooperative Office Education	1	1				x			20	25	1	800	8000	1	¼	
Entry Business Data Processor	1	2					x		40	50	1	2000	65000	2	½	
High Speed Stenographer	1	2					x		40	50	1	1440	15000	2	½	
Medical-Dental Clerk Steno.	1	2					x		40	50	1	1440	15000	2	½	
Office Duplicating--Reproduction Specialist	1	2					x		40	50	1	1440	35000	2	½	
Office Machine Operator	1	2					x		40	50	1	1440	30000	2	½	
Senior Intensive Core	1	1				x			20	25	1	1440	28550	1	¼	
Distributive Education	7	7				x	x		175	280	4	5600	28000	7		
Distributive Education	7	7				x	x		175	280	4	5600	28000	7		

Table 16 :--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2779 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level: 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Pupil Enrol. Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Tm.	No. Gen. Tm.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Home Economics Education	5	13			x	x	x		200	390	5	13150	67000	13	8	
Child Care Aide 1-yr. or	2	4			x	x	x		60	120	2	5350	9000	4	2	
Child Care Assistant 2-yr.					x	x										
Clothing Service 1 or 2-yr.	1	2			x	x	x		35	60	1	2400	15000	2	1	
Food Service 1 or 2-yr.	1	4			x	x	x		60	120	1	3000	35000	4	3	
Home Makers Assistant 1-yr.or	1	3			x	x	x		45	90	1	2400	8000	3	2	
Aide for Nursing and Rest Homes					x	x	x									
Trade and Industrial Education	31	58		x	x	x			1180	1480	27	86700	756500	58	19 1/3	
Industrial Maintenance Mech.	1	2			x	x			40	80	1	5000	70000	2	2/3	
Industrial Lab Assistant	1	2							40	50	1	5000	50000	2	2/3	
Small Engine Repair	1	2							40	50	1	3500	15000	2	2/3	
Appliance Repair	1	2			x	x			40	50	1	3500	10000	2	2/3	
Automobile Body Repair	2	4			x	x			80	100	2	9000	24000	4	4/3	
Automobile Mechanic	2	4			x	x			80	100	2	12000	36000	4	4/3	
Architectural Drafting	2	4			x	x			80	100	2	4000	19000	4	4/3	
Carpentry	1	2			x	x			40	50	1	4000	14000	2	4/3	
Commercial Art	1	2			x	x			40	50	1	2000	7500	2	2/3	
Cosmetology	2	4			x	x			80	80	2	2500	19000	4	4/3	
Commercial Food Production	1	2			x	x			40	50	1	5000	20000	2	2/3	
Dental Assistant	1	2			x	x			40	50	1	2500	10000	2	2/3	
Electrical	1	2			x	x			40	50	1	2400	18000	2	2/3	
Electronics and T.V.	2	4			x	x			80	100	2	4800	36000	4	4/3	

Table 16:--Recommended Vocational Education Programs With Related Information for a Joint Vocational School of 2779 Pupils

Recommended Vocational Education Programs	No. Prog.	No. State Found. Units	Course Operates in Grade Level 9	10	11	12	11 12	P. H.S.	Pupil Enrol. Normal	Maximum	Shop No.	Shop Area Sq. Ft.	Equip. Cost Dollars	No. Tech. Voc. Tr.	No. Rel. Em.	No. Gen. Ed.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Fabric Service	1	2			x	x			40	50	1	4000	50000	2	2/3	
Machine Shop	2	4			x	x			80	100	2	4000	250000	4	4/3	
Mechanical Drafting	2	4			x	x			80	100	2	4000	19000	4	4/3	
Metal Fabrication	1	2			x	x			40	50	1	3000	15000	2	2/3	
Printing	1	2			x	x			40	50	1	4000	60000	2	2/3	
Welding	1	2			x	x			40	50	1	2500	14000	2	2/3	
Occupational Work Experience	4	4		x	x	x			100	120	-	-	-	4	4/3	

Table 17--Basic Building and Operating Cost Factors for Vocational Education Program

Areas	Shop, Related, General, Misc. Areas Sq. Ft.	Shop, Related, General, Misc. Equipment Costs	Enrollment	Teachers		Rel-ated Class Rooms
				Voc.	Academic	
1	2	3	4	5	6	7
Total	199,325	$1,310,050	2779	103	22	37
Shops	136,130	1,158,050	2779	103		
Related Education	26,640	37,000				37
Academic Education	15,840	22,000			22	
Library	3,615	22,000				
Kitchen	4,600	62,500				
Lunchroom	12,500	8,500				

Building Cost	$4,556,000
Equipment Cost	1,310,050
Sight Cost	200,000
Architectural Fee - 6%	273,360
Contingency - 5%	227,800
Total Cost	$6,567,210

Operating Cost	$1,300,000
Reimbursement	562,190
	$ 737,810

CHAPTER III

PER PUPIL COSTS FOR EACH OF THE EIGHT TYPICAL JOINT VOCATIONAL SCHOOLS

From the costs for the eight typical joint vocational schools serving as guidelines; (1) building costs per pupil, (2) gross operating costs per pupil, (3) State operating costs per pupil and (4) net operating costs per pupil for a joint vocational school were calculated for each of the Eight Typical Joint Vocational Schools. These per pupil costs are presented in table 18 and figures 1 and 2.

Table 18:—Per Pupil Costs for Each of the Eight Typical Joint Vocational Schools

J.V.S. Pupil Population	Building and Equipment	Operating		
		Gross	State Reimbursement	J.V.S. Net
408	$3,994.36029	519.607843	218.578431	301.029412
620	3,136.13225	517.741935	219.758064	297.983871
1,004	2,858.68127	480.079681	207.908367	272.171314
1,379	2,589.58086	479.332850	207.730239	271.602611
1,719	2,500.29843	477.603258	206.195462	271.407796
2,109	2,453.28402	474.158368	204.917022	269.241346
2,339	2,415.52458	478.837109	206.811878	272.025231
2,779	2,363.15581	467.94170	202.299388	265.494782

CHAPTER IV

PER PUPIL COSTS FOR EACH OF THE FIFTY-SEVEN JOINT VOCATIONAL SCHOOLS

From the frequency polygons on costs per pupil (figures 1, 2, 3, 4 and table 19), the same four costs were calculated for each of the fifty-seven joint vocational schools on a straight line proportional basis by interpelating between the eight typical schools. These costs; (1) building costs per pupil, (2) gross operating costs per pupil, (3) State operating costs per pupil and (4) net operating costs per pupil for a joint vocational school are presented in table 19 and figures 1 and 2.

Table 19:--Cost Per Pupil by Joint Vocational Schools and Pupil Population

J.V.S.	Total Building and Equipment	Operating			Pupil Population
		Gross	State Reimbursement	J.V.S. Net	
Total					63,717
Weighted Average	$2,734,627	$483,906	$208,441	$275,465	
1	2,748,888	479,774	207,835	271,939	1,157
2	2,368,393	468,898	202,750	266,148	2,735
3	3,109,398	514,113	218,616	295,497	657
4	2,693,633	479,621	207,799	271,822	1,234
5	2,782,615	479,868	207,858	272,010	1,110
6	@ 2,363,155	467,794	202,299	265,495	6,012
7	3,500,474	518,534	219,257	299,277	530
8	3,028,475	503,128	215,160	287,968	769
9	2,894,807	484,983	209,451	275,532	954
10	2,512,115	477,832	206,398	271,434	1,674
11	3,052,318	506,364	216,178	290,186	736
12	2,927,321	489,397	210,839	278,558	909
13	3,362,833	518,234	219,446	298,788	564
14	2,664,928	479,541	207,780	271,761	1,274
15	3,010,412	500,676	214,388	286,288	794
16	2,411,005	477,883	206,424	271,459	2,377
17	2,878,912	482,825	208,772	274,053	976
18	2,933,101	490,181	211,086	279,095	901
19	2,370,535	469,350	202,935	266,415	2,717
20	2,564,634	478,849	207,301	271,548	1,474
21	2,800,555	479,918	207,869	272,049	1,085
22	2,980,066	496,556	213,092	283,464	836
23	2,793,379	479,898	207,865	272,033	1,095
24	2,508,438	477,760	206,335	271,425	1,688
25	3,269,724	518,032	219,574	298,458	587
26	3,027,752	503,030	215,129	287,901	770
27	2,748,888	479,774	207,835	271,939	1,157
28	2,669,234	479,553	207,782	271,771	1,268
29	3,435,702	518,393	219,346	299,047	546
30	2,525,770	478,096	206,633	271,463	1,622
31	3,362,833	518,234	219,446	298,788	564
32	2,908,535	486,847	210,037	276,810	935
33	2,911,425	487,239	210,161	277,078	931
34	2,878,912	482,825	208,772	274,053	976
35	2,839,306	480,025	207,895	272,130	1,031
36	2,985,846	497,341	213,329	284,012	828
37	3,881,009	519,361	218,734	300,627	436
38	3,035,700	504,108	215,468	288,640	759
39	@ 2,363,155	467,794	202,299	265,495	3,025

Table 19:--Cost Per Pupil by Joint Vocational Schools and Pupil Population--Continued

J.V.S. No.	Total Building and Equipment	Operating			Pupil Population
		Gross	State Reimbursement	J.V.S. Net	
40	2,575,925	479,068	207,495	271,573	1,431
41	3,767,658	519,114	218,890	300,224	464
42	3,030,643	503,422	215,252	288,170	766
43	3,994,360	519,607	218,578	301,029	132
44	3,994,360	519,607	218,578	301,029	177
45	2,954,777	493,124	212,012	281,112	871
46	2,488,484	476,737	205,874	270,863	1,817
47	2,810,601	479,946	207,876	272,070	1,071
48	* 3,994,360	519,607	218,578	301,029	324
49	3,039,313	504,599	215,623	288,976	754
50	3,864,816	519,326	218,756	300,570	440
51	* 3,994,360	519,607	218,578	301,029	137
52	@ 2,363,155	467,794	202,299	265,495	2,798
53	2,807,013	479,936	207,874	272,062	1,076
54	* 3,994,360	519,607	218,578	301,029	213
55	3,063,156	507,835	216,641	291,194	721
56	3,225,193	517,935	219,635	298,300	598
57	* 3,994,360	519,607	218,578	301,029	234

@ School would probably serve the community better if divided into three or four schools. Allotment has been provided on that basis.

* Schools are probably too small to operate most effictively. They should join another district of their choice. Allotments have been provided on that basis.

CHAPTER V

SCHOOL DISTRICT FOR EACH OF THE FIFTY-SEVEN JOINT VOCATIONAL SCHOOLS

In studying for joint vocational school districts, the enrollment limits for a desirable joint vocational school were considered first. Existing programs, existing joint vocational school districts, roads, highways, travel distances and population density were then considerable in forming the districts.

The names of school districts, enrollments grades nine through twelve for 1964-65 and the probable joint vocational school enrollments are presented in tables 20 to 56. Probable joint vocational school enrollment is estimated by multiplying the sum of the enrollments of the schools in the joint vocational school district, nine through twelve by 46.5%* and then by 33%**.

* Ration of State enrollment grades eleven and twelve to grades nine, ten, eleven and twelve, 1964-65.

** If 35% of Ohio high school seniors attend college as is estimated, then 33% of enrollment in grades eleven and twelve provides vocational education for approximately 50% of non-college bound pupils.

TABLE 20:—JOINT VOCATIONAL SCHOOL NUMBER 1

NORTHWEST FOUR COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Williams County	
Bryan	774
Montpelier	340
Edgerton	261
Edon-N. W.	238
Millcreek-West Unity	194
North Central	193
Stryker	192
Defiance County	
Defiance	1070
Hicksville	315
Ayersville	251
Central	420
Northeastern	288
Fulton County	
Wauseon	493
Archbold	345
Chesterfield	95
Fayette	150
Pettisville	490
Henry County	
Damascus	115
Holgate	230
Liberty Center	289
Ridgeville	156
Napoleon	638
TOTAL	7537
PROBABLE J.V.S. ENROLLMENT	1157

TABLE 21:--JOINT VOCATIONAL SCHOOL NUMBER 2

PENTA COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Fulton County	
*Delta	354
*Evergreen	402
Swanton	490
Lucas County	
Maumee	1048
Springfield	647
*Oregon	1319
*Adams	1791
*Ottawa Hills	348
*Washington	2706
*Sylvania	1799
Anthony Wayne	692
S S	114
Ottawa County	
Harris-Elmore	290
Oak Harbor	530
Genoa	489
Put-In-Bay	28
Wood County	
Perrysburg	675
Rossford	469
Bowling Green	862
*Elmwood	441
Eastwood	531
Grand Rapids	187
Lake	640
Northwood	280
Otsego	315
*Westwood	177
Sandusky County	
Woodville	202
TOTAL	17,826

PROBABLE J.V.S. ENROLLMENT 2735

*To be added to existing joint vocational school

TABLE 22:—JOINT VOCATIONAL SCHOOL NUMBER 3

SANDUSKY COUNTY JOINT VOCATIONAL SCHOOL

Sandusky County	Enrollment 9-12
Lakota	510
Fremont	1778
Green Springs	195
York	139
Clyde	545
Gibsonburg	406
Huron County	
Bellevue	706
TOTAL	4279
PROBABLE J.V.S. ENROLLMENT	657

TABLE 23:--JOINT VOCATIONAL SCHOOL NUMBER 4

OTTAWA-HURON-ERIE COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Ottawa County	
Port Clinton	1037
Danbury	246
Erie County	
Huron	511
Sandusky	1765
Berlin	203
Margaretta	539
Milan	267
Perkins	623
Vermillion	705
Huron County	
Norwalk	774
Monroeville	290
New London	449
South Central	300
Western Reserve	331
TOTAL	8040
PROBABLE J.V.S. ENROLLMENT	1234

TABLE 24:—JOINT VOCATIONAL SCHOOL NUMBER 5

LORAIN COUNTY JOINT VOCATIONAL SCHOOL

Lorain County	Enrollment 9-12
Amherst	889
Wellington	424
Avon	467
Avon Lake	837
Clearview	563
Columbia	354
Firelands	418
Keystone	363
Midview	899
Sheffield-Sheffield Lake	581
South Amherst	184
North Ridgeville	691
Oberlin	563
TOTAL	7233

PROBABLE J.V.S. ENROLLMENT 1110

TABLE 25:—JOINT VOCATIONAL SCHOOL NUMBER 6

CUYAHOGA COUNTY JOINT VOCATIONAL SCHOOL

Cuyahoga County	Enrollment 9-12
Beachwood	565
Cuyahoga Heights	316
Independence	529
Olmstead Falls	659
Orange	848
Richmond Heights	364
Solon	635
Bay Village	1017
Brecksville	760
Bedford	1884
Berea	3188
Cleveland Heights	4108
East Cleveland	1823
Fairview Park	1053
Garfield Heights	2106
Lakewood	2974
Maple Heights	2190
Mayfield	1558
North Olmsted	1360
North Royalton	932
Rocky River	1277
Shaker Heights	2567
South Euclid	2783
Strongsville	797
Warrensville Heights	768
Westlake	805
Brooklyn	760
Chargrin Falls	554
TOTAL	39,180

PROBABLE J.V.S. ENROLLMENT 6012

TABLE 26:—JOINT VOCATIONAL SCHOOL NUMBER 7

GEAUGA COUNTY JOINT VOCATIONAL SCHOOL

Geauga County	Enrollment 9-12
Burton Troy	392
Cardinal	339
Chardon	775
Kenston	527
Ledgemont	199
Newbury	276
West Geauga	948
TOTAL	3456

PROBABLE J.V.S. ENROLLMENT 530

TABLE 27:—JOINT VOCATIONAL SCHOOL NUMBER 8

LAKE COUNTY JOINT VOCATIONAL SCHOOL

Lake County	Enrollment 9-12
Kirtland	433
Madison	777
Painesville Township	1168
Perry	340
Painesville	986
Wickliffe	1066
Fairport Harbor	239
TOTAL	5009

PROBABLE J.V.S. ENROLLMENT 769

TABLE 28:—JOINT VOCATIONAL SCHOOL NUMBER 9

ASHTABULA COUNTY JOINT VOCATIONAL SCHOOL

Ashtabula County	Enrollment 9-12
Ashtabula Area	2038
Conneaut	1035
Geneva	888
Buckeye	825
Grand Valley	379
Jefferson Area	630
Pymatuning Valley	421
TOTAL	6216

PROBABLE J.V.S. ENROLLMENT 954

TABLE 29:—JOINT VOCATIONAL SCHOOL NUMBER 10

TRUMBULL COUNTY JOINT VOCATIONAL SCHOOL

Trumbull County	Enrollment 9-12
Girard	915
Niels	1487
Hubbard	1020
Newton Falls	629
Bloomfield	89
Braceville	202
Bristol	161
Brookfield	751
Champion	651
Farmington	96
Fowler-Vienna	380
Howland	1031
Joseph Badger	486
Lakeview	493
Liberty	769
Lordstown	148
Maplewood	282
McDonald	337
Southington	229
Warren Local	472
Weathersfield	282
TOTAL	10,910

PROBABLE J.V.S. ENROLLMENT 1674

TABLE 30:—JOINT VOCATIONAL SCHOOL NUMBER 11

VAN WERT COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Van Wert County	
Crestview	325
Lincolnview	289
Ohio City Liberty	122
Van Wert	866
Putnam County	
Columbus Grove	342
Continental	231
Jennings	121
Kalida	170
Miller City	157
Ottoville	200
Paulding County	
Antwerp	238
Auglaize-Brown	192
Blue Creek	152
Glover Hill	113
Payne	196
Paulding	434
Allen County	
Delphos	295
Mercer County	
Parkway	351
TOTAL	4794
PROBABLE J.V.S. ENROLLMENT	736

TABLE 31:—JOINT VOCATIONAL SCHOOL NUMBER 12

HANCOCK COUNTY AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Wood County	
North Baltimore	226
Henry County	
Patrick Henry	489
Hancock County	
Arcadia	212
Arlington	200
Cory Rawson	260
Liberty Benton	163
McComb	265
Van Buren	155
Vanlue	130
Findlay	2173
Hardin County	
Hardin Northern	249
Putnam County	
Leipsic	290
Ottawa-Glendorf	490
Pandora-Gilboa	191
Wyandot County	
Carey	390
TOTAL	5923
PROBABLE J.V.S. ENROLLMENT	909

TABLE 32:—JOINT VOCATIONAL SCHOOL NUMBER 13

TIFFIN AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Seneca County	
Fostoria	916
Tiffin	989
Attica	278
Bettsville	98
Bloomville	123
Hopewell	259
New Riegel	186
Old Fort	162
Scipio-Republic	104
Thompson	158
Wyandot County	
Mohawk	400
TOTAL	3673

PROBABLE J.V.S. ENROLLMENT 564

TABLE 34:—JOINT VOCATIONAL SCHOOL NUMBER 15

MEDINA COUNTY JOINT VOCATIONAL SCHOOL

Medina County	Enrollment 9-12
Medina	896
Wadsworth	1210
Black River	317
Brunswick	1021
Buckeye	400
Cloverleaf	789
Highland	538
TOTAL	5171

PROBABLE J.V.S. ENROLLMENT 794

501 to 41

TABLE 33:--JOINT VOCATIONAL SCHOOL NUMBER 14

PIONEER (RICHLAND COUNTY) JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Richland County	
Clear Fork Valley	515
Crestview	352
Lexington	595
Lucas	241
Madison	1469
Plymouth	375
Springfield	520
Shelby	994
Morrow County	
Northmor	342
Huron County	
Willard	665
Ashland County	
Ashland	1405
Mapleton	356
Crawford County	
Crestline	474
TOTAL	8303
PROBABLE J.V.S. ENROLLMENT	1274

TABLE 35:--JOINT VOCATIONAL SCHOOL NUMBER 16

SUMMIT COUNTY JOINT VOCATIONAL SCHOOL

Summit County	Enrollment 9-12
Cuyahoga Falls	3430
Stow	1289
Tallmadge	987
Bath-Richfield	744
Boston-Northampton	416
Copley	902
Coventry	1151
East Franklin	648
Green	1003
Hudson	592
Mogadore	341
Nordonia Hills	1001
Norton	1044
Springfield	1418
Twinsburg	523
TOTAL	15,489

PROBABLE J.V.S. ENROLLMENT 2377

TABLE 36:--JOINT VOCATIONAL SCHOOL NUMBER 17

PORTAGE COUNTY JOINT VOCATIONAL SCHOOL

Portage County	Enrollment 9-12
Atwater	174
Aurora	348
Crestwood	611
Field	699
James A. Garfield	422
Randolph	274
Rootstown	372
Southeast	569
Streetsboro	431
Kent	1024
Ravenna	1103
Windham	331
TOTAL	6358

PROBABLE J.V.S. ENROLLMENT 976

TABLE 37:—JOINT VOCATIONAL SCHOOL NUMBER 18

WAYNE COUNTY AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Wayne County	
Orrville	581
Wooster	1364
Rittman	430
Chippewa	392
Dalton	272
Green	332
North Central	306
Northwestern	352
Southeast	401
Triway	528
Ashland County	
Hillsdale	308
Loudonville	512
TOTAL	5868
PROBABLE J.V.S. ENROLLMENT	901

TABLE 38:—JOINT VOCATIONAL SCHOOL NUMBER 19

STARK AND CARROLL COUNTY JOINT VOCATIONAL SCHOOL

Carroll County	Enrollment 9-12
Augusta	100
Brown	185
Carrollton	779
Stark County	
Fairless	718
Jackson	875
Lake	491
Louisville	1030
Marlington	948
Minerva	702
Northwest	422
Osnaburg	395
Perry	1526
Plain	2301
Sandy Valley	579
Tuslaw	529
Alliance	1838
Canton	1133
Massillon	1990
North Canton	1166
TOTAL	17,707

PROBABLE J.V.S. ENROLLMENT 2717

TABLE 39:—JOINT VOCATIONAL SCHOOL NUMBER 20

MAHONING COUNTY JOINT VOCATIONAL SCHOOL

Mahoning County	Enrollment 9-12
Campbell	884
Struthers	1044
Austintown	1756
Boardman	1670
Canfield	630
Greer	170
Jackson-Milton	421
Lowellville	191
North Lima	218
Poland	793
Sebring	391
Springfield	387
West Branch	840
Western Reserve	211
TOTAL	9606

PROBABLE J.V.S. ENROLLMENT 1474

TABLE 40:—JOINT VOCATIONAL SCHOOL NUMBER 21

COLUMBIANA COUNTY JOINT VOCATIONAL SCHOOL

Columbiana County	Enrollment 9-12
Beaver	686
Fairfield-Waterford	270
Southern	391
United	381
East Liverpool	1758
East Palestine	628
Salem	1195
Wellsville	584
Columbiana	436
Leetonia	330
Lisbon	414
TOTAL	7073

PROBABLE J.V.S. ENROLLMENT 1085

TABLE 41:--JOINT VOCATIONAL SCHOOL NUMBER 22

MERCER AND AUGLAIZE COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Mercer County	
Celina	811
Coldwater	438
Marion	262
Mendon Union	92
St. Henry	308
Southwest	281
Auglaize County	
St. Marys	839
Wapakoneta	623
Minster	308
New Bremen	232
New Knoxville	149
Shelby County	
Anna	262
Botkins	147
Fairlawn	158
Fort Loramie	185
Hardin Houston	235
Russia	117
TOTAL	5450
PROBABLE J.V.S. ENROLLMENT	836

TABLE 42:--JOINT VOCATIONAL SCHOOL NUMBER 23

ALLEN COUNTY AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Allen County	
Lima	2429
Bluffton	372
Elida	661
Perry	285
Shawnee	801
Spencerville	332
Sugar Creek	93
Allen East	375
Bath	638
Hardin County	
Ada	328
Upper Scioto Valley	359
Auglaize County	
Buckland	85
Cridersville	178
Waynesfield	201
TOTAL	7137
PROBABLE J.V.S. ENROLLMENT	1095

TABLE 43:--JOINT VOCATIONAL SCHOOL NUMBER 24

MARION AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Marion County	
Marion	2185
Elgin	518
Pleasant	301
Ridgedale	335
River Valley	453
Wyandot County	
Upper Sandusky	750
Union County	
Marysville	648
North Union	491
Crawford County	
Bucyrus	789
Galion	1084
Buckeye Central	341
Colonel Crawford	411
Wynford	468
Morrow County	
Mt. Gilead	446
Cardington	292
Highland	393
Hardin County	
Kenton	871
Ridgemont	227
TOTAL	11,002
PROBABLE J.V.S. ENROLLMENT	1688

TABLE 44:—JOINT VOCATIONAL SCHOOL NUMBER 25

COSHOCTON AND KNOX COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Coshocton County	
Ridgewood	486
Riverview	873
Coshocton	824
Knox County	
Centerburg	51
Danville	63
East Knox	71
Mt. Vernon	1455
TOTAL	3823

PROBABLE J.V.S. ENROLLMENT 587

TABLE 45:—JOINT VOCATIONAL SCHOOL NUMBER 26

TUSCARAWAS COUNTY JOINT VOCATIONAL SCHOOL

Tuscarawas County	Enrollment 9-12
Baltic Garraway	348
Indian Valley	654
Stone Creek	74
Strasburg-Franklin	229
Tuscarawas Valley	393
Claymont	818
Dover	990
New Philadelphia	1113
Newcomerstown	400
TOTAL	5019

PROBABLE J.V.S. ENROLLMENT 770

TABLE 46:—JOINT VOCATIONAL SCHOOL NUMBER 27

HARRISON AND JEFFERSON COUNTY JOINT VOCATIONAL SCHOOL

Harrison County	Enrollment 9-12
Athens Union	65
Conotton Valley	222
Hopedale	138
Jewett-Union	185
Lakeland	182
Scio	221
Cadiz	373
Jefferson County	
Buckeye	1281
Cross Creek	873
Jefferson Union	620
Springfield	382
Stanton	195
Wayne	185
Steubenville	1341
Toronto	581
Mingo Junction	376
Warren	314
TOTAL	7537

PROBABLE J.V.S. ENROLLMENT 1157

TABLE 47:—JOINT VOCATIONAL SCHOOL NUMBER 28

DARKE AND MIAMI COUNTY JOINT VOCATIONAL SCHOOL

Darke County	Enrollment 9-12
Ansonia	271
Arcanum	330
Franklin Monroe	223
Gettysburg	128
Liberty	153
Mississinawa	278
New Madison	204
Greenville	1131
Versailles	437
Miami County	
Bethel	233
Miami East	462
Newton	221
Piqua	1251
Troy	1259
Bradford	214
Covington	320
Milton Union	570
Tipp City	579
TOTAL	8264
PROBABLE J.V.S. ENROLLMENT	1268

TABLE 48:—JOINT VOCATIONAL SCHOOL NUMBER 29

BELLEFONTAINE AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Logan County	
Bellefontaine	817
Belle Center	219
Buckeye	247
Indian Lake	175
Logan Hills	268
Riverside	261
Shelby County	
Jackson Center	184
Sidney	1088
TOTAL	3559
PROBABLE J.V.S. ENROLLMENT	546

TABLE 49:—JOINT VOCATIONAL SCHOOL NUMBER 30

CLARK COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Champaign County	
Graham	690
West Liberty Salem	391
Urbana	843
Clark County	
Mad River Green	658
New Carlisle-Bethel	1202
Northeastern	751
Northwestern	485
Southeastern	273
Springfield Township	864
Springfield	4416
TOTAL	10,573

PROBABLE J.V.S. ENROLLMENT 1622

TABLE 50:—JOINT VOCATIONAL SCHOOL NUMBER 31

MADISON COUNTY AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Champaign County	
Triad	237
Mechanicsburg	278
Union County	
Fairbanks	325
Madison County	
Jefferson	391
Johathan Alder	380
Madison South	302
Plains	260
London	589
Franklin County	
Hilliard (Scioto Darby)	915
TOTAL	3677
PROBABLE J.V.S. ENROLLMENT	561

TABLE 51:—JOINT VOCATIONAL SCHOOL NUMBER 32

DELAWARE COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Delaware County	
Big Walnut	470
Buckeye Valley	618
Liberty Union	457
Delaware	866
Franklin County	
Washington Dublin	915
Westerville	1347
Worthington	1422
TOTAL	6095
PROBABLE J.V.S. ENROLLMENT	935

TABLE 52:—JOINT VOCATIONAL SCHOOL NUMBER 33

COLUMBUS AREA JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Franklin County	
Grandview	589
South Western	3163
Upper Arlington	2317
TOTAL	6069

PROBABLE J.V.S. ENROLLMENT 931

TABLE 53:—JOINT VOCATIONAL SCHOOL NUMBER 34

FRANKLIN EAST JOINT VOCATIONAL SCHOOL

Franklin County	Enrollment 9-12
Canal Winchester	264
Hamilton	695
Mifflin	677
Plain	231
Reynoldsburg	830
Bexley	879
Whitehall	1314
Gahanna Jefferson	903
Groveport Madison	567
TOTAL	6360

PROBABLE J.V.S. ENROLLMENT 976

TABLE 54:—JOINT VOCATIONAL SCHOOL NUMBER 35

MOUNDBUILDERS (LICKING COUNTY - PERRY NORTHERN) JOINT VOCATIONAL SCHOOL

Licking County	Enrollment 9-12
Heath	395
Johnstown Monroe	311
Lakewood	580
Licking Heights	226
Licking Valley	387
North Fork	588
Northridge	409
Southwest Licking	443
Newark	2504
Granville	381
Perry County	
Perry Northern	496
TOTAL	6720

PROBABLE J.V.S. ENROLLMENT 1031

TABLE 55:--JOINT VOCATIONAL SCHOOL NUMBER 36

MUSKINGUM COUNTY JOINT VOCATIONAL SCHOOL

Muskingum County	Enrollment 9-12
Adamsville	189
East Muskingum	545
Franklin	506
Frazeysburg-Nashport	188
Jefferson	313
Maysville	475
Roseville	291
West Muskingum	443
Zanesville	2082
Perry County	
Crooksville	362
TOTAL	5394
PROBABLE J.V.S. ENROLLMENT	828

TABLE 56:—JOINT VOCATIONAL SCHOOL NUMBER 37

GUERNSEY AND NOBLE COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Guernsey County	
Madison Consolidated	142
Rolling Hills	594
Zane Trace	221
Cambridge	1070
Noble County	
Noble	388
Caldwell	426
TOTAL	2841

PROBABLE J.V.S. ENROLLMENT 436

TABLE 57:—JOINT VOCATIONAL SCHOOL NUMBER 38

BELMONT COUNTY JOINT VOCATIONAL SCHOOL

Belmont County	Enrollment 9-12
Flushing	146
Powhatan	226
St. Clairsville	660
Shadyside	482
Union	492
Bellaire	959
Martins Ferry	928
Barnesville	509
Bridgeport	541
TOTAL	4943

PROBABLE J.V.S. ENROLLMENT 759

TABLE 58:—JOINT VOCATIONAL SCHOOL NUMBER 39

PREBLE - MONTGOMERY WEST JOINT VOCATIONAL SCHOOL

Preble County	Enrollment 9-12
C. R. Coblentz	577
College Corner	45
Preble Shawnee	503
Twin Valley	797
Eaton	697
Montgomery County	
Brookville	468
Germantown	447
Jackson Farmsville	169
Jefferson	546
Johnsville-New Lebanon	437
Madison	1264
Mad River	1513
Northmont	1114
Northridge	979
Washington	1109
Wayne	1083
Kettering	3840
Miamisburg	1119
Oakwood	669
Vandalia Butler	1189
West Carrollton	1150
TOTAL	19,715

PROBABLE J.V.S. ENROLLMENT 3025

TABLE 59:—JOINT VOCATIONAL SCHOOL NUMBER 40

GREENE COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Greene County	
Yellow Springs	328
Fairborn	2252
Xenia	1994
Beavercreek	1903
Cedar Cliff	245
Greenview	423
Sugarcreek	406
Fayette County	
Washington Court House	787
Miami Trace	986
TOTAL	9324

PROBABLE J.V.S. ENROLLMENT 1431

TABLE 60:—JOINT VOCATIONAL SCHOOL NUMBER 41

PICKAWAY AND FAIRFIELD COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Pickaway County	
Logan Elm	316
Teas Valley	550
Westfall	391
Circleville	753
Fairfield County	
Amanda-Clearcreek	348
Berne Union	296
Bloom Carrol	371
TOTAL	3025
PROBABLE J.V.S. ENROLLMENT	464

TABLE 61:—JOINT VOCATIONAL SCHOOL NUMBER 42

TRI COUNTY (ATHENS-HOCKING-PERRY) JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Perry County	
Perry Southern	108
New Lexington	562
Hocking County	
Laurelville	197
Star Washington	134
Logan	932
Athens County	
Alexander	387
Federal Hocking	425
Trimble	332
York	266
Athens	1011
Nelsonville	330
TOTAL	4994

PROBABLE J.V.S. ENROLLMENT 766

TABLE 62:—JOINT VOCATIONAL SCHOOL NUMBER 43

MORGAN COUNTY JOINT VOCATIONAL SCHOOL

		Enrollment 9-12
Morgan County		
Morgan		861
	TOTAL	861
	PROBABLE J.V.S. ENROLLMENT	132

TABLE 63:—JOINT VOCATIONAL SCHOOL NUMBER 44

MONROE COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Monroe County	
Monroe	247
River	421
Switzerland of Ohio	223
Woodsfield	262
TOTAL	1153

PROBABLE J.V.S. ENROLLMENT 177

TABLE 64:—JOINT VOCATIONAL SCHOOL NUMBER 45

WASHINGTON COUNTY JOINT VOCATIONAL SCHOOL

Washington County	Enrollment 9-12
Fort Frye	343
Frontier	331
Salem Liberty	162
Warren	669
Wolf Creek	171
Belpre	499
Marietta	1499
TOTAL	3674

PROBABLE J.V.S. ENROLLMENT 871

TABLE 65:—JOINT VOCATIONAL SCHOOL NUMBER 46

BUTLER COUNTY JOINT VOCATIONAL SCHOOL

Butler County	Enrollment 9-12
Fairfield	1198
Liberty Union	760
Madison	478
New Miami	337
Reily	97
Ross	558
Shiloh	229
Talawanda	864
Trenton	328
Hamilton	3657
Middletown	3334
TOTAL	11838

PROBABLE J.V.S. ENROLLMENT 1817

TABLE 66:—JOINT VOCATIONAL SCHOOL NUMBER 47

CLINTON-WARREN COUNTY JOINT VOCATIONAL SCHOOL

Clinton County	Enrollment 9-12
Blanchester	444
Clinton Massie	432
New Kenton	271
Sabina	187
Wilmington	973
Warren County	
Carlisle	507
Clearcreek	378
Deerfield Union	445
Little Miami	733
Mason	464
Wayne	386
Franklin	969
Lebanon	791
TOTAL	6980

PROBABLE J.V.S. ENROLLMENT 1071

TABLE 67:—JOINT VOCATIONAL SCHOOL NUMBER 48

HIGHLAND COUNTY JOINT VOCATIONAL SCHOOL

Highland County	Enrollment 9-12
Brush Creek	61
Fairfield	185
High Ridge	230
Lynchburg-Clay	321
Hillsboro	604
Greenfield	708
TOTAL	2109

PROBABLE J.V.S. ENROLLMENT 324

TABLE 68:—JOINT VOCATIONAL SCHOOL NUMBER 49

ROSS AND PIKE COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Ross County	
Adena	313
Centralia	250
Huntington	300
Kingston-Union	115
Paint Valley	279
Scioto Valley	353
Union Scioto	254
Chillicothe	1654
Pike County	
Eastern	284
Scioto Valley	383
Waverly	561
Western	203
TOTAL	4949

PROBABLE J.V.S. ENROLLMENT 754

TABLE 69:—JOINT VOCATIONAL SCHOOL NUMBER 50

JACKSON AND VINTON COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Jackson County	
Oak Hill	436
Jackson	1053
Wellston	605
Vinton County	
Allensville	230
Brown-Zaleski	84
Hamden	102
McArthur	252
Wilton	106
TOTAL	2868

PROBABLE J.V.S. ENROLLMENT 440

TABLE 70:—JOINT VOCATIONAL SCHOOL NUMBER 51

MEIGS COUNTY JOINT VOCATIONAL SCHOOL

Meigs County	Enrollment 9-12
Eastern	280
Northwestern	291
Southern	322
TOTAL	893
PROBABLE J.V.S. ENROLLMENT	137

TABLE 71:—JOINT VOCATIONAL SCHOOL NUMBER 52

HAMILTON COUNTY AREA JOINT VOCATIONAL SCHOOL

Hamilton County	Enrollment 9-12
Finneytown	711
Forest Hills	1278
Lincoln Heights	381
Northwest	2036
Oak Hills	1501
Southwest	730
Three Rivers	602
Deer Park	735
Forest Park	997
Lockland	326
Loveland	638
Maderia	658
Mt. Healthy	1150
North College Hill	599
Norwood	1376
Princeton	1518
Reading	610
St. Bernard	313
Sycamore	793
Wyoming	543
Elmwood Place	54
Indian Hill	686
TOTAL	18235

PROBABLE J.V.S. ENROLLMENT 2798

TABLE 72:—JOINT VOCATIONAL SCHOOL NUMBER 53

BROWN AND CLERMONT COUNTY JOINT VOCATIONAL SCHOOL

	Enrollment 9-12
Brown County	
Eastern	362
Fayetteville-Perry	133
Hamersville	166
Mount Orab	324
Ripley-Union-Lewis	269
Georgetown	336
Clermont County	
Batavia	236
Bethel Tate	455
Clermont Northeastern	521
Felicity Franklin	220
Goshen	576
West Clermont	1565
Williamsburg	331
Milford	1011
New Richmond	509
TOTAL	7014

PROBABLE J.V.S. ENROLLMENT 1076

TABLE 73:—JOINT VOCATIONAL SCHOOL NUMBER 54

ADAMS COUNTY JOINT VOCATIONAL SCHOOL

Adams County	Enrollment 9-12
Franklin	93
Jefferson	113
Manchester	376
Peebles	213
Seaman	203
West Union	290
Winchester	103
TOTAL	1391
PROBABLE J.V.S. ENROLLMENT	213

TABLE 74:--JOINT VOCATIONAL SCHOOL NUMBER 55

SCIOTO COUNTY JOINT VOCATIONAL SCHOOL

Scioto County	Enrollment 9-12
Bloom	275
Clay	242
Green	223
Minford	439
Northwest	506
Valley	268
Washington	684
Wheelersburg	511
New Boston	240
Portsmouth	1795
TOTAL	4699

PROBABLE J.V.S. ENROLLMENT 721

TABLE 75:—JOINT VOCATIONAL SCHOOL NUMBER 56

LAWRENCE COUNTY JOINT VOCATIONAL SCHOOL

Lawrence County	Enrollment 9-12
Dawson-Bryant	501
Decatur-Washington	170
Fairland	425
Rock Hill	522
South Point	665
Symmes Valley	316
Ironton	856
Chesapeake-Union	443
TOTAL	3898

PROBABLE J.V.S. ENROLLMENT 598

TABLE 76:--JOINT VOCATIONAL SCHOOL NUMBER 57

GALLIA COUNTY JOINT VOCATIONAL SCHOOL

Gallia County	Enrollment 9-12
Hanna Trace	153
Kyger Creek	199
North Gallia	259
Southwestern	218
Gallipolis	694
TOTAL	1523

PROBABLE J.V.S. ENROLLMENT 234

APPENDIX A

GENERAL ALLOWANCES AND CALCULATIONS FOR TABLE 3, 5, 7, 9, 11, 13, 15 AND 17

Building Costs

Related classroom	720 square feet and $1,000
Academic classroom	720 square feet and $1,000

Shop, related and academic classroom, library, kitchen and lunchroom areas ÷ .7 to obtain total building area.

Total building cost calculated at $16.00 per square foot.

Academic class size	25 pupils
Number academic classes per day per teacher	5 classes

Number academic rooms and/or teachers equal enrollment ÷ 125.

Operating Costs

Units of operating equal number of vocational and academic teachers.

Cost per unit of operation equals $10,000.

Joint Vocational School is reimbursed $5,230 per unit of vocational education.

APPENDIX B

SPECIFIC ALLOWANCE FOR TABLE 3

Building Costs

Library	items J_1, J_2^- - 1,550 square feet	and $4,000
Kitchen	items L_1^- - 1,050 square feet	and $17,000
Lunchroom	items K_1^- - 2,400 square feet	and $2,000

Operating Costs

Director salary $12,000, reimbursement $5,500.

Sight Costs

20 acres at $2,500 per acre.

APPENDIX C

SPECIFIC ALLOWANCE FOR TABLE 5

Building Costs

Library	items J_1, J_2, J_3 - 1,850 square feet	and $7,000
Kitchen	items LL - 1,875 square feet	and $25,000
Lunchroom	items KK_1, features 1 - 4,500 square feet	and $3,000

Operating Costs

Director salary $12,000.

Supervisory salary $9,000.

Director reimbursement $5,500.

Sight Costs

35 acres at $2,500 per acre.

APPENDIX D

SPECIFIC ALLOWANCE FOR TABLE 7

Building Costs

Library	items J_1, J_2^+, J3, features 1, 2	- 2,250 square feet	and $9,000
Kitchen	items LL+	- 2,300 square feet	and $30,000
Lunchroom	itmes KK_1, features 1^+	- 5,500 square feet	and $3,600

Operating Costs

Director salary $12,000.

Supervisory salary $10,000.

Director reimbursement $5,500.

Supervisory reimbursement $4,500.

Sight Costs

40 acres at $2,500 per acre.

APPENDIX E

SPECIFIC ALLOWANCE FOR TABLE 9

Building Costs

Library items J_1^+, J_2^+, J_3^+, features 1^+, 2^+ - 2,650 square feet and $12,000

Kitchen item LL^+ - 2,900 square feet and $37,500

Lunchroom item KK_1, feature 1^+ - 7,000 square feet and $4,500

Operating Costs

Director salary $12,000.

Supervisors (2) $19,000.

Director reimbursement $5,500.

Supervisors reimbursement (2) $9,000.

Sight Costs

55 acres at $2,500 per acre.

APPENDIX F

SPECIFIC ALLOWANCE FOR TABLE 11

Building Costs

Library	items JJ_1, JJ_2^+, JJ_3, feature 2	- 2,975 square feet	and $15,000
Kitchen	item LL^+	- 3,500 square feet	and $45,000
Lunchroom	items KK_1, feature 1^+	- 8,500 square feet	and $ 5,500

Operating Costs

Directors salary $12,000.

Supervisors (2) salary $19,000.

Director reimbursement $5,500.

Supervisors (2) reimbursement $9,000.

Sight Costs

70 acres at $2,500 per acre.

APPENDIX G

SPECIFIC ALLOWANCE FOR TABLE 13

Building Costs

Library	items JJ_1, JJ_2^+, JJ_3, features 1, 2	- 3,400 square feet and $18,000
Kitchen	item LL^+	- 4,100 square feet and $52,000
Lunchroom	items KK_1, feature 1^+	-10,000 square feet and $ 6,600

Operating Costs

Director salary $12,000.

Supervisor (3) salary $28,000.

Director reimbursement $5,500.

Supervisors (3) reimbursement $13,500.

Sight Costs

80 acres at $2,500 per acre.

APPENDIX H

SPECIFIC ALLOWANCE FOR TABLE 15

Building Costs

Library	items JJ_1, JJ_2^+, JJ_3, features 1,2,3	- 3,465 square feet and $20,000
Kitchen	item LL	- 4,400 square feet and $57,000
Lunchroom	items KK_1, feature 1^+	-11,000 square feet and $ 7,375

Operating Costs

Director salary $12,000.

Supervisors (4) salary $38,000.

Director reimbursement $5,500.

Supervisors (4) reimbursement $18,000.

Sight Costs

80 acres at $2,500 per acre.

APPENDIX I

SPECIFIC ALLOWANCE FOR TABLE 17

Building Costs

Library	items JJ_1, JJ_2^+, JJ_3, features 1,2,3	- 3,615 square feet and $22,000
Kitchen	item LL	- 4,600 square feet and $62,500
Lunchroom	items KK_1, feature 1^+	-12,500 square feet and $ 8,500

Operating Costs

Director salary $12,000.

Supervisors (4) salary $38,000.

Director reimbursement $5,500.

Supervisors (4) reimbursement $18,000.

Sight Costs

80 acres at $2,500 per acre.

Figure 3:—Joint Vocational School Districts in Ohio

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VT 000 097 ED

Concepts and Generalizations as a New Approach to Teaching Home Economics Education.

Pieretti, Genevieve

Nevada State Dept. of Education, Carson City

Aug65

EDRS Price MF-$0.18 HC-$2.48 62p.

*CONCEPT TEACHING, *HOMEMAKING EDUCATION, *HIGH SCHOOLS, HOME MANAGEMENT, FOODS INSTRUCTION, NUTRITION INSTRUCTION, CLOTHING INSTRUCTION, TEXTILES INSTRUCTION, CONSUMER ECONOMICS, *CURRICULUM PLANNING, HUMAN DEVELOPMENT, HOUSING,

As the model for the graduate in home economics has changed to one of a decision-maker who has the necessary knowledge and abilities to solve problems and make judgments for himself rather than apply prescriptions learned in school, the concept method of teaching has become more important. A conference in February 1961, called to consider how a national group could give leadership to the reexamination of home economics in the secondary school, began to identify concepts for home economics. Subsequently, six workshops were held, with approximately 175 home economics teachers, teacher educators, and supervisors representing all states participating. Concepts resulting from these meetings are grouped under the following headings -- (1) Human Development and the Family (with a glossary of terms), (2) Home Management and Family Economics, (3) Food and Nutrition, (4) Textiles and Clothing, and (5) Housing. Sample concepts are -- (1) In all societies the individual's place within the society depends primarily upon age and sex, (2) The ways in which plans are communicated may affect their implementation, and (3) Non-nutritional as well as nutritional factors play important roles in food selection. The appendix contains a speech by George W. Denemark, "The Curriculum Challenge of Our Times," and an article by Asahel D. Woodruff, "Putting Subject Matter Into Conceptual Form." (MS)

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CONCEPTS AND GENERALIZATIONS AS A NEW APPROACH TO TEACHING HOME ECONOMICS EDUCATION

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August, 1965

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Chapter I.

THE ROLE OF CONCEPTS IN TEACHING

The rapid expansion of knowledge in all the basic fields makes it impossible for anyone to know all there is to know about a subject. In an address before the Home Economics Seminar at French Lick, Indiana, Dr. Paul L. Dressel[1] stated that "a meaningful organization of knowledge is necessary if the worth of knowledge is to be appreciated and its utility made apparent." He went on to say that much can be done in synthesizing knowledge by introducing global concepts or ideas which tie together what may previously have been unrelated facts. The advantage, of course, is that an individual can become acquainted with the field by mastering a relatively few significant ideas rather than a great number of specifics.

George W. Denemark[2] writing on "The Curriculum Challenge of Our Times," has also stated this need when he said that "teachers of a given subject cannot teach all there is to know about it. For example, the history teacher, even though he is a college professor teaching at the doctoral level, cannot deal with all of history. Drastic choices must be made between what to include and what to leave out. Nevertheless, some of us have made a futile attempt to 'keep up' with the rapid pace of world events by talking faster or assigning more homework."

Dr. Denemark says that an approach which merits careful reflection by all educators is to focus upon the identification of the fundamental principles, the broad concepts, and the big ideas in the various subject matter fields. The answer, he says, is to carefully assess all fields of study and select those elements of each which will provide the strategic keys to an understanding of other events.

Home Economics is not alone in working on the concept approach. In a number of the basic disciplines, emphasis is being placed on developing a list of significant basic or key concepts, so selected that they will be continuously or recurringly used at higher levels of sophistication.

When the basic concepts of home economics are defined, the content of home economics as a discipline becomes more clear. Then curriculum planning may proceed in a more orderly fashion. In the words of George Denemark:[3]

> In large measure the quality of American Education depends upon the extent to which we are able to conceive of a bold new design for the curriculum. The design must include common commitment to a new set of fundamentals derived from rigorous analysis of every field of knowledge.

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1. Paul L. Dressel. "The Role of Concepts in Planning the Home Economics Curriculum," Home Economics Seminar, July 24-28, 1961. French Lick, Indiana. A Progress Report, p. 7.
2. George W. Denemark. The Curriculum Challenge of Our Times. NEA Journal, December 1961.
3. Ibid.

> It must also include granting each teacher expanded flexibility to select and choose the specifics best suited to the unique combination of conditions for learning. Achieving the proper balance of stability and flexibility in the curriculum is the challenge of our times for education.

Home Economics is an applied science, drawing its content from research in the social sciences, in the physical and the biological sciences and also from its own research. It also draws from the principles of art and design and applies these to problems of improving home and family life.

In its early days, home economics was concerned primarily with the "hows" rather than the "whys" of practices and procedures. However, as research findings began to contribute more and more to the understanding of the "whys", home economics has been increasingly concerned with applying the findings of research conducted in the arts and the sciences to practical applications. According to Dr. Paul Dressel, "In the present day, the increasing complications of our technology make it impossible to provide the potential practitioner in any vocation with a kit of tools and a set of prescriptions. The model for the graduate is changing to one of a decision maker who has the necessary knowledge and abilities to solve problems and make judgments for himself rather than to apply prescriptions learned in school."[4]

Asahel D. Woodruff[5] stressed the importance of cultivating individual decision-making behavior when he said: "If a learner acts on another person's decisions, he does not know how, or learn how, to make his own decisions. He learns only to carry out specific acts in specific situations. If we wish to affect his behavior through his own knowledge, we must cultivate his own decision-making processes. This requires that we stop giving him the end products of another person's decisions (conclusions or admonitions), and give him the concepts with which he can make his own decisions."

"A concept," according to Dr. Woodruff, "is a relatively complete and meaningful idea in the mind of a person. It is an understanding of something. It is his own subjective product of his way of making meanings of things he has seen or otherwise perceived in his experiences. At its most concrete level it is likely to be a mental image of some actual object or event the person has seen. At its most abstract and complex level it is a synthesis of a number of conclusions he has drawn about his experience with particular things."

"Its importance," Dr. Woodruff says, is that "Human beings make their decisions, and take their actions on the basis of their concepts about their environment and the particular parts of it which make up a person's situation at any one time. Concepts are the internally lodged elements that determine how a person will react to a particular stimulus situation. People's lives are lived in accordance with their concepts, insofar as they are able to carry out their wishes and intentions."

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4. Paul L. Dressel. Ibid.
5. Asahel D. Woodruff. "Putting Subject Matter Into Conceptual Form." Mimeographed material from proceedings of the Pacific Regional Conference, Home Economics Education, Reno, Nevada, March 2-6, 1964. (See Appendix.)

Herein lies the importance of the concept method of teaching. As individuals gain concepts, they are able to become more competent in decision-making.

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Chapter II.

HISTORY OF THE U. S. OFFICE OF EDUCATION'S SECONDARY SCHOOL HOME ECONOMICS CURRICULUM PROJECT

In February, 1961, the Home Economics Education Branch of the Office of Education under the direction of Edna P. Amidon, called a conference in Washington, D. C. to consider whether and how a national group might work to give leadership to a reexamination of home economics in the secondary schools in light of changing social and economic conditions in the world. Dr. Marilyn J. Horn, Associate Director of the Sarah Hamilton Fleischmann School of Home Economics, was one of about 20 persons from the states--state and city supervisors, home economics educators, and subject matter specialists--together with representatives of national organizations, who met with the staff of the Home Economics Education Branch and other units in the Office of Education to consider this problem. The group discussed how they might give leadership in the development of guidelines for home economics in the secondary schools, and how they might give counsel and work with the Home Economics Education Branch staff in initiating such a project.

Edna P. Amidon stated that the reasons for the meeting, and the thinking back of the plans made, were related to the national concern about secondary school curriculums voiced by numerous people. Many in the profession, she stated, had expressed the view that criteria were needed to determine what in present secondary school programs had continuing value, what should be dropped, and what needed to be added in order to better serve today's youth--boys as well as girls.

At this February meeting, this group discussed the status of home economics in secondary schools as revealed by the 1959 national study,[1] reviewed the widespread home economics curriculum development programs underway throughout the United States at state and local levels, and after hearing about work underway in various other subject matter fields in the secondary school, explored the idea of defining the unifying elements in home economics. It was suggested that if the basic concepts in the field of home economics could be identified, that this resource material could be used in nationwide development of curriculum. It was decided that this would be a productive approach. Also, approval was given to the preparation of a position paper on "The Place of Home Economics in the Secondary School" which had been recommended by the Executive Secretary of the National Association of Secondary-School Principals. The Bulletin of the National Association of Secondary-School Principals, Volume 48, Number 296, December 1964 carries this statement in a chapter entitled "Home Economics in the Secondary School."[2]

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1. Beulah I. Coon. Home Economics in the Public Secondary Schools: A Report of a National Study, Office of Education Publication No. OE-83010, Circular 661; U. S. Department of Health, Education and Welfare. Washington, D.C.: U. S. Government Printing Office, 1962. 156 p. $1.25
2. "Home Economics in the Secondary School". The Bulletin of the National Association of Secondary-School Principals, Volume 48, Number 296, December 1964, pp. 89-97. Washington 36, D.C.: National Association of Secondary-School Principals, National Education Association, $2.00

A small start was made at this initial meeting in February on the process of identifying home economics concepts. Then in January of 1962, a subcommittee of five members reviewed a suggested outline of concepts for home economics with some generalizations to support them. This group, also, revised a tentative outline of material on the place of home economics in the secondary school. Next steps in the project were also considered.

Regional Conferences of home economics education workers -- 1962 and 1963.

Progress reports on the curriculum project were made at the 1962 Central and Pacific Regional Home Economics Education Conferences and at the 1963 Southern and North Atlantic Conferences. Through presentations, panel discussions and group work, key home economics educators were informed of the plans for the curriculum development project and became involved in the project.

Workshops

Two workshops were held in 1962--the first at Iowa State University, July 16-18, and the second at Pennsylvania State University, August 13-24. At the Iowa workshop, concepts and generalizations in family relations were developed. At the Pennsylvania workshop, concepts and generalizations in the area of family economics were developed.

In these workshops specialists and consultants worked with teachers, teacher educators and supervisors to develop a conceptual structure with supporting generalizations. In stating the generalizations basic information given in presentations made by specialists in the areas of the workshops and in supporting disciplines were used. After the workshops these materials were revised in the Home Economics Education Branch on the basis of evaluation and suggestions by workshop participants. Further revisions were made by other selected specialists before duplication of the materials was made for their use at the 1963 workshops as working materials.

Four additional workshops were held in the summer of 1963 as follows:

1. Housing, Interior Design and Furnishings, and Equipment. Oklahoma State University, Stillwater, June 10-21.

2. Food and Nutrition. Cornell University, Ithaca, N.Y., June 24 - July 6.

3. Clothing and Textiles. Washington State University, Pullman, July 1-12. (Dr. Marilyn J. Horn, University of Nevada, served as consultant.)

4. The Development of Children and Youth. Merrill-Palmer Institute, Detroit, Michigan, July 22 - August 3. (Attended by Mrs. Genevieve Pieretti, State Supervisor of Home Economics Education, Nevada.)

Approximately 175 home economics teachers, teacher educators, and supervisors representing all states, along with specialists and consultants participated in the workshops and identified concepts and generalizations in the various areas. After further revisions by workshop participants and specialists, another workshop was held in the summer of 1964 at the University of Missouri to refine and combine the materials on concepts and generalizations for the different areas of home economics which were developed in the 1962 and 1963 workshops.

After final editing by the staff of the U. S. Office of Education, the concepts and generalizations were duplicated and sent to the State Supervisors of Home Economics Education for use in curriculum planning and in teaching. (See Chapter III.)

Relating work of secondary and college groups

While the work was being done on the Secondary School Curriculum Project, colleges were also becoming interested in the concept approach to teaching. In July, 1961 a seminar was held at French Lick, Indiana sponsored by the Home Economics Division of the American Association of Land-Grant Colleges and State Universities. Those who attended the February 1961 conference called by the Home Economics Education Branch were invited to this seminar along with others who were concerned with secondary education. These persons considered implications of the work being done at the Seminar to the secondary school curriculum study.

A plan for continued cooperation between Land-Grant College committees working on definition of content, and the Home Economics Education Branch was made.

With a member of the Home Economics Education Branch of the U. S. Office of Education as a consultant, Dr. Alberta D. Hill, a group of teacher-educators met at the University of Nevada in Reno, October 1964, to develop concepts and generalizations for teacher education in home economics. They considered competencies needed for home economics teachers and developed major concepts and generalizations under each competence. Teacher educators, also, will be using the concept method of teaching.

CHAPTER III

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U.S. DEPARTMENT OF
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Professional Resources Unit, Auxiliary Service Branch
Washington, D.C. 20202

CURRICULUM RESOURCE MATERIAL
Conceptual Framework and Generalizations in Home Economics

The theory that the identification of basic concepts and generalizations would provide structure for various areas of home economics and valuable resource material for curriculum building was accepted by those who met for a curriculum conference in 1961, and by others who attended the workshops which followed.

A curriculum that is structured on unifying concepts is flexible and can be adjusted to local conditions and to changing conditions, both of which can affect the curriculum. Once the pertinent concepts and generalizations have been identified, the content to develop them can be chosen from among a wide range of possibilities. Also, a curriculum so structured can easily be reviewed in the light of new ideas and information; this would be useful in indicating research which might be needed and in suggesting new approaches to the curriculum. In addition, the identification of concepts and generalizations should facilitate the evaluation of the teaching-learning process.

This paper gives the outlines of concepts and generalizations for home economics developed in the workshops held in 1962 and 1963, and brought together in the 1964 workshop. They are organized under the following headings:

-- Human Development and the Family

-- Home Management and Family Economics

-- Food and Nutrition

-- Textiles and Clothing

-- Housing

The terms concept and generalization are defined in many ways in writings on curriculum. Therefore, it is important to indicate how they are used in this material.

Concepts are abstractions used to organize the world of objects and events into a smaller number of categories. They have many dimensions and meanings and constitute the recurrent themes which occur throughout the curriculum. Examples of concepts which appear in the following pages are:

-- Development and socialization of the individual (See p. 4)

-- Resources and their utilization (See p. 10)

-- Nature of food (See p. 16)

Generalizations express an underlying truth, have an element of universality, and usually indicate relationships. Examples of generalizations which appear in this paper are:

-- As more services are built into foods, the control of industry over the kinds and quality of food increases while that of the home decreases. (See p. 18)

-- The attitudes and information of the meal planner about food and nutrition influence the nutritional adequacy of the food served. (See p. 19)

In developing the generalizations included in this paper, the following criteria were used as guidelines:

-- The generalization is based on objective data, on experience, or on theory accepted by specialists in the field.

-- The terms used have clear and precise meanings.

-- The development of the generalization is an important task of the school.

-- The generalization will provide insight in dealing with new situations in social and cultural learnings.

-- There is a reasonable possibility of learners developing some understanding of the generalization through experiences in the home economics curriculum in the high school.

Since these five outlines were developed by different groups, they are not entirely uniform. Three of the outlines are introduced with brief explanatory statements while the other two are not. The variations in the outline form under which the conceptual structure and generalizations are organized are evidence of the independent work of the subject-matter groups. All generalizations have an Arabic numeral.

HUMAN DEVELOPMENT AND THE FAMILY

The conceptual structure and generalizations for this outline were developed from two separate outlines prepared in two separate workshops--the Iowa State University workshop which focused on Family Relationships, and the Merrill-Palmer workshop which focused on Development of Children and Youth. The two outlines were fused into one because to some extent they overlapped and because it was felt that a single outline would be more useful as resource material for developing home economics secondary school courses or units of courses dealing with child growth and development, and with personal and family relationships.

Numbers in parentheses appearing in certain statements of generalizations refer to the Glossary of Terms included at the end of this outline.

I. Universality of individuals and families

1. In all known societies there is a recognized unit that assumes the functions of child bearing, child rearing, regulation of behavior, and economic support.

2. Cultural patterns are transmitted from one generation to another primarily through the family (1).

3. There are more similarities in family patterns within one culture than there are in family patterns of different cultures.

4. Every known society and every individual has values which give direction to behavior and meaning to life.

5. In all societies the individual's place within the society depends primarily upon age and sex.

6. Within each individual there is an urge to grow (2) toward his fullest potential.

7. There is a universal and irreversible pattern of individual human development (3).

II. Uniqueness of individuals and families

1. Each individual is unique and this uniqueness helps to account for variations in family units within the same culture.

2. There is a reciprocal relationship between the family and society.

3. Each individual family member affects and is affected by his family.

4. Cultures differ according to what is considered acceptable and normal behavior.

5. Since every individual, every family, and every society is unique, the process of socialization (4) is different for each individual.

6. Each individual differs from every other individual in his inherent potentialities.

7. Each individual is unique in his potentialities and in his pattern and rate of development.

III. Development and socialization of the individual

1. Development is continuous and proceeds in an orderly sequence with periods of acceleration and deceleration occurring in each phase of development.

2. When one aspect of development is taking place at an accelerated rate, other aspects may seem to be on a plateau.

3. Critical periods occur throughout the life span during which an individual's total development, or some aspect of it, is particularly sensitive to environmental influences.

4. The human organism has a great capacity for physical, mental, and social self-repair and for adaptability.

5. To the extent that an individual's developmental needs are met as they occur, he is free to move toward his full potential.

6. To the extent that an individual's developmental needs are met consistently and in an atmosphere of emotional warmth and love, he seems to develop a basic trust in himself and in the world around him.

7. Situations conducive to the development of self-respect are those in which the individual is valued as a person of intrinsic worth and dignity.

8. Maturation is change in structure that cannot be measured in amount by means of a standard measuring scale, but can be appraised by reference to an orderly sequence of qualities, features, or stages.

9. Maturity is revealed in an individual's use of the resources available to him to develop his potentialities.

10. A mature adult copes (5) with his environment, shows a certain unity of personality, and is able to perceive and accept the world and himself realistically.

11. The human organism is an open, dynamic system, constantly taking in stimulation from its environment, and constantly behaving in response to the stimulation; such behavior, in turn, affects and changes the environment.

12. Modeling (6) is a particularly effective technique for learning roles, attitudes, and values.

13. When an individual experiences satisfaction from the results of a particular pattern of behavior, he is likely to incorporate that pattern into his behavior.

14. The sense of self (7) grows gradually and continually as the individual participates in an ever-widening environment.

15. Creativity is the capacity to innovate, invent, or reorganize elements in ways new to the individual.

16. In the process of self-development the individual builds up a set of values which are important criteria for his decision making.

17. Value systems are developed as a person's needs are met, as he thinks about and reacts to his experiences, and as he adjusts to change.

18. Some of the most influential and compelling values are held unconsciously.

19. The more accurately the individual perceives his values, the greater his ease in choosing among alternatives of action.

20. Socialization results from a continuous interaction of the individual and his environment.

21. An optimal atmosphere for the socialization process in our society seems to provide a combination of affection and control.

22. Each person's behavior is influenced by the attitudes, values and interpretations of his environment that he has accumulated through his experiences.

23. Values are learned from early and continued experiences in the family, with poor groups, and in the community.

24. The needs of parents and children are sometimes complementary and at other times conflicting.

25. The individual's interpretation of his own role (8) and of the roles of other family members influences his interaction within the family.

26. Families and communities share responsibility for offering children and youth opportunities for education, for maintaining physical and mental well-being, for recreation, for protection from danger, and for developing religious faith.

IV. Challenge and creative possibilities of change

1. The task of socialization is more complex in societies where there is rapid social change.

2. Social change resulting from technological advances, political strategy, and newly emerging or absorbed ideologies places strain on cohesion within and between families.

3. Individuals resist change.

4. Change generally occurs first in the material aspects of culture; this in turn produces change in the nonmaterial culture.

5. Technological changes, advances in science, and improved communication and transportation have resulted in other social agencies assuming some of the responsibilities traditionally performed by the family.

6. When individuals understand change and have some methods and resources for coping with it, they can be a force in determining the direction of change.

Glossary of Terms

1. The family in America: the basic social institution composed of persons united by ties of marriage, blood, adoption, or by common consent; characterized by common residence and economic cooperation.

2. Growth: change in amount or degree of a bodily attribute (structure) which can be measured by means of some standard measuring scale.

3. Human development: all processes of change both in the body itself (structure) and in its behavior (function), from conception through old age.

4. Socialization: a process whereby the individual learns the ways of a given culture; involves learning to know himself as well as his environment.

5. Coping: purposeful problem-solving, behavior.

6. Modeling: the process whereby an individual incorporates into his own behavior the perceived behavior of another with whom he identifies intentionally or unintentionally.

7. The self: a composite of the individual's thoughts, abilities, feelings, values, and perceptions of his roles, as well as his concept of himself.

8. Role: a function assumed by an individual or a group in a particular situation.

HOME MANAGEMENT AND FAMILY ECONOMICS

Home management includes decision-making and the organization of activities involved in the use of resources for defining and achieving goals of families.

I. Environmental influences on individual and family management

A. Societal

1. Conditions in society influence stability and/or change in availability and use of resources.

2. The demands and expectations of society present management opportunities and responsibilities to individuals and families.

3. Individuals and families have the responsibility to provide for their own welfare beyond the basic expectations of, and protection provided by, society.

B. Economic

1. The family economy affects and is affected by the larger economy.

2. Total income and/or goods and services available for consumption are influenced by individual and family productivity.

3. Individual and family choices influence, and are influenced by, market conditions and marketing practices.

II. Managerial processes

A. Decision-making

1. Decision-making reflects varying degrees of rationality.

2. Decisions are affected by the interaction of factors which influence managerial behavior.

3. Rational decisions represent choices resulting from logical analyses of the elements of situations.

4. The decisions of individuals and families reflect differences in the perception of goals and goal achievements.

5. Satisfactory decisions may involve family members in different ways at different times.

6. Disadvantages as well as advantages are usually inherent in the alternatives involved in a decision or choice.

7. Risk and uncertainty in decision making vary with people and situations.

B. Organization of activities

1. Organization is the way in which individuals and families carry out activities.

2. The organization of different individuals and families differs in aim and effect.

3. Plans may incorporate more than one decision.

4. The implementation of plans may involve reappraisal and adjustment of procedures to meet changing conditions.

5. Individuals and families may facilitate management through creating routine procedures and coordinating activities.

6. The ways in which plans are communicated may affect their implementation.

7. Effective organization is related to optimal use of resources.

8. Anticipated outcomes and incentives energize organizational processes.

III. Effective elements in management

A. Resources and their utilization

1. The perception of available resources may enhance or limit the management potential of individuals and families.

2. The assessment of a resource in terms of other resources or managerial activities clarifies its contribution to management.

3. The availability and/or scarcity of resources affect the range of choices.

4. Different forms or combinations of resources may yield similar satisfactions.

5. The cost of using resources for any purpose is that which must be given up because of such use.

6. The optimal use of resources varies with differences in families and situations.

7. The changes in the circumstances accompanying family life stages influence the availability of resources and the demands made upon them.

8. Families differ in resources available to meet economic needs and risks.

B. Values, goals, and standards

1. Management by individuals and families reflects differences in values, goals, and standards.

2. Values serve as guides for developing goals.

3. The extent to which goals are realistic is affected by the assessment of resource potential.

4. Flexibility in standards influences adaptability to changing circumstances.

5. Families holding similar values may seek different goals.

6. The rank order of an individual's or family's values may vary in different situations.

7. Clarity of values, goals, and standards is affected by experience in management.

FOOD AND NUTRITION

I. Significance of food

A. As related to cultural and socioeconomic influences

1. The knowledge that nutrition is related to health, longevity, and general well-being has unfolded through centuries of human experiences and has developed into a science that changes and expands with the additional findings of research.

2. Food habits of individuals change as a result of indirect influences such as changes in supply resulting from advances in production, technology, and distribution; economic resources; and the educational, social, and cultural environment.

3. The adequacy of the food supply of people in all parts of the world has an effect upon people everywhere.

4. Distribution of food from areas of surplus to areas of scarcity is necessary for the physical, economic, and psychological well-being of people and carries political implications.

5. The kinds of foods, the ways they are prepared, their grouping in meals, and even the manner in which they are served and eaten constitute the food customs that are characteristic of a country or region. Though these customs differ widely, they can meet nutrient needs equally well.

6. Specific foods, methods of preparation and serving, and times at which foods are eaten, acquire symbolic meanings associated with religious beliefs and ceremonies, social usages, status, ethnic and family traditions, maturity levels, and masculine and feminine roles.

7. The role of food as a socializer, as an aid to breaking down communication barriers, and as a symbol of hospitality and friendliness justifies an appropriate use of resources.

8. Skill in food planning and preparation can be used to satisfy family values and goals and for gainful employment.

B. As related to nutrition

1. All life is composed of, and requires, combinations of elements which, when utilized to form and maintain tissues or sustain activity, are known as nutrients. Food is the usual source of nutrients.

2. Individuals have need for all nutrients, but their differences in ability to store and snythesize nutrients influence the kind, amount, and timing of intake needed for the most effective utilization of food.

3. Combinations of elements required by living organisms are classed as proteins, lipids, carbohydrates, minerals, vitamins, and water.

4. Each nutrient has specific functions; in some cases one nutrient is known to influence the functioning of another nutrient or other nutrients.

5. The energy needed for growth, maintenance, and bodily activity is provided by the oxidation of lipids, carbohydrates, and proteins.

6. All nutrients are used by the body to build and maintain tissues and to regulate body processes. The various tissues and body processes have characteristic nutrient needs.

7. Inadequate, excessive, or imbalanced intakes of nutrients may be detrimental to health.

8. The amount and kind of nutrients needed by individuals vary and are influenced by heredity, age, sex, size, activity, climate, and physical and emotional state.

9. The digestion, absorption, and utilization of food components are interrelated processes influenced by the physical and chemical nature of the foods ingested, the physical and emotional state of the individual, and the interactions of the various nutrients in the metabolic process.

10. The optimum frequency of eating in relation either to physiological comfort or to utilization of nutrients is not known and may differ with individuals and situations.

11. Adequate nutrition can be attained with many combinations of foods commonly available throughout the world. No single food pattern is essential to health.

12. Basic to the development and evaluation of adequate food patterns is knowledge of the nutrients needed by the body and their sources in available foods.

13. Instinct is not a reliable guide for food choices; how to select an adequate diet needs to be learned.

C. As related to physiological and psychological satisfactions

1. Non-nutritional as well as nutritional factors play important roles in food selection.

2. The primary satisfactions provided by eating include the relatively immediate sensory and physiological effects it produces and the psychological meanings it has acquired.

3. Hunger is an uncomfortable physiological state which occurs in the absence of food and often influences and may dominate behavior until relieved.

4. The occurrence of hunger is affected by the time lapse since the last intake of food, the amount and composition of food eaten, the habits of the individual in relation to each of these, his emotional state, and perhaps his inborn hormonal balance.

5. The degree of comfort or discomfort experienced after eating is influenced by the particular foods eaten and their total volume and the interaction of emotional and/or physiological stress with digestive activity.

6. The association of food with intimacy from the day of birth may make it a means of nonverbal communication of love or indifference, acceptance or rejection, and other emotional feelings.

7. Emotional stresses, having no connection with foods in their origin, may be expressed in irrational behavior toward food such as criticism, rejection, or overeating.

8. People are likely to accept a wide variety of foods if they have wide experience, knowledge, and appreciation of foods and if their environment reinforces positive rather than negative attitudes.

9. Wide acceptance of food by the individual can mean easier adaptability to varied social environments and differing economic circumstances, and increased likelihood of obtaining adequate nutrition and pleasure from food.

10. Food habits and preferences are a product of complex interactions among physiological and psychological satisfactions associated with food, beliefs about foods, and economic resources.

11. Food habits like other behavior patterns are subject to deliberate modification by those who are motivated to change and act accordingly but are highly resistant to direct attempts to change.

12. An individual's food habits may be such an integral part of his personality complex that efforts to change may damage his capacity to function effectively.

II. Nature of food

A. Chemical and phsyical properties

1. A few foods are pure chemical compounds which contain only one nutrient, but most foods are complex systems made up of many chemical compounds, some of which do not have known nutritive value.

2. Similarities in the physical structure and chemical composition of foods are the bases for their classification, handling, and processing.

3. The usefulness of a food in the human diet may be limited by the presence of toxic substances and/or pathogenic microorganisms.

4. The appearance, texture, flavor, temperature, and other sensory qualities that influence the acceptability of food products depend upon the physical and chemical properties of the food.

5. The inherent color of food is determined bythe presence of naturally occurring or chemically produced pigments and those physical properties of the food itself which affect light reflectance. The color seen is affected by external factors such as light source and background color.

6. The texture of a food is dependent upon the physical structure of its components. Texture is recognized by sensations induced by various sensory receptors. Structures associated with texture include: crystalline and amorphous solids; liquids of varying degrees of viscosity; and mixtures of liquids, solids, and/or gases in such forms as foams, gels, and emulsions.

7. Flavor is determined by the chemical composition of a food and, for most foods, by small amounts of many different compounds. Flavor is experienced through the taste and odor sensory organs.

B. Factors effecting change in properties of food

1. The intensity and characteristics of some sensory qualities of food can be changed by temperature and depend upon personal sensitivity.

2. Genetic factors and agricultural practices may influence the chemical composition and physical structure of raw foods and make it possible to produce foods with the specific properties required for a variety of processor and consumer uses.

3. The sensory qualities, nutritive value, and safety of foods may be altered by the physical and chemical environment such as changes in temperature, kind of manipulation, and the presence of water, oxygen, and other chemical substances. These changes are usually interrelated and are often affected by time.

4. The storage life, geographic distribution, and variety of food products can be increased by processing food in various ways such as refining, preserving, and manufacturing of new products.

5. Knowledge of the significant chemical constituents and physical systems present, and of the principles governing the physical and chemical processes used, contributes to understanding and control of the physical and chemical changes that occur during food processing and preparation.

6. Directions for obtaining a product of given characteristics are reliable only when the nature of the original food or food mixture, and the effect of the physical and chemical processes to which it will be subjected are considered.

7. The physical processes commonly employed to alter the nature of food include: heating by conduction, radiation, and internal generation; cooling; evaporating; dialyzing; dissolving; emulsifying; crystallizing; agitating; fractionating; and comminuting.

8. Food storage and preservation methods are designed to retain or enhance the initial nutritive value, safety, and sensory qualities of food through the control of natural maturing processes, the growth of contaminating

microorganisms, and a variety of chemical reactions and physical changes.

9. Research continually extends our understanding of and ability to control the nature of food and its behavior.

10. Technological developments that result in changes in the nature of food and food products often bring a need for changed procedures in food handling, storage, and preparation.

III. Provision of food

A. Production

1. As more services are built into foods, the control of industry over the kinds and quality of food increases while that of the home decreases.

2. Changes in agricultural practices, in technological developments, and in size and the composition of population affect per capita supply, distribution, and consumption of food.

3. When there is a scarcity of land and an increase in population density, the reliance on primary (plant) sources for food increases, and the discovery and use of new sources of food become increasingly important.

4. Technological growth and current sociological trends promote developments in food processing, acceptance of a variety of food forms, and changes in patterns of consumption.

B. Consumer practices

1. Rational choice becomes more difficult as the number of food products and ways of merchandizing them increase.

2. Consumers' choices are a determinant of marketing practices, prices, and of the qualities of foods in the market.

3. Informed consumers making rational and discriminating choices in the purchase of food can influence the functioning of the market to serve consumer interests and to improve the effective use of resources.

C. Protective measures

1. Safety of food is determined by the natural qualities, by the procedures used in the production and processing, and by the sanitary measures used in the handling and storing of food in the market and in the home.

2. Federal, State, and local agencies work toward the protection and guidance of consumers in their purchase of certain foods by assuring the wholesomeness of these foods and their freedom from adulteration, by establishing standards of identity, by requiring truthful labeling, and by prohibiting false statements in advertising.

3. When there is evidence that the addition of a particular nutrient or other additive to a food serves a useful purpose, government defines and regulates such additions.

4. The support and cooperation of informed citizens increase the effectiveness of government and private agencies in improving the quality, safety, and quantity of the food supply.

D. Management of resources

1. The attitude and information of the meal planner about food and nutrition influence the nutritional adequacy of the food served.

2. The individual's knowledge of nutrition contributes to a wider freedom of choice among foods in attaining adequate nutrition.

3. Discrimination is required in the selection of foods that contribute a balance of nutrients to the daily diet and at the same time fulfill such non-nutritive requirements for daily meals as are involved in meeting food budgets, family traditions, and individual preferences.

4. Nutritional knowledge helps the individual evaluate food fads, fallacies, and sensational claims which may be harmful to health or lead to economic problems.

5. Participation in planning, preparing, and serving meals can be a source of pleasure and satisfaction, and can provide an opportunity for aesthetic and creative expression.

6. Participation in accepted social practices can contribute to the individual's facility and sense of security in various situations involving food.

7. The organization of activities in providing food for the family involves planning and coordination of resources and family demands.

8. The resources available for meeting personal and family food needs include personal capacities, available goods and services, and purchasing power.

9. While a competent manager can reduce the amount(s) of money needed for food, there is a practical minimum below which it becomes increasingly difficult to acquire adequate nutrition and to provide culturally accepted variety in food.

10. Use of resources for household food production is influenced by the values (nutritive and non-nutritive) placed on food, the kind and quality of resources available, and the personal satisfaction derived from producing food.

11. The choice of which resource to use in providing food for the family depends upon the quantity of each resource available, the cost of the alternatives and their effectiveness in producing the desired result, and the ability of the user to employ the resources for the purpose desired.

12. Family food costs will vary with the size and composition of the family, the value placed on food, and the resources available.

13. Performance of routine tasks according to a plan designed for repeated use facilitates planning, preparing and serving food.

TEXTILES AND CLOTHING

I. Significance of textiles and clothing to the individual in society

A. Interrelationship of clothing and culture

1. In all cultures dress has provided a means of: physical protection; self-adornment; conveying status; group, role, and sex identification; portraying ritual symbolism; and self-expression.

2. Dress, including self-adornment, emanates from the culture and reflects the political, economic, and religious mores of the times.

3. Variations in clothing exist within a culture as well as among cultures.

4. Clothing customs are transmitted from group to group, generation to generation, and from the society to the individual.

   a. Some customs of dress are only folkways, and conformity to these is not essential to the welfare of the group; other customs of dress are considered mores and embody the basic moral values of the culture.

   b. Dress takes on new meanings and associations as the social environment changes. Similar, but not necessarily identical, customs are carried from generation to generation.

   c. Individuals learn by social sanction what clothing behaviors are accepted in the culture.

5. Clothing reflects social attitudes and values and is related to social change.

   a. Individuals who are able to challenge the status quo bring about innovation in dress which may become integrated into the culture.

   b. The rate of fashion change is related to the rate of change in culture.

   c. Clothing may present a value model for the masses and be an instrument in shaping the values of the multitude.

6. The cultural background of the individual influences choices, means of acquisition, and use of textiles and clothing.

7. Surviving fragments of clothing are tangible resources for the study of cultures of the past, and help to preserve the elements of a culture for future generations.

B. Social and psychological aspects of clothing

1. Clothing is related to group identification and group behavior.

   a. Clothing often reflects social stratification because attitudes and clothing practices may differ at the various socioeconomic levels.

   b. Clothing becomes a less reliable indicator of social class or economic status as similar kinds of clothing become increasingly available to all persons.

2. Clothing is a means of communicating role.

3. An individual may be more readily accepted in a particular role if he conforms to the group's clothing expectations for that role.

4. Clothing may help the individual to make adjustments when changing from one role to another and to attain success in that role.

5. In order to conform to the accepted clothing customs of a group, the individual must accurately perceive these customs.

6. Clothing may be used as a means of satisfying basic needs when these needs are not met in other ways.

7. Clothing is used in defense or enhancement of the self.

8. Clothing reflects an individual's self-concept.

9. Clothing and decoration function to convey the individual's mental state, moods, and feelings to others.

10. Clothing is a cue to personality; it conveys an impression of what the individual is, does, and believes.

11. An individual uses clothing as a cue in forming impressions of others.

    a. Impressions made by appearance and dress have greater impact in limited contact situations.

    b. In order to create desired impressions through dress, the individual needs to be aware of the meaning dress communicates to others.

12. As an individual matures, his clothing perceptions and values change.

C. Clothing as a medium for artistic perception, expression, and experience.

1. Clothing may be a source of beauty and personal satisfaction.

2. Clothing may be a means through which the components of art are perceived, illustrated, and experienced.

3. Art components in clothing may be utilized to express meanings, feelings, ideas, and emotions.

4. The elements of art and dress may be organized in such a way that the effect of individual elements is intensified, tempered, or obscured.

5. Variation in the use of art components may alter the frame of reference in which we see the human form.

6. Clothing as a form of artistic expression reflects the cognitive, moral, and social aspects of the era, culture, or society in which it is created.

7. "Taste" in dress refers to sets of values used by an individual or a society in making critical judgments or fine discriminations.

8. Taste is affected by education, by one's perceptual abilities, and by the moral pattern of an era.

D. Textiles and clothing in the economy

1. Production and distribution of textiles and clothing influence consumption patterns of individuals and families.

2. Methods and risk involved in the production and distribution of textiles and clothing influence the quality, cost, and availability to the consumer.

3. The textile and clothing industry is affected by the consumption patterns of individuals and families.

a. Consumer response to fashion change will result in adjustments in the clothing industry.

b. Producers and distributors adjust the quality of clothing merchandise to the amount of money consumers will spend.

c. Political, social, psychological, and geographic factors influence what is produced in the textile and clothing industry.

4. The complex interaction of the world economy, the clothing industry, and consumption patterns affect the cost, quality, and availability of goods to individuals and families.

5. The welfare of society may be affected by economic decisions of the clothing industry, governments, and consumers.

E. Physiological aspects of textiles and clothing

1. Clothing facilitates adjustment of the human body to the environment.

2. The comfort of clothing is influenced by fabric, finish, construction, and style, and the suitability of these for various activities.

3. The physical condition of the human body influences the type of clothing selected.

II. Nature of textiles and clothing

A. Textiles

1. Textiles are products of fiber and/or yarn, fabric construction, and finish.

2. Each fiber has physical and chemical properties which affect its performance in a fabric.

a. Fibers vary in such properties as length, luster, resiliency, strength, and crimp, and also in their reaction to such conditions as light, moisture, temperature, and stress.

b. Some characteristics of fibers may not be retained in the finished fabric if blended or combined with other fiber(s) or modified during some stage in the manufacturing process.

c. Fibers may be modified both chemically and physically to produce desirable characteristics for specific end uses.

3. Differences in yarns result from variations in ply, twist, count, weight, crimp, texturizing processes, and other design variations.

4. The characteristics of yarns produce variation in fabrics with respect to texture, design, function, and end use of the fabric.

5. Fibers and/or yarns may be converted into cloth by various methods such as weaving, knitting, knotting, interlacing, bonding, felting, extruding.

6. Fabric construction is a determinant of the properties of the end product; fabrics produced by different methods have definable characteristics,

7. Finishes may be applied to fabrics to produce and control desired qualities.

8. Factors influencing the choice of finish for a fabric are: the type of fiber and its arrangement in yarn and fabric, the receptivity of the fabric to various finishing preparations, the extent to which the fabric can be chemically modified, and the use for which the fabric is intended.

9. The finished textile will give more satisfactory service when the characteristics of the fabric are compatible with intended end use.

10. Knowledge of the physical and chemical characteristics of textiles and clothing helps individuals and families predict their performance and gain increased satisfaction from selection, use, and care.

B. Garments

1. Garments are combinations of textile and apparel materials, design, and construction.

2. The extent to which component parts of a garment are compatible determines the functional and aesthetic value of the garment.

3. The engineering in the basic construction of a garment affects its appearance, comfort, and performance.

a. The position of fabric grain in a garment influences fall and pliability of the fabric on the figure. Fabric grain can be distorted by stitching, pressing, and handling during the construction process.

b. The adjustment of fabric to body contour may be accomplished through the manipulation of darts and seams, and the incorporation of ease allowances.

c. The appearance and durability of a garment depend upon the accuracy and detail of workmanship in the construction.

III. Acquisition and use of textiles and clothing

A. Selection

1. The factors involved in making clothing decisions include the individual's resources, needs and desires, family composition, and stage in the life cycle, and on the mobility of people, climatic conditions, social environment, and stage in the fashion cycle.

2. The choices made in the acquisition and use of clothing are influenced by the individual's value patterns and the relative importance of his various clothing goals.

3. The decisions made in regard to clothing are affected by the interaction and emotional interdependence of family members.

4. The resources available for meeting clothing needs include available goods and services, purchasing power, personal information, ability, time, and energy.

5. The availability and use of resources for achieving clothing goals are related to the allocation of resources to other individual and family goals.

6. The information provided by agencies and industry through such means as labels and advertising is one resource which may assist the consumer in predicting the performance of textiles and clothing.

B. Use and care

1. The suitability of a textile product for its intended use is dependent upon the nature of the textile, its design, and its construction.

2. The utilization of a textile product is related to the care needed and the facilities available for providing that care.

3. The type of care needed by the product will be determined by the nature of the textile, construction, and ornamentation.

C. Responsibilities of consumers

1. The consumer can improve production and distribution of textiles and clothing by communicating needs, wants, satisfactions, or dissatisfactions to the retailer and the manufacturer.

2. The consumer's purchase of any item of clothing denotes to the retailer or manufacturer approval of the item.

3. The return of items that are unsatisfactory to the consumer is one way of communicating with retailers and manufacturers.

4. The concerted effort of consumers can bring about improved standards of clothing products and increased consumer information.

5. Full utilization of resources and fulfillment of social responsibility require knowledge of, and adjustment to, social and technological change.

HOUSING

Housing fulfills many functions for man. It is the means of modifying his environment to meet his physical needs such as comfort and safety, his psychological needs such as privacy and security, and his social needs for recognition and interaction with people. Man uses satisfaction of housing needs as a means of self-expression.

Housing performs social and economic functions for society. Many of a society's values, patterns of living, and economic, technological, and cultural nature developments are conveyed manifested in housing.

The community, neighborhood, the dwelling itself, and its furnishings and equipment are all aspects of man's housing environment. Some components of housing include location, structure, design, furnishing, and equipment.

Housing takes many forms including multi-family and single family dwellings, apartments, dormitories, rooms, mobile homes, tents, and retirement houses. Housing may be mobile or stable. It may be located in urban, suburban, rural, or in various vacation areas.

The first workshop called to develop material in this area was called Housing, Interior Design and Furnishings, and Equipment. In this outline the title has been shortened to Housing.

I. Influence of housing on people

A. Physical and psychological

1. Housing provides the setting for the physical and emotional development of individuals and families.

2. The characteristics of environment such as temperature, humidity, lighting, noise, odors, fumes, orderliness, and aesthetic qualities affect the physical and psychological well-being of individuals.

3. The variables in a dwelling such as air temperature, relative humidity, and air movement affect heat loss from the human body and therefore physical comfort.

4. The space organization, structural design, and location of the dwelling influence the ease or difficulty of housekeeping tasks and the types of activities engaged in by the individual and/or family.

5. The number, size, design, and location of storage facilities can simplify or complicate family living.

6. The amount of space and its organization affect the physical, psychological, and social reactions of people.

7. The aesthetic character of housing affects the social activities of individuals and relationships between family members.

8. The aesthetic character of housing affects the mental well-being of the housing occupants.

9. Beauty attained through the use of color, design, texture, orderliness, and scenic views contributes to minimizing psychological fatigue.

10. The use of color in a home is decorative and has a psychological effect.

B. Social

1. Housing provides the setting for the social development of individual and family members and their interactions.

2. The family affects the neighborhood and its environment and in turn is affected by the neighborhood and its environment.

3. Housing and its surroundings are status defining for individuals and families.

II. Factors influencing the form and use of housing.

A. Human

1. Housing enables man to satisfy some of his basic physiological, psychological, and social needs.

2. Man needs shelter for protection, headquarters, privacy, and self-expression.

3. The extent to which an individual's psychological need for beauty is satisfied is related to his aesthetic appreciation.

4. The human factors which influence the form and use of housing are individual and family needs, values, attitudes, aesthetic and educational levels, abilities, and skills.

5. The individual's or family's physical, social, and psychological needs, way of living, and resources influence the choice of dwelling, furnishings, and equipment.

6. Housing standards are influenced by incomes, values, attitudes, educational levels, and housing knowledge.

7. An individual's or a family's requirements for housing change with varying conditions of society, and with variations in the family situation.

8. Persons with physical and mental limitations have special housing needs.

9. The physical condition, age, and personality characteristics of individuals affect the degree to which the dwelling, furnishings, and equipment are used safely.

10. Man consciously or unconsciously expresses his values through housing.

11. The values of individuals and families, their standards, their ways of living, and their preferences affect the neighborhood environment.

B. Environmental

1. Environmental factors which influence the form and use of housing are social, economic, cultural, technological, physical, and political (governmental).

2. Neighborhood and community developments reflect the social organization and cultural values of citizens.

3. The resources expended on housing by a nation or community affect the form, quality, and quantity of available housing.

4. Development and expansion or deterioration and reduction of housing units in a community are affected by policies and activities of Federal, State, and local agencies.

5. The size, design, and construction of housing are affected by zoning ordinances, building restrictions, and by other housing in the community.

6. Planning for neighborhoods and communities is affected by factors such as the role and quality of government agencies and their public support, and by the cooperative or conflicting interests of different individuals and groups in the community.

7. Services, facilities, and utilities supplied by the neighborhood and/or community affect the ways by which an individual or family satisfies its housing needs and wants.

8. Science and technology make it possible for man to regulate environmental conditions within the dwelling by controlling temperature and humidity, providing adequate and appropriate light, controlling noise and odors, and developing aesthetic qualities in the dwelling.

9. Certain technological changes which alter the external environment intensify the need for freedom from distracting noises and for air that is safe from chemical pollution.

III. Processes in providing housing

A. Designing

1. Design is the process of organizing the basic elements of line, form, shape, texture, and color.

2. Art principles are means of design organization.

a. Balance is equilibrium in a design organization.

b. Harmony is the relatedness or agreement among the parts of a design.

c. Rhythm is organized movement in a design.

d. Emphasis is giving significance to those parts of a design considered important.

e. Proportion establishes relations between divisions of space.

f. Scale establishes relations between man and space.

3. Unity is the oneness of a design.

4. Variety is a difference or diversity.

5. Design is the end product of the organization of the basic elements.

6. Form refers to an organization of structural elements in which a designer has expressed his conception and vision.

7. Function as it is understood in architectural theory is an integration of purpose and form at its highest level with beauty as an integral part.

8. Designing any aspect of housing offers opportunities for creativity.

9. Creation of an aesthetic interior requires the harmonious integration of furnishings with structural components.

10. Background interest results from organization of decorative elements.

11. An interior assumes an individual character as the designer responds to the life of the inhabitants and the building structure.

12. The design of housing is affected by the individual and family life cycles and the ability of the designer as well as by the locality, site, and materials available.

13. Advances in technology lead to change in design theory, and change in design theory leads to advances in technology.

14. The extent to which housing satisfies an individual's or a family's desire for privacy depends upon the site, the neighborhood, the placement of the house on the lot, landscaping, and the arrangement of space within the house.

15. Landscaping adds to the beauty, function, and economic value of housing and relates a house to its site and neighborhood.

16. The quality and quantity of lighting affect the function and decorative aspects of rooms.

17. The kind and amount of illumination needed in housing vary with the physical surroundings, the demands of the physical tasks, and the visual acuity of the occupants.

18. Glare occurs when the source of light is too bright for its distance from the seeing task, when the source of light is exposed, when there is a wide contrast, and when the light is intensified by reflection.

19. The quantity and quality of lighting affects the ease of doing visual tasks.

B. Selecting

1. The advantages and disadvantages of buying an existing house (old or new), buying land and having a house built, or of renting, are related to the needs, wants, and resources of the specific individual or family.

2. Rational decisions in selecting, building, or remodeling a house are influenced by the ability of a family to analyze its needs, to recognize areas in which assistance is needed, and to use sources of reliable information and professional services.

3. The decision as to whether to own or rent a dwelling requires weighing of the psychological and financial advantages and disadvantages from the immediate and long-term viewpoints.

4. Rational choice of location and site of housing involves consideration of the climatic conditions, the availability of desired services, and needs, desires, and activities of the individuals or family.

5. The limiting factors in the selection of housing are scarcity of dwellings on the market, availability of materials, inadequate financial resources, governmental restrictions, discriminatory practices, and lack of information.

6. A knowledge of the availability and characteristics of materials, building processes, furnishings, and equipment provides a basis for making rational decisions concerning housing.

7. Legal and other professional advice regarding housing affords protection against ill-advised undertakings and guards against fraudulent and unfair schemes.

8. Space organization, structural design and location of the dwelling influence selection and arrangement of furnishings and equipment.

9. Safety in housing is affected by the type and quality of materials and construction.

10. The factors affecting the choice of fuel for the home are the comparative advantages and disadvantages in its use, availability and cost, user's preference, and practicality of installation.

C. Building

1. The advances in technology and change in design theory result in new building materials and methods of construction.

2. The materials and methods of construction influence the form of housing.

3. The quality of housing is related to quality of design, materials, and methods of construction.

4. The materials and methods used in construction influence the total cost of housing.

5. The adequacy of the installation of utilities affects the safety and efficiency of equipment.

   a. Safety in home wiring is obtained by using materials that carry the label of the Underwriters Laboratories, by installing materials in accordance with requirements of the National Electrical Code and local codes, by keeping wiring in repair, and by using appropriate circuit breaking devices.

   b. Adequacy of home wiring affects the number and kind of appliances that can be used at one time and the performance of heating appliances, motor driven appliances, and lighting.

   c. Where there are regulating agencies, utilities for new and remodeled housing are subject to inspection and approval.

6. Central location of utilities in a dwelling is an economic advantage.

7. Safety in the use of electric equipment is conditioned by safety in home wiring, ratings of fuses and circuit breakers, location of outlets and switches, suitability of outlets, adequacy and repair of insulation within appliances and cords, and precautions in the use of equipment.

D. Financing

1. Housing financing is an integral part of over-all financial management and requires the making of rational decisions with regard to fitting housing expenditures within individual and family income.

2. The kind and amount of housing space a family can secure is influenced by the amount of money available and by its purchasing power.

3. The monetary value of housing changes as the relationship between supply and demand changes.

4. The costs of dwellings vary according to structural design, construction standards and codes, methods and materials used, locality, age of the structure, and condition of repair.

5. Using resources such as time, energy, and money for obtaining housing, furnishings, and equipment requires giving up the use of these resources for other purposes.

6. The willingness and ability of individual family members to do some of the construction of the dwelling and its contents and to do some of the maintenance of the property are means of extending the family income.

7. Factors involved in the total cost of home ownership depends on the sale price; on whether housing is bought for cash and/or credit; the size and terms of loan, if any; taxes; insurance; closing costs; depreciation; and maintenance.

8. Understanding of financing procedures and costs provides a basis for rational decisions in obtaining housing.

9. Financing policies and practices affect the quality of the physical characteristics of the house, its design, materials and construction.

10. The cost of credit for housing is affected by the rate of interest and the length of the amortization period.

11. The terms of mortgages vary among various types of lending institutions as to the maximum amount that can be borrowed, tenure of the mortgage, and rate of interest.

12. The amount and kind of housing insurance purchased is influenced by the need, income, value of the house, nature of the housing mortgage, and cost of the insurance.

13. The consumer's selection of housing, furnishings, and equipment affects marketing and production practices.

14. The cost of using major equipment includes the original purchase price, the cost of installation, operation, maintenance, and repair, and the loss of interest on money if invested.

E. Furnishing and Equipping

1. Furnishings and equipment are means by which man adapts housing structures to his private use.

2. Family composition, values, goals, standards, patterns of living, and available funds and space influence the

kind and quantity of furniture and equipment acquired by an individual or family.

3. The selection and arrangement of interior furnishings are based on needs, personal preferences, and the individual's concept of design.

4. Aesthetic satisfaction in home furnishings requires consideration of personal values, interests and concept of design.

5. Homemaking tasks are facilitated by equipment appropriate for the individual or family and installed or stored for maximum convenience.

6. Well-based decisions in the selection, use, and care of equipment and furnishings are dependent upon the user's being informed of new products and changes in design, materials, and construction.

7. Decisions to buy, make, or remodel furniture, draperies, or floor covering depend upon one's interest and available human and material resources.

8. Efficiency in equipment is affected by the design, construction materials, installation, suitability for the job, and maintenance of the equipment, and the skill with which it is operated.

9. Returns from an investment in equipment depend upon its appropriateness for the purpose(s) to be achieved, the skill and frequency with which it is used, the efficiency of its operation, and the utilization of its special features.

10. The purchase of equipment of an established brand from a reputable dealer increases the possibility of dependable servicing.

11. An understanding of the meaning and the reliability of available seals is useful in buying equipment.

12. The frequency with which the equipment is used is related to convenience of storage or its arrangement in the work center.

13. The arrangement of equipment and supplies in work centers influences the expenditure of time, motion, and energy needed.

14. When safety is emphasized in the selection, placement, installation, and use of household furnishings and equipment, the possibility of physical injury to occupants and damage to property is reduced.

F. Managing

1. Management related to housing involves decisions regarding the allocation of human and material resources.

2. Housing is a resource used in attaining individual and family goals.

3. The extent to which an individual or family can satisfy housing wants and needs depends upon available income and its purchasing power and ability to manage resources.

4. Private and governmental agencies, mass media, and educational institutions are sources of information and assistance for the selection, use, and care of housing, furnishings, and equipment.

5. Planning functional work areas involves decisions on the amount of space needed, according to the characteristics of the individual(s) who will perform the tasks, and decisions on the organization of the equipment and supplies.

6. The arrangement of the work areas affects the organization and direction of work, the methods used and efficiency in the performance of activities.

7. Counter space between work areas helps reduce steps by providing a stacking, loading, and holding zone.

G. Maintaining

1. Public and private maintenance of individual and public sites affects the beauty, safety, and economic value of property.

2. A knowledge of the characteristics of materials used in construction is valuable in the use and care of equipment and furnishings.

3. The proper use and care of furnishings and equipment reduce maintenance and repair costs.

4. The safety of housing is influenced by its construction and maintenance of materials.

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Chapter IV.

USING THE CONCEPTUAL FRAMEWORK AND GENERALIZATIONS IN THE TEACHING-LEARNING PROCESS

During the past several years in a series of curriculum workshops sponsored by the University of Nevada and the Nevada State Division of Vocational Education, Nevada homemaking teachers have developed a series of curriculum guides using concepts and generalizations developed in the workshops sponsored by the U. S. Office of Education in its Secondary School Curriculum Project.

Since curriculum guides using the concept approach are not yet available in some areas of home economics, homemaking teachers may find the steps as outlined below of some help as they plan to use the concept method of teaching.

STEP 1.

In preplanning for teaching an area of the home economics curriculum, a teacher needs first to think of her objectives. What is the student like? What developmental tasks is she facing? What needs are apparent through observation, pupil-teacher planning, a study of the community or a study of the needs of society? In this preliminary planning, a teacher will find it helpful to study the conceptual framework and generalizations of the area, to refer to State or County curriculum guides for suggestions as to what may be appropriate to teach at that level, and to make some preliminary decisions as to appropriate objectives or desired outcomes for the unit.

STEP 2.

Decide on the major concepts and generalizations for the unit. For example, in a unit on housing at the Homemaking I. level in the Nevada State Curriculum Guide, the following concepts and generalizations were chosen for development.

<u>Concept 1. Influence of housing on people</u>

Generalization: The use of color in a home is decorative and has a psychological effect.

<u>Concept 2. Factors influencing the form and use of housing</u>

Generalization: Man consciously or unconsciously expresses his values through housing.

<u>Concept 3. Processes in providing housing</u>

Generalization 1: The selection and arrangement of interior furnishings are based on needs, personal preferences and the individual's concept of design.

<u>Sub-Generalization</u>: The choice and placement of accessories for the purpose of personalizing and beautifying the interior are influenced by such factors as types of furnishings, space, use, elements and principles of design.

Sub-Generalization: Making or improvising furniture or furnishings provides opportunities for creative expression, developing family interests and stretching the family budget.

Generalization 2: Homemaking tasks are facilitated by equipment appropriate for the individual or family and installed or stored for maximum convenience.

Sub-Generalization: The amount, kind and location of storage needed depends upon the possessions and activities of the individual or family.

STEP 3.

Once a decision has been made concerning the major concepts and generalizations for a unit, the planning for learning activities can begin. For each generalization selected, the teacher may select one or more appropriate desired outcomes, select appropriate text and reference materials, consider facts and background materials students need to know, and plan learning activities which will help students to arrive at the generalization.

EXAMPLE OF TEACHING PLAN

Generalization: Making or improvising furniture or furnishings provides opportunities for creative expression, developing family interests and stretching the family budget.

Desired Outcome: Becomes aware of values in making or improvising furniture or furnishings.

References:

Teen Guide to Homemaking. Chapter 13.
The Home and Its Furnishings. Chapter 7.
Adventuring in Homemaking, Book I. Chapter 5.
Experiences in Homemaking. Chapter 17, Unit 5.
Homemaking for Teenagers, Book I. Chapter 4.
The Seventeen Book of Decorating. Chapter 8.
My Wishbook of Home Furnishings. pp.22, 25-34.

Background Information:

1. Making something attractive out of something unlovely and inappropriate is an achievement that carries with it tremendous satisfaction for everyone who participates.

2. Ideas can save money. A little ingenuity can sometimes result in a very attractive substitute for an expensive piece of furnishing.

3. Handicrafts give a feeling of pride in workmanship. However, what you make for your home should be useful and attractive. Often the simplest things are the most beautiful.

4. Some things that can be made for a bedroom are:

- - Bookshelves, made from boards and a few bricks, glass or concrete blocks.
- - Dressing table, made from orange crates or unpainted chests connected with a board or plate glass.
- - A bench or stool, made from an inverted nail keg, an old round piano stool or a low chair with a back removed.
- - Drawer dividers.
- - Closet accessories.
- - Curtains and bedspreads.

Learning Experiences:

1. Visit homes where family members have improvised or made furnishings. Ask family members to describe satisfactions they received or listen for expressions of satisfactions.

2. Ask class members to describe projects which their family members have created.

3. Read references on do-it-yourself projects.

4. Plan and carry out a project for the homemaking department or for your own home.

5. As a home experience, make something for your own home.

Summary Questions to help students formulate generalizations in their own words:

1. What were the big ideas we have been discussing during the past few days?

2. What discoveries have we made as we visited homes where families have created things for their homes, or as we have read about ideas for do-it-yourself projects, or as we have actually created something ourselves?

3. How might you apply these ideas in a new situation?

4. What are the basic ideas we can formulate out of this?

Dr. Barbara Osborn,[1] Associate Professor of Home Economics Education, University of Connecticut, gave these suggestions for teachers to use as guidelines for teaching students to generalize:

1. After selecting concepts, guide the thinking of students through asking questions; guide the students to locate, interpret and evaluate supporting facts; use a variety of experiences.

2. Lead students to point out the differences and similarities among the factors in a situation and to begin to draw conclusions.

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1. Osborn, Barbara. "A Lesson Outline for Concept Teaching," Penneys' Fashions and Fabrics, Spring/Summer 1965.

3. Ask students to state conclusions orally or in writing of complete sentences. This enables the teacher to discover mistaken ideas and re-teach if necessary. These first conclusions should be tentative since generalizations must be based on many experiences.

4. If students have misconceptions, plan and present additional experiences to clarify the concept.

5. Ask for conclusions of students and accept the kind of statements that students are ready to make. They may not be able to generalize as broadly as you had anticipated and may state generalizations very differently than you did when planning. It is important to recognize when they are saying the same thing though using different words and to accept their first attempts at stating generalizations.

6. Plan further experiences in applying the generalizations. This will increase the understanding of them and develop ability to use them.

Dr. Osborn has also suggested that teachers use the following criteria to evaluate the generalizations they select in curriculum planning:

-- Is the generalization needed for solution of problems important to the student? Will it lead to insights in dealing with new problems?
-- Is the student ready for the generalization? Has he had meaningful experiences from which to generalize?
-- Is the generalization based on objective data or theory accepted by specialists in the field?
-- Is there a reasonable possibility of developing the generalization through experiences in high school home economics?
-- Is the generalization necessary for further growth in ability to think in the area?

Remember that concepts grow out of experience in pursuit of a problem or purpose of some sort. The school, therefore, must provide many and varied experiences. Opportunities for observation, handling, experimentation, and discovery are necessary.

Concepts are not achieved quickly nor at a given time. They are never fixed or final. Levels are to be discerned. The process goes on continuously. Concepts are achieved ordinarily through an active, dynamic process, not through a formal or so-called "logical" process (except with very well-informed, mature learners).

Concepts to be developed should be carefully selected and then presented through many and varied learning experiences.

Burton, Kimball and Wing[2] in "Education for Effective Thinking" have given some suggestions for teaching which will help students develop an understanding of concepts. They remind teachers of the importance of learners being provided with as rich and varied environments as circumstances will permit. The school must often compensate for a meager neighborhood environment.

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2. W. N. Burton, R. B. Kimball and R. L. Wing, Education for Effective Thinking. New York: Appleton-Century-Crofts, 1960.

This means that learning situations and activities should be provided to make it possible for learners to come into contact with numerous and vivid, clear-cut examples of things, persons, processes and relationships for which concepts are being achieved. The examples of things, processes, and relationships should be met as far as possible through direct experience. Direct experience (field trips, for example) should be supplemented by vicarious experience obtained by means of motion pictures, radio and television programs, dramatizations, lectures, pageants, and many types of printed materials.

Learners should be stimulated to reflect upon and to analyze experiences, illustrations, meanings, and the process of developing concepts. Reflection and analysis are almost certain to result if the learning situations are lifelike and meaningful to the learners.

Learners should be encouraged to state their understanding (meaning growing into concept) in simple everyday terms, as far as possible. This is a simple direct test for the possession of meaning; a verbalist cannot state meanings in everyday words. Learners should be encouraged to illustrate concepts with specific situations drawn from their own experience. When a concept is difficult to put into words, students can be encouraged to demonstrate his understanding in other ways such as drawing pictures, making models, presenting dramatizations. If a student cannot express what he knows in some manner, the teacher can assume he does not know. Learners should be taught to avoid meaningless repetition of words that they have read or heard.

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APPENDIX

1. The Curriculum Challenge of Our Times
   by George W. Denemark

2. Putting Subject Matter Into Conceptual Form
   by Asahel D. Woodruff. (From Proceedings
   of the Pacific Regional Conference, Home
   Economics Education, Reno, Nevada, March 2-6,
   1964)

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DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education
Division of Vocational Education
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THE CURRICULUM CHALLENGE OF OUR TIMES[1/]

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and Curriculum Development, NEA.

Is it possible to combine both stability and flexibility in the modern school curriculum? Can common objectives for education be established that allow ample room for adapting learning experience to individual learners, teachers, and community settings? Can we achieve broad national commitment to certain goals in elementary and secondary education while still preserving the character of community and regional strengths? Can various subject fields and different grade levels build on each other without necessitating a tightly regimental instructional program that makes the teacher a technician rather than a professional? What can be done to provide continuity of education for the twenty per cent of our school children who are in a new school each year?

17 These questions represent the major dimensions of the central curriculum issue facing our schools today. The issue is not what a small group of attention-seeking writers and speakers would have us believe. It is not a choice between a standardized traditional curriculum devoted to the fundamentals and an individualized curriculum growing out of the emerging interests of each child. It is not a superficially simple either-or choice at all, for our times demand large measures of both stability and flexibility in the education of every boy and girl.

We cannot afford to choose stability or flexibility, continuity or adaptability, enduring cultural values or urgent problems of contemporary life, group welfare or individual fulfillment. Good education demands all of these components, not half of them. Today's thoughtful teachers and administrators are increasingly asking themselves how these important ingredients may best be combined in a curriculum for elementary and secondary schools.

One approach that merits careful reflection by all educators is to focus upon the identification of the fundamental principles, the broad concepts, the big ideas in the various subject fields. Closely associated with this emphasis is a growing concern for the interrelationships between fields of knowledge--linkages between fundamental ideas associated with different subjects or areas of inquiry. The combination of these approaches has much to offer those concerned with a design or rationale for modern school curriculum.

1/ NEA Journal, December 1961. Copied with the permission of the NEA Journal.

What has always been true must be obvious to all today: Teachers of a given subject cannot teach all there is to know about it. For example, the history teacher, even though he be a college professor teaching at the doctoral level, cannot deal with all of history. Drastic choices must be made between what to include and what to leave out. Nevertheless, some of us have made a futile attempt to "keep up" with the rapid pace of world events by talking faster or assigning more homework.

Such measures cannot solve the dilemma confronting today's teacher, for the curriculum sandwich is already stacked so high with miscellaneous layers of information and detail that few if any learners can manage a solid bite. The answer lies in carefully assessing all fields of study and selecting those elements of each which provide the strategic keys to an understanding of other events.

These questions should guide this process: What are the fundamental principles, the central concepts, the major ideas associated with a field of study? Which ideas are central to an understanding of the methods of inquiry unique to that field? Which ideas underlie a whole series of other ideas and are thus essential if any real understanding of that field is to come about?

Lest this approach be understood by some to mean a return to an old-fashioned, traditional curriculum, let us be clear that it implies instead revolution in the various subject fields. This revolution is already under way in certain subject fields such as mathematics, biology, physics. Fortunately, the revolution is being led by some of our most eminent scholars, for it demands that the most penetrating, searching kinds of analyses be made of each discipline for the purpose of identifying its unique structure, its basic principles, its central ideas. Classroom teachers and other curriculum workers must join with scholars and scientists in the search for these central ideas and must take the initiative in designing school curriculums that reflect and communicate them.

Discovery on the frontiers of knowledge is important in every field and important to us all, but perhaps even more important, at least at this moment in history, is the discovery of a fundamental rationale--of an organizing framework within which new knowledge can be viewed and interpreted. The best minds in each discipline must be focused on this important task.

As insight is gained into the fundamental principles of knowledge in various fields, every teacher at every grade level and in all subject fields will have the task of planning specific learning experiences that will focus on these principles in such a way as to enrich and illuminate each child's understanding and utilization of them. The task will, of course, remain a never-ending one, necessary as long as knowledge and experience expand.

Such a concept of curriculum can help teachers of all age levels and all subjects to understand the basic unity of teaching as a profession and of learning as a continuing process. Such a concept will provide continuity to education, for the most fundamental, most far-reaching principles

will have relevance at the kindergarten level, just as they will at the graduate school level and at each school milestone along the way.

Such a concept makes it possible for a student to relate his experiences in a high-school English class to those he is having in history class. The education of the engineer or architect can be viewed not only in terms of drafting and mathematics but in terms of art and music as well, for the principles of balance and of rhythm will be seen to have application in many facets of living. The education of a skilled professional in law, medicine, engineering, or other vocational field will be perceived as having its beginnings in the grasp of fundamental principles introduced in the elementary school and continued through high school and the general-education programs of college or university.

Some people might object that such a plan would result in endless, boring repetition of a narrow scope of learning in grade after grade and subject after subject. Actually, however, the range of specific content and experience is unlimited, and repetition is involved only as relationships between specific learning experiences are made clear in the process of enlarging a concept or general principle.

This does not differ from the way in which any concept is developed: through progressively widening a circle of experience by observing many areas in which an idea has application. For example, we come to a fuller understanding of the meaning of democracy as a way of life by viewing examples of democratic behavior not only in politics but also in labor-management dealings, in family relationships, in religious institutions, in teacher-pupil relationships, and the like. The concept grows beyond its political meaning as opportunities are presented to reflect on its relevance to other dimensions of human relationships.

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An illustration of generalization and a possible set of related learnings may be helpful in understanding this approach to curriculum planning. One of the important ideas which many educators believe schools should help to communicate is the generalization that a person's ideas of right and wrong, of importance, of good, are heavily influenced by his social-cultural environment. In other words, what someone believes is determined in large measure by the values of his nation, church, school, and family and by other environmental influences, Such an understanding could be developed in countless ways at various age levels and through many different content fields. Here are but six to serve as illustrations.

1. Soon after children enter school, a teacher might point out and discuss differences among them with respect to certain religious beliefs and practices. The discussion could touch upon the fact that some religious denominations in the United States prohibit their members from saluting the flag or repeating the Pledge of Allegiance.

2. A geography lesson in the intermediate grades focusing on a study of the West Indies might call attention to the fact that as a result of experiences under the rule of Denmark prior to World War I many Virgin Islanders today associate working in the fields, or even gardening, with inferior social status.

3. At an appropriate point in her course, a home economics teacher might call students' attention to the fact that in certain areas of the United States white eggs bring a premium price because housewives consider them better than brown ones, while in other areas exactly the reverse is true.

4. In tracing the patterns of authoritarian ideas, a high-school history class might examine how the doctrine of Aryan superiority indoctrinated in German school children during the Hitler regime led many German youth to support the persecution of minority groups in the name of patriotism.

5. A college anthropology class studying various customs of other cultures might give attention to the Kwakiutl Indians of British Columbia, who still practice a ceremony called "potlatch," in which the status of an individual is determined not by how much property he owns but rather how much he has given away.

6. In a course in tests and measurements, a college instructor might refer to a study of answers given on an intelligence test which showed that an item concerned with the musical term "sonata" resulted in unusually large differences in the per cent of correct response when analyzed according to the social-status background of the students tested.

These are six specific areas of content which might be dealt with at some point in the education of a student from kindergarten to graduate school. On the one hand, they might be viewed as six discrete learning experiences. On the other, they might be seen as illustrations of the general principle identified earlier--that a person's ideas of right and wrong, of importance, of good, are heavily influenced by his social-cultural environment.

For the most part, the importance of the specific knowledge associated with each separate illustration is slight, but the importance of the generalization toward which they all point is tremendous and pervasive. The student who truly grasps this generalization will have learned a fundamental lesson applicable to a wide range of personal and societal relationships.

It is easy to see in these illustrations that the particular facts chosen are not critical to the major learning involved. True, they must be relevant and sufficiently unambiguous to prevent confusing the learner. Which illustrations are used, however, will vary--must vary--according to a number of significant variables in the learning situation. Deciding factors may be the interests of the particular children in the class; the background and experience of the teacher; the nature of the community and the cultural background and ethnic composition of its members; the books, films, field trips, and other learning resources that are available; or significant events in the news. All of these and more represent important variables in the teaching-learning situation that might cause a teacher to employ one content rather than another as the basis for communicating a generalization to his students.

The teacher who had traveled in Mexico rather than in the Virgin Islands might wish to see cultural patterns of that nation as a basis for building understanding of the link between personal values and cultural patterns. The interests of some children in explorers or scientists might cause a teacher to cast her illustrations in those areas. Teaching in a culturally deprived section of Chicago populated by recent immigrants from many cultures would perhaps suggest a different set of illustrations than would teaching in one of the fashionable, culturally homogeneous suburbs of that same city.

This approach to teaching calls for flexibility, imagination, and creativity. It calls for as many differentiated educational activities as there are varying combinations of pupil interests, teacher competencies, community resources, and world problems. It rules out use of a single textbook, courses of study repeated dully year after year, dusty specimen exhibits dragged out annually and single standards of achievement enforced uncritically throughout entire communities and states. It offers countless opportunities for individual teachers and school faculties to design learning experiences that truly fit the learner and the community. Teaching will be exciting to teachers as they assume creative roles in selecting and ordering the content which fits the unique combination of factors composing a particular teaching-learning situation.

In large measure the quality of American education depends upon the extent to which we are able to conceive of a bold new design for the curriculum. The design must include common commitment to a new set of "fundamentals" derived from rigorous analysis of every field of knowledge. It must also include granting each teacher expanded flexibility to select and choose the specifics best suited to the unique combination of conditions for learning. Achieving the proper balance of stability and flexibility in the curriculum is the challenge of our times for education.

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PUTTING SUBJECT MATTER INTO CONCEPTUAL FORM

2/6/64 ADW

1. THE COGNITIVE CYCLE IN BEHAVIOR AND LEARNING

Cognitive processes operate in a learning-behaving cycle, a model of which is useful in discussing teaching processes and materials. See attached figure.

2. SOME DIFFERENT FORMS OF CONCEPTUAL ELEMENTS IN THE LEARNING-BEHAVING CYCLE

PERCEPTS (The sensory beginnings of concepts)
CONCEPTS (Organized perceptions; the raw material from which decisions and behavior are produced)

Of Processes
Of Structures
Of Qualities

Derivations from conceptual knowledge:
Topical organization of knowledge for "filing" purposes
Items of information (verbal form) related to concepts
Definitions of terms

23 CONCLUSIONS (Part of the process of decision-making when one is seeking a line of action in a situation that requires an adjustive act)

Derivations from conclusions:
Admonitions (Recommendations to others based on previously reached conclusions)

3. REQUIREMENTS FOR CULTIVATING INDIVIDUAL DECISION-MAKING BEHAVIOR

If a learner acts on another person's decisions, he does not know how, or learn how, to make his own decisions. He learns only to carry out specific acts in specific situations. (Following procedures)

If we wish to affect his behavior through his own knowledge, we must cultivate his own decision-making processes. This requires that we stop giving him the end products of another person's decisions (conclusions or admonitions), and give him the concepts with which he can make his own decisions.

4. THE NATURE OF A CONCEPT

Definition:

A concept is a relatively complete and meaningful idea in the mind of a person. It is an understanding of something. It is his own subjective product of his way of making meaning of things he has seen or otherwise perceived in his experiences. At its most concrete level it is likely to be a mental image of some actual object or event

the person has seen. At its most abstract and complex level it is a synthesis of a number of conclusions he has drawn about his experience with particular things.

Its importance:

Human beings make their decisions, and take their actions on the basis of their concepts about their environment and the particular parts of it which make up a person's situation at any one time. Concepts are the internally lodged elements that determine how a person will react to a particular stimulus situation. People's lives are lived in accordance with their concepts, insofar as they are able to carry out their wishes and intentions.

A Conceptual Statement:

A description of the properties of a process, structure, or quality, stated in a form which indicates what has to be demonstrated or portrayed so a learner can perceive the process, structure, or quality for himself.

Kinds and Examples of Conceptual Statements:

Process Concepts

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A concept of a process, event, or behavior, and the consequences it produces when it occurs. A statement of this kind should take this form:

When { this / or / these } { event(s) / process(es) / behavior(s) / circumstance(s) / quality(ies) / structure(s) } { occur(s) / exist(s) } { it / they } will tend to produce { this result / or / these feelings / or / these conditions / or / these reactions }

e.g.

When dissipative forces are increased, matter tends toward the gasious state.

When individual politicians with similar goals organize themselves for political purposes, they become much more effective in achieving their goals.

Structural Concepts

A concept of an object or structure of some kind. e.g. a physical object, a chemical structure, or a geographical unit. A statement of this kind should take this form:

This	object process quality idea condition place organization etc.	has these elements	height depth width number substance motion time units	in this	form structure configuration	

e.g.
Electrons exist in more or less concentric electron shells surrounding a nucleus.

Atomic crystals consist of atoms in a regular arrangement.

Amorphous solids are composed usually of large, long chain molecules which are entangled with each other.

Cherryvale's business district is three blocks long and one block wide.

Concepts of Qualities

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A quality is a property of an object or process and has no independent existence. Nevertheless, we speak of qualities as if they had independent existence, by abstracting them, or taking them out of the objects or processes in which they are found and treating them in the abstract.

However, qualities operate in our thinking in the same way as structures and processes. We see them as structural entities, or we see them as processes having certain effects. "Square" is an abstract structural concept. "Kind" is an abstract process concept.

A concept of a quality will therefore take the same form as any structural or process concept.

e.g. (Structural)
A square has (or squareness is having) four sides of equal length which are connected by right angles.

(Process)

Speed causes accidents.
When people are honest (fulfill obligations and honor the rights of others) security is increased for all.

Quasi-Concepts and Statements

Many conclusions that have been reached by people are put in less than complete form, and lack something of helping a reader come to an understanding of life, offering him instead the judgment of another without substantiating data. In contrast, a fully stated concept supplies the data on which a conclusion is based, and permits a person to examine the evidence for himself. Hence, it offers the possibility of more complete comprehension, and the freedom of individual acceptance or rejection of the conclusion.

Statements of believed or established fact have the nature of "information" but they do not in and of themselves play a central role in the decision-making process. In order to become useful in that manner, they must be turned by the listener into his own concepts, or complete thoughts about a process, a structure, or a quality. This is usually difficult for him to do because he lacks the perceptual background. Examples of conclusions, which are quasi-conceptual statements are:

America is a haven for the oppressed.
Truth is beauty.
Religion is a force for good in human life.

Conclusions lead to the formation of admonitions, which are often offered to students as subject matter. Examples are:

Oppressed people ought to go to America.
Everyone should be truthful.
Religion should be encouraged.
Our natural resources ought to be protected.
Farmers should plow along contour lines.

5. PUTTING SUBJECT MATTER INTO CONCEPTUAL FORM

a. Be sure the author's conclusion or admonition is stated concisely and clearly so his intent and meaning are clear.

b. Find the events, of which the writer was aware, that led him to reach the conclusion. Cite the events, and the consequences. Put them into an if...then form, as a process concept.

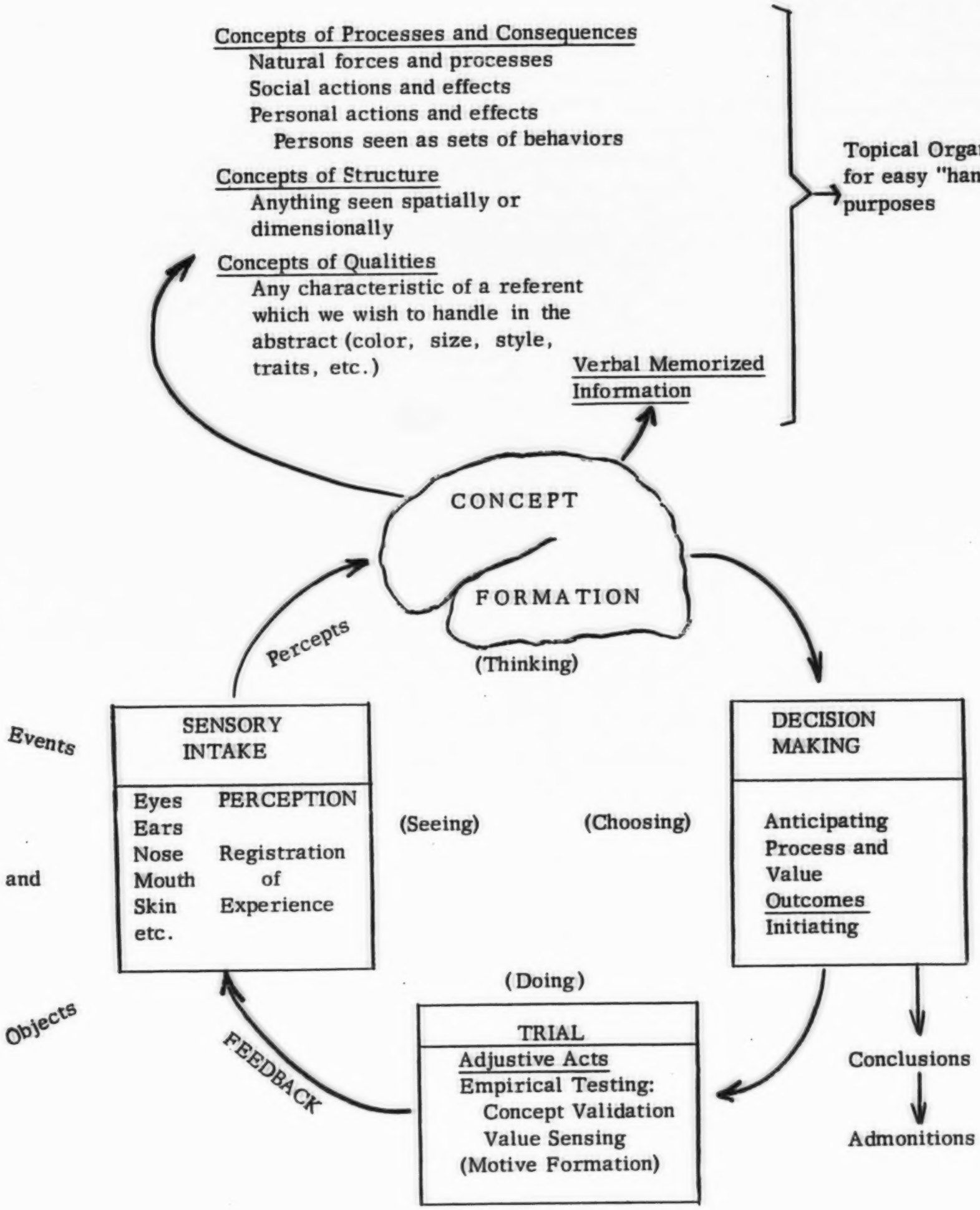
c. If the subject matter consists of information, that is, data in verbal or symbolic form, three possibilities exist:

(1) Have the students memorize it.

(2) Recast it in conceptual form, as a concept of structure, or process, or quality.

(3) Ignore it.

Much information, when it is directly related to a useful concept, is itself useful even in verbal form, and justifies memorization. To put it into conceptual form and teach it as concepts is time consuming. If its usefulness can be realized in verbal form, and if concepts of the verbal information are of marginal value, the time and labor to recast the materials is not justified. Information which is not directly related to some useful concept is not worth memorizing.



The Cognitive Cycle in Behavior and Learning, with Forms of Conceptual Elements Located in Relation to the Decision-Making Process

VT 000 110

VT 000 110 ED

Manual of Operation for Vocational Home Economics Programs in Job Training in High Schools.

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*COOPERATIVE EDUCATION, *WORK EXPERIENCE PROGRAMS, SECONDARY SCHOOLS, DROPOUT PREVENTION, TEACHER QUALIFICATIONS, *PROGRAM PLANNING, CHILD CARE WORKERS, HOMEMAKERS ASSISTANTS, NURSES AIDES, FOOD SERVICE WORKERS, CLOTHING AND TEXTILE WORKERS, *OCCUPATIONAL HOME ECONOMICS, ADMINISTRATOR GUIDES,

Vocational Education Act of 1963,

As required by the Vocational Education Act of 1963, part of the home economics program includes classes for high school girls and/or boys who wish to prepare for gainful employment utilizing home economics knowledge and skills. Ohio offers the cooperative 2-year program, and the occupational work experience which is designed primarily for the 11th and 12th grade students of limited ability in a single skill area. The manual gives state requirements for student eligibility, teacher qualifications, space, and equipment and procedures for establishing and administering job training programs. The appendix contains program outlines, job description, job opportunities, and characteristics of trainees for -- (1) child care workers, (2) homemaker's assistants, (3) nursing and rest home aides, (4) food service workers, and (5) clothing service workers. The criteria for vocational approval, and application forms for job training programs are also given. (MS)

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Manual of Operation
for
Vocational Home Economics Programs
in

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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JOB TRAINING in High Schools

E. E. HOLT
STATE SUPERINTENDENT PUBLIC INSTRUCTION
STATE DEPARTMENT OF EDUCATION

DIVISION OF VOCATIONAL EDUCATION

SEPTEMBER, 1965

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INTRODUCTION

An increasing number of women now assume a dual role - that of homemaker and wage earner. They need preparation for both roles, since the proficiency with which a woman can carry both will determine the quality of her home and family life and her effectiveness as a wage earner.

The Vocational Education Act of 1963 provides the opportunity for education in gainful employment for occupations involving knowledge and skills in home economics. This Act emphasized the need to develop programs which meet the needs of persons attending high school.

The following are the general characteristics of the job training programs for high school students in home economics:

- The purpose of the program(s) is to prepare persons enrolled in high school for gainful employment in an occupation which uses home economics knowledge and skills.

- The programs are offered in the eleventh and/or twelfth grades.

- Types of programs are determined by available job opportunities, needs, and abilities of persons to be trained.

- The training program is an integral part of the total school program, thus allowing students enrolled to complete requirements for graduation.

- The program combines and coordinates instruction with field, laboratory, and work experience.

- Entry into occupation is the focus of the program.

- Preparation for employment is a more specialized type of program than one which centers on preparation for home and family living.

- The instruction needs to be sufficiently inclusive and, at the same time, intensive enough to insure preparation for wage earning.

This Manual of Operation interprets and explains the purposes and programs of vocational education in home economics which is directed toward job training in occupations using home economics knowledge and skills.

VOCATIONAL HOME ECONOMICS EDUCATION

HIGH SCHOOL PROGRAMS DESIGNED TO PREPARE INDIVIDUALS FOR GAINFUL EMPLOYMENT

GENERAL INFORMATION

Purpose of the Program

To offer Vocational Home Economics Education classes for high school girls and/or boys who wish to prepare for wage earning (at the completion of high school) in an occupation utilizing home economics knowledge and skills.

Groups to be Served

Girls and boys, enrolled in 11th and 12th grade high school (approximately 16 to 18 years of age), who wish to prepare for wage earning occupations while they are completing high school requirements for graduation.

Youth enrolled in school grades (9-12) who are potential drop-outs due to academic, socio-economic, or other handicaps that prevent them from succeeding in the high school program. They are often handicapped academically due to low intellectual ability and/or due to a lack of educational and cultural advantages. These students are frequently two to four years behind normal reading level.

Types of Schools Where Program Can Be Offered

A job training program in Vocational Home Economics may be offered in either a Comprehensive High School or an Area Vocational School or a Joint Vocational School District.

PROGRAMS TO BE OFFERED

TYPE I - Cooperative Training Program -- For Students of Average and Above Average Abilities

The program serves boys and girls grades 11 and 12. The training will include instruction in home economics and a supervised on-the-job work experience in the occupation for which the student is trained.

Suggested Cooperative Training Programs and Length of Training
(See Appendix A for Job Description)

(1) FOODS AREA
_____ Food Service and Catering Workers - 2 year program (11th-12th grades)
_____ Food Service Workers - 1 year program (12th grade)

(2) CHILD CARE AREA
_____ Child Care Assistants - 2 year program (11th-12th grades)
_____ Child Care Aides - 1 year program (12th grade)

(3) HOME MANAGEMENT AREA
_____ Homemaker's Assistants - 1 year program (12th grade)
_____ Nursing and Rest Home Aides - 1 year program (12th grade)

(4) CLOTHING AREA
_____ Clothing Service Workers - 2 year program (11th-12th grades)
_____ Clothing Service Aides - 1 year program (12th grade)

(5) Other programs may be developed as employment opportunities arise.

(6) A program directed toward employment may also be offered jointly with other vocational divisions.

TYPE II - Occupational Work Experience Program -- For Students of Limited Abilities

The occupational work experience program is to assist the student identified with limited ability to find a place in employment at the unskilled occupational level. The major objective is one of job placement combined with school work, both aimed at helping the student become a productive citizen and to continue his education as long as possible.

Suggested Occupations and Length of Training Programs
(See Appendix A for Job Description)

(Single Skill Performance)

(1) FOODS AREA
_____ Food Service Helpers - 2 year program (9-12 grades)

(2) HOME MANAGEMENT AREA
_____ Homemaker's Helpers - 2 year program (9-12 grades)
_____ Nursing and Rest Home Helpers - 2 year program (9-12 grades)

(3) CHILD CARE AREA
_____ Child Care Helpers - 2 year program (9-12 grades)

(4) Other programs may be developed as employment opportunities arise.

STUDENT ELIGIBILITY FOR THE TRAINING PROGRAM

The Students in the Cooperative Training Program Must:

- Be enrolled in high school in grade 11 and/or 12.
- Meet employment age requirements established by federal, state, and local laws for the occupation in which they are training.
- Have ability for and interest in the job for which training is offered.

One year of previous training in home economics is recommended at either the junior high or senior high school level.

The Students in the Occupational Work Experience Program Must:

- Be identified by a guidance counselor or teacher as not being qualified for the regular Cooperative Training Program.
- Be 2-4 years behind normal reading level.
- Meet age requirements established by federal, state, and local laws for which training is provided.
- Have interest in the job.
- Have ability for success in the training program.

One year of previous training in home economics is recommended at either the junior high or senior high school level.

TEACHER QUALIFICATIONS FOR JOB TRAINING PROGRAMS

General Qualifications

The teacher must:

- Meet state certification requirements in vocational home economics at the secondary level.
- Have proficiencies in the basic skills required in the specific occupation which is to be taught.
- Have had occupational experience
  - (a) as a paid worker (or) as a volunteer worker.
  - (b) in a supervised work project.

Special Qualifications

In addition to the above, teachers for Occupational Work Programs must have:

- 6-9 semester hours in special education and/or guidance courses or can secure a temporary certificate until courses are completed.
- A minimum of 2 years of teaching experience in either home economics education, special education, or in guidance or its equivalent.
- A minimum of 12 months of employment experiences (outside of public education) in one or more occupations.

Special Cases

A temporary certificate may be issued upon request of local school administrators to instructor for teaching job training classes to the following individuals:

- Professional home economists who are specialists in the subject matter area(s) involved.
- Persons who have had successful experience in an occupational field involved.
- Home economics teachers with a degree in home economics education.

Teachers employed on a temporary certificate to teach job training courses will be required to follow a planned pre-service and in-service program as recommended by the Head State Supervisor of Vocational Home Economics to meet the necessary certification requirements.

EQUIPMENT AND SPACE

In most instances, the regular high school home economics department equipped to teach all phases of homemaking will be adequate for the job oriented program. Additional equipment, storage, and teaching aids will be determined by the needs of the course(s) offered. (See Appendix A for Job Description.)

PROCEDURE FOR ESTABLISHING A JOB TRAINING PROGRAM

(1) Secure information concerning jobs in which there are opportunities for employment in the community.

This is essential as job training programs should be established only when studies indicate that there are opportunities for employment.

(2) Determine the number of potential students.

It is important to find out whether there is a sufficient number of potential students to justify the establishment of training program in the occupations which offer job opportunities.

(3) Establish a local advisory committee.

It is important that the following persons be represented:

The local school administrator, school board member, teachers to be involved, employer(s) in field for which workers are being trained, representatives of community agencies or groups allied with particular field(s) and other local people who could make special contributions. (Recommend that member of State Supervisory Staff in Home Economics Education serve as ex-officio member.)

(4) Select the occupations for which training programs will be developed.

The advisory committee assists the school administrator and teacher(s) in selecting the specific occupations for which training will be offered, and it assists the teacher(s) in planning the scope and emphasis of the training program so that it will meet the unique needs of the community.

(5) Identify the job(s) by title.

Example - Food Service Worker

(6) Analyze the job.

The job analysis is usually made by the State Employment Service, and the definition derived therefrom is found in the Dictionary of Occupational Titles.

(7) Prepare a job description.

A description is based on the job analysis and defines all major functions of the job and performance requirements. (See sample of Job Description in Appendix.)

(8) Determine qualifications of trainees as a basis for selection.

For minimum qualifications see job descriptions in Appendix A.

Other desirable qualifications may be considered as requirements in the selection of trainees.

(9) Plan the program.

Contact the Vocational Division of Home Economics, State Department of Education for application forms and curriculum materials.

(10) Locate possible work experience stations and select those in which trainees will be placed for work experience.

(11) Identify qualifications of teachers.

- Personal qualities
- Professional preparation
- Teaching experiences
- Work experience

(12) Determine facilities and equipment needed.
(See Appendix A for Job Description)

(13) Secure cooperation of other departments in the school.

(14) Assist in job placement and follow-up of trainees.

Both the teacher and the advisory committee assist in job placement. The school also keeps records on placement and evaluate job success.

ADMINISTRATION AND SUPERVISION OF THE PROGRAM

Program Coordinator

The person employed to teach in either the cooperative training program (for students of average and above ability) or the occupational work experience program (for students of limited abilities) shall be known as a coordinator. In addition to teaching the class, the coordinator is responsible for (1) assisting with the selection of students for the program, (2) identifying work stations for students, (3) placing students on jobs, and (4) supervising and evaluating the student work with employer during the work experience phase of the program.

Employment of Teacher

Employment of the teacher for a period of either (4, 8, or 12 weeks) beyond the school year is necessary to establish, instruct, and evaluate the work experience programs. The length of the employment is established at local level.

Travel Funds

Travel funds are allowed during the regular school year and the time of extended employment for supervising work experiences and attending approved conferences and meetings.

Teacher's Schedule

The teacher's schedule must include time to supervise the work experience of trainees as well as the time required for class instruction.

Attendance of the teacher at in-service conferences, workshops, and meetings related to job training called by the Division of Vocational Home Economics, State Department of Education, is considered part of the program and is recommended.

Student Visitations

It is recommended that the teacher plan in her schedule to visit the business establishment where each student in the job training program has been placed once every two weeks.

Size of Classes

The number of students assigned to any one job training class shall be not less than eight and should not exceed thirty. (See Appendix B for Criteria for unit approval.)

Student Schedule

A student shall spend a minimum of 15 clock hours each week or a comparable alternating week(s) plan in employment for wages in the occupation for which he or she is training.

Each student shall spend a minimum of one-half day in school devoted to class instruction related to the occupation for which he or she is training and also for subjects meeting graduation requirements.

A minimum block of two 45 minute periods or one 60 minute period of time daily shall be devoted to class instruction related to the occupation in a 1 year program. One period (either 45 or 60 minutes) is required for a 2 year program.

Evaluation

Continuous evaluation is to be carried on and used as a basis for maintaining an effective program. Evaluation shall be concerned with appraising the total growth of the student and his success on the job. The State Supervisory Staff, teachers, administrators, and employers shall plan and carry out an evaluation of the program and make recommendations for improvement.

FHA

A student enrolled in a job training program may be a member of the Future Homemakers of America Association.

The Future Homemakers of America is recommended as an integral part of the total Vocational Home Economics program. The organization and supervision of the activities of the Future Homemakers of America may be a responsibility of the teacher employed for the work experience program.

APPENDIX A

Suggested Use of Job Description Materials

Specific suggestions are given for the two different programs:

(1) Cooperative training

(2) Occupational work experience

Teachers will need to adjust and adapt the job description to the needs of the particular group they are teaching. This is important because the duties expected in service occupations may differ from community to community and the trainees will vary in education, experience, and ability.

In addition to having first-hand information concerning job requirements, the individual teacher must secure as much information as possible about the trainees from the testing service of the Guidance Staff in the school or from the Employment Office.

The specific objectives, teaching methods, and time alloted to each aspect of the training can then be adjusted to the local situation and to the trainees.

COOPERATIVE TRAINING PROGRAM FOR CHILD CARE WORKERS

CHILD CARE AIDE (ONE YEAR)

Job Description

The child care aide will assist the director of the nursery school or a child care center working under her supervision. Her dutues will include helping the director carry out the activities of the nursery school or child care center.

Employment Opportunities

Child care center worker
Private and community nursery school aide
Aide to private kindergarten teacher
Self-employment in a home, caring for children

Characteristics of Trainees

Good personal habits in speech and mannerisms
Cooperative, courteous, friendly, and tactful in dealing with people
Works effectively under supervision
Free from non-communicable diseases
Sound physical and mental health

CHILD CARE ASSISTANT (TWO YEAR)

Job Description

The child care assistant upon completion of the two year program will be able to accept the position of assistant director of a nursery school or a child care center. Students will become skilled in caring for the needs of pre-school age children and in carrying out a planned program of work in either a nursery school or child care center.

Employment Opportunities

Child care center workers
Private and community nursery school assistant
Private kindergarten assistant
Recreation center aide
Self-employment in home, caring for children
Assistant in children's home
Assistant in pediatric ward in hospital

Characteristics of Trainees

Good personal habits in speech and mannerisms
Cooperative, courteous, friendly, and tactful in dealing with people
Ability to make decisions
Works effectively under supervision
Free from non-communicable diseases
Sound physical and mental health

Program Outline for Child Care Aides (one year program)

(1) Job Orientation

Credentials and regulations
Qualities for job success
Opportunities for employment
Applications and interviews
Analysis of the job

(2) Becoming oriented to the nursery school.

(3) Understanding the needs of young children.

(4) Understanding characteristics of young children.

(5) Keeping the child healthy.

(6) Helping children develop good habits.

(7) Preparation of foods for young children.

(8) Directing play and learning activities.

(9) Sanitation practices and housekeeping duties.

Program Outline for Child Care Assistant (Two Year Program)

In addition to the content for the one year program the following topics should be included:

(1) Understanding and management of children in child care centers.

(2) Guidance techniques for child care centers.

(3) Management of the children's day.

(4) Planning and preparing menus for children in child care centers.

(5) Relationships with parents.

(6) Management techniques in the operation of a nursery school or child care center.

Teaching Facilities

The instructional situation for a day care center or nursery school should provide opportunity for the trainee to have experience working with children. In many cases, the school or home economics department may have the necessary space.

The following facilities are needed:

- Indoor and outdoor play equipment.
- Play material and furnishings of sufficient quantity and quality and variety so that each child has a variety of things to do each day.
- Play equipment must be directly related to the developmental needs of the children and to the total number of children in attendance.

OCCUPATIONAL WORK EXPERIENCE TRAINING PROGRAM

CHILD CARE WORKER

The instruction will be mainly work activity, providing trainees with repetitive experiences with children. The only responsibility given to trainees will be helping or assisting with the care of children in nursery school or child care center.

Employment Opportunities

Child care center or nursery school helper
Helper in retarded children's home
Private nursery school or kindergarten helper

Training Program Outline for Child Care Helper (Two Year Program)

(1) Job Orientation

Credentials and regulations
Qualities for job success
Opportunities for employment
Application and interviews
Analysis of the job

(2) Purpose and function of child care center.

(3) Assisting children remove garments and put them in designated places.

(4) Helping children in routine activities as eating, resting, and toileting.

(5) Arranging facilities and equipment in the center for various types of play activities.

(6) Help children develop habit of caring for own clothing, and picking up and putting away toys and books.

(7) Preparation of simple foods for children.

(8) Helping keep the day care center clean and attractive.

(9) Practicing accident prevention.

COOPERATIVE TRAINING PROGRAM

HOMEMAKER'S ASSISTANT

A person trained as a homemaker's assistant will be employed to work either in a home or an institution (hospital, nursing home, child care center) under the direction of a homemaker if employed in a home or a housekeeping supervisor if employed in an institution.

Employment Opportunities

Full-time or part-time in private home
Housekeeping aide in a nursing or rest home
Hospital housekeeping aide
Hotel and motel housekeeping aide

Characteristics of Trainees

Sound physical and mental health
Neat personal appearance
Ability to follow both oral and written directions
Ability to work with people

Program Outline for Homemaker's Assistant

(1) Job Orientation

Credentials and regulations
Qualities for job success
Opportunities for employment
Application and interviews
Analysis of the job

(2) Desirable characteristics of workers.

(3) Methods of performing essential household tasks.

(4) Development of skills in the performance of household tasks.

(5) Management principles in the use of time and energy.

(6) Personal and social relationships.

(7) Guidance of children when mother is away from home.

(8) Use of family resources in providing for:

- Care of children
- Family meals
- Medical services
- Clothing
- Safety
- Emergencies in the home

(9) Preparation and service of food.

(10) Laundering.

Teaching Facilities

The facilities provided for teaching home economics in the established high school may be used. A large flexible room is desirable. In addition, there should be a large walk-in storage room. A portable wall to divide the room will increase the possibility of full utilization of space. Teaching aides and supplies should include illustrative materials to teach.

OCCUPATIONAL WORK EXPERIENCE PROGRAM (TWO YEAR PROGRAM)

HOMEMAKER'S ASSISTANT

Employment Opportunities

Laundress
Maids in institutions such as hotels, rest homes, day care centers
Dishwashers
Dining room assistants
Janitress
Helpers in the home

Repetitive experience is needed in performing simple tasks in housekeeping and the operation of the home. The topics listed for instruction in the work experience program will comprise the contents for the cooperative work experience program and will be geared to the ability level of the student. The program will be developed over a two year period.

COOPERATIVE TRAINING PROGRAM FOR NURSING AND REST HOME AIDE (ONE YEAR PROGRAM)

NURSING AND REST HOME AIDE

Job Description

The trainee will be qualified to work in a private home or in a public institution assisting with the housekeeping responsibilities of the home and with the physical care of older persons.

Employment Opportunities

Nursing home aide
Rest home aide
Private home aide for elderly person(s)
Companion to an elderly person(s)

Characteristics of Trainees

Sound physical and mental health
Neat personal appearance
Follows both oral and written directions
Good character, patience, and interest in people

Training Program Outline for Nursing and Rest Home Aide (One Year Program)

(1) Job Orientation

Credentials and regulations
Qualities for job success
Opportunities for employment
Applications and interviews
Analysis of the job

(2) Desirable characteristics of a home nurse.

(3) An understanding and appreciation of the attitudes and behavior of aging individuals.

(4) Techniques in caring for the sick.

(5) Planning and preparing of menus including special diets.

(6) Sanitation and housekeeping practices.

(7) Effective management practices in caring for the room and the laundry.

(8) Meeting emergencies.

(9) State and local regulations for public institutions caring for the aged.

Teaching Facilities

In addition to the home economics department with modern equipment and furnishings to teach homemaking, there are various types of public and private facilities which, if available, could be used to enhance the effectiveness of the course.

The following facilities may be utilized:

- Rest homes and nursing homes to observe techniques used in carrying for older people, home management practices, and meal preparation.
- Hospitals, rehabilitation centers, and housing developments for the aging.
- Food stores, banks, and libraries.
- The Red Cross unit may assist in providing some of the equipment needed to teach home care of the sick.

OCCUPATIONAL WORK EXPERIENCE PROGRAM FOR NURSING AND REST HOME HELPER (TWO YEAR PROGRAM)

NURSING AND REST HOME HELPERS

The instruction must be geared to the ability level of the student and the curriculum be chiefly centered on work activity. The topics to be included in the curriculum will be the same as those identified for the cooperative work experience program above and will be developed over a two year period.

Employment Opportunities

Dishwashing
Aide to housekeeper
Carrying trays and feeding patients

COOPERATIVE TRAINING PROGRAMS FOR FOOD SERVICE WORKER

(ONE OR TWO YEAR PROGRAM)

FOOD SERVICE WORKER

Job Description

A person who works under supervision in the preparation of food. Upon completion of the training, the trainee will be qualified for a job in food service in institutions such as hospitals, nursing homes, homes for the aged, child day care centers, school cafeterias, restaurants, and other eating establishments.

Job Opportunities

Completion of one year training program -

- Assistant to cook in large institutions
- Cook or baker doing basic food preparation
- Worker in setting up hot food table and serving food
- Worker in preparing trays and serving food
- Worker in filling food containers and sending food to the diet kitchen
- Salad girl, cafeteria server

Completion of two year training program -

- Head cook in small institution kitchen
- Assistant to the supervisor
- Ordering food
- Planning menus
- Cook or baker doing food preparation
- Food preparation
- Dietary aide in hospital

Characteristics of Trainee

- Have manual dexterity
- Be of sound physical and mental health
- Have a physical examination
- Be able to follow both oral and written directions

Program Outline for Food Service Workers (One Year)

(1) Job Orientation

- Credentials and regulations
- Qualities for job success
- Opportunities for employment
- Applications and interviews
- Analysis of the job

(2) Essential hygiene and health practices.

(3) Nutritional quality of food.

(4) Safety requirements.

(5) Safe food handling.

(6) Sanitation and housekeeping practices.

(7) Care and use of equipment.

(8) Adequate and proper storage of food.

(9) Basic skills in preparation of foods.

(10) Basic skills in service of foods.

(11) Organization of work in relation to space and time limitations.

Program Outline For Food Service and Catering Workers (Two Year Program)

In addition to the content for the one year program the following topics should be included:

(1) Principles of time and energy management. (Time and work study charts.)

(2) Food purchasing. (On an institutuional basis.)

(3) Food cost estimates.

(4) Menu planning.

(5) Increased skill in the preparation of food on a quantity basis.

(6) Increased skill in the service of food.

(7) Interviewing techniques of employees.

Teaching Facilities

The teaching situation should provide opportunity for the trainee to have repetitive experiences in the preparation and serving of hot food.

In addition to the facilities provided in the regular homemaking department, the following facilities are needed:

- Large quantity food equipment to make large quantity food preparations. (School cafeteria may be utilized.)
- Sufficient work stations and supplies for repetitive experiences.
- Texts, visual aids, and resource books.
- Opportunities for observation of actual institutional facilities in use.

OCCUPATIONAL WORK EXPERIENCE TRAINING PROGRAM (TWO YEAR PROGRAM)

FOOD SERVICE HELPERS

The training program in food service may be a part of the total occupational work experience in home economics. The instruction will be geared to the ability level of the student and will be focused on a work activity program. Operation skills must be kept as a single skill level and repetitive performance if necessary.

Employment Opportunities

Bus girl
Dishwasher
Pot washer
Cook's helper (simple food preparation)
Simple preparation worker
Janitress
Pantry service sandwich worker
Pantry service dessert worker
Steam table worker

Program Outline in Food Service for the Occupational Work Experience Program (Two Year Program)

(1) Job Orientation

Credentials and regulations
Qualities for job success
Opportunities for employment
Application and interviews
Analysis of the job

(2) Essential hygiene and health practices.

(3) Safety requirements.

(4) Safe food handling.

(5) Sanitation and housekeeping practices.

(6) Adequate storage of food.

(7) Single operation skills in preparation of foods.

(8) Single operation skills in serving food.

(9) Simple organization of work.

COOPERATIVE TRAINING PROGRAM FOR CLOTHING SERVICE WORKER

(ONE OR TWO YEAR PROGRAM)

Job Description

The clothing service worker upon completion of the two year program shall be able to work with a dressmaker helping with fitting, alteration, construction, and finishing of garments. Trainees may also work in shops with persons making draperies and slipcovers. This training will also provide for work with an upholsterer in recommending fabrics for different styles of furniture as well as assisting with the upholstering processes.

Employment Opportunities for Clothing Service Workers

Dressmaker assistant
Fitter or seamstress in a dress department or store
Dressmaker (self employed)
Assistant to a drapery or curtain seamstress
Assistant to a slip cover seamstress
Drapery or slip cover seamstress (self employed)
Upholstery seamstress (self employed)
Coin operated dry cleaning worker

Characteristics of Trainees

Interest in sewing
Ability to learn to manipulate pattern and fabrics effectively
Mechanical dexterity to manipulate machines and tools of the trade

Program Outline for Clothing Service Worker (One Year Program)

(1) Job orientation

Credentials
Qualities for job success
Opportunities for employment
Applications and interviews
Analysis of the job

(2) Use of patterns and guide sheets.

(3) Alteration and fitting problems.

(4) Machine construction processes.

(5) Hand sewing.

(6) Selection.

(7) Spotting of stains.

(8) Pressing.

COOPERATIVE TRAINING PROGRAM OUTLINE FOR CLOTHING SERVICE WORKER

(TWO YEAR PROGRAM)

In addition to the content for the one year program, the following topics should be included:

(1) Slip cover construction processes - fitting, cutting, assembling.

(2) Drapery and curtain making techniques.

(3) Upholstery techniques.

(4) Styles of furniture and fabrics suitable.

(5) Business management techniques.

Teaching Facilities

A suggested teaching facility is a well equipped clothing laboratory with sewing machines, pressing boards, laundry facilities as well as upholstery tools and materials. It is recommended that planned visits to dressmakers, upholstering shops, department stores, and dry cleaning establishments be included in the course.

APPENDIX B

Criteria for Approval of Vocational Unit(s) in Home Economics Job Training Programs

One unit of approval will be given when one teacher is employed, when all class periods of the one teacher are devoted to the occupational work experience program utilizing home economics knowledge and skills for the students of limited ability, and when the enrollment is 15 - 30 students.

One half unit of approval will be given when one teacher is employed and devotes one half day to the occupational work experience program and when the enrollment is 8 - 14 students.

One unit of approval will be given when one teacher is employed, when all class periods of the one teacher are devoted to the cooperative training program utilizing home economics knowledge and skills, and when the enrollment is 15 - 30 students.

One half unit of approval will be given when one teacher is employed and devotes one half day to the cooperative training program utilizing home economics knowledge and skills and when the enrollment is 8 - 14 students.

Whenever less than full time or less than half time is devoted to the occupational work experience program or the cooperative training program utilizing home economics knowledge and skills, the approved vocational unit or the fraction thereof will be reduced a corresponding amount.

Number of Units or Fractions of Units Approved in Cooperative Training or Occupational Work Experience Programs Utilizing Home Economics Knowledge and Skills According to Enrollment of Students in the Programs and Number of Periods Devoted to the Program

SECT	Periods Devoted to Cooperative Training of Occupational Work Experience Programs Based on Total Periods in the Day.		Enrollment of Students in Occupations or Cooperative Programs	
			Column I 8 - 14	Column II 15 - 30
A.	All Periods Devoted to Cooperative or Occupational Programs	6/6	.50 unit	1 unit
		7/7	.50 unit	1 unit
		8/8	.50 unit	1 unit
		9/9	.50 unit	1 unit
B.	All Periods Devoted to Cooperative or Occupational Programs except 1	5/6	.50 unit	.83 unit
		6/7	.50 unit	.86 unit
		7/8	.50 unit	.875 unit
		8/9	.50 unit	.89 unit
C.	All Periods Devoted to Cooperative or Occupational Programs except 2	4/6	.50 unit	.67 unit
		5/7	.50 unit	.71 unit
		6/8	.50 unit	.75 unit
		7/9	.50 unit	.78 unit
D.	All Periods Devoted to Cooperative or Occupational Programs except 3	3/6	.50 unit	.50 unit
		4/7	.50 unit	.57 unit
		5/8	.50 unit	.625 unit
		6/9	.50 unit	.67 unit
E.	All Periods Devoted to Cooperative or Occupational Programs except 4	3/7	.43 unit	.43 unit
		4/8	.50 unit	.50 unit
		5/9	.50 unit	.56 unit
F.	All Periods Devoted to Cooperative or Occupational Programs except 5	3/8	.375 unit	.375 unit
		4/9	.44 unit	.44 unit
G.	All Periods Devoted to Cooperative or Occupational Programs except 6	3/9	.33 unit	.33 unit

TO: Local School Administrators

FROM: Margaret McEniry, State Supervisor
Vocational Home Economics - Room G-15
State Department of Education
State Office Building
65 South Front Street
Columbus, Ohio 43215

SUBJECT: ESTABLISHING PROGRAMS IN HIGH SCHOOL IN JOB TRAINING FOR OCCUPATIONS USING HOME ECONOMICS KNOWLEDGE AND SKILLS

(1) The purpose of vocational education in home economics which is directed toward gainful employment provides instruction that qualifies individuals to engage in occupations using home economics knowledge and skills.

(2) Some Criteria for Determining Approval of Vocational Units and Fractional Units in high school job training in home economics.

Approval of Vocational Units under the School Foundation Program shall be based on the following:

- Availability of sufficient number of students who are interested in and who have aptitude for training for specific occupations.
- Evidence of opportunities for employment in occupations for which training programs are proposed.
- Teachers who are qualified or who can become qualified.
- Work station experience can be provided for trainees.
- Reasonable opportunities for placement of trainees after completion of training.
- Proposed plan for needed facilities can be justified on the basis of continued use.
- School and community are able and willing to support the program.
- Students meet legal age employment laws (local, state, and federal).

(3) TYPES OF JOB TRAINING PROGRAMS - Vocational Home Economics

The following information and data supplies evidence for supporting such a job training program in our Vocational Home Economics school in the program selected by our school.

TYPE I - Cooperative training program
A program for students of average or above average ability.

TYPE II - Occupational work experience program
A program for students of limited ability.

High School
Vocational Home Economics
Job Training Program
6/1/65

Submit 2 copies

PRELIMINARY APPLICATION AND INFORMATION DATE FOR APPROVAL FOR A HIGH SCHOOL JOB TRAINING PROGRAM IN VOCATIONAL HOME ECONOMICS

Acting on behalf of the _____ Board of Education, I hereby apply for approval to initiate a program of Vocational Home Economics Education as a vocational unit(s) under the Ohio Foundation Program. The following information has been obtained to justify consideration of the program in the above named school.

Signed _____

Title _____

School _____ County _____ Date _____

Mailing Address _____

Number in High School _____ (Girls - _____) (Boys - _____)

Type of High School -

Senior High _____ (Grades 10 - 12) _____ (Grades 9 - 12)

Junior High _____ (Grades 7 - 9) _____ (Grades 7 & 8)

Complete the following form in duplicate and return to:

Miss Margaret McEniry
Head State Supervisor
State Department of Education
Division of Vocational Education
Vocational Home Economics
State Office Building
65 South Front Street
Columbus, Ohio 43215

This data supplies evidence for offering a job training program in your school.

TYPE I -- COOPERATIVE TRAINING PROGRAM - Check below the program you selected
(Program for Students of Average and Above Average Ability)

(1) FOODS AREA

____ Food Service and Catering Workers - 2 year program (11th and 12th)
____ Food Service Workers - 1 year program (12th)

(2) CHILD CARE AREA

____ Child Care Assistants - 2 year program (11th and 12th)
____ Child Care Aides - 1 year program (12th)

(3) HOME MANAGEMENT

____ Homemaker's Assistants - 1 year program (12th)
____ Nursing and Rest Home Aides - 1 year program (12th)

(4) CLOTHING AREA

____ Clothing Service Workers - 2 year program (11th and 12th)

SUPPLY THE FOLLOWING INFORMATION ABOUT COOPERATIVE TRAINING PROGRAM
(For Students of Average and Above Average Ability)

(A) Teachers for the Program

Name of Teacher _____

Qualifications

____ holds a Vocational Home Economics Certificate
____ can qualify for Vocational Home Economics Certificate by attending summer school

Has had the following Occupational Work Experience

____ as a paid worker in the field of _____
____ as a volunteer worker in the field of _____
____ as a supervisor in the field of _____

(B) Students

____ meet legal employment laws (local, state, and federal)
____ have approval of parents to do work experience for one half day and can secure work permit
____ will be employed at work stations for an average of fifteen hours per week or on a comparable alternating week(s) plan
____ are of average or above average ability

(C) Schedule

____ allows for one half day of field work experience
____ allows for one half day in school for instruction in the occupational class experience and other required high school courses
____ allows two (45 minute) instructional periods daily for 1 year program
____ allows one (60 minute) instructional period daily for two year program

(D) Work Stations

____ have been agreed upon by _____ employees.
(number)

TYPE II -- OCCUPATIONAL WORK EXPERIENCE PROGRAM - Check the program you selected
(Program for Students of Limited Ability) - Single skill, unskilled

(1) FOODS AREA

_____ Food Service Helpers - 2 year program (9th - 12th)

(2) HOME NURSING

_____ Nursing Home Helpers - 2 year program (9th - 12th)

(3) HOME MANAGEMENT

_____ Homemaker's Helpers - 2 year program (9th - 12th)

(4) CHILD CARE AREA

_____ Child Care Helpers - 2 year program (9th - 12th)

INFORMATION NEEDED ABOUT OCCUPATIONAL WORK EXPERIENCE PROGRAM
(For Students of Limited Ability)

(A) Teachers for the Program

Name of the teacher _____

Qualifications

_____ holds a Vocational Home Economics Certificate
_____ can qualify for a Vocational Home Economics Certificate by attending summer school

Has had occupational work experience

_____ as a paid worker in the field of _____
_____ as a volunteer worker in the field of _____
_____ as a supervisor in the field of _____
_____ has six to nine semester hours in special education and/or guidance courses, or secure a temporary vocational certificate until hours are earned
_____ has minimum of two years of teaching experience in either home economics education, special education, or in guidance or its equivalent

(B) Students

_____ meet legal employment laws (local, state, and federal)
_____ have parents approval to do work experience and can secure work permit
_____ will be employed on their job stations for an average of fifteen hours per week or a comparable alternating week(s) plan
_____ are of limited ability (75 to 89 I.Q.)
_____ be identified by a guidance counselor or teacher as not being qualified for the regular Cooperative Work Experience Program
_____ have ability for success in the training program

(C) Schedule

_____ schedule allows for one half day for field work experience
_____ schedule allows for one half day in school; includes instruction for the occupational work experience program as follows:
_____ two (45") instructional period daily (Two year program)
_____ one (60") instructional period daily

(D) Work Stations

_____ have been agreed upon by _____ employees
(number)

THIS PAGE TO BE COMPLETED FOR TYPE I AND/OR TYPE II PROGRAMS

I. Indicate provisions for administration of program

____ Exact number of students enrolled for the program

1 Unit (15 - 30 Students)
½ Unit (8 - 14 Students)

____ Teacher's Travel Budget allowed to coordinate program
(75% reimbursed up to $300 from State)

Teacher employed beyond the regular school year

____ 4 weeks
____ 8 weeks
____ 12 weeks

II. Describe plans for providing space, equipment, and maintenance of physical plant facilities for the program.

III. Outline of course and content for this course is attached

____ Yes ____ No

IV. This program will operate during the regular school year

Date this program will start - _____
Date teacher will start working - _____

V. An Advisory Committee has been or will be appointed to work with this Home economics job training program ____ Yes ____ No
Number on Committee _____

VI. The assurance of compliance with Title VI of the Civil Rights Act dated _____ applies to the application submitted herewith.

_____ (signature) _____ (title)

D O N O T W R I T E B E L O W T H I S L I N E

- -

Approved _____ Not Approved _____
Reasons _____
_____
_____

Signature - State Supervisor
Vocational Home Economics _____

Date Approved _____

VT 000 189

VT 000 189 ED

Supervising Occupational Experience Programs. (A Special Conference Report, Resident Instruction Series, no. 7).

Davis, Lowery H., Ed.

New Mexico State Univ., University Park

Feb66

EDRS Price MF-$0.18 HC-$2.68 67p.

STUDENT PLACEMENT, ADMISSION CRITERIA, *COOPERATIVE EDUCATION, COMMUNITY SURVEYS, ADVISORY COMMITTEES, PUBLIC RELATIONS, *PROGRAM GUIDES, *PROGRAM PLANNING, PROGRAM EVALUATION, VOCATIONAL FOLLOWUP, QUESTIONNAIRES, EMPLOYERS, COMMUNITY RELATIONS, *VOCATIONAL EDUCATION, WORKSHOPS,

Nine participants in a workshop at New Mexico State University developed this 4-part handbook for operating supervised occupational experience programs. Resource persons from adult education, agricultural education, vocational and technical education, and horticulture worked closely with the group. Part one covers steps for organizing and administering the occupational experience program, and elaborates on the role of community surveys and advisory councils. Part two gives details of selecting and placing students in the occupational work experience program. Part three explains the teaching, supervising, and coordinating of occupational experience programs. Part four presents guidelines for evaluating the program. The appendix contains an employment opportunities survey form, student information sheet, and a placement agreement. (EM)

ED015348

Dr. Robert E. Taylor
Center for Vocational Education
Ohio State University

MAY 12 1966

SUPERVISING OCCUPATIONAL EXPERIENCE PROGRAMS

A Special Conference Report

NEW MEXICO STATE UNIVERSITY
College of Agriculture and Home Economics
Department of Agricultural and Extension Education
University Park, New Mexico

Resident Instruction
Series Number 7
February 1966

VT 001189

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SUPERVISING OCCUPATIONAL EXPERIENCE PROGRAMS

A Special Conference Report

NEW MEXICO STATE UNIVERSITY
College of Agricultural & Home Economics
Department of Agricultural & Extension Education
University Park, New Mexico

Resident Instruction
Series Number 7
February, 1966

- FOREWORD -

New Mexico State University was especially fortunate to have Dr. Lowery H. Davis, Head of the Department of Agricultural Education at Clemson University, to conduct a workshop on supervising occupational experience programs. The results of the workshop published in this report will be most helpful at a time when program challenges are being focused toward experience programs.

The Department of Agricultural & Extension Education appreciates the leadership which Dr. Davis gave to directing the conference and the editing of the final report.

J. D. McComas
Associate Professor & Head
of the Department of
Agricultural & Extension Education
New Mexico State University

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APPRECIATION

Appreciation is expressed to the Consultants who worked closely with the group during the workshop. There was no attempt to have formal presentations from the resource personnel. Rather, they worked informally with the group. Therefore, their ideas are found incorporated throughout the report.

PARTICIPANTS

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ORGANIZING AND ADMINISTERING

THE OCCUPATIONAL EXPERIENCE PROGRAM

Committee I

Jack M. Parker

Bloomfield, New Mexico

Ronald A. King

Amarillo, Texas

Organizing and Administering the Occupational Experience Program

Occupational Experience Programs

Occupational experience programs are designed to provide supervised experiences for gainful employment. Students are given classroom instruction in various occupations and then have the opportunity to further their education while on the job. This program is accomplished by establishing a cooperative arrangement between the school and the businesses and industries in the community. This enables students who are in the 11th and 12th grades to receive occupational experience while completing the requirements for a high school diploma. The student spends a predetermined number of hours during the year working in the occupational experience center. These hours may or may not occur during the regular school day. The training received at the occupational experience center is under the direction of an instructor selected from the firm or business in which the student is working. The teacher has the responsibility for providing the related instruction and coordinating the program.

In organizing an occupational experience program, the teacher should meet with the school administrators to discuss the program and agree on the steps to follow in developing a new program. These steps are not necessarily in the order to be accomplished.

1. The appropriate State Supervisor of Vocational Education should meet with local officials to explain state policies and standards.

2. A local advisory council should be appointed.
3. The public should be informed.
4. A survey should be made of local businesses that are related to the desired occupational experiences.
5. A survey of the student body should be made to determine the number of prospective students.
6. The school should develop local policies for directing the occupational experience program.
7. Obtain the necessary equipment and facilities.
8. Select students and occupational experience centers.
9. Develop occupational experience plans and complete necessary forms and certificates.
10. Obtain all instructional material needed.

The Community Survey

The purpose of a Community Survey of Occupations is to provide information for occupational guidance and for planning new programs.

The primary intent of the survey is to analyze the segment of our economy not now adequately served by vocational and technical education, and about which sufficient knowledge for program development is not available.

Specific Objectives of the Community Survey[1]

1. To identify present and emerging occupations, for which

---

[1] A Study to Determine Employment Opportunities and Needed Competencies in Agricultural Occupations Other Than Farming, University Park, Pennsylvania, Department of Agricultural Education, Pennsylvania State University.

occupational experience programs should be available.

2. To determine present and anticipated numbers of employees in these occupations and their job titles.
3. To estimate the annual turnover and entry opportunities in these occupations and job titles.
4. To determine competencies needed for entry and advancement in these occupations.
5. To determine other characteristics of the occupations such as salary, minimum age of entry, labor laws and union restrictions, required formal education and experience, licensing and certification.
6. To determine continuing education needs of those employed in these occupations.
7. To structure course outlines and curricula.

The community survey may be used to indicate movement of the student population. Do they remain in the community after graduation or move to another area to accept different occupations? These answers will be important in developing the needed areas of occupations.

The survey form[2] shown in Appendix 1 was developed at Pennsylvania State University for use in determining employment opportunities in agricultural occupations. This survey may be used as a guide for other occupational experience programs.

---

[2]Ibid., pp. 6-9.

The Advisory Council

The advisory council is a lay committee which assists in the planning, execution, and evaluation of the occupational experience program. To qualify as a member of the advisory council a person should experess an interest in the problems of the school. The membership should be represented by a respected leader in the business field, and represent a cross-section of those affected by the program. Not all advisory committee members need to come from a school attendance area. The teacher and a member of the administrative staff should serve as ex-officio members of the council.

The advisory council may aid in public relations, provide a closer tie between the community and school, provide a clearer image of community problems and needs, and present to the community the expected goals of the occupational experience program.

The advisory council should be initially appointed for different terms so experienced members will be on the council at all times. This council should consist of five or more members. The advisory council members should be appointed or elected by the local school board. The council should serve a definite term of office.

Function of an Advisory Council[3]

1. Assist in the selection of training centers.
2. Renders service in developing employment opportunities.
3. Assists in setting standards for student selection.
4. Provides guidance in wage and hour problems.

---

[3]Marvin G. Linson and Harold Anderson (ed.), Handbook for Developing and Operating Agricultural Occupations, Fort Collins, Colorado, Vocational Education Department, Colorado State University, p. 10.

5. Helps publicize the program.
6. Gives advice on the selection of references and other instructional aids.
7. Assists in setting local training standards.
8. Renders assistance in conducting the community survey.
9. Assists in the selection of subjects, course content, and special emphasis that should be included in the occupational experience program.
10. Assist in evaluating the occupational experience program.

Local Policies

It is difficult to suggest specific policies which would be suitable for every situation. Local policies being basically essential in any program for proper administration require their use. The following policy guides are suggested for the local school board and teachers of the occupational experience program to consider when establishing local policies.

A. School Board Policies
   1. Insurance
      a. Accident insurance
      b. General liability insurance
      c. Workman's compensation insurance
   2. Transportation
   3. Course schedule for participating students
   4. Scheduling occupational experience program
   5. Providing for supervisor time and travel allowance

6. Eligibility of students
7. Approval of areas of occupational experience to offer

B. Departmental Policies
1. Number of students in class
2. Evaluating students (grades)
3. Standards for occupational experience centers
   a. Suitability for student participation
   b. Health and safety
   c. Progressive learning opportunities
   d. Wages received by students

Informing the Public

The best publicity for an occupational experience program is a successful program. However, success of failure of any program is often dependent upon the publicity it receives. If the public has a good understanding of the aims and objectives of the occupational experience program, the chances are that the program will be easier to organize and supervise.

There are numerous methods of introducing the program to the community. It is advisable to use a combination of the communication outlets rather than just one or two. It is also important to keep the program in the news at all times.

The teacher should become acquainted with the newspaper editor and the radio and television personnel in the community. These mass media services provide an excellent means of introducing the program to the community.

The school teaching staff, student body, and the Parent-Teachers Association should be informed of the occupational experience program. If the people who are closely associated with the school have a clear understanding of the value of the program, their approval and support may be obtained.

The Chamber of Commerce, civic clubs, and other groups provide excellent opportunities for acquainting the businessmen of the community with the program. It would be desirable to contact these organizations before conducting a community survey so that the businessmen will have some knowledge of the program when contacted by the interviewer.

When the teacher is visiting prospective occupational experience centers, he should have a calling card with his name, office telephone number, home telephone number, and the name of local high school. A brochure that briefly explains the occupational experience program should be left with the prospective employers to give him a better understanding of the program.

As the program develops, the teacher should accumulate an album of pictures of local students receiving education in the occupational experience center. These pictures will be useful in securing new experience centers and will also be valuable in newspaper publicity.

A final reminder - the best publicity for an occupational experience program is a successful program.

Public Relations

The occupational experience program requires the teacher

to work closely with employers and the student's supervisors. The cooperation of employers is mandatory to provide occupational experience for the students and future permanent employment.

The teacher should strive to gain the cooperation of organized labor. The teacher should learn the requirements for admission and the possibilities of substituting occupational experience for part of apprenticeship requirements.

The teacher should gain valuable assistance by cooperating with the Employment Security Commission. The Employment Security Commission may assist in finding part-time occupational experience centers, securing full-time employment for graduates, and could assist in recruiting and testing prospective students.

Governmental agencies are very important due to the large number of employees maintained. The cooperation and backing of these agencies may yield excellent placement opportunities for occupational experience program graduates.

In school, the cooperation of other teachers is highly desirable. Through mutual cooperation the occupational experiences may be expanded, the training in the active occupational experience areas may be intensified, and the experience program may even reach a team teaching situation.

SELECTING AND PLACING STUDENTS IN THE OCCUPATIONAL WORK EXPERIENCE PROGRAMS

Committee II

Stanley H. Lewis, Chairman

Estancia, New Mexico

Ethel Jane Strode

Alamogordo, New Mexico

Francisco Rodriguez

San Jose, Costa Rica

Selection of Occupational Experience Centers

The selection of adequate training centers is an important key to successful training. The following steps are listed as a guide in the selection of training centers.

1. Compile a list of all possible training centers, utilizing:
   a. Yellow pages of telephone directory
   b. City directory
   c. Chamber of Commerce
   d. Records on file of previous training stations
   e. Employment Commission
   f. Leads through:
      (1) Civic organizations
      (2) Advisory committee members
      (3) Counselors and other school personnel
      (4) Other business people
      (5) Trade Associations
      (6) Professional organizations
   g. Door to door contact.
2. Have the superintendent send out a letter, introducing the program and the teacher of occupational work experience, to the prospective employer.
3. Arrange for an interview in each firm which might serve as a training center. This would be a follow-up to step 2.
4. Use the following criteria in selecting training centers:
   a. The training center must provide a suitable occupation.

b. The job should require training, not be just a routine work experience of a repetitive nature.

c. The training center should be able to provide a wide variety of work experiences in the occupation, with a progression of difficulty or skill needed. There should be possibility for advancement within the establishment.

d. The establishment should provide the student with adequate supervision by an on-the-job instructor--this does not necessarily mean the manager.

e. The employer and his personnel should understand and appreciate the importance of the occupational work experience program.

f. The training center personnel should be capable and willing to provide adequate number of training hours and be willing to provide continuous training.

g. The employer should be willing to pay the student.

h. The employer should be willing to help plan the course of study for the student.

i. The employer should be willing to provide reports on attendance, evaluation of work done, the personality development of the student--such as: attitude, judgment, initiative, cooperation, etc.

j. The employer should be willing to work with the advisory council and perhaps serve on it if requested to do so.

k. The training center should do a reasonable volume of business.

l. The training center should be within a reasonable traveling time from the school--a suggestion of approximately 30 minutes might be made.

m. The training center should have a good reputation and be accepted by the community as a reliable respected business establishment.

n. The working conditions should be clean, safe and satisfactory.

o. The moral climate should be good and employer-employee relations good.

p. The training center should have adequate facilities and equipment and use up-to-date methods.

Selection of Students

Much of the success of occupational experience programs depends upon the motivation of the students enrolled. Students of a high calibre are important. This does not necessarily mean those in the upper quartile, but refers to those students who possess the aptitude and motivation required for success in a given occupation. The objectives of a program of this type can only be attained when the student is capable and desirous of receiving training. There is a tendency among some educators to gear a program of this type toward students with low academic and leadership ability. Education in many occupations requires students with desirable personal traits and above average aptitudes.

The following steps are suggested as a guide to follow in selecting desirable students.

1. Get information on the program to the students through personal contact with student leaders who will "spread the word" about your program.
2. Make a general announcement concerning the program to all eligible students at least two months before the pre-registration for the next school year.
3. Have all interested students fill out an "Application for Enrollment" form. See example at the end of this section.
4. Make arrangements with the school counselor to obtain various test scores and other confidential information which will not be reported on the "Application--" form. Record this information on the teacher's copy ONLY of the "Student Information Sheet."
5. Request the permission and cooperation of the administration and guidance personnel in the administering and interpreting of all the vocational interest tests possible, such as Kuder and Strong.
6. Review the "Student Information Sheets" to determine those students who meet the minimum qualifications.
7. Before a final selection is made, each student should be interviewed personally. This will help obtain information that has not been listed elsewhere.
8. After completing the preceding steps, sufficient information should be available to make the final selection of students. The following criteria should be kept in mind when selecting students. Select students who:
   a. Have an occupational objective.

b. Have shown that they possess ability and willingness to work.

c. Possess the ability to assume responsibility when necessary.

d. Possess basic knowledge and interest in the subject matter in the training area.

e. Have parents approval of their participation in the program.

f. Will be at least 16 years old when the on-the-job experience period begins.

g. Have maintained good school attendance records.

h. Will be able to work the minimum required hours per week.

i. Will be able to get to and from the training centers.

j. Do not possess any handicap which would impair them in the performance of their duties on the job.

k. Can secure a health permit to work when it is required at the training center.

l. Have recommendations of his other teachers or the recommendation of the principal.

The Student Information Sheet for Vocational Occupations Courses (see Appendix 2) would be filled out by the student and signed by the parent, then returned to the teacher.

The teacher could then prepare a typewritten copy in duplicate of the Student Information Sheet for Vocational Occupations Courses, completing the additional information called for at the bottom from the official records. This would provide the employer, the teacher and the school with a copy, which is desirable.

It would be most desirable to have these copies color-coded.

The teacher may find it desirable to maintain a separate file of Parent Permission blanks. If this is adaptable to the situation, a separate file could be handled more compactly by utilizing a 3 x 5 card file. The information would be duplicated on the card and the parent would need to fill in only the name of the child and sign on the bottom line.

> _____
> Date
>
> _____ has my permission
> Name of Student
>
> to participate in the occupational experience program. I shall cooperate with the teacher and the employer to make this a most worthwhile program for my _____.
> (Son or Daughter)
>
> _____
> Signature of Parent

Placement of Student in Occupational Experience Centers

After the list of qualified students and suitable occupational experience centers has been completed, the teacher has a big job in insuring that the proper student is placed in the right occupational experience center. We must keep in mind that the employer will always make the final selection of the student to be placed in his

business, but the teacher can perform certain activities that will make the transition smooth.

1. Prepare the Student.

   a. Give instruction in the competencies necessary for success on any job.

   b. Give orientation on the various job categories, so the student will have at least an acquaintanceship with this particular line of work.

   c. Help the student become aware of the competencies required specifically in the job area he is about to enter.

   d. Stress the necessity for consideration of personal appearance; cleanliness, suitable clothing that is neat and clean, appropriate shoes; hair that is cut in a conservative fashion and make up applied modestly.

   e. For the interview by having him:

      (1) Telephone the firm for an appointment for the interview.

      (2) Prepare a self-evaluation so he will recognize his own strong points and weak points; his ambitions; what he can do; what he has to offer; why he is interested in the work.

      (3) Know something about the company at which he is applying.

      (4) Get some idea of what salary or wage he can expect.

      (5) Realize the importance of being prompt for the interview.

(6) Know proper personal behavior during the interview.

(7) Know how to leave the interview.

f. To fill out an application blank if requested to do so, by:

(1) Reading directions carefully FIRST.

(2) Having work experience log available--most recent job listed first, etc.

(3) Having references: names, addresses and permission to use names.

(4) Knowing something about the job for which the student is applying.

(5) Realizing that spelling, handwriting, neatness and accuracy of the information on the application blank are all taken into consideration.

2. Prepare the Employer.

a. Provide him with detailed personal information on several eligible students.

b. Make sure that there is a clear-cut understanding of the mutual responsibilities of the employer and the student, the employer and the teacher, and the student and the teacher, in this program.

c. Assist the employer in any way possible in establishing the interview time, the selection of students if he requests it, and assure the employer of your utmost cooperation in making this experience mutually profitable to him and to the student.

Regulations in the Occupational Experience Program

There are so many facets of the occupational experience program that will be affected by prevailing laws, the teacher should prepare a check list in order to be sure that all phases of the program are in compliance with all of these prevailing laws and restrictions.

The following is suggested as such a check list:

1. School Liability
2. Teacher Liability
3. Employer Liability
4. Student Liability
5. Child Labor Laws
   a. Federal
   b. State
6. Social Security
7. Withholding Tax
8. Workmen's Compensation
9. Unemployment Insurance
10. Labor Unions
11. Other restrictions

State and Local Labor Regulations

The following laws may affect students working part-time and attending school part-time. Single agencies have issued pamphlets and bulletins covering one type of law, and these are usually available for a more detailed study from such agencies as the State Department of

Education, the United States Department of Labor, the State Security Commission, the State Department of Public Welfare, the Social Security Office, and the State Department of Distributive Education.

1. School District Liability

   A school district is a governmental function and as such is not liable in performance of governmental functions. If the school board approves, the school is not liable nor can it be sued. Be sure the occupational experience program is approved by the local board, and this is indicated by being recorded in the minutes of a board meeting.

2. Teacher Liability

   This is a matter of degree. There are no laws, basic principles or guide lines. In court, decisions are based on evidence of proper safety instructions. In such cases, it is helpful to have safety tests given, materials taught, dates, etc. Decisions are based on prudence. A jury decides negligence, if any.

   A teacher can purchase insurance. A comprehensive personal policy is specifically endorsed for teaching as an occupation. Teachers are agents of the school board and as long as they are acting for and under the school board, they are protected. In New Mexico, a teacher who is a member of the New Mexico Education Association is covered by a $10,000 court-costs policy.

   A comprehensive general liability policy or contract covering agents and employees of school districts and buildings is

available. This covers situations such as falling down stairs, cutting one's self, etc.

3. Employer Liability

An employer must have Workmen's Compensation Insurance. An employer or teacher cannot sign away rights for any individual as to a liability. Workmen's compensation policy premiums depend on the amount of the payroll. There are two kinds of workmen's compensation:

a. Statuatory employment--compensation is required.

b. Voluntary employment--for farmers, chauffeurs, servants, etc.

4. Student Liability

Insurance for himself is not required; however, it is well to suggest it. Two people cannot effect the rights of the third party.

Students working as a part of the work experience program would be subject to strict supervision of teachers, working as the agent of the school board would not be liable, but employer is not excused for tort--a wrong inflicted, injury.

5. Child Labor Laws

a. Federal--For those occupational experience centers which come under federal jurisdiction, the employer is charged with having all available information. The teacher, however, should familiarize himself with the laws, by referring to Child-Labor Bulletin #101, A GUIDE TO CHILD LABOR PROVISIONS OF THE FAIR LABOR STANDARDS ACT--U. S. Department of Labor.

b. State--Each state has slightly different child labor laws. Each teacher should contact the Employment Security Commission of his state for the laws and for assistance in correct interpretation of the laws. In New Mexico the law states:[1]

(1) Minimum age--14 in any occupation during the hours school is in session.

(2) Hours--for minors under 16, 8-hour day, 44-hour week. Prohibited to work between 7 p.m. and 7 a.m. in any occupation.

(3) Permit Certificate--Permit certificates are required for employment of children 14 and 15 years of age during school term, under 14 outside of school hours and vacations. Age certificates for minors 16 and over are issued by the superintendent or principal of schools for children residing within their respective school district.

(4) Minimum Wage--Students regularly enrolled in primary and secondary schools, working after school hours or on vacation, are exempted from minimum wage.

(5) Prohibited Occupations for Minors under 16--Minors under 16 are prohibited to work in any hotel, place of amusement, pool or billiard hall, bowling alley, theaters, concert halls, wholesale drug stores; in or about any establishment where malt or alcoholic liquors are manufactured, packed, wrapped, or bottled; in the

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[1] How New Mexico Labor Laws Protect You, Pamphlet, New Mexico Department of Labor; Santa Fe, New Mexico.

preparing any composition in which dangerous or poisonous acids or alkalies are used; manufacturing of paints, colors, or white lead; dipping, drying or packing matches; manufacturing, packing, or storing powder, dynamite, nitroglycerine compounds, fuses or other explosives; manufacturing of goods for immoral purposes; oiling, wiping, or cleaning machinery while in motion, or assisting therein. Prohibited from operating the following: passenger or freight elevators; automobile, motor cars, or trucks; laundering machinery, dough brakes or cracker machinery of any kind; belted sewing machines in any workshop or factory (or assisting therein in any capacity whatever); adjusting any belt to any machinery; circular saws (or assisting in operating) wood jointers, wood shapers, planes, sandpaper, or wood polishing machinery; picker machines, wool, cotton, or hair picking machines; paperlacing machines, burnishing machines in any tannery or leather manufactory; job or cylinder printing presses operated other than foot power; emery or polishing wheels for polishing metal; wood turning or boring machinery; steam boilers, steam machinery or other steam generating apparatus; power punches or shears; washing, or grinding or mixing mills.

6. Social Security

If a student does not have a social security card, he should check at the nearest Social Security Office and apply for one.

Application blanks may also be picked up at the local post office. Nearly all occupations are now covered by social security and if the student earns more than $50 in a quarter of a year, he will have social security deducted from his wages.

7. Withholding Tax

The employer will withhold a certain portion of the student's wages from his pay for Federal Income Tax purposes. If the earnings during a calendar year do not exceed $600, the student may file for a refund. This is not to say that the student may not file a tax return if he makes over $600, but only indicates that each student is presently given a $600 deduction regardless of whether his parents claim him for tax purposes.

8. Workmen's Compensation

Workmen's compensation for business is a madatory program in most states. Students are covered by this insurance as long as they are compensated employees. State Insurance covers all age groups whereas some private insurance rates vary according to the age groups to be covered. Since employers are given the choice of buying state or private insurance, it would be best if each teacher would check to see if each employer's insurance covers the age bracket in which the student falls.

9. Unemployment Insurance

Check with your State Unemployment Security Commission about unemployment insurance. In New Mexico, students are considered part-time employees and are not eligible for unemployment.

10. Labor Unions

Before any student is placed in a training center, it should

be determined to what extent, if any, the labor unions representing employees are involved. This information can be secured from the employer, employees or labor union representatives. As each occupational experience center is an individual establishment and the work may vary, each student's case must be handled individually. It is the responsibility of the teacher to see that this determination is made.

Developing Educational Plans

In order that the occupational experience program can meet the goals set forth, planning will need to be a cooperative activity between the teacher, and the employer. There needs to be a definite understanding between the teacher and the employer as to which learning experiences will be supervised by each one, and the responsibility of the student himself in developing certain competencies.

It is to be assumed that the student will have a general background in the subject matter of the vocational area. How much specialized information or level of skill the employer is entitled to expect of the student at the time he enters his employment, will depend to a great extent upon the specific job.

For example, in the area of Office Occupations Experience, a secretarial student would be equipped with a salable skill of shorthand and typewriting. In the same Office Occupations Experience Program, a student placed in an office-clerical position, would possess no shorthand skill, but would have only a salable skill in typewriting. From the same Office Occupations Experience Program, a student with no IBM Machines experience, might be placed in an office that is willing to take the student with no previous acquaintanceship with IBM machines and develop right on the job a salable skill on machine operation.

It is to be assumed, however, that there are competencies needed to be successful in any line of work. These are to be developed to the greatest extent possible by the student, motivated by the teacher and the home, in order that the student will be better equipped to take his position as an employee and can benefit to the maximum extent from his experience.

The community survey could serve as a guide in preparing a list of specific competencies needed for a particular job, but the following might be a good starting list of general competencies needed.

General Competencies Needed for Success in any Occupation

1. Health habits
   a. Cleanliness about person and clothing
   b. Adequate sleep as it reflects in alertness and disposition
2. Responsibility
   a. On time
   b. Accepts and carries out duties
   c. Honest
   d. Accurate and careful
   e. Care of and concern for materials, equipment, and safety factors
3. Adaptability
   a. To other people
   b. To changing situations
   c. Or application of knowledge in the work situation
4. Appreciation of or attitude toward
   a. Himself
   b. His teacher
   c. His fellow students
   d. His employer
   e. Work to be done
   f. Life in general
   g. Plans for the future
   h. Desire for Improvement

5. Ability to

   a. Follow instructions

   b. Use time effectively

   c. Exercise initiative and judgment

   d. Look ahead; anticipate problems as well as opportunities

Specific Plans for Occupational Experience Program

A coordinated plan for the classroom instruction and on-the-job experience is a must. Therefore, it should be made jointly by the teacher and the employer.

The employer should prepare a list of the duties or the steps in the progressive learning situation on the job and the teacher would have a plan of study in the classroom to prepare the student to meet the demands of the work experience. This means the classroom instruction would be a step ahead of the occupational experience; however, in the event the student encounters a situation in which a skill or concept has not been taught, the teacher would make prevision for this need in the plans.

The following form might be used for such planning.

CLASSROOM INSTRUCTION	ON-THE-JOB EXPERIENCE
July 1	July 1
July 2	July 2

The student would keep a record of the various experiences or duties performed each day and a periodic check-up would indicate whether

or not the plan is being followed and point up needs for revisions in plans or in teaching procedures of either the teacher and/or employer.

See Appendix 3 for Placement Agreement.

TEACHING, SUPERVISING AND COORDINATING

OCCUPATIONAL EXPERIENCE PROGRAMS

Committee III

Joyce Coffey

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Teaching, Supervising and Coordinating Occupational Experience Programs

Occupational experience is essential if a student is to become proficient in the skills necessary to become successfully employed. Along with experience on the job, the student needs classroom work related to the occupational experiences. The occupational experience program requires proper cooperation and communications between the school, teacher, occupational experience center, student and parents.

OBJECTIVES:

1. To develop an understanding of and appreciation for occupations being considered for employment.
2. To determine qualifications needed for the available job opportunities.
3. To provide experience to each student for the purpose of determining his strengths and limitations to aid him in making occupational choices.
4. To develop skills and abilities required for students to assume duties and progress on the job.
5. To integrate the subject matter being taught with the needs of each student at the occupational experience center.
6. To provide proper supervision of the student by the teacher and employer at the occupational experience center.

Teaching Occupational Experience Programs

Several plans may be used in teaching occupational experience programs. Consideration should be given to the available training centers, the number of students that can be placed in each training center, the number of closely related training centers, the facilities

of the school, and the competencies of the teacher. A survey may be conducted to determine local conditions and possibilities and serve as an aid in selecting the best plan for the community.

No attempt has been made to set up time schedules or requirements because of the wide range of occupations available for training, the differences in the length of periods at schools, and the differences in school requirements.

One of the following plans may be employed. Variations of these plans could be adapted to fit local situations.

Plan A. (For multi-occupational experience programs)

Plan A is probably the most difficult occupational experience program to properly instruct, supervise and coordinate. More information on Plan A is included in this study because of its difficulty.

Instruction may be of two types: A core of general related instruction which will be presented to all students regardless of the occupation in which they are working, and technical instruction related to each specific job area in which the different students will be working. There may be specific technical information common to two or more job areas that could be taught as a unit by the teacher. If this is feasible it may be employed.

General related subject matter

1. The occupational opportunities available in the area, state, and nation with respect to persons employed, trends, etc.
2. The effect of education on lifetime earnings.
3. Steps in selecting a career.
4. Developing career briefs.
5. Desirable characteristics for a job.

6. What the employer expects from you.
7. Writing letters of application.
8. The personal interview.
9. How to succeed on the job.
10. The importance of continuous education.
11. The apprenticeship program--labor organizations.
12. Laws affecting workers.
13. Insurance programs (Social Security, Workmen's Compensation, Life Insurance programs.)
14. Your responsibilities as a citizen of the community.
15. Safety.
16. Work habits and attitudes.
17. Cleanliness and grooming.
18. Problem solving ability.
19. Job initiative.
20. Loyalty.

Specific technical subject matter has to do with the information and knowledge needed for competency in a skilled occupation. Since each student will be covering different material involving different occupations, group teaching techniques may be more difficult to employ. Individualized instruction must be used more frequently so that the needs of each student can be met. Most of this will be done through individualized study.

The material which a student studies during the specific related instructional period will be determined from the education plan and should be correlated with the occupational experience in which the student is engaged.

A student study guide should be developed for each phase of the occupational experience program. In some cases these have been developed by other states and are available for a nominal fee.

The student study guide should contain key questions, problems and other assignments to enable the student to become familiar with the information which the occupational experience plan lists as being pertinent to the occupational experience. The study guide should also list the references and, in some cases, present basic information so that the student may comprehend the material by working on an individual study basis. A sample student guide is included. A source of information on student study guide can be obtained from Industrial Education Department, University of Texas, Austin, Texas. The title is "Student Study Guide for use in Cooperative Training Programs."

Plan B. (For single-occupational experience programs)

Plan B should be the most effective plan because it allows the use of common instructional materials, is more concentrated and lends itself to more teacher control because group teaching is used. It should allow the teacher to use his abilities and training more effectively in the area for which he is most qualified.

This plan requires the teaching of a core of general related material and technical information as did Plan A. However, the technical information will be the same for each student because Plan B will consist of students studying for a single occupation. (Example: ornamental horticulture) This eliminates the necessity of individual study as the primary means of instruction and allows the teacher to use group instruction methods. Attempts may be made to correlate the instruction with the work activities at the occupational experience center, but it

STUDENT STUDY GUIDE

Assignment Sheet

JOB TITLE

1. Job description, history and other general information.

2. Student assignment.

   a. Assign references to read.

   b. Drawings or other special assignments.

3. List of references.

4. Problems to be solved: (Questions)

   a. Questions are in the form of an objective type test.

is not considered as a must. A student might receive instruction for one or two years prior to being placed in an occupational experience center.

This plan could use a laboratory when the development of skills prior to job placement are either necessary or desirable. The use of a school laboratory might also aid the student in developing proficiencies needed to progress on the job that would not be possible under classroom situations.

Plan C. (For multi-occupational experience programs with laboratory facilities.)

Careful consideration should be given to the selection of job areas in Plan C. The use of laboratories requires that the job areas be closely related. The teacher must be proficient in teaching laboratory skills. In most cases he would not be effective outside his educational field. Team teaching of laboratory instruction might be given consideration.

This plan may be used when extensive laboratory facilities can be made available for several job areas. In some instances a single laboratory might fit the needs of several job areas. In other instances several different laboratories may be needed. For example, a single "office machines" laboratory may fit the needs for a business occupations experience program. A multi-experience program in agriculture might require a greenhouse, farm mechanics, and animal science laboratories.

Coordinating Classroom Instruction With the Occupational Experience

To be effective, occupational experience programs must provide "learn by doing" experiences. The occupational experience must bridge the gap between classroom theory and actual practice. The classroom

work should aid in developing skills and abilities needed in the student's occupational experience program. Effective coordination of all phases of the occupational experience program must be maintained to insure that the training being received by the student is developing necessary skills and abilities and is fitting him for future employment.

The following are suggestions that will help in coordinating the classroom instruction with the occupational experience.

1. Use community, area, or state occupational surveys to determine job opportunities and skills necessary for these jobs. In some cases the teacher may have to make his own survey or interpret existing surveys in terms of his needs.

2. Organize an advisory council.

3. Prepare common instructional material needed by all students.

4. Have graduates of the occupational experience program evaluate the classroom instruction.

5. Confer with employer on shortcomings of student.

6. Check progress reports of student and compare them with their occupational experience schedules. Make adjustments in classroom instruction if necessary.

7. Confer with school administration concerning needs of instructional equipment to better fit classroom instruction to the needs of the students.

8. Develop study outlines or units for each occupational experience area.

Supervision of Student at the Occupational Experience Center

It is important that there be a clear understanding of the responsibilities of the student, parents, the school, and the employer. Close working relationships between the school and the business establishments result in improved community understanding of the entire school program and greater cooperation in all school activities.

Both students and teacher are able to bring to the school a fresh outlook and a keener realization of how the school can be of greater practical service to both individual students and the entire community.

Supervision by the employer

1. Assist in the development of the occupational experience plan.

2. Provide instruction at the training center.

Supervision by the occupational experience teacher

1. Work closely with the employer and/or the person directly responsible for training the student.

2. Make periodic visits to the training center to check with the employer.

3. Observe the student in training.

4. Develop course content for in-school instruction.

5. Cooperate with the employer in establishing work processes and schedules for the occupational experience.

6. Secure occupational experience positions for students enrolled in the course.

7. Recommend to employers the students with the skills, abilities, and interests necessary for each job.

8. Be responsible for a continuous follow-up to make certain that both student and employer are satisfied with the occupational experience plan and benefiting from the arrangement.

A workable program of cooperative part-time training is impossible unless the teacher can arrange to visit and observe those enrolled in the program. Through these visits the teacher will be able to create a friendly and sympathetic attitude between school and business and at the same time broaden his own knowledge. They are valuable in correlating related classroom instruction with the occupational experience; in making comparisons between actual work accomplished with the occupational experience plan content; and in evaluating the student's progress on the job.

It is necessary for the teacher to know in what ways a student does well on the job and in what ways he is weak. The teacher who supervises the work of employed students serves in a dual capacity. In addition to his responsibilities for the instruction and guidance of the students, he performs an extremely important public relations function.

Following is a list of information to gather when a coordinator makes a supervisory visit.

1. Is the employer satisfied with the student?
2. What is the student's attitude toward his job, employer, fellow workers?
3. Is the student progressing according to the occupational experience plan?
4. What instruction is being given on the job?
5. Is the student satisfied with his occupational experience?
6. What related instruction is in need of urgent attention?

EVALUATION OF THE OCCUPATIONAL EXPERIENCE PROGRAM

Committee IV

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Quemado, New Mexico

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Evaluation of the Occupational Experience Program

Evaluation defined:

"Evaluation is the process of determining how well people are accomplishing what they set out to do."[1] The evaluation of occupational programs is concerned with collecting and analyzing evidences of progress towards goals or objectives accepted as being important by the persons who conduct these activities.

Evaluation becomes a valuable tool for measuring progress towards goals and for determining the weaknesses as well as the strengths in the process of attempting to reach these goals. To be worth while evaluation must be continuous. It has to be part of the teaching process. It is not just something that is done at the end of a course or program.

Evaluation is a tool; it is not an end in itself. It is the means by which programs and methods can be made more effective. If an evaluation is to be effective, those workers must incorporate the findings into their program.[2]

Evaluation of the Occupational Experience Program by the Teacher, the Student and the Employer

The teacher, the student and the employer must each contribute his fair share in the evaluation process. The success of the program will be determined by how well the following objectives have been met:

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[1]George P. Deyoe, Farming Programs in Vocational Agriculture (Illinois: The Interstate Publishing Company, 1953) p. 152

[2]Adopted from Evaluation in Extension, Division of Extension Research and Training, Federal Extension Service. H. M. Ives and Sons, Inc. Topeka, Kansas. 1959

Objectives

1. To develop an understanding of and appreciation for occupations being considered for employment.

2. To determine qualifications needed for these available job opportunities.

3. To provide experience to each student for the purpose of determining his strengths and limitations to aid him in making occupational choices.

4. To develop skills and abilities required for students to assume duties and progress on the job.

5. To integrate the subject matter being taught with the needs of each student at the occupational experience center.

6. To provide proper supervision of students by teacher and employer at the experience work center.

The following factors must be considered in accomplishing the above mentioned objectives by persons as indicated:

Teacher responsibility

1. To establish guide lines for measuring progress towards the objectives, and a program for the individual student. Guide lines should be established in cooperation with the school's guidance department.

2. To establish and maintain a cumulative record which will contain the following:
   (a) Test scores
   (b) Personality rating scales of the student as rated by the teacher and employer.
   (c) Student's medical record.
   (d) Program appraisal forms.
   (e) Summary of student's occupational experience records.

3. Place student in proper occupational work center.

4. To visit and observe the student on-the-job. The frequency of visits will depend upon need of student.

5. Check student's records to establish a systematic method of keeping them current.
   (a) Criteria for advancement in youth organization.
   (b) Performance and progress on the job.

6. To maintain a favorable environment among the persons involved in the training program.

7. Develop annual and long range programs and make the necessary modifications as the need arises.

8. Together with the employer evaluates the student's progress.
   (a) By casual on-the-job observation.
   (b) During individual conferences.
   (c) Classroom work
   (d) Employer conferences.

9. Develop and establish a method of evaluating student's progress up to five years after termination of training.

10. Develop the most adequate way of grading the student up to the termination of the course.

11. Inform the student of the method of grading for the type of course.

12. To cooperate with the counselor in determining any changes of student's concepts, ability to solve problems, interests, attitudes, increase in knowledge and shift in values.

13. Develop criteria for the evaluation of the training center.

14. To evaluate his teaching effectiveness in those areas concerned with occupational experiences.

15. Furnish the employer with a rating sheet for evaluation purposes.

<u>Student's responsibility</u>

1. Discusses his present occupational experiences during student-teacher conferences.

2. Discusses with the teacher his further needs and interests to obtain maximum benefit from the program.

3. Discusses with the teacher the possibility of making additions to the program.

4. Keeps accurate and up to date records.

5. To establish and maintain a good working attitude throughout his occupational experience.

6. To follow the rules and regulations set up by the school, the teacher and the employer.

<u>Employer's responsibility</u>

1. To work in conjunction with the teacher in making program evaluation.

2. To cooperate with the teacher in evaluating periodically the student's performance.

Follow-up

"Follow-up refers to a number of purposes and procedures by which continuous information can be gathered and analyzed to determine development, activities, and adjustment of students."[1]

Purpose of Follow-up

"Essentially, a follow-up of students can be used to revise the curriculum, to identify students in need of assistance and to improve the occupations program generally."[2] A follow-up also helps in measuring the effectiveness of the individual supervising the program, and to evaluate in terms of whether the program has provided the necessary experiences.

A follow-up study requires careful planning, careful delegating of responsibility, and means of collecting data continuously.

Follow-up for occupational experience programs should consist of

1. Gathering data about the student up to five years after the termination of his work experience program.

2. Work together with guidance services to help gather, analyze, and interpret data.

The following factors should be used in evaluating the classroom instruction[3]

1. Is the class carefully planned for in advance?

2. Does the classroom instruction include a variety of teaching methods and techniques such as conferences, lectures, films, panel discussions, student reports, and individual and group projects?

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[1]Dean C. Andrew and Roy DeVerl Willey, Administration and Organization of the Guidance Program (New York: Harper and Brothers, 1957) p. 294

[2]Ibid

[3]Work Experience Education, California State Department of Education, 1965 Edition.

3. In the planning of instruction, is full advantage taken of community resources by such activities as field trips to local firms and appearances of community leaders before the class?

4. Are the students' individual problems given attention?

5. Is information presented concerning the basic skills and attitudes that are common to all employment?

6. Does the instructor use suitable instructional materials in the classroom?

7. Are reports made by the employer and teacher used as a basis for classroom instruction and conferences?

8. Are students given an opportunity to participate in the evaluation of classroom instruction?

The following factors should be used in evaluating the occupational experience centers

1. Are employers carefully briefed concerning the purposes of the work experience education program and of the work centers?

2. Are work centers selected on the basis that facilities provide adequate work experience?

3. Do the work centers provide opportunities for well-organized, varied learning situations?

Suggestions for Evaluating the Courses

1. The number or percentage of students who were placed in the occupations for which they were trained.

2. The degree of success of the employee on the job as reported by the employer.

3. The acceptance of the course by present and prospective employers of students.

4. Employer evaluation of the quality of work performed by employees who have completed the course.

5. Number of students who are enrolled in post high school programs following graduation.

6. Upon completion of the course, what is the reaction of student toward the value of the program?

7. The number of students who for six months continued to work for their first employer following graduation.

8. Number of former students who are employed in the area for which they were trained a year or more after completion of the course.

9. Reason given by students who: (a) dropped out of the course (b) who terminated their employment.

10. Number of former students who have advanced to a higher level of employment.

11. Reaction of parents of student toward the course of instruction.

12. Reaction of school administrators toward the effectiveness of the course.

13. Acceptance of the course by the advisory committee.

14. Enrollment trends in the course.

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APPENDIX

APPENDIX I

Date of Interview _____

EMPLOYMENT OPPORTUNITIES AND NEEDED COMPETENCIES
IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

I. Business of Service

A. Name of business or service _____

Address _____

B. Person interviewed _____

Position _____ Telephone _____

C. Year this business or service was established in this locality

_____

D. Major products and/or functions of this business or service

_____

_____

II. Employees in this Business or Service -- Total Number _____

For employees needing competencies in agriculture, complete the following:

A. Existing Job Titles	Number of Employees: Full-time	Number of Employees: Part-time
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____
7. _____	_____	_____
8. _____	_____	_____
B. Anticipated Job Titles		
1. _____	_____	_____
2. _____	_____	_____

III. Competencies Associated with this Job Title

A. Agricultural competencies

	Check degree of competency needed					
	To enter this job as a beginning employee			To advance in this job title or to a related position		
	None	Some	High	None	Some	High
1. Plant Science						
Plant propagation, seed production						
Plant growth, fertilization						
Control of insects, diseases, weeds						
Soils, types and conservation						
Performing production practices						
2. Animal Science						
Animal breeding, selection						
Animal growth, feeding						
Health and sanitation						
Housing and equipment						
Performing production practices						
3. Agricultural Business Management and Marketing (farming and agri-business)						
Budgeting, records and analysis						
Farm financing (credit, taxes, etc.)						
Labor management						
Marketing practices						
Agricultural Policy						
4. Agricultural Mechanics and Automation						
Farm power and machinery						
Farm buildings and conveniences						
Rural electrification and processing						
Soil structures (ditches, ponds, etc.)						
Farm construction and maintenance						

List other agricultural competencies that are needed for this job title.

_____

_____

_____

III. Competencies Associated with this Job Title

B. Business and distributive competencies

	Check degree of competency needed					
	To enter this job as a beginning employee			To advance in this job title or to a related position		
	None	Some	High	None	Some	High
1. Occupational Information and Regulations						
Job opportunities and trends						
Job applications, interviews						
Personal qualifications, preferences						
Worker welfare (insurance, retirement,etc.)						
Legal requirements of the job						
2. Duties of Employees						
Receiving, marking, shipping						
Window and store display						
Salesmanship and customer relations						
Business mathematics						
Bookkeeping, office machines						
3. Business Organization and Supervision						
Employee relations with supervisor						
Employee relations with fellow workers						
Buying and merchandising						
Inventory, stock control, warehousing						
Internal business organizations						
4. Management and Economics of Business						
Capital management, financing						
Accounting, taxes						
Trade relationships, promotion, advertising						
Government regulations (ICC, PUC, FICA)						
Buying and merchandising						

List other business and distributive competencies that are needed for this job title.

_____

_____

_____

III. Competencies Associated with this Job Title

C. Trade and industrial competencies

	Check degree of competency needed					
	To enter this job as a beginning employee			To advance in this job title or to a related position		
	None	Some	High	None	Some	High
1. Construction Trades						
Building maintenance						
Masonry						
Carpentry and cabinetmaking						
Sheet metal, tinsmith, coppersmith						
Painting and finishing						
Plumbing						
Heating, ventilation, refrigeration, and air conditioning						
2. Metal Trades						
Engines, repair and maintenance						
Machinist						
Welding						
3. Technicians						
Drafting (design, building, elevations)						
Hydraulics and pneumatics						
Industrial chemistry						
Quality control						
4. Related Subjects						
Blueprint reading						
Technical and service manuals, handbooks, etc.						

List other trade and industrial competencies that are needed for this job title.

_____

_____

_____

IV. Characteristics Desired in Those Who Enter This Job Title

A. Educational level (check one only)

___ 1. Less than high school graduation

___ 2. High school graduation

___ 3. Post high school technical education

___ 4. Some college education (not a degree)

___ 5. Associate or junior college degree

___ 6. Baccalaureate degree

B. Residential and experience background (check one only)

___ 1. Farm

___ 2. Rural, non-farm

___ 3. Urban

___ 4. No preference

C. Experience desired to enter this job title _____

V. Limitations on Entering This Job Title

A. Licensing or certification (professional, industrial, Civil Service, etc.)

B. Labor law restrictions

C. Labor union restrictions

D. Other (specify)

VI. Education Desired to Advance in This Job Title or to a Related Position

A. Technical short course or other training employer provides: (Specify)

_____

_____

B. Other types of education desired:

_____

_____

APPENDIX II

Picture of Student

STUDENT INFORMATION SHEET FOR VOCATIONAL OCCUPATIONS COURSES

NAME _____ Parent or Guardian's Name _____

Address _____ Phone No. _____

Age _____ Sex ____ Birth Date _____ Height _____ Weight ____ Social Security No. _____

Parent's Occupation: Father _____ Mother _____

Grade in School _____ Type of Curriculum you are in: College Prep___ Vocational ___ General ___

List the clubs or organizations to which you belong. Indicate any offices you have held.

_____

_____

What do you consider your "strong" points: (Why you would want to hire you.)

_____

_____

What do you consider your "weaker" points: (Why you might not want to hire you.)

_____

_____

In what occupations do you prefer to receive training? 1st Choice _____

2nd Choice _____ Would Consider _____

Will you be available for work after school? _____ on Saturdays? _____ School Holidays? _____

Will you have transportation to work if it is needed? _____ Do you wear glasses? _____

Do you have any physical handicaps that would limit your work? _____ If yes, explain.

_____

List the name of your employer on previous jobs you have held, the length of the time spent on that job, what the job was, and your reason for leaving that job.

NAME OF EMPLOYER	JOB	TIME THERE	REASON FOR LEAVING

HAVE YOUR PARENT COMPLETE THE NEXT LINE:

_____ has my permission to participate in the occupational experience program, and I shall cooperate with the teacher and employer to make this a most worthwhile program for my _____ (son or daughter).

(Signature) _____

(To be completed by teacher)DO NOT WRITE BELOW THIS LINE(To be completed by teacher)

High School Credits earned, grade in each, to date: Use Blank Lines for Other Subjects

English _____	History _____	Biology _____	Typing _____
Algebra _____	Economics _____	Physics _____	Shorthand _____
Geometry _____	Psychology _____	Chemistry _____	Bookkeeping _____
	Sociology _____		Bus. Law _____

_____

_____

Subjects needed to graduate: _____

_____

I.Q. Test Scores: _____

Other Test Scores of Interpretations: _____

APPENDIX III

PLACEMENT AGREEMENT
for
SUPERVISED OCCUPATIONAL EXPERIENCE

If the student is to benefit to the fullest extent from the occupational experience program, it is necessary to have the cooperation of the student, the parents, the teacher and the employer. This cooperation can best be attained if all the people participating in the program have a definite understanding of their responsibilities to the program as well as an understanding of the responsibilities of each of the other people involved in the program.

IT IS UNDERSTOOD THAT THE TEACHER AGREES TO:

___ 1. Assume responsibility for the planning and implementing of the program.

___ 2. Assist the employer in the occupational experience program planning.

___ 3. Assist the employer in ghe selection of students for employees.

___ 4. Visit the student on the job at regular intervals for the purpose of coordinating class instruction and the actual occupational experience.

___ 5. Evaluate the progress of the student in terms of the objectives outlined in the planned program.

IT IS UNDERSTOOD THAT THE EMPLOYER WILL:

___ 1. Provide the student with opportunities to learn how to do a job well.

___ 2. Provide a progressive learning situation for the student.

___ 3. Teach the student the most effective ways of doing the work, and at the same time, develop work habits and attitudes that will enable the student to adapt to changing situations.

IT IS UNDERSTOOD THAT THE STUDENT WILL:

___ 1. Recognize that the employer must profit from his labor in order to justify hiring him.

___ 2. Behave in a business-like manner on the job; punctual, dependable, loyal and well groomed.

___ 3. Follow instructions, avoiding unsafe acts and staying alert at all times.

___ 4. Be courteous and considerate at all times.

___ 5. Keep accurate records of occupational experiences as designated.

IT IS UNDERSTOOD THAT THE PARENTS WILL:

___ 1. Cooperate with the teacher, employer, and the student in their efforts to make the occupational work experience program most profitable to the student by:

___ stressing the opportunities provided by such a program, that cannot be found elsewhere.

___ encouraging the student to develop and cultivate desirable personal habits of cleanliness about the person and clothing.

___ encouraging the student to develop good work habits and attitudes toward the world of work and life in general.

ALL PARTIES AGREE TO:

An initial trial period of _____ working days to begin on _____ 19 __, to allow the student to adjust and prove himself at _____ Occupational Experience Center and will continue to work until _____ 19 __, unless the arrangement becomes unsatisfactory to either the student or employer or both.

The usual working hours will be as follows:

While attending school_____

When not in school_____

Provision for overtime_____

Provisions for time off_____

Wages will be at the following rate(s):

Trial period_____

Remainder of the agreement period _____

And will be paid (when) _____

STUDENT _____ EMPLOYER _____

Address _____ Address _____

Telephone No. _____ Telephone _____

Social Security No. _____

PARENT _____ TEACHER _____

Address _____ Address _____

Telephone No. _____ Telephone No. _____

School Telephone No. _____

VT 000 269

VT 000 269

Job Title Profiles in Off-Farm Agricultural Occupations.

Oklahoma Vocat. Research Coordinating Unit, Stillwater

66

DOCUMENT NOT AVAILABLE FROM EDRS 73p.

*INDIVIDUAL CHARACTERISTICS, *AGRICULTURAL SKILLS, *VOCATIONAL AGRICULTURE, HUMAN RELATIONS, SALESMANSHIP, BUSINESS SKILLS, PLANT SCIENCE, ANIMAL SCIENCE, AGRICULTURAL MECHANICS, LIVESTOCK PROCESSING OCCUPATIONS, DAIRY PROCESSING OCCUPATIONS, CROP PROCESSING OCCUPATIONS, AGRICULTURAL SUPPLY OCCUPATIONS, POULTRY PROCESSING OCCUPATIONS, ORNAMENTAL HORTICULTURE OCCUPATIONS, AGRICULTURAL MACHINERY OCCUPATIONS, *EMPLOYMENT OPPORTUNITIES,

*EDUCATIONAL NEEDS,

An analysis of data from 2,000 job title interviews in over 700 agricultural businesses in Oklahoma resulted in the identification of 100 job titles requiring competencies in agriculture. The competencies were grouped into nine categories -- (1) human relations, (2) employee traits, (3) salesmanship, (4) business management, (5) agricultural business management, (6) plant and soil science, (7) animal science, (8) agricultural machinery and power, and (9) building construction technology. Current and anticipated employment opportunities, worker characteristics, and needed competencies were determined for the 33 job titles offering the greatest employment opportunity and are included in the report. The job titles are in agricultural machinery, livestock processing, dairy processing, crop processing, agricultural supply, ornamental horticulture, agricultural machinery, and poultry processing occupations. (JM)

ED015348

JOB TITLE PROFILES IN OFF-FARM AGRICULTURAL OCCUPATIONS

JUN 9 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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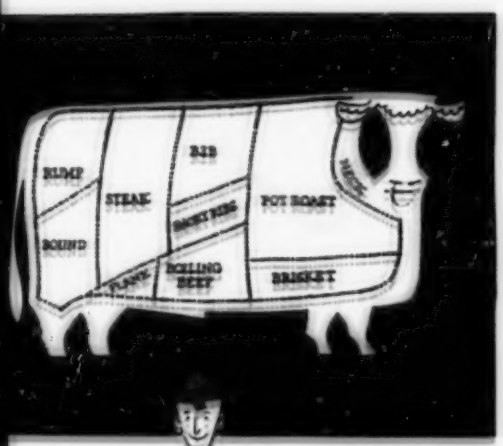

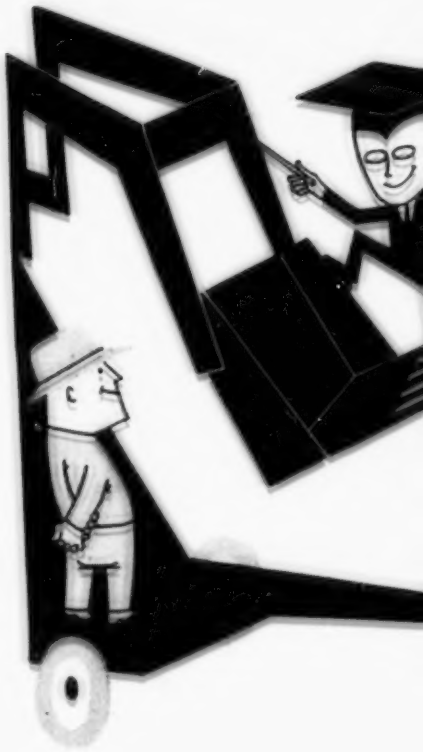

VT000 269

Vocational Research Coordinating Unit

Stillwater, Oklahoma

1966

JOB TITLE PROFILES
IN
OFF-FARM AGRICULTURAL OCCUPATIONS

INTRODUCTION

This report is an analysis of data from two thousand job title interviews in over seven hundred off-farm agricultural businesses in Oklahoma. These interviews identified one hundred job titles indicating positions which require competencies (skills, knowledge, or understanding) in agriculture. Managers of the businesses studied indicated from a list of sixty competencies the degree of competency level (3-High, 2-Some, 1-None) needed in the various job titles in their businesses.

The sixty competencies have been grouped into nine categories as illustrated on the following two pages and the level needed in each category has been calculated for each of the leading job titles. There are many other job titles but this report deals only with those found to offer the greatest employment opportunities for agriculturally trained people in the next few years.

Information on the thirty-three job titles in this report covers the employers' estimate of current and anticipated employment; worker characteristics such as salary, education, minimum age, and residential background preferred; and competencies needed to be successful. This information should be useful in determining course offerings and in planning curriculum. The degree of competency needed in each of the competency groups should determine the amount of instruction given in that subject for a particular job title within a type of business. Use of these tables in curriculum construction should result in a training program specifically designed to develop the level of competency in the employee which the employers have indicated is necessary.

It is hoped that vocational agriculture instructors will make this information available to guidance and counseling personnel within their respective schools in order that students may become more familiar with opportinities in the field of agricultural business.

William Stevenson
Vocational Research Coordinating Unit
Oklahoma State University
Stillwater, Oklahoma

COMPETENCY GROUPS

Human Relations

Employee-supervisor relations
Employee relations with fellow employees
Customer relations

Employee Traits

Inventory, stock control, warehousing
Worker welfare (insurance, retirement, etc.)
Job opportunities and trends
Job applications, interviews
Buying and merchandising
Receiving, marking, shipping
Internal business organizations
Capital management, financing
Accounting, taxes
Experience in management decisions and problem solving
Supervision

Salesmanship

Salesmanship
Customer relations
Public speaking
Window and store display
Mathematics
Bookkeeping, business mathematics
Buying and merchandising

Business Management

Legal relations in business management
Government regulations (ICC, FICA, etc.)
Writing
Agricultural policy
Legal requirements of the job
Surveying
Trade relationships, promotion, advertising
Experience in management decisions and problem solving
Time study
Public speaking
Accounting, taxes

Agricultural Business Management

Agricultural budgeting, records, and analysis
Farm financing (credit, taxes, etc.)
Accounting, taxes
Bookkeeping, business mathematics
Capital management, financing
Agricultural labor management

Plant and Soil Science

Physical characteristics of soil
Chemical characteristics of soil
Additional plant production practices
Plant growth, fertilization
Soil conservation
Plant propagation, seed production
Controlling insects, diseases, weeds

Animal Science

Animal growth, feeding
Animal breeding, selection
Animal housing and equipment
Animal health and sanitation
Agricultural marketing practices

Agricultural Machinery and Power

Safety skills
Sheet metal skills
Farm power and machinery
Welding skills
Manuals, technical and service, use of
Engines, repair and maintenance

Building Construction Technology

Carpentry and cabinet working
Plumbing
Blueprint reading
Heating and ventilation
Electricity
Masonry
Drafting and design
Farm buildings and conveniences
Farm construction and maintenance
Sheet metal skills
Rural electrification and processing
Soil structures (ditches, ponds, etc.)
Agricultural labor management
Tool and die making
Trade relationships
Electronics
Industrial chemistry

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JOB TITLE PROFILE

Meat Processing - Manager

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
265	285	30

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$400	$192-833	$525	$300-1000

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	45%	9%	30%	16%

Minimum Age to Enter

Median	Range
27 Yrs.	18-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
61%	1%	38%

JOB TITLE PROFILE

Meat Processing - Manager

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	2.54
3. Salesmanship	2.50
4. Business Management	2.27
5. Agricultural Business Management	1.66
6. Plant and Soil Science	1.0
7. Animal Science	2.80
8. Agricultural Machinery and Power	1.33**
9. Building Construction Technology	1.11***

*1-None, 2-Some, 3-High
**Safety=3.0, others=1.0
***Trade relationships=3.0, others=1.0

JOB TITLE PROFILE

Meat Processing - Salesman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
120	172	83

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$400	$125-500	$500	$200-833

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	50%		50%	

Minimum Age to Enter

Median	Range
21 Yrs.	18-27 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
67%	5%	28%

JOB TITLE PROFILE

Meat Processing - Salesman

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.45
3. Salesmanship	2.33
4. Business Management	2.0
5. Agricultural Business Management	1.16
6. Plant and Soil Science	1.0
7. Animal Science	2.20
8. Agricultural Machinery and Power	1.16
9. Building Construction Technology	1.11**

*1-None, 2-Some, 3-High
**Trade relationships=3.0, others=1.0

JOB TITLE PROFILE

Meat Processing - Buyer

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
130	140	38

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$417	$300-700	$600	$400-1250

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	39%		44%	17%

Minimum Age to Enter

Median	Range
25 Yrs.	18-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
87%		13%

JOB TITLE PROFILE

Meat Processing - Buyer

Competency Group	Rating*
1. Human Relations	1.66
2. Employee Traits	1.82
3. Salesmanship	2.50
4. Business Management	2.18
5. Agricultural Business Management	1.33
6. Plant and Soil Science	1.0
7. Animal Science	2.80
8. Agricultural Machinery and Power	1.16
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Meat Processing - Butcher

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
327	491	244

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$300	$160-400	$340	$200-600

Education Required

Less than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
12%	83%	5%		

Minimum Age to Enter

Median	Range
20 Yrs.	16-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
71%	2%	27%

JOB TITLE PROFILE

Meat Processing - Butcher

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.45
3. Salesmanship	2.0
4. Business Management	1.45
5. Agricultural Business Management	1.17
6. Plant and Soil Science	1.0
7. Animal Science	2.0
8. Agricultural Machinery and Power	1.33**
9. Building Construction Technology	1.0

*1-None, 2-Some, 3-High
**Safety=3.0, others=1.0

JOB TITLE PROFILE

Meat Processing - Butcher's Helper

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
104	149	80

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$200	$160-300	$240	$200-340

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
33%	67%			

Minimum Age to Enter

Median	Range
20 Yrs.	16-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
58%	4%	38%

JOB TITLE PROFILE

Meat Processing - Butcher's Helper

Competency Group	Rating*
1. Human Relations	1.66
2. Employee Traits	1.09
3. Salesmanship	1.33
4. Business Management	1.18
5. Agricultural Business Management	1.0
6. Plant and Soil Science	1.0
7. Animal Science	1.40
8. Agricultural Machinery and Power	1.33**
9. Building Construction Technology	1.0

*1-None, 2-Some, 3-High
**Safety=3.0, others=1.0

JOB TITLE PROFILE

Dairy - Manager

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
43	58	30

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$500	$280-833	$750	$320-1666

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
		9%	46%	45%

Minimum Age to Enter

Median	Range
30 Yrs.	22-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
50%	8%	42%

JOB TITLE PROFILE

Dairy - Manager

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	2.27
3. Salesmanship	2.50
4. Business Management	2.36
5. Agricultural Business Management	1.50
6. Plant and Soil Science	1.0
7. Animal Science	2.0
8. Agricultural Machinery and Power	1.16
9. Building Construction Technology	1.12**

*1-None, 2-Some, 3-High
**Trade relationships=3.0, others=1.0

JOB TITLE PROFILE

Dairy - Salesman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
87	121	51

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$300	$160-375	$460	$260-600

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	80%	20%		

Minimum Age to Enter

Median	Range
23 Yrs.	18-25 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
40%		60%

JOB TITLE PROFILE

Dairy - Salesman

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.54
3. Salesmanship	2.16
4. Business Management	2.0
5. Agricultural Business Management	1.16
6. Plant and Soil Science	1.0
7. Animal Science	2.0
8. Agricultural Machinery and Power	1.50
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Dairy - Processman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
138	201	136

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$316	$275-450	$375	$358-550

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	91%		9%	

Minimum Age to Enter

Median	Range
20 Yrs.	19-25 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
91%		9%

JOB TITLE PROFILE

Dairy - Processman

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.36
3. Salesmanship	1.33
4. Business Management	1.72
5. Agricultural Business Management	1.0
6. Plant and Soil Science	1.0
7. Animal Science	1.6
8. Agricultural Machinery and Power	1.83
9. Building Construction Technology	1.23

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Cotton Gin - Manager

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
135	142	24

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$400	$125-583	$500	$212-833

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	56%	10%	27%	7%

Minimum Age to Enter

Median	Range
26 Yrs.	19-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
90%	5%	5%

JOB TITLE PROFILE

Cotton Gins - Manager

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	2.09
3. Salesmanship	2.16
4. Business Management	1.91
5. Agricultural Business Management	2.0
6. Plant and Soil Science	2.28
7. Animal Science	1.40**
8. Agricultural Machinery and Power	1.83
9. Building Construction Technology	1.11

*1-None, 2-Some, 3-High
**Agri. Marketing Practices=3.0, others=1.0

JOB TITLE PROFILE

Cotton Gins - Ginner

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
116	135	64

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$300	$200-417	$383	$240-600

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
5%	82%	10%	3%	

Minimum Age to Enter

Median	Range
25 Yrs.	18-40 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
89%	3%	8%

JOB TITLE PROFILE

Cotton Gins - Ginner

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.45
3. Salesmanship	1.50
4. Business Management	1.45
5. Agricultural Business Management	1.16
6. Plant and Soil Science	1.42
7. Animal Science	1.20
8. Agricultural Machinery and Power	2.16
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Grain Elevator - Manager

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
104	117	31

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$425	$288-833	$600	$300-1000

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	17%	14%	43%	26%

Minimum Age to Enter

Median	Range
25 Yrs.	20-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
86%	8%	6%

JOB TITLE PROFILE

Grain Elevator - Manager

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	2.45
3. Salesmanship	2.33
4. Business Management	2.09
5. Agricultural Business Management	2.33
6. Plant and Soil Science	2.28
7. Animal Science	1.80
8. Agricultural Machinery and Power	1.66
9. Building Construction Technology	1.17

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Grain Elevator - Superintendent

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
82	112	40

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$360	$200-500	$400	$240-850

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	64%	22%	14%	

Minimum Age to Enter

Median	Range
25 Yrs.	20-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
79%		21%

JOB TITLE PROFILE

Grain Elevator - Superintendent

Competency Group	Rating*
1. Human Relations	2.0
2. Employee Traits	2.0
3. Salesmanship	1.83
4. Business Management	1.81
5. Agricultural Business Management	1.16
6. Plant and Soil Science	2.14
7. Animal Science	1.20
8. Agricultural Machinery and Power	1.66
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Grain Elevator - Mill Worker

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
59	79	42

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$260	$180-375	$300	$240-525

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
10%	70%	20%		

Minimum Age to Enter

Median	Range
22 Yrs.	17-24 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
100%		

JOB TITLE PROFILE

Grain Elevator - Mill Worker

Competency Group	Rating*
1. Human Relations	2.66
2. Employee Traits	2.0
3. Salesmanship	2.16
4. Business Management	1.82
5. Agricultural Business Management	1.33
6. Plant and Soil Science	2.0
7. Animal Science	2.0
8. Agricultural Machinery and Power	1.83
9. Building Construction Technology	1.11

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Supplies - Manager

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
489	527	102

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$350	$200-1250	$600	$240-2500

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	35%	5%	42%	18%

Minimum Age to Enter

Median	Range
25 Yrs.	18-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
86%	6%	8%

JOB TITLE PROFILE

Agricultural Supplies - Manager

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	2.45
3. Salesmanship	2.66
4. Business Management	2.18
5. Agricultural Business Management	2.33
6. Plant and Soil Science	2.57
7. Animal Science	2.40
8. Agricultural Machinery and Power	1.50
9. Building Construction Technology	1.11

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Supplies - Fieldman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
82	127	67

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$417	$350-500	$550	$500-750

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	17%	8%	42%	33%

Minimum Age to Enter

Median	Range
22 Yrs.	19-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
100%		

JOB TITLE PROFILE

Agricultural Supplies - Fieldman

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.91
3. Salesmanship	2.16
4. Business Management	2.0
5. Agricultural Business Management	1.83
6. Plant and Soil Science	2.14
7. Animal Science	2.20
8. Agricultural Machinery and Power	1.33
9. Building Construction Technology	1.23

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Supplies - Foreman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
110	132	55

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$270	$192-500	$390	$200-833

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	72%	14%	11%	3%

Minimum Age to Enter

Median	Range
25 Yrs.	20-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
77%	14%	9%

JOB TITLE PROFILE

Agricultural Supplies - Foreman

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	2.18
3. Salesmanship	2.16
4. Business Management	2.0
5. Agricultural Business Management	2.0
6. Plant and Soil Science	2.0
7. Animal Science	2.20
8. Agricultural Machinery and Power	1.66
9. Building Construction Technology	1.11

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Supplies - Salesman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
412	589	283

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$300	$120-500	$400	$200-1000

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	65%	4%	28%	3%

Minimum Age to Enter

Median	Range
22 Yrs.	16-40 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
85%	7%	8%

JOB TITLE PROFILE

Agricultural Supplies - Salesman

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.82
3. Salesmanship	2.33
4. Business Management	1.81
5. Agricultural Business Management	1.66
6. Plant and Soil Science	2.0
7. Animal Science	2.40
8. Agricultural Machinery and Power	1.16
9. Building Construction Technology	1.06

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Supplies - Mill Worker

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
545	702	412

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$260	$160-367	$290	$200-450

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
8%	90%	2%		

Minimum Age to Enter

Median	Range
18 Yrs.	16-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
89%	6%	5%

JOB TITLE PROFILE

Agricultural Supplies - Mill Worker

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.54
3. Salesmanship	1.83
4. Business Management	1.45
5. Agricultural Business Management	1.16
6. Plant and Soil Science	1.57
7. Animal Science	1.80
8. Agricultural Machinery and Power	2.0
9. Building Construction Technology	1.0

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Ornamental Horticulture - Manager

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
362	407	71

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$400	$120-1000	$500	$200-2000

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	26%	13%	25%	36%

Minimum Age to Enter

Median	Range
25 Yrs.	20-40 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
51%	6%	43%

JOB TITLE PROFILE

Ornamental Horticulture - Manager

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	2.36
3. Salesmanship	2.50
4. Business Management	2.09
5. Agricultural Business Management	1.66
6. Plant and Soil Science	2.85
7. Animal Science	1.0
8. Agricultural Machinery and Power	1.33
9. Building Construction Technology	1.29

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Ornamental Horticulture - Foreman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
67	87	65

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$240	$200-360	$310	$200-800

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	75%	17%	8%	

Minimum Age to Enter

Median	Range
22.5 Yrs.	20-26 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
75%		25%

JOB TITLE PROFILE

Ornamental Horticulture - Foreman

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	1.91
3. Salesmanship	1.83
4. Business Management	1.45
5. Agricultural Business Management	1.33
6. Plant and Soil Science	3.0
7. Animal Science	1.0
8. Agricultural Machinery and Power	1.66
9. Building Construction Technology	1.23

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Ornamental Horticulture - Salesman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
133	174	105

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$250	$160-500	$350	$240-1233

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
11%	67%		17%	5%

Minimum Age to Enter

Median	Range
21 Yrs.	18-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
67%		33%

JOB TITLE PROFILE

Ornamental Horticulture - Salesman

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.45
3. Salesmanship	2.16
4. Business Management	1.36
5. Agricultural Business Management	1.16
6. Plant and Soil Science	2.14
7. Animal Science	1.0
8. Agricultural Machinery and Power	1.16
9. Building Construction Technology	1.0

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Ornamental Horticulture - Grower

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
274	442	294

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$340	$160-500	$500	$200-667

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	48%	16%	26%	10%

Minimum Age to Enter

Median	Range
23 Yrs.	16-45 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
50%		50%

JOB TITLE PROFILE

Ornamental Horticulture - Grower

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.63
3. Salesmanship	2.33
4. Business Management	1.91
5. Agricultural Business Management	1.16
6. Plant and Soil Science	3.0
7. Animal Science	1.0
8. Agricultural Machinery and Power	1.33
9. Building Construction Technology	1.17

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Ornamental Horticulture - Asst. Grower

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
197	299	196

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$176	$100-300	$200	$160-400

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
13%	70%	4%	13%	

Minimum Age to Enter

Median	Range
20 Yrs.	18-24 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
65%		35%

JOB TITLE PROFILE

Ornamental Horticulture - Asst. Grower

Competency Group	Rating*
1. Human Relations	2.0
2. Employee Traits	1.36
3. Salesmanship	1.83
4. Business Management	1.36
5. Agricultural Business Management	1.16
6. Plant and Soil Science	3.0
7. Animal Science	1.0
8. Agricultural Machinery and Power	1.50
9. Building Construction Technology	1.12

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Orn. Hort. - Landscape Gardener

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
199	344	674

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$200	$160-250	$240	$200-400

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
28%	67%		5%	

Minimum Age to Enter

Median	Range
17 Yrs.	16-20 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
71%		29%

JOB TITLE PROFILE

Orn. Hort. - Landscape Gardener

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.54
3. Salesmanship	1.83
4. Business Management	1.45
5. Agricultural Business Management	1.16
6. Plant and Soil Science	2.0
7. Animal Science	1.0
8. Agricultural Machinery and Power	1.50
9. Building Construction Technology	1.0

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Applicators - Fieldman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
44	68	62

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$300	$300	$400	$400

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	12%	12%	76%	

Minimum Age to Enter

Median	Range
19 Yrs.	18-21 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
75%		25%

JOB TITLE PROFILE

Applicators - Fieldman

Competency Group	Rating*
1. Human Relations	1.66
2. Employee Traits	1.18**
3. Salesmanship	2.0
4. Business Management	2.18
5. Agricultural Business Management	1.16
6. Plant and Soil Science	2.14
7. Animal Science	1.20
8. Agricultural Machinery and Power	1.50
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High
**Experience in management=3.0, others=1.0

JOB TITLE PROFILE

Applicators - Flagman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
155	195	204

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$325	$325	$400	$400

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
29%	71%			

Minimum Age to Enter

Median	Range
17 Yrs.	16-18 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
86%		14%

JOB TITLE PROFILE

Applicators - Flagman

Competency Group	Rating*
1. Human Relations	2.0
2. Employee Traits	1.18
3. Salesmanship	1.50
4. Business Management	1.63
5. Agricultural Business Management	1.0
6. Plant and Soil Science	1.71
7. Animal Science	1.20
8. Agricultural Machinery and Power	1.66
9. Building Construction Technology	1.0

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Machinery - Manager

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
397	419	49

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$408	$200-1000	$600	$300-1250

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	21%	16%	38%	25%

Minimum Age to Enter

Median	Range
28 Yrs.	20-35 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
87%	2%	11%

JOB TITLE PROFILE

Agricultural Machinery - Manager

Competency Group	Rating*
1. Human Relations	3.0
2. Employee Traits	2.45
3. Salesmanship	2.66
4. Business Management	2.18
5. Agricultural Business Management	2.50
6. Plant and Soil Science	2.0
7. Animal Science	1.20
8. Agricultural Machinery and Power	2.50
9. Building Construction Technology	1.29

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Machinery - Salesman

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
182	327	167

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$400	$200-700	$600	$200-1000

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	30%	10%	47%	13%

Minimum Age to Enter

Median	Range
25 Yrs.	18-32 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
89%	7%	4%

JOB TITLE PROFILE

Agricultural Machinery - Salesman

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	2.0
3. Salesmanship	2.33
4. Business Management	2.09
5. Agricultural Business Management	1.83
6. Plant and Soil Science	2.0
7. Animal Science	1.20
8. Agricultural Machinery and Power	1.83
9. Building Construction Technology	1.29

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Machinery - Parts Man

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
235	319	124

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$300	$160-500	$420	$280-600

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	59%	40%	1%	

Minimum Age to Enter

Median	Range
20 Yrs.	18-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
90%	2%	8%

JOB TITLE PROFILE

Agricultural Machinery - Parts Man

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	2.18
3. Salesmanship	2.50
4. Business Management	1.81
5. Agricultural Business Management	1.50
6. Plant and Soil Science	1.85
7. Animal Science	1.20
8. Agricultural Machinery and Power	2.33
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agricultural Machinery - Mechanic

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
582	895	452

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$280	$200-500	$400	$240-700

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	42%	57%	1%	

Minimum Age to Enter

Median	Range
21 Yrs.	16-30 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
77%	2%	21%

JOB TITLE PROFILE

Agricultural Machinery - Mechanic

Competency Group	Rating*
1. Human Relations	2.33
2. Employee Traits	1.36
3. Salesmanship	1.83
4. Business Management	1.27
5. Agricultural Business Management	1.16
6. Plant and Soil Science	1.42
7. Animal Science	1.0
8. Agricultural Machinery and Power	2.83
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Agri. Machinery - Mechanic's Helper

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
77	160	117

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$200	$140-300	$340	$180-500

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
7%	87%	6%		

Minimum Age to Enter

Median	Range
18 Yrs.	18-25 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
93%		7%

JOB TITLE PROFILE

Agri. Machinery - Mechanic's Helper

Competency Group	Rating*
1. Human Relations	2.0
2. Employee Traits	1.18
3. Salesmanship	1.83
4. Business Management	1.27
5. Agricultural Business Management	1.16
6. Plant and Soil Science	1.42
7. Animal Science	1.0
8. Agricultural Machinery and Power	2.83
9. Building Construction Technology	1.05

*1-None, 2-Some, 3-High

501 to 16

JOB TITLE PROFILE

Agri. Mach. - Setup & Delivery Man

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
209	315	199

Worker Characteristics

Monthly Salary

Beginning Median	Beginning Range	Maximum Median	Maximum Range
$240	$166-305	$293	$216-470

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
7%	82%	11%		

Minimum Age to Enter

Median	Range
18.5 Yrs.	17-25 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
90%	7%	3%

JOB TITLE PROFILE

Agri. Mach. - Setup & Delivery Man

Competency Group	Rating*
1. Human Relations	2.0
2. Employee Traits	1.04
3. Salesmanship	1.50
4. Business Management	1.18
5. Agricultural Business Management	1.0
6. Plant and Soil Science	1.92
7. Animal Science	1.0
8. Agricultural Machinery and Power	2.58
9. Building Construction Technology	1.02

*1-None, 2-Some, 3-High

JOB TITLE PROFILE

Poultry Processing - Grader

Current and Anticipated Employment

No. Employed 1964	No. Employed 1969	Employees Needed by 1969
18	27	12

Worker Characteristics

Monthly Salary

Beginning		Maximum	
Median	Range	Median	Range
$200	$200	$250	$200-260

Education Required

Less Than H.S.	H.S.	Post H.S. Tech.	Some College	College Degree
	100%			

Minimum Age to Enter

Median	Range
20 Yrs.	20 Yrs.

Residential Background Preferred

Farm	Rural Non-Farm	No Preference
84%	16%	

JOB TITLE PROFILE

Poultry Processing - Grader

Competency Group	Rating*
1. Human Relations	2.0
2. Employee Traits	1.18
3. Salesmanship	1.83
4. Business Management	1.36
5. Agricultural Business Management	1.16
6. Plant and Soil Science	1.0
7. Animal Science	2.0
8. Agricultural Machinery and Power	1.16
9. Building Construction Technology	1.0

*1-None, 2-Some, 3-High

VT 000 332

VT 000 332

A Checklist for a Survey of Distributive Education Programs Organized Under the "Cooperative Plan."

Levendowski, J. C.

Calif. State Dept of Educ, Sacramento. Bur of Bus Educ.

Sep 65

DOCUMENT NOT AVAILABLE FROM EDRS 17p.

*DISTRIBUTIVE EDUCATION, *PROGRAM EVALUATION, *COOPERATIVE EDUCATION, *SENIOR HIGH SCHOOLS, *POSTSECONDARY EDUCATION, CHECKLISTS,

Statements concerning cooperative distributive education are grouped under headings -- (1) "Organization of the Distributive Education Program," (2) "Staff Members," (3) "Support of the School," (4) "Selection and Guidance of Students," (5) "Placement of Students in Training Stations," (6) "Coordination and Public Relations," (7) "Curriculum Organization and Instruction," and (8) "Classroom Facilities and Library." The survey respondent is to read the statements twice, first rating each as (1) undesirable, (2) of average importance, or (3) highly desirable, and second, to show the degree to which each practice is carried out in his program -- (1) not at all, (2) average, with room for improvement, and (3) to a high degree. An answer sheet is included. (SL)

ED015348

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VT000332

A CHECKLIST FOR A SURVEY

OF

DISTRIBUTIVE EDUCATION PROGRAMS ORGANIZED UNDER THE

"COOPERATIVE PLAN"

September, 1965

Prepared by:
J. C. Levendowski
Researcher and Teacher Educator
Bureau of Business Education
California State Department of Education

VT000332

DISTRIBUTIVE EDUCATION PROGRAMS ORGANIZED UNDER THE "COOPERATIVE PLAN" *

A CHECKLIST FOR A SURVEY

Prepared by J. C. Levendowski
Bureau of Business Education

Your Name _____ City _____ State _____

Your Position _____

Your School _____ Is it a high school? ___ Junior College? _____

Total School Enrollment at Present _____ How many years of continuous experience have you had in distributive education programs? _____

Present distributive education class enrollment: _____ boys, _____ girls, _____ Total _____

How many years has this school been operating a distributive education program? _____

Is your school program aided by state vocational education funds? _____

Do you receive Bureau of Business Education distributive education instructional aids and supervisory visits in the operation of your program? _____

DIRECTIONS FOR USE OF CHECKLIST

Distributive education teachers should make ratings in both the (1) desirability and (2) accomplishment of practices in Columns 1 and 2.

The two columns of numbers 0, 1, and 2 and alphabetical terms A, B, and C are to be circled. PLEASE COMPLETE ALL OF COLUMN I - "DESIRABILITY" BEFORE BEGINNING COLUMN II - "ACCOMPLISHMENTS."

Under the "desired" column the meanings applied to the numbers are as follows: 0 to mean that the practice is undesirable and should be omitted, 1 that you consider the practice of only average importance and desirability, and 2 to mean that you agree that the practice is very important and highly desirable.

Under the "accomplished" column the numbers are to be used with the following meanings: A to mean that the practice is not being carried out at all or does not prevail in your program, B that your program is accomplishing the practice to an average degree with some room for improvement, and C to mean that your program is accomplishing or has achieved the practice to a high degree.

* Basic material for this survey was developed by Dr. William B. Runge, Distributive Education Teacher Educator, University of New Mexico.

DISTRIBUTIVE EDUCATION PROGRAMS ORGANIZED UNDER THE "COOPERATIVE PLAN"

A CHECKLIST FOR A SURVEY

Part I
ORGANIZATION OF THE DISTRIBUTIVE EDUCATION PROGRAM

1. A clearly written statement of objectives has been developed for the distributive education program.

2. Objectives have been developed through the cooperative efforts of employers, educators, and students.

3. The school administrators and faculty members have been given a clear concept of the place of this program in the total educational system.

4. Standards for the operation of the program have been developed and accepted by the school administrators.

5. The teacher coordinator checks to see if practices meet standards which have been developed.

6. A clear cut assignment of functions and duties has been given to all persons concerned with the distributive education program.

7. A long range plan of development has been worked out and serves as a guide for operations.

8. An advisory committee representative of all groups interested in the program has been formed and its advice is used in the development of the program.

9. The distributive education program is operated as an occupational education program and not just as an employment office for students.

10. The teacher coordinator is allowed sufficient time for coordination activities.

11. The teacher coordinator is not overloaded with extra-curricular activities and other subjects to teach.

12. School and training station schedules are developed to meet the needs of students in the distributive education program.

13. School credit is given for the occupational experience of students in training stations.

14. Secretarial and clerical help are available to the teacher coordinator.

15. A record keeping system has been designed to meet the needs of the distributive education program.

16. The records and reports are kept up to date and complete.

17. Funds are provided for the travel expense of the teacher coordinator.

18. The program receives state supervision in planning and development.

19. The staff from the Bureau of Business Education helps in the continued development of the local program.

Part II
STAFF MEMBERS

1. The teacher coordinator has completed at least a bachelor's degree in college.

2. The teacher coordinator has completed a minimum of 9 semester hours in professional vocational and distributive education subjects such as organization, coordination, methods, and curriculum development.

3. The teacher coordinator has completed at least 15 semester hours in technical subjects such as merchandising and management.

4. The teacher coordinator gains additional occupational experience in a distributive occupation at least once every three years.

5. The teacher coordinator maintains membership in at least one local civic organization such as the chamber of commerce or a luncheon club.

6. The teacher coordinator takes an active part in community affairs other than those dealing strictly with business.

7. The teacher coordinator attends most local and state meetings called by the Bureau of Business Education.

8. The teacher coordinator takes an active part in local and state school activities in addition to those for distributive education personnel.

9. The teacher coordinator makes a constant effort to improve business and professional relationships.

10. The teacher coordinator has had at least one professional magazine article accepted and published in the past three years or has one in the process of preparation.

11. The teacher coordinator contributes to the state and national student club program.

12. The teacher coordinator plans and carries out research resulting in the constant improvement of the program.

13. The teacher coordinator welcomes constructive criticism and constantly strives for improvement of his program.

Part III
SUPPORT OF THE SCHOOL

1. Vocational education is accepted and acknowledged as a desirable and essential function of the school.

2. The distributive education program is accepted as an integral part of the total school plan.

3. The school administrators take an active and interested part in the planning and operation of the distributive education program.

4. The school administrators occasionally accompany the teacher coordinator when contacting employers and visiting students at their training stations.

5. The school administrators cooperate with the state and national distributive education organizations.

6. Teachers and other staff members cooperate with the teacher coordinator in the operation of the distributive education program.

7. Most financial requests of the teacher coordinator have been allowed.

8. Assignment of building space and facilities is sufficient to carry on a distributive education program.

9. School administrators check with business representatives, faculty members, community groups and pupils relative to the effectiveness of the program.

10. The school administration and the teacher coordinator use the services of the state department in evaluating and in improving the program.

Part IV
SELECTION AND GUIDANCE OF STUDENTS

1. Prospective distributive education students are given a clear understanding of the purposes and nature of the program before they are enrolled.

2. Experienced counselors help each student in determining his aptitude, interest, and ability to profit from the distributive training.

3. The teacher coordinator arranges for the collection of occupational information regarding distributive occupations.

4. Minimum age, grade, and other standards have been developed and must be met by students before they enroll in the distributive education program.

5. Distributive education pupils are successful in the general education program before entering the distributive education program.

6. Students may elect the distributive education program and also meet graduation requirements.

7. A top limit is placed on the total number of students enrolled in the distributive education program.

8. The teacher coordinator determines the final selection of students who are recommended for the distributive education program.

9. Employers are given a part in the final selection of students.

10. The teacher coordinator has a definite part in the performance of the guidance functions in the school.

11. A cumulative record is kept on each student.

12. Periodic counseling interviews are held with each student concerning his general progress in the program.

13. Provision is made for parents to contact the teacher coordinator when needed.

14. Definite provision is made for checking on each student's progress in school.

15. A student follow-up survey has been made of school leavers and graduates to see whether they enter distributive occupations.

16. Graduates and school leavers return to the school for counseling and guidance on personal and other problems.

17. Former students are followed up to find how additional adjustments can be made in the program.

18. Follow-up records are kept for each student in the distributive education program during the past five years.

Part V
PLACEMENT OF STUDENTS IN TRAINING STATIONS

1. An employment opportunities survey which indicated a need for training in the distributive occupations has been made in the community.

2. A written statement has been prepared outlining the criteria by which training stations are finally selected.

3. The teacher coordinator contacts employers and sets up training stations for all students in the class.

4. Employers provide training stations throughout the entire school year rather than for just seasonal work.

5. Plans of training and training agreements are drawn up by the employers, school, and students.

6. Students who already have part time jobs are admitted to the distributive education program after the training station is approved by the teacher coordinator.

7. The teacher coordinator checks conditions under which students work to see that they are in accordance with state child labor laws.

8. Students are regularly employed for a monetary wage at a rate comparable to that paid other employees for similar work.

9. Pay schedules provide for gradual increases throughout the training program.

10. The total time students spend in school and on the job does not exceed 48 hours per week including Saturdays.

11. All students enrolled in the class are employed on the average at least 10 hours per week, Monday through Friday, during the school year.

12. Training stations may provide an opportunity for full time employment after students complete school.

13. Instruction in how to apply for a job is given before students are referred to prospective employers.

14. Before students are considered permanent members of the program, they must be accepted for employment in a training station.

15. Training sponsors are appointed by employers for each student.

16. Students are rotated and given a variety of on-the-job occupational experiences.

17. The teacher coordinator helps employers and training sponsors in the techniques of supervision.

18. Provision is made occasionally for students to be released from school in order to work during special sales and rush hours.

19. Provision is made occasionally for students to be released from work to participate in school sponsored activities.

20. Employers are informed of the progress made by students in their school work.

21. Employers make periodical ratings and reports on each student in their business establishments.

22. The teacher coordinator assists employers in evaluating the on-the-job progress of students.

23. The teacher coordinator develops new training stations continuously.

Part VI
COORDINATION AND PUBLIC RELATIONS

1. The teacher coordinator plans his coordination time and develops a schedule which is followed to a reasonable extent.

2. Coordination time is used only for coordination purposes.

3. The teacher coordinator visits all students at their training stations a minimum of once each month.

4. Visits are made by the teacher coordinator to the employers of students at least once a month.

5. Labor union regulations are followed in the placement and training of distributive education students.

6. The teacher coordinator uses the information from coordination activities to help in adjusting problems that arise relative to the program.

7. Reports of coordination activities are kept.

8. The teacher coordinator has a written promotional plan and schedule for the year.

9. The teacher coordinator makes talks at club meetings and before business groups.

10. Articles on the program appear regularly in the local newspaper.

11. The teacher coordinator has a mailing list of all interested persons who receive information on program activities and progress.

12. The distributive education program has been explained at meetings of various educational groups in the community.

13. All students who are eligible enrollees are acquainted with the distributive education program.

14. Distributive education students appear before community groups and help in the development of public relations for the program.

15. Articles on the distributive education program appear in each issue of the school newspaper.

16. The students sponsor joint employer-employee dinners and other such activities.

17. Parent groups have been acquainted with the program.

18. Alumni are kept informed of the growth and development of the program.

19. The teacher coordinator is conscious of the value of publicity at all times and makes an effort to keep the school and community informed of the progress of the program.

Part VII
CURRICULUM ORGANIZATION AND INSTRUCTION

1. A distributive education curriculum has been developed for students entering the program.

2. The instructional activities are correlated whenever possible with activities in other subject matter areas.

3. The teacher coordinator teaches the "control class."

4. The teacher coordinator either teaches or helps plan other courses which are related to the distributive education student needs.

5. Follow-up studies of graduates are used to guide curriculum revision.

6. Student-teacher planning is carried on in the development of class and on-the-job occupational experiences.

7. A real effort is made by the teacher coordinator to make the daily instruction in the classroom dovetail with experiences at the training station.

8. Provision is made for individual study in the "control class."

9. Frequent use of student occupational experiences is made in class discussions.

10. Remedial teaching is given on a basis of individual student needs.

11. Adequate records of student progress are available, and they are used in developing the instructional program.

12. Audio and visual aids are used whenever such techniques will make the activities more meaningful to students.

13. Opportunity is provided for field trips to business firms.

14. Students are encouraged to and do contribute instructional materials, information, and other aids.

15. The teacher coordinator periodically evaluates the classroom instruction.

16. Students participate in the evaluation of their own achievement.

17. Students are encouraged to participate in extra class activities related to this business area.

Part VIII
CLASSROOM FACILITIES AND LIBRARY

1. Classroom and laboratory facilities are of sufficient size to meet instructional needs.

2. Tables and chairs are provided in order to give students ample room for learning activities.

3. The classroom is equipped with proper equipment needed for the type of instruction being provided.

4. The room has adequate blackboard and bulletin board space.

5. Storage facilities are provided for materials and supplies.

6. Suitable office space is provided the teacher coordinator for counseling purposes.

7. The teacher coordinator has access to a typewriter and duplicating machine.

8. Miscellaneous supplies such as stationery, stamps, and stencils are available to the teacher coordinator.

9. Selected films, filmstrips, projectors and other supplementary teaching aids are available.

10. The room is equipped with book shelving and files.

11. All equipment is maintained in good working condition.

12. Textbooks are available for reference in the classroom covering the materials needed by each student.

13. Such materials as charts, maps, posters, graphs, and business display materials are provided.

14. Current booklets, pamphlets, and leaflet materials from manufacturers, producers, and business groups are available for student study.

15. Newspapers, magazines, and trade journals are supplied for class use.

16. United States Government and state business education publications are provided.

17. Teacher prepared materials (such as study guides and work sheets) are available for use in the classroom.

18. Printed materials in the form of study guides, workbooks, and manuals are used by all students.

19. Students contribute materials such as samples of merchandise, trade journals, etc. for use in the classroom.

20. Teachers utilize teaching equipment in the classroom that is available on loan from local stores in the community.

21. A good system of cataloging and filing for instructional materials has been developed and is used.

22. Instructional materials are constantly kept up to date.

23. Instructional materials used are continuously evaluated on the basis of student needs.

DISTRIBUTIVE EDUCATION PROGRAMS ORGANIZED UNDER THE "COOPERATIVE PLAN"

A Check List for a Survey

Answer Sheet #1

Column I "DESIRABILITY"				Column II "ACCOMPLISHED"			
Page 2	Page 3	Page 4	Page 5	Page 2	Page 3	Page 4	Page 5
Part I							
1. 012	12. 012	7. 012	8. 012	1. ABC	12. ABC	7. ABC	8. ABC
2. 012	13. 012	8. 012	9. 012	2. ABC	13. ABC	8. ABC	9. ABC
3. 012	14. 012	9. 012	10. 012	3. ABC	14. ABC	9. ABC	10. ABC
4. 012	15. 012	10. 012	Part IV	4. ABC	15. ABC	10. ABC	Part IV
5. 012	16. 012	11. 012	1. 012	5. ABC	16. ABC	11. ABC	1. ABC
6. 012	17. 012	12. 012	2. 012	6. ABC	17. ABC	12. ABC	2. ABC
7. 012	18. 012	13. 012	3. 012	7. ABC	18. ABC	13. ABC	3. ABC
8. 012	19. 012	Part III	4. 012	8. ABC	19. ABC	Part III	4. ABC
9. 012	Part II	1. 012	5. 012	9. ABC	Part II	1. ABC	5. ABC
10. 012	1. 012	2. 012	6. 012	10. ABC	1. ABC	2. ABC	6. ABC
11. 012	2. 012	3. 012	7. 012	11. ABC	2. ABC	3. ABC	7. ABC
	3. 012	4. 012	8. 012		3. ABC	4. ABC	8. ABC
	4. 012	5. 012	9. 012		4. ABC	5. ABC	9. ABC
	5. 012	6. 012	10. 012		5. ABC	6. ABC	10. ABC
	6. 012	7. 012			6. ABC	7. ABC	

Answer Sheet #2

Column I "DESIRABILITY"

Page 6 Part IV(cont'd)	Page 7 V	Page 8 V	Page 9 VI
11. 012	7. 012	22. 012	14. 012
12. 012	8. 012	23. 012	15. 012
13. 012	9. 012	Part VI	16. 012
14. 012	10. 012	1. 012	17. 012
15. 012	11. 012	2. 012	18. 012
16. 012	12. 012	3. 012	19. 012
17. 012	13. 012	4. 012	Part VII
18. 012	14. 012	5. 012	1. 012
Part V	15. 012	6. 012	2. 012
1. 012	16. 012	7. 012	3. 012
2. 012	17. 012	8. 012	4. 012
3. 012	18. 012	9. 012	5. 012
4. 012	19. 012	10. 012	6. 012
5. 012	20. 012	11. 012	7. 012
6. 012	21. 012	12. 012	8. 012
		13. 012	9. 012

Column II "ACCOMPLISHED"

Page 6	Page 7 V	Page 8 V	Page 9 VI
11. ABC	7. ABC	22. ABC	14. ABC
12. ABC	8. ABC	23. ABC	15. ABC
13. ABC	9. ABC	Part VI	16. ABC
14. ABC	10. ABC	1. ABC	17. ABC
15. ABC	11. ABC	2. ABC	18. ABC
16. ABC	12. ABC	3. ABC	19. ABC
17. ABC	13. ABC	4. ABC	Part VII
18. ABC	14. ABC	5. ABC	1. ABC
Part V	15. ABC	6. ABC	2. ABC
1. ABC	16. ABC	7. ABC	3. ABC
2. ABC	17. ABC	8. ABC	4. ABC
3. ABC	18. ABC	9. ABC	5. ABC
4. ABC	19. ABC	10. ABC	6. ABC
5. ABC	20. ABC	11. ABC	7. ABC
6. ABC	21. ABC	12. ABC	8. ABC
		13. ABC	9. ABC

Answer Sheet #3

Column I "DESIRABILITY"		Column II "ACCOMPLISHED"	
Page 10 VII	Page 11 VIII	Page 10 VII	Page 11 VIII
10. 012	9. 012	10. ABC	9. ABC
11. 012	10. 012	11. ABC	10. ABC
	11. 012		11. ABC
12. 012	12. 012	12. ABC	12. ABC
13. 012	13. 012	13. ABC	13. ABC
14. 012	14. 012	14. ABC	14. ABC
15. 012	15. 012	15. ABC	15. ABC
16. 012	16. 012	16. ABC	16. ABC
17. 012	17. 012	17. ABC	17. ABC
Part VIII		Part VIII	
1. 012	18. 012	1. ABC	18. ABC
2. 012	19. 012	2. ABC	19. ABC
3. 012	20. 012	3. ABC	20. ABC
4. 012	21. 012	4. ABC	21. ABC
5. 012	22. 012	5. ABC	22. ABC
6. 012	23. 012	6. ABC	23. ABC
7. 012		7. ABC	
8. 012		8. ABC	

VT 000 334

VT 000 334

A Total Look at Home Economics.

Pinellas County Public Schools, Clearwater, Fla.

Mar66

DOCUMENT NOT AVAILABLE FROM EDRS 11p.

PROGRAM EVALUATION, *CURRICULUM EVALUATION, *HOMEMAKING EDUCATION, ADMINISTRATOR RESPONSIBILITY, HOME VISITS, HOME EXPERIENCES, TEACHER RESPONSIBILITY, *CITIZEN PARTICIPATION, SECONDARY SCHOOLS, ADULT EDUCATION, *EDUCATIONAL IMPROVEMENT,

One hundred and thirty students, parents, citizens, teachers, and school administrators attended five meetings to evaluate the homemaking curriculum, and recommendations or "challenges" were made to secondary teachers, adult teachers, and school administrators. Specific suggestions for home visits and home experiences are listed. It was recommended that a brief annual review be initiated to evaluate the program and consider new problems. (MS)

ED015348

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A TOTAL LOOK AT HOME ECONOMICS

Home Economics Education Division

Pinellas County Public Schools

March, 1966

Dr. James F. Gollattscheck
Acting Superintendent

Dr. Eleanor M. Ladd
Assistant Superintendent

Mr. Joe D. Mills
Assistant Superintendent
Adult Vocational and Technical Division

Mrs. Frances Garrison
Supervisor
Home Economics Education

Mrs. Myrtle Hunt
Coordinator
Adult Home Economics Education

VT000334

Interesting Attendance Figures - Total Look at Home Economics Meetings

Groups Represented	3/17 1	3/21 2	3/24 3	3/28 4	3/31 5	Total No. Different People Participating	Average in Attendance
Home Economics Teachers, Secondary and Adult	13	19	15	18	12	48	15.4
Principals and Asst. Principals	3	11	1	7	1	18	4.6
Administrators, Other School Personnel	13	8	3	4	2	11	6.0
Parents, Lay People	5	10	5	11	4	18	7.0
Home Economists in Business	5	5	3	4	1	7	3.6
Parochial School Home Economists	2	1	2	2	1	2	1.6
Colleges and Universities	1	-	1	1	-	3	.6
State Board of Education	-	-	-	1	-	1	.2
Interns	1	2	2	2	3	5	2.0
Women's Job Corps	1	1	-	-	-	2	.4
Junior High FHA Students	2	4	-	6	-	9	2.4
Senior High FHA Students	2	4	2	5	2	7	3.0
Total Attendance	48	65	34	61	26	130	46.3

Total Attendance All 5 Nights - ~~23.4~~ 23.6

Interesting Attendance Figures - Total Look at Home Economics Meetings

	3/17 1	3/21 2	3/24 3	3/28 4	3/31 5	Total No. Different People Participating	Average in Attendance	Maximum number of times individual came
ers, Secondary	13	19	15	18	12	48	15.4	5 - 4 x @ 4 - 3 x @ 8 - 2 x @
Principals	3	11	1	7	1	18	4.6	2 - 3 x @ 2 - 2 x @
r School	13	8	3	4	2	11	6.0	2 - 2 x @ 1 - 3 x
	5	10	5	11	4	18	7.0	1 - [illegible] x 1 - 4 x 2 - 3 x @
Business	5	5	3	4	1	7	3.6	2 - 4 x @ 3 - 3 x @
me Economists	2	1	2	2	1	2	1.6	
sities	1	-	1	1	-	3	.6	
ction	-	-	-	1	-	1	.2	
	1	2	2	2	3	5	2.0	2 - 2 x @
	1	1	-	-	-	2	.4	
dents	2	4	-	6	-	9	2.4	2 - 3 x @
dents	2	4	2	5	2	7	3.0	3 - 3 x @
	48	65	34	61	26	130	46.3	

5 Nights - ~~23.4~~ 23.6

A TOTAL LOOK AT HOME ECONOMICS

Home Economics Education personnel in Pinellas County conducted a comprehensive evaluation of the present curriculum at a series of meetings in March. Individuals and panels discussed various aspects of the total program at four night meetings. Students, parents, citizens, teachers and school administrators participated in the open discussions which followed each presentation. Listening Panels composed of FHA girls, parents, citizens, teachers and school administrators reacted each night and turned in suggestions.

At a fifth meeting, committees representing all groups involved in the evaluation, read, discussed, and compiled the suggestions. Suggestions and recommendations were divided into the following categories:

Challenges to Secondary Teachers
Challenges to Adult Teachers
Recommendations to School Administrators
Home Visits and Home Experiences
FHA Suggestions

The committees also recommended that a brief review, organized along similar lines but held earlier in the school year, be initiated on an annual basis for the purpose of reviewing progress and considering new problems and suggestions.

A junior high school student serving on one of the Listening Panels remarked, "I never knew grown-ups spent so much time and effort planning and thinking about young people's needs and education. I thought before that schools and curriculum just happened. I didn't realize that so much went into planning the school program. You flattered me by asking me to come, but you also sincerely

wanted to know what I, as a junior high student, wanted to say about home economics. I've learned a lot. Thank you for letting me help."

Those concerned with Home Economics Education in Pinellas County are grateful to the many people who devoted so much time and effort to the evaluation. It is sincerely hoped that all who participated will share the views expressed by the junior high student and feel, personally, that it was a worthwhile experience.

The programs on the various nights were as follows:

March 17

Introductions and Purposes
Brief Historical Overview
National Developments and Trends
State Developments and Trends
Pinellas County Home Economics
Open Discussion

March 21

Curriculum, Scheduling, Enrollment, Patterns-A Symposium
Vocational Opportunities at Secondary School level
The Special Education Picture
Other Possibilities
Open Discussion
Break
Building, Space, Useof Facilities, Equipment-A Symposium
Open Discussion

March 24

Adult Home Economics Education
Panel Discussion
Break
Teacher Certification, In-Service Training, Recency of Credit
College Courses and Workshops-A Symposium
Open Discussion

March 28

Pupil Relations, Home Visits
Home Experience, Guidance Panel Discussion
Open Discussion
Break
Future Homemakers of America A Symposium
Open Discussion

March 31

Committee work on suggestions and recommendations to submit to various appropriate groups in the school system: Pincheta, Secondary, Curriculum Committee, Secondary Principals, etc.

CHALLENGES TO SECONDARY TEACHERS

1. Establish and initiate new and better approaches to home visits and other contacts with parents.

2. Establish and initiate more challenging and more student-involved home experiences. Stress management concepts instead of humdrum skills. Plan and work on home experiences for slow learners and for low-income level families.

3. Update own knowledge and get ready to help teach venereal disease and related sex-education in the county-wide pilot program next year. Home economics teachers should avail themselves of the opportunity to help with the VD pilot program either through individual school team teaching approach or by preparing themselves to lead supplementary discussion in regular home economics classes.

4. Become better informed about the total field of home economics, its historical background, the current trends, occupational opportunities, and implications for the future.

5. Be sure that as an individual teacher, and as part of the home economics education team, you project the image of a professional in your work--reflected by your interest-in people-approach, excellence in teaching, deep understanding of human beings and how they learn and change, and by your own warm and dynamic personality.

6. Teachers must accept the responsibility for pointing out vocational opportunities in home economics and related occupational fields. Starting at the junior high level, there should be some direction given to help orient girls to the dual roles that the majority will follow most of their lives--that of being homemakers and wage-earners. Stress must be placed upon the need for management skills, decision making, and a better understanding of the shifting value system and its relationship to the problems of a working mother.

7. Allstudents must be challenged. This means more work, fresh and different approaches, more individual or small group work, less reliance on text books and more reliance on references, self-developed teaching materials, and better planning. This also means improved pupil-teacher planning and evaluation.

8. Utilize adult television program in home economics classes as a resource for advanced skills and consumer buying. The schedule of topics to be taught could be circulated among secondary teachers and reports, either on a voluntary or an assigned basis, could be given on aspects of interest to the secondary school students.

9. Initiate a county-wide action research project to determine extent of youth's involvement in home and adult responsibilities. Results of the survey would help teachers to plan more realistic home experience, more meaningful class activities, and would form a sound basis for future curriculum revisions,

10. Home economics is a human relations oriented field. Special education reminds us that we teach pupils not subjects. Principals remind us that we set examples in our intra-departmental and intra-school faculty relationships. Parents and citizens remind us that we must meet the needs of people today and help youth and adults with today's problems.

CHALLENGES TO ADULT TEACHERS

1. Accept the responsibility for acquainting women with career and vocational opportunities utilizing home economics skills.

2. Incorporate more the managerial skills needed by working mothers into all home economics courses.

3. Intensify efforts to reach more newly married couples, young mothers, and working mothers. Home economics has a great deal to offer most of these people.

4. Broaden the scope of the adult program. Areas other than clothing and housing should be offered from time to time in updated and attractive course- packages.

5. People of all ages and all economic levels need to be able to turn to the schools for education and have their needs and interests met. Are we meeting the needs and interests of our adults?

6. Make better use of the WEDU television home economics programs by circulating program topics among adult teachers in advance. Correlate adult class work with special television programs whenever possible. Each can do much to enhance the other. Mrs. Lutz's new program on consumer economics could do much to spark interest in that area.

7. Work to up-date adult courses to include recent research findings and new pertinent materials.

8. Encourage more local control over course content and course titles. This is necessary if we are to pay more than "lip-service" to meeting the needs and interests of adults in different communities.

Suggestions to Principals and Administrators

1. Work toward a firmer and more uniform policy at junior high level requiring home economics at eighth level so that there are fewer girls who must take first year in ninth grade. If all eighth grade girls had home economics there would be less confusion at ninth grade level and the articulation would be improved.

2. Make Modern Family Living courses available at all high schools. Encourage boys to take it.

3. Encourage a coordinated approach between social studies and home economics to eliminate overlap and strengthen both social studies and home economics in interrelated areas such as Psychology, Modern Family Living, Personal Family and Social Relations semester courses.

4. Encourage a coordinated approach between guidance and home economics for better understanding of pupils. Students reported they were greatly helped when guidance people, home economics teachers and pupils held 3-way conferences on pupils' problems.

5. Encourage use of men from guidance, social studies and other fields as resource people or guest speakers in home economics classes in order to get the masculine viewpoint. So many children have no father in the home, they need to have a strong male influence injected in family life discussions.

6. FHA advisers need help at the high school level in resolving the FHA Chapter and semester course difficulties. As each school has its own school organizations set-up, a school community needs, the problems will have to be worked out at the local school level. The semester courses seem to be successfully meeting needs of high school students but they, in turn, are creating problems as to organizations, type of chapter, continuity, meeting time, etc. as far as FHA is concerned. In the adjusting of FHA activities and organization to the semester courses the adviser and officers will need the help and understanding of the principals in tailoring the program to the school.

7. Home economics teachers could work with physical education teachers as resource people in the teaching of health, grooming, and nutrition, in junior high school

8. Home economics teachers could be resource poeole in the teaching of health, nutrition, and food habits, grooming, home safety, and housing in the elementary school--as an enrichment of existing curriculum not an addition.

9. Explore with home economics education the possibilities for occupationally oriented home economics courses at junior and senior high school levels to interest and encourage many youngsters for whom high school will be terminal.

10. Encourage independent study in high school home economics classes and for fast learners in junior high.

11. In schools which have a seven period day, or when feasible, explore possibility of offering a boys home economics course to seventh or eighth grade boys in relationships and manners, food selection and simple cookery, clothing selection and care. Young boys need help, too, as well as girls.

12. Encourage and back all concerted efforts to secure top-notch current courses in different areas of home economics to be offered by nearby colleges, university extension services, or continuing university studies each year in the vicinity of the county. Also, support the effort to bring in resource people for up-dated in-service training.

Home Visits

1. If home visits are valuable to students, home economics teachers, and parents, then visits should be made regardless of grade level, reimbursement from state, or a required number. Visit when there is a real need-not just to fulfill a required number. Try to encourage invitations to visit homes. Avoid any pressure on the students or homes.

2. Recognize that some parents, homes, students do not want a visit made for many reasons. Try to find other wqys to meet, know and communicate with parents. Do not push home visits. Respect students' and parents' beliefs about home visits.

3. Be professional about home visits. Do not gossip about homes or people. Be sure parents and girls know purpose of visit. A letter at beginning of the year may help.

4. Home economics teachers need to re-evaluate ome visits and their tie-in with home experiences. Home visits are to help and guide home experience not to check a project.

Home Experiences

1. New ideas sho ld be creatively collected and tried. Home experiences should offer fresh and helpful approaches to present day living.

2. Home experiences should stress management and challenging involvement of students rather than acquisition of mechanical skills.

3. More effort should be expended in informing students and parents of purposes and satisfactions to be gained through home experience program. Emphasis should be placed on the challenge and the desire to do one and less on the ordinary routine and the requirement to do. More work needs to be done to sell parents on them as parents freqeuently are the limiting and discouraging factor due to lack of understanding or communication between teachers and home.

4. One question raised in the home experience discussion was, "Are we giving students enough training in using conveniences in the home to the best advantage?" Home economics should take a long look at conveniences, their use, and our teaching of their use.

5. Teachers should work on ideas and plans for home experience for girls who do not have equipment, facilities, materials, etc. These girls need help too. Home economics tends toward middle class approach to home experiences. We also have students from other economic levels and should consider their needs and interests.

6. Home experiences can give opportunity for slow learners to succeed.

7. Ways of reporting home experiences should be explored. Brief oral and simplified written reports should be tried. Involved written reports discourage and take away enthusiasm.

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Vocational, Technical, and Adult Education.

Illinois Board of Higher Educ., Master Plan Committee H.

Dec63

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*VOCATIONAL EDUCATION, *TECHNICAL EDUCATION, *ADULT EDUCATION, POSTSECONDARY EDUCATION, *EDUCATIONAL PLANNING, UNEMPLOYED, DROPOUTS, EDUCATIONAL NEEDS, STUDENT ENROLLMENT, ENROLLMENT TRENDS, EMPLOYMENT STATISTICS, EMPLOYMENT TRENDS, STATE PROGRAMS,

Illinois,

The study committee presented its report to the Board of Higher Education for use in developing a "Master Plan" for higher education in Illinois. Included are -- (1) characteristics of Illinois' unemployed, (2) data on high school droputs, (3) the role, nature, and demand for adult and technical education, (4) a recommended plan for adult, technical, and semi-technical education, and (5) conditions for successful technical education in 2-year colleges. It was projected that -- (1) by 1970, 58,000,000 persons now at work and still employed will need training to keep pace with new methods, new materials, and new opportunities, (2) 26,000,000 young workers starting to work between 1960 and 1970 must match the needs of a changing economy, and (3) 3,000,000 women who will switch from housework to jobs will need marketable skills in the decade ahead. Illinois should provide new college level educational facilities and programs to enroll approximately 13,900 full-time and 13,200 part-time students at the technical level (2 years), and 43,000 full-time and 40,000 part-time students at the semi-technical level (1 year). (PS)

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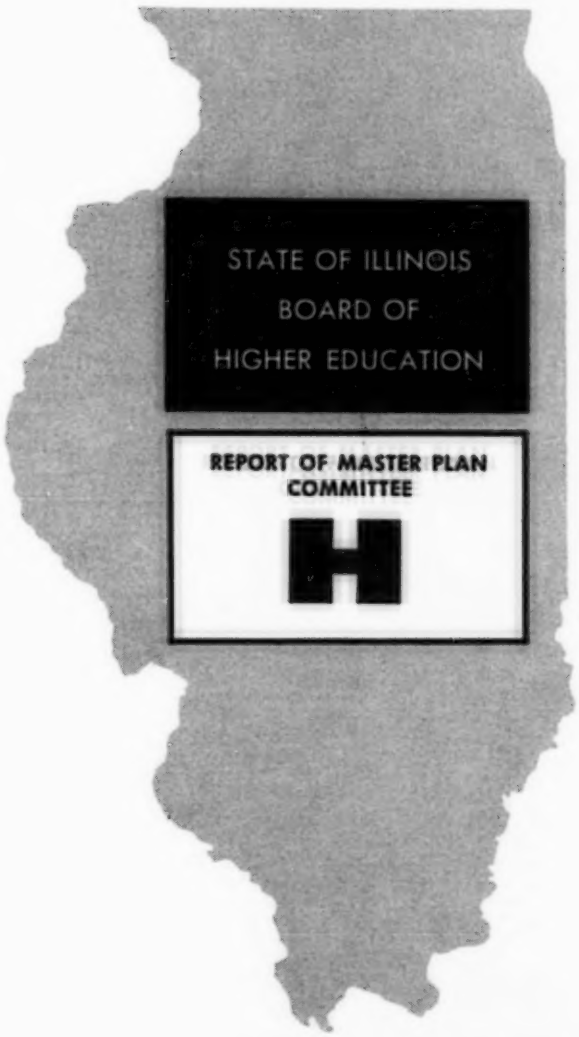

Vocational, Technical and Adult Education

A REPORT TO THE ILLINOIS BOARD OF HIGHER EDUCATION, DECEMBER 1963

VT 00114

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REPORT OF MASTER PLAN COMMITTEE

H

VOCATIONAL, TECHNICAL AND ADULT EDUCATION

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A report to the Board of Higher Education for its use in developing a "Master Plan" for higher education in Illinois. This report is the work of the study committee and is NOT the work of the Board or its staff.

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RECOMMENDATIONS

Committee H was concerned with adult education and with vocational and technical education at the college level. Its conclusions and recommendations appear below.

Adult Education

1. All educational agencies, both public and private, at all levels from elementary schools to universities and colleges, should provide greatly expanded services to a wider variety of adults. The responsibilities for adult education must not be limited to any one type or level of educational institution. The common schools, two-year colleges, and four-year colleges and universities must continue their efforts to raise the educational levels of our citizens.
2. Adult courses offered for credit should be restricted to subject matter, courses, and programs within the competence of regular full-time faculty members and the assigned functions of the particular institution.
3. Non-credit offerings should be somewhat independent of the interests and boundaries of any department, school, or college, in order to be flexible enough to meet the needs of various groups of adults.
4. Non-credit offerings in colleges equipped for technical and semi-technical education should include job-preparation courses for adults who have not graduated from high school.
5. Greater use should be made of representative educational planning and advisory committees in developing course content and curriculums in each of the areas of specialization.
6. Recognized leaders within the university staff, as well as those from industry, business, and the professions, should compose the adult education faculty for non-credit offerings.
7. State and regional advisory councils should be established for adult education. These councils should be composed of representatives of the public and private agencies concerned with the education of adults and should include representatives from such major administrative bodies as State Superintendent of Public Instruction, State Director of Manpower, the proposed Junior College Board, Board of Higher Education, State Board for Vocational Education, etc. These

councils would be advisory in nature, but would be responsible for the direction of research, experimental programs, and the continuous study and evaluation of programs.

8. Funds and staff should be provided for statewide research into the many facets of adult and continuing education, including a study of the present approaches and offerings in the state.
9. Funds for adult education should be included in the budgets of each of the colleges and universities (two-and four-year institutions) to insure the proper balance and emphasis on this function.
10. Adult education tuition and fees should be flexible in order that the education of groups such as the economically underprivileged, unemployed, and underemployed may be financed by state and/or federal funds.

Technical and Semi-Technical Education

The term technical education is used to mean education for employment in occupations in which two to three years of college-level technical training is essential. Semi-technical education prepares students for occupations requiring competence on advanced skill levels for which one to two years of post-high-school training is needed.

Committee H recommends the following:

1. College-level technical and semi-technical education leading directly to employment should be greatly expanded to meet the needs of business, industry, and services in Illinois for competent employees, and to develop the interests and talents of a large fraction of high school graduates, and of adults who need to expand their knowledge in their lines of work or to learn new fields of work.
2. A statewide system of regional, comprehensive two-year colleges, each with a division of technical education should be established as soon as possible. The plan for Illinois described by McLure and his co-authors may be taken as a tentative model for a statewide plan.[1] Plans for the system should take into account the present publicly supported centers of technical and semi-technical education.

[1] W. P. McLure, G. C. Mann, H. M. Hamlin, M. R. Karnes, and P. Van Miller, Vocational and Technical Education in Illinois. (Urbana: Bureau of Educational Research, University of Illinois, 1960).

3. The organization and administration of technical education in two-year colleges should include:
   (a) Technical education departments organized on the basis of occupational areas served.
   (b) A technical education division within the college, comprised of departments, headed by a director or dean who is responsible to the head of the college.
   (c) A regional board to operate each two-year college.
   (d) A state board to stimulate, accredit, and coordinate the work of all two-year colleges.
   (e) The State Board of Higher Education to coordinate the work of two-year colleges with that of other colleges and universities.
4. The capital and operating costs of the proposed statewide system of comprehensive two-year colleges should be financed entirely at the state level, except for federal support and student tuition and fees. It is believed that problems of high quality, efficient concentration of enrollment, and the attendance by some students at colleges in regions in which they do not live, can best be met by vesting substantial control and insuring full financial support at the state level.
5. Tuition and fee charges should be uniform in all public two-year colleges and in all curriculums.
6. Though the central function of the technical division of a two-year college is offering college-level programs to high school graduates, a secondary function should be to provide educational services to persons beyond high school age who are not high school graduates. Some examples of such services are the following:
   (a) Vocational guidance and counseling.
   (b) Placement in college-level programs on the basis of proven ability, aptitude, and readiness.
   (c) Non-credit courses in preparation for specific jobs.

   Another possible service is the sharing of technical facilities and equipment with local high school vocational programs.

INTRODUCTION

Accelerating technological and scientific developments resulting in the introduction of new materials, processes, and products are radically affecting every phase of human endeavor. Because

of the unparalleled technological developments taking place in industry, business, agriculture, and the professions, present educational facilities and programs are no longer adequate to meet the increasing demands for technical and semi-professional workers between the skilled and professional levels of employment, requiring specially planned college-level education of less than the usual four years. These vast changes and their corresponding effect upon manpower needs have also resulted in an ever-increasing awareness among adults of all ages, education, and social backgrounds of the need of continuing education.

However, realistic planning for an effective educational organization of the future is not possible without a review of the school drop-out rate and unemployment ratio and educational level of our youth and adults. Therefore it is the purpose of this report to evaluate the pertinent statistics for Illinois, to examine the ultimate function of technical and adult education, and to make recommendations for the framework of these facets of the total educational pattern.

Characteristics of Illinois' Unemployed

One of the most serious problems facing our state and nation at the present time is the increasingly high percentage of unemployed. In June, 1961, Governor Kerner established a committee on unemployment composed of representatives from labor, government, and the educational institutions "to examine unemployment in our State, determine its characteristics and causes, assess the techniques currently used to meet the problem, and recommend additional steps that should be taken."

The committee found that unemployment today is largely a problem for the unskilled worker, the one with obsolescent skills, the young worker, and the non-white.

A special Job Seekers Survey made by the Illinois Department of Labor showed the following characteristics of the unemployed in Illinois:[2]

1. They have completed fewer years of schooling than has the average adult in the state (Table I).
2. They have been unemployed for a long time—45% of the state's job-seekers (August, 1961) had been unemployed for five months or longer.
3. They have been largely employed in manufacturing.
4. Almost 30% of them are non-white, but their representation in the labor force is only a little over one-third as high.

[2] Report of the Governor's Committee on Unemployment-Illinois, January, 1963, Chap. I, The Unemployed, pp. 5-11.

5. They are generally (71%) willing to take training. Only 35% are willing to relocate. More job-seekers in non-metropolitan area counties than in metropolitan areas are willing to move to get new jobs.

The committee also found that the average adult has completed about ten and one-half years of schooling, which is about average for our country; however, the number of adults in Illinois who have completed four years of college as a whole is 5% lower than the national average.

There have been sizable shifts in the composition of the labor force of our nation during the past decade. The greatest rate of increase has occurred in the professional, technical, and salaried manager groups, and largest rate of decrease in agriculture, mining, and transportation occupations, particularly at the unskilled and semi-skilled levels. Each of these changes indicates the need for longer school retention and improved programs of education closely geared to changing job requirements. Manpower studies also clearly indicate that high school graduation is no longer enough and that more young people must be encouraged to continue their education beyond high school.[3]

The school enrollment of the 14-22 age group in Illinois, shown in Table II, indicates the seriousness of the school drop-out problem at both the high school and college level. A careful analysis needs to be made of these drop outs. Committee B's report on college-level drop-outs should be considered as part of the total solution of the unemployment problem and the future educational program, particularly in the two-year colleges and technical institutes.

TABLE I

Years of Schooling Completed by Unemployed and Employed Workers, Illinois, 1960

Years of Schooling Completed	Per Cent	
	Job Seekers	Adult Population
7 years or less	16.7	19.1
8 through 11	51.0	41.5
12 (generally, high school graduation)	25.0	24.5
13-15 (some college)	5.8	8.6
16 or more (generally college graduation or more)	1.5	7.3

[3] U.S. Department of Labor, Manpower, Challenge of the 1960's, 1961.

This does not imply that raising the educational standards alone is a panacea for the nation's unemployment. However, there is much evidence to indicate that a higher level of functional education would greatly reduce unemployment. First, it is known that many jobs are unfilled because of a lack of qualified job-seekers (the scarcity of teachers, to mention one). An examination of "help wanted" advertisements will show practically no calls for "young men willing to do any kind of work." There will be many calls for men capable of doing some specific job such as electronic technician, engineer's aide, medical technologist, accountant, draftsman, secretary, etc. Second, through education and research many new products are developed and new jobs created for those who possess the essential skills and know-how. Thus economic growth is stimulated and unemployment reduced.

High School Drop-Outs

Planning for adult, vocational, technical, and continuing education must take into account that segment of the population which has not graduated from high school, commonly referred to as "drop-outs." These people make up the largest portion of the unemployed. They have the fewest skills and usually are weak in the basic educational requirements prerequisite to further vocational or technical training.

The best available data indicate that currently the four-year drop-out rate for high school students in Illinois is about 31%. A study by the Office of Education of the U.S. Department of Health, Education, and Welfare for the school year 1959-60 reported the drop-out rate for Illinois to be 30.5%. A report by the Illinois Association of School Boards shows 40,436 drop-outs (32%) for the graduating class of 1961 and 37,467 (31%) for the class of 1962.

Drop-out rates vary widely among school districts, ranging from a low of 10% to a high of 50%. The accompanying map shows the percentage of drop-outs by counties as tabulated in the report of the Illinois Association of School Boards for the graduating classes of 1961 and 1962.

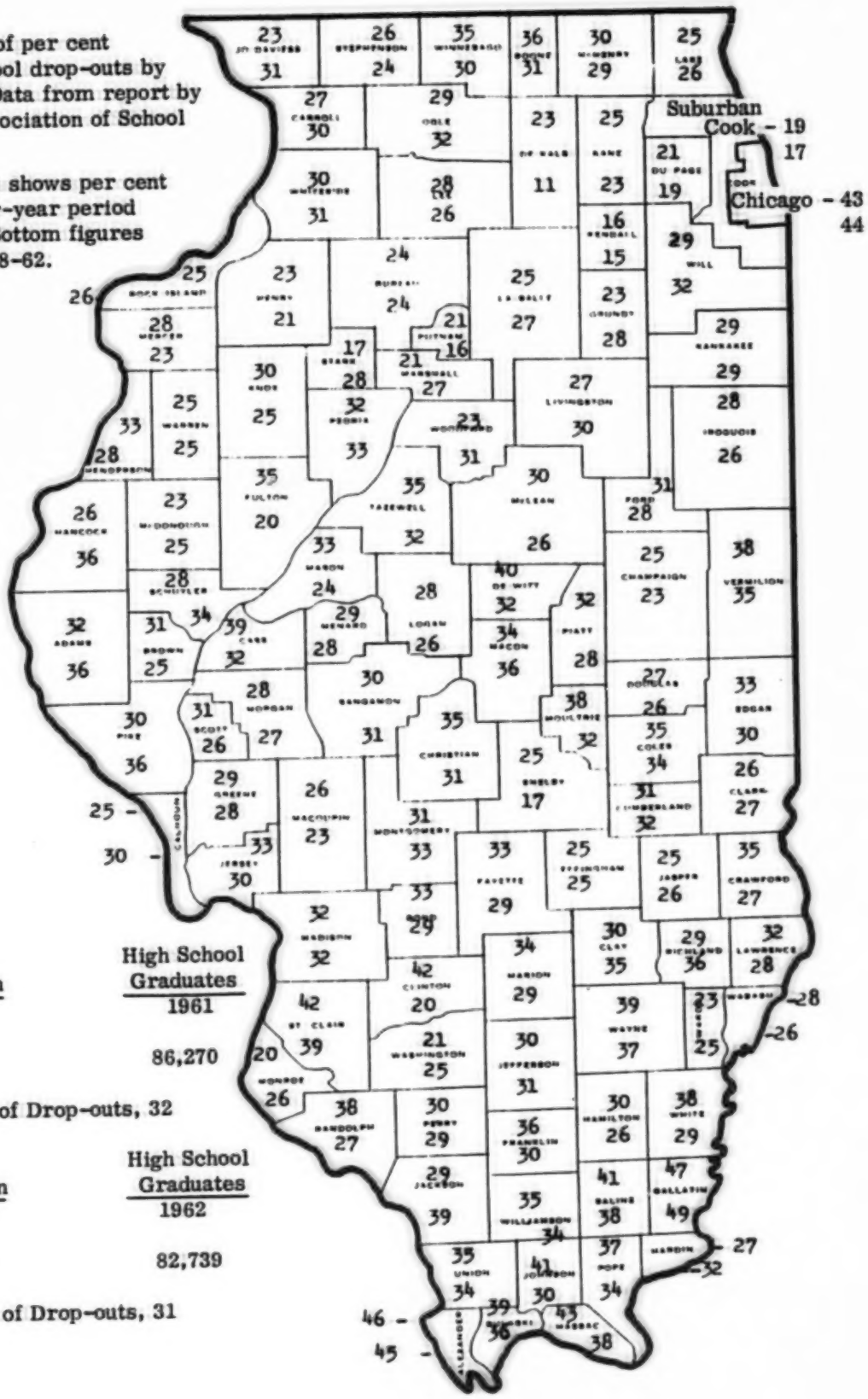
The Report of the Governor's Committee on Unemployment - Illinois, published in January, 1963, contains an interesting and informative section on drop-outs. Quoted here are several excerpts:

- - - - holding young people in school

A major task of the schools, keeping students through high school graduation, is a massive assignment; the size of this task comes as a disquieting surprise to people first meeting

Tabulation of per cent of high school drop-outs by counties. Data from report by Illinois Association of School Boards.

Top figures shows per cent for the four-year period 1957-61. Bottom figures are for 1958-62.



Freshmen 1957-8	High School Graduates 1961
126,706	86,270

Per cent of Drop-outs, 32

Freshmen 1958-9	High School Graduates 1962
120,206	82,739

Per cent of Drop-outs, 31

TABLE II

ILLINOIS SCHOOL ENROLLMENTS - HIGH SCHOOL AND COLLEGE AGE[a]

Age	Total Population		Number Enrolled In School		Number Not Enrolled In School		Per Cent Enrolled In School	
	Male	Female	Male	Female	Male	Female	Male	Female
14	71,044	68,259	67,752	65,162	3,267	3,070	95.4	95.5
15	70,907	69,637	66,501	65,143	4,396	4,529	93.8	93.5
16	74,585	73,245	65,363	63,454	9,252	9,819	87.6	86.6
17	78,532	75,981	59,169	57,050	19,409	18,915	75.3	75.1
18	66,073	66,123	34,563	28,681	31,523	37,404	52.3	43.4
19	54,675	61,211	19,685	15,556	34,996	45,688	36.0	25.4
20	51,713	60,735	14,051	10,929	37,607	49,788	27.2	18.0
21	55,809	62,776	13,194	7,999	42,713	54,985	23.6	12.7
22	56,245	62,056	10,207	4,220	46,185	57,839	18.1	6.8

[a] U.S. Bureau of Census, U.S. Census of Population: 1960. General Social and Economic Characteristics, Illinois. Final Report PC (1) - 15 C, 1962.

the problem. The year, 1950, was the first year in which half of those who had started fifth grade eight years earlier were graduated from high school; even today only about 60 per cent of all fifth graders remain in school until high school graduation and only two-thirds of those who start high school, graduate.

The consequences for those who do not achieve this level of schooling will undoubtedly be more serious than ever before. Lack of high school education is an almost total bar

to entering a profession,
to getting a white collar job,
to becoming an apprentice,
to entering government service except at the janitorial level.

There are, in fact, few employment opportunities for young people without a high school diploma except in the dead-end, low-pay jobs, particularly those of the service, trade and transportation industries.

Determination of the size and nature of the drop-out problem is the first step towards its solution — and a step that is surprisingly difficult to take. Despite the hundreds of studies that have been done on this problem, there are no comprehensive and continuing statistics showing the percentage of children who drop out at the various levels of school. We suggest therefore, that there is an immediate need to institute, in every school district of the State, collection and publication of accurate statistics on the number and percentage of drop-outs in each school grade. We further suggest that all such information be coordinated by the Superintendent of Public Instruction. This type of information will permit much more effective planning to solve the problem of drop-outs than information obtained from occasional and random studies.

There is now available better information on the rate of drop-outism in the separate states than has existed before; a recent study by the Office of Education of the U.S. Department of Health, Education and Welfare showed the percent of public high pupils who did not graduate four years after enrollment in high school. The range was from 17.8 percent for Hawaii to 42.3 for Alaska. Twenty-seven states had a higher drop-out rate than Illinois. The following is a ranking of the states by their drop-out rates, 1959-60:

State	Per Cent Not Graduating from High School	State	Per Cent Not Graduating from High School
Alaska	42.3	Kansas	31.0
Georgia	41.9	Delaware	30.5
Virginia	41.9		
Kentucky	41.6	ILLINOIS	30.5
Tennessee	41.2		
Nevada	40.9	Rhode Island	30.4
New Mexico	40.9	Colorado	28.6
S. Carolina	40.9	Pennsylvania	27.9
Louisiana	40.7	Washington	27.8
Mississippi	40.4	Idaho	27.7
N. Carolina	39.9	Montana	27.7
Alabama	39.3	Ohio	27.5
Texas	39.0	Connecticut	26.9
Maryland	38.1	Massachusetts	26.8
W. Virginia	37.9	New Jersey	26.0
Arizona	36.7	Michigan	25.9
Arkansas	36.7	Oregon	24.7
New York	35.0	S. Dakota	24.3
Florida	34.5	Utah	23.8
Vermont	33.6	Wyoming	23.3
Maine	33.5	Iowa	23.2
Missouri	33.3	Nebraska	22.5
Oklahoma	32.6	N. Dakota	21.4
Indiana	32.4	Minnesota	21.0
N. Hampshire	31.5	California	20.5
		Wisconsin	18.3
		Hawaii	17.8

Additional information is also available for Chicago. A study by the Office of Education of school holding power in large cities showed a total drop-out rate of 45.3 percent for a four year period for the three cities of New York, Chicago and Philadelphia. This included both voluntary and involuntary withdrawals, involuntary being defined as those over which the school presumably has no control. These include being drafted into the armed forces, physical disability, and being uneducable or institutionalized. The bulk of the losses were due to voluntary drop-outs, 84 percent of the total withdrawals. It is with this group that we are principally concerned, although a continuing watch needs to be kept over involuntary withdrawals: "uneducable" is an elastic label and its

widespread use will merely change the name of the drop-out problem, not alter its severity.

In Illinois the Chicago public schools report the rate of annual drop-outs, both voluntary and involuntary. In 1960-61, 15,658 children dropped out of high school, 13 percent of the total adjusted enrollment for the year. The true four-year holding power of the city schools is much more difficult to calculate because of extensive transferring. It seems likely, however, that the drop-out rate is not too far off from the national one for large cities.[4]

Summary

A significant number of students, approximately 30%, are dropping out of Illinois high schools before graduation.

Many of these people will desire and need to continue their education by returning to school for vocational, technical, and general programs. Often they will find it difficult, impractical, and even impossible to return to high school.

ADULT EDUCATION

The Role of Adult Education

The changes in our way of life have resulted in an increasing awareness among adults of all ages, education, and social backgrounds of the need for continuing education. Such a perspective is essential in our society, which is committed to democratic processes and ideals; every citizen in a democracy must have the opportunity to seek the rewards of productive work, both economically and socially. Educational institutions at all levels must exert more leadership and responsibility for the education of adults.

The Nature of Adult Education

The committee has defined adult education to include any continuing education for out-of-school youth and adults in courses and programs related to personal, vocational, cultural, or social interest or need. The courses and programs may be credit or non-credit, formal or informal; however, they are primarily a part-

[4] Report of Governor's Committee on Unemployment-Illinois, January, 1963, pp. 75-78.

time activity. Such education should encompass persons of all educational levels, from those lacking a basic common school education, to those with a high level of formal education. It must include:

1. Persons desiring to raise the level of their basic skills, complete high school work or its equivalent, obtain college work, or re-enter an interrupted college program on a part-time basis.
2. Those who wish to supplement or bring up to date a completed degree or certificate program.
3. Those who are upgrading themselves to meet the new technological requirements of their present employment.
4. The unemployed who need training.
5. Those who are interested in cultural, recreational, civic, and social activities.

Adult education is so unlimited that this report must necessarily be limited to those of its phases that seem related to the educational systems in the state. This does not minimize the importance of the contribution made by other organizations and associations in the field.

In addition, the area of specialized or concentrated job training for adults is of such great importance that it will be discussed in another section of the committee report. Furthermore, since it is difficult to define precisely the limits of adult education in relation to job training and other phases of education, there is necessarily some overlapping.

The Demand for Adult Education

National statistics reveal an alarming deficiency in our educational accomplishments:[5]

1. Our nation includes 11,000,000 adults, age 18 and over, who find it impossible to learn marketable skills because they cannot read or write as well as the average fifth-grader.
2. There are 58.6 million adult Americans who have not finished high school, and every year work opportunities dwindle for them. In addition, high school graduates are now being replaced by machines.
3. Leisure time, created by a mushrooming population of retired men and women and a shorter work week for younger workers, has resulted in a frustrating and disappointing experience for millions of adults.

[5] Robert F. Schentz, "Undereducated Adults," NEA Journal, January, 1963, pp. 18, ff.

4. The nation's divorce statistics and high rate of juvenile delinquency and crime are undeniable proof that many people marry and raise children without adequate knowledge of how to cope with the problems of family living and ability to get along with others.
5. The average voter, confronted with problems infinitely complicated, has difficulty becoming well informed without outside help. Hence, millions are ill equipped to make intelligent decisions.

However, these same statistics also indicate that of these millions of undereducated adults:

1. Approximately 449,000 men and women are finishing elementary high school in public school adult classes. An additional 932,000 adults attend public school, business, trade, industrial and technical courses. This total, 1,381,000, represents about 2% of the nation's undereducated 58.6 million.
2. To offset No. 5 above, approximately 75,000 adults take part in civic-public affairs activities organized by their public schools; another 171,000 are learning the rights and responsibilities of citizens through Americanization classes.
3. 132,000 adults (both men and women) attend parent education classes; 71,000 adults participate in personal development and group relationship classes, and 459,000 attend public school courses in homemaking.
4. A recent seven-state survey revealed that California, New Jersey, and New York have the greatest number of senior citizens (almost 64,000) participating in general adult education classes. In addition, vocational courses are available to adults in thousands of public schools in the United States; some more progressive communities are also offering adult courses for retirement.[6]

The Governor's Committee on Unemployment report indicates that employment has become identified as a problem of the unskilled worker or the one with obsolescent skills. It appears that upgrading, training, and education are related to the economic situation and to public aid as well as to personal development of the individual. In addition, there is a current general increase in educational requirements for many jobs; more job opportunities depend upon a high school diploma or its equivalent. Therefore, it is imperative that those adults who have not completed their secondary education, those who need retraining, those who desire additional training, and the many who wish a fulfillment of special

[6] Ibid.

interests be provided adequate educational opportunities through the facilities of the educational institutions of the state.

Basic Plan for Adult Education

A. Colleges and Universities

There has been a trend for many colleges and universities, both two-year and four-year, to offer a vast array of courses for adults, depending upon their own areas of special competence. This array includes extension, extended day, evening school, continuing education, or whatever form and title adult education takes. These excellent opportunities for continued learning are presented in both credit and non-credit courses.

This report is limited to a general discussion of needs and plans for adult education. The Committee on Extension and Public Service has, in its preliminary report, described in considerable detail the present programs and plans of the colleges and universities of Illinois. The report includes an account of the highly successful Cooperative Extension Service operated as a part of the land-grant system of the University of Illinois. It is principally a non-credit offering of informal adult education to rural and urban citizens, made available through a corps of extension personnel distributed throughout most of the state.

A recent nationwide survey by the Center for the Study of Liberal Education for Adults indicated that over 17 million Americans were enrolled in some type of adult education course between June 1, 1961, and June 1, 1962. An additional 9 million were engaged in some form of independent self-education. The major stress of adult education, according to this survey, was found to be practical, rather than academic, emphasizing skills rather than "knowledge."[7]

Many adult students are enrolled in part-time evening programs for which regular college credit is granted, leading either toward specific degrees or toward meeting special licensing, certification, or professional requirements. Special services offered by colleges and universities, especially those in metropolitan areas, include non-credit "community service"-type courses. More complete utilization is thus made of the knowledge and talent of the university staff and the college facilities for conferences, workshops, seminars, and short courses. Many of these non-credit offerings are conducted on academically sophisticated and professional levels. Colleges and universities typically employ two patterns in continuing adult education.

[7] Center for the Study of Liberal Education for Adults, Survey of Adult Education 1961. (Chicago: The Center, 1963).

1. The college campus drive-in or residential plan—service provided in the regular concept and connotation of the campus setting.
2. The retreat plans of 30-50 universities that provide their continuing adult education in the natural and rural beauty of country lodges remote from the noise and tension of large cities and metropolitan areas.

Whatever the environment provided for this type of adult education, one fact predominates: there is a need for greatly expanded residential education offerings for various groups and associations such as bankers, businessmen, secretaries, lawyers, doctors, labor leaders, service-type (restaurant, motel, etc.) personnel, transportation personnel, and many others. These courses can be especially valuable:

1. If they are somewhat independent of the limiting interests and boundaries of any department, school, or college. The resulting flexibility would be highly desirable.
2. If representative educational planning and advisory committees in each of the areas of specialization are utilized for development of course content and curriculums.
3. If recognized leaders within the university staff are supplemented by those from industry, business, and the professions in the adult education faculty.
4. If the administrative and supervisory staff is adequate to maintain effective supervision of instruction and instructional materials, and to expand effectively the scope of the offerings.

If this educational framework can be established and maintained, the impact of adult education, as a facet of university offerings, will be statewide, and even national in some instances. It will:

1. Build a favorable image and strengthen public relations.
2. Provide education for upgrading of personnel on all levels.
3. Educate the public about the expanded functions of a university.

B. Public Schools

Historically, the heart of the adult education enterprise has been the local public school district. The role of the public school for this purpose is both logical and obvious. The public school is, first of all, publicly supported by the same adult population that

requires its services. Second, the public school has existing plant and personnel to teach and administer programs for adults. Third, it is an acceptable and inexpensive facility for all adults. Fourth, as a recognized local educational resource, the public school is able to provide educational leadership to other educational activities for adults through a variety of relationships in the community. Many aspects, however, contribute to the current failure of local schools to meet the demands for adult education:

1. Programs of adult education must be administered, supervised, and taught with different objectives from those on an elementary or secondary level. Hence, many times the available staff is untrained.
2. Local budgetary limitations obviously restrict the scope of offerings.
3. Many public school districts are too small or too remote to offer adult education programs.

This does not mean that a vast amount of exceptionally valuable adult education is not, or cannot be, handled through public school facilities. However, the conditions affecting these offerings are similar to those noted above for university and college programs.

C. Other Agencies

Many local agencies (YWCA, YMCA, art centers, theater groups, music appreciation groups, etc.) provide outstanding programs that are available to the public. These activities are not only a social outlet for the participants, but they influence the cultural level of the community, thus functioning as another facet of adult education.

D. Educational Television

The use of instructional television in the Chicago junior colleges shows that courses at this level can be taught effectively to a home audience by this medium. It brings into the educational system a new and older group of students who are strongly motivated to continue their education but who have been kept from doing so by various circumstances. Once started in higher education by television, they are likely to continue to a junior or senior college degree. Because of the high motivation of mature students, nearly two-thirds (65%) of these students finish their courses and take final examinations.

A highly effective junior college course can be planned, organized, and presented on television. An effective classroom teacher can learn to be an effective television teacher, but this requires time and preparation. When evaluated by techniques of measurement and analysis, television instruction is found to be a thoroughly effective means of extending college opportunities.

Students may achieve as much through television as in the conventional classroom groups. Many students take courses concurrently on television and in the classroom. Some students have received the Associate in Arts degree for work done entirely by television. Two-thirds of television students have indicated a plan to graduate from the two-year college. Most of those who succeed with the television courses seek to register for more courses the following semester. Many are prospects to fill the ranks of the teaching profession, particularly women with declining home responsibilities.

The use of television spreads existing facilities to take care of more students but may have the net effect of requiring more classroom space and more personnel time because it builds an appetite in the community for more higher education. The cost of educating credit students by television in large numbers is comparable with the costs of classroom instruction.

New courses need to be introduced each semester to maintain over-all enrollments. Since enrollments usually drop for the second semester of two-semester sequences, it seems best to offer courses on television for only the first semester and give the second semester in the classroom. Non-credit enrollments approximate three times the number enrolling for credit. Credit enrollments tend to be high in courses required for the Associate in Arts degree. Non-credit enrollments tend to be high in the skill courses in language, mathematics, and business fields.

Summary

The magnitude of the educational job ahead is staggering when the employment pattern is examined. The President's Panel of Consultants on Vocational Education[8] reports that by 1970, 87,000,000 will be in the full-time labor force, consisting of:

1. 58,000,000 now at work who will still be employed and will need training to keep pace with new methods, new materials, new opportunities.
2. 26,000,000 young workers starting to work between 1960 and 1970. Their aptitudes, skills, and education must match the needs of a changing economy.
3. 3,000,000 women who will switch from housework to jobs will also need marketable skills in the decade ahead.

[8]Report of Panel of Consultants on Vocational Education, Education for a Changing World of Work, Office of Education Publication No. 80021, Washington, D. C.

The urgency of adult education becomes obvious when present and future occupational, social, and cultural needs are placed in proper focus. It is imperative that proper steps to meet these needs be initiated immediately.

TECHNICAL AND SEMI-TECHNICAL EDUCATION

The Role of Technical and Semi-Technical Education

As a consequence of the accelerating technological revolution there is an increasing need everywhere for trained and educated people. The demand is great at all levels of education but the concern of this section is education for technicians, business and office workers, skilled craftsmen, and other categories of workers whose fitness for their work can be greatly improved by one or two years of specially planned college-level education.

Fortunately, the interests of youth and of the state and nation coincide in a first-rate program of technical education. Every high school graduate should have the opportunity to prepare for a job commensurate with his interests and talents. The number of job opportunities for young men and women without specialized skills and knowledge is steadily decreasing. At the same time, Illinois and the nation must have many more and better trained workers to maintain their positions in national and world competition. The need for expansion of technical education has been documented in state and national studies and reflected in federal programs to support technical education in the states.

The crucial role of vocational and technical education in solving the employment and economic problems of Illinois is discussed at length in the recent comprehensive report of the Governor's Committee on Unemployment. The following quotations illustrate the point of view and recommendations in this important study:

> As society becomes increasingly industrialized and scientifically oriented, the relationship between education and industrial processes grows closer. Advancing technology not only substitutes more productive for less productive processes; it substitutes more productive people for less productive ones. And education and training are the basic means of raising the individual's productivity and thereby keeping him at work. . . .
>
> Just as advancing technology created the need for technicians functioning as the bridge between creative engi-

neers and scientists and the production men, so do the expanding needs of business, government, educational institutions and industry call for better educated and more knowledgeable assistants. Today the minimum educational qualification for clerical and sub-professional occupations is high school graduation; the average requirement is higher and in the process of rising . . . .

There is now a considerable body of evidence showing that since the turn of the century only about half the nation's increased output has been due to increased expenditures on capital and equipment; the other half has resulted from increased education — more skilled labor, greater amounts of research resulting in technological advance and improved management techniques . . . .

We recommend that technical education be established either in technical institutes or in junior colleges with technical curricula and coordinated with regional vocational schools which would be within easy commuting distance of almost every one in the State", and again, "We strongly urge that planning for establishment of junior colleges be linked with planning for technical institutes and vocational education centers, so as to achieve the most economical and effective system.[9]

The national projection of employment by major occupational groups, 1960 to 1970, by the U. S. Bureau of Labor Statistics is shown in Table III. The noteworthy feature is that the occupations in which demand for workers will rise faster than average are the ones in which the most education is required: professional and technical workers and clerical and service workers. The fraction of the total work force in occupations requiring the least education will decrease.

The most comprehensive study of the need for expanded vocational and technical education in Illinois was completed in 1960 by the Bureau of Educational Research, College of Education, University of Illinois, for the Office of the Superintendent of Public Instruction. The data and conclusions for Illinois in this report are based primarily upon that study. Although these data are for years preceding 1960, it is evident that developments in recent years are not keeping pace with the increasing needs for technical

[9] Report of the Governor's Committee on Unemployment-Illinois, January, 1963, Chap. IV, Education and Training, A Cornerstone, pp. 66, 96, 97.

TABLE III

Employment by Major Occupational Group, 1960 and Projected 1970

	Employment				Change 1960-70	
	1960		1970[a]			
	Number (millions)	Per Cent	Number (millions)	Per Cent	Number (millions)	Per Cent (rounded)
All Groups	66.7	100.0	80.5	100.0	13.8	21
Professional, technical, and kindred workers . . .	7.5	11.2	10.7	13.3	3.2	43
Managers, officials, and proprietors, except farm	7.1	10.6	8.6	10.7	1.5	21
Clerical and kindred workers	9.8	14.7	12.8	15.9	3.0	31
Sales workers	4.4	6.6	5.4	6.7	1.0	23
Craftsmen, foremen, and kindred workers . . .	8.6	12.8	10.3	12.8	1.7	20
Operatives and kindred workers	12.0	18.0	13.6	16.9	1.6	13
Service workers.	8.3	12.5	11.1	13.8	2.8	34
Laborers, except farm and mine	3.7	5.5	3.7	4.6	---	---
Farmers, farm managers, laborers, and foremen.	5.4	8.1	4.2	5.3	-1.2	-22

[a] Projected by U.S. Bureau of Labor Statistics.

education in the state. The analyses and proposals in the study, though calling for a great leap forward, are conservative in relation to the needs of the state for post-high-school technical education and to developments in other states with comparable economic base and levels of industrial activity.

Following the study referred to, the major occupational categories may be classified in four groups on the basis of the amount of formal education required:

1. Professional - occupations that require extensive periods of formal education (four to eight years).
2. Technical - occupations for which two to three years of college-level technical training is essential.
3. Semi-technical - occupations requiring competencies on semi-technical or advanced skill levels and for which one to two years of post-high-school training is usually needed.
4. Vocational - occupations for which training may be given as a part of a high school program.

It is not easy or necessary to draw sharp lines between these groups. This section, however, is primarily concerned with evaluating the needs of the state with respect to Groups 2 and 3, namely, occupations requiring technical and semi-technical education, and with outlining a basic plan to meet these needs.

The Nature of Technical Education

Typical occupations that require the technical level of education include those of engineering technicians; architectural and structural draftsmen; medical, dental, and scientific technicians; production technicians; business specialists of many kinds; technical specialists in agriculture and related industries; and many others. These fields are characterized by a special application of knowledge from the basic fields, such as mathematics and science. Preparation includes not only specialized courses in the techniques of the occupation but also a body of general and related knowledge. The standard of performance in these occupations includes a considerable degree of flexibility and resourcefulness.

The McLure study describes or lists the contents of a number of one- and two-year curriculums in industrial, business and agriculture-related programs.[10] As a sample of a high-level technical program, an Electronic Technology curriculum is given below.

[10] Ibid, pp. 51-74.

It is one of a series of curriculums prepared and described in detail by groups of engineering educators and practicing engineers under the auspices of the U. S. Office of Education.[11] It is not a pre-engineering curriculum. A graduate of this curriculum will have a good foundation in the principles of electronics and considerable facility with the "hardware" encountered in the electronics industry. It is assumed that the entering student will have graduated from high school in a program that includes two to three years of mathematics, a year of physics, and a year of chemistry.

ELECTRONIC TECHNOLOGY CURRICULUM

First Year

	Hours per week Class	Lab
First Semester		
Technical Mathematics (Algebra and Trigonometry)	4	0
Direct Current Circuits and Machines	3	6
Social Science	3	0
Technical Drawing	1	6
Communication Skills	3	0
	14	12
Second Semester		
Technical Mathematics (Analytical Geometry and Calculus)	4	0
Time Varying Circuits	3	6
Basic Electronics	3	6
Shop Processes	1	2
Technical Report Writing	1	0
Graphic Analysis	1	3
	13	17

[11] Area Vocational Education Program Series No. 2. Electronic Technology, U.S. Office of Education Circular No. OE-80009.

Second Year

	Hours per week Class	Lab
Third Semester		
Engineering Science	3	3
Circuit Tracing	1	3
Special Electronic Circuit and Design	3	6
Transmitter Theory and Operation	3	6
	10	18
Fourth Semester		
Research Report (Special Problem)	0	6
Ultra-High Frequencies and Microwaves	3	6
Television Circuits	3	6
Industrial Electronics	3	6
	9	24

The Demand for Technical Education

Industry in Illinois is highly diversified, and the industrial trends in the state are remarkably like those in the nation as a whole. With one exception (textile mills), the top ten industries in the nation are the top ten in Illinois. Hence, a statewide program of technical education proportioned to meet the needs of Illinois will also correspond to national needs for trained men and women. It will prepare Illinois youth to adapt to the mobility of population and the changing requirements of industry that characterize the economic development of the nation.

Accurate estimates of the work force requiring technical education are difficult to make. McLure and his co-authors, assuming that the need in Illinois for additional workers and replacements in each of forty major occupational fields parallels the national need in these fields, came out with the following numbers of graduates of vocational and technical curriculums, needed annually in Illinois in the mid-1960's:[12]

Technical level (2 years college)	20,366
Semi-technical level (1 year college)	44,745
Vocational level (high school)	47,539

To show that these numbers are conservative, the estimated numbers needed annually in the 1960's for replacements and additions in a few occupations are related below to an assumed Illinois population of 10,000,000 and a gross state product of 40 billion dollars (approximately 7 per cent of current GNP).

[12]McLure et al., op. cit., Chap. II.

Occupation	Number of NEW Trained Persons	
	Needed annually in Illinois	Needed annually in Illinois per 10,000 population, or per $40,000,000 gross state product
Engineering Assistants	2790	2.8
Technicians (Medical, Dental, Scientific)	890	.9
Accountants	2340	2.3
Purchasing Agents	280	.3
Office Workers	15740	15.7
Printers	1350	1.4
Cosmetologists and Barbers	1540	1.5

The estimated numbers of new workers needed are also conservative in that not all occupations are included. It should also be emphasized that the enrollments in any year should be about three times the number of graduates needed.

Accurate and comprehensive figures of current enrollments and graduations in organized occupational curriculums are not available but the following figures will show that in Illinois they fall far short of the above estimates of the numbers needed.

In Illinois, in 1958, approximately 8,700 full-time and 3,100 part-time students were enrolled in organized occupational curriculums, in both public and private post-high-school institutions; the number of graduates in 1958 was about 2,600.[13] Unpublished data assembled by the same source show that the numbers did not change appreciably between 1958 and 1960.

The enrollment in engineering-related technical education programs in Illinois which are partially supported by federal funds under the National Defense Education Act (Title VIII) has increased from 441 in 1959 to 1,835 in 1963 (full-and part-time). These include some high school programs. Illinois does not at present have the basic facilities and programs with which to expand its technical education. Under Title VIII, the federal government will provide fifty per cent of the operating costs, on a matching basis, for programs in engineering technology and some other areas. In 1961, $375,000 was allocated to Illinois but only $168,000 was claimed and used.

[13]Organized Occupational Curriculums in Higher Education, U.S. Office of Education Circular No. 632, 1958.

At all events, it is apparent that the enrollments in technical education in Illinois are very far below the numbers needed to produce the 20,000 graduates from technical curriculums, and 45,000 from semi-technical curriculums, who could effectively be employed annually in Illinois.

In their study, McLure and his associates made a second estimate of the need for technical education in Illinois,[14] this time expressing the results in terms of a desirable plan for public technical education. For this estimate it was assumed that by 1965 or 1970, Illinois should aim approximately for the per capita enrollments in technical education that California had attained in 1957, namely, 20 full-time and 14 part-time students per 10,000 gross population. In the same year, 1957, the corresponding numbers in Illinois were 6 full-time and 3 part-time students per 10,000 population.

California and Illinois are similar in population, industrial development, distribution of occupations, and average per capita income. Each has special strategic factors that contribute to its position in the American economy. California has a big lead, however, in providing many kinds of technical education that are of great importance in the rapidly developing technology of industry and business and in public and private services.

In this second estimate, after allowing for an enrollment of about 5,000 full-time students in the private technical colleges and institutes, the calculations led to needed enrollments in public institutions at the technical level of 13,887 full-time and 13,190 part-time students. The plan for distributions of these students among the necessary curriculums will be discussed later. This goal for 1965 or 1970 is a much more modest one than that implied by the earlier estimated annual need of approximately 20,000 graduates in technical education. The curriculums typically require two years of full-time attendance. Taking account of drop-outs and part-time study, the annual number of graduates in the second estimate would be less than one third of the annual enrollment, perhaps 6,000 to 8,000 per year. Assuming an additional 2,000 graduates from the 5,000 enrolled in private institutions, the total number graduated annually would be about 9,000, or less than half of the estimated 20,000 additional workers and replacements needed annually in 1965. These figures are rough estimates but they are conservative and show that even with this very large increase in numbers enrolled in technical education, at least half of the needs of the state for technical workers would have to be met by on-the-job training, or by bringing in technically trained personnel from out of the state.

[14]McLure et al., op. cit., p. 48, and Appendix C, p. 147.

The Demand for Semi-Technical Education

The semi-technical level of occupation includes mechanics and repairmen for office machines, computers, machinery, transportation equipment, radio and television; structural metal workers; operators and maintainers of heavy machinery and equipment; automotive specialists; skilled craftsmen who require post-high-school education, in some cases as a part of apprentice training; general business assistants; farm service technicians; aircraft maintainers; laboratory assistants; and many other categories.

The diversity of such occupations is very great and it is not easy to define the boundaries of the group. The essential characteristic of the group is that the formal education required cannot ordinarily be completed in a vocational program in high school, but can be accomplished in a year of concentrated post-high-school study. As compared with technical education, there is less emphasis on cognitive knowledge and more on manipulative skills.

As noted above, the McLure study concluded that the annual number of workers at the semi-technical level of training needed in Illinois in the mid-1960's is approximately 45,000. Current enrollment figures in college-level semi-technical education in Illinois are not available. It is safe to say, however, that such enrollments are a very small fraction of the numbers of trained persons needed annually.

Recommended Plan for Technical and Semi-Technical Education

McLure and his co-authors identified 44 curriculums in technical education most important for Illinois and distributed the numbers of students given above (approximately 13,900 full-time and 13,200 part-time) among the curriculums in proportion to the relative need for new workers and replacements in the various occupational fields. They also proposed a reasonable number of centers in the state in which each curriculum should be offered, on the basis that efficient and economical operation requires that the enrollment in a curriculum should be at least 50 full-time and 60 part-time students, or the equivalent. The results of this distribution, given in Table IV[15] are the basis of a plan for technical education which would bring Illinois to the level attained by California in 1957.

A plan for the distribution of semi-technical education among centers is given in Table V.[16] Here 32 curriculums are identified as most important in terms of numbers of workers required. Since enrollment data in the nation or in individual states are not

[15] Ibid., p. 85, Table 21.

[16] Ibid, p. 87, Table 22.

available, the most important consideration in determining the desirable enrollment is that the estimated number of semi-technical workers needed is two to three times the number of technical workers. It is also assumed that education of this kind will not be available in private institutions. The total enrollments in semi-technical education proposed in Table V are therefore approximately 43,000 full-time and 40,000 part-time.

The proposed enrollments in Table V are for the state as a whole. The numbers of centers in which the curriculums should be offered, however, are given only for the part of the state outside of metropolitan Chicago, that is, in the areas where compromise between an efficient enrollment and distance from the center may be necessary.

The McLure study did not intend to describe in detail a plan for technical education in Illinois. Changing industrial technology, for example, will require new curriculums and different emphasis among curriculums. Studies are underway to secure more accurate data on the needs for specific kinds of training and on the development of curriculums to meet up-to-date needs. The University of Illinois and Danville Junior College, for example, are making a detailed survey of the need for engineering technicians in Vermilion County. Tables IV and V, however, do give a clear picture of the scale on which public technical and semi-technical education at the post-high-school level must be organized, if even half of the workers in these categories needed annually in the state in the middle 1960's, are to be educated.

Conditions for Successful Technical Education in Two-Year Colleges

If the two-year colleges are to meet successfully the comprehensive educational needs of high school graduates and adults, they will need to serve a number of purposes including the following: (1) Providing courses appropriate to the first two years of baccalaureate degree programs; (2) Offering a wide variety of curriculums designed to prepare students, in a period of approximately two years or less, to meet the entrance requirements of technical and semi-technical occupations needed in the region, state, or nation.

Committee H here calls attention to an excellent statement of conditions that must exist if technical education is to succeed:[17]

[17]Ralph Wenrich, Unpublished Address, "The Administration of Technical Education in a Comprehensive Community College," American Technical Education Meeting, Milwaukee, Wisconsin, December 2-4, 1962.

TABLE IV

Desirable Enrollments for Post-High School Technical Curriculums in Public Institutions of Illinois

Curriculum	Number of Students: Full-Time: For Graduation	Number of Students: Part-Time: For Graduation	Number of Students: Part-Time: Adults Up-Grading	Number of Regions to Offer Curriculum
Industrial				
Aeronautical Design, Maintenance, and Management	85	20	40	1
Air Conditioning, Heating, and Refrigeration	200	80	160	4
Architectural Technology	200	80	160	4
Building Construction	295	120	240	6
Civil Engineering Technology	200	80	160	4
Structural Technology	87	20	40	1
Chemical Technology	240	100	200	5
Electrical Construction and Wiring	160	60	120	3
General Electrical Work	585	200	400	10
General Electronics	876	200	400	10
Radio and TV Technology	400	160	320	8
General Engineering Technology	644	200	400	10
Industrial Technology	120	60	60	3
Automotive Technology	550	200	200	10
Diesel Technology	197	60	120	3
Drafting and Machine Design	550	200	400	10
Mechanical General	552	200	400	10
Tool and Die Design	150	60	120	3
Industrial Photography	80	40	---	2
Welding Technology	200	80	80	4
Total	6,371	2,220	4,020	
Non-Industrial				
General Agriculture	563	200	400	10
Industrial and Service Agriculture	42	20	40	1
Animal and Poultry Husbandry	200	100	200	5
Dairy Technology	50	20	---	1
Floriculture and Horticulture	120	60	120	3
Commercial Art and Advertising	400	140	280	7
Apparel (Fashion) Design	120	60	120	3
Graphic Arts	80	40	---	2
Publishing and Printing Technology	80	40	---	2
Accounting	827	200	400	10
General Business	1,420	200	400	10
Hotel Management	120	60	60	3
Insurance and Real Estate	120	60	120	3
Sales and Distribution	340	140	280	7
Special Technical Secretarial Work	1,430	200	400	10
Dental Hygiene	350	140	---	7
Dental Laboratory Technology	95	---	---	2

TABLE IV

Desirable Enrollments for Post-High School Technical Curriculums in Public Institutions of Illinois (continued)

	Number of Students			
	Full-Time	Part-Time		
	For Graduation	For Graduation	Adults Up-Grading	Number of Regions to Offer Curriculum
Non-Industrial (continued)				
Medical Office Assistant	180	60	120	3
Medical and Biological Laboratory Technology	240	100	100	5
Nursing (Two- and Three-Year)	611	200	---	10
General Home Economics	200	80	160	4
Clothing and Textiles	160	60	120	3
Food Administration	120	60	120	3
Police Methods Technology	190	200	300	5
Total	8,058	2,440	3,740	
Total Industrial and Non-Industrial	14,429	4,640	7,760	

1. The administration of the college must be clearly committed to the idea of providing occupationally oriented programs for those youth who are not planning to go into a four-year college and for adults already employed in the region.
2. The administration and faculty of the college must fully accept, as a major task of the institution, the goal of preparing youth for employment in technical and semi-technical occupations, and of serving the occupational training needs of employed youth and adults.
3. The internal administration structure must facilitate the development of both the college parallel and occupationally oriented programs. Every institution should be organized to assure the efficient achievement of its goals. If one of the goals is to prepare youth for employment, the administrative structure should be designed so that this goal can be achieved. If the two-year college is to serve two major purposes, then it will need to have two major divisions, each headed by a Dean or Assistant Dean.
4. The technical division should be organized on the basis of related occupational areas to be served, such as Engineering Technologies, Industrial, Medical, Dental or

TABLE V

Desirable Enrollments for Post-High School Semi-Technical Curriculums in Public Institutions in Illinois

Curriculum	Number of Students		Estimated Centers for Instruction (excluding Chicago metropolitan area)	
	Full-Time[a]	Part-Time	Regional Centers	Extension Centers Within Regions
Industrial				
Aircraft Maintenance	200	100	1	0
Automotive Maintenance	1,960	650	7	14
Building Construction	3,801	1,770	7	14
Chemical Laboratory Assistantship	440	660	3	0
Cooking and Baking	1,930	360	7	14
Electrical Work	2,078	2,500	7	14
General Industrial Drafting	864	800	7	0
Machining	2,400	2,500	7	14
Mechanics and Repair Work	3,497	1,400	7	14
Metal Smithing and Sheet Metal Work	441	600	3	0
Painting and Decorating	1,248	500	7	7
Patternmaking	441	120	3	0
Plumbing and Pipe Fitting	770	1,400	7	0
Printing	1,295	1,200	7	7
Radio and TV Maintenance and Repair	1,153	800	7	7
Structural Metal Work	440	400	3	0
Surveying	576	100	7	0
Tool and Die Making	777	500	7	0
Welding	588	600	7	0
Wood Technology	1,536	1,520	7	7
Total	26,435	18,480		
Non-Industrial				
Accounting and Bookkeeping	2,246	2,000	7	14
Advertising Display	518	500	7	0
General Agriculture	1,080	2,700	7	14
Specialized Agriculture	1,440	12,300	7	14
General Business	1,875	500	7	14
Cosmetology	1,545	---	7	14
Home Economics (Occupational)	1,120	1,000	7	7
Business and Commercial Photography	287	200	2	0
Practical Nursing	1,000	---	7	7
Real Estate and Insurance	577	500	7	0
Salesmanship	1,809	1,000	7	14
Senior Advanced Secretarial Work	3,022	1,000	7	14
Total	16,520	21,700		
Total Industrial and Non-Industrial	42,955	40,180		

[a]Distribution according to potential enrollments needed for worker replacement demands in Illinois.

Health, Agricultural, Business, Graphic Arts, etc., each with majors in the specific technology.

5. Administrative and supervisory offices in the organization must be staffed with specialists who understand occupational education and who are responsible for development and operation of the occupationally oriented program. They should be given the responsibility and authority to develop and operate programs for which there is an identifiable need, as determined through occupational surveys and student interests.
6. The ultimate quality of a curriculum depends on the quality of its faculty. These attributes are desired of all college teachers: intelligence, a genuine interest in students, personal and professional integrity, a capacity for communicating ideas in oral and written form, a thorough knowledge of subjects taught and skill in the fundamentals of the teaching-learning process. These attributes may not be entirely represented by formal academic training. The faculty may not necessarily be required:
   (a) To meet current certificate requirements in the public school programs;
   (b) To meet formal degree requirements of regular collegiate academic programs.

   Since the technical and semi-technical curriculums educate students primarily for specialized areas, it follows that a significant proportion of the faculty must have had relevant industrial experience and that this experience must be reasonably current. In some fast-moving technological fields, experience over ten years old can be as much a handicap as an asset. Faculty members must be required (a) to maintain technical competence in their fields through participation in technical and professional societies and (b) to engage in work in industry or in research. They must be urged to keep up with the literature of their fields, to continue their education, to attend professional meetings, and to experience first-hand what is taking place in the industries related to their specialties. Time and financial assistance should be provided to encourage such growth. Promotions should be based on a balanced judgment of the instructor's capability to bring broad experience and academic background to bear on his teaching and not solely on the acquisition of higher academic degrees.
7. Provision must be made in the administrative structure for

continual curriculum development. Programs must be continually evaluated, revised when necessary, dropped when no longer needed, and new programs added as needs dictate.

8. Policies regarding student selection should be carefully developed. Admission into technical programs should be based upon high but realistic standards. These standards would not be the same for all programs.
9. Special counseling, advisement, and placement services must be made available to two-year technical students. Follow-up of all graduates is also necessary if the program is to meet changing occupational needs.
10. The extensive use of advisory committees in each of the major occupational areas is essential. These advisory committees must include both regional and state-wide representation, and must include representatives of the occupation for which training is offered and of professional organizations.

Summary

The interests and talents of a large fraction of young Illinois men and women and the needs of business, industry, and services in the state meet in the demand for a great statewide expansion in first-rate, college-level, one- and two-year programs in technical and semi-technical education. Professional-level education is necessarily becoming more theoretical and sophisticated as new basic knowledge is rapidly brought to bear in the applied fields. A serious gap is developing in education for the actual operation of the increasingly complex equipment and procedures that are characteristic of industry and the professions—construction, automated manufacturing, communications, the health professions, business data processing, to name only a few. Such education is desired by many high school graduates and by adults who need additional training or retraining in a new field.

McLure and his co-authors calculate conservatively that annually, in the mid-1960's, Illinois could use effectively, as additional workers and replacements, 20,366 graduates of two-year technical curriculums and 44,745 graduates of one-year semi-technical curriculums.

Our proposal, again following McLure, is a more modest one, namely, that as soon as possible Illinois should provide new col-

lege-level educational facilities and programs to enroll approximately the following numbers:

	Full-time Students	Part-time Students
Technical level (2-year)	13,900	13,200
Semi-technical level (1-year)	43,000	40,000

The graduates from such enrollments, together with graduates from private technical schools, might provide about half of the trained workers needed annually in Illinois, according to the above estimate. The part-time students should include large numbers of adults who are learning in order to keep up with developments in their lines of work, or who need to learn new fields.

Committee H believes that a statewide system of regional, comprehensive two-year colleges, each with a division to administer technical and semi-technical curriculums, should be established as soon as possible. The plan outlined by McLure and his co-authors, in which the state is divided into ten regions, may be taken as a model. The final decisions as to number and boundaries of regions, location of main and auxiliary centers, the number and choice of curriculums to be offered in each region, and other conditions and details will need to be developed by regional and state bodies established to administer the system. Plans for the system should make maximum use of established centers of technical and semi-technical education.

It is further believed that centralized state financial support and substantial centralized control are essential to high quality, efficiency, and flexibility in technical and semi-technical education in the state. High-quality technical education is relatively costly in faculty, buildings, and equipment. A curriculum should not be established unless it is quite clear that the enrollment will justify it. McLure and his co-authors have set the minimum efficient enrollment for a curriculum at approximately 50 full-time and 60 part-time students. On this basis, the number of regions in which it is recommended that a curriculum be established varies from one to ten, depending upon the estimated demand for graduates from the curriculum in the state as a whole (see Table 1, page 5). The semi-technical curriculums should have larger total enrollments and may be more widely distributed. Popular curriculums may be located at one or two auxiliary or extension centers in each region as well as at the regional centers (see Table V). A plan for a limited number of high-quality technical education centers implies that some students will attend a college not located in the region in which they live, particularly if they

wish to prepare to work in a field of limited demand. Flexibility in choice of curriculum will thus be aided by financing the statewide system primarily at the state level of government. These considerations of quality, efficiency, and flexibility point to the merits of accepting post-high-school education in the two-year colleges as a statewide enterprise, to be financed at the state level, except for federal support and tuition charges to students.

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A Study of FFA Cooperative Acquaintanceship Programs in Illinois.

Hemp, Paul E. * Ehresman, Norman D.

Illinois Univ., Urbana. Div. of Agricultural Education

Jan65

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FFA, Cooperative Acquaintanceship Program, Farm Bureau,

County Farm Bureau secretaries of organizations in Illinois were surveyed to -- (1) determine the nature and extent of Future Farmers of America (FFA) Cooperative Acquaintanceship Programs now being conducted, (2) discover their attitudes and opinions about the values of these programs, (3) discover ways and means of upgrading the programs, and (4) develop a model which could be used on a pilot basis in counties where new or revised programs are contemplated. All secretaries responded to the 32-item questionnaire which was sent to them. A summary of responses is given for each item, and findings are summarized and commented on. Findings included -- (1) 65 counties or 66.3 percent of the county units in Illinois hold FFA Cooperative Acquaintanceship Programs, and (2) The most frequently mentioned reasons for conducting FFA Cooperative Acquaintanceship Programs are to acquaint students with Farm Bureau-type cooperatives and to help students understand how these cooperatives work. The questionnaire form is included. This study was a part of a broader research project, "Education Regarding Cooperative Organizations in Rural Areas." (EM)

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A STUDY OF FFA COOPERATIVE ACQUAINTANCESHIP PROGRAMS IN ILLINOIS

by

Paul E. Hemp, Associate Professor
Norman D. Ehresman, Research Assistant

Division of Agricultural Education
College of Education, University of Illinois

January 1965

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EDUCATION REGARDING COOPERATIVE ORGANIZATIONS IN RURAL AREAS

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Foreword

This publication is a report of a survey of county Farm Bureau secretaries of organization in Illinois regarding how the FFA Cooperative Acquaintanceship Programs are conducted in their counties. This survey is a part of a broader research project entitled, Education Regarding Cooperative Organizations in Rural Areas. The objectives of this project are:

1. determine current educational programs in rural communities regarding cooperative organizations.
2. assess the relative effectiveness of various educational programs regarding cooperative organizations in rural communities.
3. determine opportunities for educating people in rural areas about their cooperatives.
4. develop plans for fostering understanding of the functions and operating procedures of rural cooperatives.

The study of FFA Cooperative Acquaintanceship Programs in Illinois contributes directly to these objectives and will be a valuable portion of the total data being obtained pertaining to education regarding cooperative organizations in rural areas. Dr. Paul Hemp, principal investigator, and Mr. Norman Ehresman have probed incisively into the operation of the FFA Cooperative Acquaintanceship Programs in the various counties. The information they have obtained and the insight they have provided regarding the effective operation of these programs will have much practical value to persons responsible for organizing and conducting future FFA Cooperative Acquaintanceship Programs. The study should also be of value to teachers and FFA members who plan to participate in FFA Cooperative Acquaintanceship Programs.

Lloyd J. Phipps
Project Director

ACKNOWLEDGMENTS

The data presented in this report were furnished by the county secretaries of organization in Illinois. The writers wish to commend them for responding 100 percent to the research questionnaire.

Special acknowledgments are due Mr. Kenneth Cheatham, Director of Youth Activities, Illinois Agricultural Association and the following members of the Youth Activities Committee:

Mr. Ken Cassens
Mr. Henry Chamberlain
Mr. Ralph Hofstad
Mr. Theron Summers
Mr. Al Kemnitz

Mr. Cheatham sent the questionnaires to the county secretaries of organization, and he and his committee members provided valuable counsel and encouragement throughout the period when the study was being conducted.

Paul E. Hemp
Norman D. Ehresman

PART I
DESCRIPTION OF THE STUDY

Situation. FFA Cooperative Acquaintanceship Programs are held in most of the counties in Illinois. Typically, these programs are planned jointly by the county secretaries of organization[1] and school staffs. Vocational agriculture students at the junior and senior levels are usually invited to participate.

The nature of FFA Cooperative Acquaintanceship Programs varies greatly from county to county. Some county secretaries of organization have expressed a desire to improve these programs, and other secretaries would like to start new programs in their counties.

Purposes of the CSO Survey. The major purposes of surveying the county secretaries of organization were as follows:

1. to determine the nature and extent of FFA Cooperative Acquaintanceship Programs now being conducted in Illinois.
2. to discover the attitudes and opinions of county secretaries of organization regarding the value of these programs.
3. to discover ways and means of upgrading FFA Cooperative Acquaintanceship Programs.
4. to develop a prototype or model which may be used on a pilot basis in counties where new or revised programs are contemplated.

Procedures Used. Copies of Survey Form II, Education Regarding Cooperative Organizations in Rural Areas, were sent to Illinois county secretaries of organization by Mr. Kenneth Cheatham, Director of Youth Activities, Illinois Agricultural Association. The full cooperation of the county secretaries resulted in a 100 percent response. A copy of Survey Form II appears at the end of this report.

The tabulations and the analyses of the data collected were made by the Agricultural Education Division staff. A summary of responses appears in Part II of this report. Part II includes a list of the major findings and reactions which have been drawn from the data. A proposed prototype or model outlining a suggested procedure for planning and conducting FFA Cooperative Acquaintanceship Programs will be developed as a separate publication.

---

1. County secretaries of organization (CSO's) are employees of county Farm Bureaus.

PART II

SUMMARY OF RESPONSES

The data summarized and presented in this report appear in the form of answers to specific questions, lists of activities and practices followed in the counties of the state, and information presented in tabular form.

QUESTION: Do you have an FFA Cooperative Acquaintanceship Program in your county?

RESPONSE: Sixty-five counties or 66.3 percent of the county units in Illinois hold FFA Cooperative Acquaintanceship Programs.[2]

QUESTION: What are the major reasons for not holding an FFA Cooperative Acquaintanceship Program?

RESPONSE: The major reasons given by secretaries of organization for not holding FFA Cooperative Acquaintanceship Programs are summarized in Table I.

TABLE I

FREQUENCY AND PERCENTAGE OF CSO'S WHO LISTED VARIOUS REASONS FOR NOT HOLDING FFA COOPERATIVE ACQUAINTANCESHIP PROGRAMS

(N=33)

Reason	Frequency	Percentage
1. Lack of interest and cooperation	15.	45.5
2. No reason given--planning now to start program	13.	39.4
3. No reason given	9.	27.3
4. Lack of funds	3.	4.6
5. No FFA chapters in county	1.	3.0
6. High turnover of CSO's	1.	3.0

2 Illinois is divided into 102 counties; however, in four instances two counties cooperate by employing one county secretary of organization.

QUESTION: What are the values of conducting an FFA Cooperative Acquaintanceship Program?

RESPONSE: County secretaries of organization gave several reasons for conducting Acquaintanceship Programs. These reasons have been summarized and listed in Table II.

TABLE II

FREQUENCY AND PERCENTAGE OF CSO'S LISTING VARIOUS REASONS FOR CONDUCTING FFA COOPERATIVE ACQUAINTANCESHIP PROGRAMS

(N=65)

Reason	Frequency	Percentage
1. Acquaint students with cooperatives	41.	63.1
2. Help students understand how a cooperative operates	12.	18.5
3. Help students understand the Farm Bureau and the IAA	9.	13.8
4. Acquaint students with job opportunities in cooperatives	4.	6.2
5. Gain new business	1.	1.5

QUESTION: When do you hold your Acquaintanceship Program?

RESPONSE: Time of year. Of the 65 counties conducting Acquaintanceship Programs in 1963-64, 75.3 percent of the counties (49) held these programs in late winter or early spring. Twelve counties held their meetings in the fall or early winter. One county held its meeting in June after the schools had closed.

Day or time. Thirty-five percent of the counties (18) indicating a day or time for Acquaintanceship Programs held these meetings during school hours. Thirty-three counties conducted Acquaintanceship Programs on Saturdays or holidays, or after-school hours on school days.

QUESTION: What is the length of Acquaintanceship Programs?

RESPONSE: Sixty-one of the 65 counties conducting Acquaintanceship Programs responded to this question. The length of meetings reported and the number and percentage of counties reporting each length are shown in Table III.

TABLE III

FREQUENCY AND PERCENTAGE OF COUNTIES CONDUCTING FFA COOPERATIVE ACQUAINTANCESHIP PROGRAMS OF VARIOUS LENGTHS

(N=61)

Length of Program	Frequency	Percentage
1. One day	18.	29.5
2. One-half day	18.	29.5
3. One day plus evening	14.	23.0
4. One evening	6.	9.8
5. Two class periods in each school	4.	6.6
6. Two days	1.	1.6
Total	61.	100.0

QUESTION: Which FFA members are invited to attend the program?

RESPONSE: Fifty-nine of the 65 counties reporting on their programs answered this question. The responses of these 59 CSO's are summarized in Table IV.

TABLE IV

FREQUENCY AND PERCENTAGE OF COUNTIES INVITING FFA MEMBERS OF VARIOUS GRADE LEVELS TO ATTEND ACQUAINTANCESHIP PROGRAMS

(N=59)

Class or other basis	Frequency	Percentage
1. Grades 11 and 12	31.	52.5
2. Grade 12 only	13.	22.0
3. Grades 9, 10, 11, and 12	6.	10.2
4. Grade 11 only	4.	6.8
5. Selections made by teachers	4.	6.8
6. Program taken to schools	1.	1.7

QUESTION: Who, other than FFA members, is invited to Acquaintanceship Programs?

RESPONSE: Replies to this question from 65 counties are summarized in Table V.

TABLE V

PERCENTAGE OF COUNTIES INVITING VARIOUS GROUPS OF PERSONS TO THEIR ACQUAINTANCESHIP PROGRAMS

(N=65)

Group	Percentage of Counties Inviting Group
Agriculture teachers	64.6
Board members of county cooperatives	32.3
School administrators and counselors	32.3
Affiliate company managers	30.8
Staff members of affiliate companies	15.4
Fathers of students	4.6
Others	9.2
FFA members only	13.8
No reply	4.6

QUESTION: What is the approximate cost of Acquaintanceship Programs and how are these programs financed?

RESPONSE: The data in Table VI show the amounts spent by counties on Acquaintanceship Programs. The data in Table IV reveal that more than 65 percent of the counties spend less than $201. on these programs.

TABLE VI

FREQUENCY DISTRIBUTION OF COUNTIES CLASSIFIED ACCORDING TO THE AMOUNT OF MONEY SPENT ON FFA COOPERATIVE ACQUAINTANCESHIP PROGRAMS

(N=65)

Cost in dollars	Frequency	Percentage
0-25	4.	6.2
26-50	10.	15.4
51-100	16.	24.6
101-150	7.	10.8
151-200	8.	12.3
201-250	2.	3.1
251-300	5.	7.7
301-350	2.	3.1
351-up	3.	4.6
$2.50/person	3.	4.6
No reply	5.	7.7

The usual sources of funds used for the financing of Acquaintanceship Programs are Farm Bureaus, Service Companies, and Affiliated Companies. The data in Table VII show a complete breakdown of counties grouped according to the sources from which funds are obtained.

TABLE VII

SOURCES OF FUNDS USED TO FINANCE ACQUAINTANCESHIP PROGRAMS AND THE NUMBER AND PERCENTAGE OF COUNTIES USING EACH SOURCE

(N=62)

Source	Frequency	Percentage
Farm Bureau	39.	60.0
Service company	31.	47.7
Farm Bureau and affiliate companies share expenses	13.	20.0
Insurance company	6.	9.2
Producers livestock company	4.	6.2
Grain company	2.	3.1
Production credit association	1.	1.5
Producers seed company	1.	1.5
FFA pays half of the expenses	1.	1.5

Planning the program. County secretaries of organization were asked to respond to a series of questions concerning the planning of FFA Cooperative Acquaintanceship Programs. Listed below are the percentages of counties which followed certain planning practices.

1. Vocational agriculture teachers help in the planning of the program. (97%)
2. Managers of cooperatives participate in the planning of the program. (97%)
3. A meeting is held to plan the program. (85%)
4. High school administrators are contacted prior to the planning period. (52%)
5. Board members of county cooperatives help in the planning of the program. (40%)

Conducting acquaintanceship programs. County secretaries of organization were asked to indicate the activities and procedures used in conducting Acquaintanceship Programs in their counties. The percentages of counties using certain specified activities are as follows:

1. Managers of county co-ops take part in programs. (98.5%)
2. The functions of Farm Bureau are discussed during the program. (98.5%)
3. The organization, operation, and control of a cooperative is taught. (95.4%)
4. The organization of the IAA is taught to students. (93.8%)
5. Tours of co-op facilities are included in the program. (84.6%)
6. A banquet is held as a part of the program. (81.5%)
7. Special speakers are invited to participate in the program. (60%)
8. Teachers are influenced to teach a unit on cooperatives prior to "Acquaintanceship Day." (39%)
9. Board members of county co-ops participate in programs. (38.5%)
10. Small group discussions are scheduled as a part of the program. (33.8%)
11. Follow-up meetings with FFA chapters are held. (33%)
12. CSO's visit vocational agriculture classes or FFA meetings. (30.8%)
13. Entertainment is included as a part of the program. (10.8%)

In addition to the activities and procedures listed, other program activities identified by county secretaries of organization included the following:

1. Ask FFA members to report what they have learned.
2. Try to entertain boys and develop friendships.
3. Discuss career opportunities with representatives from the Farm Bureau and its affiliates.

4. Ask an FFA member from each school to talk five minutes on the cooperative activities at his school.
5. Use educational slides such as Legislature and the Farm Bureau in Action.
6. Take students on trips to plays, basketball games, feed mills, baseball games, and so forth.

QUESTION: Describe other activities or aspects of your program not covered elsewhere in this survey.

RESPONSE: County secretaries of organization listed the following additional suggestions for planning and conducting FFA Cooperative Acquaintanceship Programs:

1. We always need more time but we are fortunate to get one-half day.
2. We have the chapter presidents express their opinions at the close of the banquet.
3. We always have a "question-and-answer" session.
4. We change our program a little each year.
5. We invite persons from Production Credit Associations and Land Bank Associations to show the boys a well-rounded cooperative program.
6. We spend some money for "give-aways" (nail clippers).
7. We allow students to observe a regular Farm Bureau board meeting and to have lunch with the Board.
8. We allow FFA members to spend a day with a cooperative employee.
9. We cooperate with a neighboring county in sponsoring a meeting.
10. We send one student to the American Institute of Cooperation meeting.
11. We have seniors visit Farm Supply facilities outside their home counties.
12. We visit schools and teach a class.
13. We divide our program into the following four phases:
    a. Dinner with agriculture teachers and administrators.
    b. Program for juniors.
    c. Out-of-county tour for seniors.
    d. Banquet for juniors, seniors, parents, school administrators, and agriculture teachers.

QUESTIONS: What are some of the problems you have encountered in planning and conducting the Acquaintanceship Program?

RESPONSE: The major problems listed in order of frequency by county secretaries of organization are as follows:

1. Scheduling meetings.
2. Providing interesting programs.
3. Getting attendance.
4. Securing cooperation of schools.
5. Overselling Farm Bureau.
6. Overcoming effects of bad weather.
7. Financing the program.

QUESTION: What changes do you intend to make in the program next year?

RESPONSE: Changes listed by county secretaries of organization and the number of persons listing each change are as follows:

Change	Number of CSO's Listing Change
1. None, very little, or undecided	36
2. Use more educational devices such as group discussions, demonstrations, and tests	7
3. Improve and expand program	4
4. Include a banquet	3
5. Plan program better and involve teachers in planning	3
6. Drop tour	2
7. Include a tour	2
8. Hold meeting earlier in year	2
9. Invite juniors as well as seniors	2
10. Start at 3:30 p.m. on school day	1
11. Use delegates to IAA sponsored FFA Holiday Conference on program	1
12. Show students career opportunities in IAA affiliates	1
13. Get more financial assistance	1
14. Do away with speaker	1
15. Schedule a program every other year	1

PART III

SUMMARY

The results of this survey show that many successful procedures have been used in planning and conducting FFA Cooperative Acquaintanceship Programs. It is not the intent of the writers to prejudge each of these practices or to suggest that every county should use the same practices. It is apparent, however, that certain practices and procedures seem to stand out in terms of frequency of use, while other practices and procedures are rarely used or seem to be of questionable value. The following findings and reactions should help the reader identify those practices and procedures which are most useful to him:

FINDING NO. 1: Reasons for conducting FFA Cooperative Acquaintanceship Programs mentioned most frequently by CSO's were to acquaint students with Farm Bureau type cooperatives and to help students understand how these cooperatives work.

REACTION: If one accepts the opinions of a majority of the county secretaries of organization, one should give major emphasis to educational activities which help students learn how cooperatives are organized and operated. Overselling of the Farm Bureau and agricultural policy-making do not appear to be compatible with the major educational objectives accepted by a majority of the CSO's. In keeping with the purposes outlined in Finding No. 1, the most appropriate name for these programs appears to be "FFA Cooperative Acquaintanceship Program," sponsored by the Illinois Agricultural Association, its affiliated companies and county Farm Bureau and affiliates.

FINDING NO. 2: This study shows that three-fourths of the counties held Acquaintanceship Programs in late winter or early spring, and 64 percent of the counties responding held these programs outside of school hours.

REACTION: Evidently, the practice of holding FFA Cooperative Acquaintanceship Programs during the winter season has proven successful in many counties. The scheduling of Acquaintanceship Programs should also be based on a consideration of when most teachers teach a classroom unit on cooperatives.

FINDING NO. 3: Eighty-two percent of the 61 CSO's who responded to a question regarding the length of their Acquaintanceship Programs indicated that these programs lasted either one day, one-half day, or one day plus an evening.

REACTION: The amount of time available during Acquaintanceship Programs is very limited. Certain worthwhile activities may have to be deferred until a later date. Perhaps tours of facilities should be handled as a separate activity rather than incorporated into a half-day Acquaintanceship Program.

FINDING NO. 4: About 80 percent of the counties reporting on their programs invited only students from grades 11 and 12.

REACTION: Apparently, the persons who planned and conducted FFA Cooperative Acquaintanceship Programs felt that the more mature junior and senior students are able to benefit more from these programs than underclassmen. Furthermore, classroom instruction on cooperatives is usually provided in the advanced agriculture classes. The Acquaintanceship Program can serve as a follow-up to formal instruction at school.

FINDING NO. 5: Less than two-thirds of the CSO's reported that they invited the agriculture teachers, and less than one-third of the CSO's reported that they invited board members of county cooperatives, school administrators, counselors, and affiliate company managers to their Acquaintanceship Programs.

REACTION: When finances permit, persons other than FFA members should be invited. Attendance of persons other than FFA members can be encouraged by inviting such persons to participate in the program or to assist with the arrangements.

FINDING NO. 6: About two-thirds of the counties spent less than $201 on their FFA Cooperative Acquaintanceship Programs.

REACTION: It is not necessary to spend huge amounts of money in order to conduct an Acquaintanceship Program. The decision regarding cost-sharing by various groups should be made in each county. The degree to which participating groups share in the financing of these programs should probably not be predetermined by outside groups but left to the individual counties.

FINDING NO. 7: Vocational agriculture teachers and managers of cooperatives usually participated in the planning of Acquaintanceship Programs. Organized planning meetings are held in 85 percent of the counties responding to this section of the survey form.

REACTION: Thorough planning is apparently a prerequisite to a successful program. The involvement of agriculture teachers and cooperative employees in program planning is highly desirable.

FINDING NO. 8: Tours of cooperative facilities were commonly included in Acquaintanceship Programs.

REACTION: Tours of facilities are valuable educational activities, but they should not serve as substitutes for group discussions and other instructional activities which help acquaint students with the "human" side of cooperative businesses.

FINDING NO. 9: Fewer than one-third of the CSO's reporting indicated that they made visits to vocational agriculture classes or to FFA meetings.

REACTION: This study did not attempt to discover why CSO's or cooperative personnel were not used more often as resource persons in the high schools. Perhaps teachers of vocational agriculture would utilize resource persons to better advantage if a listing of such persons were made available.

FINDING NO. 10: A few counties reported that FFA members were asked to evaluate the Acquaintanceship Program orally as a part of the evening session.

REACTION: Students are more likely to say what they think when written rather than oral evaluations are used. Students should not be required to sign evaluation sheets.

FINDING NO. 11: In some counties, Production Credit Associations or cooperatives not associated with the Illinois Agricultural Association were invited to participate in Acquaintanceship Programs.

REACTION: One advantage of including cooperatives not affiliated with the Illinois Agricultural Association in an Acquaintanceship Program is that students are exposed to a broader picture of the total cooperative movement. Use of Farm Bureau type cooperatives other than affiliated companies outlines those areas of service to farmers not presently rendered by IAA companies.

FINDING NO. 12: The number of educational activities which CSO's promoted or made available to high school students was too extensive to accomplish during a one-day Acquaintanceship Program.

REACTION: An Acquaintanceship Program may be considered as only one phase of an annual program of education regarding cooperatives. One county has developed an educational program consisting of the following activities:

1. Planning meeting to involve agriculture teachers and school administrators.
2. Acquaintanceship Program for juniors.
3. Tour for seniors of out-of-county facilities of Illinois Agricultural Association.
4. Banquet and program for juniors, seniors, and others.

FINDING NO. 13: County secretaries of organization indicated in this survey that scheduling meetings, providing interesting programs, securing attendance, and securing school cooperation were some of the major problems involved in conducting Acquaintanceship Programs.

REACTION: Finding a date and time agreeable to all individuals and groups is a problem which was mentioned most frequently by CSO's. In some counties, teachers and school administrators do not allow students to attend Acquaintanceship Programs during school time.[3] A few school administrators have regarded the Program as a "selling" activity rather than an educational activity. Practices followed by several CSO's to solve the problems of dates, attendance, and programming are as follows:

1. Meet with agriculture teachers and school administrators well in advance of Acquaintanceship Program to plan the program and set dates.
2. Call on school administrators and explain the purposes of the program. Stress the educational nature of the program.
3. Provide a fast-moving, interesting program which includes active participation by students. Avoid long speeches and dry lectures.
4. Develop a program which provides instruction about cooperatives. Keep the "selling" aspect to a minimum.

FINDING NO. 14: County secretaries of organization who planned to make changes in their Acquaintanceship Programs indicated that they planned to use more educational devices such as group discussions, demonstrations and tests.

REACTION: County secretaries of organization who wish to improve their Acquaintanceship Programs could benefit from an outline of a model program or a list of suggested teaching procedures and practices. A publication of this nature will be developed and made available.

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3 Permission granted by the Illinois High School Association for the Farm Bureau and its affiliates to conduct this program does not include school hour participation outside the classroom or off campus. Local administrators may and do make exceptions.

EDUCATION REGARDING COOPERATIVE ORGANIZATIONS IN RURAL AREAS

SURVEY FORM II

Answer in terms of your most recent program.

	Yes	No	
1.	____	____	Do you have an FFA-Farm Bureau Acquaintance Day Program in your County? If you answer NO, go to item 32.
2.	____	____	Do board members of the county co-ops help in planning the meeting?
3.	____	____	Do vocational agriculture teachers assist with the planning?
4.	____	____	Do you contact the high school principals prior to planning?
5.	____	____	Do the managers of the member co-ops participate in the planning?
6.	____	____	Do you hold an organized planning meeting?
7.	____	____	Do you try to influence vocational agriculture teachers to teach a unit on cooperatives just prior to your acquaintance day program?
8.	____	____	Do you consider your program to be of an educational nature?
9.	____	____	Do board members of county co-ops take part in the program?
10.	____	____	Do managers of county co-ops take part in the program?
11.	____	____	Do you or board members or others have follow-up meetings with the FFA Chapters?

Check the following activities that are included as part of your program.

12.	____	____	Tours of co-op facilities
13.	____	____	Banquet
14.	____	____	Small group discussions
15.	____	____	Special speaker
16.	____	____	Teaching the organization of IAA
17.	____	____	Teaching the organization, operation, and control of a cooperative
18.	____	____	Teaching the functions of Farm Bureau
19.	____	____	Visits to vocational agriculture classes or FFA meetings
20.	____	____	Entertainment
21.	____	____	Others (list)

Give brief answers to the following questions

22. When do you hold your Acquaintanceship meeting? (Time of year, time of day, Saturday, etc.)

23. What is the length of this meeting?

24. Which FFA members do you invite?

25. Whom do you invite other than FFA members?

26. What is the approximate cost of your program and how is it financed?

27. What changes do you intend to make in the program for next year?

28. If there are activities or aspects of your program not covered above, please describe.

29. What are the values, if any, of conducting an FFA-Farm Bureau Acquaintance Day?

30. In planning and conducting the program, what are some of the problems you have encountered?

31. If you printed a program for your Acquaintance Day would you include a copy when you return this form?

32. If an FFA-Farm Bureau Acquaintanceship program is not conducted in your county, list the major reasons why?

VT 000 455

VT 000 455

Vocational Education. (Staff Background Memorandum).

S. Dak. State Legislative Res. Council, Pierre

Apr64

DOCUMENT NOT AVAILABLE FROM EDRS 53p.

*VOCATIONAL EDUCATION, *TECHNICAL EDUCATION, *ADULT EDUCATION, *GUIDELINES, *FEDERAL LEGISLATION, STUDENT ENROLLMENT, INDUSTRIAL ARTS, PROGRAM DEVELOPMENT, EMPLOYMENT TRENDS, SECONDARY SCHOOLS, STATE AID, FEDERAL AID, EDUCATIONAL FACILITIES, OCCUPATIONS, PILOT PROJECTS, POSTSECONDARY EDUCATION, APPRENTICESHIP, UNEMPLOYMENT, DROPOUTS, POPULATION TRENDS, EDUCATIONALLY DISADVANTAGED, TEACHER EDUCATION,

South Dakota,

The 1964 session of the South Dakota Legislature passed House Concurrent Resolution no. 1, directing the State Legislative Research Council to conduct a study of existing vocational education opportunities in the state. Data from the U.S. Dept. of Labor, U.S. Office of Education, U.S. Bureau of the Census, individual schools, the South Dakota State Board of Education, and other sources were analyzed to meet this requirement. From the analysis, guidelines for improving vocational education were proposed -- (1) A comprehensive state-wide occupational survey should be conducted, (2) A detailed inventory of the state's educational facilities should be made, (3) Consultation with the state's leaders in industry, business, agriculture and labor should precede new programs, (4) If existing programs are adequate in certain areas, new programs in these areas should not be started, (5) Continual contact with industrial, busines, agricultural, and labor leaders should be maintained during program development, (6) Followup studies of present graduates and studies comparing costs with other forms of education should be made, and (7) The legislature should consider the feasibility of increased cooperation between state supported and private vocational education. Data covering enrollment, finances, expenditures, and curricula are included. Expansion of present programs, cooperation with neighboring states, and the passage of the Youth Employment Act are among the alternatives offered. (EM)

ED015348

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STAFF BACKGROUND MEMORANDUM

VOCATIONAL EDUCATION

APRIL 14, 1964

STATE LEGISLATIVE RESEARCH COUNCIL

State Capitol Pierre, South Dakota

VT 00455

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STATE LEGISLATIVE RESEARCH COUNCIL

State Capitol

Pierre, South Dakota

INTRODUCTION

The 1964 session of the South Dakota Legislature passed House Concurrent Resolution No. 1 (Appendix I to this paper), directing the State Legislative Research Council to conduct a study of existing vocational education opportunities in the state. The Executive Board of the Legislative Research Council subsequently accepted this subject as a topic for interim study. The purpose of this memorandum will be to present information regarding existing vocational opportunities in South Dakota at all educational levels, and in all educational institutions, public and private.

Vocational education in the state of South Dakota is still in the infancy stages. The great bulk of all vocational training in the state is being conducted in the high schools. There are, of course, exceptions to this statement, and notable among them is the vocational education program at Southern State Teachers College in Springfield. However, Southern is essentially a teacher training institution and not a vocational school.

There seems little doubt that there is a need for skilled technicians in almost all fields of employment in South Dakota. South Dakota is not alone in this respect. In fact, the state is much more fortunate than many of the highly industrialized states in the northeastern section of the country. Nonetheless, South Dakota has problems which can be summarized as follows: first, increased automation of farms has resulted in an exodus of farm-reared and largely unskilled youths to urban areas, resulting in increased unemployment; and, second, although South Dakota is not regarded as an industrial state, there are needs of existing and potential industry which are not being met by the vocational programs in the various local schools.

The entire problem surrounding vocational education was summed up very well in the introduction to "Education and Training for the World of Work," a study issued July, 1963, by the Upjohn Institute for Employment Research:

> The need for a greater emphasis on the preparation of both youth and adults for today's world of work is everywhere becoming recognized. As important as general education is for the development of the individual and the preservation of our culture and way of life, it is not enough for the great majority of people who must operate our machines, shops, and offices and provide our services. More and more occupations require skills and specialized knowledge for which there must be prior training.
>
> The relative increase in the demand for people with skills and the relative decrease in demand for those without skills or with obsolete skills are logical results of the technological advance that

has been going on for a long time. The present increase in the pace of technological advance, including automation, and the accompanying population explosion have only magnified them. As a consequence, hundreds of thousands of people remain unemployed. They consist of high school graduates as well as school dropouts, adults who have been squeezed down and off the employment ladder, women wishing to enter or reenter employment, the culturally disadvantaged, and other groups that might be identified.

The causes of unemployment are as complex as the industrial order itself. The lack or the immobility of any essential resource, including skilled labor, and particularly the lack of entrepreneurial ingenuity and enterprise, may check the growth of the economy before it can possibly provide enough jobs suitable for the many unskilled now out of work. But insofar as the individual is concerned, one common cause for unemployment is lack of a salable skill. The choice for many, therefore, may be either to acquire a salable skill or to settle down on public aid as a way of life.

Because of the present acuteness of unemployment, society has become preoccupied with providing short intensive training programs for one or another of the groups of unemployed, and rightly so. But over and over again such attempts at training have been blocked by the lack of training essentials: there may be no facilities, equipment, or materials; no curriculum; no instructional aids; or indeed no teachers. These are products of educational systems and institutions and of years of experience and development, the lack of which cannot be overcome easily or quickly.

The development of an adequate vocational education system, therefore, is prerequisite to a successful program of training and retraining. How to provide such a system as an integral part of total education and avoid deadend tracks for those who take vocational training constitutes one of the major educational challenges of the present day.

Since South Dakota is an agriculturally oriented state, the problem of vocational education, quite naturally, is focused on farm youth. A large percentage of farm boys and girls do not complete high school or college and at the same time they find that due to increased mechanization they must leave the farms which are rapidly dwindling in number. Agricultural technology has, in fact, increased American farm production 35 per cent since 1940. Coincident with and

resulting from the increase has been a reduction in man hours needed on our farms, by about 48 per cent. Productivity per man hour has doubled in the last 20 years. Listed below is a chart indicating the net migration of persons from the nation's farms in the past 40 years.

Period (April-April)	Number of persons leaving farms
1920-1930	6,300,000
1930-1940	3,800,000
1940-1950	9,500,000
1950-1954	4,700,000
1954-1958	2,500,000

Source: U. S. Department of Agriculture, "Farm Population," AMS-80 (1958).

A 1958 report of the U. S. Department of Agriculture Federal Extension Service entitled, "Opportunities and Limitations for Employment of Farm People Within and Outside of Farming," estimated that if present trends continue, no more than 15 per cent of the young men reared on farms reaching the age of 20 between 1954 and 1963 could hope to find farming opportunities that would result in net earnings of more than $2,500.00 per year. It is also estimated that only one farm boy in ten can expect full time employment on a farm in 1970. To illuminate this point the following chart prepared by the U. S. Department of Labor concerning the change in major occupational groups is presented:

Percentage Change in Major Occupational Groups in the United States, 1955-1965

Occupational groups	Percentage change
Professional and technical	+37
Proprietors and managers	+22
Clerical and sales	+27
Skilled craftsmen	+24
Operatives (semiskilled)	+22
Service workers	+13
Laborers	- 3
Farmers and farm workers	-15

Source: U. S. Department of Labor, "Our Manpower Future."

It would seem that there is a distinct need for a reevaluation of our vocational education needs and purposes. At the present time the number of farms and hence, the number of men needed to operate the farms, is diminishing rapidly. At the same time the principal emphasis in the vocational programs of the state's high schools is on agricultural education. The need today in South Dakota and throughout

the nation is for skilled craftsmen, mechanics, nurses, commercial personnel and other technicians.

Vocational training in industrial and trade courses is almost non-existent in the small, rural high schools of the state. These courses are almost exclusively found in the state's larger high schools. Agriculture is South Dakota's most important industry and there is most definitely a need for agricultural education in the state's high schools; however, it would seem that the state should adapt its vocational programs in accord with existing and future needs.

In terms of reevaluating vocational goals, there is a second point which deserves passing attention. The emphasis today is on mass education and while this is desirable, some educational philosophers contend that every young person should receive a higher education. This philosophy is unrealistic because many young people do not have the ability or the desire to pursue an academic course of study. On the other hand, many of the same young people do have a desire to learn technical skills and "work with their hands." Therefore, South Dakota's educational system should be well balanced, by appealing to young people with technical or vocational goals as well as those with academic or professional goals.

There are three major results of an inadequate vocational education program. The first is unemployment. Although South Dakota has no major unemployment problem at the present time, it could be a source of concern in the future. The chain of events leading from a lack of vocational facilities to unemployment is explained as follows: students uninterested in a strict academic course of study, but who may be inclined toward work in a certain trade often discover that the school they are attending has little or no training in that particular field. This situation is one of the main factors leading to the high school drop-out problem. A result in turn, with a large number of unskilled persons in the state, is unemployment.

A second result of inadequate vocational education in a state is that many young people, unable to find suitable training in their desired field, migrate to other areas of the nation. This leads to a serious loss of technical manpower resources. In turn, the loss of manpower resources results in decreased economic productivity and decreased revenue through taxation. South Dakota is one of the states that is losing manpower resources in the most productive age group; this fact is graphically presented in the following tabulation:

Characteristic	1960	1950	Per cent of Change
Population total	680,514	652,740	Plus 4.3
Under 18 years	262,163	221,181	Plus 18.5
18 to 65 years	346,838	376,263	Minus 7.8
65 years and Over	71,513	55,596	Plus 29.3

Source: U. S. Bureau of the Census, Final Census Reports, 1961.

A final result of inadequate vocational education is that which results when a person is forced to learn a trade on the job, excepting, of course, apprenticeship programs in which apprentices receive instruction on and off the job. However, when a person is forced to learn a trade on the job, without the benefit of apprenticeship training, the result is an economic loss to the worker himself, to his employer and to the entire economy of the state and nation.

Generalizations should always be avoided, but the simple fact of the matter is that inadequate vocational education can be extremely costly. It is an established fact that most of those who are unemployed are also unskilled. A later section of this paper will deal with the unemployment problem in greater detail. The following sections will also present existing vocational opportunities at all educational levels, a comparison of vocational opportunities in South Dakota with similar opportunities in other neighboring states and finally, certain proposed alternatives will be suggested.

It should be added at this point that a supplement to this memorandum will be issued concerning a specific vocational education need, that is, dental hygienist training.

THE ROLE OF THE FEDERAL GOVERNMENT IN VOCATIONAL EDUCATION

Federal Legislation

It became apparent, as early as the administration of President Woodrow Wilson, that there was a great need for vocational education in the United States. Legislators and administrators realized then, as they do now, that it made little sense to try to give every young person in the nation a college education. Because of interest and ability factors, not every person is designed for academic study in a college or university.

Due in large measure to the prodding of President Wilson, Congress recognized the importance of vocational education in 1917 when it passed the Smith-Hughes Act. This federal statute provided for an annual grant of $7.2 million to the several states for the purposes of vocational education. A matching program, it was distributed as follows: $3 million

for agricultural education; $3 million for trade and industrial and home economics training; $1 million for teacher training; and the balance for administration at the federal level.

There were a number of federal appropriations for vocational education passed subsequent to the Smith-Hughes Act and prior to the George-Barden Act of 1946. The George-Reed Act, adopted in 1929, provided for more funds for education in the fields of agriculture and home economics. When this Act expired, the George-Ellzey Act of 1934 was passed. This merely extended the provisions of the George-Reed Act until 1936. Finally, the George-Deen Act was adopted in 1937, providing for additional funds for vocational education, extending federal funds to distributive education and establishing funds for Alaska and the District of Columbia. Funds for vocational education in Hawaii and Puerto Rico had earlier been provided for in 1924 and 1931, respectively.

By the end of World War II it was clear to a majority of Congressmen that broader programs were needed in the field of vocational education in order to serve new groups of people, including demobilized defense and armed services personnel. The result was the George-Barden Act which replaced the George-Deen Act and provided additional funds for the same educational endeavors. This Act, passed in 1946, appropriated $29 million annually for agricultural, trade and industrial, home economics, teacher training and distributive education. The George-Barden Act was extended in 1956 to include federal aid to practical nurses training and training in the fishery trades and industries. Appropriations for these activities were set at $5 million and $375,000.00, respectively.

The National Defense Education Act, adopted by Congress in 1958, authorized an additional appropriation of $15 million for the next four years. This appropriation was intended for the training of highly skilled technicians in occupations necessary for the national defense. The program was subsequently extended to 1964 and in December, 1963, was extended even further as a result of the passage of the Perkins Act, Public Law 88-210.

One of the most recent federal acts designed to alleviate the shortage of skilled workers in the nation was the Area Redevelopment Act (ARA) of 1961. Essentially the purpose of this Act is to help solve the unemployment and underemployment problem in chronic labor surplus areas. This Act set forth a training program for unemployed workers and those who receive training are given a subsistence compensation. Congress authorized an annual appropriation of $4.5 million for the training program itself and $10 million for the subsistence benefits. The Act is administered by the Department of Commerce and the Department of Health, Education, and Welfare was assigned the responsibility of training the unemployed men. This Act is purely a federal program and

does not require matching funds from the participating states. In 1962, 9,000 men were trained by this program in 154 different training areas.

In 1962 the Manpower Development and Training Act (MDTA) was passed in order to supplement the ARA. This Act had a broader purpose than the ARA, since its intentions were to retrain men across the country rather than to restrict training to those in depressed areas. This Act provided for a three year appropriation of $435 million. The first two years the program would exist solely on federal funds, however, the third year the states were required to match the federal government with their own funds.

In 1961 the federal government contributed a total of about $48 million for the various vocational education programs. At the same time the states and local governments contributed totals of about $89 and $117 million, respectively. Federal contributions for this purpose have risen 150 per cent since 1940 and state and local expenditures have increased six times over since the same year.

Federal Vocational Education Programs

The following tabulation indicates the extent and purpose of federal expenditures for vocational education during fiscal year 1963:

Recipients	Estimated Distribution of Federal Appropriations (in millions)	
Total	$ 79.7	
High school age youth	24.0	(Smith-Hughes and George-Barden Acts)
Post-high school youth and adults	10.0	(technician training)
	4.5	(practical nurse training)
Youth and adults at work or unemployed	5.0	(technician training)
	7.5	(Smith Hughes and George-Barden Acts)
	3.0	(Area Redevelopment Act)
	20.0	(Manpower Development and Training Act)
	0.5	(practical nurse training)
	0.2	(fishery training)
Services to vocational and technical education	5.0	(administration, supervision, teacher training, and guidance services under Smith-Hughes and George-Barden Acts)

Source: Office of Education, U. S. Department of Health, Education and Welfare.

In fiscal year 1963 the federal government increased its expenditures for vocational education to $79.7 million. The Perkins Act, adopted in December 1963, would raise federal contributions for this educational field to $237 million by 1967. This Act will be discussed in greater detail in a later section of this paper.

In consideration of the number of persons employed in the various vocational fields, it seems apparent that enrollment in federally supported vocational education programs indicates an imbalance toward agricultural and home economics courses. The total enrollment in all federal programs in 1961 was 3,856,000. Of this total 806,000 were enrolled in agricultural courses; 963,000 in trade and industrial courses; 1,610,000 in home economics; 306,000 in distributive; 47,000 in practical nursing; and 123,000 in technical courses. These enrollment figures include both high school students and adults. It has been estimated that less than two-thirds of the nation's secondary schools offer federally reimbursable vocational education programs. Agricultural training is offered in almost half the nation's high schools, while only one tenth of the schools offered courses in trade and industrial training. One out of every 15 and 25 high schools offered subjects in distributive and technical fields, respectively. For a detailed analysis of enrollment in and expenditures for the various federally subsidized vocational education programs, see Appendix II. Appendix III is a compilation of federal, state and local expenditures for vocational education, by year. Appendix IV presents federal allotments for vocational education and the amounts unexpended, by year.

Purpose and Extent of Federally-Aided Programs

(The source of all statistics in this section is the Annual Reports of State Boards for Vocational Education, U. S. Department of Health, Education and Welfare, Office of Education, 1962.)

The purpose of agricultural education is to prepare young people for the occupation of farming and to increase the knowledge of those adults already engaged in agricultural life. In recent years the following subjects have been emphasized in vocational agricultural classes: farm management, including instruction in the keeping of accurate records; analysis of such records; proper use of credit; and efficient use of labor, machinery and equipment. In addition, several states have offered courses of instruction which relate to both agricultural and distributive education, such as food processing, food distribution, chemical pest control service, farm machinery sales and irrigation. Enrollments in vocational agriculture courses increased in 1962 by 2.2 per cent over 1961 and totaled 822,664, of which 269,569 were in the evening, 78,977 in part-time and 474,118 in day classes. Federal expenditures in 1962 were $13,644,907.00. The states

contributed $28,589,744.00 and the local governments or school districts, $31,057,246.00.

Distributive education includes training in merchandising, marketing, and management. High school and post-high school programs combine instruction with actual job experience and are carried out in cooperation with the business community. The purpose of this form of vocational education is to provide a basis for further study or occupational advancement. Extension programs account for roughly 85 per cent of the enrollment in distributive education. Special high-level seminar-type courses for small businessmen and managers in areas such as finance, taxation, personnel relations, labor-management relations, and foreign trade were initiated in 1962. These programs are administered through the cooperation of the Department of Commerce and the Small Business Administration. Enrollment in distributive education in 1962 totaled 321,065, of which 276,948 were through extension, 1,871 in post-high school part-time cooperative programs and 42,246 in high school part-time cooperative classes. This represented an increase in enrollment of 4.9 per cent over 1961. Federal expenditures in 1962 totaled $2,564,754.00. The states expended $4,302,611.00 and the local governments, $4,538,472.00.

There are three purposes of home economics education. The first is to prepare young people to learn homemaking skills; the second is to supplement the homemaking knowledge of adults; and the third purpose is to train both young people and adults in order that they may earn money in home related occupations. In high schools throughout the nation more than half a million young people are receiving home economics education. Training related to home economics, which is also supported by federal funds, includes teacher education, curriculum development, research and demonstration projects. A recent development in home economics education is the extension of this training to adults living in public housing centers. Earlier this training was conducted solely by the cities and states. Enrollment in home economics education increased by 7.2 per cent in 1962 and totaled 1,725,660, of which 610,787 were in the evening, 52,209 in part-time and 1,062,664 in day classes. Expenditures by the federal, state and local governments were $8,874,426.00, $32,522,053.00 and $38,501,830.00, respectively.

Programs in practical nursing and other health occupations are designed for high school students, post-high school people and adults wishing to take refresher courses. Practical nursing programs generally last for one year. Other programs in health occupations last from two weeks to two years, depending on the nature of the training. In most cases practical nursing is conducted with the cooperation of community hospitals. In 1962 there were 548 such programs being operated by boards of education in the 50 states, Puerto Rico,

Virgin Islands and Washington, D. C. Most of those who take advantage of these programs are enrolled in programs under Title II of the George-Barden Act. Persons in this category totaled about 49,000, of which 35,000 were in preparatory classes and 14,000 were in extension courses. There were an additional 9,000 enrolled in classes under Title I of the George-Barden Act. The overall increase in enrollment in practical nursing and health occupation training was 12 per cent over that of 1961. Federal expenditures for these programs under Title II of the George-Barden Act in 1962 totaled $3,834,245.00. In addition, the states contributed $2,544,996.00 and localities, $3,280,299.00. Finally, a limited amount of federal funds are available for practical nursing under Title I of the George-Barden Act.

Programs to train highly skilled technicians in occupations necessary for the national defense receive federal support through the National Defense Education Act of 1958. Title VIII of the National Defense Education Act amends the George-Barden Act by adding a new title, III. This form of education is offered in high schools, area vocational schools, junior colleges, technical institutions and four year colleges having non-baccalaureate technical programs. Training is geared for two purposes. The first is preparatory and designed to allow young people and adults to enter recognized technical occupations. The second, extension courses, enables those already employed to keep pace with rapidly increasing technical improvements. Some of the fields covered by technical education include: data processing and computer programming; electronics, instrumentation, aeronautical, chemical, civil, electrical and mechanical design and production technologies. In 1962, 71 new area vocational schools were begun by 26 different states. Enrollment in these programs has risen from about 49,000 in 1959 to a 1962 total of 149,000. The 1962 total includes nearly 96,000 in refresher and upgrading courses, 40,000 in 2-year post-secondary preparatory programs and over 13,000 in high school programs. Expenditures in 1962 were $11,042,875.00, $5,456,967.00 and $8,106,010.00 for federal, state and local governments, respectively.

Trade and industrial education is geared for persons over 14 years of age who are either in school or out of school. Training programs are in countless fields and are skilled and semi-skilled. Generally speaking, persons are trained for work relating to design, production, processing, assembly, maintenance, and repair of machinery, appliances, and craft products. Enrollment in these training programs increased in 1962 by 4.3 per cent over 1961 and totaled 1,005,383, of which 557,604 were in evening classes, 153,396 in part time and 294,383 in day classes. Federal expenditures for trade and industrial education in 1962 totaled $11,476,867.00. States expended $30,847,949.00 and local communities, $42,762,194.00.

Administration of Federal Vocational Education Acts

Briefly stated, federal provisions in the Smith-Hughes and George-Barden Acts require states which participate in the federal programs to submit a state plan to the Office of Education. This plan must describe the proposed operation of a vocational education program and it must also establish assurance of reasonable efficiency of the program, before federal monies can be received. The state plan must also describe the structure of the state board for vocational education (to be created by the state Legislature). Once the state board is created it has sole authority to administer vocational education by cooperating with the Office of Education. There are many other federal requirements which must be met by the states before federal funds can be received. Some of them are as follows: the state treasurer must receive federal funds and provide for their proper custody and disbursement; all vocational education must take place under public supervision and control; all education must be of less than college grade; there must be minimum qualifications for instructors, supervisors and administrators engaged in the various programs; the state plan must describe the kinds of schools and types of equipment to be used; and federal funds can only be used for programs described in the state plans.

In turn the Office of Education has a number of responsibilities with respect to vocational education programs in the several states and territories. They are as follows: cooperating with the state boards in the administration of the federal acts; examining plans submitted by state boards and approving them if they are in accord with the provisions and purposes of the federal acts; making studies, investigations and reports for the purpose of assisting the states in the establishment of vocational schools and classes; informing the Secretary of the Treasury of the amount each state is entitled to receive from the federal government for vocational activities; and determining whether the states are using money received from the federal government in accord with the provisions of the acts.

The division of vocational education in the U. S. Office of Education has a number of specific duties regarding state vocational activities, including: administering the national program of vocational education under the provisions of the federal acts; working on the national and inter-state levels with public and private agencies and groups in activities relating to vocational education; cooperating with the states in identifying the instructional needs of individuals and communities on the basis of occupational opportunities and needs; cooperating with the states in planning, organizing, supervising and administering vocational education programs; cooperating with the states in developing instructional materials and standards for facilities for vocational education;

cooperating with the states in selecting instructors, supervisors, administrators and other personnel engaged in vocational education; cooperating with the states in improving instructional and guidance procedures in vocational education; and cooperating with the states in evaluating these programs.

To be more specific the federal government has stated that the assistant commissioner for vocational education, who heads the division of vocational education, shall have the responsibility for administering the federal vocational education acts and cooperating with the several states. Finally, each form of vocational education is headed by a director and several specialists who actually work with the states in improving vocational education.

Vocational Education Act of 1963

The purposes of H. R. 4955--Public Law 88-210, commonly referred to as the Vocational Education Act of 1963 or the Perkins Act--are: to authorize federal grants to the states to assist them in maintaining, extending and improving existing vocational education programs; to develop new programs for vocational education; and to provide part-time employment for young people who need financial assistance in order to continue their vocational training on a full-time basis.

This Act authorized $60 million to be appropriated for the fiscal year ending June 30, 1964; $118.5 million for fiscal year 1965; $177.5 million for fiscal year 1966; and for fiscal year 1967 and each fiscal year thereafter, $225 million. These funds are to be alloted among the states on the basis of population and per capita income.

To date the Congress has not appropriated funds for operation of this Act. However, on the basis of the provisions of the law it is estimated that for 1964, roughly $240,000.00 will be made available to the state of South Dakota under the Perkins Act. Federal allocations to the states under this Act will increase until 1967 when it is estimated that South Dakota could receive as much as $900,000.00 per annum.

State boards for vocational education will be the sole agency for administering federal funds alloted to states. The new funds are not earmarked for specific occupational fields. They may be expended for vocational education programs that will prepare people for employment in any occupational field that does not require a baccalaureate degree. Vocational programs may be conducted in comprehensive and technical high schools, area vocational schools, junior and community colleges, or universities that offer terminal vocational programs.

The Act provides that vocational programs be available for persons in high schools, for those out of high school and

available for full-time study, for persons who are unemployed or underemployed, and for persons who have academic or socio-economic handicaps that prevent them from succeeding in the regular vocational education programs.

Federal funds may also be used for ancillary services to assure quality in all vocational education programs; for example, teacher training, supervision and administration, research and evaluation of programs. Ten per cent of each year's appropriation will be reserved for grants by the Commissioner of Education for research and demonstration projects in vocational education. In addition, the Act provides for an experimental four year program for residential vocational education schools and payments for student work programs. The Commissioner of Education will determine the amount of the appropriation to be used for each of these purposes.

The Act requires that state and local expenditures continue at the current level of support for vocational education but does not require a state to match the new federal funds for program operation in fiscal 1964, except where federal funds are used for construction of vocational education facilities. For subsequent fiscal years, matching on a 50-50 basis is required. In addition, states must assure that federal funds complement but do not replace local and state funds.

To assure more flexibility in vocational education programs, the Perkins Act amends the Smith-Hughes and George-Barden Acts to permit the federal funds to be expended in agricultural training programs for occupations related to agriculture and for which knowledge and skill of agricultural subjects are involved. In addition to preparation for homemaking, home economics funds will also be directed toward homemaking skills for which there are employment opportunities. Not less than ten per cent of home economics funds under provisions of the Smith-Hughes and George-Barden Acts must be used for job-oriented training. Preparatory training is made possible under funds authorized for distributive education and occupational training for single skilled or semi-skilled jobs is permitted on a part-time basis for less than the traditional 9 months per year and less than 30 hours per week.

The area technical education program, authorized under the National Defense Education Act of 1958, is made permanent by the Perkins Act with an annual authorization of $15 million. In addition to extending this authority, the states will be allowed to expend new funds on a 50-50 basis for the construction of area vocational school facilities.

Finally, the Perkins Act makes permanent the practical nurse training programs authorized by Title II of the George-Barden Act. The annual appropriation is $5 million. Section 4 of the Perkins Act, which sets forth the uses of federal funds under the Act, may be found as Appendix V.

VOCATIONAL EDUCATION IN SOUTH DAKOTA'S COLLEGES

Although the vocational education department at Southern State Teachers College is the principal source of post-high school vocational education in South Dakota, the printing department at South Dakota State University has similar goals. The central purpose of Southern State College is teacher education. The College, established in 1881, is located in Springfield, approximately 40 miles west of Yankton on Lewis and Clark Lake. Although the College is essentially a teacher training institution, the South Dakota Legislature, in 1939, recognized that the institutions of higher learning in the state must provide the types of education which meet the needs of those whose interests are not parallel with a strict academic course of study. The Legislature therefore stated (Chapter 38, 1939 Session Laws) that the

> exclusive purpose of such normal schools shall be the instruction of persons, both male and female, in the art of teaching and in all the various branches that pertain to a good common school, vocational training and high school education; also to give instruction in the mechanical arts, husbandry, agricultural chemistry, the fundamental laws of the United States, and the rights and duties of citizenship. Provided, that the Board of Regents shall determine which, if any, of such normal schools shall engage in the instruction of persons in the art of vocational training and teaching in high schools.

The first such program, and the oldest at Southern, is the industrial arts program. The second is the two year terminal program, in which all vocational education courses are included. The third, a pilot program instituted in the fall of 1963, is the vocational education teacher training program. The pilot program leads to a degree in education with a major in vocational education. This degree can be earned in one of two ways. First, a student can take the regular four year course and, second, a person who has served as an apprentice in a trade for three years may substitute this training for 32 semester hours credit, thereby completing the degree program in six semesters or three years. The students in the latter category are required to take a trade competency examination, graded by proper officials, before the credits can be waived.

The pilot program has been approved by the state Board of Vocational Education and by the American Vocational Association. In addition, the College itself has received provisional accreditation from the National Council for Accreditation of Teacher Education and from the North Central Association of Colleges.

In many respects the two year terminal program at Southern is similar to an area vocational school. The essential distinction, however, is that students at SSC enrolled in the terminal program must have a high school diploma or have passed the GED (General Educational Development, a high school equivalency test). To qualify for GED certification, the student must be either 21 years old or have completed his military obligation. On the other hand, at strictly area vocational schools students normally must only be 16 years old and there is no requirement for a high school diploma. There are two schools of thought concerning area vocational schools and high school drop outs. The positive school contends that many students inevitably drop out of high school and quickly grow tired of low paying jobs. Many of these are too young for military service and since area-vocational schools admit students 16 years old, they are able to continue their education. On the other hand, the negative school is of the opinion that the 16 year limit at area-vocational schools prompts many young people to drop out of high school. They say that many 16 and 17 year olds are academically capable, but the prospect of completing their education in a more abrupt manner is too enticing.

In addition to standard vocational education courses, those enrolled in the terminal program at Southern are required to take courses in related subjects such as communications, technical mathematics, and science. The reason for this requirement is that in the rapidly increasing technological world no person could be truly skilled without a background in mathematics and science, at least.

The industrial arts program will not be discussed in this paper, since this program is distinct from the vocational education program at Southern. Enrollment at Southern in vocational education and industrial arts is as follows: two year trade terminal program, 166; four year pilot program in vocational education teacher training, 6; and industrial arts, 63. An analysis of vocational education majors at Southern, that is, those seeking a baccalaureate degree is as follows:

Course of instruction	No. of students
Carpentry	2
Automotive	2
Diesel	1
Electronics	1
Total	6

An analysis of those enrolled in the two year terminal program is presented below:

Course	No. of students
Automotive	67
Body Repair	15
Machine Trades	5
Drafting	14
Diesel	9
Electronics	25
Carpentry	27
Upholstery	4
Total	166

At the present time, there are a total of 172 students enrolled at Southern in the vocational programs as such. According to the director of vocational education at Southern, Mr. Emmett B. Oleson, the department has a present capacity for 210 students, and with the addition of one carpentry instructor, the school could train 237 students in vocational education. It should be added that in addition to vocational education and industrial arts programs at the school, there are approximately 85 students enrolled in the secretarial program. Although this is a branch of the business department, it is a form of vocational education, strictly speaking.

Courses of instruction in the vocational education department at SSC include the following: diesel, upholstery, carpentry, drafting, automotive, machine trades, secretarial, body repair and electronics. In addition, industrial arts courses are offered in a number of fields such as radio and television and drafting.

However, it has been expressed by the director of the department that the school could do much more to fulfill the needs of the employers of the state of South Dakota. He suggested that the department be broadened to include the following courses: welding, air conditioning and refrigeration, aircraft mechanics, and chef and hostess training. It was also suggested that the department expand its building trades program to fit the needs of the state.

Various employers within and outside the state have requested that the school offer courses in bricklaying, cosmetology, small appliance repair, baking, and barbering. These requests are made known to the director of the department by an advisory committee consisting of management and labor. The committee meets at least once a year and advises the department as to the needs of industry and the type of trained technicians which are in demand. In addition, representatives from industry periodically visit the school to inform the instructors of the latest innovations in their respective fields.

Since SSC is a state institution of higher learning, funds for operating expenses and salaries come from appropriations by the state Legislature. General legislative appropriations for Southern (including deficiencies) from 1947 through 1964 have been:

1947	$ 135,500.00
1949	205,818.00
1951	256,652.00
1953	322,576.00
1955	362,400.00
1957	440,500.00
1959	403,290.00
1961	465,900.00
1963	710,500.00
1964	140,000.00

In addition, the Legislature has voted for a number of special appropriations to renovate and construct buildings for the Vocational Education and Industrial Arts departments at Southern. The special appropriations from 1947 through 1961 for this specific purpose have been:

1947	Industrial Arts Building	$ 100,000.00
1949	Addition to Industrial Arts Bldg.	6,000.00
1949	Tools and Equipment	10,000.00
1951	Tools and Equipment	15,000.00
1951	Automobile Mechanics Bldg.	120,000.00
1955	Addition to Automobile Mechanics Bldg.	90,000.00
1961	Shop Building	135,000.00

In the past, federal funds for vocational training at Southern have been negligible. For fiscal 1961, 1962 and 1963, federal funds for the school totaled $8,659.00, $3,256.00 and $3,438.00, respectively. Under a prior agreement the school will receive no federal funds for fiscal year 1964. The purpose of granting the college federal money in the past has been to establish certain programs. On the other hand, it may be that Southern will be a beneficiary of federal funds through the Perkins Act.

Tuition at Southern is the same for all students, including the terminal students who receive no college credit for their work. This amounts to $99 per semester for state residents and $233 per semester for out of state residents. Also, there are fees of $75 to $80 per year which must be paid by both resident and non-resident students.

In addition to state and federal funds, the vocational education department at Southern receives assistance in the way of operating equipment from companies such as Ford Motors and General Motors. However, this assistance is restricted to equipment and does not extend to direct financial aid. Nonethe less, the director of the department has said that without

these donations from industry, the school could not hope to maintain its vocational education department.

Expenses for operation of the vocational education department at SSC for 1963 can be itemized as follows:

Salaries	$ 95,787.00
Operating expenses	8,215.00
Expenditures for shop building construction fund	1,610.73
Total	$ 105,612.73

According to the director of vocational education, Emmett B. Oleson, there is presently a need at SSC for a new building which would house the electronics, drafting, upholstery and possibly secretarial training programs. There is also a need for new equipment in the areas of drafting, building trades and electronics. It has been estimated that the new building alone would cost between $300,000.00 and $350,000.00. In addition 28 acres of land required for the building and parking space would cost the state between $15,000.00 and $20,000.00.

Proposal for Changing SSC to a Purely Vocational Education Institution

The suggestion has been made that Southern State College become a purely vocational school and that the teacher training duties of the college be surrendered. This suggestion has met with considerable opposition from the faculty and administration at Southern, from the students and alumni of Southern and from the Board of Regents. While the purpose of this paper is not to discuss the merits or faults of such a proposal, the arguments of the proponents and opponents should be summarized in brief form. Essentially speaking the proponents of the measure contend that Southern should become a vocational school because there is a need for more vocational education in South Dakota; because Southern is the only school in the state equipped to provide such training; and because the teacher training programs of other colleges and universities in the state are sufficient to meet the teacher needs of South Dakota.

Those opposed to the suggestion argue that the school has traditionally served the teacher needs of a certain area of the state, in fact, Southern produces more teachers per year than any other college in the state with the exception of Northern State College. A second argument of those opposed to the measure is that students, even vocational education students, should receive a well rounded educational background. This would not be possible in a strictly vocational education school. It is also said that the pilot program at Southern for training of vocational education teachers could not exist without the other departments of the college. A final argument is that vocational education schools per se normally

have few, if any, coeds, and it cannot be denied that this is a central attraction at any school. Those in favor of preserving the status quo at Southern say that enrollment would drop sharply if the College became a strictly vocational school.

Printing Program at SDSU

There are four different programs in the field of printing at State University, however, only the first two can be classified as vocational education, since they are non-baccalaureate. The first such program is simply practical shop work at the trade school level, for which there is no college credit. Presently there are nine students enrolled in this course of instruction. The second program is one in which students are enrolled in regular college classes such as math and English, in addition to the printing courses. These students are awarded certificates at the end of two years study. The third program is a four year course in printing management leading to a B. S. degree and finally, students with a B. S. in printing may work toward a M. S. in printing management.

During the current academic year there are a total of 52 students enrolled in all undergraduate programs in printing at State University and 4 students are doing graduate work in this field. The University anticipates 25 additional freshmen in the program next fall and the maximum enrollment would be 40 new students a semester. The department has all the standard printing equipment, including ten linotypes or composing machines. Because of overlapping duties (instructors in printing also work in the journalism department) the number of instructors and the expenses for the printing department at State University can only be estimated. However, there are approximately 5 instructors in the printing department and a reasonable estimate of the cost of operating the department would be in the neighborhood of $42,400.00 per year. Of this total, $35,000.00 is for salaries; $2,000.00 for supplies; and $5,400.00 for equipment rental and depreciation. Revenue to the printing department at the College comes from state appropriations, local and endowment funds, and income from the printing production which the laboratory completes for various college departments and activities.

VOCATIONAL EDUCATION IN SOUTH DAKOTA SECONDARY SCHOOLS

The State Board of Vocational Education is primarily responsible for vocational education in the state of South Dakota. The State Board of Education is ex officio the State Board of Vocational Education. The Superintendent of Public Instruction acts as ex-officio secretary and executive director of the Board without the power to vote. It is the duty of the Superintendent to attend to all records of the state Board. In addition, the Superintendent is responsible

to the U. S. Office of Education for compliance with federal regulations concerning vocational programs which are subsidized by the federal government.

Another duty of the Superintendent is to employ members of the staff of the division of vocational education in the Department of Public Instruction, whose salaries are fixed by the State Board. The division, as the administrative arm of the State Board, has duties which include: assist the Superintendent in the administration of all vocational education programs; write the state plan for vocational education; prepare reports for the U. S. Office of Education; provide informational material for all interested persons; approve vocational instructors at the local level; insure that local schools are operating vocational programs in compliance with the state plan; and, approve local schools for federally reimbursed funds.

Vocational education programs administered by the Department of Public Instruction are financed by the federal government and by local school districts. The state government merely pays the cost of administration, which in recent years has averaged roughly $18,000.00 annually. In order to receive federal funds, a school's vocational program must meet the requirements established in the state plan of operation, which in turn must meet certain federal standards. As a result, not every vocational course in the state's high schools is federally subsidized.

There are three purposes of the vocational education programs which are channeled through the Department. The first purpose is the training of high school students for a certain trade or occupation. The second purpose is to allow persons already on the work force to improve their skills so that they might increase their financial security and at the same time be of more benefit to the economy of the state. The final goal of these programs is to train persons in a skill to which they have never been exposed. The latter type of training could apply to two groups: those already employed but who may lose their jobs due to automation; and those in the ranks of the unemployed.

The following tabulation shows enrollment numbers in all vocational programs administered by the Department of Public Instruction for fiscal year 1963 (statistical data from the Department):

Course	In-School Programs	Out of School-Adult	Total
Agriculture	3,036	2,057	5,093
Distributive	132	604	736
Home Economics	5,724	654	6,378
Trades & Industry	492	1,636	2,128
Practical Nursing	0	114	114
Technical	12	184	196
Total	9,396	5,249	14,645

The number of schools in South Dakota which conducted vocational education programs during fiscal 1963 and which are administered by the Department of Public Instruction are listed below:

Course	In-School Programs	Out of School-Adult	Total
Agriculture	75	43	118
Distributive	7	9	16
Home Economics	104	21	125
Trades & Industry	6	14	20
Practical Nursing	0	3	3
Technical	0	4	4

The total number of schools with such programs is 120.

A form of vocational education that is quite widespread in other sections of the country is the part-time cooperative program. Under this program students spend half the day in school and the other half learning a skill, under the sponsorship of an individual or a group. During the 1962-1963 academic year there were 65 high school seniors who completed training in trade and industrial education and gradutated from high school. At the same time these students earned $57,200.00. In addition, 84 high school seniors completed training in vocational distributive education, gradutated from high school and earned a total of $86,520.00 in the process.

A complete analysis of the number of public high schools offering and the number of students enrolled in the various vocational courses during the 1962-63 school year is presented below:

Public Senior High Schools

Subject	Number of Schools	Number of Students
Business English	5	175
Voc. English	1	24
Aeronautics	1	34
General Business	99	2,507
Typing I	233	9,385
Typing II	99	1,323
Personal Typing	2	35
Shorthand I	122	2,032
Shorthand II	17	304
Bookkeeping I	177	5,241
Bookkeeping II	2	10
Business Arithmetic	37	1,017
Secretarial Training	71	822
Business Machines	3	29
Commercial Law	44	1,058
Consumer's Education	1	5
Junior Business Training	1	15
Agriculture I	72	1,022
Agriculture II	67	861
Agriculture III	50	700
Agriculture IV	38	497
Girl's Agriculture	1	10
Arts and Crafts	7	161
Homemaking I	137	3,547
Homemaking II	125	2,168
Homemaking III	93	1,164
General Homemaking	1	21
Home Ec. Survey	1	68
Trades and Industry I	8	107
Trades and Industry II	5	81
Mechanical Drawing I	60	1,426
Mechanical Drawing II	18	320
Mechanical Drawing III	1	30
General Shop I	117	2,292
General Shop II	82	1,105
General Shop III	6	74
Machine Shop	2	93
Wood Shop	2	73
Metal Shop	1	58
Wood Work I	3	138
Wood Work II	1	24
Gen. Metals	2	73
Appliance Repair	1	20
Welding	2	42
Power Mechanics	2	31
Auto Mechanics	2	159
Printing	1	101
Communications	1	12
Distributive Education	9	185
Electronics	2	69

Non-Public Senior High Schools

Subject	Number of Students	Number of Schools
General Business	178	6
Typing I	702	25
Typing II	250	13
Shorthand I	189	14
Shorthand II	39	4
Bookkeeping	386	20
Business Arithmetic	91	4
Business Law	15	1
Secretarial Training	94	8
Economics	55	4
Agriculture I	11	1
Agriculture II	10	1
Agriculture III	14	1
Arts and Crafts	166	6
Special Crafts	15	1
Distributive Education	23	1
Homemaking I	364	17
Homemaking II	234	13
Homemaking III	210	7
Homemaking IV	10	1
Boy's Home Economics	3	1
Trade and Industry I	128	4
Trade and Industry II	132	2
Mechanical Drawing I	194	7
Mechanical Drawing II	29	2
General Shop I	198	8
General Shop II	21	2
General Shop III	16	1
General Shop IV	9	1
Woodwork I	75	3
Woodwork II	12	1
Metal Work I	44	2
Metal Work II	12	1
Welding	9	1
Girl's Shop	8	1
Mechanics	22	2
Graphic Arts	15	1

The non-public or parochial schools do not receive federal funds for the operation of vocational education programs.

Cost of Vocational Education at Secondary Level in South Dakota

The entire field of vocational education represents an expensive venture. Vocational education is considerably more expensive than standard classroom instruction for two reasons: first, vocational classes must be small in number and this results in higher per pupil costs; and second, equipment used in most vocational classes is expensive. Federal allotments to

South Dakota for fiscal year 1964, under the Smith-Hughes Act and the George-Barden Act are presented below:

Agriculture	$ 170,944.33
Distributive	15,000.00
Home Economics	63,058.34
Trades & Industry	53,333.33
Practical Nursing	43,801.00
Technical	31,403.00
Total	$ 377,540.00

The amount actually spent during fiscal year 1963 for vocational education programs, subsidized in part by the federal government, is as follows:

Course	Federal	State	Local	Total
Agriculture	$ 173,740.18	$ 12,355.41	$ 229,039.34	$ 415,134.93
Distributive	15,201.43	482.23	18,086.47	33,770.13
Home Economics	63,057.43	16,090.60	355,975.25	435,123.28
Trades & Industry	53,326.65	13,546.29	80,918.80	147,791.74
Practical Nursing	33,961.53	61.96	33,949.84	67,973.33
Technical	2,767.25	0	2,767.25	5,534.50
Total	$342,054.47	$42,536.49*	$720,736.95	1,105,327.91

* State funds include $20,548.69 from the Department of Public Instruction; $13,276.28 from South Dakota State University; and $8,711.52 from Southern State College.

The schools which participated in these federal programs were reimbursed by the Department of Public Instruction in the following percentages: agriculture, 40.9495; distributive, 44.14; home economics, 11.5182; trades and industries, 28.300; and both practical nursing and technical, 50.00.

This section can be summarized by listing expenditures according to function and for each particular type of vocational education. The tabulation, for fiscal 1963, is presented as follows:

	Total	State	Local	Federal
Agriculture				
Administration	$ 14,779.30	$ 7,711.48	$	$ 7,067.82
Teacher Education	9,287.86	4,643.93		4,643.93
Reimbursement-Schools	391,067.77		229,039.34	162,028.43
Total	$415,134.93	$12,355.41	$229,039.34	$173,740.18
Distribution				
Administration	$ 782.28	$ 482.23	$	$ 300.05
Teacher Education Reimbursement-Schools	32,987.85		18,086.47	14,901.38
Total	$ 33,770.13	$ 482.23	$ 18,086.47	$ 15,201.43
Home Economics				
Administration	$ 14,460.23	$ 7,458.25	$	$ 7,001.98
Teacher Education	17,264.71	8,632.35		8,632.36
Reimbursement-Schools	403,398.34		355,975.25	47,423.09
Total	$435,123.38	$16,090.60	$355,975.25	$ 63,057.43
Practical Nurse				
Administration	$ 73.68	$ 61.96	$	$ 11.72
Teacher Education Reimbursement-Schools	67,899.65		33,949.84	33,949.81
Total	$ 67,973.33	$ 61.96	$ 33,949.84	$ 33,961.53
Technical - Title III				
Reimbursement	$ 5,534.50	$	$ 2,767.25	$ 2,767.25
Trades and Industries				
Administration	$ 9,198.61	$ 4,834.77	$	$ 4,363.84
Teacher Education Reimbursement-Schools	138,593.13	8,711.52	80,918.80	48,962.81
Total	$147,791.74	$13,546.29	$ 80,918.80	$ 53,326.65
Grand Total				
Administration	$ 39,294.10	$20,548.69	$	$ 18,745.41
Teacher Education	26,552.57	13,276.28		13,276.29
Reimbursement-Schools	1,039,481.24	8,711.52	720,736.95	310,032.77
Total	$1,105,327.91	$42,536.49	$720,736.95	$342,054.47

It should be apparent that the average high school in South Dakota does not have a very extensive vocational education program. Most high schools in the state offer courses in homemaking, vocational agriculture and possibly woodworking. Only the larger schools, such as Pierre High School, are able to include in their curriculum courses in electronics, drafting, welding, metals, aeronautics, power mechanics and electricity. There are many reasons, almost all economic, why the smaller high schools in South Dakota are unable to offer a broader vocational curriculum. One of the main reasons is that vocational education, for the most part, is much more costly than standard courses of instruction. Equipment, tools and supplies, especially in courses such as automobile mechanics and welding, are extremely expensive. Another reason for the relatively high cost of vocational education is the fact that these classes must, of necessity, be small in number; this results in greater per pupil expenditures. A final reason is that in small high schools there are simply not enough students interested in particular vocational subjects to merit full course time by an instructor.

Adult Vocational Education in Secondary Schools

The state division of vocational education is concerned with adult vocational education as well as high school vocational training. The division also provides instructional training for MDTA, ARA, and certain apprenticeship programs; these will be described in the following section. Following is a summation of adult vocational training administered by the division; all of these programs are conducted in local high schools.

Enrollment	Type of Instruction
712	Trade and industrial evening classes
101	*Foremen in supervisory classes
125	Practical nurse training classes
401	*Trade and industrial classes in which schools met all standards but were not reimbursed because of a lack of funds
325	*Job training and safety instruction for power linemen
290	Job training and safety instruction for gas servicemen
102	*Job training and safety instruction for telephone servicemen
178	*Custodians attended custodian schools
101	*Firemen given safety training
77	Technical education under Title III Program
686	Distributive education evening classes
438	Distributive education classes in which schools met all standards but were not reimbursed because of a lack of funds

* These programs are financed on a 50-50 basis by cooperating industries and the federal goverment. The remainder are jointly financed by local school districts and the federal government.

APPRENTICESHIP, MDTA, AND ARA PROGRAMS

Apprenticeship Programs

Apprenticeship programs in South Dakota are organized and administered by a number of different groups. For the most part, however, these programs are joint ventures of labor and management. Apprentices in all trades are required to take evening classes two or three nights a week, in addition to on-the-job-training. Where adequate facilities are available, the instruction is ordinarily conducted in local high schools, in conjunction with the Department of Public Instruction. Fifty per cent of the instructional costs are supplied by the U. S. Department of Health Education and Welfare, through the Smith-Hughes and George-Barden Acts, and the remaining fifty per cent is paid by labor and management, in areas where labor is organized, and by management alone, in areas where labor is unorganized. During fiscal 1963 there were 213 apprentices enrolled in evening classes in the state's high schools.

In areas of the state where adequate facilities for off-the-job instruction do not exist, apprentices normally take extension courses. Many of the apprentices in this classification are registered with the Bureau of Apprenticeship and Training, a federal office which works with labor and management in an effort to organize apprenticeship programs. Since January 1, 1964, there have been 437 apprentices enrolled in organized trade classes which are registered with the Bureau of Apprenticeship and Training. This number does not, however, represent all apprentices in South Dakota, since the only apprenticeship programs which must register with the Bureau of Apprenticeship and Training are those associated with federal construction projects.

Most apprenticeship programs are four to five years in duration; however, a person who has attended a vocational school such as Southern State College, if qualified, can sometimes receive a partial waiver of the requirement. Virtually all apprenticeship programs in South Dakota require a high school diploma or passage of a high school equivalency test.

Although the general impression appears to be that apprenticeship programs are designed for men only, nearly half of all apprentices registered with the Bureau of Apprenticeship and Training are women. There are presently 196 women apprentices registered with this federal office. Some of the occupations in which women are serving an apprenticeship include: baking, cooking, nursing, and meat cutting.

Some of the particular trades which are employing a large number of apprentices are as follows: plumbers and pipefitters, 71; sheet metal workers, 65, electricians, 46; bricklayers, 29; carpenters, 47; painters, 20; roofers, 16; asbestos workers, 16; and cement finishers, 15.

ARA and MDTA Programs

The Area Redevelopment Act, passed by Congress in 1961, is designed to assist areas experiencing chronic unemployment and underemployment. The Manpower Development and Training Act of 1962, on the other hand, is intended to provide training opportunities for all areas of the nation. In both programs instruction is provided in local high schools through the Department of Public Instruction. ARA programs are financed entirely by the federal government, while MDTA programs, previously financed entirely by the federal government, will be on a state-federal matching basis beginning with fiscal year 1966.

During fiscal year 1963 the following types of training were carried out in the state under the Manpower Development and Training Act:

Fifty-two week course in automobile mechanics at Sioux Falls
Fifty-two week course in household appliances at Sioux Falls
Fifty-two week course in body fenders at Rapid City

Area Redevelopment Programs in South Dakota during fiscal year 1963 were as follows:

Sixteen week course in carpentry at Pine Ridge
Three eight week sections in arts and crafts at Standing Rock
Two eight week sections in arts and crafts at Rosebud
Two sixteen week sections for clerk-typists at Rosebud
Six week course for cooks and bakers at Pine Ridge

PRIVATE, NON-SECONDARY VOCATIONAL INSTITUTIONS

Vocational education in South Dakota's private, non-secondary institutions is limited; most of the institutions fall into one of three different categories: business schools, beauty schools and barber schools. These schools are the result of profit motivation and by their very nature are distinct from public institutions.

National School of Business in Rapid City is a representative commercial or business college in South Dakota. The School is located in a modern, two story classroom building with enough space for 400 students. The classrooms are equipped with modern equipment and office machines. A new girls' dormitory is being constructed and will house some 120 students. The existing classroom building will be expanded so that the school can accomodate 800 students this fall. Long range plans call for a new classroom building which will increase student enrollment to 1,200. Future plans also indicate that a men's dormitory will be built, housing 120 students.

At the present time there are 289 students enrolled at the college. Anticipated enrollment for the fall of 1964 is 450-500 and for the fall of 1965, 600. Courses of instruction are offered in accounting, business administration, secretarial science, clerical and office machines. The school employs 11 instructors and 2 more will be added in September of 1964. The School is accredited by the Accrediting Commission for Business Colleges. Tuition ranges from $615.00 for a 24 week course in clerical studies and office machines to $1,660.00 for a 96 week course in senior business administration and higher accounting.

The Stewart beauty salons are representative of the type which exist in South Dakota and elsewhere. There are three branches in this state; two at Sioux Falls and one at Aberdeen. The three schools have a combined capacity of 300 students; however, enrollment in the past few years has been between 175 and 200. According to the director of Stewart beauty salons, the demands of the beauty industry in South Dakota are being met by present graduates from Stewarts beauty salons and by graduates from other beauty schools in the state. Tuition at the schools is $506.50 for an 11 month course. There is one instructor for every 20 students and the schools receive no monetary or other grants from private or governmental sources.

The South Dakota Barber College in Sioux Falls presently enrolls 12 students. Facilities are those of a modern barber shop. There are no plans to expand enrollment or facilities. Tuition, including implements, is $500.00 for the full course of instruction. Courses taught include: fundamentals of barbering, hygiene, sanitation, sterilization, dermatology, meurology, muscles, anatomy, basic chemistry, diseases, haircutting, shaving, shampooing, facial and scalp massage and hair coloring.

In a separate category is Golden Leaf Farrier's College in Sturgis. Essentially this is a school which instructs students in the art of farriery or blacksmithy. During 1963 there were 35 students enrolled in the program. The course of instruction is 12 weeks in length and tuition charges are $600.00. Anticipated enrollment for the next few years is 36 to 45 students per year. There are four instructors employed at the school, one of whom is a licensed veterinarian. Although farriery is the primary course taught, students are also instructed in machine work and animal anatomy.

VOCATIONAL EDUCATION IN OTHER STATES

Since the primary duty of state and local government is the education of young people, the field of vocational education has essentially been the concern of states and localities. Vocational education has been a concern of these governments since the latter part of the 19th century. Quite naturally, the first publicly owned and operated vocational education programs in the country were located in the industrial northeast.

There are many different forms of vocational education being conducted in the various states of the nation. Although vocational education is, for the most part, carried on in the high schools of the state of South Dakota, this is not necessarily the case with other states. The established practice in a majority of states has been to conduct the balance of this type of education in vocational-technical, or area vocational schools. Most of these schools serve a particular economic sphere of their state and for the most part they are post-secondary institutions in which the student may learn a trade in one, two or three years.

In 1960 there were about 250 area vocational schools in the United States and its territories. These schools were operated in 29 states and two territories. In addition, 8 states operated area vocational schools through established junior colleges. In most of these, junior college students may take one of two approaches; they may take a college preparatory course which enables them to transfer to a university or they can take a straight technical course which prepares them for a trade or technical skill. By 1960, 15 states had passed laws authorizing the establishment of state operated or administered area vocational schools and 12 states had provisions in their statutes enabling local schools to operate area vocational schools on a cooperative basis. There were, in 1960, only ten states in the nation which had no legal provision for technical, area vocational education. South Dakota was one of these ten states.

Technical schools are not restricted to the industrialized areas of the country. There are many of these schools in rural areas of other states. Most of these schools, in industrial and rural areas, are established along one of the four following patterns:

1. Creating a county vocational school for residents of the county and administering the school through the county board.

2. Creating vocational schools which may cross county lines, and which are operated on a cooperative basis by two or more districts.

3. Creating a vocational school which extends the operation of the school district to a wider area and a larger number of students.

4. Creating an area vocational school, owned and operated by the state itself.

Vocational Education in Neighboring States

Vocational opportunities in South Dakota, North Dakota, Wyoming, Nebraska and Montana are very much the same. In each of these five states, the bulk of vocational training is carried out in secondary schools and each of the states has one primary post-secondary institution for vocational education. In South Dakota, of course, this institution is Southern State College.

In the state of Wyoming the only post-secondary institution is Casper Junior College. Enrollment in all vocational courses at this college totals 118. Courses are offered in practical nursing, automobile mechanics, electronics, body and fender repair, police training and distributive education. Most of these courses are two year programs. According to the authorities at the college, the enrollment in automobile mechanics and distributive education is expected to increase within the next few years; however, the other programs will probably remain stable. The only expansion in facilities will be an addition to the automobile mechanics shop. Sources of financial assistance are local taxes, state and federal reimbursement and tuition. The college also offers night courses under the Manpower Training and Development Act. There are a total of 13 full-time instructors employed in the department.

In Montana all post-secondary vocational education is at Northern Montana College in Havre. The Vocational-Technical Division at this college has an enrollment of 289 students, of which 240 are in the two-year vocational-technical programs and 49 are in the secondary education with industrial arts as the major program. Courses offered in one and two year programs include: agricultural technology, farm and ranch management, office management, automotive machanics, carpentry and construction, cosmetology, diesel technology, distributive education, drafting, electrical technology, electronics technology, machine shop, practical nursing and welding. In addition, secretarial science is offered, including general, legal and medical. The budget for this division for 1963-1964 was $18,398.06, exclusive of staff salaries. Sources of financial assistance are the State Department of Public Instruction and federal funds for which they qualify. Finally, there are 15 instructors employed in the vocational-technical division at Northern Montana College.

The Vocational Technical School at Milford, Nebraska is one of the best equipped and most well known schools of its nature in this section of the country. Created by the Nebraska Legislature in 1942, the school is operated through the State Board of Vocational Education. It is a two year, post-secondary, non-college credit, terminal school for young people interested in 11 different areas of training. For the 1963-65 biennium the state Legislature appropriated $543,000.00 for operational

purposes. These funds, along with tuition fees charged each student ($125.00 per semester for residents and $250.00 per semester for non-residents) comprise the operating funds for the school. In addition, the school has of late been the recipient of limited federal funds. This year there were 575 full-time students enrolled at Milford (giving the institution $143,750.00 from tuition charges) and the anticipated enrollment for the fall of 1964 is 625. Including the enrollment under the Manpower Development and Training Act (98), the total enrollment at Milford at the present time is about 670. Under MDTA and the Smith-Hughes and George-Barden Acts, Milford will receive approximately $140,000.00 for the period from July, 1963 until June, 1964.

The Nebraska school has a waiting list two or three times larger than the number which will be able to enroll as freshmen next year. For this reason, an Interim Committee of the Nebraska Legislature is studying the need for additional vocational technical schools. The present enrollment capacity at Milford is 700 and with the addition of night classes, it is believed that 1,000 students could receive training at the school each year. According to the director of the school at Milford, Mr. Lowell Welsh, it is highly likely that a new vocational-technical school will be constructed in western Nebraska in the near future. Courses at Milford are offered in the following areas: auto mechanics, auto body, building construction, diesel technology, drafting, electrical technology, electronics, metals technology, air-conditioning, welding and metallurgy technology, and data processing and computer programming. The Nebraska school has a faculty consisting of 38 instructors.

The North Dakota State School of Science at Wahpeton opened its doors to students in 1903; however, it was not until 1922 that the Trade and Technical Division of the school was in operation. This school, the primary vocational institution in North Dakota, consists of four major divisions; technical division, trade division, junior college and business school. It is a public institution, under the jurisdiction of the State Board of Higher Education. Enrollment for the current academic year is 1760 and of this total, about 1,000 are in the technical and trade divisions. The trade and technical schools accept non-high school graduates, although a recent survey of the student body indicated that more than 90 per cent were high school graduates.

The total operating budget for the North Dakota School of Science was $2,056,575.00 for the ensuing biennium. This consists of the Legislative appropriation, some federal monies, student fees and Land Grant monies. The School has a total of 190 employees, of which 100 are teachers and members of the administrative staff. Tuition for North Dakota residents is $216.00 per year and $426.00 for non-residents. About half

of the instructors at the School have Bachelor or Master degrees, but primary emphasis is on technical skill.

The North Dakota School offers an extensive curriculum in all four major divisions. In the trade division, eighteen month terminal programs are offered in auto body repair, auto mechanics, printing, machine shop and welding and sheet metal, heating and air conditioning. The trade division also offers programs of less than 18 months in diesel maintenance, general mechanics and diesel maintenance, plumbing and practical nursing. The technical division includes eighteen month programs in building construction, electrical technology, civil technology, electronic drafting, electronics technology, industrial drafting and design technology and refrigeration and air conditioning technology.

The junior college division offers courses in pre-dentistry, pre-nursing, medical technology, data processing, pre-engineering, printing-journalism and home economics, among others. Finally, the business school has programs in stenography, office training, secretarial training, bookkeeping and business practice.

The annual reports of the state boards for vocational education, submitted to the U. S. Office of Education, serve to clarify the various vocational education programs in South Dakota and its neighboring states; the various statistical comparisons for fiscal year 1962 from the Office are presented below. The programs listed below are all federally subsidized, and are all channeled through the state departments of vocational education.

Total Enrollment in all Vocational Education Classes

Montana	10,199
Nebraska	31,122
North Dakota	17,146
South Dakota	13,062
Wyoming	7,072

Enrollment in Various Courses

	Montana	Nebraska	N. Dak.	S. Dak.	Wyoming
Agriculture	3,000	6,922	4,049	3,889	1,662
Distributive	273	1,598	606	673	226
Home Economics	4,018	16,114	8,818	5,876	3,692
Trades and Industry	2,366	5,557	3,000	2,496	1,469
Practical Nursing	126	477	218	128	8
Tech.	416	454	455	0	15

Number of Schools Offering Vocational Education Courses

	Montana	Nebraska	N. Dak.	S. Dak.	Wyoming
Agriculture	78	272	115	117	59
Distributive	9	20	9	15	7
Home Economics	73	170	141	120	68
Trades and Industry	23	21	17	26	12
Practical Nursing	8	5	3	3	1
Tech.	10	3	1	0	1

Number of Teachers and Vocational Counselors

	Montana	Nebraska	N. Dak.	S. Dak.	Wyoming
Agriculture	80	273	74	117	63
Distributive	9	61	17	28	8
Home Economics	87	248	195	135	79
Trades and Industry	70	156	125	93	44
Practical Nursing	9	45	23	17	3
Tech.	5	28	24	0	2

Total Expenditures According to Type of Vocational Education

	Montana	Nebraska	N. Dak.	S. Dak.	Wyoming
Agriculture	$325,215.16	$767,073.68	$435,090.11	$400,491.58	$321,180.30
Distributive	35,732.90	86,676.03	34,317.18	32,477.66	27,401.43
Home Economics	295,834.87	662,853.16	677,428.70	400,826.80	295,218.89
Practical Nursing	37,046.06	64,012.33	79,728.47	60,535.35	15,080.26
Trades and Industry	169,779.21	220,672.78	226,603.45	141,436.13	121,197.01
Tech.	43,167.43	282,411.16	222,245.29	0	13,917.30

Expenditures for Vocational Education--by Source of Funds

State	Total	Federal	State	Local
Montana	$ 906,777.63	$235,777.44	$148,576.56	$ 522,423.63
Nebraska	2,083,699.14	570,171.54	260,518.63	1,253,008.97
N. Dak.	1,675,413.20	365,934.85	523,281.28	786,197.07
S. Dak.	1,035,767.52	292,167.41	32,341.75	711,258.36
Wyoming	793,995.19	178,199.48	41,912.36	573,883.35

Expenditures for Vocational Education--by Function

State	Administration	Supervision, Teacher and Counselor Training	Instruction and Counseling
Montana	$ 10,545.24	$ 127,878.73	$ 768,353.66
Nebraska	58,514.39	242,413.65	1,782,771.10
N. Dak.	10,094.96	143,683.96	1,521,634.28
S. Dak.	0*	63,086.55	972,680.97
Wyoming	1,789.85	111,028.04	681.177.30

* No special Legislative appropriation, but about $18,000.00 was spent from the general fund of the Department of Public Instruction.

Basic Allotments under Smith-Hughes and George-Barden Acts
(Amounts actually available to states)

Montana	$ 289,087.24
Nebraska	585,912.80
N. Dak.	370,862.06
S. Dak.	302,174.26
Wyoming	241,744.00

Number of Approved Area Redevelopment Training Projects*

	Montana	N. Dak.	S. Dak.
Redevelopment Areas	3	1	1
Approved Projects	4	1	1
Separate Courses	12	2	1
Trainees	197	55	16
Federal Allotment	$75,496.00	$6,825.00	$5,700.00

* None in Nebraska or Wyoming

NEEDS AND INADEQUACIES OF VOCATIONAL EDUCATION IN SOUTH DAKOTA

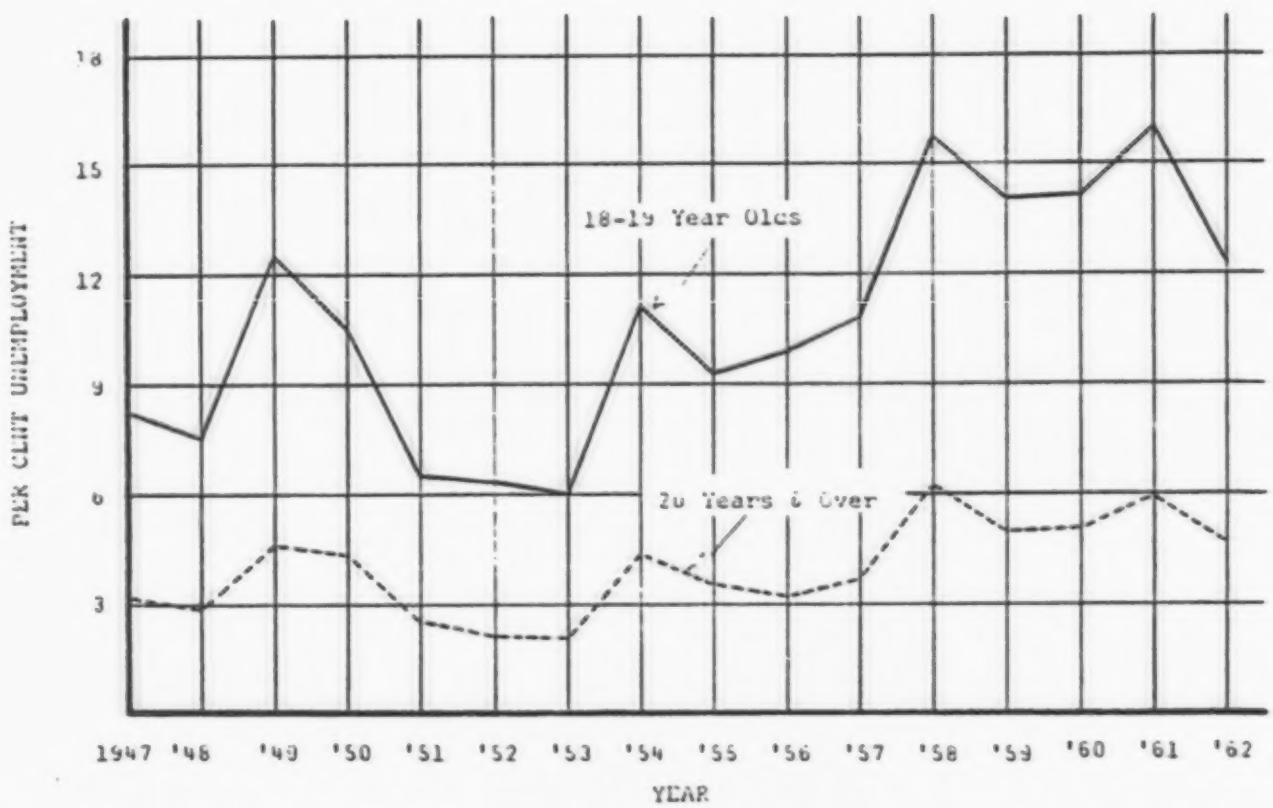
General

Not every young person can expect to receive a college education and not every young man or woman is capable or desirous of doing college level work. Many young people are inclined toward skilled or technical work and not professional or managerial work. The state of South Dakota must be prepared to educate those destined for vocational work as well as those who will someday do professional work. This matter is of extreme significance to the individuals affected and to the economy of the state and nation.

One of the results of inadequate vocational training is unemployment. Although South Dakota has one of the lowest unemployment rates in the nation, according to the February

report of the South Dakota Employment Security Department, the state's civilian work force reached its lowest monthly total since February, 1960. In addition, non-agricultural employment in South Dakota from January to February, 1964 experienced its sharpest reduction since 1958. The total civilian work force dropped by an estimated 2,050 persons and those employed in non-agricultural occupations were reduced in number by 600.

Unemployment is much more serious in other states of the nation. This problem is especially acute amongst young people. In fact, a recent study of the Upjohn Institute revealed that since 1958 one out of every seven male youths aged 18-19 has been unemployed. In 1953 the unemployment rate among 18 and 19 year olds was six per cent; by 1962 the rate had risen to 12 per cent. The following chart indicates the nationwide unemployment rates among 18-19 year olds and among older persons:



Source: "Youth Employment Act," by Sar A. Levitan. Published by the W. E. Upjohn Institute for Employment Research, February, 1963.

There are many other factors besides inadequate vocational education which contribute to unemployment. One of these factors which is of particular significance to South Dakota is agricultural mechanization. Mechanization leads to a situation where fewer man hours are needed to operate farms. A result in turn is that many farm youths migrate to the city, are not trained for specific occupations, and join the ranks of the unemployed.

It has also been contended that there is an indirect connection between inadequate vocational education and juvenile delinquency and increased welfare costs. Many young people, especially in larger cities, find themselves out of work and as a result turn to less productive activities. This in turn results in increased costs for law enforcement and for welfare.

While juvenile delinquency and welfare expenditures may seem remotely connected to inadequate vocational education in the state of South Dakota, it seems apparent that, to some degree, the employer needs of the state are not being met. A December, 1963 survey of the South Dakota Employment Security Department revealed that over 900 workers would have to be trained in the next two years, in order to satisfy the needs of the state's employers. It is possible that the employers answering this survey were somewhat optimistic insofar as their future needs are concerned, but at the same time it should be pointed out that the survey only covered employers hiring 38 per cent of the state's non-agricultural workers, and of this total only 71 per cent of said employers responded. Therefore, the statistics presented below represent the opinions of employers hiring little more than 25 per cent of the state's non-agricultural workers.

Occupation	Trainees Needed in 1964	Trainees Needed in 1965
Clerk, General Office	19	13
Draftsman	15	13
Bookkeeper	69	50
Stenographer	39	22
Cook	59	53
Nurse Aide	116	108
Practical Nurse, Licensed	59	49
Auto Mechanic	62	41
Welder	13	8
Auto Body Repairman	25	17
Carpenter	19	10
Painter	10	5
Asbestos Worker	7	10
Heavy Equipment Operator	8	6
Total	520	405

To clarify the demand which exists for trained technicians in skilled occupations, the following tabulation indicates employer anticipated needs during the next two years by broad occupational groups. This tabulation is also based on a survey by the Employment Security Department.

Employer Anticipated Needs in the Next Two years, by Broad Occupational Categories

Category	1964 Men	1964 Women	1965 Men	1965 Women	Total Men	Total Women
Professional & Managerial	73	103	53	99	126	202
Clerical	130	590	83	471	213	1,063
Sales	468	382	306	285	774	667
Services	131	770	114	632	245	1,402
Skilled Occupations	570	7	355	11	925	18
Unskilled	253	35	158	24	411	59
Unclassified	21	1	10	0	31	1

In connection with employer needs, the same survey of South Dakota employers revealed that under existing vocational programs, there were certain needs that simply could not be filled. These anticipated unfilled needs are presented below:

Skilled Occupations	Total Anticipated Need 1964	Total Anticipated Need 1965	Total Needs Not Able to Fill 1964	Total Needs Not Able to Fill 1965
Baker	9	6	5	3
Seamstress	1	2	1	2
Tailor	1	1	0	0
Cabinetmaker	1	0	0	0
Planing-Mill Operator	1	0	0	0
Pressman & Make-up	6	12	4	8
Linotype Operator	2	1	2	1
Watch Repairman	1	0	1	0
Automobile Mechinist	6	5	3	1
Tool and Die Maker	1	0	1	0
Sheet Metal Worker	4	4	1	1
Welder	43	23	13	8
Electrician	4	2	1	0
Optician	1	2	1	2
Concrete Batcher	1	1	0	0
Mason	2	0	0	0
Tuckpointer	6	6	6	6
Bricklayer	2	2	2	2
Carpenter	46	30	19	10
Form Setter	1	1	0	0
Truck-Box Assembler	3	4	0	0
Cement Mason	1	0	0	0
Cement Finisher	8	1	4	0
Painter	22	10	10	5
Plasterer	2	0	0	0
Plumber	8	9	1	0
Steam Fitter	2	2	0	0
Asbestos Worker	13	13	7	10

Skilled Occupations	Total Anticipated Need 1964	Total Anticipated Need 1965	Total Needs Not Able to Fill 1964	Total Needs Not Able to Fill 1965
Lineman	28	29	21	20
Dry Cleaner	2	2	0	0
Well Driller & Helper	4	0	0	0
Aircraft Mechanic	2	2	0	0
Aircraft Radar Repairman	2	2	1	1
Auto-Body Repairman	38	25	25	17
Auto Mechanic	120	80	62	41
Auto Electrician	5	2	4	1
Serviceman, Petroleum Equipment	1	1	0	1
Shop Mechanic	1	1	1	1
Truck Mechanic	1	1	0	0
Tractor Mechanic	3	0	1	0
Construction-Equipment Mechanic	3	2	1	1
Small Engine, Electric Motor Mechanic	1	1	1	1
Water Dept. Maintenance Man	1	0	1	0
Serviceman, Business Machines	2	4	0	0
Serviceman, TV	1	0	1	0
Electrical Appliance Serviceman	103	26	23	16
Total	580	368	198	154

These figures, based on only little more than 25 per cent of the state's employers indicate that during 1964 and 1965, a total of 352 skilled employees will be in demand but will not be available in South Dakota. The same survey showed that only 71 employees will be needed and not available in professional and managerial occupations, most of which require a baccalaureate degree. In addition, there will only be 63 semi-skilled positions and 10 positions in unskilled occupations that employers will not be able to fill, because of a lack of supply.

Vocational Needs in the State's High Schools

It is certain that Southern State College cannot hope to train all needed technicians in South Dakota. The state's secondary schools must play a major role in this field. It has already been suggested that there is a need for reorienting our vocational goals at the high school level. There appears to be too much emphasis in the high schools on vocational agriculture and too little emphasis on the other vocational fields. This is not to say that there is not a need for vocational agriculture education. Agriculture is the central industry in South Dakota but the curriculum imbalance is too much in favor of agricultural subjects. The reasons why other vocational courses are not stressed to any great extent in most of the state's high schools has already been discussed. To repeat, these reasons are economic for the most part; equipment for vocational courses is extremely expensive and classes, of necessity, must be small.

There appears to be a need for a basic reevaluation of vocational education goals. It is unrealistic for a high school to offer, as some do, two, three or four years of vocational agriculture and not one year of technical or trades education. The local school districts, in conjunction with the Department of Public Instruction, must adapt their curriculums to the needs of the state's employers.

PROPOSED ALTERNATIVES FOR VOCATIONAL EDUCATION IN SOUTH DAKOTA

Before considering alternatives for the improvement of vocational education in South Dakota, a number of proposed guidelines might first be observed by the Legislature and by all interested educators. These guidelines, seven in number, are:

1. A comprehensive survey of the needs of the employers of the state of South Dakota should be conducted (such a survey is currently underway in the Employment Security Department). This survey should encompass industrial, agricultural, distributive, nursing and other employers and should be projected for the next few years. In addition to determining the number of trained employees who will be needed during the next few years, the survey should discover the degree of training which will be needed for the various occupations.

2. A detailed inventory of the educational facilities of the state of South Dakota should be taken in order to learn if existing facilities are adequate to meet the needs of any proposed vocational education program.

3. Before any further vocational education programs are instituted in South Dakota, educational officials and others in positions of responsibility should consult with leaders in industry, business, agriculture, and labor.

4. Additional vocational education programs should not be started unless there is a clear cut need for trained employees which cannot be met by existing educational institutions and programs, public or otherwise.

5. If it is decided that the vocational education programs in South Dakota should be expanded, state officials should be in continual contact with leaders in business, industry, agriculture and labor in order to learn of qualifications needed for instructors, tools and facilities most practical and desirable training techniques.

6. In making any plans with respect to vocational education responsible officials should study the success or lack of success of graduates from existing programs in the state. It would also be wise to scrutinize closely the cost of vocational education programs as compared to the costs for other forms of state-financed education.

7. The Legislature should consider the feasibility of increasing cooperation between state supported vocational education programs and privately supported programs in vocational fields.

If it is decided that South Dakota should improve vocational education opportunities for its young people, attention naturally turns to economic factors. Almost any proposed alternative would require a fairly considerable capital investment. Attention should, however, be given to the long range effects of an improvement in vocational opportunities. One result of a good vocational program is the increase in the number of industries that locate in a state. North Carolina has recently introduced an extensive vocational education program and this investment has apparently paid off, since many industries are moving to that state. It is an established fact that one of the primary factors for industry location is the availability of trained manpower. Another result of an improved vocational program is the economic benefit to individuals, to families, to the state and to the entire nation. A third effect which would result from a good vocational program is decreased state outlays for welfare and for unemployment compensation. It has been established, to a certain degree, that there is a demand for skilled technicians and that the great majority of those who are unemployed and who are on welfare are unskilled. All of these effects are not immediate but they should be considered along with initial financial investments. Listed below are a number of possible alternatives for vocational education in South Dakota. These alternatives are not intended to be mutually exclusive. A combination of two or more alternatives may well be needed in South Dakota.

The first alternative which might be considered would be the expansion of vocational offerings at Southern State College. The vocational department at Southern presently has an enrollment of about 170 students and it has been suggested that with the addition of one more instructor the capacity would be nearly 240 students. Southern would seem to be one of the most reasonable and practicable institutions for the improvement of vocational education in South Dakota, since it has experienced and well trained administrators and instructors and the necessary, although limited, buildings and equipment.

A second alternative would be the improvement and expansion of existing vocational programs in the state's secondary schools, by taking full advantage of funds from the

Perkins Act and other federal vocational acts. This alternative, however, would require large capital investments and full equalization among the state's schools might possibly never be realized. Since it is possible that the state's smaller high schools may never be in a financial position to offer a broad range of vocation courses, this alternative would depend on the success of the school district reorganization movement.

A third alternative would be for the state of South Dakota to create area vocational schools. However, the expense involved would be somewhat comparable to establishing another higher educational institution in the state. As has been pointed out, equipment and supplies for these programs are quite costly and classes, by their very nature, must be small in number.

Another alternative would be to establish locally financed (perhaps with state assistance) county or multi-county vocational schools for local residents. One of the best arguments in favor of preserving and extending vocational opportunities at the local levels is that local administration is more flexible and more receptive to the needs of individual communities.

Still another suggestion has been that the state create junior colleges for the purpose of vocational education. Once again, the central criticism is that capital investments would be extremely high and it would seem more practicable to work with existing educational institutions.

The suggestion has been made that South Dakota cooperate with neighboring states for the purpose of educating its young people. Two of the nation's outstanding vocational institutions exist in Nebraska and North Dakota. Both the Vocational-Technical School at Milford, Nebraska and the State School of Science at Wahpeton, North Dakota are presently providing vocational education for some of South Dakota's young people, and the state of Nebraska may construct another vocational institution. A program of partial payment of the tuition and fees of South Dakotans attending these schools would be less expensive--although not necessarily more desirable--than construction and equipping of new facilities in this state.

Another partial solution to the problem would be for state officials to work with industrial and labor leaders in an attempt to expand and increase existing apprenticeship programs. Connected with this alternative is the suggestion that South Dakota encourage private groups and institutions to develop more vocational education programs.

The last alternative, although this presentation does not purport to exhaust all possibilities, is that South Dakota encourage federal passage of the Youth Employment Act. This Act is in the form of three measures introduced into the 88th Congress; S. 1, H.R. 1, and H.R. 1890. S. 1 would establish two separate programs; the first would create a youth conservation corps to provide jobs for young people and the second would authorize the Secretary of Labor to assist state and local governments, through grants, in developing job opportunities in local community service activities. Both of these programs resemble the Civilian Conservation Corps, established in 1933. The first program would attempt to provide employment for youths in depressed areas where both the financial resources of the community and the job opportunities are extremely limited. Because this work would be carried out on public lands, the federal government would finance the major portion of the program. The second program is designed for young people in areas where the communities would be able to provide half the needed revenue for the program. It has been estimated that the cost per enrollee would be about $5,000.00 per year. The young people would be paid for their work and would receive clothing, lodging, food, medical care and transportation. This "nationwide vocational school" would provide on-the-job training for about 15,000 young people during the first year of operation and in subsequent years, as many as 60,000 could be trained. The Act has two primary purposes; making young people more employable and alleviating the unemployment problem. The proponents of the "new-CCC" measure point to a number of advantages which could accrue from its passage: the unemployment problem would be lessened and young people would be provided with valuable vocational training; juvenile delinquency would be reduced; and public lands and local communities would be improved. According to a 1961 Gallup poll, 70 per cent of the American public supported the revival of youth conservation camps (the same poll reported that the CCC was consistently held to be the most popular New Deal measure).

On the other hand, those opposed to the Act say that there is no real unemployment problem that cannot be solved through economic prosperity. Some opponents of the measure say that the nation cannot afford the program, since the national deficit is already near $12 billion. Thirdly, they say that the program would provide inadequate training because young people could not be expected to work for eight hours and attend school at the same time (young people working in their own communities would be encouraged to remain in school). Finally those opposed to the Act say that juvenile delinquents would corrupt decent young people through their personal associations.

The alternatives presented in this section are by no means entirely comprehensive. There are no doubt other possibilities

for the improvement of vocational education in South Dakota. In addition, the alternatives mentioned in this section are not mutually exclusive or contradictory. It is conceivable that action will have to be taken on a number of alternatives before South Dakota's vocational opportunities are commensurate with the needs of the state.

APPENDIX I

HOUSE CONCURRENT RESOLUTION NO. 1, 1964

Introduced by MISS BLISS

A CONCURRENT RESOLUTION

A CONCURRENT RESOLUTION, Authorizing and directing the Legislative Research Council of the State of South Dakota to undertake a comprehensive study and analysis of vocational educational opportunities in South Dakota and to make its findings known at the next session of the Legislature.

BE IT RESOLVED BY THE HOUSE OF REPRESENTATIVES OF THE STATE OF SOUTH DAKOTA, THE SENATE CONCURRING THEREIN:

WHEREAS, There has been a greater need in the State of South Dakota and throughout the nation for education at all levels to prepare young people for the challenges of the future;

WHEREAS, The significant advancements in technology have resulted in a demand for more people to operate machines and other equipment requiring specialized training;

WHEREAS, These technological advancements have also resulted in more unemployment and underemployment, resulting in greater demands upon public aid;

WHEREAS, A thorough evaluation of the vocational educational opportunities in South Dakota cannot occur until an objective study and analysis of significant data and statistics is available; and

WHEREAS, The State Legislative Research Council is the research arm of the Legislature and has performed its research functions well with regard to other studies;

NOW, THEREFORE, BE IT RESOLVED, by the House of Representatives, the Senate concurring therein, that the Legislative Research Council study and analyze factors surrounding vocational educational opportunities in South Dakota and to report its findings to the Fortieth Session of the South Dakota Legislature.

APPENDIX II

ENROLLMENT IN AND EXPENDITURES FOR FEDERALLY SUPPORTED VOCATIONAL EDUCATION PROGRAMS, 1961

ENROLLMENT
(Numbers in thousands)

Occupational Category	Total	High School Students		Extension Programs	
		Number	Percent	Number	Percent
All categories	3,856	1,863	100.0	1,993	100.0
Agriculture	806	463	24.8	343	17.2
Trade & industry	963	307	16.5	656	32.9
Home economics	1,610	981	52.7	629	31.6
Distributive	306	43	2.3	263	13.2
Practical nursing	47	29	1.6	18	.9
Technician	123	39	2.1	84	4.2

Source: U.S. Department of Health, Education, and Welfare, Office of Education

EXPENDITURES
(Numbers in millions)

Program	Total	Federal	State & Local
Total	$254.1	$48.0	$206.1
Agriculture	69.6	13.7	55.9
Distributive	10.6	2.6	8.0
Home economics	72.6	8.9	63.7
Trade & industry	75.4	11.4	64.0
Practical nursing	7.4	3.5	4.0
Area program	18.4	7.9	10.5
Fishery	.3	.1	.1

Source: Department of Health, Education, and Welfare, Office of Education

APPENDIX III

EXPENDITURES OF FEDERAL, STATE, AND LOCAL FUNDS FOR VOCATIONAL EDUCATION, BY YEAR, 1918-62

Year	Total	Federal	State	Local
(1)	(2)	(3)	(4)	(5)
1962 1/	$283,948,445.81	$51,438,073.90	$104,264,320.79	$128,246,051.12
1961	254,073,395.04	48,009,534.14	89,154,683.75	116,909,177.15
1960	238,811,764.65	45,313,236.21	82,465,778.12	111,032,750.32
1959	228,314,600.16	41,399,068.27	79,534,444.08	107,381,087.81
1958	209,748,084.15	38,733,173.68	72,305,243.08	98,709,667.39
1957	190,726,170.95	37,063,017.77	67,524,371.95	86,138,781.23
1956	175,885,572.64	33,180,364.48	61,821,373.78	80,883,834.37
1955	164,761,217.75	30,350,880.95	57,591,247.53	76,819,089.27
1954	151,288,731.80	25,418,893.51	54,549,691.72	71,320,146.57
1953	145,951,214.10	25,366,459.74	52,217,589.82	68,367,164.54
1952	146,465,682.57	25,862,968.21	47,818,415.61	72,784,298.75
1951	137,354,226.30	26,685,054.40	44,207,579.52	66,461,592.38
1950	128,717,054.03	26,622,628.48	40,533,773.72	61,560,651.83
1949	115,131,371.58	26,408,982.05	30,438,935.13	58,283,454.40
1948	103,339,397.00	26,200,368.06	25,833,918.64	51,305,110.30
1947	83,252,082.84	21,087,435.84	22,180,073.71	39,984,573.29
1946	72,806,830.91	20,628,072.26	18,537,851.34	33,640,907.31
1945	65,641,640.50	20,004,573.38	15,347,766.10	30,289,301.02
1944	64,299,297.06	19,958,305.01	15,016,219.67	29,324,772.38
1943	63,488,251.13	20,306,645.17	14,210,234.57	28,971,371.39
1942	59,022,742.64	20,757,509.28	14,045,110.78	24,220,122.58
1941	57,705,117.32	20,546,607.13	12,920.546.01	24,237,964.18
1940	55,081,311.31	20,004,231.75	11,737,244.23	23,339,835.33
1939	52,668,491.11	19,434,553.96	10,947,861.93	22,286,075.22
1938	44,994,537.22	17,737,117.78	9,446,752.24	17,810,667.20
1937	36,399,285.42	10,013,668.89	8,907,389.47	17,478,227.06
1936	33,427,833.76	9,748,924.62	8,606,400.49	15,072,508.65
1935	29,289.922.68	9,371,979.83	6,782,425.57	13,135,517.28
1934	28,188,416.75	6,950,944.70	7,093,203.01	14,144,269.04
1933	30,126,888.12	7,728,245.02	8,204,515.56	14,194,127.54
1932	33,402,402.59	8,414,833.75	9,036,174.82	15,051,394.02
1931	32,143,192.38	7,978,729.21	8,858,973.64	15,305,489.53
1930	29,908,898.72	7,404,223.18	8,233,148.77	14,271,526.77
1929	27,474,305.86	6,878,529.71	7,471,858.30	13,123,917.85
1928	25,715,760.46	6,821,451.75	7,028.986.81	11,865,321.90
1927	24,553,331.86	6,730,305.25	6,505,817.23	11,317,209.38
1926	23,181,700.46	6,548,657.46	6,149,081.99	10,483,961.01
1925	20,919,855.76	5,614,550.14	5,771,975.23	9,533,330.39
1924	18,845,350,92	4,832,880.34	5,174,831.06	8,837,639.52
1923	17,132,446.09	4,308,885.68	4,874,532.11	7,949,028.30
1922	14,812,988.70	3,850,118.78	4,523,939.39	6,438,930.53
1921	12,618,262.55	3,357,494.23	4,074,500.73	5,186,267.59
1920	8,535,163.84	2,476,502.83	2,670,284.76	3,388,376.25
1919	4,951,776.75	1,560,008.61	1,566,627.05	1,825,141.09
1918	3,039,061.15	832,426.82	1,024,930.48	1,181,703.85

1/ Provisional figures, subject to final audit of State reports.

APPENDIX IV

TOTAL ALLOTMENTS OF FEDERAL FUNDS TO STATES AND TERRITORIES WITH EXPENDITURES, UNEXPENDED ALLOTMENTS, AND PERCENT OF ALLOTMENTS UNEXPENDED, BY YEAR, 1918-62

Year	Total allotments	Expenditures	Unexpended allotments	Percent of allotment unexpended
(1)	(2)	(3)	(4)	(5)
1962 1/	$53,619,101.00	$51,438,073.90	2/ $2,181,027.10	4.1
1961	49,842,068.00	48,009,534.14	1,832,533.86	3.7
1960	47,863,393.00	45,313,236.21	2,550,156.79	5.3
1959	44,638,411.22	41,399,068.27	3,239,342.95	7.3
1958	40,888,411.22	38,733,173.68	2,155,237.54	5.3
1957	38,580,411.22	37,063,017.77	1,517,393.45	3.9
1956	33,638,330.22	33,180,364.49	457,965.73	1.4
1955	30,811,591.22	30,350,880.95	460,710.27	1.5
1954	25,811,590.90	25,418,893.51	392,697.39	1.5
1953	25,811,590.90	25,366,459.74	445,131.16	1.7
1952	26,273,383.00	25,862,968.21	410,414.79	1.6
1951	27,127,882.00	26,685,054.40	442,827.60	1.6
1950	27,127,882.00	26,622,628.48	505,253.52	1.9
1949	27,127,882.00	26,408,982.05	718,899.95	2.6
1948	27,127,882.00	26,200,368.06	927,513.94	3.4
1947	21,768,122.03	21,087,435.84	680,686.19	3.1
1946	21,768,122.03	20,628,072.26	1,140,049.77	5.2
1945	21,768,122.03	20,004,573.38	1,763,548.65	8.1
1944	21,768,122.03	19,958,305.01	1,809,817.02	8.3
1943	21,768,122.03	20,306,645.17	1,461,476.86	6.7
1942	21,768,122.03	20,757,509.28	1,010,612.75	4.6
1941	21,775,977.62	20,546,607.13	1,229,370.49	5.6
1940	21,775,977.62	20,004,231.75	1,771,745.87	8.1
1939	21,775,977.62	19,434,553.96	2,341,423.66	10.8
1938	19,945,978.80	17,737,117.78	2,208,861.02	11.1
1937	10,377,580.62	10,013,668.89	363,911.73	3.5
1936	10,377,580.62	9,748,924.62	628,656.00	6.1
1935	10,377,580.62	9,371,979.83	1,005,600.79	9.7
1934	7,324,700.00	6,950,944.70	373,755.30	5.1
1933	8,044,179.81	7,728,245.02	315,934.79	3.9
1932	8,732,977.62	8,414,833.75	318,143.87	3.6
1931	8,184,901.51	7,978,729.21	206,172.30	2.5
1930	7,684,901.51	7,404,223.18	280,678.33	3.7
1929	7,184,901.51	6,878,529.71	306,371.80	4.3
1928	7,184,901.51	6,821,451.75	363,449.76	5.1
1927	7,184,901.51	6,730,305.25	454,596.26	6.3
1926	7,184,901.51	6,548,657.46	636,244.05	8.9
1925	6,198,716.08	5,614,550.14	584,165.94	9.4
1924	5,190,448.02	4,832,880.34	357,567.68	6.9
1923	4,615,159.82	4,308,885.68	306,274.14	6.6
1922	4,120,833.72	3,850,118.78	270,714.94	6.6
1921	3,632,177.37	3,357,494.23	274,683.14	7.6
1920	3,051,919.01	2,476,502.83	575,416.18	18.9
1919	2,307,460.44	1,560,008.61	747,451,83	32.4
1918	1,655,586.72	832,426.82	823,159.90	49.7

1/ Provisional figures, subject to final audit of State reports.
2/ Includes $22,224.00 of George-Barden Title I fishery funds and $118,013.17 of George-Barden Title III technical education funds which were not sent to States.

Source: Annual Reports of State Boards for Vocational Education, Fiscal year ended June 30, 1962, U.S. Dept. of Health, Education & Welfare, office of Education.

APPENDIX V

PUBLIC LAW 88-210
77 STAT. 405

Sec. 4 (a) Except as otherwise provided in subsection (b), a State's allotment under section 3 may be used, in accordance with its approved State plan, for any or all of the following purposes:

(1) Vocational education for persons attending high school;

(2) Vocational education for persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market;

(3) Vocational education for persons (other than persons who are receiving training allowances under the Manpower Development and Training Act of 1962 (Public Law 87-415), the Area Redevelopment Act (Public Law 87-27), or the Trade Expansion Act of 1962 (Public Law 87-794)) who have already entered the labor market and who need training or retraining to achieve stability or advancement in employment;

(4) Vocational education for persons who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program;

(5) Construction of area vocational education school facilities;

(6) Ancillary services and activities to assure quality in all vocational education programs, such as teacher training and supervision, program evaluation, special demonstration and experimental programs, development of instructional materials, and State administration and leadership, including periodic evaluation of State and local vocational education programs and services in light of information regarding current and projected manpower needs and job opportunities.

(b) At least 33 1/3 per centum of each State's allotment for any fiscal year ending prior to July 1, 1968, and at least 25 per centum of each State's allotment for any subsequent fiscal year shall be used only for the purposes set forth in paragraph (2) or (5), or both, of subsection (a), except that the Commissioner may, upon request of a State, permit such State to use a smaller percentage of its allotment for any year for the purposes specified above if he determines that such smaller percentage will adequately meet such purposes in such State.

(c) Ten per centum of the sums appropriated pursuant to section 2 for each fiscal year shall be used by the Commissioner to make grants to colleges and universities, and other public or nonprofit private agencies and institutions, to State boards, and with the approval of the appropriate State board, to local educational agencies, to pay part of the cost of research and training programs and of experimental, developmental, or pilot programs developed by such institutions, boards, or agencies, and designed to meet the special vocational education needs of youths, particularly youths in economically depressed communities who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education programs.

Facts about the Legislative Research Council

The State Legislative Research Council is a permanent, joint committee composed of every member of the South Dakota Senate and House of Representatives. Its purpose is to consider legislative policies between sessions of the Legislature. To achieve this purpose, the Council, during the interim between sessions, gives advance study and consideration to problems expected to confront the next Legislature.

The work of the Council is conducted by committees and subcommittees and by a research staff, under the direction of an Executive Board. The Council staff serves the Executive Board and committees and subcommittees in development of a program for consideration at the next legislative session, and serves every legislator in an impartial and objective fact-finding capacity.

In its work, the Executive Board: 1) acts as a clearing house for ideas on current legislative problems through receipt of proposals for study; 2) determines and directs the study and research necessary for proper consideration of all topics accepted; 3) disseminates advance information on these problems to legislators and the general public by means of reports and newsletters and by discussion at public meetings; and 4) reports directly to the Legislature in advance of regular sessions, making recommendations in the form of bills or otherwise, and summarizes the material prepared for use of the Legislature in considering the Council program.

Since 1951 the State Legislative Research Council has provided an open forum to which legislators, administrators, citizens, and organizations have submitted their proposals for consideration. As a result of Council activities, problems of South Dakota state and local government receive continuous attention and study by members of the Legislature.

VT 000 457

VT 000 457

Job Performance of Young Workers in Relation to School Background, A Pilot Approach Toward Using the Job Environment in Evaluating Both General and Vocational Education.

Bergstrom, Howard E.

Educ Res and Develop Counc of the Twin Cities Metrop Area

20Apr66

DOCUMENT NOT AVAILABLE FROM EDRS 217p.

*VOCATIONAL EDUCATION, *HIGH SCHOOL GRADUATES, *GENERAL EDUCATION, *PERSONNEL EVALUATION, PROGRAM EVALUATION, COMPARATIVE ANALYSIS, MALES, GRADES (SCHOLASTIC), EMPLOYMENT LEVEL, PILOT PROJECT, INDIVIDUAL CHARACTERISTICS,

The purpose of this study was to explore ways of using the work environment to appraise the effects of preemployment education -- both general and vocational education -- on subsequent job success. Data were collected from August 1964 to May 1965, and came from three primary sources -- (1) telephone interviews with 150 boys who graduated from three different types of high schools in 1963 but had obtained full-time work instead of continuing their formal education, (2) their official school records (class rank, grades in English and vocationally-oriented subjects, attendance records, and scores in intelligence and the Differential Aptitude Test), and (3) the employers of the 150 boys who were interviewed by the investigator at 123 places of employment. Each employer defined the job as being on one of four levels of difficulty, and indicated the order of importance of three clusters of characteristics -- (1) communication competency (valued most in 42 cases), (2) personal adequacy (valued most in 91 cases), and (3) skills unique to the job (valued most in 17 cases). Boys from all three schools were equally successful in obtaining jobs related to their training. Although no significant relationship existed between class rank in school and rank on the job, the poorest fourth of graduates had significantly poorer evaluations on every measure of job success. (SL)

ED015348

ERIC CLEARINGHOUSE
FOR VOCATIONAL AND TECHNICAL
EDUCATION

JOB PERFORMANCE OF YOUNG WORKERS IN RELATION TO SCHOOL BACKGROUND

A PILOT APPROACH TOWARD USING THE JOB ENVIRONMENT
IN EVALUATING BOTH GENERAL AND VOCATIONAL EDUCATION

A Study Sponsored by the
EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL
of the Twin Cities Metropolitan Area, Inc.
College of Education, University of Minnesota
Minneapolis, Minnesota 55455

HOWARD E. BERGSTROM

The research report herein was financed through
the research program of the
Office of Manpower, Automation, and Training,
United States Department of Labor.
Contract No. 81-22-30

VT 00457

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Minneapolis, Minnesota 55455

HOWARD E. BERGSTROM

The material in this report was prepared under a contract with the Office of Manpower Policy, Evaluation, and Research, U. S. Department of Labor, under the authority of Title I of the Manpower Development and Training Act of 1962, as amended. Researchers undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment. Therefore, points of view or opinions stated in this document do not necessarily represent the official position or policy of the Department of Labor.

EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL
of the Twin Cities Metropolitan Area, Inc.

College of Education • University of Minnesota • Minneapolis, Minnesota

April 30, 1966

Director
Office of Manpower, Automation, and Training
U.S. Department of Labor
Washington, D.C.

RE: Contract No. 81-22-30

Sir:

Reported herein are the results of a study initiated and conducted by Howard E. Bergstrom, Project Coordinator with the Educational Research and Development Council. Data were collected from August 1964 through May 1965, and the analysis and follow-up study were completed under contract with OMAT since June 1, 1965.

The purpose of the study has been to explore ways of using the work environment to appraise the effects of pre-employment education--both general and vocational education--on subsequent success of performance in the world of work. The field of the study would more accurately be personnel psychology than vocational education, although these are interwoven and interdependent fields.

The careful reader of Dr. Bergstrom's report will find that some fundamental challenges have been made to certain widely-accepted beliefs. These challenges would require large-scale research and program development to determine their worth. What has been established in the present study, we believe, is that the challenges are shown to have grounds for presentation.

The more tangible outcome of the study is the development of some techniques for evaluating young workers which might reflect on the school curriculum. As is appropriate in a pilot study, these methods are not finished instruments but may be useful to other researchers in developing refined techniques in specific occupational fields.

The colored-page section of this report presents an overview in non-technical terms, followed by the detailed technical report on white pages. We present this study in the hope that it may make a contribution toward current thinking and toward additional studies with similar objectives.

Sincerely yours,

Van D. Mueller
Executive Secretary

ACKNOWLEDGMENTS

Research in human affairs is always a joint effort, even when one individual actually carries out a project. The following organizations and individuals must be specifically mentioned in connection with the study reported in this volume, at the risk of omitting some whose contributions were also very valuable.

Administrators and counselors in more than 15 schools and school districts provided information, with most data obtained from Roosevelt and Vocational senior high schools in the Minneapolis Public Schools, and from the Robbinsdale Senior High School, Robbinsdale, Minnesota. Counselors Michael Davies, Donald Hanson, and Douglas Hanson conducted the telephone interviews with the graduates.

One hundred and sixty-one employed former students who graduated from the named high schools in 1963 were interviewed; the cooperation of these young men is greatly appreciated.

Executive and supervisory personnel in 123 places of employment in Minneapolis and surrounding areas granted interviews and provided information.

Several members of the Graduate School faculty of the University of Minnesota, Professors Gordon M. A. Mork and Cyril J. Hoyt in particular, have been consulted on the design of the study and the writing of the report herein.

The Educational Research and Development Council, through its Board of Directors, Commissions, and staff, has been the primary sponsor of the research. Executive Secretary Van D. Mueller and Associate Executive Secretary Donald E. Davis have been especially helpful, and Linda Kabrick typed the entire report.

The Office of Manpower, Automation, and Training, U.S. Department of Labor, has supported the study since June 1, 1965.

The writer could not have completed the project without the cooperation of his wife, Jane C. Bergstrom, to whom this volume is gratefully dedicated.

Howard E. Bergstrom

Minneapolis, Minnesota
April, 1966

OVERVIEW OF THE PROJECT

The Overview of the Project, presented on the colored pages preceding the study proper, has been prepared to provide the reader with a setting from which to view the problem and procedure of the study. Some of the insights and findings gained by the investigator are included as they seemed to bear on comprehension of the problem. An attempt has been made to write this section in non-technical terms.

* * * * *

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OVERVIEW OF THE PROJECT

Introductory Comments

The approach of this study may be of more significance than the findings. While the findings appear to have validity related to high school graduates who work after leaving grade 12 in the Minneapolis area, it is not known that the conclusions would apply to other metropolitan areas or to graduates of post-high school educational programs. Somewhat different findings would be expected especially if a similar study were to be conducted on graduates of post-high school programs involving rigorous technical training and selected students.

Therefore, the reader is invited to consider the approach of the study--to the development of a generalizable technique for defining the essential elements of job performance, to the evaluation of individuals on these essentials, and to the relationship of jobs to school background--as being the aspect which may have value in acquiring insights and in planning for further research.

Problem and Purpose

What is known about validating curriculum?

Research evidence makes it clear that success in college can be partially predicted from achievement records in high school. But success at another level of education is not the primary criterion on which one may validate school experience. Such a criterion may be helpful, but the ultimate application of schooling is "life."

Evidence that certain patterns of schooling or certain levels of academic achievement affect "life" is almost non-existent. It is not difficult to discover that people who go to college make more money, but then one must not fall into the trap of thinking that the money is always directly attributable to the education. Boys who eventually take over their fathers' businesses or get well-paying jobs working for relatives would usually have done so whether they attended college or not.

Furthermore, there is little evidence to show in most cases that the amount and type of education received is entirely necessary;

almost every job has successful practitioners who learned their skills on the job rather than in school, and in these instances schooling serves primarily as a screening and selecting process and only secondarily as a substitute for on-the-job training. (Jobs where initial proficiency is necessary to protect the health or welfare of people to whom services are rendered would not be subject to the foregoing generalization, and are usually not open to research on alternatives.)

Three areas in which schools have a legitimate concern are: outcomes involving occupations, success in social relationships and civic responsibilities, and the fulfillment of intellectual and artistic potential. Most of what is known about relationships between schooling and outcomes in the above areas is in the form of discoveries that high achievement in school has a positive relationship to whatever outcomes can be measured objectively. The degree or extent of this relationship is usually quite low, however, and in most cases cannot be established as a cause-effect relationship. "What makes people what they are" is such a complex phenomenon that education cannot be given credit in any specific manner.

What one studies vs. how well one does afterward

It may be concluded from numerous studies that students' chances of getting high grades in college are much better if they have gotten high grades in high school. But, no differences can be traced to or associated with the kinds of subjects taken.

Many colleges deny admission to those who haven't had a prescribed background in certain subjects, such as in mathematics or foreign languages. In a parallel way, many personnel departments in business and industry bar from employment those applicants who haven't taken prescribed vocational or technical courses. Research in colleges demonstrates that subject matter requirements for entrance to college bar as many superior students as inferior ones. It may be reasonable to assume that a similar situation exists in beginning levels of employment.

When an employer will look only at applicants with a specific background of training then he may find that the best of those who qualify do not have the potential of the best of those (who might also have applied) who do not have this training. The decision made is always a compromise between the employer's desire to get the best long-run employees and the need to cut down the costs of training new employees on the job. When trained workers are in plentiful supply it is logical to employ these first, if they have good training records.

For a number of reasons, personnel psychologists have never been able to obtain good results in testing relationships between training records and success on the job. The greatest difficulty is the "criterion problem"--nobody is sure what it is that should be included in "success." Next, even when criteria are decided on, they are so intertwined that a subjective rating by the supervisor is usually the best form of evaluation, and these give low reliabilities.

Complicating the matter still more is the difficulty of finding groups of workers, doing the same job under the same supervisor, which include enough workers to give a good statistical spread if they are ranked, and thereby be comparable to grades given to classrooms of students by teachers. Finally, the groups of co-workers tend to be quite similar in aptitudes and abilities because those who can't do the work get fired and those who are capable of a better job move up.

The job as a place to evaluate curriculum

Despite the difficulties in evaluating job performance, the attempt must continue to be made, because in no other way is it likely that school curriculum may be eventually tested and justified on an objective basis.

The job, as a major part of "life," must increasingly become a place where outcomes of education other than vocational skills are exercised. Intellectual and artistic fulfillment, and the meeting of social and civic responsibilities, are increasingly recognized as ends in themselves in the job environment. Owners and managers in business and industry recognize that the production of goods and the rendering of services for profit need not be their only concerns. Workers in each place of employment have legitimate rights to achieve some of their own life goals on the job, in addition to helping to achieve their employers' goals.

In the work-setting described above, one would not expect a worker to exhibit one set of values and behaviors on the job and a different set when away from the job. He can be a consistent organism, and education can attempt to prepare him to be consistent. Education toward effective communications and good human relations might then produce results observable in the work-setting.

Within this theoretical framework, it is reasonable to speculate that evaluation of behavior in the work setting can eventually help to evaluate the worker's school experience and achievement, not only in vocational education but in general education as well.

Only the job-setting provides the opportunity to evaluate the ultimate results of curriculum, since the home is generally out-of-bounds and "citizenship" is largely out-of-reach--of research. The job is a controlled situation. Most tasks are subject to measurement. Supervisors have the obligation to measure success, and they are increasingly becoming more highly trained and conversant with research techniques. It is not unreasonable to propose that in the forseeable future education will receive valuable guidance through studies which demonstrate both general and vocational outcomes in the work-setting.

Design and Procedures

The specific objectives of the study

The overall purpose of the study was to attempt to make a contribution toward evaluating the senior high school curriculum through testing relationships between measures of school achievement and aspects of graduates' satisfactoriness on their first full time jobs. Measures of school achievement used were those already accessible in any school. More specific objectives might be listed as follows:

a) A technique was to be developed for simplifying the definitions of jobs available to entry-workers in a metropolitan area. This involved asking supervisors to rank the importance of personal qualities, basic literacy, and "skills unique to the job" for each job studied. Employers also classified each job on how demanding it was of the workers' abilities.

b) The predictive potential of various measures of school achievement was to be tested, as these measures might relate to supervisors' rankings and ratings of the workers on the job-factors.

c) An attempt was to be made to discover whether or not the satisfactoriness of workers could be related to the pattern of subjects taken in school, or to the school attended, if other factors were equal.

The sources of data

Data used in the study came from three primary sources. First, each boy from the 1963 graduating roster who was seemingly eligible to be in the study was telephoned by a guidance counselor from his school and engaged in a structured interview. The place of work was recorded, along with the dates of starting and ending

specific jobs, the supervisor's name, and other items. Second, the investigator gathered from the official school records the class rank, grades in English and vocationally-oriented subjects, attendance record, and scores in intelligence and the Differential Aptitude Tests. Graduates were classified "vocationally-oriented" or "general" according to the pattern of courses taken. Third, the employers of 150 boys were interviewed personally by the investigator, at 123 places of employment.

The Subjects. The group of 150 boys which was studied was thought to represent a "type" which has not received much attention in research. They were not school dropouts; they did not go on to college or other post-high school training; they did manage to get and keep full time jobs. They tended to have average intelligence and aptitude test scores, below-average English grades, and a wide range of grades in vocationally-oriented courses. A necessary condition for interpreting the study was to demonstrate that, as groups, boys who work directly out of high school will have the same characteristics regardless of the school graduated from. This started as an assumption which was tested in the first stage of the study, and was found to be true for the three schools selected. The rationale of this finding is that even when the total graduating classes of schools are quite different in composition, these differences are erased when the dropouts, the unemployed, those in post-high school education, and those working through "connections" are removed.

The Schools. Three schools were selected, one from each of three major metropolitan types: urban vocational, urban comprehensive, and suburban comprehensive. Only one vocational high school was available in Minneapolis, and the comprehensive schools were selected because they had the largest enrollments in the area. The numbers of students who met all criteria were surprisingly small, so that no sampling of graduates within schools was necessary. The three schools, in a sense, were a sample of all schools, and 1963 was a sample of all graduating classes. Fifty-five of 291 qualified from the vocational school, 51 of 669 qualified from the urban comprehensive school, and, 44 of 758 qualified from the suburban comprehensive school (total classes included girls, who were not studied). Because the graduates by school groups were equal (no significant differences) in aptitude measures and attendance records, individuals were assigned standard scores in English, vocational, and total grade averages according to their standing in their own school-groups.

The Employers and Jobs. The 123 places of employment, with as many as four separate job-settings in some places, provided a cross-

section of jobs actually open to boys just out of high school. Personal visits were made to each place, and oral interviews were conducted with supervisors of the 150 subjects--often with both a company personnel director plus a supervisor. The personal interview was thought to be necessary because of the importance of a high return, the sensitiveness of the topic, and the great range of personalities with whom it was necessary to achieve rapport.

The Sequence of Procedures

a) The criteria for selection of subjects were applied to the members of the 1963 graduating classes of the three schools. The subjects, thus selected, were interviewed by telephone; 183 were interviewed and of these 161 were found to qualify on the selective criteria. Data were gathered from school records on these subjects.

b) Employers of the 161 subjects were contacted by letter and telephone, and 123 places of employment were visited, resulting in interviews which produced data for 150 subjects. The subjects were ranked and rated with comparable co-workers and the jobs were defined by "content" and "demandingness."

c) School achievement measures, attendance, and ranks assigned workers by their employers were converted to approximate standard scores--in one-digit form for convenience of computation and presentation. Classification by school program taken, and the job content and demandingness, were also reported in one-digit form.

d) Chi-square tests of the relationships between various combinations of elements of the three basic sets of variables were computed. The variables were: (1) potential predictors (school achievement, attendance, and program taken); (2) the criteria for relating school experience with work experience (job content and demandingness); and (3) the evaluations of graduates-now-working (rankings on satisfactoriness and ratings of satisfactory or unsatisfactory).

e) A group of 90 co-workers was compared to the 150 principal subjects. The purpose of this comparison was to discover if the principal subjects and co-workers were alike as groups. However, an unpredicted bias in selection of co-workers, by employers, made the usefulness of the comparison questionable. Another comparison made at the conclusion of the study was between the principal subjects who were most "carefully" recruited and selected compared to those most "carelessly" recruited and selected.

Findings and Interpretations

What kinds of jobs were available to the graduates?

The findings which follow provide an approximation of the range and frequency of jobs open to high school graduates without further training--at least in the Minneapolis area. Of the 150 boys studied intensively: 12 were in high-skill, white-collar jobs; 11 were in high-skill, blue-collar jobs; 10 were sales clerks or service station attendants; 36 were stock or shipping clerks; 12 were in driving or delivery jobs; 14 were semi-skilled machine operators; 16 were in assembly, fabrication, or inspection; 11 were custodians or hospital orderlies; 12 were in public accommodations such as food services; and, 16 were miscellaneous unskilled laborers.

What did employers value most in their employees?

All 150 jobs were "defined" by employers as fitting into one of four levels of "demandingness," and also were defined by indicating the order of importance (to each job) of three clusters of characteristics: (1) Communications Competency, (2) Personal Adequacy, and (3) Skills Unique to the Job. In 91 of the 150 instances, "Personal Adequacy" was valued most. "Communications Competency" was valued most in 42 cases, and "Skills Unique to the Job" were valued most in only 17 cases. Where "Personal Adequacy" ranked first, "Communications..." ranked second in 50 cases and "Skills..." ranked second in 41 cases. Perhaps the results are not surprising when one considers that only 23 of the 150 boys were in jobs rated as "high skill." However, it is clear that vocational training must continue to stress training in communications and personal characteristics along with skills.

Which boys got (and kept) which jobs?

Boys from all three schools were equally successful in obtaining jobs related to their training; however, since a greater proportion from the vocational school had training, more got related jobs. The demandingness level of jobs did not differ significantly by schools. Demandingness was clearly related to achievement, however, in that significant findings were obtained for class rank, English grades, and vocationally-oriented grades--attendance did not show a significant relationship in this context. It is also worthy of note that workers rated "Unsatisfactory" did not necessarily lose their jobs. From three to 12 months after starting their jobs, 42 out of 150 were rated as those the employer would "as soon not rehire," yet most of these had passed a probationary period and would not be dismissed.

What differences were associated with selection procedures?

When the 48 "carefully selected" workers were compared with the 43 "carelessly selected" workers, a few interesting results were noted. First, the "careless" hiring tended to be done by the owners themselves, while the "careful" hiring was usually done by employed managerial personnel. "Careful" selection was recorded as often for general graduates as for vocationally-oriented graduates, and as often for one school as the others. "A" students in vocational courses tended to be more "carefully selected," as they also tended to have the best jobs, but English grades and attendance record seemed to make no difference.

What seemed to predict success on the job?

The parallel between grades in school (ranks) and ranks on the job was not generally supported by the findings. Perhaps the groups of workers were too small and too well-placed according to ability for relationships to school achievement to occur. Or, perhaps the "school situation" in general is too different from the "work situation" for clear relationships to be present.

There were two exceptions to the general lack of significant relationships. The "D" students in vocationally-oriented courses, from both types of schools, got lower evaluations even though they were working among less competent co-workers. (This occurred only in the "Skills..." evaluation, and not in the others.) A much clearer finding, it should be noted, concerned the attendance record. The poorest fourth of the graduates in attendance (in general, those who were absent and/or tardy 50 to 100 times in three years) had significantly poorer evaluations on every measure of job success.

How may the study be useful as a "pilot approach"?

The method of defining jobs on a grid, with "demandingness" on one axis and "job content" on the other axis, may be useful if further refined. The advantages of generalizing these two components, instead of attempting to provide detailed definitions of thousands of jobs, are these:

a) Automation and rapid technological change necessitate adaptability of workers (perhaps each square on the grid can represent a "family" of jobs within which a worker could easily adapt because they are fairly equal in difficulty and emphasize the same characteristics, even though their titles and detailed descriptions might sound very different);

b) Follow-up studies show that as many as half of all trained workers do not get placed or retained in a job they were trained for (perhaps the more generalized definition, and a more generalized training, would provide for better utilization of training).

A number of other features of the study may have pilot utility, especially the method of obtaining evaluations from the employers.

An Invitation to the Reader

Readers with more than a casual interest in the topic of this study may wish to have their attention drawn to certain parts of the detailed report which will illuminate some of the concepts to which reference has been made in this Overview. A few of these special references are:

(1) The research on validating curriculum is reviewed in Chapter II.

(2) The "grid" for defining jobs is given as Figure 2. Explanatory text accompanies the figure.

(3) The complete design of the study is given in Chapter III. Figure 4 illustrates the test of the central hypothesis.

(4) A more thorough summary of interpretations appears as the last major section of Chapter IV. See all of Chapter IV for the complete findings.

JOB PERFORMANCE OF YOUNG WORKERS IN RELATION TO SCHOOL BACKGROUND:

A Pilot Approach Toward Using the Job Environment in Evaluating Both General and Vocational Education

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CHAPTER I

INTRODUCTION

Purpose and Limitations of the Study

Purpose

The general problem on which the present study is focused is that of establishing better predictive relationships between high school experience and subsequent success in post-high school employment.[1]

Better means of prediction would be useful in strengthening curriculum and in improving vocational guidance in secondary schools. The format of some sections of the study may have applications to similar analyses of data on graduates of post-high school programs.

Limitations

The present study has been conducted for the purpose of exploring numerous interrelated facets of the problem of education and employment. The upper limit of expectation regarding outcomes was that certain contentions or hunches might either be shown to lack support in the findings or be reinforced to the level of hypotheses worthy of further testing.

Outline of the Problem

The problem in its broader context

Although the specific problem of the present study is restricted by several conditions, the broad context of the larger problem from which it stems may be outlined as a matter of interest and perspective.

The problem of finding relationships between educational background and subsequent employment presents an immense arena for research. The assumption which offers the greatest theoretical difficulty is the assumption that education, or vocational educa-

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[1]References to related research and other literature are found primarily in Chapter II. References in other chapters are footnoted only when a notation is made to a unique source.

tion in particular, is a cause, and employment, or success in employment, is an effect. But research on a cause-effect relationship faces almost insurmountable difficulties, chiefly because the elements of vocational success are so diffuse and the factors which have made a person what he is--home, school, church, peer group, heredity, etc.--are also diffuse. Therefore, the present study focuses entirely on predictive relationships, not cause-effect relationships.

The focus of research has been the "criterion problem." Investigators have not arrived at agreements on what criterion or criteria should be used for evaluating performance adequacy on jobs. Supervisors' judgments have been used most commonly as the source of ratings or rankings of the total or overall satisfactoriness of workers. However, attempts at breaking the total into sub-factors have been based on conflicting premises and the results are inconclusive.

The problem in a more restricted context

The subjects of the present study all managed to obtain jobs, without help from relatives or from special federal programs for the unemployed. They graduated from high school without special inducements. Therefore, it is logical to suppose that dropouts and the unemployed, through special efforts in training and placement involving the new federal programs, will cause some young people with characteristics similar to those of the subjects of the study to be "displaced by" (placed instead of) people with possibly less aptitude and initiative.[1]

The problem of the study may be viewed as having three sequential parts. First is the matter of deciding on criteria of satisfactoriness in jobs and of school background which might evidence relationships. Second is the matter of devising a means of obtaining evaluations of work performance which can logically be tied to potential predictors in the school background. Third is the difficulty of making a case for actual predictive relationships between single factors, where relationships might be found, inasmuch as the causal relationships are extremely complex and not subject to analysis through existing means.

Figure 1 provides a partial illustration of the approach taken in the study in regard to establishing criteria of satis-

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[1]Both groups "deserve" jobs equally. The question here is simply that one group may suffer because the attention is focused primarily on another group.

factoriness. It also illustrates the procedure by which the jobs were arbitrarily "defined." (The abbreviations in Figure 1 are spelled out and explained in the section on Definitions of Essential Terms which appears in the present chapter.)

FIGURE 1

DEFINITIONS OF JOBS ACCORDING TO
CLASSIFICATION BY DEMANDINGNESS AND
THE RANKED IMPORTANCE OF THE JOB-CONTENT FACTORS

		Job Content Factors					
		CPS	CSP	PCS	PSC	SCP	SPC
Demandingness	4 (more)						
	3						
	2						
	1 (less)						

The measurement problem

Many obstacles are in the way of precise or even approximate measurement of the factors which must be controlled if the relationships between school experience and vocational success are to become clear enough so that specific recommendations for curriculum or guidance may be justifiably made. No attempt has been made in the present study to actually overcome these obstacles other than to contrive some measuring devices which are here hopefully presented as being adequate to discern strong relationships, but which are not thought to be sophisticated enough to measure the extent of these relationships.

The chief obstacles to precise measurement are summarized below:

a) Research to date is not clear on what are the criteria of success, or satisfactoriness, of workers on the job. It is clear only that the criteria used in research are more or less

arbitrarily defined by each researcher, and that various criteria have assumed the dominant position at different times in the history of the research.

b) Even when the criteria for judging satisfactoriness have been arbitrarily established, the problem of measurement is extremely difficult. Super concludes that the subjective evaluations by supervisors, despite their low statistical reliabilities, are the most defensible source of evaluations.[1]

c) In the schools, the foremost obstacle to the measurement problem is the uncertainty about which courses or subjects result in which outcomes. If the view is taken that any particular outcome is likely to be the product of experiences in more than one course, plus out of school experience, then the matter of deciding on curriculum change is indeed difficult.

d) Also a serious problem for education is the determination of what school "achievement" is and how it can be measured. Ideally, achievement should probably be equated with learning, and be most validly measured as outcomes in out-of-school and post-school life, by ascertaining what transfers of learning or behavior changes had taken place. The measures of achievement used in this study consisted of averages of letter grades assigned in sequences of courses, plus the record of attendance in grades 10 through 12. This led to the problem of developing a general standard for equating letter grade averages from school to school when the meaning of a specific grade varies from school to school.

e) Even if all of the foregoing difficulties could be overcome, there would remain the question of whether the success an individual might achieve on a particular job is success on the level of job which represents an optimum challenge to the individual, representing productivity commensurate with his capacity.[2] This difficulty level or "demandingness" of the job represents another dimension which must be measured and taken into account in comparing school achievement with success or satisfactoriness of workers on the job.

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[1]Super, Donald E. "The Criteria of Vocational Success." Occupations, 30: 5-9; October 1951.

[2]The concept of "job difficulty level" will be termed "demandingness" in the remainder of the study, meaning how demanding the job is of the person's abilities, roughly quantified by a classification hierarchy of four levels.

Evaluating the effectiveness of local school programs

The primary or general problems outlined above are supplemented by others, which, if studied through analysis of local data, can have mainly local significance. Certain questions point up the possibility of problems with local applications. For example, are too many boys of low potential for filling "more-demanding" jobs nevertheless obtaining these jobs because they happened to receive certain training programs--and are they then failing to meet the demands of these jobs? Or, don't they get these jobs? If not, do they succeed as well on the jobs they do get as they would have if they had received more general education in place of vocationally-oriented education?

Background Dimensions

A concept of curriculum

A general concept of curriculum was arbitrarily adopted for the theoretical basis of the present study. This concept includes the point of view that the objectives of almost all curricula of public secondary schools can be logically categorized into: (1) preparing young people for the world of work; (b) helping individuals reach intellectual and artistic fulfillment through the liberal arts and sciences; and (c) providing experiences designed to help young people meet home and civic responsibilities.

Typically, a school subject or course is perceived as having one of the foregoing curriculum goals as its prime target. The contention held in the present context, however, is that only through a case study approach might one hope to determine the actual outcomes of any particular subject or course as it may have influenced a number of individuals who were involved as students.

That is, a case can be made for saying that English or biology can apply as readily, though perhaps not as frequently, to young people's occupations or citizenship as to their intellectual fulfillment. Or, social studies or homemaking can apply as readily, though perhaps not as frequently, to work or to intellectual fulfillment as to home and civic responsibilities. Or, bookkeeping or auto mechanics can apply as readily, though perhaps not as frequently, to meeting citizenship responsibilities or to developing intellectually as to preparing for the world of work.

To summarize: the definition of curriculum adopted as a base for the present study centers on the idea that the outcomes of most courses scatter widely, and that to trace and measure these outcomes

would be exceedingly difficult. However, if the performance of students, in subjects or courses which are logically connected to areas of performance in jobs, is taken to be a predictor of success in these areas and not necessarily the source or cause of success, then a reasonable basis for discovering meaningful relationships has been established.

Vocational education and "vocationally-oriented" courses

Of the three goals of public secondary education arbitrarily defined above, only preparation for the world of work was used as an area of evaluation in this study. Furthermore, the evaluations consisted of employers' subjective rankings and statements only. The context of study was therefore limited.

A background statement on vocational education and "vocationally-oriented" courses is offered as part of a rationale for defining arbitrary criteria on which the job-success evaluations were made. The assumption is that most courses in a senior high school program of vocational education (as defined by qualifying for support under the "Smith-Hughes" program, for example) do not differ significantly, especially in terms of observable outcomes, from courses in a general education program which are "vocationally-oriented."

That is, a course in either bookkeeping or auto mechanics, at the high school level, will have basically the same observable outcomes whether it is specifically a vocational course or a "vocationally-oriented" course in a general education program. Theoretically, a vocational course will include learnings which can be applied immediately to performance of paid work, while a general education course with the same name can be "pre-vocational," emphasizing basic or broad skills. In fact, however, there is a wide overlap, with many vocational courses providing instruction with antiquated methods or machines and many "non-vocational" courses employing the latest in methods and machines. This, at least, is the assumption. It was partially tested in the course of the study.

The objectives of either vocational courses or "vocationally-oriented" courses are not limited to specific skills and technical knowledge. Personal characteristics are developed in these courses, as are competencies in the basic academic skills, particularly in ways which apply to the total performance of a job; for example, communications skills learned in a shop course might better apply to the performance of a job than might the parallel skills learned in an English course.

No further differentiation between "vocational" education and "vocationally-oriented" education has been made in this manuscript. The assumption is that "vocationally-oriented" covers both concepts.

Trends in criteria of job-success

Until the 1930's and 1940's, the most common criterion of job-success was output. If a worker received fixed wages or salary, the employer was interested chiefly in receiving output worth more than the wages plus materials and overhead costs, so that a profit would result. If the worker received piecework remuneration, the employer was also interested in output so that a minimum number of working stations (space, tools, etc.) would be needed to achieve the volume of production desired.

The development of automated and semi-automated means of production has placed the emphasis of control of output on the machine rather than on the man. Especially in production jobs requiring little skill, either the worker keeps up with the machine, and nothing more is desired or possible, or he doesn't keep up, whereupon he cannot perform the job satisfactorily. In jobs which are still dependent on the speed of hand operations, most involve union contract regulations or informal agreements concerning the quantity of output. Output remains as an important factor in clerical, managerial, professional, and some service occupations, few of which are involved in the present study.

Output was not used as a success (satisfactoriness) criterion in this study because of its de-emphasis as a job-success criterion--so that it figures prominently in only a minority of cases among unskilled and semi-skilled jobs. Instead, "Communications Competency," "Personal Adequacy," and "Skills Unique to the Job" were adopted as sub-criteria of "Overall Satisfactoriness." Length of tenure was not a criterion because the tenure at the time of the evaluation was 90 days, by definition. Wages were not considered, and promotions were not used because of their low incidence in a three-month period.

Trends in supervisory relationships

The relationship between the worker and his supervisor has also changed greatly. The age of the sweatshop produced the foreman or supervisor whose leadership was frequently expressed in harsh or even abusive terms. The change in behavior of the typical supervisor has been drastic, as a result of the union movement along with the growth of enlightened human relations attitudes of management. Other influences for change have been labor shortages, during World War II and at other times, as well as basic research in the industrial relations field.

It is a general hypothesis of this study that the prevailing relationship between supervisors and young workers recently out of high school is enough similar to the relationship between senior high school students and their teachers so that this similarity will be reflected in tests of significance of the relationship between letter grades assigned in high school courses and ranks or ratings assigned subsequently by job supervisors.

Definitions of Essential Terms and Concepts

Comprehension of the analysis and interpretations in the present manuscript will be aided by definitions of terms and concepts which may be used in special or arbitrary ways in this study. Some of these definitions are included in the foregoing section, "Background Dimensions." Others are provided more briefly, below:

Entry jobs. These are defined as the jobs actually obtained as first full time jobs by the principal subjects of the study, and held for more than 90 days. These roughly approximate the range and distribution of entry-jobs such as those compiled by the U.S. Bureau of Manpower Utilization,[1] but no attempt was made to structure the classifications except in terms of the common-sense categories noted in Table 1. Table 2 is based on the 1960 U.S. Census.

The principal subjects. The principal subjects are defined as all male graduates of the 1963 classes of the three selected high schools who met the criteria which were set up to make the groups sufficiently similar for comparative purposes. The "principal subjects" are thus distinguished from the "comparable co-workers" who were also evaluated by the job supervisors.

"Job-situation." The unit of evaluation was the "job-situation." This was not the place of employment but rather referred to the group of comparable co-workers under the same supervisor who were doing approximately the same work. Some places of employment had two or more job-situations in the study.

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[1]Bureau of Manpower Utilization, "Entry Occupational Classification," Part IV of Dictionary of Occupational Titles. Washington: U.S. Government Printing Office, 1944.

TABLE 1

JOBS IN THE STUDY ACCORDING TO TEN ARBITRARY CLASSIFICATIONS

Job Classification	Number	Percent of Total
High skill, white collar (drafting, layout, etc.)	12	8.0
High skill, blue collar (mechanic, repair man, etc.)	11	7.3
Sales clerk (incl. service station attendant)	10	6.7
Stock clerk--shipping, receiving shelving, etc.	36	24.0
Driving, delivery (some in combination with clerical and janitorial)	12	8.0
Machine operator	14	9.3
Assembly, fabrication, inspection	16	10.7
Janitorial, custodial, hospital orderly, etc.	11	7.3
Food service and related public accommodations	12	8.0
Physical labor (unclassified)	16	10.7
TOTAL	150	100.0

TABLE 2

NATIONAL EMPLOYMENT BY OCCUPATIONAL GROUPS--1960[1]

Occupational Group	Number (millions)	Percent of Total
Professional, technical and kindred workers	7.5	11.2
Managers, officials, and proprietors (except farm)	7.1	10.6
Clerical and kindred workers	9.8	14.7
Sales workers	4.4	6.6
Craftsmen, foremen, and kindred workers	8.6	12.8
Operatives and kindred workers	12.0	18.0
Service workers	8.3	12.5
Laborers, except farm and mine	3.7	5.5
Farmers, farm managers, farm laborers and foremen	5.4	8.1
TOTAL	66.7	100.0

[1] U.S. Department of Labor, Manpower Report of the President and A Report on Manpower Requirements, Resources, Utilization, and Training. Washington: U.S. Government Printing Office, 1963. Abridged from Table 28, p. 100.

"Comparable co-workers." The workers who did about the same work as the principal subjects did in each job situation were called "comparable co-workers." They were considered to be comparable if they were high school graduates without further pre-evaluation training, if they met the other criteria set up for selection of the principal subjects, and if they were evaluated at the end of the normal probationary period for the job in question. In the initial analysis the statements of the supervisor or personnel officer were considered to be adequate evidence of whether or not each co-worker was "comparable."[1]

"Content" of jobs. Three areas of job performance were selected as criterion factors for the supervisors to evaluate, on the assumption that each is a factor in the performance of almost every job and that together they "cover" the bulk of performance on most jobs. These content or performance factors are "communications competency," "personal adequacy," and "skills unique to the job." The content of each job was indicated by the ranking in importance of the three content factors--by the employer or supervisor.

"Demandingness" of jobs. Together with the ranking in importance of the job-content factors, "demandingness" completes the system of job definitions as used in this study. Four levels of demandingness, or difficulty of performance of jobs, were arbitrarily defined.

Satisfactoriness. The meaning of "satisfactoriness" of employees was limited to the evaluations made by the immediate supervisor of each subject on his first full time job. In this context, "success on the job" included only the "satisfactoriness" of the employee--not other aspects of work-adjustment such as satisfaction of the worker.[2]

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[1]After the completion of the main body of the study, a validation check was made on a sample of "comparable co-workers," in which they were compared to the "principal subjects" on attendance, I.Q., and the Differential Aptitude Tests.

[2]Heron, Alistair. "Satisfaction and Satisfactoriness: Complementary Aspects of Occupational Adjustment." Occupational Psychology, 28: 740-53; July 1954.

Communications Competency. One of the three job-content factors in the job definition as used in the study was "communications competency." The operational definition presented to employers included: "Reading instructions and following them;" "Writing records, reports, receipts, etc.;" "Following instructions given orally;" "Talking with co-workers or customers as a necessary part of the job;" "Recording and using numbers (here considered to be a part of language or communication) as in making change, taking measurements, etc." (The phrase "basic literacy" might have been used instead of "communications competency.")

Personal Adequacy. The second of three job-content factors in the job definition was "personal adequacy." The operational definition presented to employers included: "Gets to work on time, hardly ever absent;" "Works to the best of his ability;" "Honest, and is loyal to his employer;" "Gets along well with other workers."

Skills Unique to the Job. The third job-content factor arbitrarily defined for the study was "skills unique to the job" (each job). The sub-headings presented to employers included: "Things everyone has to know how to do to hold this job;" "Operations or skills the worker has to learn either in school (vocational training) or otherwise time has to be spent to teach him on the job."

"General" high school graduates. Subjects were classified as graduating from either "general" or "vocationally-oriented" high school programs. Boys who had, in grades 10-12, one hour a day or less of "vocationally-oriented" courses (such as industrial arts, bookkeeping or distributive training) were considered to be "general" graduates (exceptions are noted in Chapter III). For example, the introductory year in any industrial arts field was considered to be a part of general education, unless the student had taken the second year in the same field.

"Vocationally-oriented" high school graduates. The graduates of comprehensive schools were classified as "vocationally-oriented" if they had completed eight or more semesters of courses in industrial arts, business education, or other fields where the counselor affirmed that job preparation was the foremost objective. A few graduates were classified as "vocationally-oriented" if they had taken only six or seven semesters of vocationally-oriented courses when this amount included the full offering in one specific field, such as four semesters of auto mechanics or four to six semesters of printing. Since all graduates of the urban vocational high school had 10 to 12 semesters in one vocational field, they were all in the "vocationally-oriented" classification.

School achievement. The measures of school achievement analyzed in this study were: (a) class rank in grade 12; (b) average of letter grades in six semesters of required English; (c) average of grades in vocationally-oriented courses. Attendance (d) was also analyzed, as a type of performance related to achievement.

"Sten" scores. All measures of achievement and other characteristics analyzed in this study which could be assumed to be normally distributed in the population were converted to approximations of standardized scores which could be handled conveniently in one-digit form. The "sten" formula ("standardized scores in tens") was employed to assign percentages of the totals in the distributions of values which could logically be assumed to be normally distributed.[1] The "sten" formula is similar to the more common "stanine" formula. The "sten" percentages are: 2%, 5%, 9%, 15%, 19% (median) 19%, 15%, 9%, 5%, 2%.[2]

Outline of Objectives of the Study

The present study was essentially a pilot study, designed to explore some techniques for defining jobs and evaluating young workers, to test the predictive relationships between school achievement and subsequent success in employment, and to reinforce or show lack of support for certain hypotheses which will require further testing.

Objectives which may have general applications

a) A technique was explored for simplifying the definitions of jobs available to entry-workers in a metropolitan area--which

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[1] Lyman, Howard B. Test Scores and What They Mean. Englewood Cliffs: Prentice-Hall, 1963, pp. 94-95.

[2] The extremes of this ten-point distribution were grouped in calculations of chi-square tests, in order to permit adequate frequencies to occur in all cells. As a result, a six-point scale actually was used, with values 1 and 2 grouped with 3, and with values 9 and 10 grouped with 8. (This was further reduced to a four-point scale in the case of the satisfactoriness ranks.) All, however, employ 5.5 as the median, with values of 3, 4, and 5 below the median, and with values of 6, 7, and 8 above the median.

included classifying all jobs into priority orders of three content or performance designations, plus classification into four levels of how demanding the jobs are of a worker's abilities.

b) The job-content areas were tried out as criteria for evaluating the job-success of young workers, through rankings of clusters of co-workers by their supervisors and testing for significant relationships.

c) The predictive potential of various measures of school achievement was tested, in a limited context, as these measures related to the evaluations of job-success or satisfactoriness.

d) Hypotheses for further testing were formulated, based on findings which resulted from the defined tests of relationships.

Objectives which have mainly local applications

a) An attempt was made to determine whether or not graduates who differ in school programs taken, but not in achievement, can be distinguished from each other, as groups, on the satisfactoriness rankings or ratings or on the content or demandingness definitions of jobs obtained.

b) The relationships among various descriptive data were explored (including data obtained from interviewing the graduates plus their employers).

Overview of Procedures of the Study

The procedures which were conducted in seeking the foregoing objectives may be outlined as follows:

a) Criteria for selection of subjects were applied to the members of the 1963 graduating classes of three high schools.[1]

b) The principal subjects of the study, thus selected, were interviewed by telephone;[2] 183 were interviewed, and, of these 161 were found to qualify on all selective criteria.

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[1]Criteria for selection of subjects plus descriptions of the three schools are given in Chapter III.

[2]A copy of the interview form appears in Appendix B.

c) Data were gathered from school records, which included the measures of achievement and attendance, an intelligence quotient, scores from a differential aptitude battery, and a listing of vocationally-oriented courses taken.

d) Employers of the 161 qualified subjects were contacted by letter and telephone, and the 123 places of employment were visited, resulting in interviews which produced complete data for 150 subjects. In the interviews, the subjects were ranked and rated with comparable co-workers and the jobs were defined by content and demandingness.[1]

e) School achievement measures, attendance, and ranks assigned workers by their employers were converted to approximate standard scores--in one-digit form for convenience of computation and presentation. Classification by school program taken, and the job content and demandingness, were also reported in one-digit form.

f) Chi-square tests of the relationships between elements of the three basic sets of variables were computed. The variables were: (1) potential predictors (school achievement, attendance, and program taken); (2) the criteria for relating school experience with work experience (job content and demandingness); and (3) the evaluations of graduates-now-working (rankings on satisfactoriness and ratings of satisfactory or unsatisfactory).

g) Tests were made to determine whether or not the recruitment and selection practices of employers might be reflected in various ways.

h) A group of 90 co-workers was compared to the 150 principal subjects on aptitude scores and attendance. The purpose of this comparison was to discover if the principal subjects and co-workers were alike, as groups. (An unpredicted bias in selection of co-workers, by employers, made interpretation of this comparison questionable.)

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[1]Copies of the material sent to employers plus the interview form and the ranking cards appear in Appendix B. A listing of places of employment where interviews were completed appears in Appendix C.

CHAPTER II

REVIEW OF LITERATURE

Introduction to Chapter II

The research literature relevant to the present study was reviewed in association with three research topics, and, in addition, literature on the broader problem surrounding the study was surveyed in part. Because an exhaustive review of literature on all four topics would have been prohibitive, an attempt was made for each of the research topics (1) to identify one or two published bibliographical reviews which are recognized as authoritative, with special note made of synthesizing or concluding statements, and (2) to supplement the bibliographical reviews with special references to specific studies which tie in directly to the present study.

The four topics on which the review of literature was organized appear below.

a) Prediction of college success

b) Prediction of vocational success

c) School curriculum and job performance

d) Literature on the broader problem

Prediction of College Success

Prediction from course achievement

It is well-established in research literature that the best predictor of overall college success (grade average) is the high school grade average or class rank. Travers, in one bibliographical summary, stated that "... the evidence indicates that the best single measure for the selection of the college sutdent is his average grade in high school. Study after study has indicated that the average high school grade is a better predictor of college grades than either subject matter or psychological tests."[1]

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[1]Travers, Robert M. W. "Significant Research on the Prediction of Academic Success." In Donahue, Wilma T., et al., (eds.) The Measurement of Student Adjustment and Achievement. Ann Arbor: University of Michigan, 1949, p. 154.

Garrett arrived at the same conclusion in another summary in which he noted in addition that the correlations between high school and college grades are relatively good (.50, more or less) when the students studied are from several high schools in attendance at several colleges. The correlations improve when studies follow graduates of one high school to several colleges, and they improve still more if only one high school and one college are involved.[1]

A more recent study may be noted as an indication that the pattern which had been documented thoroughly up to 1950 is still valid. In 1963, Giusti reported a typical pattern. 397 freshmen were traced back to their high school records, and grade averages were compared between high school and college, on the total average and on the averages by subject fields. The product-moment correlation between the totals was .477, with the .01 level of confidence for significance at r± .148. None of the subject averages predicted total college average as well as did the total high school average, although subject averages had higher correlations with the same subject in college.[2]

Garrett also compared the merits of using total grade average or class percentile rank. Reference was made to 12 studies and a conclusion was cited that the difference favored the grade average but was too small to be of consequence.[3] (Class percentile rank was used in the study reported in the present volume because it was the most accessible. Also, if grade averages had been used, the change to "stens" would have erased any difference.)

Prediction from pattern of courses

Other studies are cited in the review by Travers which pertain to predicting college success from the patterns of courses, or the emphases of curriculum. Many colleges require that entrants must

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[1]Garrett, Harley F. "A Review and Interpretation of Investigations of Factors Related to Scholastic Success in Colleges of Arts and Sciences and Teachers Colleges." Journal of Experimental Education, 18: 91-138; December 1949.

[2]Giusti, Joseph P. "Relationship of High School Curriculum Experiences to College Grade Point Averages." Educational and Psychological Measurement, 23: 815-6; Winter 1963.

[3]Garrett, op. cit., p. 96.

have taken a certain number of credits in certain subject-matter areas. Travers refers to seven studies which show that " ... there is practically no relation between pattern of high school credits and success in college."[1] One study by Douglas reported that when colleges impose credit minimums in particular subjects they bar as many superior students as inferior ones.[2]

Relationship to the present study

The prediction of college success from high school achievement is held to have some parallel features to prediction of success (ranked satisfactoriness) in employment from high school achievement. If parallel features in a study are valid as predictor constructs, and if the methods and instruments are adequate, it might be supposed that school achievement would tend to predict satisfactoriness in employment.

The prediction of college success from patterns of emphases of curriculum has not been reported in the research literature. Likewise, a study of whether or not a substantial number of vocationally-oriented courses taken will be likely to affect satisfactoriness in employment would not be expected to result in the finding of significant differences.

Prediction of Vocational Success

Difficulty of establishing "success" criteria

Just as college "success" may be determined only in part by college grades, vocational "success" may be appraised only in part by the parallel of college grades in employment--ranks in satisfactoriness which are assigned by supervisors. Bell and others describe the problem as follows:

> "One of the most perplexing problems in applying... (measurements to personnel settings) is that of measuring job success. Few jobs are sufficiently oriented toward individual production to permit quantitative measurement. Rate of pay also presents problems in

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[1] Travers, op. cit., p. 159.

[2] Douglas, H. R. "Selecting College Entrants." Journal of Higher Education, 3: 179-184; April 1932.

that, often, it is not directly associated with the aptitudes required for successful performance in the basic job... As a result, most successful researchers have abandoned such measures in favor of some form of rating scale (completed by the worker's immediate supervisor) to estimate differing degrees of job competence."[1]

Super has summarized the history of criteria used in research on vocational success. He also concludes that rating forms filled out by supervisors constitute the most sound approach, in that job-success is a complex outcome with no convenient objective measure similar to grade average in college.[2] Relatively low reliabilities of these ratings, however, place a ceiling on the development of validity through subjective means.

Low reliability of ratings is not simply a matter of the raters' judgments being understandably approximate. Vagueness of criteria can range from the differences in raters' concepts of "Below Average" or "Above Average" to differences in interpretation of highly specific factors.[3]

Success has two major dimensions

A matter of social importance is that the worker's satisfaction with the job also has a large role in determining job "success." The orientation of research until after World War II had been largely based on production output or how well the worker pleased his employer. But a growing awareness had come about, to the effect that workers have certain rights in employment, to security and self-realization, and that employers are not autonomous in their ownership of property and means to production but are subject to certain controls from society as a whole.

This awareness is evidenced in the division of current research between "satisfaction" studies and "satisfactoriness"

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[1]Bell, Forest D., Hoff, Alvin L., and Hoyt, Kenneth B. "A Comparison of Three Approaches to Criterion Measurement." Journal of Applied Psychology, 47: 416-418; December 1964.

[2]Super, "The Criteria of Vocational Success," op. cit., pp. 5-9.

[3]Super, Donald E., and Crites, John O. Appraising Vocational Fitness (rev. ed.). New York: Harper and Bros., 1962, pp. 32-41.

studies. Scott and others[1] have developed a definition which makes "work adjustment" the most inclusive term, with "job adjustment" as a phase of work adjustment focused on one job. Within either work adjustment or job adjustment are the two dimensions of success: "satisfaction" (of the worker) and "satisfactoriness" (to the employer).

Heron has been cited as a prime contributor in placing the satisfaction-satisfactoriness dimensions in perspective for research. He outlined this theory in connection with a study of bus conductors in which he attempted to reduce evidence of satisfactoriness to objective criteria, thus placing workers into gradations of satisfactoriness before presenting these placements to supervisors for subjective confirmation or disagreement.[2]

Within the dimension of satisfactoriness are sub-dimensions or criteria which can be abstractly dissected in several ways. Ghiselli has offered one analysis which identifies "static," "dynamic," and "individual" criterion-dimensions.[3] In the case of the effectiveness of a retail salesman, for example, a static dimension might be simply the volume of sales. A dynamic dimension might be illustrated by a young salesman selling mainly on energy and enthusiasm, but as he grows older he sells more with less work but more poise and skill and he has built up a clientele. The individual dimension is illustrated by a situation where a group of beginning workers are equally satisfactory but for different reasons: one secretary is a faster typist, but another is more accurate, etc.

Satisfaction and satisfactoriness are psychologically inseparable, in the worker, and each undoubtedly has an effect on the other in research findings, although means are not available to discern the interrelations. Means of evaluating both dimensions simultaneously were not found in the literature.

Satisfactoriness as a complex criterion

Ghiselli has criticized researchers for either assuming a simple criterion for evaluating satisfactoriness or giving equal

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[1]Scott, Thomas B., et al. A Definition of Work Adjustment. Minneapolis: Industrial Relations Center, University of Minnesota, 1958.

[2]Heron, Alistair, op. cit.

[3]Ghiselli, Edwin E. "Dimensional Problems of Criteria," Journal of Applied Psychology, 40: 1-4; February 1956.

weight to each of several criteria.[1] Balma has made a similar statement in the form of stating the problem and in encouraging research in the direction of "synthetic validity." Balma illustrates the validity problem as follows:[2]

a) There are too few people on any one job to conduct traditional validation studies in the great majority of job situations.

b) Results are needed immediately and conditions change, making follow-up studies impracticable in most cases.

c) Learning takes place on the job and makes most results inapplicable to individuals.

d) There is a great variability in the content of jobs with the same title.

e) There is a constant change in the content of the <u>same</u> jobs.

f) The rate of introduction of new jobs is too rapid for most research to apply.

One more point might have been added, from Ghiselli's presentation: that workers on the "same" job in different companies vary widely because of recruiting and hiring differences, and therefore cannot be grouped in studies without controlling the differences.

Apparently, Ghiselli and Balma are calling for development of methods which are not dependent on stereotyped job content and defined performance elements which "cover" the job in question. The study reported in this volume was an attempt, in pilot fashion, to leave flexibility in the job content dimension and still provide for a limited and manageable number of choices. In particular, an attempt was made to devise a format of analysis to fit most jobs held by entry workers.

The approach taken in the series of recent studies by the Industrial Relations Center staff at the University of Minnesota is that "Satisfactoriness has more direct reference to the standardized set of work behaviors required of the employee than to the contribution of the employee toward the attainment of the

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[1]Ghiselli, <u>op. cit.</u>

[2]Balma, Michael J. "The Concept of Synthetic Validity," <u>Personnel Psychology</u>, 12: 395-96; Autumn 1959.

employing organization's goals. Systematic methods of measuring the individual's contribution toward the attainment of the employer's goals have not as yet been developed."[1] A comprehensive review of the literature on the behavioral criteria relating to the "sets of work behaviors" has been published in another volume of the series of studies by the Industrial Relations Center.[2] Among the more than 50 studies noted in this review, findings were reported to the effect that: (1) no findings relate employee attitudes to performance on the job;[3] (2) performance has shown little relation to psychological measures of individual differences; (3) when using multiple criteria a major problem is criterion-reliability; (4) data obtained from personnel records in industry, especially when attempting to combine data from several companies, tend to correlate with data directly from workers at unsatisfactorily low levels.

A brief discussion of the literature on criteria of job success has been given by Super.[4] Thorndike and others are cited in reference to the conception of immediate, intermediate, and ultimate criteria. In the study reported in this volume, the ranking and rating of beginning workers in entry jobs should be considered as applying to criteria having some intermediate as well as ultimate characteristics, even though the intermediate designation usually is given to performance associated with a trial period. Immediate criteria would be the success in training, in this case the school achievement.

Status of theory concerning criteria

Researchers seeking objective and highly reliable situations in which to conduct research on job performance (such as those studied by Heron, Rothe, etc.) will find that few jobs lend themselves to this approach and these are rapidly giving way to automation. Therefore, the studies which have the clearest designs and outcomes are rarely applicable to practical situations.

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[1]Carlson, et al., op. cit., p. 6.

[2]Scott, et al., op. cit., pp. 40-50.

[3]Brayfield, A. H., and Crockett, W. H. "Employee Attitudes and Employee Performance," Psychological Bulletin, 52: 396-424; September 1955. An observation made was that, theoretically, attitudes need not be related to performance unless more intrinsic goals of the worker are achieved through high performance.

[4]Super, Appraising Vocational Fitness, op. cit., pp. 31-41.

Personnel research in the military services emphasizes supervisors' subjective evaluations, because behavior in a disciplined inter-personal situation is the ultimate criterion rather than objective output. But in other ways the research conditions are superior to civilian situations, because of the direct relationships and single administration over both the training and performance situations, and the highly-defined assignments and relatively uniform background of supervisors. In spite of these advantages, however, Kipnis and Glickman have written that the U.S. Navy has not had much success in validating the predictors of the supervisors' evaluations. These predictors have usually been assumed to be the attrition and achievement levels in Navy technical training schools.[1] In comments on U.S. Navy personnel studies in general, Bechtoldt states about achievement grades, that "grades at their worst have been found to lack all the qualities of an acceptable criterion. Even in the best schools, grades lack one or more of these (the essential) qualities."[2] Tests are described as being more useful but still inadequate except for screening out the poorest risks.

With the job situations where an objective criterion may be applied becoming rare, and research on subjective criteria unsatisfactory even in the most controlled interpersonal situations (military), it is not surprising that the two widely divergent positions given below can be found in recent literature.

Guion has written "... the solution to the criterion problem does not lie in the typical efforts at statistical refinement. Much of this has been blind numerical manipulation." He continues to say that the search for an ultimate criterion (general satisfactoriness) is futile, and what must be done is to seek and use criteria which exist along many dimensions.[3]

Super, on the other hand, has stated, in conclusion to a review of several studies, "... apparently, no matter what the

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[1] Kipnis, David, and Glickman, Albert S. "The Prediction of Job Performance," Journal of Applied Psychology, 45: 50-56; February 1962.

[2] Bechtoldt, Harold P. "Problems of Establishing Criterion Measures," Personnel Research and Test Development in the Bureau of Naval Personnel. (Dewey B. Stuit, ed.) Princeton: Princeton University Press, 1947, p. 377.

[3] Guion, Robert M. "Criterion Measurement and Personnel Judgments," Personnel Psychology, 14: 141-149; Summer 1961.

supervisor is asked to rate, no matter how specific the behavior he is asked to judge, he rates on the basis of a general evaluation of the person as a worker and as a person. In fact, it would hardly be an exaggeration to say that he rates the worker more as a person than a worker."[1]

Studies with direct relationships

Five studies reported in the literature have certain specific relationships to the study reported in the present volume. Kipnis and Glickman used eight traits of Navy enlisted men as criterion-measures, plus overall job effectiveness.[2] Two of the traits pertained to ability to maintain and operate equipment (similar to "Skills Unique to the Job" in the present study). The remainder pertained to a variety of personal qualities ("Personal Adequacy" was used in the present study to refer to a cluster of traits). The results showed a high overlap among some scales, and the best evidence of valid prediction occurred between tests of hand skills and the ratings on operating and maintaining equipment.

A study which was of considerable theoretical value in the design of the present study has been reported by Bell, Hoff, and Hoyt.[3] Three methods of rating were used in the study cited. Rating A was "job-oriented." The supervisor was first asked to list the tasks involved in a job which pertained to a specific cluster of workers. Then he rated each worker on each task. The result was ratings on different criteria. Rating B focused on behavior. Twenty-five pairs of positive and negative behavioral descriptions were checked (or not) by the supervisor. Rating C was a traditional trait-oriented scale, of ten traits. The predictor was the General Aptitude Test Battery. The results did not help much to make a case for the test battery, but the theoretical implications may be of considerable value. Ratings A and C had moderate positive correlations, and Rating B did not. The study reported in this volume has been an attempt to form a compromise between "job-oriented" and "trait-oriented" evaluations. Ranking the given traits provided some opportunity to reflect job-orientation.

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[1] Super, "The Criteria of Vocational Success," op. cit.

[2] Kipnis and Glickman, op. cit.

[3] Bell, Hoff, and Hoyt, op. cit., pp. 416-418.

The study by Carlson, et al., provided ideas for the present study in the measurement of satisfactoriness through ranking.[1] Ranking of workers in clusters where all do similar work has an advantage over rating in that the evaluator is forced to state his preferences, where in rating the evaluator can place most or even all workers in one classification. The differences among evaluators is also controlled to the extent that some might rate most high and others might rate most low. Ranking does not, of course, control the factor of differences in the average quality, or range of quality, among the clusters of workers.

An analysis of worker functions by Fine was helpful to the investigator in formulating a rationale for the job content factors and in devising a system of factor weighting based on ranks.[2] Fine, of course, has provided a much more advanced and complex analysis than could be fully used in the design of a restricted and simple pilot study.

Also of value as background to the rationale were two related articles by Sluckin which analyze in depth the problems involved in combining or not combining criteria of occupational success.[3] These analyses were not used directly in development of the present study but are noted as sources for studies in which attempts might be made to evaluate sub-criteria with some precision.

Curriculum and Job Performance

Relevant studies at the entry-job level

Research on the comparative effects of widely differing curricular patterns on the performance of specific jobs appears to be almost non-existent. Brandon and Evans state that survey research on even the placement success from differing programs is

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[1]Carlson, et al., op. cit., p. 55.

[2]Fine, S. A. "A Structure of Worker Functions," Personnel and Guidance Journal, 34:66-73; October 1955.

[3]Sluckin, W. "Combining Criteria of Occupational Success," Occupational Psychology, 30: Part I, pp. 20-26; January 1956. Part II, pp. 56-68; April 1956.

not plentiful (only one study cited), and "... data on success in the occupation are much less frequently available" (no study cited).[1]

The investigator found no studies where workers on the same job definition from two or more differing types of curricula were compared on performance factors, with adjustments made in the statistical analysis for possible differences in intelligence, aptitudes and other background factors which could affect success. If a parallel were to be drawn from the research on predicting college success from differing high school programs, the hypothesis supported by the parallel rationale would be that few differences would be found in job performance between groups from differing pre-employment curricula. The well-known Eight Year Study, for example, resulted in findings in regard to the higher aptitude students which favored the experimental groups with relatively small but significant differences, and with differences between the groups of students of lower aptitudes which were not significant.[2] (The study reported in the present volume pertains to students with as low mean aptitudes as those with the lower aptitudes in the Eight Year Study.)

Only certain jobs would be subject to research focused on the above hypothesis. Vocations for which licensing is required by law, for which specific curricula are prerequisite, are not subject to such research under existing conditions. Other occupations for which specific training programs are not mandatory but are customary would require large-scale cooperation between education and industry to set up adequate test situations. Thomas has analyzed occupations according to their relationships to formal schooling. He has called attention to the possibility that customary or required training programs may not be "... functionally related to competent performance in the occupations."[3]

Two doctoral dissertations may be noted which approach the area of research sought for. Andre found that differences between

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[1] Brandon, George L., and Evans, Rupert N. "Research in Vocational Education," Vocational Education, Sixty-fourth Yearbook of the National Society for the Study of Education, Part I. Chicago: N.S.S.E., 1965, p. 265.

[2] Chamberlin, Dean, et al. Did They Succeed in College? New York: Harper and Bros., 1942, pp. 207-209.

[3] Thomas, Lawrence G. The Occupational Structure and Education. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1956, p. 369.

general-academic and vocational-technical high school graduates in St. Louis were appreciable in regard to type of placement and other factors but that employers' ratings indicated no appreciable differences between job performance and work habits of the two groups.[1] Kjos, in a comparison of general high school graduates with some industrial arts courses and "day-trade" graduates with Smith-Hughes type of training, generally found slight differences favoring members of the day-trade group who were employed in industrial and skilled occupations in the Kansas City area. Employers rated day-trade graduates higher in more categories, but rated general graduates higher in leadership and in some technical aspects.[2]

Observations on evaluating curriculum

The studies on satisfactoriness noted earlier pertained almost exclusively to research completed by personnel psychologists focusing on military or industrial job performance--their emphases were on psychological tests as predictive criteria, and only rarely did curricular patterns in formal schooling or training enter the picture. Curriculum research by educators, on the other hand, almost never pertained to quality of performance in out-of-school life--of which competence in the world of work is the most accessible area. A search through the most likely reviews of research literature revealed almost no relevant studies, and even observations on needed research on post-school satisfactoriness were difficult to find. (Studies of "success" in the form of types of jobs obtained were not sought after.)

A few references to needed research (on curriculum evaluated through occupational outcomes) were found, but again these focused on the "criterion problem." Gagne has recommended that the direction of vocational change requires applications of principles of learning to analysis of the worker's role with an emphasis on knowledge and other more general competencies rather than the traditional analysis of "operations."[3]

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[1] Andre, Nevin E. "Post High School Educational Experiences and Occupational Status of General-Academic and Vocational-Technical High School Graduates." (Ed.D. thesis summary, mimeographed.) Columbia: University of Missouri, 1964.

[2] Kjos, Oscar E. "Occupational Experience and Success of Day-Trade Versus General School Graduates." (Ed.D. thesis summary report) The University of Missouri Bulletin, 55: No. 29; August 1954.

[3] Gagne, Robert M. "Military Training and Principles of Learning," American Psychologist, 17: 82-91; February 1962.

In an issue of The Review of Educational Research, on guidance, counseling and personnel services, the only reference to possible evaluation of higher education through ascertaining success on the job was a single sentence, "To a great extent, education that has been content to organize its programs has failed to study systematically the outcome or products in order to determine the improvements needed."[1] In an article on the vocational development process, the only references to post-school outcomes pertained to job satisfaction, with none to satisfactoriness.[2] In another issue of the Review..., devoted to curriculum planning and development, the article entitled "Curriculum Research" contained the following statement concerning the ultimate criteria of curriculum evaluation, "... it may be reasonable to hold curriculum research at an observational stage until investigators concerned with research on teaching and learning find improved ways to understand and make predictions relevant to variables in these areas (pupil gain and growth)."[3]

Leighbody summarized evaluation in trade and industrial education with a statement including these comments: "Serious attempts to evaluate outcomes in trade and industrial education have been few. No standardized tests, such as exist for measuring academic learnings, can be found... To know how well the product of the trade and industrial program has fared in his industrial life would require careful follow-up studies conducted over a period of years. No such studies have been reported."[4] Wenrich has written on the topic of vocational education a conclusion less direct but with a similar implication: "Vocational education programs are subject to direct evaluation by those who employ the product and by fellow workers in the occupation." No studies are cited on this point.[5]

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[1]Lloyd-Jones, Esther, and Smith, Margaret R. "Higher Education Programs," Review of Educational Research, 33: 163-170; April 1963.

[2]Walz, Gary R. "Vocational Development Process," Review of Educational Research, 33: 197-204; April 1963.

[3]MacDonald, James B., and Raths, James D. "Curriculum Research: Problems, Techniques and Prospects," Review of Educational Research, 33: 322-329; June 1963.

[4]Leighbody, Gerald B. "Trade and Industrial Education," Encyclopedia of Educational Research (ed. by Harris, C. W.) Third Edition. New York: MacMillan Co., 1960, pp. 1527-1528.

[5]Wenrich, Ralph C. "Vocational Education," Encyclopedia of Educational Research, (ed. by Harris, C. W.) Third Edition. New York: MacMillan Co., 1960, pp. 1562-1563.

A related article in the Encyclopedia of Educational Research entitled "Industrial Arts" contained no references whatever to post-high school evaluation, and, the article entitled "Secondary Education--Programs" included comments on five studies which involved post-school follow-up, but none of these pertained to job satisfactoriness.[1]

Theoretical observations from professional education

Determined efforts have been made to predict vocational satisfactoriness in several fields at the professional level of training, with some of the most thorough work reported for engineering education and teacher education. Even in these fields, however, studies are rarely made on comparisons of curricular patterns in regard to success on the job. Engineering studies emphasize placement success in relevant job definitions. Teacher education studies emphasize prediction of satisfactoriness from measures of aptitude, and less frequently, from measures of achievement.

The outstanding effort in the prediction of teacher satisfactoriness (effectiveness) is the 30-year series of studies by Barr and associates at the University of Wisconsin. Barr has written that "... the problem that needs clarification, possibly before all others, is that of the criterion of teacher effectiveness."[2] The three types of criteria used in the Barr studies have been (1) ratings of efficiency or effectiveness by superintendents and other supervisory personnel, (2) measures of pupil achievement, and (3) a pre-service criterion, from the preparatory experience in college. To solve the criterion problem, Barr stated, there is a need to develop "... An acceptable theory of the nature and structure of teaching ability... The prevailing theory is an elementalist factor theory... (in which) the elements are presumed to be additive. A hypothesis advanced...is that possibly the ingredients of effectiveness are not additive and an inadequacy in any one of a number of critical factors may make the teacher thoroughly unacceptable...

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[1]Brink, William G. "Secondary Education--Programs," Encyclopedia of Educational Research (ed. by Harris, C. W.) Third Edition. New York: MacMillan Co., 1960, pp. 1259-1272.

[2]Barr, A. S., and others. "Wisconsin Studies of the Measurement and Prediction of Teacher Effectiveness: A Summary of Investigations," Journal of Experimental Education, 30: 1-156; September 1961, p. 147.

notwithstanding... (the teacher's) abilities in other respects. The factors which are considered critical may vary from community to community."[1]

The "criterion problem" as outlined by Barr could be modified to fit almost any type of job. Entry jobs in business and industry, as well as many professional and semi-professional jobs in technical fields, may be more subject to analysis than the vastly subtle and complex concept of "teaching effectiveness." But the relationship between curriculum patterns and job satisfactoriness seemed, at the time the present study was undertaken, to be virtually unexplored.

Literature on the Broader Problem

The last of four major topics to be discussed in the review of literature pertains to information and background concerning the broad problem of education and jobs.

Employment and vocational education

Wolfbein has observed, regarding the problem of employment, that 26 million young people will enter the labor force during the 1965-75 decade, while the number of older workers who will leave is only a fraction of this volume. This fact must be assimilated along with the fact that productivity per worker has approximately tripled in the past 50 years; for example, in the production of automobiles 17 per cent fewer workers were required in 1963 to turn out the same number of automobiles as in 1955.[2]

The magnitude of the employment problem which will occur whenever the rising rate of consumption of goods fails to keep up with the rising rate of productivity per worker can only be speculated upon. The importance of the problem, however, justifies intensive research on all aspects. Rosen has summarized the basic need for teamwork between placement people in the employment service system

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[1] Ibid., p. 147.

[2] Wolfbein, Seymour L. "Automation, Education, and Individual Liberty," Teachers College Record, 66: 27-32; October 1964.

and vocational educators, along with the need for accurate information on current and prospective employment both locally and nationally.[1]

The Office of Manpower, Automation, and Training has provided comprehensive annual reports on the status of employment and unemployment, along with projections of the needed economic growth commensurate with rates of expansion of the labor force and productivity factors by major industries and occupations. The educational levels needed for fulfillment of requirements for skills and knowledge have been outlined. Educational needs vary from formal school training in skills to on-the-job training to education for basic literacy.[2]

Vocational preparation in the broad curriculum

The sharp distinction between vocational preparation and general education which is characteristic of the educational systems of most European countries has not been as clearly drawn in the United States. Wherein European education tends to stress liberal studies almost exclusively until the time arrives to begin vocational or professional studies almost exclusively (earlier for vocational, later for professional), American education has usually found vocational preparation occupying a major place in the total curriculum.

Preparation for the world of work has been an integral part of such central statements of educational objectives as those issued by the National Education Association's Commission on Reorganization of Secondary Education and the Educational Policies Commission. The seven Cardinal Principles of Secondary Education included "vocational efficiency" as one major objective. Education for All American Youth (Educational Policies Commission, 1944) outlined four major objectives of education, including "fulfillment of economic needs." The remaining three objectives outlined were: "the development of the learner;" "the improvement of home, family, and community life;" and, "performance of civic and social duties."[3] (Combining the latter two objectives would cause the

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[1]Rosen, Howard. "Vocational Education and Manpower Needs," Occupational Outlook Quarterly, U.S. Department of Labor, December 1964, pp. 5-8.

[2]U.S. Department of Labor, Manpower Report..., op. cit.

[3]Kearney, Nolan C. and Cook, Walter W. "Curriculum," Encyclopedia of Educational Research (ed. by Harris, C.W.). New York: MacMillan, 1960; pp. 358-364.

foregoing list to approximate the three objectives used in the rationale of the present study.)

In introducing the Taxonomy of Educational Objectives, Bloom, et al., state that they conceive of three major parts to a complete taxonomy: the "cognitive domain," focusing on knowledge and intellectual abilities and skills; the "affective domain," concerning interests appreciation, attitudes, values, and adjustment; and, the "domain of manipulative or motor skills."[1]

Two approaches to classifying educational objectives are illustrated above. Both have been used in the rationale of the present study. "Preparation for the world of work" is the "area of living" through which an approach to the evaluation of curriculum has been developed. Within the "world of work" (the job-situation), all three of the "domains" of Bloom's taxonomy have been used in the evaluation of workers' satisfactoriness: the "cognitive domain" is represented by "Communications Competency;" the "affective domain" is represented by "Personal Adequacy;" and, the "domain of manipulative and motor skills" is represented by "Skills Unique to the Job." Of course, the validity of these representations vary from job to job, and only in a pilot study would the grouping of job types be an acceptable procedure.

Evaluation of the "affective domain"

The success of high school experiences in the "cognitive domain" can be partially tested against achievement in post-high school educational programs, and to some extent in out-of-school life through tests which might be administered. The success of teaching the "domain of manipulative and motor skills" can theoretically be measured in research situations which are roughly parallel to those associated with the "cognitive domain"--although relatively little of such research has been accomplished. However, the "affective domain"--the "domains" are from Bloom's taxonomy--is presently unexplored by research which might tend to support the affective objectives of school curriculum, and no parallel constructs, such as achievements which can be objectively measured as partial outcomes, are available.

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[1]Bloom, Benjamin. Taxonomy of Educational Objectives: Part I, The Cognitive Domain. New York: Longmans, Green, 1956; pp. 3-4.

This relatively barren area of the research literature should someday be richer in important studies. The development of human beings in ways related to interests, appreciations, attitudes and values has long been a prime objective of education, but without means of evaluating outcomes, or even establishing clear relationships to presumed outcomes, the curriculum designed toward these ends is less easy to defend. The Hawthorne Plant studies reported by Rothlisberger and Dickson are perhaps the best-known early source of research on the importance of human relations factors in job performance.[1] Trends seem to indicate that the affective outcomes of education will become increasingly important to success in the world of work--or in most walks of life--in the future. The job, as an environment in which research on educational outcomes can be reasonably attempted, should and will be used for this purpose.

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[1]Rothlisberger, Fritz J. and Dickson, William J. Management and the Worker. Cambridge: Harvard University Press, 1939.

CHAPTER III

DESIGN AND PROCEDURES

PART ONE: PRELIMINARY CONSIDERATIONS

Introduction to Chapter III

The present chapter is divided into three major parts, to aid in organization of a large amount of detail. Part One reviews essential aspects of the introductory chapter and reports the rationale and tests used to validate the scoring of raw data. Part Two presents the detailed rationale for and the descriptions of the variables. Part Three features an outline of the tests of relationships which were conducted and the follow-up study for validation purposes.

The overall objective of the study was to attempt some contribution toward evaluating senior high school curriculum through ascertaining relationships with aspects of graduates' performance on their first full time jobs. This objective is not likely to be achieved except through the completion of numerous large-scale studies conducted over a period of years or even decades.

The possible contributions of the present study--entitled a "pilot approach"--was thought to be mainly in exploring the potential of certain techniques of evaluating job performance and in relating these measures of performance to selected measures of school achievement or behavior. The latter measures were selected because of their universal availability in school records, not because they are necessarily the measures most logically-connected to the job performance factors which were developed.

The preliminary major task was to devise and try out a technique of defining jobs--particularly entry jobs obtained by male high school graduates. The essentials of the technique which was devised were illustrated in Figure 1, and this figure is repeated in the present chapter as Figure 2.

The first purpose of the method was to make it possible to obtain the needed information in the time allotted to each interview. The second purpose was to scale the jobs by their difficulty of performance (termed "demandingness") so that this factor would be more or less controlled. The third purpose was to classify the jobs into six types according to "content," which was done by

having the employers rank the relative importance of three content factors common to almost all jobs.

The validity of the method of "defining" jobs can of course be questioned, since it involves the "criterion problem" which has plagued all who have attempted to obtain job performance evaluations. They validity of the job-defining could not be explored with satisfactory thoroughness in the context of a pilot study, and neither could the validity of the connections with the predictor measures be properly explored.

The subsequent major task of the study was to test for predictive relationships between measures of school experience and performance on-the-job. (The parallel predictive relationship is that which has been established between class rank in high school and the comparable relative standing of high school graduates in college-level academic rank.[1])

The general position which was examined in testing a wide variety of specific relationships may be stated as follows: Although relationships between school experience and satisfactoriness of performance on-the-job may be impossible to demonstrate as causes and effects, these relationships contain valid predictive potential. As relationships were found, in patterns which reinforced each other and supported meaningful interpretations, this predictive potential was tapped, at least in small part.

The variables tested for relationships

Six major variables were selected and tested for statistically significant relationships. These may be best considered as three sets, or pairs, as outlined below.

a) School experience factors

(1) School achievement, as measured by class rank, averages of letter grades in English and in vocationally-oriented subjects, and school attendance record

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[1]Travers, op. cit., p. 154.

(2) School programs, with high school graduates classified according to the amount of vocationally-oriented course work taken (plus classification according to whether or not each has a job related to his training)

b) Job definitions

(1) Classification by job content, according to six arbitrary descriptions based on the priority orders of the performance-areas entitled "Communications Competency," "Personal Adequacy," and "Skills Unique to the Job"

(2) Level of "demandingness" of jobs, based on a hierarchy of difficulty of performing the operations involved

c) Evaluations of satisfactoriness

(1) Ranking of workers on each satisfactoriness criterion--"Communications Competency," "Personal Adequacy," "Skills Unique to the Job," and "Overall Satisfactoriness" (by the supervisor on each job)

(2) Rating of each worker[1] as "satisfactory" or "unsatisfactory" (by the supervisor on each job)

It will be noted that the first two of the six elements listed above are functions of the schools and of students in school. The middle two elements are descriptions of the initial jobs held by these individuals after graduation. The last two elements are the evaluations of the success or satisfactoriness of these individuals in terms of the job descriptions.

Introduction to the procedures

The procedures followed in making tests of relationships of the measurements and classifications above involved carrying out a number of tasks, which included:

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[1]"Worker(s)" here refers to all workers in the group under supervision who meet the criteria of selection for the principal subjects of the study.

a) collecting the data from the subjects and from school records;

b) defining the limits of applicability of findings;

c) establishing a base for combining achievement measures from two or more schools;

d) defining all normally distributed characteristics in terms of appropriate standard scores;

e) defining the school programs in comparable terms;

f) defining the performance factors or content of jobs in comparable terms;

g) defining the "demandingness" of jobs in comparable terms;

h) conducting the ranking and rating procedures for relative satisfactoriness, on each of the success-criteria, and transforming these ranks to comparable scores;

i) analyzing the findings of meaningful relationships and non-relationships;

j) partially validating the representativeness of the schools by comparing subjects with co-workers from other schools;

k) checking differences between subjects "carelessly selected" with those "carefully selected," and interpreting other miscellaneous data.

The Statistical Methods

Numerical units

All computations in the study were made from one-digit values, to aid in computation and presentation. The reduction in precision from the two and three-digit figures in which some of the data were found in the school records is thought to be acceptable, because comparisons were made with other values where

four to six intervals or classifications were the maximum available. Also, comparisons were made chiefly through use of chi-square tests of significant differences--which meant that four to six groupings of data were the maximum permitted, since the expected frequencies per cell must exceed five (in all except an occasional cell) if valid chi-square statistics are to result.[1]

The distributions formed from data which can be assumed to be approximately normally distributed were assigned one-digit scores based on the "sten" ("standardized scores in tens") formula.[2] This formula was selected because:

a) it provides for the maximum number of intervals on a one-digit scale (by subtracting one from each value in making calculations);

b) it forms a distribution which divides at the median for median-split comparisons;

c) frequency distributions by "stens" can be interpreted in standard deviation equivalents; i.e., the distance between division points of the intervals can be read as one-half standard deviation.

"Stens" also would have been appropriate for scoring the ranks on satisfactoriness but were not usable because the worker-groups contained too few members to apply the percentage formula. Instead, a procedure was devised to obtain approximations of

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[1]Walker, Helen M. and Lev, Joseph. Statistical Inference. New York: Holt, Rinehart and Winston, 1953. See page 107 for rules concerning expected frequencies per cell with varying degrees of freedom and varying acceptability of probabilities.

[2]Lyman, op. cit., pp. 94-95. The percentages assigned to each of the 10 intervals follow this order: 2%, 5%, 9%, 15%, 19% (median) 19%, 15%, 9%, 5%, 2%. Whenever a percentage line was found to cut through a cluster of equal scores, the value assigned to all scores in the cluster favored the majority side.

standard scores in what became essentially a system of classification into a scale of four intervals. In brief, this system began with having 5.5 represent the mean (as it does in the theoretical model of the "sten" distribution) with scores of six and seven above the mean and scores of four and five below the mean. Ranks were weighted according to the number in each ranked cluster.[1]

Sample size

The size of the basic sample (150) was chosen so that expected frequencies per cell would nearly always exceed five to meet the requirement of minimum expected frequencies per cell, but at the same time the sample was considered to be quite adequate for the exploratory purpose of the study.[2] The opportunities for analysis of sub-groups within the larger group was limited by the sample size, however.

Testing the hypotheses

Chi-square tests were computed in reference to null hypotheses. Since the nature of the data permits no rationale for fixing the exact probability values (associated with the chi-square statistics) at which significance of results will be recognized, the probability values are reported with an arbitrary acceptance of the null hypothesis for values of .10 or more, and an arbitrary rejection of the null hypothesis for values of .05 or less.[3] Values between .05 and .10 are neither

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[1]Walker and Lev, op. cit., p. 480. Table XX, "Transformation of Ranks to Standard Scores," provided the based for interpolating ranks into numbers on the four-interval scale.

[2]Hays, William L. Statistics for Psychologists. New York: Holt, Rinehart and Winston, 1963, p. 332. Hays states that small samples are actually superior when the researcher's purpose is to explore a problem economically and where he is trying to map out the main relationships in some area.

[3]Walker and Lev, op. cit., p. 464. Probability values associated with the chi-square statistics are taken from Table VII, "Percentile Values of the Chi-Square Distribution."

accepted nor rejected. The confidence with which interpretations are made varies according to whether the specific findings form reinforcing clusters or appear singly.

Chi-square computations were performed through use of the UMSTAT 62 Program, "Chi-square from Raw Data,"[1] processed by the Control Data 1604 computer located at the Numerical Analysis Center, University of Minnesota. Both expected and observed frequencies were printed, to aid the writer in interpretations, although only the observed frequencies are presented in the tables. Chi-square tests were believed to be more suitable than some alternative statistical operations might have been, because most of the data were in the form of classifications, and only gross relationships were being sought.

Schools, Subjects and Community

The subjects

The group of 150 boys evidenced certain characteristics which would differentiate it from groups of college-bound youth or school dropouts. The group possessed characteristics in the form of somewhat restricted distributions of traits and aptitudes. It was discovered that the members of this group tended to be "C" and "D" students in English courses, but tended to do somewhat better in vocationally-oriented courses, and tended to have average scores in tests of general intelligence and differential aptitudes.

According to the defined criteria, members of this group were not school dropouts, they obtained jobs on the competitive market and kept them past the normal probationary period, and they did not go to college. It is not known how the subjects would have compared, as a group, with their classmates who entered military service upon graduation. At the time this study was conducted, the type of boy characterized by this

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[1]Numerical Analysis Center, UMSTAT Computer Programs Manual. Minneapolis: University of Minnesota Numerical Analysis Center, 1964.

group was relatively neglected in educational research and development programs, with the greater efforts being made for the benefit of college-bound and disadvantaged groups.

The schools

Subjects of the study were selected male members of the 1963 graduating classes of three senior high schools in the metropolitan area of Minneapolis, Minnesota, which represented the three basic types of large public high schools in most metropolitan areas: an urban vocational high school, an urban comprehensive high school, and a suburban comprehensive high school. These may be symbolized as UV, UC, and SC, respectively. The schools were Vocational and Roosevelt senior high schools of the Minneapolis Public Schools, and the Robbinsdale Senior High School of Independent School District No. 281, Robbinsdale, Minnesota.

A reason for choosing these particular schools was that the comprehensive schools had large enough graduating classes so that in each school approximately 50 subjects would qualify, from one graduating class, under the criteria for selection of subjects (UC = 669, SC = 758). The vocational school had a much smaller class (UV = 291), but a much higher proportion were males who entered the labor market immediately upon graduation. The comprehensive schools were selected partly because they had a full range of clientele, with almost half from each school entering some kind of college program upon graduation.

The 150 high school graduates who became the principal subjects of the study were selected according to criteria defined in the present chapter. The objectives in devising the criteria were (1) to eliminate graduates who would tend to reflect the differences among schools, and (2) to eliminate graduates for whom an accurate evaluation would not likely be obtainable. Those who did qualify on the criteria would then presumably form groups with approximately similar characteristics from the several schools, and could then be evaluated with some validity.

Follow-up studies which were available in two of the schools were used to screen out those in college or those in military service for more than the six-month basic program. Homes of graduates of the third school were telephoned to determine each graduate's status. (The numbers in military service at the time the contact was made, 14 or 15 months after graduation, were: 34 from the urban vocational school, 44 from the urban comprehensive school, and 64 from the suburban comprehensive school. These numbers are roughly proportionate to the sizes of the graduating classes.)

Sol to ME

The community and the employment climate

At the time of the study Minneapolis was a city of a half-million population, with suburban municipalities totaling almost another half-million, and with the adjacent city of St. Paul and suburbs adding more than a half-million, for a metropolitan area total exceeding 1½ millions. The business and industry of the area featured electronics and similar industries requiring a high proportion of technically-trained people, along with a predominance of light industry and the normal service and commercial enterprises of a metropolitan area.

The employment climate at the time the data were gathered was favorable, with unemployment rates lower than average for the 1955-1965 decade. This factor is of importance because application of the criteria for selection of subjects during a time of economic recession and high unemployment would probably affect the distributions of characteristics of the subjects, in that some of those who were employed past 90 days in this study would not qualify on this criterion. The technical emphasis of the area's industry is not thought to have affected the study greatly, because very few of the entry-jobs were at the higher levels of skill requirements.

Three Sources of Data

Interviews with the subjects

Each boy from the 1963 graduating roster who was seemingly eligible as a candidate for the study was telephoned by a guidance counselor from his school and engaged in a structured interview. For each boy interviewed the counselor recorded the place of work, the job description, the starting and ending dates of the job to be studied, the name of the direct job supervisor, and the method of obtaining employment. Various questions were asked about whether or not school experience assisted in performance of certain tasks. (A copy of the interview form appears in Appendix B as Form I.)

Data from school records

The investigator obtained from the official school records certain information regarding each subject. These data included the class rank, grade average in six semesters of required English, grade average in vocationally-oriented courses for those so qualified, an intelligence quotient, scores on five scales of the Differential Aptitude Tests, the composite number of days absent and/or tardy in grades 10-12, and a list of the vocationally-oriented courses

taken and consequent classification of each graduate as either "vocationally-oriented" or "general." (A copy of the form used to record data from school records appears in Appendix B as Form II.)

The interviews with employers

The employers were interviewed personally by the investigator at the 123 places of employment. The procedure followed was to first telephone each place of employment to obtain the name and title of the proper person to contact for obtaining permission to conduct an interview. Letters followed (individually typed but identical except for the inside address and salutation), mailed to groups of employers selected geographically. (A copy of this letter and the accompanying explanation appears in Appendix B as Form III.)

Next, the officials to whom the letters had been addressed were telephoned and appointments for interviews were arranged with the officials contacted (who were owners or personnel directors), plus interviews with foremen or supervisors. More often than not two persons were interviewed to obtain evaluations concerning each job-situation.

In each interview, the descriptions of the jobs and the periods of time worked, as submitted earlier by the subjects, were confirmed or modified by the employer, and a few additional questions were answered. (The form used to record background information from employers appears in Appendix B as Form IV, Part A, and a list of all employers appears in Appendix C.)

Defining the jobs. After providing the background information, each employer classified the job in question as best fitting one of six classifications, according to the priority order of the three job-content factors defined for this purpose. Each employer also classified the job according to a four-point hierarchy of "demandingness." (The operations noted immediately above are described in detail subsequently. Copies of the cards used to rank the job-content factors appear in Appendix B as Form IV, Part B. The demandingness scale is the last item on Form IV, Part A.)

Ranking of workers among clusters of co-workers. After ranking the job-content factors, the employer ranked each principal subject on each factor, among the cluster of comparable co-workers. (A copy of the name slip used in obtaining the rankings appears in Appendix B as the last item on Form IV, Part B.) In most cases, the identity of the principal subject was not disclosed to the supervisor who did the ranking, to avoid the chance of bias, although identification of the subject often had to be made to the company owner or

personnel director to help establish proper rapport for the interview. The sequence of ranking was made, in each instance, in the order that the three factors were considered to be important to each job. Then, a similar ranking was made on "Overall Satisfactoriness," and, finally, the employer rated the workers in the cluster as "Satisfactory" or "Unsatisfactory."[1]

The investigator attempted in each interview to obtain from the supervisor a minimum of three comparable co-workers and a maximum of five, after it was discovered in the initial interviews that the interview became cumbersome with more than six individuals to compare. In a few instances, where more than six were qualified for ranking, the group was reduced by choosing only those who were 1963 graduates of local high schools, or, in a few cases involving larger numbers, the first six graduates of 1963 listed (alphabetically) were used.

Applicability of the Findings and Limitations of the Design

Applicability of findings

To make the format of these comparisons (and some hypotheses for further testing) applicable to similarly selected graduates of many or most high schools, a basic assumption was first partially tested. This assumption was: when the criteria used in this study for selecting subjects are applied to the graduating classes of three varying types of high schools, one year after graduation, the resulting groups of subjects would not differ significantly on selected school-measured criteria (an intelligence quotient, five scales of an aptitude test battery, and the attendance record). The rationale here advanced is that, if the preceding assumption could be defended through demonstrating that the groups selected by the given criteria from three differing types of schools were substantially similar, then the same assumption could be extended to groups selected by the defined criteria from many or most high schools.

The three high schools from which subjects of this study graduated were selected from the three basic types of public

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[1]The basic ranking procedure is patterned somewhat after the procedure used by Carlson, et al., in The Measurement of Employment Satisfactoriness, op. cit., p. 55.

high schools which can be found in most metropolitan areas: (1) a vocational high school located in the city-center which draws students from throughout the city school system; (2) a comprehensive high school which serves a mainly-residential portion of the city school system; and, (3) a comprehensive high school which serves a mainly-residential suburb adjoining the city. To provide support for the assumption of similarity, it was necessary to ascertain whether or not the selected subjects from these three schools differed significantly, as groups, on the selected indicators of school achievement and on the attendance record.

Limitations of applicability

No conclusions resulting from carrying out this design could properly apply to whole school populations. Even to the populations selected through the given criteria, applications of results are properly made only as hypotheses for further testing. The foregoing statement is true for three separate sets of reasons.

First, some of the basic instruments or techniques of measurement (of job content, of worker "satisfactoriness," and of the demandingness levels of the jobs) are not validated or established instruments or techniques but rather are presented in pilot form in this study, and if they are to acquire validity they must be developed and refined in further research.

Second, the observations made were on deliberately selected populations, extracted from the complete populations of the schools by use of criteria which tended to limit the observations to subjects from the middle ranges of the post-high school population (those in post-high school education tended to be drawn from the upper academic and/or socio-economic levels, and the dropouts and the unemployed tended to be drawn from the lower academic and/or socio-economic levels, leaving the middle ranges predominant in the study).

Third, comparisons of groups of subjects from the three schools did not include socio-economic comparisons or comparisons of disciplinary records, or other factors which might be proposed as causes of differences among the school-groups. (The assumption made here is that these latter comparisons would also show no significant relationships, if the same selective criteria were applied in designating the groups.)

The Assumption that Subjects Selected on the Defined Criteria are Similar, as Groups, from School to School

It has been noted that the findings of the study could have little value for generating hypotheses for further testing unless the findings could be shown to apply to groups similarly selected from many or most high schools. To establish or reject the reasonableness of this statement of applicability, two procedures were utilized.

First, criteria were used in selection of subjects which presumably caused the resulting groups to be distributed similarly from school to school. Second, the data were assembled and compared through statistical means.

The criteria for selection of subjects

a) Male sex only. Because sex differences would be present in many school achievement and job success evaluations, this factor was controlled by considering the male sex only.

b) 1963 graduating class. One large graduating class was presumed to have approximately the same distributions of characteristics among its members as another large class from the same school, because changes in a school's clientele are thought to occur slowly, over a period of years.

c) No post-high school training. Because the effects of high school programs were to be studied, graduates with post-high school training were eliminated. Exceptions were college dropouts after one quarter or semester of study unrelated to the job, or those with six months of military service in which no training other than basic training was given.

d) No apparent handicaps. Many retarded or otherwise handicapped students did not graduate, but those few who did would presumably be at a disadvantage in seeking employment, and so were eliminated. It was presumed that most Negro graduates would be at a disadvantage in obtaining employment because of employers' biases, and in this sense Negro graduates were considered for elimination as "handicapped." However, it was discovered that no Negro graduates qualified otherwise. Those few who graduated entered college or the armed services or were unemployed when contacted.

e) Unmarried. Married graduates were presumed to have stronger motivational influences which affect work success, and therefore were eliminated from the study. Those who were married at the time the investigator conducted the evaluation interview with the employer, but who were unmarried at the point of evaluation (usually when passing the 90-day probationary period) were included.

f) A minimum tenure. A three-month period was considered the minimum time needed for the employer to know the subject well enough for ranking him against co-workers who also had worked at least 90 days and were similar in other respects. This also eliminated those who might have been entirely without full-time employment during the year following graduation.

The above criteria tended to eliminate graduates from the upper end of the school achievement scales and also some from the lower end. In addition, some subjects were eliminated for reasons unrelated to their qualifications for employment. These latter reasons affected fewer individuals and were presumed to be associated with graduates who would be randomly distributed on other criteria. Graduates thus eliminated included the following:

a) Graduates who had moved away from the Twin Cities area;

b) Graduates who had worked under a supervisor who was either unavailable or uncooperative; (only two employers were found to be uncooperative, and seven were unavailable);

c) Graduates who had worked where the supervisor was unable to recall comparable young workers who did the same work, and therefore could not be assigned a rank; in all but three cases supervisors could recall a sufficient number of former workers who qualified on the given criteria so that the rankings could be assigned;

d) Graduates who had worked for a relative or neighbor, or in a situation where the supervisor would be substantially influenced by knowledge of a worker's "connections with the boss"; the counselors eliminated the obvious cases in the telephone interviews, and in a few borderline bases the writer managed to arrange the interview with supervisors who showed no apparent bias--evidenced by the fact that they ranked the principal subject below average.

The criteria for comparing school groups

a) A group-administered test of intellectual aptitude (I.Q.), recorded in the junior high years. The Otis Form B was the test most commonly recorded for 1963 graduates, but scores of other tests were used when the Otis had not been given, as other group-administered intelligence measures are thought to be comparable enough for this criterion.

b) The senior high school attendance record, computed as all absence plus tardiness in grades 10 through 12.

c) The Differential Aptitude Tests, administered in Grade 9.[1] Scales for Verbal, Numerical, Abstract, Space, and Mechanical aptitudes were used. A few subjects did not have these tests recorded for them, and so these were treated as missing data in the calculations.

Table 3 illustrates the distributions of intelligence quotients which were recorded for the three school-groups, with the one-digit values assigned to the respective intervals. The percentages assigned to each value are based on the "sten" formula for approximating standard scores.

Table 4 illustrates the distribution of the attendance record, which for each subject is his combined absence and tardiness in grades 10 through 12.

Tables 5 through 9 illustrate the distributions of scores on the Differential Aptitude Tests, with assigned one-digit values. The scores as recorded in school records were found in percentile ranks grouped in intervals of five.

Testing the similarity of the school groups

It was apparent that the study could not proceed further until the assumption that the school-groups were similar in distributions of characteristics was defended. Therefore, tests of significant differences were conducted as part of the design.

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[1] Bennett, George K., Seashore, Harold G., and Wesman, Alexander G. Differential Aptitude Tests (3rd Ed.) New York: Psychological Corporation, 1959.

TABLE 3

INTELLIGENCE QUOTIENTS, BY SCHOOLS,[1]
WITH CONVERSION TO "STENS"

Percentile Rank	Frequencies by School: Urban Vocational	Urban Comprehensive	Suburban Comprehensive	"Sten"
125 +	--	--	4	10
120-124	--	2	3	9
112-119	6	6	4	8
106-111	8	5	6	7
103-105	8	8	12	6
98-102	9	12	6	5
93- 97	10	5	5	4
88- 92	7	5	--	3
81- 87	4	2	1	2
72- 80	2	--	1	1
	54	45	42	

[1]Intelligence quotients were not available for 6 subjects out of 150.

TABLE 4

ATTENDANCE RECORDS BY SCHOOLS,
WITH CONVERSION TO "STENS"

Total absent plus tardy in grades 10-12	Frequencies by School: Urban Vocational	Urban Comprehensive	Suburban Comprehensive	"Sten"
0-1	1	1	--	10
2-4	2	2	3	9
5-12	7	6	4	8
13-18	5	9	6	7
19-26	8	15	6	6
27-37	11	7	9	5
38-54	7	8	9	4
55-77	9	3	2	3
78-99	3	--	3	2
100 or more	2	--	2	1
	55	51	44	

TABLE 5

THE DAT* VERBAL SCALE BY SCHOOLS,
WITH CONVERSION TO "STENS"

Percentile Rank	Frequencies by School: Urban Vocational	Urban Comprehensive	Suburban Comprehensive	"Sten"
95-100	--	1	2	10
85-90	2	2	1	9
70-80	8	7	5	8
60-65	5	6	4	7
40-55	12	10	3	6
25-35	9	10	8	5
20	7	8	4	4
5-15	8	3	3	3
1-4	4	1	2	2
	--	--	--	1
	55	48	34	

*Bennett, et al., op. cit. Scores were not available for a few subjects, causing column totals to vary from the complete totals for schools.

TABLE 6

THE DAT NUMERICAL SCALE BY SCHOOLS,
WITH CONVERSION TO "STENS"

Percentile Rank	Frequencies by School: Urban Vocational	Urban Comprehensive	Suburban Comprehensive	"Sten"
96-100	--	1	2	10
90-95	6	4	3	9
80-85	2	3	1	8
60-75	6	11	4	7
40-55	10	10	7	6
30-35	9	5	6	5
15-25	14	9	4	4
5-10	4	2	4	3
1-4	4	3	2	2
	--	--	--	1
	55	48	34	

TABLE 7

THE DAT ABSTRACT SCALE BY SCHOOLS,
WITH CONVERSION TO "STENS"

Percentile Rank	Frequencies by School			"Sten"
	Urban Vocational	Urban Comprehensive	Suburban Comprehensive	
	--	--	--	10
95-100	2	5	3	9
85-90	10	2	8	8
75-80	7	6	1	7
60-70	9	9	5	6
45-55	12	6	9	5
20-40	9	9	2	4
10-15	3	6	3	3
1-5	4	5	2	2
	--	--	--	1
	55	48	34	

TABLE 8

THE DAT SPACE SCALE BY SCHOOLS,
WITH CONVERSION TO "STENS"

Percentile Rank	Frequencies by School			"Sten"
	Urban Vocational	Urban Comprehensive	Suburban Comprehensive	
96-100	2	3	--	10
95	--	3	--	9
90	3	2	3	8
80-85	8	7	7	7
60-75	17	10	4	6
45-60	13	8	4	5
25-40	7	8	8	4
10-20	1	5	2	3
1-5	4	2	5	2
	--	--	--	1
	55	48	34	

TABLE 9

THE DAT MECHANICAL SCALE BY SCHOOLS,
WITH CONVERSION TO "STENS"

Percentile Rank	Frequencies by School: Urban Vocational	Urban Comprehensive	Suburban Comprehensive	"Sten"
96-100	2	2	1	10
95	1	1	2	9
80-90	3	9	2	8
65-75	5	10	6	7
55-60	14	3	6	6
40-50	14	9	4	5
20-35	4	11	7	4
10-15	7	1	3	3
5	4	1	1	2
1-4	1	1	1	1
	55	48	34	

Because the principal subjects were selected, and were not sampled from populations whose distributions of tests scores and other measures could be assumed to be normal, the question of normality arose. Examination of the distributions given in Tables 3-9 provided a reasonable basis for assuming that very large samples of subjects selected similarly would approximate normal distributions. The application of the "sten" formula was therefore considered to be appropriate.

Chi-square tests of goodness of fit were computed, relating the three school-groups with the distributions of intelligence quotients, five scales of the Differential Aptitude Tests, and the three-year attendance record.

The null hypotheses were:

a) There are no significant relationships between distributions of intelligence quotient and school attended;

b) There are no significant relationships between distributions of attendance record and school attended;

c) There are no significant relationships between distributions of Verbal scale of the DAT battery and school attended;

d) There are no significant relationships between distributions of Numerical scale of the DAT battery and school attended;

e) There are no significant relationships between distributions of Abstract scale of the DAT battery and school attended;

f) There are no significant relationships between distributions of Space scale of the DAT battery and school attended;

g) There are no significant relationships between distributions of Mechanical scale of the DAT battery and school attended.

Findings with respect to the above hypotheses

Factor vs. Schools	X^2	d.f.	p	Sig.	Table No.
Intelligence quotient	15.449	10	$.25 > p > .10$	No	3
Attendance record	11.132	10	$.50 > p > .25$	No	4
Verbal DAT	8.338	10	$.75 > p > .50$	No	5
Numerical DAT	7.613	10	$.75 > p > .50$	No	6
Abstract DAT	12.993	10	$.25 > p > .10$	No	7
Space DAT	10.228	10	$.50 > p > .25$	No	8
Mechanical DAT	20.439	10	$.05 > p > .025$	Yes	9

The probability values associated with the chi-square statistic reached the significant level ($p < .05$) in only one instance, the Mechanical scale of the DAT battery. The other null hypotheses were accepted. This one relationship was further explored by testing the relationships between the Mechanical scale and (1) job content--to see if the Mechanical DAT related to obtaining jobs where technical skills were valued most, plus (2) the employers' rankings of workers on Skills Unique to the Job. The probability values associated with the chi-square statistics in these latter tests were:

(1) $.75 > p > .50$ (Table 1A)
(2) $.90 > p > .75$ (Table 2A)

These findings are thought to justify the conclusion that the relationship between school attended and this one DAT scale (Mechanical) need not modify the basic assumption.

Interpretation

To present evidence that the school-groups are not significantly different in every potentially important respect would require that many additional comparisons be made, perhaps of socio-economic and attitudinal factors as well as factors related to academic aptitude and experience. For this reason, the interpretation is limited to a claim that the assumption is reasonable, and has been supported in part by evidence, that the school groups are enough alike so that equal proportions might be assigned the "sten" values on scales of school achievement and attendance.

PART TWO: DEFINING THE THREE PAIRS OF BASIC VARIABLES

School Achievement Measures and School Programs

At this point in execution of the design, the assumption that the school groups were similar had been accepted. Therefore, it became possible to assign the "sten" values to all distributions which approximated normal distributions.

The following sub-headings provide the detailed rationale concerning the variables and the derivations of the actual numerical values used in the specific statistical tests of relationships.

Of the three sets of basic variables, (a) school experience factors, (b) job definitions, and (c) evaluations of success in employment, the present section pertains to the first of these, the school experience factors, sub-divided into:

(1) the measures of school achievement, and
(2) the type of school program.

School Achievement

Measures of achievement such as class rank or letter grade averages in groups of related courses cannot be meaningfully compared from school to school in their raw form. A "C" in a school with strong academic competition might refer to the same level of performance (in terms of potential for succeeding in a particular program of a particular college) as a "B" would mean in another high school. This lack of a common base for comparisons is true

of whole graduating class populations, and is also true but in lesser degree for the school-groups selected by the criteria defined for the study.

Starting with the assumption that the school-groups selected were approximately equal in academic potential, motivation, and presumably other characteristics as well, it was then further assumed that the groups were also approximately equal in total school achievement, English achievement, and achievement in vocationally-oriented courses.

That is, if it turned out that the groups from one school had higher English grades (for example) than the average English grades of groups from the other schools, it was assumed that they were equal, on the average, in "real" achievement, and so assigning the "sten" values according to the "sten" percentage formula caused the distributions to be scored equally, with a student from the vocational school with a "B" average possibly receiving the same "sten" score as a student with a "C" average from the suburban comprehensive school. (A difference of a whole letter grade was not unusual, especially in vocationally-oriented courses and in total grade average, chiefly because the bulk of the recipients of high marks in the comprehensive schools were in college and were not subjects of the study.)

Class rank. It is consistently reported in the literature that the high school class rank is equal to or better than any other predictor of relative rank in college.[1] This is especially true when investigations are restricted to the graduates of specific high schools who attend specific colleges. The results are probably caused in part because graduates of "strong" high schools tend to attend "strong" colleges, and vice versa.

An objective of the present study was to test for predictive relationships between high school rank and subsequent success in employment, somewhat parallel to the predictive relationship between class rank and college success. The parallel relationship is thought to be that letter grades assigned by teachers or professors are a form of "ranked satisfactoriness," which roughly follow a normal distribution, and that employers can also rank small clusters of workers on their "satisfactoriness."

One potentially serious problem, involving the differences in the meaning of a particular letter grade within a high school, is thought to be controlled in this study. That is, considering

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[1] Garrett, op. cit., pp. 91-96.

two students of equal ability who attend the same high school, Student X might achieve a "C" average in the college-preparatory curriculum with greater effort than Student Y expends in achieving a "B" average in the "non-college" curriculum. However, just as most of the subjects of the studies of relationships between high school and college achievement are products of college preparatory high school curricula, the subjects of the present study are almost all products of non-college preparatory curricula.

Table 10 illustrates the distributions of class ranks as percentile ranks, with conversion to "sten" scores.

English grade average. One purpose of this study was to explore the idea that most jobs include tasks or operations which relate to the worker's background in the general academic or liberal arts area of studies, and that other tasks or operations relate to the worker's training in skills and knowledge that are unique to the job at hand. English was chosen to represent the academic area for two reasons. First, English is representative of most of the "3 R's" of education ("communications competency" might have been called "basic literacy"). Second, six semesters of required English instruction have been completed by every graduate in the study.

Table 11 illustrates the distributions of English grade average with conversion to "sten" scores.

Grade average in vocationally-oriented courses. Parallel to the selection of English as an area of achievement, a purpose of this study was to explore the relationship of school achievement in vocationally-oriented courses (such as industrial arts sequences of more than one year and courses in business and distributive education) with rankings by job supervisors on the factor called "skills unique to the job."

Table 12 illustrates the distributions of grade average in vocationally-oriented courses, with conversion to "sten" scores.

Classification by school program

One primary purpose of the study was to compare the jobs and job-success of graduates who had a heavy concentration of vocationally-oriented courses in senior high school with graduates who had only a few vocationally-oriented courses or none. In order to utilize data from all subjects in the study, the graduates were classified as either "vocationally-oriented" (Group I) or as "general education" (Group II). The dividing line was arbitrarily fixed in what is essentially a continuum of background and therefore the

TABLE 10

CLASS PERCENTILE RANKS OF THE SUBJECTS, BY SCHOOLS, WITH CONVERSION TO "STENS"

School								
Urban Vocational			Urban Comprehensive			Suburban Comprehensive		
Class %ile Rank	No. of Subj.	"Sten"	Class %ile Rank	No. of Subj.	"Sten"	Class %ile Rank	No. of Subj.	"Sten"
96	1	10	85	1	10	77	1	10
95	2	9	79	1	9	69	1	9
94	1	"	67	1	"	63	1	"
92	1	8						
90	1	"	63	2	8	60	1	8
87	1	"	57	1	"	55	2	"
85	1	"	54	1	"			
80	1	"						
78	1	7	47	1	7			
77	1	"	46	1	"	52	3	7
72	1	"	44	1	"	50	1	"
70	1	"	43	2	"	46	3	"
66	4	"	41	1	"			
			40	3	"			
63	1	6				43	1	6
58	2	"	38	2	6	42	1	"
54	3	"	36	1	"	41	2	"
52	1	"	32	5	"	38	2	"
51	1	"				35	1	"
48	2	"				31	2	"
44	5	5	25	2	5	29	2	5
39	2	"	23	3	"	27	1	"
38	1	"	21	1	"	22	1	"
36	1	"	20	1	"	21	2	"
33	2	"	19	2	"	19	3	"
			18	2	"			
29	3	4						
26	1	"	16	2	4	18	3	4
25	1	"	15	1	"	14	4	"
24	1	"	14	3	"			
23	1	"						
19	5	3	11	1	3	12	1	3
15	1	"	10	2	"	10	1	"
			9	3	"	9	1	"
13	1	2	6	1	2	7	1	2
7	1	"	5	1	"			
5	2	1	3	1	1	4	2	1
	55			51			44	

TABLE 11

LETTER GRADE AVERAGES OF THE SUBJECTS, BY SCHOOLS, FOR SIX SEMESTERS OF REQUIRED ENGLISH INSTRUCTION, WITH CONVERSION TO "STEN" SCORES

School								
Urban Vocational			Urban Comprehensive			Suburban Comprehensive		
Eng. Aver.[1]	No. of Subj.	"Sten"	Eng. Aver.	No. of Subj.	"Sten"	Eng. Aver.	No. of Subj.	"Sten"
2.83	1	10	2.83	1	10	3.00	1	10
2.67	1	9	2.50	2	9	2.33	1	9
2.50	1	"	2.33	1	"			
2.17	4	8	2.17	2	8	2.00	8	8
			2.00	5	"			
2.00	10	7	1.83	4	7	1.67	4	7
						1.50	1	"
1.83	7	6	1.67	7	6	1.33+	6	6
			1.50+	5	"			
1.67	10	5	1.50-	5	5	1.33-	9	5
			1.33	7	"			
1.50	6	4	1.17	4	4	1.17	1	4
1.33	6	"				1.00	10	"
1.17	4	3	1.00	3	3			
1.00	4	2				0.83	2	2
			0.83	1	1			
	55			51			44	

[1]3.00 = "B", 2.00 = "C", 1.00 = "D". In three instances where approximately double the normal "sten" percentages occurred in clusters with the same score, the cluster was split according to whether the English grades were ascending or descending over the 3-year period. This procedure was believed to have more merit than the usual method of alternating selections.

TABLE 12

LETTER GRADE AVERAGES IN VOCATIONALLY-ORIENTED COURSES, FOR SELECTED GRADUATES OF THREE SCHOOLS, WITH CONVERSION TO "STENS"

"Vocationally-Oriented" Grade Average	School: Urban Vocational		School: Urban Comprehensive		School: Suburban Comprehensive	
	No. of Subj.	"Sten"	No. of Subj.	"Sten"	No. of Subj.	"Sten"
3.30+	2	10	1	10		
3.15	4	9	2	9		
3.10			4	8		
3.05	2	8				
3.00	2	"			1	8
2.90	1	7				
2.85			1	7		
2.80	1	"				
2.75	1	"				
2.70	2	"	1	"		
2.65	3	"				
2.60					1	7
2.55			2	"		
2.50	4	"	1	"		
2.40	1	6				
2.35			1	6		
2.30	2	"	5	"	4	6
2.25			1	"	2	"
2.20	1	"				
2.15	2	"	2	"		
2.10			1	"		
2.05	1	5	1	5		
2.00	11	"	2	"	4	5
1.90	3	"				
1.85	2	4	1	4		
1.80	2	"	3	"	1	4
1.75			1	"	5	"
1.70	1	"	2	"		
1.65	3	3	1	3	2	3
1.55	1	"				
1.50	2	"	1	"	2	"
1.40					1	2
1.30			2	2	1	"
1.20	1	1				
1.15			1	1		
	55		51		44	

classification did not have the discriminating power that might have been possible if only those with the largest amount of vocationally-oriented training had been compared with others who had none.

Table 13 presents the frequencies of the "vocationally-oriented" and the "general" classifications (Groups I and II), with the "vocationally-oriented" group divided into those with jobs which are related to the training received (Group IA) and those with jobs not related to training (Group IB), with the frequencies further indicated for the three schools.

TABLE 13

CLASSIFICATION TO SUBJECTS ACCORDING TO
HIGH SCHOOL PROGRAM AND WHETHER
OR NOT JOBS OBTAINED ARE RELATED TO TRAINING RECEIVED

	I - Vocationally-Oriented Graduates			
Schools	IA-Jobs related to training received	IB-Jobs not related to training	Total 1A+IB (I)	II - General Education Graduates
Urban Vocational	29	26	55	
Urban Comprehensive	15	20	35	16
Suburban Comprehensive	8	14	22	22
	52	60	112	38

The subjects who had eight or more completed semesters of vocationally-oriented courses were placed in the vocationally-oriented classification on this qualification alone. A prior decision which was made in conducting the classification of graduates was the classification of each course in the curriculum into "vocationally-oriented" or "general" categories. At the vocational high school, courses were so classified by state regulation. In the comprehensive high schools, courses were identifiable by statements of purpose found in the programs of study as adopted by the subject departments within the schools. The school counselors made these designations.

Subjects who had completed five or fewer semesters of vocationally-oriented courses were classified as "general." The border-

line cases, those with six or seven semesters of vocationally-oriented courses, were decided on by the school counselor, who based his judgment on whether or not the six or seven semesters contained either a concentration in one specific field (e.g., four semesters of auto mechanics plus two semesters of machine shop) or a cluster of closely related courses (e.g., two semesters of machine drafting, two of machine shop, two of industrial metals, plus one semester of shop math). In most instances, six semesters or one hour a day for three years was considered to be a proper inclusion for a general education program.

Classification of the "vocationally-oriented" graduates according to whether or not each had obtained a job related to his field of training was also made by the school counselors. The question which appears at the bottom of Form II, Appendix B, served to orient the counselors in making the classification, which was not done until the investigator had completed the interviews with the employers, so that the employers had confirmed or modified the job descriptions submitted by the subjects of the study.

The Definitions of Jobs

Of the three sets of basic variables, (a) school experience factors, (b) job definitions, and (c) success in employment, the present section pertains to (b), the job definitions, sub-divided into:

(1) job content emphases, and
(2) demandingness of job.

As noted earlier, these criteria are the result of instruments or evaluative techniques which were arbitrarily devised for the purposes of this study. They help to define in a simple manner two basic dimensions of any job: (a) the content of the job as reflected by the relative importance of three operations of the workers, and (b) the difficulty of performing the job, or the demandingness of the job on the worker's capacity.

The job-content definitions

The technique of asking each employer to define the job in question by assigning a relative order of importance of three arbitrary job-performance elements was contrived to make classifications possible in the short period of time allowed for each interview, and also to reduce the classifications to a number adaptable to chi-square tests with 150 subjects.

Each employer placed the job under discussion into one of six classifications by indicating the order of importance to the job of the three performance elements: (a) Communications Competency, (b) Personal Adequacy, and (c) Skills Unique to the Job. The factor ranked first has been termed the "emphasis" of the job. The operational definitions of these factors were given to the employers on cards, copies of which appear in Appendix B as Form IV, Part B, items 1, 2, and 3.

Rationale of the job content factors. The following rationale may help to establish the relationships of the job-content factors to school curriculum.

First, school curriculum has been defined for this study as a composite of experiences which is extremely difficult to separate into components which can be shown to have specific and measurable outcomes. The three major components have been described as intellectual and artistic development, preparation for home and civic responsibilities, and preparation for the world of work.

Second, the three elements of performance in almost any job are described, for purposes of this study, as "communications competency," "personal adequacy," and "skills unique to the job." These are arbitrarily assumed to have some degree of logical relationship to the three objectives of curriculum, which are preparation for intellectual fulfillment, social obligations, and vocational competency.

Third, obtaining a job in which one of the above factors is predominant may be related to the quantity and quality of experience in the associated areas of curriculum. Do the best students in vocationally-oriented courses get the jobs where the skills factors rank highest? Also, relative success (such as a rank given by a supervisor) may be related to the quality and quantity of school experience in the associated area. Do the best students in English tend to be ranked higher on communications competency?

The supposition of the investigator was that the outcomes were not likely to be distinguishable, but that the tests should be made, to support or not support the supposition.

Definition by "demandingness"

The classification system for placing all jobs obtained by the subjects of the study into four levels of "demandingness" was devised because a method was needed to obtain the desired information in the interviews with employers.

Each employer interviewed indicated that the job under discussion fit best into one of four classifications, arranged in a hierarchy of "demandingness." These levels were clarified by the following descriptions. (The interview form containing these descriptions appears in Appendix B as Form IV, Part A.)

a) "This is a tough job to fill for a boy just out of high school; he not only has to have specific skills but he has to be dependable and quick to learn."

b) "The boy doesn't have to have much special training other than a high school education, but he has to be dependable and quick to learn."

c) "Most high school graduates can learn to handle this job if they are honest and willing, but it does take awhile to learn the operations if they haven't learned them in school."

d) "Almost any boy can handle this job if he is honest and willing, and he can pick up all the essential operations in a few days."

Employers were assisted in making this classification by an illustration presented orally by the investigator:

> "In an automobile service station we would think of it in this way: If a boy merely pumped gas and did clean-up work he would be in the lowest classification; if he greased and serviced cars and therefore had to follow the charts for all the makes and models he would move one step higher; if he were in charge of a shift or if he had to do a variety of mechanical repairs he would be next to the top, and, if his job required that he do major repair work or keep the books for a station he would be in the top category."

It will be noted that there is no basis for assuming that the intervals between classification have equal "distance" between them; therefore, the four levels are limited in their suitability for statistical handling. It <u>was</u> assumed, however, that they are in proper hierarchical order and could be so treated.

The breakdown of all jobs into 24 definitions was accomplished by assigning each to a cell as illustrated in Figure 2. (The frequencies which occurred appear in Table 18.)

FIGURE 2

ILLUSTRATION FOR DEFINING JOBS ON THE DIMENSIONS OF SEQUENCE OF IMPORTANCE OF JOB-CONTENT FACTORS AND LEVEL OF DEMANDINGNESS

		Job Content Factors					
		CPS	CSP	PCS	PSC	SCP	SPC
Demandingness	4 (more)						
	3						
	2						
	1 (less)						

Evaluations of Satisfactoriness

Of the three sets of basic variables, this section pertains to the last set, concerning success in employment, sub-divided into:

(1) rankings of satisfactoriness, and
(2) ratings as satisfactory or unsatisfactory.

Ranks on the content areas and on overall satisfactoriness

In the structured interview with employers, the investigator asked each employer to arrange slips with names of comparable workers from best to poorest on each of the job content areas--"Communications Competency," "Personal Adequacy," and "Skills Unique to the Job." This was done in the order of importance of the factors that the employer had previously designated. Next, the employer arranged the order of name slips on "Overall Satisfactoriness." It was pointed out that the last rank did not have to be an average, or reflection, of previous ranks for each worker, because of the possibility of missing factors.

The arbitrariness of this method of evaluation is acknowledged. One deficiency is the inflexibility of the definition in

the matter of excluding additional factors which may be as important as the three used. Some indication of the seriousness of this deficiency was obtained by asking each employer if the three factors seem to "cover the job pretty well." Nine employers nominated "output," and four employers nominated "drive and ability to be promoted."[1] The investigator believes that most employers tended to transfer values which they sensed, but could not express, into the given factors most closely associated. It is also believed that omission of important factors in a considerable number of cases would be reflected by an appreciable difference between the average rank on the three content factors and the rank on Overall Satisfactoriness--which did not occur (perhaps because of the "halo effect" among the rankings).

Ratings as Satisfactory or Unsatisfactory

Just as the employer completed arranging the name slips for the last time (on "Overall Satisfactoriness") he was presented with the following oral statement and was asked to respond to it.

> "Sometimes even the lowest ranking worker is completely satisfactory on minimum standards and sometimes one or more are not satisfactory. In this particular case, if all of these workers somehow left this employment and then wanted the jobs back that they held at the end of their probationary period, and they were performing at the level they performed at after 90 days, where would you draw the line between those you would want back and those you would rather see work somewhere else?"

Workers above the line were marked "S", for "Satisfactory," and those below the line were marked "U", for "Unsatisfactory."

It might be argued that when all subjects of a study have met the criterion of passing a 90-day probationary period, they would all be satisfactory at a minimum level. However, on the speculation that job supervisors do not necessarily fire workers

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[1]Perhaps a more serious deficiency is the lack of a weighting system to provide for the cases where the evaluation on the second-choice factor (e.g., "C" in a PCS definition) is given the same value whether it is almost as important as the first-choice factor or if it has very little importance. This is a built-in deficiency which is present in all systems where highly complex matters are classified into too-few categories, but it is necessary if analysis of small samples is to be possible.

they consider to be less than competent, this rating was made to determine what proportion of the total group had passed a probationary period but was nevertheless considered to be "Unsatisfactory."

PART THREE: THE FORMAT FOR ANALYSIS

Outline of Relationships to be Tested

The relationships to be tested fell into three groups, corresponding to the three possible combinations of the three sets of major variables described in Part Two. These are:

a) achievement and program vs. job definitions

b) job definitions vs. evaluations of satisfactoriness

c) achievement and programs vs. evaluations of satisfactoriness

These relationships can be represented by the following general statements:

a) Comparisons of the sub-sets of specific relationships between (1) school achievement or programs taken and (2) the jobs (as defined by content and demandingness) provided information concerning tendencies for graduates with certain types of school background to obtain certain types of jobs.

b) Comparisons of the sub-sets of specific relationships between (1) the jobs (as defined by content and demandingness) and (2) the rankings or ratings of satisfactoriness had no independent general hypothesis. The specific null hypothesis applied to testing relationships between each pair of variables resulted chiefly in findings which helped to interpret the relationships which have independent meaning.

c) Comparisons of the sub-sets of specific relationships between (1) school achievement or programs taken and (2) the rankings or ratings of satisfactoriness provided some insights about whether or not high school achievement can be used to predict the relative success of young workers in entry-jobs in much the same way that high school class rank can be used to predict relative success or achievement in college.

Preliminary Tests and Information

Before moving into the testing of the three major sets of variables, it became necessary to answer four preliminary questions so that the interpretations of the major tests would reflect the benefits of these prior considerations.

The four questions follow, accompanied by indications of the tests which were conducted in providing answers.

a) Do graduates of the general and vocationally-oriented programs differ significantly in achievement?

Question (a) applies only to the two comprehensive high schools because the vocational high school had no general graduates. There was no need to remove the observations from the vocational high school from the computations, however, since the "stens" assigned were all of one classification and were assigned according to the percentage formula which determined the expected frequencies.

The null hypothesis implied in the relationships tested was that there are no significant relationships to be found between general and vocationally-oriented graduates on the measures of school achievement.

The relationships tested to answer question (a) are:

(1) General or vocationally-oriented program vs. class rank

(2) General or vocationally-oriented program vs. English average

(3) General or vocationally-oriented program vs. attendance record

b) Do vocationally-oriented graduates from one school fare better than graduates of other schools in obtaining jobs related to their training?

The relationship tested to answer question (b) pertains to the proportions of vocationally-oriented graduates of the three schools who did or did not obtain jobs related to their training, and it was answered through conducting the chi-square test of significant relationships outlined below.

(4) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. school attended

c) How do the two major dimensions of the jobs relate? Which job-content factors are associated with the more-demanding or less-demanding jobs?

Answering question (c) helped to set the stage for the three major sets of tests. An answer was provided by testing the relationship between the job-content emphases (order of importance of the three job-content factors) and the demandingness levels of the jobs.

This relationship is illustrated in Figure 1, and is outlined as follows:

(5) Job content emphasis
vs. demandingness level of job

d) How consistently do employers rate workers "Unsatisfactory" who are also ranked lowest in their co-worker group on "Overall Satisfactoriness?"

A last preliminary test was made to ascertain the relationship between the two major evaluations of satisfactoriness, the rank on "Overall Satisfactoriness" and the rating as "Satisfactory" or "Unsatisfactory." It was also of interest to learn the proportion of workers who had presumably passed a probationary period who were nevertheless rated "Unsatisfactory."

The latter test is outlined as follows:

(6) Rank on "Overall Satisfactoriness"
vs. rating as "Satisfactory" or "Unsatisfactory"

School Achievement and Program vs. Job Content and Demandingness

The first of three sets of major relationships analyzed was that which was intended to cast some light on the question: What kinds of boys get what kinds of jobs? The main assumption behind this question was that distinct relationships probably do exist between levels of school achievement and the definitions of jobs which the higher or lower achievers get. The objective of the study most closely related to this point is that of trying out the contrived methods of defining job content and demandingness.

Examples of the sub-questions were: (1) Do the higher achievers in English tend to get the jobs where Communications Competency is valued most? (2) Do those with the best attendance records tend to hold jobs where Personal Adequacy is valued most? (3) What kind of achievement, if any, tends to relate to higher or lower demandingness levels of jobs?

Similarly, the subjects from vocationally-oriented programs were compared to those from the general programs, to see which ones might tend to get jobs with certain definitions according to content or demandingness. Finally, the vocationally-oriented classification was sub-divided into those with and without jobs related to school training, and these sub-divisions were compared.

The four sub-sets of relationships which were examined are outlined below.

a) Relationships between <u>the school achievement measures</u> and the <u>job-content designations</u>:

(1) Class rank
vs. job content;

(2) Grade average in required English courses
vs. job content;

(3) Grade average in vocationally-oriented courses
vs. job content;

(4) Attendance record
vs. job content.

b) Relationships between <u>the school achievement measures</u> and <u>the demandingness of jobs</u>:

(1) Class rank
vs. demandingness;

(2) Grade average in required English courses
vs. demandingness;

(3) Grade average in vocationally-oriented courses
vs. demandingness;

(4) Attendance record
vs. demandingness.

c) The relationship between the school program and the job-content designation.

d) The relationship between the school program and the demandingness of jobs.

e) The relationship between having or not having a job related to training received (vocationally-oriented only) and the school achievement measures:

(1) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. class rank;

(2) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. English grade average;

(3) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. grade average in vocationally-oriented subjects;

(4) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. attendance.

The Job Definitions

vs. Evaluations of Satisfactoriness

The second of three sets of major variables tested for significant relationships was that which related the job definitions (job-content and demandingness) to the evaluations of success in employment (rankings on satisfactoriness and rating of satisfactory or unsatisfactory).

The sub-sets of specific relationships which were tested are:

a) Relationship between the job content disignations and the satisfactoriness rankings:

(1) Job content vs. rank on Communications Competency:

(2) Job content vs. rank on Personal Adequacy:

(3) Job content
vs. rank on Skills Unique to the Job;

(4) Job content
vs. rank on Overall Satisfactoriness.

b) Relationships between the demandingness designations and the satisfactoriness rankings:

(1) Demandingness
vs. rank on Communications Competency:

(2) Demandingness
vs. rank on Personal Adequacy;

(3) Demandingness
vs. rank on Skills Unique to the Job:

(4) Demandingness
vs. rank on Overall Satisfactoriness;

c) The relationship between the job content designation and the Satisfactory or Unsatisfactory rating.

d) The relationship between the demandingness designation and the Satisfactory or Unsatisfactory rating.

As in the case of relationships between the job definitions and achievement and programs taken, the relationships listed in this second set had value in setting the stage for interpretation of the relationships which were most central to the study--achievement vs. satisfactoriness.

The relationships with the satisfactory-unsatisfactory rating reflected a somewhat different dimension. Where the rankings were limited to indicating the subject's position in his own co-worker group (where an excellent worker among other excellent workers may be ranked "average" and a poor worker among other poor workers may be ranked "average") the "satisfactory-unsatisfactory" classification was presumed to indicate the employer's satisfaction with his employee on a more "absolute" basis. It is thought to be an indication of whether or not the employer has taken the trouble to recruit and retain workers he is pleased with, and/or whether or not he dismisses those he is not pleased with.

Testing the relationships indicated in (c), above, was designed to test a supposition that one or more types of jobs (as identified by the content classifications) tend to be associated with employers who are dissatisfied with their workers. Testing the relationships indicated in (d), above, was designed to test a supposition that jobs which are higher or lower in how demanding they are of the worker tend to be associated with employers who are happy or unhappy with their workers with disproportionate frequency.

School Achievement and Programs vs. Evaluations of Satisfactoriness

The third set of relationships focused directly on the central problem of the study--particularly on the relationship between achievement and satisfactoriness.

Figure 3 illustrates the relationships involved when school programs were compared to satisfactoriness in employment.

The following outline of specific relationships which were tested between school programs and satisfactoriness contains all combinations which were considered to be potentially meaningful. General education graduates were not involved in tests comparing subjects with and without jobs related to high school training.

a) Relationships between the school program taken and the satisfactoriness rankings:

(1) Vocationally-oriented or general program vs. rank on Communications Competency;

(2) Vocationally-oriented or general program vs. rank on Personal Adequacy;

(3) Vocationally-oriented or general program vs. rank on Skills Unique to the Job;

(4) Vocationally-oriented or general program vs. rank on Overall Satisfactoriness;

(5) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. rank on Skills Unique to the Job:

(6) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. rank on Overall Satisfactoriness

b) Relationships between the school program taken and the Satisfactory or Unsatisfactory rating:

(1) Vocationally-oriented or general program vs. Satisfactory or Unsatisfactory;

(2) Vocationally-oriented graduates classified by relatedness of jobs to training received vs. Satisfactory or Unsatisfactory.

Figure 4 illustrates the relationships involved when measures or indicators of high school achievement are compared to satisfactoriness in employment.

Sections (c) and (d) of the outline, below, pertain to the relationships illustrated in Figure 4.

c) Relationships between the school achievement measures and the satisfactoriness rankings:

(1) Class rank vs. rank on Communications Competency;

(2) Class rank vs. rank on Personal Adequacy;

(3) Class rank vs. rank on Skills Unique to the Job;

(4) Class rank vs. rank on Overall Satisfactoriness;

(5) Grade average in required English courses vs. rank on Communications Competency;

(6) Grade average in required English courses vs. rank on Personal Adequacy;

(7) Grade average in required English courses vs. rank on Skills Unique to the Job;

(8) Grade average in required English courses vs. rank on Overall Satisfactoriness;

(9) Grade average in vocationally-oriented courses[1] vs. rank on Communications Competency;

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[1]General education graduates are not involved in relationships (9), (10), (11), and (12).

FIGURE 3

THE RELATIONSHIP BETWEEN THE SCHOOL PROGRAM AND JOB OBTAINED AND THE EMPLOYER EVALUATION OF SATISFACTORINESS

		School Program			
		Vocationally-Oriented			General Education
		Jobs Related to Training	Jobs Not Related	Total	
Rank (score) on Content Factors	7				
	6				
	5				
	4				
Rating	S				
	U				

FIGURE 4

THE RELATIONSHIP BETWEEN THE SCHOOL ACHIEVEMENT INDICATORS AND THE EMPLOYER EVALUATION OF SATISFACTORINESS

		Indications of Achievement			
		Class Rank	English Ave.	Voc-Or. Ave.	Attendance
Rank (score) on Content Factors	7				
	6				
	5				
	4				
Rating	S				
	U				

(10) Grade average in vocationally-oriented courses
vs. rank on Personal Adequacy;

(11) Grade average in vocationally-oriented courses
vs. rank on Skills Unique to the Job;

(12) Grade average in vocationally-oriented courses
vs. rank on Overall Satisfactoriness;

(13) Attendance record
vs. rank on Communications Competency;

(14) Attendance record
vs. rank on Personal Adequacy;

(15) Attendance record
vs. rank on Skills Unique to the Job;

(16) Attendance record
vs. rank on Overall Satisfactoriness.

d) Relationships between the school achievement measures and the Satisfactory or Unsatisfactory ratings:

(1) Class rank
vs. Satisfactory or Unsatisfactory;

(2) Grade average in required English courses
vs. Satisfactory or Unsatisfactory;

(3) Grade average in vocationally-oriented courses
vs. Satisfactory or Unsatisfactory;

(4) Attendance record
vs. Satisfactory or Unsatisfactory.

The procedure in testing the relationships listed above was to first test the "satisfactory and unsatisfactory" and "overall satisfactoriness" variables against each of the four achievement measures. Next, the logically related pairs were tested.

Testing for Differences in Recruitment and Selection Procedures

As noted earlier, one of the limitations of the study is that in comparing any two places of employment, where the workers do an identical job, the standards of selection might be high in one place and low in the other. Consequently, all workers might be satisfactory in the place which selected "carefully," and one or more might be unsatisfactory in the place which selected "carelessly."

This concept was used and tested in two ways. First, the standard scores assigned to the rankings on job performance were adjusted somewhat, favoring those selected carefully, to discover if this might have resulted in a closer relationship between rank on job performance and scores on predictor factors. Second, the top fourth or third (on the variable of how carefully or carelessly selected were the workers) was compared with the bottom fourth or third, to discover if these groups were distinguishable on any of several factors which might be meaningful.

Selecting the high and low groups on carefulness of selection was accomplished by an arbitrary formula. The "carefully selected" group was composed of those workers who were not only interviewed, but where the employer also had contacted the school for a recommendation, and/or had required that applicants have a particular vocational course background, and/or had administered appropriate screening tests. The "carelessly selected" group was composed of those who had come to the employer ("walked in") without being recruited through either schools or employment offices, and in addition were interviewed only, with no tests or other screening devices or checking of references.

Comparing Principal Subjects with Co-Workers

One of the assumptions of the study as described thus far was that the co-workers would be "comparable" to the principal subjects. After the initial data on the 150 principal subjects were analyzed, selected data on a sample of 90 of the co-workers were gathered, and tests were conducted which helped to answer the following questions:

a) Are the co-workers who do the same work as the principal subjects approximately equal, as a group, to the principal subjects, as measured by I.Q., attendance record in school,

and the Differential Aptitude Tests? (The co-workers used were those who graduated from high school in 1962, 1963, and 1964, so that age differences would be minimized.)

b) Are the ranks and ratings of job performance approximately equal, comparing the co-worker and principal subject groups?

CHAPTER IV

FINDINGS AND INTERPRETATIONS

Introduction to Chapter IV

The statistical findings of the study are given in the present chapter, along with interpretations as they seem appropriate. Tables are inserted when they serve as necessary visual aids to the text; tables are relegated to the Appendix if their primary function is to serve as possible references.[1]

It should be noted again that the findings and interpretations of this study should not be considered as "conclusions" in the usual sense. The term "interpretations" was selected as a replacement for "conclusions" in the chapter title for this reason. A combination of limitations--of measuring instruments and of an artificially structured "sample"--restricted the conclusions of this study to a pilot level, i.e., to supporting or not supporting hypotheses for further testing. (As a pilot study, the proper conclusions are to be found in the Recommendations for Further Study, in Chapter V.)

In the sections of the chapter which follow, the topics are presented in the following sequence:

First, preliminary tests and information;

Second, relationships between:
school achievement or programs
and the jobs (defined by content and demandingness);

Third, relationships between:
the jobs (defined by content and demandingness)
and satisfactoriness (as evaluated by employers);

Fourth, relationships between:
school achievement or programs
and satisfactoriness (as evaluated by employers);

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[1]Tables are numbered 1A, 2A,..... nA, in the Appendix. All tables which pertain to the tests between the three major sets of relationships, identified as I, II, and III in this chapter, appear in Appendix A, and some are repeated in the text.

Fifth, comparisons of co-workers to the original group of 150, plus relationships between selection procedures and other variables

Sixth, interpretations of combinations of findings.

Preliminary Tests and Information

Certain findings concerning relationships between the members of each major pair of variables provided information which helped to set the stage for the tests of relationships between the sets of variables.

In regard to the school experience factors, tests were conducted to ascertain relationships between (1) the school program emphasized by the graduates, and (2) the measures of achievement and attendance.

Concerning the job definitions, tests were conducted to ascertain relationships between (1) the job-content emphases, and (2) the demandingness of jobs.

In regard to the evaluations of satisfactoriness, a test was conducted to ascertain the relationship between (1) the ranking on "Overall Satisfactoriness" and (2) the rating of "Satisfactory" or "Unsatisfactory."

Achievement of general vs. vocationally-oriented graduates

The assumption that the selected school groups are similar (demonstrated as reasonable and partially tested as shown in Chapter III), made it possible to test a dependent assumption, that the general and vocationally-oriented groups are approximately equal in the measures or indicators of school achievement--including attendance.

Chi-square tests were conducted, based on null hypotheses that there are no significant relationships between the school program taken and the measures of school experience.

Findings

Achievement measures vs. voc-oriented or general	X^2	d.f.	p	Sig.	Table No.
Class rank	8.365	5	$.25 > p > .10$	No	14
English average	5.083	5	$.50 > p > .25$	No	15
Attendance	0.873	5	$.975 > p > .95$	No	16

The null hypotheses of no significant relationships were accepted.

Tables 14, 15, and 16 illustrate the frequencies by which the tests were computed. No test was made in regard to grade average in vocationally-oriented courses because no average was obtained for the general graduates in these courses.

Interpretation

The findings tend to support the supposition that the general and vocationally-oriented graduates in this study, selected on the defined criteria, do not differ appreciably, as groups, on either the high school class rank or the average of letter grades in six semesters of English. The borderline finding for class rank suggests that the higher grade averages which the vocationally-oriented group tended to receive in vocationally-oriented courses were affecting their class ranks in their favor. (Compare Tables 10 and 12, in Chapter III.) But since the general group had no vocationally-oriented course average this could not be tested directly. The attendance factor is very clearly a non-relationship. (Attendance, in other contexts, tends to be less consistent with other measures.)

Comparing schools on jobs obtained by graduates

If neither schools nor school programs differ on the achievement measures (as it appeared at this point in the study--pertaining to the subjects of the study), a related question was: Do the graduates of any of the schools fare better than the others in obtaining jobs which are related to the vocationally-oriented training received in high school?

Table 13 illustrated the proportions of vocationally-oriented graduates from the three schools who obtained jobs related to the training received. A test was conducted and is reported below

TABLE 14

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM AND CLASS RANK AT GRADUATION

Class Rank (in "stens")	School Program Emphasized: Vocationally-Oriented	School Program Emphasized: General
8	13	9
7	15	9
6	25	3
5	24	8
4	15	5
3	20	5
	112	38
$X^2 = 8.365$	d.f. = 5	$.25 > p > .10$

TABLE 15

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM AND GRADE AVERAGE IN ENGLISH COURSES

English Average (in "stens")	School Program Emphasized: Vocationally-Oriented	School Program Emphasized: General
8	17	11
7	16	5
6	21	5
5	23	8
4	20	7
3	15	2
	112	38
$X^2 = 5.083$	d.f. = 5	$.75 > p > .50$

TABLE 16

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM AND RECORD OF SCHOOL ATTENDANCE

Attendance (in "stens")	School Program Emphasized: Vocationally-Oriented	School Program Emphasized: General
8	19	5
7	13	6
6	24	7
5	20	7
4	18	6
3	18	7
	112	38
$X^2 = 0.873$	d.f. = 5	$.975 > p > .95$

concerning whether or not the proportion in related jobs compared to those in non-related jobs represents a statistically significant relationship. This information had some bearing on how subsequent findings were interpreted.

The null hypothesis was that there is no significant relationship between the jobs-training classification and the school attended.

<u>Finding</u> re <u>school attended</u> and <u>jobs related or not to training</u>

$X^2 = 1.953$ d.f. = 2 $.50 > p > .25$

The null hypothesis of no significant relationship was accepted.

Table 17 illustrates the observed frequencies associated with the above finding.

TABLE 17

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND HIGH SCHOOL ATTENDED

School	Vocationally-oriented graduates	
	Jobs related to training received	Jobs not related to training
Urban Vocational	29	26
Urban Comprehensive	15	20
Suburban Comprehensive	8	14
$X^2 = 1.953$	d.f. = 2	$.50 > p > .25$

Interpretation

The finding tends to support the supposition that the school attended does not appreciably affect the process of obtaining jobs related to training received. Slight irregularities between observed and expected frequencies in cells of the chi-square table favor the urban vocational school. (The availability of more extensive job placement facilities in the vocational high school would lead one to expect some advantage in placement.) This finding also tends to reinforce the basic assumption of the similarity of the school-groups.

Relationship between the two job-definition dimensions

Figure 1 (in Chapter III) provided the framework for classifying all jobs by assigning six possible rank orders (of importance to the employer) to the job-content factors, plus four levels of demandingness of the jobs. The result was a grid with 24 cells, each comprising a job definition based on two major dimensions of all jobs. If numbers of subjects had been greater, chi-square tests based on 24 cells could have been made.

It can be seen in Table 18 that if a chi-square test were made too many cells in the expected frequency table would contain frequencies of less than 5. Therefore, no tests were made using data distributed as shown in Table 18. Instead, it was necessary to group the two types of jobs where the employer ranked "Communications Competency" as first in importance. This caused the distinction to be lost between

jobs where the order of factor-importance could be symbolized as CPS and CSP. These both became jobs where the "C" factor was emphasized. The same operation was performed for jobs where the order of factor-importance was SCP and SPC. These both became jobs where the "S" factor was emphasized, for "Skills Unique to the Job." The numbers of jobs where the order of factor-importance was PCS and PSC were large enough to preserve their identities. The symbols, however, were shortened to "Pc" and "Ps," denoting the major emphases as "Personal Adequacy" first in both instances, and "Communications..." or "Skills..." second, respectively.

Finding re job-content vs. demandingness

$X^2 = 43.479$ d.f. = 6 $p < .001$

The null hypothesis that there was no significant relationship between the job-content emphasis and the demandingness was rejected.

Table 18 follows the structure of Figure 1 in registering the frequencies for the 24 cells.

Table 19 registers the frequencies of the two-dimensional job-definitions after the cells had been reduced from 24 to 12.

TABLE 18

OBSERVED FREQUENCIES OF 150 ENTRY-JOBS DEFINED BY SIX JOB-CONTENT EMPHASES AND FOUR LEVELS OF DEMANDINGNESS

Levels of Demandingness	Sequences of Importance of Content Factors					
	CPS	CSP	PCS	PSC	SCP	SPC
4 (more)	3	2	1	2	5	2
3	13	1	11	2	1	2
2	19	2	25	12	3	2
1 (less)	2	--	13	25	--	2
	37	5	50	41	9	8

TABLE 19

OBSERVED FREQUENCIES OF 150 ENTRY-JOBS DEFINED BY FOUR JOB-CONTENT EMPHASES AND THREE LEVELS OF DEMANDINGNESS

Levels of Demandingness	Job Content Emphases			
	C	Pc	Ps	S
3 (more)	19	12	4	10
2	21	25	12	5
1 (less)	2	13	25	2
	42	50	41	17

$X^2 = 43.479$ d.f. = 6 $p < .001$

Interpretation

The jobs where "Communications Competency" and "Skills Unique to the Job" were ranked first in importance by employers tended to be the average and more-demanding jobs, as demandingness was defined and scaled in the study. The least-demanding jobs, on the other hand, tended distinctly to be the jobs where "Personal Adequacy" was ranked first in importance with "Skills Unique to the Job" ranked second. Jobs which were characterized as those with "Personal Adequacy" ranked first and "Communications Competency" second tended to be average in demandingness. These tendencies may provide some clues for further study of curriculum needs for the types of boys who tend to obtain certain types of jobs after graduation.

Relationship between two evaluations of satisfactoriness

The last in the series of preliminary tests concerned the relationship between the ranking on "Overall Satisfactoriness" and the rating as "Satisfactory" or "Unsatisfactory."

A chi-square test is reported in Table 20, but is meaningless because the definition of the procedure for determining the "Satisfactory"-"Unsatisfactory" rating determined that all "Unsatisfactory" workers would be low-ranked. However, the table is presented to appraise the frequency with which lowest-ranked workers were nevertheless "Satisfactory" and also the frequency with which "Unsatis-

factory" workers were nevertheless ranked higher than the lowest in the group. Of most importance, it was desired that the proportion who had worked 90 days or more but had not been fired be determined.

TABLE 20

EMPLOYERS' RATINGS OF "SATISFACTORY" AND "UNSATISFACTORY" AND RANKINGS ON "OVERALL SATISFACTORINESS"

Entry-job Rank (score) on "Overall Satisfactoriness"	Employer's Rating	
	Satisfactory	Unsatisfactory
7 (higher)	24	1
6	43	--
5	30	5
4 (lower)	10	36
	107	42
$X^2 = 84.423$	d.f. = 3	$p < .001$

Interpretation

The most important information provided by Table 20 is that 42 subjects--almost one-third--were considered to be "Unsatisfactory" by their employers even though they had passed the usual probationary period and had not been fired. (A few of these were fired after four or more months, it was learned in the interviews.)

Thirty-six of the 42 "Unsatisfactory" subjects had the lowest standardized score which was given. Five more were probably workers in groups where more than the lowest-ranked member were "Unsatisfactory." Among the "Satisfactory" subjects, ten received the lowest ranking, but these were probably members of groups where the employer considered all members, at least all of the principal subjects, to be "Satisfactory."

Two peculiarities of the distributions of rank-scores, which may be seen in several tables, should be noted in connection with this first table in which they appear. If the co-worker groups had included some with eight or more workers to be ranked, the

range of scores would have been from 3 to 8. But the maximum size was six. It may be noted that greater proportions appear in connection with scores of 4 and 6. This is a result of moving scores to the lower alternative when they fell at midpoints and when the cluster had an "Unsatisfactory" worker. Also, the 4's appeared to be assigned more heavily to the principal subjects with the necessary implication that co-workers were assigned the 7's in unexpectedly large numbers.

Relationships Between School Achievement or Programs and Job Definitions

(I)*

The findings reported in this first of three major sets of relationships involve tests of relationships between (1) school background (the achievement measures and the program emphasized) and (2) the jobs (defined by relative importance of the three content areas plus the designated levels of demandingness).

The present section (I) features comparisons of the sub-sets of specific relationships between (1) the achievement measures or programs taken and (2) the jobs as defined by content and/or demandingness. The purpose is to report information concerning tendencies for graduates with certain types of school background to obtain certain types of jobs.

Specific null hypotheses were implied for the several pairs of specific variables tested. This breakdown is indicated by the outline which follows, in which the statistical findings of the chi-square tests of significant relationships are reported.

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*All tables which pertain to the tests of relationships reported in the sections headed (I), (II), and (III) appear in Appendix A, including duplicates of those which appear in the context of these sections. Tables which have appeared previous to this notation are not duplicated in Appendix A.

a) Findings re <u>school achievement</u> vs. <u>job content</u>

(1) Class rank
vs. job content:

Null hypothesis accepted; $X^2 = 19.260$ d.f. = 15
$.25 > p > .10$ (Table 21)

(2) English grade average
vs. job content:

Null hypothesis accepted; $X^2 = 20.892$ d.f. = 15
$.25 > p > .10$ (Table 22)

(3) Vocationally-oriented average
vs. job content:

Null hypothesis accepted; $X^2 = 8.043$ d.f. = 15
$.95 > p > .90$ (Table 5A)

(4) Attendance record
vs. job content:

Null hypothesis accepted; $X^2 = 11.586$ d.f. = 15
$.75 > p > .50$ (Table 6A)

<u>Interpretation</u>

None of the measures of school achievement were related significantly to the job-content factor of the job definition. This apparently means that each type of job (regarding content) has workers who are distributed widely on each of the achievement measures. The irregularity of the observed frequencies which made the probability approach .10 on the class rank and English comparisons was that a few more subjects had jobs emphasizing "Communications Competency," along with higher grades.

A less conservative interpretation of significance levels might have allowed an interpretation that the higher achievers in the academic areas tend to get jobs where "Communications Competency" is valued most, and that having a good attendance record has no observable relationship to the job-content emphasis. The highest achievers in vocationally-oriented courses also appear to have more jobs where "Skills..." were valued most, but the frequencies in the "Skills..." column are too small to affect the chi-square outcome very much.

Tables 21 and 22 illustrate the findings related to the first and second tests under a), above, from which some clues may be obtained for seeking relationships, perhaps through use of more sensitive instruments which might be developed.

TABLE 21

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL CLASS RANK AND JOB CONTENT EMPHASIS

Class Rank (in "stens")	Job Content Emphasis			
	C	Pc	Ps	S
8	10	7	2	3
7	8	7	7	2
6	11	11	4	2
5	6	8	12	5
4	4	9	6	1
3	3	8	10	4
	42	50	41	17

$X^2 = 19.260$ d.f. = 15 $.25 > p > .10$

TABLE 22

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL GRADE AVERAGE IN ENGLISH AND JOB CONTENT EMPHASIS

English Average (in "stens")	Job Content Emphasis			
	C	Pc	Ps	S
8	11	10	3	4
7	8	5	4	4
6	5	7	10	4
5	10	11	9	1
4	6	13	6	2
3	2	4	9	2
	42	50	41	17

$X^2 = 20.892$ d.f. = 15 $.25 > p > .10$

b) Findings re <u>school achievement</u> vs. <u>demandingness</u>

(1) Class rank
vs. demandingness:

Null hypothesis <u>rejected</u>; $X^2 = 28.556$ d.f. = 10
$p < .005$ (Table 23)

(2) English grade average
vs. demandingness:

Null hypothesis <u>rejected</u>; $X^2 = 27.577$ d.f. = 10
$p < .005$ (Table 24)

(3) Vocationally-oriented average
vs. demandingness:

Null hypothesis <u>rejected</u>; $X^2 = 20.972$ d.f. = 10
$p < .025$ (Table 9A)

(4) Attendance record
vs. demandingness:

Null hypothesis accepted; $X^2 = 9.265$ d.f. = 10
$.75 > p > .50$ (Table 10A)

<u>Interpretation</u>

The findings tended to support the supposition that the more-demanding jobs tended to be obtained by graduates who had achieved the higher class ranks and higher grade averages in English.

Grade average in vocationally-oriented courses also had, in these findings, a significant positive relationship to job demandingness.

The attendance record showed no significant relationship to the demandingness of jobs. (Apparently the employers associated with the more-demanding jobs made no greater effort to check school attendance records than did the employers for the less-demanding jobs.)

Tables 23 and 24 illustrate the findings related to the first two tests under b), above, which produced the most distinct results.

TABLE 23

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL CLASS RANK AND DEMANDINGNESS LEVEL OF ENTRY-JOB

Class rank (in "stens")	Demandingness of Job (less) 1	2	(more) 3
8	3	5	14
7	3	12	9
6	4	16	8
5	11	14	6
4	10	7	3
3	11	9	5
	42	63	45

$X^2 = 28.556$ d.f. = 10 $p < .005$

TABLE 24

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL GRADE AVERAGE IN ENGLISH AND DEMANDINGNESS LEVEL OF ENTRY-JOB

English Average (in "stens")	Demandingness of Job (less) 1	2	(more) 3
8	4	9	15
7	4	6	11
6	8	9	9
5	10	16	5
4	7	15	5
3	9	8	--
	42	63	45

$X^2 = 27.577$ d.f. = 10 $p < .005$

c) Findings re school program vs. job content

(1) General or vocationally-oriented program vs. job content:

Null hypothesis accepted; $X^2 = 4.228$ d.f. = 3
$.50 > p > .25$ (Table 25)

(2) Vocationally-oriented graduates classified by relatedness of job to training received vs. job content:

Null hypothesis rejected; $X^2 = 12.336$ d.f. = 3
$p > .01$ (Table 26)

Interpretation

There were no significant differences between the general graduates and the vocationally-oriented graduates, as groups, as to whether employers placed greater value on the factors of Communications Competency, Personal Adequacy, or Skills Unique to the Job.

However, in comparing the vocationally-oriented graduates who had obtained jobs related to training received and those without jobs related to training, significant relationships were registered. The differences concentrated in two of the four job-types: In the jobs where the "Skills..." factor was valued most, the observed frequency of having a job related to training was almost twice that expected by chance, as seen in Table 26. In "Pc" jobs, where "Personal Adequacy" was valued most and "Communications Competency" second, the observed frequency of having a job related to training was 25, compared to an expected frequency of 18.

Tables 25 and 26 illustrate the findings concerning school program vs. job content.

TABLE 25

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND JOB-CONTENT EMPHASIS

Job-Content Emphasis	Vocationally-Oriented	General Education
C	30	12
Pc	35	15
Ps	31	10
S	16	1
	112	38
$X^2 = 4.228$	d.f. = 3	$.50 > p > .25$

TABLE 26

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND JOB-CONTENT EMPHASIS

Job-Content Emphasis	Vocationally-oriented graduates	
	Job related to training received	Jobs not related to training
C	14	16
Pc	10	25
Ps	15	16
S	13	3
	52	60
$X^2 = 12.337$	d.f. = 3	$p < .01$

d) Findings re school program vs. demandingness

(1) General or vocationally-oriented program vs. demandingness of jobs:

Null hypothesis accepted; $X^2 = .337$ d.f. = 2
$.99 > p > .98$ (Table 13A)

(2) Vocationally-oriented graduates classified by relatedness of job to training received vs. demandingness of jobs:

Null hypothesis rejected; $X^2 = 17.205$ d.f. = 2
$p < .001$ (Table 14A)

Interpretation

The general and vocationally-oriented groups were not found to be appreciably different in distributions of the demandingness factor of the jobs. However, a distinct difference registered between sub-groups of the vocationally-oriented classification; those who had jobs which were related to school training received tended to be in the more-demanding jobs, and vice-versa.

e) Relationships between vocationally-oriented graduates classified by relatedness of job to training received and the school achievement measures

(1) Vocationally-oriented graduates classified by relatedness of job to training received vs. class rank:

Rejection of the null hypothesis remains in doubt;
$X^2 = 10.706$ d.f. = 5
$.10 > p > .05$ (Table 15A)

(2) Vocationally-oriented graduates classified by relatedness of job to training received vs. grade average in English:

Null hypothesis accepted; $X^2 = 2.603$ d.f. = 5
$.90 > p > .75$ (Table 16A)

(3) Vocationally-oriented graduates classified by relatedness of job to training received vs. grade average in vocationally-oriented courses:

Null hypothesis rejected; $X^2 = 15.182$ d.f. = 5 (Table 27)
$p < .01$

(4) Vocationally-oriented graduates classified by relatedness of job to training received vs. attendance record:

Null hypothesis accepted; $X^2 = 1.241$ d.f. = 5 (Table 18A)
$.95 > p > .90$

Table 27 illustrates the findings pertaining to test (3) above.

TABLE 27

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Voc-Oriented Average (in "stens")	Vocationally-oriented graduates: Jobs related to training received	Vocationally-oriented graduates: Jobs not related to training
8	11	6
7	14	4
6	8	15
5	9	10
4	6	14
3	4	11
	52	60
$X^2 = 15.181$	d.f. = 5	$p < .01$

Interpretation

It is clear that having higher grades in vocationally-oriented courses is positively related to having a job which is related to training received in high school (test 3). Therefore, doing well

in vocationally-oriented courses seems to help predict getting a related job.

On the other hand, English grades (test 2) have no appreciable relationship to getting a job related to training, and the dubious relationship with class rank (test 1) is very likely a reflection of the relationship with vocationally-oriented courses, as these courses make up one-fourth to one-half of the total courses which result in the class rank.

Relationships Between the Job Definitions and the Evaluations of Satisfactoriness (II)

The findings reported in this second of three major sets of relationships tested involve relationships between (1) the jobs, as defined by content and demandingness and (2) the employers' evaluations, that is, rankings of employee satisfactoriness on the job-content emphases plus the rating as "Satisfactory" or "Unsatisfactory."

No broad hypothesis was involved in conducting the second set of tests. The chief purpose was to set the stage for better interpretation of the relationships in the third set--which concerns achievement and program vs. rankings and ratings of satisfactoriness. This objective was achieved in two parts.

First, the tests of relationships between (1) job-content or demandingness and (2) rankings on satisfactoriness were in a sense a validity test--of whether the 150 principal subjects were representative of all workers ranked. This occurred because every cluster of workers had to be assigned approximately the same distribution of rank (scores), in that ranking and then transforming ranks to standard scores implies this. The only factor other than chance which could have caused significant relationships to show up in this situation was the possibility that some types of jobs, of certain content or demandingness designations, could have significant numbers of co-workers who were unlike the principal subjects in ways associated with the selective criteria. For example, if the most-demanding jobs, or the jobs for which employers valued the "Skills..." factor most, had significantly more than the

expected proportions of the 150 principal subjects ranked lowest or highest, this would have registered in the form of significant chi-square findings.

Second, tests of relationships between (1) job-content or demandingness and (2) the rating of "Satisfactory" or "Unsatisfactory" were conducted to discover if significantly different proportions of employers associated with the various types of jobs tended to be satisfied or dissatisfied with their lower-ranked workers. For example, it is conceivable that the most-demanding jobs in which "Skills..." are valued most could tend to be filled by a quality of worker unsuited to satisfactory performance--compared to other job definitions.

Each test indicated in the outline which follows was based on the null hypothesis that there are no significant relationships between the variables.

a) Findings re <u>job content</u> vs. <u>satisfactoriness</u> rankings

(1) Job-content vs. rank on Communications Competency:

Null hypothesis accepted; $X^2 = 9.864$ d.f. = 9
$.50 > p > .25$ (Table 19A)

(2) Job-content vs. rank on Personal Adequacy:

Null hypothesis accepted; $X^2 = 7.365$ d.f. = 9
$.75 > p > .50$ (Table 20A)

(3) Job-content vs. rank on Skills Unique to the Job:

Null hypothesis accepted; $X^2 = 7.537$ d.f. = 9
$.75 > p > .50$ (Table 28)

(4) Jcb-content vs. rank on Overall Satisfactoriness:

Null hypothesis accepted; $X^2 = 6.531$ d.f. = 9
$.75 > p > .50$ (Table 22A)

<u>Interpretation</u>

The findings do <u>not</u> support a supposition that certain types of jobs had a greater than average proportion of workers filling them who could not meet a "Satisfactory" standard. This finding

relates to a specific objective of the study, which was to discover if jobs emphasizing industrial skills might not tend to recruit more than their share of low-ability people, mainly because of greater specific efforts made by schools to train and place these people, compared with the jobs where "Communications Competency" or "Personal Adequacy" is valued most.

The lack of support for the above supposition does not mean the tendency noted may not exist in some degree. The investigator became aware during the interviews with employers that a few subjects who had less-demanding jobs were subjects who had been vocationally-oriented and had initially obtained jobs which were of high-demandingness and which were related to training received. They had been dismissed from these jobs after one or two months and then obtained the less-demanding jobs which were not related to training received.

To arrive at a more conclusive outcome on this question would require a sample containing a larger number of the more-demanding jobs which stress the "Skills..." factor (only 10 jobs of this description appear in Table 19), so that this particular group could be separately analyzed in regard to aptitudes, school achievement, and evaluations of satisfactoriness. Jobs from which workers had been fired before 90 days would also have to be taken into account.

Table 28, pertaining to ranks on the "Skills..." factor is presented below to illustrate the series of tests under section a).

TABLE 28

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN JOB-CONTENT EMPHASIS AND RANK ON "SKILLS UNIQUE TO THE JOB"

Rank (score) on "Skills Unique to the Job"	Job-content emphasis			
	C	Pc	Ps	S
7	8	14	5	5
6	11	10	13	4
5	11	12	15	3
4	12	14	8	5
	42	50	41	17

$X^2 = 7.537$ d.f. = 9 $.75 > p > .50$

b) Findings re demandingness of jobs vs. satisfactoriness rankings

(1) Demandingness vs. rank on Communications Competency:

Null hypothesis accepted; $X^2 = 5.015$ d.f. = 6
$.75 > p > .50$ (Table 23A)

(2) Demandingness vs. rank on Personal Adequacy:

Null hypothesis accepted; $X^2 = 7.067$ d.f. = 6
$.50 > p > .25$ (Table 24A)

(3) Demandingness vs. rank on Skills Unique to the Job:

Null hypothesis accepted; $X^2 = 8.615$ d.f. = 6
$.25 > p > .10$ (Table 29)

(4) Demandingness vs. rank on Overall Satisfactoriness:

Null hypothesis accepted; $X^2 = 7.148$ d.f. = 6
$.50 > p > .25$ (Table 26A)

Interpretation

The findings tended to support the supposition that the harder and easier jobs involve approximately equal proportions of workers who are ranked higher or lower on each of the evaluative criteria. Some irregularities between observed and expected frequencies were noted at the extremes--fewer were ranked lowest in the easiest jobs and more were ranked highest in the harder jobs. They deserve mention because they are consistent in direction.

Table 29 presents the frequencies observed in the third test, pertaining to ranks on the "Skills..." factor, on which some irregularities may be seen.

TABLE 29

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN DEMANDINGNESS OF JOB AND RANK ON "SKILLS UNIQUE TO THE JOB"

Rank (score) on "Skills Unique to the Job"	Demandingness of Job (less) 1	2	(more) 3
7	7	11	14
6	16	15	7
5	11	18	12
4	8	19	12
	42	63	45

$X^2 = 8.615$ d.f. = 6 $.25 > p > .10$

c) Findings re rating as Satisfactory or Unsatisfactory vs. job-content

Null hypothesis accepted; $X^2 = 2.818$ d.f. = 3
$.50 > p > .25$ (Table 30)

Interpretation

The findings tended to support the supposition that there is no relationship between the type of job (by content) and whether or not the employer will rate larger or smaller proportions of workers as "Unsatisfactory." Apparently, the proportions of easily satisfied and less-easily satisfied supervisors occur equally among the "Communications..." jobs (e.g., shipping clerks), the "Personal Adequacy" jobs (customer and co-worker relations), and the "Skills..." jobs (the product matters most).

Table 30 illustrates the frequencies which pertain to the above interpretation.

TABLE 30

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN JOB-CONTENT EMPHASIS AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Entry-Job Rating	Job-Content Emphasis			
	C	Pc	Ps	S
Satisfactory	29	38	26	14
Unsatisfactory	12	12	15	3
	41	50	41	17

$X^2 = 2.818$ d.f. = 3 $.50 > p > .25$

d) Findings re rating as Satisfactory or Unsatisfactory vs. demandingness of jobs

Null hypothesis accepted; $X^2 = 4.413$ d.f. = 2
$.25 > p > .10$ (Table 31)

Interpretation

As in the case of job content, the easily satisfied or less-easily satisfied supervisor seems to appear in about equal frequency in all levels of demandingness of jobs. Some irregularity of frequencies occurred in that the supervisors of the more-demanding jobs rated fewer workers "Unsatisfactory" than would likely have happened by chance. A separate analysis of the "more-demanding" classification would probably reveal a significant relationship. A reasonable explanation might be that the "more-demanding" jobs were those where "Unsatisfactory" performance could not be tolerated as readily as it seems was the case in regard to the jobs of average and lower demandingness.

Table 31 illustrates the pattern of frequencies which pertains to the interpretation of demandingness vs. "Satisfactory"-"Unsatisfactory."

TABLE 31

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN DEMANDINGNESS OF JOB AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Entry-Job Rating	Demandingness of Job (less) 1	2	(more) 3
Satisfactory	31	40	36
Unsatisfactory	11	23	8
	42	63	44

$X^2 = 4.413$ d.f. = 2 $.25 > p > .10$

Relationships Between School Achievement and Programs and the Evaluations of Satisfactoriness

(III)

The findings reported in this last of three major sets of relationships tested focus most directly on the central objective of the study: exploring the relationships between school achievement measures of type of program taken and the rankings and ratings of satisfactoriness of workers by their employers.

The broad hypothesis which is examined in this set of tests is that relationships exist between (1) school achievement and programs taken, and (2) the satisfactoriness of performance on post-school jobs--as evaluated by employers. These relationships are thought to be potentially useful for prediction of success in employment, but it is not proposed that these are cause-effect relationships.[1]

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[1]The introductory section of Chapter III includes some possible explanations for why these relationships may be difficult to discern. Even where relationships are found in these tests, it is assumed that several factors are operating to make the "true" conditions unknowable except for the surface indications revealed in tests such as those reported in this volume.

Programs and satisfactoriness

In the following sequence of findings and interpretations, relationships between programs and satisfactoriness are presented first (a and b, below). Figure 6 illustrates the relationships tested which involved the programs taken.

FIGURE 6

THE RELATIONSHIP BETWEEN THE SCHOOL PROGRAM AND JOB OBTAINED AND THE EMPLOYER EVALUATION OF SATISFACTORINESS

		School Program			
		Vocationally-Oriented			General Education
		Jobs Related to Training	Jobs Not Related	Total	
Rank (score) on Content Factors	7				
	6				
	5				
	4				
Rating	S				
	U				

The broad hypothesis is represented by implied specific null hypotheses for the several pairs tested. This breakdown is indicated by the outline which follows, in which the statistical findings of the chi-square tests of significant differences are reported.

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*These scores are similar to "sten" values in that the median is 5.5 and the distribution is estimated from a normal distribution. See Tsble 2A, in Appendix A, for a further explanation of the scoring process.

a) Findings re <u>school program</u> and <u>satisfactoriness rank</u>

(1) General or vocationally-oriented program vs. rank on Communications Competency:

Null hypothesis accepted; $X^2 = 3.985$ d.f. = 3
$.50 > p > .25$ (Table 29A)

(2) General or vocationally-oriented program vs. rank on Personal Adequacy:

Null hypothesis accepted; $X^2 = 2.179$ d.f. = 3
$.75 > p > .50$ (Table 30A)

(3) General or vocationally-oriented program vs. rank on Skills Unique to the Job:

Null hypothesis accepted; $X^2 = 0.107$ d.f. = 3
$.995 > p > .99$ (Table 32)

(4) General or vocationally-oriented program vs. rank on Overall Satisfactoriness:

Null hypothesis accepted; $X^2 = 3.981$ d.f. = 3
$.50 > p > .25$ (Table 32A)

(5) Vocationally-oriented graduates classified by relatedness of job to training received vs. rank on Skills Unique to the Job:

Null hypothesis accepted; $X^2 = 0.978$ d.f. = 3
$.90 > p > .75$ (Table 33A)

(6) Vocationally-oriented graduates classified by relatedness of job to training received vs. rank on Overall Satisfactoriness:

Null hypothesis accepted; $X^2 = 1.969$ d.f. = 3
$.75 > p > .50$ (Table 34A)

Interpretation

None of the above tests of relationships resulted in probability values at the level of significance. These findings provide no support for a contention that either the general or the vocationally-oriented graduates ranked higher among their co-workers in the jobs that they happened to obtain. This of course does not mean that the result would be the same if the two groups exchanged jobs.

Test (3) may be worthy of special note because of the almost complete absence of irregularity between observed and expected frequencies and also because it focused on the "Skills..." factor, which might be offered as the factor most likely to have produced a difference. Interpretation must take into account the small number of jobs where "Skills..." ranked highest in importance, and also the concept in the preceding paragraph.

Tests (5) and (6) focus on another dimension--that of the vocationally-oriented graduates who did or did not obtain jobs related to the training received in school. It has been determined that the latter group clearly tended to have less-demanding jobs; therefore, it is not unexpected that the employer's evaluations of the latter, on the average, were not significantly different than the evaluations of the job-related group.

Table 32 illustrates test (3), as an example of the pattern of frequencies observed in tests of school program vs. satisfactoriness.

TABLE 32

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND RANK ON "SKILLS UNIQUE TO THE JOB"

Rank (score) on "Skills Unique to the Job"	School Program	
	Vocationally-Oriented	General
7	24	8
6	29	9
5	30	11
4	29	10
	112	38
$X^2 = 0.107$	d.f. = 3	$.995 > p > .99$

b) Findings re school program and rating on Satisfactory or Unsatisfactory

(1) General or vocationally-oriented program vs. Satisfactory or Unsatisfactory:

Rejection of the null hypothesis remains in doubt;
$X^2 = 2.943$ d.f. = 1
$.10 > p > .05$ (Table 33)

(2) Vocationally-oriented graduates classified by relatedness of job to training received vs. Satisfactory or Unsatisfactory:

Null hypothesis accepted; $X^2 = 0.0003$ d.f. = 1
$p < .90$ (Table 36A)

Interpretation

The relationship between the proportion of "Unsatisfactory" workers and the school program taken was not great enough to be termed significant, but the irregularity between observed and expected frequencies favored the vocationally-oriented group. This observation may provide some clues for further study, especially when appraised in connection with test (4) under a), in regard to school program vs. rank on "Overall Satisfactoriness."

It appears that a supposition which may be worth pursuing is that a significantly greater proportion of boys without vocationally-oriented training are rated "Unsatisfactory" because there may be a certain group of graduates in a typical graduating class who are unsuited (through immaturity) to succeed in any full time job, and these boys, who are not "work-oriented," are not likely to have taken a sequence in a vocational field.

Test (2), under b), reinforces the interpretation of findings pertaining to tests (5) and (b), under a), in the preceding section. Apparently, approximately the same proportions of workers in the clusters of co-workers were considered to be "Unsatisfactory" regardless of the relationship of the job to the training received in school.

Table 33 illustrates the frequencies which resulted in the dubious relationship between the school program and the rating as "Satisfactory" or "Unsatisfactory."

TABLE 33

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Entry-Job Rating	School Program	
	Vocationally-oriented	General
Satisfactory	85	22
Unsatisfactory	27	15
	112	37
$X^2 = 2.943$	d.f. = 1	$.10 > p > .05$

Achievement and satisfactoriness

This final sub-section of the series reports the findings and interpretations on relationships between the school achievement measures and satisfactoriness (c and d in the outline). Figure 7 illustrates the elements which are tested.

FIGURE 7

THE RELATIONSHIP BETWEEN THE SCHOOL ACHIEVEMENT INDICATORS AND THE EMPLOYER EVALUATION OF SATISFACTORINESS

		Indications of Achievement			
		Class Rank	English Ave.	Voc-Or. Ave.	Attendance
Rank (score) on Content Factors	7				
	6				
	5				
	4				
Rating	S				
	U				

The first part of sub-section c) consists of the tests which pertain directly to the major hypothesis of the study, which was that ranked satisfactoriness in groupings of school subjects (letter grade averages) would tend to predict ranked satisfactoriness in clusters of comparable co-workers in entry-jobs. (Attendance record was added as a form of "achievement.")

c) Findings re <u>school achievement</u> and <u>satisfactoriness rankings</u>

(1) Class rank
vs. rank on Communications Competency:

Null hypothesis accepted; $X^2 = 9.024$ d.f. = 15
$.90 > p > .75$ (Table 37A)

(2) Class rank
vs. rank on Personal Adequacy:

Null hypothesis accepted; $X^2 = 9.883$ d.f. = 15
$.90 > p > .75$ (Table 35A)

(3) Class rank
vs. rank on Skills Unique to the Job:

Null hypothesis accepted; $X^2 = 10.351$ d.f. = 15
$.90 > p > .75$ (Table 39A)

(4) Class rank
vs. rank on Overall Satisfactoriness:

Null hypothesis accepted; $X^2 = 9.852$ d.f. = 15
$.90 > p > .75$ (Table 34)

(5) Grade average in required English courses
vs. rank on Communications Competency:

Null hypothesis accepted; $X^2 = 9.650$ d.f. = 15
$.90 > p > .75$ (Table 35)

(6) Grade average in required English courses
vs. rank on Personal Adequacy:

Null hypothesis accepted; $X^2 = 13.118$ d.f. = 15
$.75 > p > .50$ (Table 42A)

(7) Grade average in required English courses vs. rank on Skills Unique to the Job:

Null hypothesis accepted; $X^2 = 17.796$ d.f. = 15
$.50 > p > .25$ (Table 43A)

(8) Grade average in required English courses vs. rank on Overall Satisfactoriness:

Null hypothesis accepted; $X^2 = 14.292$ d.f. = 15
$.75 > p > .50$ (Table 44A)

(9) Grade average in vocationally-oriented courses vs. rank on Communications Competency:

Null hypothesis accepted; $X^2 = 14.548$ d.f. = 15
$.50 > p > .25$ (Table 45A)

(10) Grade average in vocationally-oriented courses vs. rank on Personal Adequacy:

Null hypothesis accepted; $X^2 = 11.995$ d.f. = 15
$.75 > p > .50$ (Table 46A)

(11) Grade average in vocationally-oriented courses vs. rank on Skills Unique to the Job:

Null hypothesis <u>rejected</u>; $X^2 = 26.112$ d.f. = 15
$.05 > p > .02$ (Table 36)

(12) Grade average in vocationally-oriented courses vs. rank on Overall Satisfactoriness:

Null hypothesis accepted; $X^2 = 18.964$ d.f. = 15
$.25 > p > .10$ (Table 48A)

(13) Attendance record vs. rank on Communications Competency:

Null hypothesis <u>rejected</u>; $X^2 = 29.443$ d.f. = 15
$.02 > p > .01$ (Table 49A)

(14) Attendance record
vs. rank on Personal Adequacy:

Null hypothesis <u>rejected</u>; $X^2 = 25.472$ d.f. = 15
$.05 > p > .02$ (Table 37)

(15) Attendance record
vs. rank on Skills Unique to the Job:

Rejection of null hypothesis remains in doubt;
$X^2 = 23.543$ d.f. = 15
$.10 > p > .05$ (Table 51A)

(16) Attendance record
vs. rank on Overall Satisfactoriness

Null hypothesis <u>rejected</u>; $X^2 = 29.705$ d.f. = 15
$.02 > p > .01$ (Table 38)

<u>Interpretation</u>

The findings pertaining to <u>class rank and English provide no support for the hypothesis</u> that ranked satisfactoriness on-the-job might be predicted by school achievement measures in a manner parallel to predicting college success (also a form of "ranked satisfactoriness") from high school class rank. The consistency of the probability values associated with the chi-square statistics lends support to a supposition that no relationship, or a very weak relationship at best, exists.

The above statement applies to tests numbered (1) through (8), in c), above. Certain qualifications might be noted:

a) Some of the tests had less meaning because the job descriptions with "Communications..." and "Skills..." valued most were fewer in number. That is, the rank on the content factors which were valued second and third in importance by the employer tended to be reflections of the first factor, as "halo effect." Thereby, they were also reflected in the "Overall Satisfactoriness" rank. Tests (1), (3), and (7), pertaining to the class rank and English categories, fall into this classification.

b) Tests (4) and (5) were internally the most logically-related among those pertaining to class rank and English. (4) was important because it in itself was a direct test of the major hypothesis of the study. Test (5) was important because almost

one-third of the jobs emphasized "Communications...," and here was shown no apparent connection between what English teachers rewarded and what employers had in mind when they were asked to rank workers on "Communications Competency."

Tables 34 and 35 illustrate the observed frequencies used in tests (4) and (5), above, respectively.

TABLE 34

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "OVERALL SATISFACTORINESS" AND HIGH SCHOOL CLASS RANK

Class Rank (in "stens")	Rank (score) on "Overall Satisfactoriness" 4	5	6	7
8	4	5	8	5
7	8	5	9	2
6	8	7	5	8
5	12	7	9	3
4	7	5	6	2
3	7	6	7	5
	46	35	44	25

$X^2 = 9.853$ d.f. = 15 $.90 > p > .75$

TABLE 35

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "COMMUNICATIONS COMPETENCY" AND HIGH SCHOOL GRADE AVERAGE IN ENGLISH COURSES

English Average (in "stens")	Rank (score) on "Communications Competency" 4	5	6	7
8	7	4	10	7
7	5	7	5	4
6	8	7	7	4
5	8	9	10	4
4	10	9	5	3
3	4	5	7	1
	42	41	44	23

$X^2 = 9.650$ d.f. = 15 $.90 > p > .75$

The findings pertaining to prediction of employment satisfactoriness through grade averages in vocationally-oriented courses presented a mixed picture. The findings pertaining to prediction from the attendance record presented a consistent pattern of relationships. Test (11) and tests (13) through (16) provide some support for the major hypothesis that school background can be used to predict ranked satisfactoriness in employment.

Certain interpretations may be appropriate in regard to tests (9) through (16):

a) Tests (9), (13), and (15) were probably influenced by "halo effect" more than they evidenced in dependent relationships, because the numbers of jobs where "Communications..." or "Skills..." were valued most were smaller.

b) Tests (11) and (14) represented the most logically-related pairs of variables pertaining to grades in vocationally-oriented courses and the attendance record. Test (11) was the one indication that a grade average may be found to predict ranked satisfactoriness, through the procedures followed in this study. Test (14) was important because attendance or absenteeism on the job was a prominent part of the definition of "Personal Adequacy."

Table 36 illustrates the observed frequencies associated with test (11), in which a significant relationship was found between grade average in vocationally-oriented courses and the rank on "Skills...," which favored the higher achievers.

TABLE 36

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "SKILLS UNIQUE TO THE JOB" AND HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Voc-Oriented Average (in "stens")	Rank (score) on "Skills Unique to the Job"			
	4	5	6	7
8	5	5	4	4
7	6	1	6	5
6	1	11	7	5
5	6	5	5	4
4	3	7	7	3
3	10	2	1	3
	31	31	30	24

$X^2 = 26.112$ d.f. = 15 $.05 > p > .02$

Table 37 illustrates the frequencies associated with test (14), in which a significant relationship was found between school attendance record and rank on "Personal Adequacy," which favored those with average and better attendance records compared with those who had a combined absence and/or tardy record of 55 to 100+ times in grades 10-12.

TABLE 37

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "PERSONAL ADEQUACY" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rank (score) on "Personal Adequacy"			
	4	5	6	7
8	6	2	14	2
7	10	1	3	5
6	88	44	11	8
5	5	6	11	5
44	6	7	7	44
3	13	22	7	3
	48	22	53	27

$X^2 = 25.472$ d.f. = 15 $.05 > p > .02$

Certain final observations may be appropriate in regard to tests (1) through (16) under c):

a) Tests (2), (6), (10), and (14) involved the Personal Adequacy factor. It is of interest to note that the probability values of each of these and the value for Overall Satisfactoriness which follows each one are in every case very close. The three measures of letter grade achievement showed no relationship in this context.

b) Tests (8), (12), and (16) involved the three special achievement measures compared to Overall Satisfactoriness. Grades in English and vocationally-oriented courses showed no significant relationships with satisfactoriness ranks, which is consistent with the finding for class rank.

c) Attendance is the one "achievement" measure which had significant or near-significant relationships with all four satisfactoriness ranks. Again, it should be noted

that the relationship seems to be caused by the irregularities in observed frequencies involving those with the poorest attendance records and those with the lowest satisfactoriness rankings. Little difference is apparent between those who are average and good in school attendance.

d) Findings re <u>school achievement</u> and <u>Satisfactory</u> or <u>Unsatisfactory</u>

(1) Class rank vs. Satisfactory or Unsatisfactory:

Null hypothesis accepted; $X^2 = 3.591$ d.f. = 5
$.75 > p > .50$ (Table 53A)

(2) Grade average in required English courses vs. Satisfactory or Unsatisfactory:

Null hypothesis accepted; $X^2 = 4.078$ d.f. = 5
$.75 > p > .50$ (Table 54A)

(3) Grade average in vocationally-oriented courses vs. Satisfactory or Unsatisfactory:

Null hypothesis accepted; $X^2 = 8.015$ d.f. = 5
$.25 > p > .10$ (Table 55A)

(4) Attendance record vs. Satisfactory or Unsatisfactory:

Rejection of null hypothesis remains in doubt;
$X^2 = 9.897$ d.f. = 5
$.10 > p > .05$ (Table 39)

<u>Interpretation</u>

The "Satisfactory"-"Unsatisfactory" rating was considered to be somewhat closer to being an "absolute" base of evaluation than were the satisfactoriness rankings. However, they were assumed to have this quality only within each co-worker cluster evaluated, in that standards of who is considered "satisfactory" vary among employers. Any difference in standards according to employers associated with the tested <u>groups</u> does <u>not</u> show up in these findings--if a difference does in fact exist. Tests (1) and (2) above were

consistent with the relationships of class rank and English to ranked satisfactoriness, in that the ratings of "Satisfactory"-"Unsatisfactory" also show no significant relationship. Tests (3) and (4) were also consistent with the tests pertaining to ranks in section c), with the irregularities showing the same tendencies but in less-significant degree.

It is of interest to speculate on an explanation for the "softening" of the forces which may have caused the significant relationships reported in section c) to appear in "weakened" form in section d). The irregularities which caused "near-significance" to occur in tests (3) and (4), in d), above, should not properly be mentioned except that all four tests, (1) through (4), were consistent with the pattern of 16 tests in section c), in that they follow the same order of probability values except that a "regression to the mean," of sorts, appeared to function.

It is possible that the factor of "how hard the boss is to please" was randomly distributed among all the jobs, and that this operated to "weaken" the findings in section c), where the rankings were not influenced by this factor, which then appear in section d) in consistent but "weaker" form.

Tables 38 and 39 illustrate the "weakening," comparing "Overall Satisfactoriness" vs. attendance with "Satisfactory"-"Unsatisfactory" vs. attendance.

TABLE 38

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "OVERALL SATISFACTORINESS" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rank (score) on "Overall Satisfactoriness"			
	4	5	6	7
8	4	7	12	1
7	9	2	3	5
6	9	4	9	9
5	4	10	10	3
4	7	7	7	3
3	13	5	3	4
	46	35	44	25

$X^2 = 29.705$ d.f. = 15 $.02 > p > .01$

TABLE 39

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RATING AS "SATISFACTORY" OR "UNSATISFACTORY" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rating	
	Satisfactory	Unsatisfactory
8	20	3
7	12	7
6	23	8
5	23	4
4	15	9
3	14	11
	107	42
$X^2 = 9.897$	d.f. = 5	$.10 > p > .05$

Testing for Differences Between Recruitment and Selection Procedures, and Between Co-Workers and Principal Subjects

Comparing recruitment and selection procedures

Results of the interviews with the 150 principal subjects made it apparent that some had been recruited and selected more carefully than others. Those who were recruited through some employment office and had been required to take tests and be recommended by their school, plus those who had to have completed a certain vocational program, were assigned to a "carefully selected" group. Those who were employed on the basis of an interview only, after "walking in," were assigned to a "carelessly selected" group.

The broad null hypothesis was that there were no significant differences between the carefully and carelessly selected groups when tested against a variety of potentially meaningful variables.

The tests conducted, with findings, are presented as follows:

(1) Carefully or carelessly selected
vs. position of person who does the hiring:

Null hypothesis rejected; $X^2 = 7.387$ d.f. = 2
$.05 > p > .02$ (Table 40)

(2) Carefully or carelessly selected
vs. school attended:

Null hypothesis accepted; $X^2 = 1.701$ d.f. = 2
$.50 > p > .25$ (Table 58A)

(3) Carefully or carelessly selected
vs. general or vocationally-oriented program:

Null hypothesis accepted; $X^2 = 0.022$ d.f. = 1
$.90 > p > .75$ (Table 59A)

(4) Carefully or carelessly selected
vs. grade average in required English courses:

Null hypothesis accepted; $X^2 = 3.489$ d.f. = 5
$.75 > p > .50$ (Table 60A)

(5) Carefully or carelessly selected
vs. grade average in vocationally-oriented courses:

Rejection of null hypothesis remains in doubt;
$X^2 = 9.830$ d.f. = 5
$.10 > p > .05$ (Table 41)

(6) Carefully or carelessly selected
vs. high school attendance record:

Null hypothesis accepted; $X^2 = 4.264$ d.f. = 5
$.75 > p > .50$ (Table 62A)

(7) Carefully or carelessly selected
vs. rank on "Overall Satisfactoriness":

Null hypothesis accepted; $X^2 = 0.777$ d.f. = 3
$.90 > p > .75$ (Table 63A)

(8) Carefully or carelessly selected
vs. rating as "Satisfactory" or "Unsatisfactory":

Null hypothesis accepted; $X^2 = 0.001$ d.f. = 1
$p < .90$ (Table 64A)

(9) Carefully or carelessly selected
vs. job content priority sequence:

Null hypothesis accepted; $X^2 = 3.676$ d.f. = 3
$.50 > p > .25$ (Table 65A)

(10) Carefully or carelessly selected
vs. demandingness of jobs:

Null hypothesis rejected; $X^2 = 6.119$ d.f. = 2
$.05 \geq p \geq .02$ (Table 42)

(11) Carefully or carelessly selected
vs. jobs classified into ten categories:

Null hypothesis rejected; $X^2 = 17.043$ d.f. = 9
$.05 > p \geq .02$ (Table 43)

Interpretation

Tests 1-11 lend support to the hypothesis that "carefully selected" workers differ significantly in some respects from "carelessly selected" workers. Test (1) indicates that when someone employed by the owner in a mangerial position did the hiring, the applicant was likely to have been "carefully selected." But when the owner did the hiring, 18 out of 26 workers were "walk ins" who were hired with an interview only. (Table 40)

Test (2) shows no significant differences between schools on selection procedure by employers. Test (3) indicates that as high a proportion of general graduates were employed through either "careful" or "careless" procedures as were the vocationally-oriented graduates.

Tests (4), (5), and (6) indicate that only the grade average in vocationally-oriented courses was positively related to the more "careful" selection procedures. Table 41 illustrates that only the "A" students were almost always in the "carefully selected" classification; little difference was apparent among the "B", "C", and "D"

students. English grades and attendance records, on the other hand, did not seem to have any relationship to the selection procedure.

Tests (7) and (8) produced results which are consistent with findings reported earlier. It is logical that no significant relationships would be found because all ranks and ratings pertain to self-contained groups and a low evaluation would be expected just as readily from a supervisor with "careful" standards of hiring (he will tend to be less easily satisfied) than from a "careless" employer.

Test (9) shows that there are no significant differences among jobs where "communications competency," "personal adequacy," or "skills unique to the job" might be valued most--on the factor of selection procedures. Test (10), however, provides a clear indication, as illustrated by Table 42, that the more-demanding jobs are filled through the "careful" selection procedures and the less-demanding jobs are filled through the "careless" procedures.

Test (11) presents a more detailed view of the relationships which were portrayed in Test (9). The skilled jobs were filled through the "careful" procedures and some of the least skilled jobs, such as machine operators, food handlers, and physical laborers, were filled through the "careless" procedures. (Table 42)

TABLE 40

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND POSITION OF PERSON WHO DOES THE HIRING

Position of Person Who Does Hiring	Selection Procedures	
	Careful	Careless
Personnel Director	21	15
Owner	8	18
Someone with Divided Duties	19	10
	48	43
$\chi^2 = 7.387$	d.f. = 2	$.05 > p > .02$

TABLE 41

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Voc-Oriented Grades (in "stens")	Selection Procedure	
	Careful	Careless
8	13	2
7	2	4
6	7	9
5	4	5
4	6	8
3	3	5
	35	33
$X^2 = 9.830$	d.f. = 5	$.10 > p > .05$

TABLE 42

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND DEMANDINGNESS OF JOBS

Demandingness of Job	Selection Procedure	
	Careful	Careless
3 (more)	18	8
2	20	17
1 (less)	10	18
	48	43
$X^2 = 6.119$	d.f. = 2	$.05 > p > .02$

TABLE 43

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND JOBS CLASSIFIED INTO TEN CATEGORIES

Job Categories	Selection Procedure	
	Careful	Careless
Skilled white collar	7	1
Skilled blue collar	5	1
Sales clerk or attendant	3	3
Stock or shipping clerk	14	12
Driving, delivery	2	3
Machine operator	2	5
Assembly, fabrication	5	4
Janitorial	7	2
Food service, public accommodation	1	6
Miscellaneous physical labor	2	6
	48	43
$X^2 = 17.043$	d.f. = 9	$.05 > p > .02$

Comparing Co-Workers and Principal Subjects

This final section of findings and interpretations represents a large amount of time and effort in proportion to the results obtained. In order to get the data on 90 co-workers of the 150 principal subjects the following procedures were employed:

a) Results of interviews with the 123 employers were screened, with all names of co-workers listed. Graduating lists from 1962, 1963 and 1964 from more than 30 high schools were read to identify names.

b) Ninty of more than 500 co-workers were identified as those who were within a year in age of the principal subjects and who were graduates of Minneapolis-area high schools. Fourteen high schools were visited to collect the data from school records. Superintendents and principals were contacted by letter beforehand.

c) Chi-square tests of significant differences were computed to compare the co-workers with the principal subjects on I.Q., attendance, the five DAT scales, the rank on "Overall Satisfactoriness," and the rating as "satisfactory" or "Unsatisfactory."

Purpose of comparing co-workers. The intent of the procedure summarized above was to strengthen or weaken the assumption that the groups of principal subjects from the three schools were representative of groups which might be selected in a similar way from most high schools in the metropolitan area. If it could have been shown conclusively that workers from a variety of schools, as a combined group, had aptitude characteristics not significantly different from the principal subjects, the conclusions of the study might have wider implications. Another purpose of the follow-up study was to help determine whether or not a bias had been introduced in the evaluation procedure.

Summary of results. The findings of this comparison with co-workers are of considerable interest, but probably are not worth the effort expended. The chief difficulty was that a distinct bias was introduced, not in the evaluation procedure itself, but in the selection of co-workers by the employers. Apparently, employers did not hesitate to evaluate principal subjects who were "Unsatisfactory," after the investigator had introduced the name into the list to be evaluated, but, when the employers had the responsibility of adding names of present and past co-workers, they seemingly were inclined to name the better workers and to omit the poorest ones. This is evidenced by the inclusion of only four "Unsatisfactory" workers in the co-worker group of 90, while 42 "Unsatisfactory" principal subjects were included in the group of 150.

Findings

The broad null hypothesis tested was that there were no significant differences between principal subjects and co-workers in intelligence, attendance record, the DAT scales, and in ranks and ratings of satisfactoriness. The specific findings were:

(1) Co-workers and principal subjects vs. Intelligence Quotient:

Null hypothesis rejected; $X^2 = 13.692$ d.f. = 5
$.02 > p > .01$ (Table 46)

(2) Co-workers and principal subjects vs. attendance record:

Null hypothesis accepted; $X^2 = 7.408$ d.f. = 5
$.25 > p > .10$ (Table 69A)

(3) Co-workers and principal subjects vs. DAT verbal scale:

Null hypothesis accepted; $X^2 = 3.669$ d.f. = 5
$.75 > p > .50$ (Table 70A)

(4) Co-workers and principal subjects vs. DAT numerical scale:

Rejection of null hypothesis remains in doubt;
$X^2 = 10.414$ d.f. = 5
$.10 > p > .05$ (Table 71A)

(5) Co-workers and principal subjects vs. DAT abstract scale:

Null hypothesis accepted; $X^2 = 8.998$ d.f. = 5
$.25 > p > .10$ (Table 72A)

(6) Co-workers and principal subjects vs. DAT space scale:

Rejection of null hypothesis remains in doubt;
$X^2 = 10.083$ d.f. = 5
$.10 > p > .05$ (Table 73A)

(7) Co-workers and principal subjects vs. DAT mechanical scale:

Null hypothesis accepted; $X^2 = 4.842$ d.f. = 5
$.75 > p > .25$ (Table 74A)

(8) Co-workers and principal subjects vs. rank on "Overall Satisfactoriness":

Null hypothesis rejected; $X^2 = 13.811$ d.f. = 5
$.025 > p > .01$ (Table 45)

(9) Co-workers and principal subjects vs. rating as "Satisfactory" or "Unsatisfactory":

Null hypothesis rejected; $X^2 = 18.896$ d.f. = 1 (Table 44)
$p < .001$

Interpretation

Test (9) confirms the illustration in Table 44--that the employers did not list names of "Unsatisfactory" co-workers, and therefore the bias is pre-determined to affect the other tests. Test (8) is a confirmation of Test (9), and Table 46 indicates that the difference exists chiefly between workers with the lower ranks.

Test (1) reflects largely the cluster of high I.Q. scores at the top of the co-worker distribution, with a sharp drop in numbers immediately below the top level. This could be a chance happening which would never be repeated in replications of the study. Table 45 illustrates the observed frequencies.

TABLE 44

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Job Success Rating	Co-Workers	Principal Subjects
Satisfactory	81	107
Unsatisfactory	4	42
	85	149
$X^2 = 18.896$	d.f. = 1	$p < .001$

TABLE 45

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND RANK ON "OVERALL SATISFACTORINESS"

Rank (score) in work group	Co-Worker	Principal Subjects
8	5	2
7	19	23
6	34	44
5	16	35
4	10	41
3	2	5
	86	150
$X^2 = 13.811$	d.f. = 5	.02 > p > .01"

TABLE 46

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND INTELLIGENCE QUOTIENT

I.Q. (in "stens")	Co-Workers	Principal Subjects
8	33	24
7	9	20
6	9	28
5	13	27
4	11	21
3	14	21
	89	141
$X^2 = 13.692$	d.f. = 5	.02 > p > .01

Test (2) indicates that attendance is probably not a related factor in this context, even though it evidenced more pronounced relationships in other contexts than did any other factor.

Tests (3) through (5) are probably reflections of the I.Q. pattern, in some measure. The verbal, numerical, and abstract scales produced a cluster at the top of the co-worker scores, although the probability values did not indicate the same likelihood of significance. Test (6) remains in doubt, and Test (7) shows no relationship.

Because of the bias shown by employers in naming co-workers, it can be speculated that this bias accounts for the deviations from non-significance of relationships. Thus it is possible to reason that the schools from which principal subjects were drawn are fairly representative of most schools in the area, even though the demonstration of this point was disappointingly inconsistent.

Combined Interpretations of Findings

The values which might be derived from an appraisal of findings of this study could more likely be acquired from the detailed interpretations and accompanying tables than from summaries of findings. This observation is based on the nature of pilot studies plus the selected nature of the subjects of this study. No actual conclusions can properly be made from the findings, and the insights which may properly be acquired are restricted to groups of subjects selected by similar criteria and not to entire graduating classes.

Allowing for the above conditions, the questions and answers which follow are offered to assist in synthesizing the contents of Chapter IV.

a) Were the selected subjects alike from school to school?

The following tautological statement represents a procedure which was executed in the study reported in this volume: When selective criteria are devised to exclude high school graduates of types who tend to make entire graduating classes different from one another, those who meet the criteria will form distributions by schools which are not significantly different from school to school. The result of this procedure was that three similar school-groups were formed, based on data gathered from three senior high schools which were dissimilar in many ways. Similarity of selected groups was demonstrated on measures of intelligence, attendance, and four out of five scales of the Differential Aptitude Tests. (The foregoing was reported in Chapter III.) It was also determined that the vocationally-oriented graduates from the three schools did not differ significantly in regard to obtaining jobs related to their school training.

b) Were the general and vocationally-oriented graduates alike?

Because the similarity of the school groups had been demonstrated, at least in large measure, it became possible to equate the proportions from the groups at defined levels of scholastic achievement. This in turn made it possible to discover whether or not the achievement of the general education graduates of combined school-groups was significantly different from the achievement of the vocationally-oriented graduates. It was found that these groups did not differ significantly in class rank or English achievement, and no difference in school attendance record was found.

c) What kinds of jobs were studied?

Testing the two dimensions of the job definition resulted in a clearly significant relationship. The more-demanding jobs tended to be the jobs associated with employers stating that they valued "Communications Competency" or "Skills Unique to the Job" most. The least-demanding jobs tended to be those in which "Personal Adequacy" was valued most, with "Skills Unique to the Job" ranked second. Of the 150 jobs, 91 had "Personal Adequacy" ranked first, 42 had "Communications Competency" valued most by employers, and only 17 had "Skills Unique to the Job" ranked highest.

d) Did "Unsatisfactory" workers lose their jobs?

Almost one-third of the subjects were rated "Unsatisfactory" by their employers, despite the fact that all had been employed more than 90 days at the time the evaluation was made. Apparently, a considerable portion of those who were "Unsatisfactory" were not dismissed. The test of the relationship between the rating of "Satisfactory"-"Unsatisfactory" and the rank on "Overall Satisfactoriness" was predetermined to be close, but the specific frequencies were of some interest. The table associated with this relationship registered the proportions of subjects who were ranked lowest but were still "Satisfactory," plus those who were "Unsatisfactory" but still not lowest in rank.

e) Which boys got which jobs?

In testing relationships between the school experience factors and the definitions of jobs obtained, no significant relationships were found between achievement or attendance and the job-content emphases (except that some clues for larger studies may have been provided). On the demandingness of jobs obtained, however, the relationship was significant for class rank, English, and vocationally-oriented courses, with the higher achievers tending to have the more-demanding jobs. No relationship was found between school attendance and demandingness of jobs.

f) Who got jobs related to training received?

When those among the vocationally-oriented who had jobs which were related to the training received were compared to those whose jobs were not related to training, differences were indicated, in respect to the grade average in vocationally-oriented courses, favoring those who had the jobs related to training. This relationship was reflected in class rank to the extent that vocationally-oriented courses were a part of class rank. But, the achievement

level in English and the attendance record seemed to have no relationships to graduates obtaining jobs which were related to the vocationally-oriented high school training they had received.

g) Are bosses in certain kinds of jobs harder to please?

Tests were conducted to try to ascertain relationships between the job definitions and the evaluations of satisfactoriness which the employers had made on clusters of graduates. No significant relationships were found in any of the tests. This outcome tends to support a supposition that employers tend to rank about the same proportions of workers "Satisfactory" and "Unsatisfactory," regardless of the type or demandingness of the job. Therefore, no case can be made for a supposition that vocationally-oriented training, for example, tends to help many boys obtain (or keep) jobs which are too demanding for them.* (Instead, the small proportion of jobs where "Skills Unique to the Job" was ranked as most important helps to make a case for paying greater attention to school objectives related to "Personal Adequacy," even in vocationally-oriented courses, and especially for students who will get these jobs--usually the lowest achievers.)

h) Do the bosses like vocationally-oriented graduates best?

No significant relationships were found between the school programs emphasized and either the ranks or ratings of satisfactoriness. One test which resulted in a probability associated with the chi-square statistic between .05 and .10, on "Satisfactory"-"Unsatisfactory," was in the direction of favoring the vocationally-oriented group. In regard to the job definition, no relationships were found between the classification by school program emphasized and either the job-content or demandingness dimensions.

i) What differences do the hiring procedures make?

When the 48 "carefully selected" workers were compared to the 43 "carelessly selected" workers, some differences were noted. First, the "careless" hiring tended to be done by the owners themselves, while the "careful" hiring was usually done by employed managerial personnel. "Careful" selection was recorded as often

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*No objective record was made of the number of boys who were vocationally-trained, who then obtained a job related to their training with a high demandingness rating, and then were fired before 90 days. A few such cases were noted.

for general graduates as for vocationally-oriented graduates, and as often for one school as for the others. "A" students in vocational courses tended to be "carefully selected," as they also tended to have the best jobs, but English grades and attendance record seemed to make no difference--in the "careful-careless" context.

j) Can satisfactoriness be predicted by academic grades?

The central set of tests in the study probed for relationships between the measures of school achievement and the ratings and rankings of satisfactoriness by employers. By these means the hypothesis was tested which proposed that satisfactoriness in employment might be predicted by certain school experience factors in much the same way that achievement in college ("ranked satisfactoriness" of another sort) can be predicted by high school class rank. The findings pertaining to class rank and English achievement did not support the hypothesis, in that the probability values associated with the chi-square statistics did not approach the significant level. Several alternative explanations of this outcome might include lack of competitive spread in co-worker clusters, lack of true similarity of performance qualities evaluated, and a number of others (discussed elsewhere in this volume.)

k) What does seem to predict success?

The hypothesis that satisfactoriness would be predicted by school achievement was partially supported by findings pertaining to grade averages in vocationally-oriented courses and the attendance record. (Attendance was considered to be an indicator of achievement, in this context.) The breakdown of frequencies illustrated that the significant findings in the case of the grade average in vocationally-oriented courses vs. the rank on "Skills Unique to the Job," was almost entirely the result of observations on a number of subjects who had both the lowest school achievement in vocationally-oriented courses and also the lowest rank on "Skills Unique to the Job." The specific frequencies associated with tests involving attendance reveal similar concentrations of subjects where poorest attendance was associated with lowest ranks and ratings by employers. Subjects with the lowest score for attendance were absent and/or tardy 55 to 100+ times in three years; therefore, a reasonable assumption is that chronic truancy is associated with other characteristics which caused these individuals both to have low achievement in vocationally-oriented courses and to be ranked low by employers.

CHAPTER V

CONCLUDING STATEMENT

Theoretical Observations

General observations

The study is entitled a pilot study because the outcomes are not conclusions which can be applied to whole graduating classes or even necessarily to similarly-selected graduates of any school. The methods used to define jobs were arbitrary and experimental. The contribution of the study may be to serve as a source of ideas or of hypotheses to be tested in further research.

Numerous studies over many years will be needed to make progress toward a validation of curriculum through ascertaining outcomes in post-school behavior. The job-setting is considered to be appropriate for continued research because it is common to most graduates of school programs, it has some standard features (such as required attendance and other features related to evaluating personal adequacy), and the potential for evaluation is present in the supervisor-worker relationship.

The "affective" goals of education--attitudes, interests, satisfactory human relations, and values--may be the most important but are least subject to evaluation. The environment of the job holds the best promise for fruitful research, partly because the affective domain of behavior is becoming more important on the job--both for job performance and in regard to independent ends.

Observations specifically related to the study

The research on prediction of college success indicates that high school achievement predicts but that the pattern of courses taken does not. Research on prediction of vocational success has had a more difficult time, partly because of the lack of a comparably definitive criterion. The pilot study reported in this volume suggests that prediction of poor success may be easier than the converse, perhaps because factors such as poor school attendance tend to be associated with a complex of undesirable characteristics which are reflected in low achievement as well.

The uniformity of the non-significant findings suggests that the various factors and forces which determine which boys obtain which jobs resulted in co-worker groups with relatively short ranges of characteristics which please or do not please their supervisors. If this supposition is correct, it would, together with the low reliability of ratings, explain most of the lack of significant findings. Of course an alternative explanation could be that the whole school situation is too different from the work situation to allow for valid constructs between specific school achievement and supposedly related job-performance factors. This was probably the case, especially, in the construct between English grades and "Communications Competency" on the job.

No satisfactory ultimate criterion for evaluating the outcomes of school experience exists for graduates who go directly into jobs. The same problem exists for graduates of college programs, of course, since success in professional programs is still an intermediate criterion. It is of great importance that this problem be given sufficient attention, for until adequate predictive relationships can be established between education and all forms of post-school behavior, curriculum will continue to be developed and executed on a subjective and largely individual basis.

Recommendations for Further Study

Further development of instruments

The method of defining jobs on a grid, with "demandingness" on one axis and "job content" on the other axis, may be useful if further refined. The advantages of generalizing these two components, instead of attempting to provide detailed definitions of thousands of jobs, are these:

a) Automation and rapid technological change necessitate adaptability of workers (perhaps each square on the grid can represent a "family" of jobs within which a worker could easily adapt because they are fairly equal in difficulty and emphasize the same characteristics, even though their titles and detailed descriptions might sound very different);

b) Follow-up studies show that as many as half of all trained workers do not get placed or retained in a job they were trained for (perhaps the more generalized definition, and a more generalized training, would provide for better utilization of training).

A number of other features of the study may have pilot utility, especially the method of obtaining evaluations from the employers.

New studies needed at the post-high school level

Most research currently underway pertaining to problems similar to those approached in the present study appears to be focused on the effectiveness of post-high school programs of vocational and technical education. Examples are the "Specialty Oriented Student Research Program" in progress at the State University of Iowa, and the study on "Preparation of Youth for Effective Occupational Utilization" underway at the Pennsylvania State University and Rutgers-The State University.

The research emphasis on post-high school programs may be justified because of the distinct trend toward having the bulk of youth take pre-employment schooling beyond grade 12. If most youth use opportunities for post-high school vocational training (college and junior college programs are included because they are increasingly vocational in purpose), then the evaluation of high school vocational programs may become an unresolved but largely academic problem.

The study reported in this volume was conducted on workers who had no post-high school training because if the same research format were applied to graduates of post-high school programs, at their current stage of development of most post-high school programs, the result would probably be misleading when conditions change in future years. At the time of this study the students in post-high school programs were "volunteers," while the high school group studied (after extracting those who went on to post-high school training) were "draftees" (largely reluctant students). The two types, if compared, would likely have different distributions of school characteristics and achievement, placement in related jobs, and evaluations of satisfactoriness in employment.

As soon as post-high school training is nearly as essential to obtaining satisfactory employment as high school graduation is today, the investigator believes, the students at grades 13 and 14 level will also tend to possess the characteristics of "draftees," (because the "volunteers" will then be in grades 15 and 16 and beyond), and their curricula will be subject to the inertia that large capital investments in buildings and large proportions of tenure staff tend to produce.

Needs for basic research

(1) The "criterion problem" will perhaps never be resolved, because most ultimate criteria are inter-personal, subjective, and in a state of constant change. However, there is hope that as employers become more sophisticated in supervisory methods

and more appreciative of research, enough progress can be made so that at least some gross approximations may be made which relate school experience to job performance.

(2) Much work is needed in regard to instruments and techniques for predicting outcomes of education, for until relationships between school experiences and behavior in post-school situations can be put on a cause-effect basis instead of a predictive basis only, there will be no real evidence that many elements of education do more than screen and select candidates for their eventual vocational status. The necessity of specific formal elements of curricular experience will continue to be assumed.

(3) Automation and semi-automation promise to further reduce the importance of individual performance on many jobs--at least performance in the ways which formerly were of great significance, such as technical skill, strength, endurance, or skill in person-to-person salesmanship. Nevertheless, most people will continue to spend a large part of their lives on-the-job, and will continue to need the emotional fulfillment of being important to the accomplishment of certain goals. Basic research should be conducted to further evaluate individual needs, and to study ways of fulfilling affective needs of workers (appreciations, values, etc.) in ways which may or may not be related to the production or distribution of material products.

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APPENDIX A

SUPPLEMENTARY TABLES

APPENDIX B

FORMS USED IN GATHERING DATA

FORM I: INTERVIEW BETWEEN COUNSELOR AND GRADUATE

FORM II: DATA FROM SCHOOL RECORDS

FORM III: LETTER AND INFORMATION SENT TO EMPLOYERS

FORM IV: INTERVIEW WITH EMPLOYER

Part A - Background Information plus "Demandingness"

Part B - Criteria Cards plus Name Slip for Rankings

TABLE 1A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN MECHANICAL APTITUDE SCORE (DAT) AND JOB-CONTENT EMPHASIS

Mechanical DAT (in "stens")	Job-Content Emphasis*			
	C	Pc	Ps	S
8	10	7	5	2
7	6	7	6	2
6	5	12	4	4
5	7	8	6	6
4	7	6	7	2
3	4	5	8	1
	39	45	36	17

$X^2 = 12.474$ d.f. = 15 $.75 > p > .50$

*Wherever the original classifications produced too-few expected frequencies for valid chi-square applications, classifications were grouped as necessary. (Expected frequencies are not shown in tables but were included in the computer print-out to assist the writer in making interpretations.)

In the above table, CPS and CSP jobs have been grouped as "C" jobs, and SCP and SPC jobs are grouped as "S" jobs. "Pc" is a briefer symbol for jobs where "Personal Adequacy" ranked first, with "Communications Competency" second. "Ps" differs from "Pc" in that "Skills Unique to the Job" ranked second in the "Ps" jobs.

TABLE 2A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN MECHANICAL APTITUDE SCORE (DAT) AND EMPLOYER'S RANK ON "SKILLS UNIQUE TO THE JOB"

Mechanical DAT Score (in "stens")	Rank (score)* for "Skills Unique to the Job"			
	4	5	6	7
8	3	8	6	7
7	5	3	8	5
6	9	8	3	5
5	7	8	6	6
4	6	6	7	3
3	6	4	5	3
	36	37	35	29

$X^2 = 10.269$ d.f. = 15 $.90 > p > .75$

*It should be noted that all scores assigned to the ranks designated by employers on the satisfactoriness factors are interpolated into approximations of "stens," using the intermediate step of "Table XX, Transformation of Ranks to Standard Scores," which appears in Walker and Lev, op. cit., p. 480.

First, each rank was assigned a standard score from the table. For ranks among clusters of three and four, the table was extended by graphic means to obtain estimates.

Next, to equate the midpoint of 50 to 5.5, all standard scores of 30-39 became "4", all standard scores of 40-49 became "5", all standard scores of 51-59 became "6", and all standard scores of 61-69 became "7". In clusters of 3 and 5 workers, the rank frequently fell at the standard scores of 40, 50, and 60, which are the midpoints between the one-digit values. In these cases, the rank was assigned upward or downward according to whether or not one or more of the workers in the cluster had been rated "unsatisfactory"--under the assumption that an unsatisfactory worker still working past 90 days would tend to indicate a lower standard of hiring and retaining workers. (This procedure was thought to be at least better than the alternatives of tossing a coin or placing subjects higher or lower alternately.)

TABLE 3A*
(I-a-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL CLASS RANK AND JOB-CONTENT EMPHASIS

Class Rank (in "stens")	Job-Content Emphasis			
	C	Pc	Ps	S
8	10	7	2	3
7	8	7	7	2
6	11	11	4	2
5	6	8	12	5
4	4	9	6	1
3	3	8	10	4
	42	50	41	17

$X^2 = 19.260$ d.f. = 15 $.25 > p > .10$

*Also appears in Chapter IV as Table 21.

TABLE 4A*
(I-a-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL GRADE AVERAGE IN ENGLISH AND JOB-CONTENT EMPHASIS

English Average (in "stens")	Job-Content Emphasis			
	C	Pc	Ps	S
8	11	10	3	4
7	8	5	4	4
6	5	7	10	4
5	10	11	9	1
4	6	13	6	2
3	2	4	9	2
	42	50	41	17

$X^2 = 20.892$ d.f. = 15 $.25 > p > .10$

*Also appears in Chapter IV as Table 22

TABLE 5A
(I-a-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES AND JOB-CONTENT EMPHASIS

Vocationally-oriented Average (in "stens")	Job-Content Emphasis			
	C	Pc	Ps	S
8	6	4	3	5
7	4	5	6	3
6	8	8	6	2
5	5	7	5	3
4	6	7	6	1
3	3	5	6	2
	42	50	41	17

$X^2 = 8.043$ d.f. = 15 $.95 > p > .90$

TABLE 6A
(I-a-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN RECORD OF HIGH SCHOOL ATTENDANCE AND JOB-CONTENT EMPHASIS

Attendance Record (in "stens")	Job-Content Emphasis			
	C	Pc	Ps	S
8	9	7	5	3
7	5	6	7	1
6	8	12	5	6
5	7	10	9	1
4	9	7	6	2
3	4	8	9	4
	42	50	41	17

$X^2 = 11.586$ d.f. = 15 $.75 > p > .50$

TABLE 7A*
(I-b-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL CLASS RANK AND DEMANDINGNESS LEVEL OF ENTRY-JOB

Class rank (in "stens")	Demandingness of Job (less) 1	2	(more) 3
8	3	5	14
7	3	12	9
6	4	16	8
5	11	14	6
4	10	7	3
3	11	9	5
	42	63	45

$X^2 = 28.556$ d.f. = 10 $p < .005$

*Also appears in Chapter IV as Table 23.

TABLE 8A*
(I-b-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL GRADE AVERAGE IN ENGLISH AND DEMANDINGNESS LEVEL OF ENTRY-JOB

English Average (in "stens")	Demandingness of Job (less) 1	2	(more) 3
8	4	9	15
7	4	6	11
6	8	9	9
5	10	16	5
4	7	15	5
3	9	8	--
	42	63	45

$X^2 = 27.577$ d.f. = 10 $p < .005$

*Also appears in Chapter IV as Table 24.

TABLE 9A
(I-b-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES AND DEMANDINGNESS LEVEL OF ENTRY-JOB

Vocationally-oriented Average (in "stens")	Demandingness of Job (less) 1	2	(more) 3
8	2	5	11
7	2	10	6
6	4	14	6
5	7	6	7
4	9	8	3
3	7	6	3
	31	49	36

$X^2 = 20.977$ d.f. = 10 $p < .025$

TABLE 10A
(I-b-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN RECORD OF HIGH SCHOOL ATTENDANCE AND DEMANDINGNESS LEVEL OF ENTRY-JOB

Attendance (in "stens")	Demandingness of Job (less) 1	2	(more) 3
8	6	12	6
7	4	11	4
6	7	12	12
5	7	12	8
4	7	7	10
3	11	9	5
	42	63	45

$X^2 = 9.265$ d.f. = 10 $.75 > p > .50$

TABLE 11A*
(I-c-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND JOB-CONTENT EMPHASIS

Job-Content Emphasis	Vocationally-Oriented	General Education
C	30	12
Pc	35	15
Ps	31	10
S	16	1
	112	38
$X^2 = 4.228$	d.f. = 3	$.50 > p > .25$

*Also appears in Chapter IV as Table 25.

TABLE 12A*
(I-c-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND JOB-CONTENT EMPHASIS

Job-Content Emphasis	Vocationally-Oriented Graduates	
	Jobs Related to Training Received	Jobs Not Related to Training
C	14	16
Pc	10	25
Ps	15	16
S	13	3
	52	60
$X^2 = 12.337$	d.f. = 3	$p < .01$

*Also appears in Chapter IV as Table 26.

TABLE 13A
(I-d-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND DEMANDINGNESS LEVEL OF ENTRY-JOB

Demandingness Level	Vocationally-Oriented	General Education
3 (more)	35	10
2	46	17
1 (less)	31	11
	112	38
$X^2 = 0.337$	d.f. = 2	$.99 > p > .98$

TABLE 14A
(I-d-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND DEMANDINGNESS LEVEL OF ENTRY-JOB

Demandingness Level	Vocationally-Oriented Graduates	
	Jobs Related to Training Received	Jobs Not Related to Training
3 (more)	26	9
2	18	28
1 (less)	8	23
	52	60
$X^2 = 17.205$	d.f. = 2	$p < .001$

TABLE 15A
(I-e-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND HIGH SCHOOL CLASS RANK

Class Rank (in "stens")	Vocationally-Oriented Graduates: Jobs Related to Training Received	Vocationally-Oriented Graduates: Jobs Not Related to Training
8	9	4
7	10	5
6	10	15
5	13	11
4	4	11
3	6	14
	52	60
$\chi^2 = 10.706$	d.f. = 5	$.10 > p > .05$

TABLE 16A
(I-e-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND HIGH SCHOOL GRADE AVERAGE IN ENGLISH

English Average (in "stens")	Vocationally-Oriented Graduates: Jobs Related to Training Received	Vocationally-Oriented Graduates: Jobs Not Related to Training
8	10	7
7	9	7
6	9	12
5	9	14
4	8	12
3	7	8
	52	60
$\chi^2 = 2.603$	d.f. = 5	$.90 > p > .75$

TABLE 17A*
(I-e-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOB TO TRAINING RECEIVED AND HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Vocationally-Oriented Average (in "stens")	Vocationally-Oriented Graduates: Jobs Related to Training Received	Vocationally-Oriented Graduates: Jobs Not Related to Training
8	11	6
7	14	4
6	8	15
5	9	10
4	6	14
3	4	11
	52	60
$X^2 = 15.181$	d.f. = 5	$p < .01$

*Also appears in Chapter IV as Table 27.

TABLE 18A
(I-e-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOB TO TRAINING RECEIVED AND SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Vocationally-Oriented Graduates: Jobs Related to Training Received	Vocationally-Oriented Graduates: Jobs Not Related to Training
8	8	11
7	6	7
6	11	13
5	11	9
4	9	9
3	7	11
	52	60
$X^2 = 1.241$	d.f. = 5	$.95 > p > .90$

TABLE 19A
(II-a-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN JOB-CONTENT EMPHASIS AND RANK ON "COMMUNICATIONS COMPETENCY"

Rank (score) on "Communications Competency"	Job-Content Emphasis			
	C	Pc	Ps	S
7	7	11	3	2
6	14	12	10	8
5	9	12	16	4
4	12	15	12	3
	42	50	41	17

$X^2 = 9.864$ d.f. = 9 $.50 > p > .25$

TABLE 20A
(II-a-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN JOB-CONTENT EMPHASIS AND RANK ON "PERSONAL ADEQUACY"

Rank (score) on "Personal Adequacy"	Job-Content Emphasis			
	C	Pc	Ps	S
7	6	10	7	4
6	15	16	15	7
5	10	5	4	3
4	11	19	15	3
	42	50	41	17

$X^2 = 7.365$ d.f. = 9 $.75 > p > .50$

TABLE 21A*
(II-a-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN JOB-CONTENT EMPHASIS AND RANK ON "SKILLS UNIQUE TO THE JOB"

Rank (score) on "Skills Unique to the Job"	Job-Content Emphasis			
	C	Pc	Ps	S
7	8	14	5	5
6	11	10	13	4
5	11	12	15	3
4	12	14	8	5
	42	50	41	17

$X^2 = 7.537$ d.f. = 9 $.75 > p > .50$

*Also appears in Chapter IV as Table 28.

TABLE 22A
(II-a-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN JOB-CONTENT EMPHASIS AND RANK ON "OVERALL SATISFACTORINESS"

Rank (score) on "Overall Satisfactoriness"	Job-Content Emphasis			
	C	Pc	Ps	S
7	2	5	7	3
6	14	11	10	6
5	17	9	13	11
4	13	10	14	5
	42	50	41	17

$X^2 = 6.531$ d.f. = 9 $.75 > p > .50$

TABLE 23A
(II-b-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN DEMANDINGNESS OF JOB AND RANK ON "COMMUNICATIONS COMPETENCY"

Rank (score) on "Communications Competency"	Demandingness of Job (less) 1	2	(more) 3
7	5	9	9
6	12	16	16
5	15	17	9
4	10	21	11
	42	63	45

$X^2 = 5.015$ d.f. = 6 $.75 > p > .50$

TABLE 24A
(II-b-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN DEMANDINGNESS OF JOB AND RANK ON "PERSONAL ADEQUACY"

Rank (score) on "Personal Adequacy"	Demandingness of Job (less) 1	2	(more) 3
7	9	7	11
6	18	21	14
5	4	10	8
4	11	25	12
	42	63	45

$X^2 = 7.066$ d.f. = 6 $.50 > p > .25$

TABLE 25A*
(II-b-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN DEMANDINGNESS OF JOB AND RANK ON "SKILLS UNIQUE TO THE JOB"

Rank (score) on "Skills Unique to the Job"	Demandingness of Job (less) 1	2	(more) 3
7	7	11	14
6	16	15	7
5	11	18	12
4	8	19	12
	42	63	45

$X^2 = 8.615$ d.f. = 6 $.25 > p > .10$

*Also appears in Chapter IV as Table 29.

TABLE 26A
(II-b-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN DEMANDINGNESS OF JOB AND RANK ON "OVERALL SATISFACTORINESS"

Rank (score) on "Overall Satisfactoriness"	Demandingness of Job (less) 1	2	(more) 3
7	7	6	12
6	14	17	13
5	10	17	8
4	11	23	12
	42	63	45

$X^2 = 7.148$ d.f. = 6 $.50 > p > .25$

TABLE 27A*
(II-c)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN JOB-CONTENT EMPHASIS AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Entry-Job Rating	Job-Content Emphasis			
	C	Pc	Ps	S
Satisfactory	29	38	26	14
Unsatisfactory	12	12	15	3
	41	50	41	17

$X^2 = 2.818$ d.f. = 3 $.50 > p > .25$

*Also appears in Chapter IV as Table 30.

TABLE 28A*
(II-d)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN DEMANDINGNESS OF JOB AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Entry-Job Rating	Demandingness of Job		
	(less) 1	2	(more) 3
Satisfactory	31	40	36
Unsatisfactory	11	23	8
	42	63	44

$X^2 = 4.413$ d.f. = 2 $.25 > p > .10$

*Also appears in Chapter IV as Table 31.

TABLE 29A
(III-a-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND RANK ON "COMMUNICATIONS COMPETENCY"

Rank (score) on "Communications Competency"	School Program	
	Vocationally-Oriented	General
7	14	9
6	36	8
5	32	9
4	30	12
	112	38
$X^2 = 3.985$	d.f. = 3	$.50 > p > .25$

TABLE 30A
(III-a-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND RANK ON "PERSONAL ADEQUACY"

Rank (score) on "Personal Adequacy"	School Program	
	Vocationally-Oriented	General
7	22	5
6	39	14
5	18	4
4	33	15
	112	38
$X^2 = 2.179$	d.f. = 3	$.75 > p > .50$

TABLE 31A*
(III-a-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND RANK ON "SKILLS UNIQUE TO THE JOB"

Rank (score) on "Skills Unique to the Job"	School Program	
	Vocationally-Oriented	General
7	24	8
6	29	9
5	30	11
4	29	10
	112	38

$X^2 = 0.107$ d.f. = 3 $.995 > p > .99$

*Also appears in Chapter IV as Table 32.

TABLE 32A
(III-a-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND RANK ON "OVERALL SATISFACTORINESS"

Rank (score) on "Overall Satisfactoriness"	School Program	
	Vocationally-Oriented	General
7	18	7
6	36	8
5	28	7
4	30	16
	112	38

$X^2 = 3.981$ d.f. = 3 $.50 > p > .25$

TABLE 33A
(III-a-5)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOBS TO TRAINING RECEIVED AND RANK ON "SKILLS UNIQUE TO THE JOB"

Rank (score) on "Skills Unique to the Job"	Vocationally-Oriented Graduates	
	Jobs Related to Training Received	Jobs Not Related to Training
7	12	12
6	15	14
5	12	18
4	13	16
	52	60
$X^2 = 0.978$	d.f. = 3	$.90 > p > .75$

TABLE 34A
(III-a-6)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOB TO TRAINING RECEIVED AND RANK ON "OVERALL SATISFACTORINESS"

Rank (score) on "Overall Satisfactoriness"	Vocationally-Oriented Graduates	
	Jobs Related to Training Received	Jobs Not Related to training
7	9	9
6	17	19
5	10	18
4	16	14
	52	60
$X^2 = 1.969$	d.f. = 3	$.75 > p > .50$

TABLE 35A*
(III-b-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN HIGH SCHOOL PROGRAM EMPHASIZED AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Entry-Job Rating	School Program	
	Vocationally-Oriented	General
Satisfactory	85	22
Unsatisfactory	27	15
	112	37
$X^2 = 2.943$	d.f. = 1	$.10 > p > .05$

*Also appears in Chapter IV as Table 33.

TABLE 36A
(III-b-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN VOCATIONALLY-ORIENTED GRADUATES CLASSIFIED BY RELATEDNESS OF JOB TO TRAINING RECEIVED AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Entry-Job Rating	Vocationally-Oriented Graduates	
	Jobs Related to Training Received	Jobs Not Related to Training
Satisfactory	39	46
Unsatisfactory	13	14
	52	60
$X^2 = 0.0003$	d.f. = 1	$p > .90$

TABLE 37A
(III-c-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "COMMUNICATIONS COMPETENCY" AND HIGH SCHOOL CLASS RANK

Class Rank (in "stens")	Rank (score) on "Communications Competency"			
	4	5	6	7
8	5	5	6	6
7	9	4	9	2
6	7	7	8	6
5	9	11	8	3
4	6	5	6	3
3	6	9	7	3
	42	41	44	23

$X^2 = 9.024$ d.f. = 15 $.90 > p > .75$

TABLE 38A
(III-c-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "PERSONAL ADEQUACY" AND HIGH SCHOOL CLASS RANK

Class Rank (in "stens")	Rank (score) on "Personal Adequacy"			
	4	5	6	7
8	4	5	10	3
7	9	4	7	4
6	9	2	11	6
5	13	5	8	5
4	7	3	8	2
3	6	3	9	7
	48	22	53	27

$X^2 = 9.883$ d.f. = 15 $.90 > p > .70$

TABLE 39A
(III-c-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "SKILLS UNIQUE TO THE JOB" AND HIGH SCHOOL CLASS RANK

Class Rank (in "stens")	Rank (score) on "Skills Unique to the Job"			
	4	5	6	7
8	4	6	5	7
7	7	6	7	4
6	7	8	5	8
5	9	9	8	5
4	3	5	9	3
3	9	7	4	5
	39	41	38	32

$X^2 = 10.351$ d.f. = 15 $.90 > p > .75$

TABLE 40A*
(III-c-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "OVERALL SATISFACTORINESS" AND HIGH SCHOOL CLASS RANK

Class Rank (in "stens")	Rank (score) on "Overall Satisfactoriness"			
	4	5	6	7
8	4	5	8	5
7	8	5	9	2
6	8	7	5	8
5	12	7	9	3
4	7	5	6	2
3	7	6	7	2
	46	35	44	25

$X^2 = 9.853$ d.f. = 15 $.90 > p > .75$

*Also appears in Chapter IV as Table 34.

TABLE 41A*
(III-c-5)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "COMMUNICATIONS COMPETENCY" AND HIGH SCHOOL GRADE AVERAGE IN ENGLISH COURSES

English Average (in "stens")	Rank (score) on "Communications Competency"			
	4	5	6	7
8	7	4	10	7
7	5	7	5	4
6	8	7	7	4
5	8	9	10	4
4	10	9	5	3
3	4	5	7	1
	42	41	44	23

$X^2 = 9.650$ d.f. = 15 $.90 > p > .75$

*Also appears in Chapter IV as Table 35

TABLE 42A
(III-c-6)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "PERSONAL ADEQUACY" AND HIGH SCHOOL GRADE AVERAGE IN ENGLISH COURSES

English Average (in "stens")	Rank (score) on "Personal Adequacy"			
	4	5	6	7
8	8	5	7	8
7	5	3	11	2
6	9	3	11	3
5	9	6	12	4
4	12	3	5	7
3	5	2	7	3
	48	22	53	27

$X^2 = 13.118$ d.f. = 15 $.75 > p > .50$

TABLE 43A
(III-c-7)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "SKILLS UNIQUE TO THE JOB" AND HIGH SCHOOL GRADE AVERAGE IN ENGLISH COURSES

English Average (in "stens")	Rank (score) on "Skills Unique to the Job"			
	4	5	6	7
8	6	7	5	10
7	6	5	4	6
6	5	9	7	5
5	8	9	11	3
4	11	8	3	5
3	3	3	8	3
	39	41	38	32

$X^2 = 17.796$ d.f. = 15 $.50 > p > .25$

TABLE 44A
(III-c-8)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "OVERALL SATISFACTORINESS" AND HIGH SCHOOL GRADE AVERAGE IN ENGLISH COURSES

English Average (in "stens")	Rank (score) on "Overall Satisfactoriness"			
	4	5	6	7
8	6	4	11	7
7	5	7	7	2
6	9	6	8	3
5	9	7	10	5
4	13	7	2	5
3	4	4	6	3
	46	35	44	25

$X^2 = 14.292$ d.f. = 15 $.75 > p > .50$

TABLE 45A
(III-c-9)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "COMMUNICATIONS COMPETENCY" AND HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Vocationally-Oriented Average (in "stens")	Rank (score) on "Communications Competency"			
	4	5	6	7
8	7	6	2	3
7	5	2	8	3
6	3	8	10	3
5	5	7	6	2
4	5	5	9	1
3	7	4	3	2
	32	32	38	14

$X^2 = 14.548$ d.f. = 15 $.50 > p > .25$

TABLE 46A
(III-c-10)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "PERSONAL ADEQUACY" AND HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Vocationally-Oriented Average (in "stens")	Rank (score) on "Personal Adequacy"			
	4	5	6	7
8	7	3	3	5
7	6	2	7	3
6	4	5	11	4
5	7	3	6	4
4	4	5	9	2
3	7	2	3	4
	35	20	39	22

$X^2 = 11.995$ d.f. = 15 $.75 > p > .50$

TABLE 47A*
(III-c-11)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "SKILLS UNIQUE TO THE JOB" AND HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Vocationally-Oriented Average (in "stens")	Rank (score) on "Skills Unique to the Job" 4	5	6	7
8	5	5	4	4
7	6	1	6	5
6	1	11	7	5
5	6	5	5	4
4	3	7	7	3
3	10	2	1	3
	31	31	30	24

$X^2 = 26.112$ d.f. = 15 $.05 > p > .025$

*Also appears in Chapter IV as Table 36.

TABLE 48A
(III-c-12)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "OVERALL SATISFACTORINESS" AND HIGH SCHOOL GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Vocationally-Oriented Average (in "stens")	Rank (score) on "Overall Satisfactoriness" 4	5	6	7
8	5	6	3	4
7	6	2	7	3
6	2	10	7	5
5	7	3	7	3
4	4	6	9	1
3	8	3	3	2
	32	30	36	18

$X^2 = 18.964$ d.f. = 15 $.25 > p > .10$

TABLE 49A
(III-c-13)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "COMMUNICATIONS COMPETENCY" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rank (score) on "Communications Competency" 4	5	6	7
8	4	7	11	2
7	8	4	5	2
6	11	4	7	9
5	2	10	11	4
4	6	7	9	2
3	11	9	1	4
	42	41	44	23

$X^2 = 29.443$ d.f. = 15 $.02 > p > .01$

TABLE 50A*
(III-c-14)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "PERSONAL ADEQUACY" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rank (score) on "Personal Adequacy" 4	5	6	7
8	6	2	14	2
7	10	1	3	5
6	8	4	11	8
5	5	6	11	5
4	6	7	7	4
3	13	2	7	3
	48	22	53	27

$X^2 = 25.472$ d.f. = 15 $.05 > p > .025$

*Also appears in Chapter IV as Table 37.

TABLE 51A
(III-c-15)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "SKILLS UNIQUE TO THE JOB" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rank (score) on "Skills Unique to the Job"			
	4	5	6	7
8	4	8	10	2
7	7	2	6	4
6	7	8	7	9
5	2	9	9	7
4	7	8	4	5
3	12	6	2	5
	39	41	38	32

$X^2 = 23.543$ d.f. = 15 $.10 > p > .05$

TABLE 52A*
(III-c-16)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RANK ON "OVERALL SATISFACTORINESS" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rank (score) on "Overall Satisfactoriness"			
	4	5	6	7
8	4	7	12	1
7	9	2	3	5
6	9	4	9	9
5	4	10	10	3
4	7	7	7	3
3	13	5	3	4
	46	35	44	25

$X^2 = 29.705$ d.f. = 15 $.02 > p > .01$

*Also appears in Chapter IV as Table 38.

TABLE 53A
(III-d-1)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RATING AS "SATISFACTORY" OR "UNSATISFACTORY" AND HIGH SCHOOL CLASS RANK

Class Rank (in "stens")	Rating	
	Satisfactory	Unsatisfactory
8	18	4
7	18	6
6	21	6
5	19	12
4	14	6
3	17	8
	107	42
$X^2 = 3.591$	d.f. = 5	$.75 > p > .50$

TABLE 54A
(III-d-2)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RATING AS "SATISFACTORY" OR "UNSATISFACTORY" AND HIGH SCHOOL AVERAGE IN ENGLISH COURSES

English Average (in "stens")	Rating	
	Satisfactory	Unsatisfactory
8	21	6
7	18	3
6	17	9
5	22	9
4	17	10
3	12	5
	107	42
$X^2 = 4.078$	d.f. = 5	$.75 > p > .50$

TABLE 55A
(III-d-3)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RATING AS "SATISFACTORY" OR "UNSATISFACTORY" AND HIGH SCHOOL AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Vocationally-Oriented Average (in "stens")	Rating	
	Satisfactory	Unsatisfactory
8	14	4
7	14	4
6	21	3
5	14	6
4	16	4
3	8	8
	87	29
$\chi^2 = 8.015$	d.f. = 5	$.25 > p > .10$

TABLE 56A*
(III-d-4)

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN EMPLOYER'S RATING AS "SATISFACTORY" OR "UNSATISFACTORY" AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Rating	
	Satisfactory	Unsatisfactory
8	20	3
7	12	7
6	23	8
5	23	4
4	15	9
3	14	11
	107	42
$\chi^2 = 9.897$	d.f. = 5	$.10 > p > .05$

*Also appears in Chapter IV as Table 39.

TABLE 57A*

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND POSITION OF PERSON WHO DOES THE HIRING

Position of Person Who Does Hiring	Selection Procedures	
	Careful	Careless
Personnel Director	21	15
Owner	8	18
Someone with Divided Duties	19	10
	48	43
$X^2 = 7.387$	d.f. = 2	$.05 > p > .025$

*Also appears in Chapter IV as Table 40.

TABLE 58A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY AND CARELESSLY SELECTED WORKERS AND SCHOOL ATTENDED

School Attended	Selection Procedure	
	Careful	Careless
Urban Vocational	15	10
Urban Comprehensive	15	19
Suburban Comprehensive	18	14
	48	43
$X^2 = 1.701$	d.f. = 2	$.50 > p > .25$

TABLE 59A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY AND CARELESSLY SELECTED WORKERS AND GENERAL OR VOCATIONALLY-ORIENTED PROGRAM

Program Taken in High School	Selection Procedure	
	Careful	Careless
General	14	11
Vocationally-Oriented	34	32
	48	43
$X^2 = .022$	d.f. = 1	$.90 > p > .75$

TABLE 60A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIP BETWEEN CAREFULLY AND CARELESSLY SELECTED WORKERS AND GRADE AVERAGE IN REQUIRED ENGLISH COURSES

English Grades (in "stens")	Selection Procedure	
	Careful	Careless
8	13	9
7	7	3
6	8	6
5	9	12
4	6	9
3	5	4
	48	43
$X^2 = 3.489$	d.f. = 5	$.75 > p > .50$

TABLE 61A*

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND GRADE AVERAGE IN VOCATIONALLY-ORIENTED COURSES

Voc-Oriented Grades (in "stens")	Selection Procedure	
	Careful	Careless
8	13	2
7	2	4
6	7	9
5	4	5
4	6	8
3	3	5
	35	33
$X^2 = 9.830$	d.f. = 5	$.10 > p > .05$

*Also appears in Chapter IV as Table 41.

TABLE 62A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND HIGH SCHOOL ATTENDANCE RECORD

Attendance Record (in "stens")	Selection Procedure	
	Careful	Careless
8	8	7
7	5	8
6	11	13
5	9	6
4	6	6
3	9	3
	48	43
$X^2 = 4.264$	d.f. = 5	$.75 > p > .50$

TABLE 63A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND RANK ON "OVERALL SATISFACTORINESS"

Rank (score) on "Overall Satisfactoriness"	Selection Procedure	
	Careful	Careless
7	7	9
6	14	13
5	12	9
4	15	12
	48	43
$X^2 = 0.777$	d.f. = 3	$.90 > p > .75$

TABLE 64A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND RATING AS "SATISFACTORY" OR "UNSATISFACTORY"

Employer's Rating	Selection Procedure	
	Careful	Careless
Satisfactory	33	31
Unsatisfactory	14	12
	47	43
$X^2 = 0.001$	d.f. = 1	$p < .90$

TABLE 65A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND JOB CONTENT PRIORITY SEQUENCE

Job Content Priority Sequence	Selection Procedure	
	Careful	Careless
C	17	10
Pc	17	15
Ps	9	15
S	5	3
	48	43
$X^2 = 3.676$	d.f. = 3	$.50 > p > .25$

TABLE 66A*

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND DEMANDINGNESS OF JOBS

Demandingness of Job	Selection Procedure	
	Careful	Careless
3 (more)	18	8
2	20	17
1 (less)	10	18
	48	43
$X^2 = 6.119$	d.f. = 2	$.05 > p > .02$

*Also appears in Chapter IV as Table 42.

TABLE 67A*

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CAREFULLY OR CARELESSLY SELECTED WORKERS AND JOBS CLASSIFIED INTO TEN CATEGORIES

Job Categories	Selection Procedure	
	Careful	Careless
Skilled white collar	7	1
Skilled blue collar	5	1
Sales clerk or attendant	3	3
Stock or shipping clerk	14	12
Driving, delivery	2	3
Machine operator	2	5
Assembly, fabrication	5	4
Janitorial	7	2
Food service, public accommodation	1	6
Miscellaneous physical labor	2	6
	48	43

$X^2 = 17.043$ d.f. = 9 $.05 > p > .02$

*Also appears in Chapter IV as Table 43.

TABLE 68A*

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND INTELLIGENCE QUOTIENT

I.Q. (in "stens")	Co-Workers	Principal Subjects
8	33	24
7	9	20
6	9	28
5	13	27
4	11	21
3	14	21
	89	141

$X^2 = 13.692$ d.f. = 5 $.02 > p > .01$

*Also appears in Chapter IV as Table 46.

TABLE 69A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND HIGH SCHOOL ATTENDANCE RECORD

Attendance (in "stens")	Co-Workers	Principal Subjects
8	21	24
7	12	19
6	13	31
5	10	27
4	22	24
3	11	25
	89	150
$X^2 = 7.408$	d.f. = 5	$.25 > p > .10$

TABLE 70A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND THE DAT VERBAL SCALE

DAT Verbal (in "stens")	Co-Workers	Principal Subjects
8	24	29
7	7	16
6	16	25
5	11	27
4	10	20
3	9	20
	77	137
$X^2 = 3.669$	d.f. = 5	$.75 > p > .50$

TABLE 71A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND THE DAT NUMERICAL SCALE

DAT Numerical (in "stens")	Co-Workers	Principal Subjects
8	23	22
7	16	21
6	10	26
5	6	22
4	10	27
3	13	19
	78	137
$X^2 = 10.414$	d.f. = 5	$.10 > p > .05$

TABLE 72A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND THE DAT ABSTRACT SCALE

DAT Abstract (in "stens")	Co-Workers	Principal Subjects
8	20	31
7	11	15
6	16	22
5	9	28
4	16	17
3	6	24
	78	137
$X^2 = 8.998$	d.f. = 5	$.25 > p > .10$

TABLE 73A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND THE DAT SPACE SCALE

DAT Space (in "stens")	Co-Workers	Principal Subjects
8	9	18
7	16	20
6	8	31
5	18	26
4	8	23
3	17	19
	76	137
$X^2 = 10.083$	d.f. = 5	$.10 > p > .05$

TABLE 74A

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND THE DAT MECHANICAL SCALE

DAT Mechanical (in "stens")	Co-Workers	Principal Subjects
8	15	24
7	12	21
6	6	25
5	16	27
4	12	22
3	14	18
	75	137
$X^2 = 4.842$	d.f. = 5	$.50 > p > .25$

TABLE 75A*

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND RANK ON "OVERALL SATISFACTORINESS"

Rank (score) in work group	Co-Worker	Principal Subjects
8	5	2
7	19	23
66	34	44
5	16	35
4	10	41
3	2	5
	86	150
$X^2 = 13.811$	d.f. = 5	$.02 > p > .01$

*Also appears in Chapter IV as Table 45.

TABLE 76A*

OBSERVED FREQUENCIES USED IN TESTING THE RELATIONSHIPS BETWEEN CO-WORKERS AND PRINCIPAL SUBJECTS AND RATING AS "SATISFACTORY OR "UNSATISFACTORY"

Job Success Rating	Co-Workers	Principal Subjects
Satisfactory	81	107
Unsatisfactory	4	42
	85	149
$X^2 = 18.896$	d.f. = 1	$p < .001$

*Also appears in Chapter IV as Table 44.

HIGH SCHOOL: SUBJECT'S NAME: _____

UV___; UC___; SC___. Home Telephone: _____

FORM I: INTERVIEW BETWEEN COUNSELOR AND GRADUATE

Note to Counselor: Start interview by referring, as may be the case, to either a prior follow-up done by the school or to a recent phone call to the home. Establish purpose by saying, "We are trying to keep up with changes here at school on how to advise new seniors on getting jobs and also to change some courses so they will learn more things in school to help them do well on their jobs. So we are calling all boys from the 1963 class who are working or have been working this past year, to get your opinions on a few points."

---

1. "Are you working now?" ---------- ___Yes (THEN ASK QUESTIONS A THRU F)
___No (IF NO, SKIP TO ITEM 2,B)

A) "Where do you work, what company?" _____

B) "Where is that located?" (APPROXIMATE) _____

C) "What do you do, what do they call your job?" _____

D) "When did you start there, what month?" _____

E) "Is this a full time, 40 hour a week job?"---------- ___Yes ___No

F) "Could this be a permanent job if you wanted it to be?"___Yes ___No

---

2. A) (ASK ONLY IF HE STARTED HIS PRESENT JOB SINCE LAST SEPTEMBER--1963):
"Did you have a full time job before the one you have now?" ___Yes ___No
(IF YES, SKIP TO 2,C BELOW. IF NO, STOP AND USE #1, ABOVE)

B) (ASK ONLY IF HE IS NOT WORKING AT THE TIME OF THIS INTERVIEW):
"Did you have a full time job at all since your graduation?"___Yes ___No
(IF YES, THEN CONTINUE. IF NO, THEN CONCLUDE INTERVIEW.)

C) "Where did you work,what company?" _____

D) "Where is that located?" (APPROXIMATE) _____

E) "What did you do, what did they call your job?" _____

F) "When did you start there, what month?" _____

G) "Was this a full time, 40 hour a week job?" ---------- ___Yes ___No

H) "Could this have been a permanent job if you had wished?"-- ___Yes ___No

---

3. (IF CASE 2,F--ABOVE--SHOWS THERE WAS TIME TO HAVE HAD STILL ANOTHER JOB, LASTING THREE OR MORE MONTHS, THEN TURN TO BOTTOM OF LAST PAGE WHERE A SPACE IS PROVIDED FOR THIS.)

FORM I: Interview between Counselor and Graduate (cont.)

---

4. A) "Well, let's talk about your job with _____." (THE ONE SELECTED) "What would you say was the one most important skill you need(ed) on this job?--probably the thing you do that would matter most if you didn't do it right."

   B) "Was your high school education important in helping you do this?__Yes__N
   (IF YES) "How do you feel you have been helped?" (COULD BE COURSES, GUIDANCE, ACTIVITIES)

---

5. A) "Next, what would you say is (was) the one most difficult thing you do (d on this job?--probably the skill or operation that was hardest to learn when you first started."

   B) "Was your education important in helping you on this? ___Yes__N
   (IF YES) "How do you feel it was helpful?"

---

6. A) "What part of this job or what thing do (did) you do that takes up (took up) the most time? -- at least on most days?"

   B) "Was your education important in helping you on this part? ___Yes__N
   (IF YES) "How do you feel it was helpful?"

---

7. A) "Do (did) you have to read and write quite a bit on this job?" ___Yes__N
   (IF YES) "In what ways?"

   B) (IF YES FOR A) "Was your high school education helpful for this, or do you feel your grade school education was enough?" _____

   C) (IF HIGH SCHOOL WAS HELPFUL) "In what ways was high school helpful?"

---

8. A) "Do (did) you have to use math or arithmetic on this job?" ___Yes__N
   (IF YES) "In what ways do you use it? (MONEY, MEASUREMENTS, ETC.)

   B) (IF YES FOR A) "Was your high school education helpful for this, or do you feel your grade school education was enough?" _____

   C) (IF HIGH SCHOOL WAS HELPFUL) "In what ways was high school helpful?"

---

9. A) "Do (did) you have to talk to people quite a bit as part of your work?" ___Yes__No
   (DON'T ASK IF OBVICUS. AS IN CASE OF STORE CLERK OR CARRY OUT BOY)

FORM I: Interview between Counselor and Graduate (cont.)

---

9. (cont.)
   B) "In what ways is (was) it important to talk to people on this job?

---

10. "Now, how did you happen to get this job?" Did you know somebody who helped you?" (AS HE TELLS ABOUT THIS, CHECK POINTS BELOW. NAME POSSIBILITIES IF NECESSARY.)

    ___ Newspaper ad;
    ___ Employment service;
    ___ Relative or friend was helpful--How?_____
    ___ Someone from school was helpful--Who?_____
    ___ Other method. What?_____

---

11. "When they hired you, did they say why they chose you instead of someone else?" ___ Yes ___No
    (IF YES) "What reason did they give?"

---

12. "Did they say you had to have a certain kind of training, or have certain courses in high school to be hired for this job?" ___ Yes ___No
    (IF YES) "What training or what courses?"

---

13. A) "Were they looking for someone with experience working on a job something like this?" ---------- ___ Yes ___No

    B) "Did you have any work experience doing something like this before, either part time or full time? ---------- ___ Yes ___No

    C) (IF YES IN B) "What jobs have you had before the job we've been talking about?--including part time or summers while still in high school?"
    (EXCEPT THOSE LISTED ON PAGE 1 OR 3) Full time:_____ (NAME JOB) How long?____
    Part time:_____ How long?____

---

14. "When you first started this job, how did they help you learn what to do?" (DISCUSS BRIEFLY UNTIL IT IS CLEAR WHICH ITEM BELOW COMES CLOSEST TO THE SITUATION. YOU MAY NEED TO CHECK TWO ITEMS. ALSO ASK UNDERLINED QUESTIONS IF THEY APPLY.)

    ___A) Very little on-the-job training. (SOMEONE JUST TOLD HIM WHAT TO DO AND HE DID IT.)

    ___B) Assigned to a **senior** co-worker. (THIS MAY BE A FORMAL APPRENTICESHIP OR JUST "BUDDY" CO-WORKER. STATE WHICH TYPE.) _____

501 to 96

---

14. (cont.)
C) Informal training program. (A FEW MATERIALS TO READ, PERHAPS A FEW LECTURES OR DEMONSTRATIONS. ASK, BELOW, ABOUT TIME AWAY FROM DUTY.)

"How many hours in all did you do this on company time?" (APPROX. HOURS.)_____

D) Formal on-the-job training program, with a schedule of training sessions on company time. (ASK) "How much time was spent at this a week?" _____ "For how many weeks?"_____

---

15. "If we were to send a senior down there next May or June, someone who wanted a job like the one we have been talking about, whom would he ask to see?" _____
name or title

A) (IF NAME OR TITLE GIVEN, ASK): "Is this the same person who interviewed and hired you? ___Yes (Go to B) ___No (SKIP TO C)

B) (IF YES in A, ABOVE): "Is he your boss?"------ ___Yes ___No

C) (IF NO IN A, ABOVE): "Then who did hire you?"_____
name and/or title

D) (RE PERSON IN C): "Is he your boss?"---------- ___Yes ___No

E) (IF ANSWER ABOVE IS NO): "Who is your boss, then?"_____
name and/or title

---

16. (ASK EVERYONE THIS NEXT QUESTION IMMEDIATELY AFTER GETTING THE NAME OR TITLE OF THE BOY'S BOSS IN B, D, OR E, ABOVE IN #15. WE DON'T WANT HIM TO THINK WE ARE UNUSUALLY INTERESTED IN HIS BOSS, NOR DO WE WANT HIM TO SAY ANYTHING MORE ABOUT HIS BOSS.)

A) "About how many people work for your boss?"----------_____

B) "How many of these do just about the same kind of work that you do?"_____

C) "Are these mostly young fellows like yourself?"_____

---

17. (CONCLUDE INTERVIEW. SAY SOMETHING LIKE THIS):
"Well (BOY'S NAME), that ought to be enough information so we can study your job along with the others. We will end up knowing what kind of work all of you do, and we will know what you and the others feel about your schooling."

17. (cont.)
"Later we are going to ask your employers to fill out a form where they will also tell us what they think the school is doing right and what the school could do better. We won't connect your name with it except that you will be one of the graduates of the high schools they will have in mind when they answer our questions. We won't mention that we have talked with you."

"Thanks very much for your help."

END OF INTERVIEW - POINT BELOW IS FOR OVERFLOW FROM PAGE ONE

(3) (FROM PAGE ONE--IN CASE SOMEONE HAS HAD MORE THAN TWO JOBS)

A) "Where did you work, what company?" _____
B) "Where is that located?" (APPROXIMATE) _____
C) "What did you do there, what do they call your job?" _____
_____
D) "When did you start there, what month?" _____
"When did you stop?" _____
E) "Was this a full time, 40 hour a week job? ___Yes ___No
F) "Could this have been a permanent job if you had wished? ___Yes
___No

HIGH SCHOOL:
UV___; UC___; SC___.

SUBJECT'S NAME_____

FORM II: DATA FROM SCHOOL RECORDS

___1. Days absent plus days tardy in grades 10 through 12.

___2. Intelligence quotient on group-administered test in grades 6-9.

___3.	(a) DAT - Verbal scale	(	)
___	(b) " - Numerical scale	(Percentile ranks	)
___	(c) " - Abstract scale	(based on	)
___	(d) " - Space scale	(national norms	)
___	(e) " - Mechanical	(	)

___4. Class rank in grade 12 (Percentile rank based on composite marks in grades 10-12)

___5. English grade average (Based on 6 semesters of required English)

___6. Grade average of vocationally-oriented courses (based on up to ten most recent semesters in courses with "vocational intent")

Vocationally-oriented courses taken in grades 10-12

Grade 10	Grade 11	Grade 12

QUESTION: Could this graduate (of UC or SC) compete on a fairly equal basis on a job related to all or part of the above vocationally-oriented training with an otherwise identical boy who had training at the vocational high school?

CHECK ONE: ___Yes; ___No; ___Yes, if some on-the-job training were provide

EDUCATIONAL RESEARCH and DEVELOPMENT COUNCIL
of the Twin Cities Metropolitan Area

COLLEGE OF EDUCATION · UNIVERSITY OF MINNESOTA · MINNEAPOLIS, MINNESOTA

(FORM III, Part A)

(The inside address and salutation were typed personally to each employer. The body of the letter was individually typed by automatic typewriter.)

We were given your name in a telephone inquiry as the person to contact for obtaining authorization to interview one or two employees of your company.

What we seek, specifically, is a few minutes of time for a brief interview with you or with a person you designate, plus another brief interview with a supervisor in your organization (this may be the same person, or yourself, if you would indicate this). A research project endorsed by our Council is being conducted by Howard E. Bergstrom, who is a school administrator engaged in conducting this study. Mr. Bergstrom will be contacting you in a few days by telephone, and will arrange with you a convenient time for these interviews.

The enclosed page describes the purpose and the method of the study. In short, we want to gain from both employers and young workers some information which will help improve vocational training and vocational counseling in high schools. We are confident that you will want to work with us toward this goal.

You will note from the letterhead that this study is endorsed by the Minneapolis Public Schools and the St. Paul Public Schools, as well as by the suburban districts listed on this page. Findings of this study, along with other studies being conducted, will be made known to school officials and will be helpful to them in improving the education of young workers you employ in the future.

Mr. Bergstrom will answer any questions you may have when he telephones your office.

Sincerely yours,

Donald E. Davis
Executive Secretary

DED:paw
enclosures

FORM III, Part B

MEMORANDUM ACCOMPANYING THE LETTER TO EMPLOYERS

EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL
OF THE TWIN CITIES METROPOLITAN AREA

TO: Employers selected for interviews in the study of entry-level jobs

FROM: Howard E. Bergstrom, Director of the study

SUBJECT: Questions that employers will probably want answered with the answers

What is the purpose of the study?

The schools want to get the opinions of both a sample of young male workers and their supervisors as to what schools might do better in the future to prepare young workers to succeed on their jobs. This information may be used to recommend changes in training program and in the vocational guidance provided in high schools.

Just who is being studied?

We are interested in getting information about young male workers (ages 18, 19, or 20, approximately), who graduated from or at least attended a high school in the Twin Cities area. (We will not study all of these intensively, of course, but statistical sampling methods will be used to identify representative groupings after the total group is identified.) We are, at th time, studying only those who go to work directly after high school, who do n take any additional training.

How did you (the employer) get selected as one of the employers who would be involved in this study?

We started with the lists of graduates from the high schools, and took a sampling of them. Then we contacted these graduates to find out where they work. You are, or have been in recent years, the employer of at least a few of these graduates. In this way we have obtained a sample of employers who actually employ boys directly out of high school. Of course, some employ many and others employ very few.

Just who is to be interviewed?

First, we will telephone your office to find out whom we should dea with in the next step. We will first want to talk with someone who has the names of past or present workers who fit the job description(s) listed for you company. Next, we will wish to talk with the person who is the supervisor of the group of young men who work under this specific job description. This should be the person of highest authority who still knows the workers quite well as individuals.

FORM III, Part B (cont.)

What questions will be asked in the interview?

In the first interview mentioned above (in some places of employment the same person may supply both interviews) the job description will be confirmed or corrected. Then, the qualifications for hiring and the metho of breaking in new workers will be asked about. Third, the names of past and present workers will be listed. In the second interview, with the supervisor of the workers, the workers will be discussed on four points. In both interviews, suggestions to the schools for making improvements will be encouraged and recorded.

Who will see the information given in the interviews?

The director of the study will be the only person who will ever see the information in a form where names of workers or employers are identifiabl He is pledged to transcribe it into summary form for analysis on a computer, so that what emerges for wider distribution will not identify either workers or employers.

FORM IV: INTERVIEW WITH EMPLOYER

Part A--Background Information, plus "Demandingness"[1]

---

1. BASIC DATA Date_____

Company_____ (1)

Address_____ (2)

Personnel Director_____ (3)

Job Boss_____ (4)

Total Employed by Company_____ (5)

Number in this job def._____ (6)

Number working for this boss in this job_____ (7)

Number of above 1 to 3 years out of high school_____ (8)

---

2. DESCRIPTION OF THE JOB IN QUESTION

What operation takes up the most time?_____ (1)

What part of this job is most important--that is, makes the most difference when it is done wrong?_____ (2)

What part of this job seems to be the hardest for beginners to learn (anything from getting to work on time to some complex task)?_____ (3)

---

3. RECRUITMENT FOR THE JOB

IN HIRING THE YOUNG WORKERS INDICATED IN #8 IN PART A, WHICH OF THE FOLLOWING WAS THE METHOD USED IN MOST CASES?

An employment agency sent applicants._____ (1)

We ran ads in the newspapers._____ (2)

---

[1]The interviewer filled out the blanks, while he and the employer each had a copy to aid their discussion.

3. (cont.)

We asked the high school office or certain teachers to suggest some. _____ (3)

Our own employees encouraged friends or relatives to come in and apply. _____ (4)

Other method (name it) _____ (5)

4. CRITERIA IN SELECTION

Please number the items below according to which is the most important, which is second most important, etc., in choosing the young workers indicated in #8 or Part A.

Had completed certain vocational courses in school that we want for this job. _____ (1)

Got high scores in the rest of tests which we give candidates for this job. _____ (2)

He made a good impression in the interview (made us think he could do it). _____ (3)

We contacted his high school and they gave him a good recommendation. _____ (4)

He had some prior experience at this. _____ (5)

5. ON-THE-TRAINING FOR THIS JOB

WHICH ONE OF THE FOLLOWING STATEMENTS COMES CLOSEST TO THE WAY THAT YOUNG WORKERS WITHOUT EXPERIENCE ARE GIVEN ON-THE-JOB TRAINING FOR THIS PARTICULAR JOB?

We tell him what to do, put him to work, watch him, and correct him where wrong. ("line" supervision) _____ (1)

We assign him to one of the experienced men, to work as a sort of assistant for awhile. (How long? _____ weeks) _____ (2)

5. (contd.)

We have a regular, standard way of breaking in new men--they take material home to read, they see demonstrations, etc., but very little company time is spent on this._____ (3)

We have regular, formal on-the-job training, and _____ hours of company time a week, for _____ weeks, is allowed. _____ (4)

6. SKILL AND OTHER REQUIREMENTS

CHOOSE ONE OF THE FOUR ITEMS BELOW FOR THIS PARTICULAR JOB, ACCORDING TO WHICH COMES THE CLOSEST TO DEFINING IT CORRECTLY (add oral illustration).

This is a tough job to fill for a boy just out of high school--he not only has to have high skills of specific kinds but he has to be dependable and quick to learn._____ ( )

The boy doesn't have to have much special training other than a high school education, but he has to be dependable and quick to learn._____ ( )

Most high school graduates can learn to handle this job if they are honest and willing, but it does take quite awhile to learn the operations if they haven't learned them in school._____ ( )

Almost any boy can handle this job if he is honest and willing, and he can pick up all of the essential operations in a few days._____ ( )

FORM IV: INTERVIEW WITH EMPLOYERS

Part B--Criteria Cards and Name Slips for Ranking

Card 1

C C

COMMUNICATIONS COMPETENCY

Reading instructions and following them;

Writing records, receipts, reports, etc.;

Following instructions given orally;

Talking with customers or co-workers as a necessary part of the job;

Recording and using numbers (here considered to be a part of language or communications) as in making change, taking measurements, etc.

Card 2

P P

PERSONAL ADEQUACY

Gets to work on time, hardly ever absent;

Works to the best of his ability;

Honest, and is loyal to his employer;

Gets along well with other workers;

Personal qualities needed for the particular job.

Card 3

S S

SKILLS UNIQUE TO THE JOB

Things everyone has to know how to do to hold this job;

Operations or skills the worker has to learn either in school (vocational training) or otherwise time has to be spent to teach him on the job.

Card 4

T T

OVERALL SATISFACTORINESS

All factors combined, including some points not included on the other three cards;

Also, indicate where dividing point is between those you would willingly re-hire and the others (oral illustration).

FORM IV, Part B - Criteria Cards and Name Slips (contd.)

Name Slip[1]

Name _____

Job _____

Eval. as of (date) _____

Started _____ Left _____

to go to _____

High School _____ Year _____

No. in wk. gp. _____

Job-content factors

			T	S
				U

---

[1]A name slip was made out for each member of the group to be ranked. (Some were eliminated as more information disqualified them.) The letters C, P, and S were written in the top squares as the employer indicated the order of their importance. Then the ranks were written in the bottom squares as they were made, ending in "T" (for "Total", or "Overall"), and the "S" or "U" was checked.

VT 000 470

VT 000 470

Guide for Developing the Instructional Program for Vocational Agriculture in Virginia. (Agricultural Education Bulletin, no. 19).

Virginia Polytechnic Inst, Blacksburg. Dep of Vocat Educ.

Virginia State Dep of Educ, Richmond. Vocat Agr Service

63

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*PROGRAM DEVELOPMENT, *VOCATIONAL AGRICULTURE, *EDUCATIONAL OBJECTIVES, INSTRUCTIONAL PROGRAMS, PROGRAM GUIDES, CURRICULUM DEVELOPMENT,

The guide includes objectives for the vocational agriculture program in Virginia based on a rationale of student needs in communities with changing demands. Suggestions for planning and building the instructional program are given. Basic instructional units are outlined for Vocational Agriculture I, II, III, IV, and an advanced course. These units include animal science, plant science, farm family living, supervised farming, farm mechanization, leadership training, and farm management. (JM)

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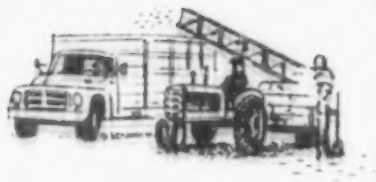
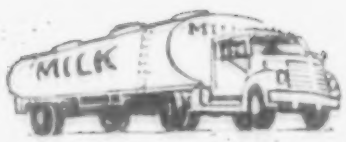
GUIDE



for DEVELOPING THE INSTRUCTIONAL PROGRAM

for VOCATIONAL AGRICULTURE IN VIRGINIA



1963

Department of
Vocational Education
Virginia Polytechnic Institute
Blacksburg, Virginia
and
Vocational Agriculture Service
State Department of Education
Richmond 16, Virginia

VT000470

AGRICULTURAL EDUCATION BULLETIN No. 19

GUIDE

For

DEVELOPING THE INSTRUCTIONAL PROGRAM

For

VOCATIONAL AGRICULTURE

In

VIRGINIA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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AGRICULTURAL EDUCATION BULLETIN NO. 19

1963

Prepared by
Virginia Teachers of Vocational Agriculture
and the
Agricultural Education Staffs
of the
Department of Vocational Education, V. P. I.
Blacksburg, Virginia
and
State Department of Education
Richmond, Virginia

FOREWORD

Vocational Agriculture has been a part of Virginia's public school system for forty-five years. From a small beginning in 1917, it has grown to occupy an important place in the curricula of most high schools serving rural areas. In addition to providing organized instruction for young men and adults already engaged in farming, it has provided a much-needed training program for high school boys planning careers in all phases of agriculture.

As Virginia seeks to maintain a balance between industry and agriculture it is important that appropriate training for careers in agriculture be provided at the high school level. In attempting to provide the best possible instruction for students enrolled in vocational agriculture classes, this guide has been prepared for use in developing the instructional program by years. Special emphasis is given to certain basic units of instruction which will provide understandings essential to success in all fields of the industry of agriculture. This emphasis should help teachers to give breadth, depth and increasing significance to their instruction in the agricultural sciences.

This publication has been prepared jointly by the agricultural education staffs of the State Department of Education and Virginia Polytechnic Institute with the able assistance of many teachers of vocational agriculture. Special credit is given Dr. E. G. Thompson and the staff in agricultural education at V.P.I. for editing the final copy. It is intended to serve teachers, school administrators, and others as a guide for developing instructional programs in vocational agriculture and guidance counselors for counseling students about vocational agriculture.

This guide should be used in conjunction with V.P.I. Agricultural Education Bulletin No. 17, "Teaching Units for Vocational Agriculture in Virginia," revised 1962.

RUFUS W. BEAMER, *Head*
Department of Vocational Education, VPI

WOODROW W. WILKERSON
Superintendent of Public Instruction

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INTRODUCTION

Daniel Webster said, "Unstable is the future of the country which has lost its taste for agriculture. If there is one lesson in history which is unmistakable, it is that the national strength lies very near the soil." Agriculture is the basic industry in Virginia and the United States. Other industries cannot survive without the raw materials of agriculture. Our national security would be endangered if we were to neglect the education of our people in agriculture. With the rapid growth of our population, the importance of agriculture will certainly increase in the future. Education in agriculture is also important in terms of cultural changes and national stability.

Within the past few years the concept of the industry of agriculture has changed to include the businesses that process, market and distribute agricultural products and the businesses that supply and service agriculture, as well as the business of farming or the production of agricultural products. The number of people engaged in the business of farming is declining but the need for adequately trained people in other agricultural businesses is increasing.

Vocational agriculture is an integral part of the total school program. The course is based upon the needs, interests and capabilities of the individuals in the community to be served. These individuals consist of high school students enrolled in vocational agriculture courses and out-of-school youths and adults who are interested in the industry of agriculture. One of the objectives of vocational agriculture has been, and still is, training for proficiency in farming, but changing demands and scientific developments have created a need for increased emphasis on training individuals for employment in the total industry of agriculture.

Those who teach must have a good insight into the way of life of those they teach. Current trends indicate that our way of life is constantly changing. These changes have many implications for vocational agriculture. The following are among the more obvious implications:

1. The job of preparing individuals to engage in farming is of major importance. It is a more complicated and difficult job than ever before. Although there is a smaller percentage of the people engaged in farming, the quality of their products and their efficiency of production must be greatly improved.

2. The influence of developments brought about by science and technology necessitates greater emphasis in the fields of farm manage-

ment and farm mechanics. More attention should be given to teaching basic principles upon which sound management decisions are based.

3. The family farm is the pattern on most of the farms in Virginia. Vocational agriculture should continue to contribute to the development of the farm family unit.

4. In many communities the vocational agriculture program needs to give more attention to the educational needs of people who work at two jobs—farming and in other employment.

5. Rural people need a basic background in the science of agriculture that will serve them well in any agricultural business in which they might work at some future time. Vocational agriculture can increase its contribution to both agriculture and other industries by preparing more individuals for opportunities in the total industry of agriculture.

6. Vocational agriculture provides valuable training for students who plan to attend college. Youths must be given the opportunity to explore and discover their interests and abilities. For many of them their only experience with actual farming before they reach the age of eighteen will be through their supervised practice programs.

7. Vocational agriculture offers an opportunity for making the life sciences and other courses more meaningful to many students. Biology, Chemistry, Physics, Mathematics, Economics, English, and other subjects can be so related to the supervised practice programs and problems in agriculture that the student sees their meanings in true-to-life situations.

8. Farming is so dynamic that much of the vocational training in agriculture must be done through young farmer and adult farmer classes, as well as for high school students, and through individual on-farm instruction for all three groups.

9. Many high school students need to learn through school, home and community experiences, the basic skills and understandings pertaining to agriculture.

10. The purposes of the Future Farmers of America and New Farmers of America organizations are well suited to the needs of the vocational agriculture student regardless of his occupational choice.

11. The need for capable leadership in agriculture is eminent. Therefore, vocational agriculture teachers and others should provide guidance and counseling in order that students may realize their fullest potential in the industry of agriculture.

THE PURPOSES OF VOCATIONAL AGRICULTURE

Training for useful employment and proficiency in agriculture has long been a major purpose of vocational agriculture. In harmony with the cardinal principles in education, vocational agriculture contributes to the total development of the individual in preparing him for a useful life.

In keeping with current trends in agriculture, vocational agriculture has the following major purposes and objectives:

1. To train high school students for proficiency and establishment in agriculture.
2. To train young and adult farmers for proficiency in farming.
3. To provide a sound background for the successful analysis and management of a farm business.
4. To provide a sound education in agriculture for students who may seek employment in agricultural business occupations or those who are preparing for a professional career in agriculture.
5. To develop worthy use of leisure time, and the desired cultural practices in family living and community responsibility.

WHO SHOULD ENROLL IN VOCATIONAL AGRICULTURE

1. High school students who:
   a. Plan to farm.
   b. Plan to work in the industry of agriculture.
   c. Plan to study agriculture in college to prepare for a professional career in agriculture.
   d. Want the leadership and self-discovery provided through vocational agriculture and who can participate in a satisfactory supervised practice program, including placement for satisfactory farm work experiences or agricultural work experiences.
2. Those who live on a farm and engage in part-time farming.
3. Young farmers who are becoming established in farming.
4. Adults who are farming full or part-time and others who can benefit from instruction in vocational agriculture.
5. Those who may inherit, purchase, or plan to own a farm in the future.

SUGGESTIONS FOR PLANNING AND BUILDING THE INSTRUCTIONAL PROGRAM FOR VOCATIONAL AGRICULTURE

The instructional program for vocational agriculture should be determined locally by the teacher with the assistance that he may get from such sources as the advisory council, farmers, students, parents, faculty, teacher trainers, supervisors, and other professional agricultural workers. The program must be based on the needs of the students, the existing agricultural situation and the trends in agriculture.

The program in vocational agriculture should coordinate mathematics, the life sciences, and the physical sciences in practical experiences carried out on the farm which provides understanding and educational experiences resulting in an improved education for the student.

The suggestions made here are for the purpose of guiding the teacher in preparing his instructional program.

Three bases for determining the curriculum are suggested:

1. The supervised practice programs of students. The first obligation of the teacher is to provide adequate instruction for the successful operation of the individual student's supervised practice program. Each student must carry out a well-planned supervised practice program while he is enrolled in vocational agriculture.

2. Existing situation and trends in agriculture. The second basis is the indication of change supported by improved practices in the production, processing, distribution, and marketing of agricultural products.

3. Selected areas of development for each year. This third basis for curriculum construction may provide emphasis as follows:

First Year: *Getting Started in an Agricultural Business*

This course should provide the experiences necessary to start the student in an agricultural business and should introduce the student to the application of science to agriculture. Experiences must be provided through a well-planned supervised practice program. This course should include a survey of agriculture on the local, state, and national level and a rather detailed coverage of certain basic units in animal science, plant science, farm mechanics, farm family living, and leadership training. In addition to basic units and enterprise jobs there will be selected jobs included in the curriculum for individual instruction in and out of the classroom.

Second Year: *Becoming Established in an Agricultural Business*

The major emphasis in this course should be the revising and expanding of the supervised practice program, with increased emphasis on the production of crops and livestock, and experiences in home and farm mechanics. Basic units will continue to be an integral part of this course, as the student becomes established in an agricultural business. In addition to basic units and enterprise jobs there will be selected jobs included in the curriculum for individual instruction in and out of the classroom.

Third Year: *Developing the Agricultural Business*

The third-year program will include an increased emphasis in the development and expansion of the student's supervised practice program. The major emphasis will be placed on keeping and using records. Students in the third year of vocational agriculture should have well-developed plans for an agricultural business. The basic units and enterprise jobs will serve as the means to further develop the student's agricultural business.

The farm mechanics program will provide the student with the needed experiences in the selection, operation, and maintenance of power machines and equipment, building construction, and the further development of farm mechanics skills. In addition to basic units and enterprise jobs there will be selected jobs included in the curriculum for individual instruction in and out of the classroom.

Fourth Year: *Scientific Management of the Agricultural Business*

In this course the student will analyze and use records and apply basic principles to increase the efficiency of his agricultural business. Instruction will be given in additional basic units in farm management with major emphasis on increased scope and responsibilities in his supervised practice program. Other opportunities should be provided for the student to develop leadership and to further prepare himself as a leader in agriculture and community life. Instruction in farm mechanics will provide for increased skill proficiency, and the application of farm mechanics skills to the increased efficiency of the agricultural business. In addition to basic units and enterprise jobs there will be selected jobs included in the curriculum for individual instruction in and out of the classroom.

Advanced Course: *Conducting a Farm Business*

This course is designed primarily for students enrolled in vocational agriculture for the fifth year. Since a large number of high schools include

vocational agriculture in the eighth-grade curriculum, a few students will desire and need a fifth-year course. These should be carefully selected and limited to those students having well-developed farming programs and definite plans to farm. The advanced course places emphasis on the continued practical and advanced application of managerial problems which confront young men in the farming business. The program is different from that suggested in previous years to the extent that little basic or background information is included. Some of the topics suggested may be the same as in the regular four-year course; however, the advanced course provides a greater opportunity for application of information learned. The course is planned with the thought that classes will be small and more time will be available to assist with individual problems and actual planning of the students' farming business. Instruction should include more demonstrations, field trips, and other forms of laboratory instruction on an individual basis than in the regular course. Students enrolled should have well-developed farming goals and should be in a position to apply instruction to their farm and home situation.

The advanced course is also designed to meet many of the instructional needs for members of young farmer and adult farmer classes. Since many individuals enrolled in these classes will not have had the basic agricultural information necessary for making many of the present-day managerial decisions, it will be advisable in some situations to include more of this type of instruction than is included in the suggested fifth-year course. For example, a basic course in soils may be necessary before the young or adult farmer plans his cropping system or a farm mechanics skill may have to be taught before he can profit from instruction in the adjustment and operation of farm machinery.

SUGGESTED PLACEMENT OF TEACHING UNITS, BY YEARS

VOCATIONAL AGRICULTURE I

Getting Started In An Agricultural Business

Basic Units

Field	*Basic Unit*
Animal Science	Fitting and Showing
Animal Science	Selecting and Grading
Plant Science	Cultivation of Crops
Plant Science	How Plants Grow and Reproduce
Plant Science	Exhibiting Crops
Plant Science	Seedbed Preparation
Plant Science	Soils
Plant Science	Transplanting Plants
Farm Mechanics	Metals
Farm Family Living	Farm Safety
Farm Family Living	Opportunities in Agriculture

Enterprise Jobs

Field	*Enterprise*	*Job*
Supervised Farming		Securing and Studying a Map of the Home Farm
Supervised Farming		Making the Home Farm Survey
Supervised Farming		Estimating Returns
Supervised Farming		Understanding and Planning a Supervised Farming Program
Supervised Farming		Preparing Business Arrangements
Supervised Farming		Planning Farm Jobs
Supervised Farming		Keeping Records
Animal Science	Beef	Origin and Importance
Animal Science	Dairy	Origin and Importance
Animal Science	Poultry	Origin and Importance
Animal Science	Poultry	Selecting and Procuring Birds
Animal Science	Swine	Origin and Importance
Animal Science	Seafood	
	—Blue Crabs	Jobs—1,2,3,4
	—Fin Fishes	Jobs—1,2,3,6
Plant Science	Corn	Planting

Field	*Enterprise*	*Job*
Plant Science	Forestry	Determining the Place of Forestry in the Farming Program
Plant Science	Forestry	How Trees Grow
Plant Science	Forestry	Tree Identification
Plant Science	Forestry	Measuring and Marketing
Plant Science	Home Garden	Planning the Home Garden
Plant Science	Home Garden	Selecting Varieties
Plant Science	Home Garden	Planting
Plant Science	Peanuts	Planting
Farm Mechanics	Farm Shop	Sketching and Plan Reading
Farm Mechanics	Farm Shop	Tool Fittings—Jobs 1-5, 6-20 (as needed)
Farm Mechanics	Farm Shop	Woodworking—General Information. Jobs 1-6 Hand Tools—Jobs 1-5
Farm Mechanics	Farm Shop	Arc Welding—Jobs 1-13 and Exercise a-c
Farm Mechanics	Farm Shop	Hot Metal
Farm Mechanics	Farm Shop	Cold Metal
Leadership Training	FFA or NFA	History and Development of FFA or NFA

VOCATIONAL AGRICULTURE II

Becoming Established In An Agricultural Business

Basic Units

Field	*Basic Unit*
Animal Science	Feeding Animals
Animal Science	Maintaining Animal Health
Plant Science	Diseases
Plant Science	Fertilizers and Nutrients
Plant Science	Insects
Plant Science	Selecting Varieties
Farm Mechanics	Farm Power (Non-Electric)
Farm Family Living	Personal Development
Farm Family Living	Planning Wise Use of Time
Leadership Training	Developing Leadership

Enterprise Jobs

Field	*Enterprise*	*Job*
Supervised Farming		Closing Accounts and Analyzing Results
Animal Science	Bees	Jobs: 1-3
Animal Science	Dairy	Milk Secretion and Milking
Animal Science	Seafood	
	—Blue Crabs	Jobs: 5, 6, 7
	—Oysters	Jobs: 1,2,3,4,5,6,7
Plant Science	Corn	Harvesting
Plant Science	Forestry	The Forest as a Community (Ecology)
Plant Science	Forestry	Managing the Forests (Silviculture)
Plant Science	Forestry	Reproducing the Forest
Plant Science	Fruits, Small	Systems of Training
Plant Science	Fruits, Small	Harvesting and Grading
Plant Science	Fruits, Tree	Establishing the Orchard
Plant Science	Fruits, Tree	Cultural Practices
Plant Science	Fruits, Tree	Training and Pruning
Plant Science	Home Garden	Planning and Managing Hotbeds and Coldframes
Plant Science	Home Garden	Harvesting
Plant Science	Peanuts	Providing Plantfood Elements
Plant Science	Peanuts	Harvesting and Curing
Plant Science	Truck Crops—(Cucurbits)	Planting
Plant Science	Truck Crops—(Cucurbits)	Harvesting
Plant Science	Truck Crops—(Green leafy vegetables)	Seeding
Plant Science	Truck Crops—(Green leafy vegetables)	Harvesting
Plant Science	Truck Crops—(Green leafy vegetables)	Processing and Packaging

Field	*Enterprise*	*Job*
Farm Mechanics	Farm Shop	Woodworking—Power Equipment Jobs: 1-5
Farm Mechanics	Farm Shop	Soldering and Sheet Metal
Farm Mechanics	Farm Shop	Gas Welding—Jobs: 1-5
Farm Mechanics	Farm Shop	Arc Welding, Exercises d-u, Jobs: 15-17
Farm Mechanics	Farm Power and Machinery	Tractor Operation and Maintenance
Farm Mechanics	Farm Power and Machinery	Selecting Equipment— 1. Seedbed Preparation; 2. Planting; 3. Cultivating; 4. Spraying and Dusting
Farm Mechanics	Farm Buildings	Determining Buildings and Equipment Needs
Farm Mechanics	Farm Buildings	Establishing the Home Farm Shop
Farm Mechanics	Farm Electrification	Understanding Electrical Terms
Farm Mechanics	Farm Electrification	Calculating Electrical Costs and Needs
Farm Mechanics	Soil and Water Management	Planning the Farm Water System
Leadership Training	FFA or NFA	Conducting the Local FFA or NFA Program
Leadership Training	FFA or NFA	Parliamentary Procedure
Leadership Training	FFA or NFA	Preparing and Delivering an FFA or NFA Speech
Leadership Training	FFA or NFA	Planning and Conducting an FFA or NFA Meeting

VOCATIONAL AGRICULTURE III

Developing The Agricultural Business

Basic Units

Field	*Basic Unit*
Animal Science	Animal Breeding

Field	*Basic Unit*
Animal Science	Preparing, Butchering, and Preserving
Plant Science	Chemical Weed Control
Plant Science	Drying and Storing
Plant Science	Seed Selection and Certification
Farm Mechanics	Building Materials
Farm Management	Efficiency in use of Buildings, Equipment, and Labor
Farm Management	Farm Records and Accounts
Farm Management	Marketing Farm Products
Farm Management	Procuring Farm Machinery, Supplies and Equipment
Farm Family Living	Meeting the Family Food Needs

ENTERPRISE JOBS

Field	*Enterprise*	*Job*
Animal Science	Beef Cattle	Managing the Herd
Animal Science	Bees	Jobs: 4-6
Animal Science	Poultry	Managing the Flock
Animal Science	Poultry	Grading and Marketing
Animal Science	Swine	Managing the Herd
Animal Science	Work Stock and Pleasure Animals	Care and Management
Animal Science	Work Stock and Pleasure Animals	Selecting and Maintaining Equipment
Animal Science	Seafood—Fin Fishes	Jobs: 4, 5, 7
Plant Science	Cotton	Planting
Plant Science	Cotton	Harvesting
Plant Science	Fruits, Tree	Controlling Diseases and Insects
Plant Science	Fruits, Tree	Harvesting, Grading, Packing, and Marketing
Plant Science	Hay	Seeding
Plant Science	Pasture	Seeding
Plant Science	Peanuts	Picking
Plant Science	Peanuts	Storing and Marketing
Plant Science	Peanuts	Utilizing By-Products
Plant Science	Small Grains	Seeding

Field	*Enterprise*	*Job*
Plant Science	Soybean and Cowpeas	Seeding
Plant Science	Tobacco	Preparing, Seeding and Managing the Plant Bed
Plant Science	Tobacco	Topping and Suckering
Plant Science	Truck Crops—(Peppers)	Harvesting
Plant Science	Truck Crops—(Potatoes)	Planting
Plant Science	Truck Crops—(Potatoes)	Harvesting
Plant Science	Truck Crops—(Potatoes)	Grading and Marketing
Plant Science	Truck Crops—(Potatoes)	Storing
Farm Mechanics	Farm Buildings	Planning and Constructing Farm Fences
Farm Mechanics	Farm Power and Machinery	Selecting Equipment—Harvesting
Farm Mechanics	Farm Power and Machinery	Machinery Operation and Maintenance
Farm Mechanics	Farm Shop	Arc Welding—Jobs: 18-20
Farm Mechanics	Farm Shop	Gas Welding—Jobs: 6-12
Farm Mechanics	Farm Shop	Facility Improvement
Farm Mechanics	Farm Shop	Farm Masonry
Farm Mechanics	Farm Shop	Electricity
Farm Mechanics	Farm Electrification	Planning the Wiring System
Farm Mechanics	Farm Electrification	Selecting Electric Motors
Farm Mechanics	Farm Electrification	Using Safety Practices
Farm Mechanics	Farm Electrification	Maintaining the Wiring System
Farm Mechanics	Soil and Water Management	Surveying and Leveling
Farm Mechanics	Soil and Water Management	Planning and Constructing the Water Conservation and Disposal System
Farm Mechanics	Soil and Water Management	Developing a Soil and Water Conservation Program

Field	*Enterprise*	*Job*
Farm Mechanics	Soil and Water Management	Constructing a Drainage System
Leadership Training	FFA or NFA	Planning the FFA or NFA Program of Work

VOCATIONAL AGRICULTURE IV

Scientific Management Of The Agricultural Business

Basic Units

Field	*Basic Unit*
Plant Science	Breeding and Improving Plants
Farm Mechanics	Fuels and Lubricants
Farm Mechanics	Painting and Preserving
Farm Management	Becoming Established in Farming
Farm Management	Budgeting
Farm Management	Capital and Finance
Farm Management	Farm Law
Farm Family Living	Budgeting the Family Income
Farm Family Living	Improving the Community
Farm Family Living	Providing and Maintaining the Homestead

Enterprise Jobs

Field	*Enterprise*	*Job*
Animal Science	Dairy	Managing the Herd
Animal Science	Dairy	Milking Facilities and Equipment
Animal Science	Dairy	Marketing
Animal Science	Sheep	Origin and Importance
Animal Science	Sheep	Managing the Flock
Animal Science	Seafood—Oysters	Jobs: 8, 9, 10, 11, 12, 13
Animal Science	Wildlife	Determining Values and Potentials of Wildlife
Animal Science	Wildlife	Feeding and Protecting
Animal Science	Wildlife	Managing the Farm Pond
Plant Science	Cotton	Ginning
Plant Science	Cotton	Marketing

Field	*Enterprise*	*Job*
Plant Science	Forestry	Protecting the Forest
Plant Science	Hay	Harvesting
Plant Science	Pasture	Managing
Plant Science	Small Grains	Harvesting
Plant Science	Soybeans and Cowpeas	Harvesting
Plant Science	Tobacco	Harvesting
Plant Science	Tobacco	Curing and Storing
Plant Science	Tobacco	Preparing and Marketing
Plant Science	Truck Crops—(Strawberries)	Renovating
Plant Science	Truck Crops—(Strawberries)	Harvesting and Grading
Plant Science	Truck Crops—(Strawberries)	Marketing
Plant Science	Truck Crops—(Sweet Potatoes)	Harvesting and Grading
Plant Science	Truck Crops—(Sweet Potatoes)	Curing and Storing
Plant Science	Truck Crops—(Tomatoes)	Pruning
Plant Science	Truck Crops—(Tomatoes)	Harvesting
Farm Mechanics	Farm Buildings	Planning and Constructing Farm Buildings
Farm Mechanics	Farm Buildings	Protecting Buildings
Farm Mechanics	Farm Buildings	Remodeling and Repairing
Farm Mechanics	Farm Shop	Arc Welding, Jobs: 14, 21, 22
Farm Mechanics	Farm Shop	Farm and Home Plumbing
Farm Mechanics	Farm Shop	Construction Projects
Farm Mechanics	Farm Electrification	Using Electricity for Heating and Cooling on the Farm
Farm Mechanics	Farm Power and Machinery	Selecting Equipment— 1. Transportation 2. Processing
Farm Mechanics	Farm Power and Machinery	Selecting Power Units
Farm Mechanics	Farm Power and Machinery	Selecting the Farm Tractor

Field	*Enterprise*	*Job*
Farm Mechanics	Farm Power and Machinery	Machinery Operation and Maintenance
Farm Mechanics	Soil and Water Management	Constructing Farm Ponds
Farm Mechanics	Soil and Water Management	Planning the Irrigation System
Leadership Training	FFA or NFA	Planning and Conducting a Fair

ADVANCED COURSE

Conducting a Farm Business

1. Selecting a farm
2. Developing a farm business management plan:
   a. Planning the cropping system (soils, rotations, fertilizer, forestry, soil conservation plan, etc.)
   b. Planning the livestock program
   c. Determining building needs
      (1) Dwelling
      (2) Livestock
      (3) Poultry
      (4) Crops
      (5) Machinery
      (6) Fencing
      (7) Other
   d. Selecting machinery and equipment
   e. Planning an efficient farm layout
3. Financing the farm business
4. Keeping and analyzing records
5. Filing income tax and social security
6. Legal arrangements (deeds, contracts, wills, leases, etc.)
7. Farm insurance
8. Adjusting, operating, and maintaining farm machinery
9. Providing for maintenance and repair of machinery and equipment (on the farm)
10. Managing the farm woodland
11. Managing the livestock herd or flock:
    a. Dairy

b. Beef
c. Swine
d. Sheep
e. Poultry

12. Grading and marketing
13. Planning and constructing needed farm buildings

Bulletins Published by the Department of Vocational Education[1]

1928—Part-time Instruction in Vocational Agriculture for Virginia. E. C. Magill and R. W. Cline.

1929—Growing Corn for Grain. H. W. Sanders.

1931—Personality Training in the Home. W. B. Coggin.

1933—The College Performance of High School Graduates of Vocational Agriculture. E. C. Magill.

1939—Organized Teaching Data on Chickens. Olive A. Salem.

1941—Opportunities in Agriculture. J. H. Rice and others.

1941—Some Aids in Teaching Farm Shop. C. E. Richard.

1942—The FFA Chapter—Its Organization and Activities. E. Y. Noblin.

1943—Students Handbook for Plans, Records, and Accounts for Supervised Farming in Vocational Agriculture. H. W. Sanders.

1943—Increasing Vegetable Production. Department Staff.

1943—Poultry and Egg Production. Department Staff.

1943—Increasing Milk Production. Department Staff.

1944—Swine Production. Department Staff.

1945—Forestry in Vocational Agriculture. H. C. Groseclose.

1948—Preparing Teaching Calendars for Vocational Agriculture Classes. J. C. Love and C. E. Richard.

1948—Suggested Teaching Units in Vocational Agriculture. C. E. Richard.

1952—Suggested Teaching Units in Vocational Agriculture. Revised Edition. C. E. Richard.

1962—Teaching Units for Vocational Agriculture in Virginia. Revised Edition. Department Staff and others.

The publications listed above are not available for general distribution.

[1]Name of department changed from Agricultural Education to Vocational Education in 1935.

VT 000 473

VT 000 473

A Summary of a Survey of the Employment Opportunities and Competencies Required for Entry in Selected Occupations in Agricultural Businesses in Three Communities in New York State, 1964.

New York State Education Dept., Albany

Apr65

DOCUMENT NOT AVAILABLE FROM EDRS 19p.

*OCCUPATIONAL SURVEYS, *OFF FARM AGRICULTURAL OCCUPATIONS, AGRICULTURAL SKILLS, EMPLOYMENT LEVEL, EMPLOYMENT STATISTICS, *EMPLOYMENT OPPORTUNITIES, BUSINESS SKILLS, *OCCUPATIONAL CLUSTERS, PART TIME JOBS,

New York,

A responsible person in each of 57 firms representing 24 types of business establishments was interviewed in order to identify job levels, numbers of employees, estimates of future openings, and employee traits and qualifications for off-farm agricultural occupations which involved both agricultural and business or distributive competencies. The occupations were grouped by "Dictionary of Occupational Titles" code numbers under eight occupational families related to agriculture. There were 509 full-time employees and 162 part-time employees identified. Only 20 of the firms estimated annual employment needs. These were 40 full-time and 35 part-time persons for replacement and new positions. Employers listed 14 personal traits, such as "ability to meet the public," and 13 competencies, such as "knowledge of farm products and markets" needed by sales workers and managers. (EM)

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THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
Bureau of Agricultural Education
Bureau of Business and Distributive Education
Albany, New York 12224

A Summary of a Survey of the Employment Opportunities and Competencies Required for Entry in Selected Occupations in Agricultural Businesses in Three Communities in New York State, 1964

Background:

For several years there has been a concern among agricultural educators as to how best to meet the training needs of youth who are preparing to enter various occupations in the so-called agricultural business field. Several states, notably California, Illinois, Kentucky, North Carolina, and Pennsylvania, have recently introduced experimental or pilot programs designed to provide youth not only with skills and knowledge about various aspects of agriculture, but with sales, marketing and distribution competencies as well. Presumably such youth would readily find employment in the rapidly expanding sales and services firms which serve agriculture.

The number and the importance of the opportunities which exist for persons with competencies in both agricultural and business skills is demonstrated by examination of the working force of the New York City Department of Markets. The arm of municipal government which has many market administration, supervision, inspection, and consumer education functions has over 350 employees which may be classified into five major groups: administrative; clerical-office; inspectional; technical and laboring. According to the Commissioner, who heads the department, "competency in agriculture" is related to the work performed by all of these workers.

Beginning in 1961 a committee composed of New York teachers of agriculture and agricultural businessmen studied the matter of providing such instruction and published suggestions for providing a course in training for related agricultural occupations and suggested a program which provided courses in agriculture and in business education.[1] Recent developments, not the least of which was the enactment of the Federal Vocational Education Act of 1963, have led to further explorations as how best to meet these training needs.

At a joint meeting of the Bureau of Agricultural Education and the Bureau of Business and Distributive Education held in January 1964, discussions were held which led to the establishment of a joint curriculum development project of the two bureaus. The purpose of the project was to explore the ways and means by which the two bureaus could formulate either new joint courses or units of instruction which could be included in existing courses supervised by the two bureaus.

Dr. E. John Gradoni and Frank Wolff were designated as representatives of the Bureau of Business and Distributive Education and the Bureau of Agricultural Education, respectively, for planning and coordinating this joint curriculum development venture. As a first step, it was determined that a survey would be conducted jointly by teachers of agriculture and distributive education coordinators in each of three communities in the state of employers needs regarding required or desirable competencies of entry workers in various occupations.

[1] Agriculture for Related Occupations. The University of the State of New York, The State Education Department, Bureau of Agricultural Education, Albany, N.Y., 1963.

Methods:

1. A list was made of the communities in which both a teacher of agriculture and a distributive education coordinator were employed. It was found that excluding New York City, approximately twelve such communities existed.

2. From the list of communities, three, Medina, North Syracuse, and Springville were selected because of the interest of the teachers of agriculture and distributive education coordinators in the project. The teachers of agriculture and distributive education coordinators who participated in the project were:

Community	Teacher of Agriculture	Distributive Education Coordinator
Medina	Harvey Lyndaker	Erwin Horowitz
North Syracuse	Donald Watson	Edwin Warren
Springville	Paul Emerling	Ercel Kayes

3. A meeting of the six persons named above and the representatives of the two bureaus was held for the purpose of outlining the project, briefing the interviewers and designing a survey instrument.

4. The following guidelines were established for the operation of the project:

a. In each community the agriculture teacher and distributive education coordinator would select a minimum of 20 firms and/or agencies engaged in agricultural business.

b. In selecting firms and/or agencies, no limitations would be imposed other than to insure that in the minds of the interview team that presumably entry workers in at least some of the occupations in the firm would require competencies in both agriculture and in distributive education. ("Agriculture" for the purposes of the project was defined as being that family of occupations involving the production, sales, marketing and distribution of food and ornamental produce and including the various services provided to agricultural producers and consumers.)

c. An attempt would be made by each interview team to get firms and agencies in the community sample which were representative of the agricultural business enterprises of the area.

d. Each team would, working together, interview a responsible person in each selected firm and/or agency for the purpose of determining:

(1) Identifying data - including the name, address, business territory served, main agricultural-business functions, etc.

(2) The numbers of employees, both full-time and part-time, who were classified as permanent or temporary (seasonal) workers.

(3) By job titles, the numbers of full-time and part-time employees, the level of employment, and the estimated numbers of permanent replacements needed annually.

(4) For each job title, the desired qualifications for entering the occupation and the knowledges, skills and personality traits desired of the prospective employee.

e. The teams would record the data, collect it and send it to the State Education Department for summarization and interpretation.

Findings

A total of 61 firms and/or agencies were included in the sample 20, 22 and 19 from Medina, North Syracuse and Springville, respectively. Four of these - two that were automobile dealerships and two that were general and/or building contractors were eliminated from further consideration as they were not classified as "agricultural" employers as previously defined.

The 57 remaining firms represented 24 types of business establishments. Table I shows the type and total number of establishments included in the sample arranged according to seven agricultural occupational families. A variety of retail and wholesale businesses and service establishments were represented. The table also shows the total number of full-time employees found in each type of firm and/or agency.

Table I. Types and Number of Firms and/or Agencies Included in the Three-Community Sample and Numbers of Full-Time Employees in Each Type

Type of Firm or Agency	Number of Firms or Agencies	Total No. Full-Time Employees
A. Agricultural Machinery Sales & Service		
Farm Equipment Dealers	8	62
B. Agricultural Supplies & Equipment		
Retail Feed and Farm Supplies (sales)	3	21
Feed Manufacturing and Retail Sales	4	23
Farm Chemicals Manufacturing and Sales	2	100*
sub total	9	144
C. Dairy Manufacturing, Processing and Sales		
Dairy Products Manufacturing and Retail Sales	3	37
Dairy Products Manufacturing	1	27
sub total	4	64
D. Agricultural Sales & Services (not elsewhere classified)		
Artificial Breeding Services	2	3
Cold Storage Plant	2	7**
Animal Hospitals	2	3
Retail Lumber Sales	1	9
Retail Fuel Dealer	1	7
Commercial Bank	1	13
sub total	9	42

Type of Firm or Agency	Number of Firms or Agencies	Total No. Full-Time Employees
E. Ornamental Horticulture, Production Sales & Services		
Flower Growers, Wholesale and/or Retail Sales	4	26
Retail and Wholesale Florists	2	6
Wholesale Floral Supply	1	13
Retail Nursery Sales and Landscaping Services	3	9
Landscaping Maintenance Services	2	4
sub total	12	58
F. Food Products Production, Processing & Wholesaling (other than dairy)		
Fruit and Vegetable Processing	3	46***
Custom Fruit Harvesting and Marketing	1	11
Wholesale and/or Retail Auction Sales	2	25
Egg and Poultry Dealers (wholesale)	1	6
Vegetable and Livestock Farm	1	19
sub total	8	107
G. Retail Food Sales		
Retail Food Stores	5	25
Retail Fruit and Vegetable Stores	2	7
sub total	7	32
Grand Total	57	509

***In 2 firms, supervisory personnel only were reported. Production workers were not included.

**In 1 firm, managerial and workers only were reported. Other workers were not included.

*Managerial, professional and sales workers only were reported. Manufacturing and clerical workers were not included in either of the two firms.

Tables II, III, IV, V, and VI, contain summaries of the data regarding the number and types of full-time workers found in the 57 firms and/or agencies in the sample. For each job title the Dictionary of Occupational Titles code number is given for the convenience of persons interested in descriptions of the work performed in each case.

The interviewers asked the employers or their representatives to rate each job title in terms of level of employment into one or more of the following groups: professional, technical, managers, foremen, clerical, sales, skilled, semi-skilled, and unskilled. An average or composite of the employers ratings regarding level of employment is also contained in these tables.

The numbers of workers found were classified into the seven agricultural occupational families as listed in Table I. This was done for the purpose of showing the spread or lack of it which specific jobs showed in regard to the various families of agricultural occupations. Consideration of this type of data should provide some clues as to the likely employment outlets for the various jobs.

For the purpose of convenience in presenting the data, separate tables are used to group the jobs according to Dictionary of Occupational Titles major groups or divisions. These are arranged as follows:

Professional and Managerial Occupations	-	Table II
Clerical and Sales Occupations	-	Table III
Service and Agricultural Occupations	-	Table IV
Skilled Occupations	-	Table V
Semi-skilled and Unskilled occupations	-	Table VI

The data for part-time workers is reported separately in Tables VII (Clerical and Sales Occupations); VIII (Service and Agricultural Occupations); and IX (Skilled; Semi-skilled and Unskilled Occupations). There were no part-time jobs reported in the Professional and Managerial DOT occupations group.

"Part-time" workers are both those who are employed throughout the year but work less than a full number of hours a day and/or less than a full week, and those who work full-time in terms of hours per day or days per week but who work only seasonally, (that is, less than a full year).

Table II. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Professional and Managerial Occupations

FULL-TIME JOBS (D.O.T. Codes 0-00.00 through 0-99.99)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families							Total Found--This Job Title
			Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Orna-mental Horti-culture	Food Prod. Process. Mktg.	Retail Food Sales	
Agricultural Chemist	0-07.02	Professional	-	36	-	-	-	-	-	36
Floral Designer	0-43.60	Technical	-	-	-	-	10	-	-	10
Dairy Tester	0-50.45	Technical	-	-	2	-	-	-	-	2
Research Assistant	0-68.40	Technical	-	36	-	-	-	-	-	36
Industrial Relations Specialist	0-68.76	Professional	-	1	-	-	-	-	-	1
Manager, Retail Foods	0-72.21	Managerial	-	-	-	-	-	-	7	7
Manager, Retail Dairy Products	0-72.22	Managerial	-	-	3	-	-	-	-	3
Manager, Retail Florist	0-72.41	Managerial	-	-	-	-	2	-	-	2
Manager, Retail Hardware & Farm Implements	0-72.71	Managerial	10	10	-	-	-	-	-	20
Manager, Retail Lumber & Bldg. Supplies	0-72.71	Managerial	-	-	-	1	-	-	-	1
Manager, Wholesale Floral	0-72.21	Managerial	-	-	-	-	1	-	-	1
Buyer	0-74.11	Technical-Sales	-	-	-	-	1	-	4	5
Manager, Dept. (Retail Trade)	0-74.31	Managerial	-	-	-	-	-	-	7	7
Purchasing Agent	0-91.60	Semi-Skilled	-	1	-	-	-	-	-	1
Corporate Officers	0-97.00	Managerial	-	-	-	2	1	-	-	3
Manager, Office	0-97.12	Managerial	-	-	-	-	1	-	-	1
Manager, General	0-97.41	Managerial	-	-	-	-	-	3	-	3
Manager, Production	0-97.51	Techn-Managerial	-	-	2	1	-	-	-	3
Manager, Sales	0-97.61	Managerial	-	-	-	-	-	2	-	2
Manager, Parts	0-97.67	Managerial-Clerical-Sales	7	-	-	-	-	-	-	7
Manager, Financial Institutions	0-98.08	Managerial	-	-	-	1	-	-	-	1
Manager, Service Establishment	0-98.41	Managerial	-	-	-	2	-	1	-	3
		Totals	17	84	7	7	16	6	18	155

*N.E.C. = Not elsewhere classified

Table III. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Clerical and Sales Occupations

FULL-TIME JOBS (D.O.T. Codes 1-00.00 through 1-99.99)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families							Total Found--This Job Title
			Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Ornamental Horticulture	Food Prod. Process. Whlsg.	Retail Food Sales	
Bookkeeper	1-01.02	Clerical	4	3	2	7	4	3	-	23
Cashier	1-01.53	Clerical	-	-	-	-	-	-	4	4
Check Clerk--Checker	1-03.02	Clerical	-	-	-	2	-	5	-	7
Mortgage Clerk	1-05.01	Clerical	-	-	-	1	-	-	-	1
Bank Teller	1-06.02	Clerical	-	-	-	4	-	-	-	4
Secretary	1-33.01	Clerical	-	-	-	-	-	1	-	1
Field Contact Man	1-48.24	Technical	-	-	1	-	-	-	-	1
Fieldman	1-48.27	Technical	-	-	-	-	-	2	-	2
Auctioneer	1-51.10	Sales	-	-	-	-	-	3	-	3
Sales Clerk(Retail)	1-70.10	Sales	-	-	1	-	-	-	6	7
Salesman (Bldg & Hardware Supply)	1-85.81	Sales	-	-	-	3	-	-	-	3
Salesman (Farm & Garden Equipment)	1-86.16	Sales	10	30	-	-	-	-	-	40
Salesman (nursery)	1-86.91	Sales	-	-	-	-	8	-	-	8
		Totals	14	33	4	17	12	14	10	104

Table IV. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Service and Agricultural Occupations

FULL-TIME JOBS (D.O.T. Codes 2-00.00 through 2-99.99 and 3-00.00 through 3-49.99)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families							Total Found--This Job Title
			Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Ornamental Horticulture	Food Prod. Process. Whlsg.	Retail Food Sales	
Veterinarian's Asst.	2-42.60	Technical	-	-	-	3	-	-	-	3
Custodian	2-84.10	Skilled	-	-	1	-	-	-	-	1
Farm Hand, Dairy	3-14.10	Semi-Skilled	-	-	-	-	-	2	-	2
Harvest Hand, Fruit	3-15.22	Semi-Skilled	-	-	-	-	-	6	-	6
Farm Hand, General	3-16.10	Semi-Skilled	-	-	-	-	-	10	-	10
Farm Hand, Poultry	3-18.10	Unskilled	-	-	-	-	-	4	-	4
Farm Mechanic	3-35.10	Skilled	22	0	2	-	-	-	-	24
Farm Manager	3-37.10	Managerial	-	-	-	-	-	2	-	2
Farm Foreman	3-37.20	Foreman	-	-	-	-	-	4	-	4
Manager-Grower	3-38.20	Managerial	-	-	-	-	11	-	-	11
Greenhouse Worker	3-39.10	Skilled	-	-	-	-	3	-	-	3
Head Greenskeeper	3-40.03	Foreman	-	-	-	-	1	-	-	1
Landscape Gardener	3-40.06	Skilled	-	-	-	-	4	-	-	4
Greenskeeper	3-40.07	Semi-Skilled	-	-	-	-	2	-	-	2
Artificial Breeding Technician	3-48.94	Technical	-	-	-	3	-	-	-	3
Livestock Handler	3-49.32	Semi-Skilled	-	-	-	-	-	5	-	5
		Totals	22	-	3	6	21	33	-	85

Table V. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Skilled Occupations

FULL-TIME JOBS (D.O.T. Codes 4-00.00 through 5-99.999)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families: Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Ornamental Horticulture	Food Prod. Process. Whlsg.	Retail Food Sales	Total Found--This Job Title
Dairy Plant Workers	4-06.500	Skilled	-	-	6	-	-	-	-	6
Pasteurizer	4-06.560	Skilled	-	-	1	-	-	-	-	1
Head Miller	4-07.100	Technical-Skilled	-	6	-	-	-	-	-	6
Millman (wood)	4-33.914	Skilled	-	-	-	2	-	-	-	2
Assembler	4-94.351	Semi-Skilled	1	-	-	-	-	-	-	1
Meat Cutter	5-58.100	Skilled	-	-	-	3	-	-	3	6
Boiler Operator	5-72.930	Skilled	-	-	2	-	-	-	-	2
Truck Mechanic	5-81.030	Skilled	-	-	-	1	-	-	-	1
Oil Burner Serviceman	5-83.024	Skilled	-	-	-	1	-	-	-	1
Foreman (canning & preserving)	5-91.021	Foreman	-	-	-	-	-	8	-	8
Foreman (grain & feed	5-91.031	Foreman	-	1	-	-	-	-	-	1
Foreman (agriculture equipment)	5-92.711	Foreman	3	-	-	-	-	-	-	3
Foreman (retail trade)	5-97.610	Foreman	-	-	-	-	-	2	-	2
Foreman (wholesale trade)	5-97.640	Foreman	-	-	-	1	-	-	-	1
Foreman (agricultural service)	5-97.901	Foreman	-	-	-	-	1	-	-	1
		Totals	4	7	9	8	1	10	3	42

*N.E.C. = Not elsewhere classified

Table VI. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Semi-Skilled and Unskilled Occupations

FULL-TIME JOBS (D.O.T. Codes 6-00.00 through 9-99.99)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families							Total Found--This Job Title
			Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Ornamental Horticulture	Food Prod. Process. Whlsg.	Retail Food Sales	
Evaporator Man	6-06.510	Semi-Skilled	-	-	2	-	-	-	-	2
Milk Receiver	6-06.560	Semi-Skilled	-	-	2	-	-	-	-	2
Separator Man	6-06.610	Semi-Skilled	-	-	1	-	-	-	-	1
Driver-Salesman	7-35.100	Clerical & Sales	-	-	22	1	3	-	-	26
Truck Driver	7-36.250	Semi-Skilled	2	14	4	2	3	1	-	26
Tractor Operator	7-36.510	Semi-Skilled	-	-	-	-	-	5	-	5
Egg Candler	7-76.100	Semi-Skilled	-	-	-	-	-	1	-	1
Equipment Repairman	7-83.862	Semi-Skilled	-	-	2	-	-	-	-	2
Laborer (food canning)	8-04.10	Unskilled	-	-	-	-	-	32	-	32
Laborer (dairy processing)	8-06.51	Semi-Skilled	-	-	6	-	-	-	-	6
Millhand	8-08.01	Semi-Skilled	-	4	-	-	-	-	-	4
Laborer (woodworking)	8-33.11	Semi-Skilled	-	-	-	1	-	-	-	1
Laborer (agricultural equipment)	8-94.34	Semi-Skilled	3	-	-	-	-	-	-	3
Laborer (retail trade)	9-59.01	Sales-Semi-Skilled	-	2	-	-	2	-	-	4
Laborer (filling,etc)	9-68.01	Semi-Skilled	-	-	2	-	-	2	-	4
Meat Wrapper	9-68.30	Semi-Skilled	-	-	-	-	-	-	1	1
Laborer (stores)	9-88.40	Semi-Skilled	-	-	-	-	-	3	-	3
		Totals	5	20	41	4	8	44	1	123

*N.E.C. = Not elsewhere classified

Table VII. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Clerical and Sales Occupations

PART-TIME JOBS (D.O.T. Codes 1-00.00 through 1-99.99)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families							Total Found--This Job Title
			Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Ornamental Horticulture	Food Prod. Process. Whlsg.	Retail Food Sales	
Bookkeeper	1-01.02	Clerical	-	-	1	-	1	-	-	2
Cashier	1-01.53	Clerical	-	-	-	-	-	-	10	10
Stenographer	1-37.12	Clerical	-	-	-	1	-	-	-	1
Store Sales Clerk	1-70.10	Clerical-Sales	-	-	3	-	-	-	4	7
Parts Helper	1-75.24	Semi-Skilled	3	-	-	-	-	-	-	3
Salesman (farm & garden equipment)	1-86.16	Sales	2	4	-	-	-	-	-	6
Salesman (nursery)	1-86.91	Sales	-	-	-	1	-	-	-	1
		Totals	5	4	4	2	1	-	14	30

*N.E.C. = Not elsewhere classifie

Table VIII. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Service and Agricultural Occupations

PART-TIME JOBS (D.O.T. Codes 2-00.00 through 2-99.99 and 3-00.00 through 3-49.99)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families							Total Found--This Job Title
			Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Ornamental Horticulture	Food Prod. Process. Whlsg.	Retail Food Sales	
Custodian	2-84.10	Unskilled	-	-	-	1	-	-	-	1
Farm Hand, Dairy	3-14.10	Semi-Skilled	-	-	-	-	-	2	-	2
Berry Pickers	3-15.02	Unskilled	-	-	-	-	-	65	-	65
Kennelman	3-17.60	Unskilled	-	-	-	3	-	-	-	3
Farm Hand, General	3-18.10	Semi-Skilled	-	-	-	-	-	1	-	1
Farm Mechanic	3-35.10	Skilled	2	-	-	-	-	-	-	2
Foreman (agricultural)	3-37.20	Foreman	-	-	-	-	1	-	-	1
Grower	3-38.20	Managerial	-	-	-	-	2	-	-	2
Greenhouse Worker	3-39.10	Semi-Skilled	-	-	-	-	1	-	-	1
Groundskeeper	3-40.01	Semi-Skilled	-	-	-	-	13	-	-	13
Greenskeeper	3-40.07	Semi-Skilled	-	-	-	-	5	-	-	5
		Totals	2	-	-	4	22	68	-	96

*N.E.C. = Not elsewhere classified

Table IX. Job Titles, D.O.T. Code Number, Level of Employment and Numbers Found in Each Job Title Classified According to Agricultural Occupational Families

Skilled, Semi-Skilled and Unskilled Occupations

PART-TIME JOBS (D.O.T. Codes 4-00.00 through 5-99.999 and 6-00.00 through 9-99.99)

Job Titles	DOT Code Number	Level of Employment (Employer's Opinions)	Numbers Found by Agricultural Occupations Families							Total Found--This Job Title
			Agric. Mach. Sales & Service	Agric. Supplies & Equipment	Dairy Mfg. Process. Sales & Service	Agric. Sales & Service (N.E.C.)*	Ornamental Horticulture	Food Prod. Process. Whlsg.	Retail Food Sales	
Plant Workers	4-06.500	Skilled	-	-	2	-	-	-	-	2
Assembler	4-94.351	Semi-Skilled	2	-	-	-	-	-	-	2
Meat Cutter	5-58.100	Skilled	-	-	-	1	-	-	2	3
Installation and Repairman	5-58.40	Skilled	-	1	-	-	-	-	-	1
Driver-Salesman	7-35.100	Clerical-Sales	-	-	3	-	-	-	-	3
Truck Driver	7-36.250	Semi-Skilled	-	-	1	-	4	-	-	5
Tractor Operator	7-36.510	Semi-Skilled	-	-	-	-	-	2	-	2
Parking Lot Attendant	7-60.100	Semi-Skilled	-	-	-	-	-	-	1	1
Laborer (farm machinery)	8-94.34	Unskilled	1	-	-	-	-	-	-	1
Florist Helper	9-59.01	Clerical-Sales	-	-	-	-	1	-	-	1
Wrappers	9-68.30	Unskilled	-	-	-	-	2	-	1	3
Stock Clerk	9-88.40	Unskilled	-	1	-	-	-	-	11	12
		Totals	3	2	6	1	7	2	15	36

The interviewers were asked to estimate the number of replacements that they needed annually and the estimated number of increased employees needed annually. The survey teams found some employers reluctant to give this information and in the opinion of the investigators, the estimates made by the employers were conservative. Only 20 employers estimated that among them there would be an annual need for 40 full-time and 35 part-time employees for replacement of existing employees or to fill new positions. The remaining firms indicated no needs for replacement or additional employees at the time of the survey.

The survey teams asked the person responding in each case to comment on the qualifications that were desired of applicants in order to enter the occupation. This included the minimum entry age and the minimum educational grade level preferred. No summary was made of the responses given to these two questions. In addition, the interviewers were asked to list the "knowledges, skills and personality traits" desired of new employees. This information was secured for each job title found in the firm or agency.

It was decided to make a detailed analysis and summary of the desired traits and competencies required to obtain employment in the group of jobs known as sales occupations. This group was selected for detailed analysis for the following reasons:

1. Agricultural sales occupations were found in all seven of the agricultural occupational family groups.

2. These occupations comprise those which are of most concern to both agricultural educators and distributive education coordinators regarding the design of courses of study to meet training needs in them.

3. The agricultural sales workers represented one of the larger groups of workers found in the survey.

Table X contains a rank order summary, first of the desired personal traits and second of the desired business and other competencies for gaining employment as entry workers in agricultural sales and sales related occupations. Thirty-eight of the 57 firms employed such workers.

Table X. Rank Order of Personal Traits and Business and Other Competencies Which Are Desirable For Gaining Employment as Sales Workers According to 38 Employers Who Hire Such Workers

Personal Traits	
Ability to:	
Meet the public	33
Have a good attitude toward customers, fellow workers, supervisors	26
Maintain a good personal appearance	13
Be honest	10
Be conscientious, attentive at work	10
Keep employers interests in mind	8
Accept and carry out responsibilities	5
Follow instructions	4

Drive a car or truck safely	3
Be neat in work habits	3
Write legibly	3
Be prompt in reporting for work	1
Have patience	1
Have physical strength	1

Business and Other Competencies

Knowledge of products and/or markets	28
Selling abilities (including telephone procedures)	26
Knowledge of farming operations	26
Make mathematical calculations accurately	20
Keep records accurately	11
Training in agriculture required	8
Use communication skills effectively	7
Must have mechanical aptitudes; abilities	7
Knowledge of display and merchandising techniques	6
Training in sales techniques required	4
Care for materials, tools, products, etc.	4
Direct and supervise others	2
Know-how to file	1

The items appearing among the highest in the ranking for personal traits were the abilities to: (1) meet the public, (2) have good attitudes, and (3) maintain a good personal appearance. Similarly, those business and other competencies most frequently mentioned included (1) knowledge of farm products and/or agricultural marketing procedures; (2) knowledge of farming operations; and, (3) the ability to "sell."

A similar analysis was made for 17 firms from the first five agricultural occupational families who gave information for managers and assistant managers. Table XI shows a rank order of both personal traits and business and other competencies for managerial positions because presumably these are the positions that entry workers aspire to attain after having suitable experience, background and training. The 17 firms comprised, five in the Agricultural Machinery Sales and Service family; four in the Agricultural Supplies and Equipment family; two in the Dairy Manufacturing, Processing and Sales family; three in the Agricultural Sales and Services (not elsewhere classified) family; and three in the Ornamental Horticulture Production Sales and Services family. The other agricultural occupational families were not included in Table XI. They are the Food Products Production Processing and Wholesaling (other than dairy) and the Retail Food Sales Families.

The items appearing among the highest in the ranking for personal traits were the abilities to: (1) meet and deal with people; (2) be sympathetic, understanding and communicative with farmers and (3) to manage and plan. Similarly, those business and other competencies ranking the highest were: (1) knowledge of the business and/or products; (2) selling abilities; and (3) record keeping abilities.

A comparison of Tables X and XI indicates that insofar as desirable traits for entry level sales occupations and managerial positions, there is a high degree of similarity. There is also apparently a high degree of similarity regarding the business and other competencies desired of both sales workers and managers.

Table XI. Rank Order of Personal Traits and Business and Other Competencies Which Are Desired for Managers of 17 Agricultural Businesses

Personal Traits	
Ability to meet and deal with people	17
Ability to be sympathetic, understanding and communicative with farmers	10
Managerial ability including planning ability	8
Mechanical aptitudes and abilities	5
Ability to make a good personal appearance	3
Ambitious	3
Be willing and able to accept responsibility	3
Honesty	1
Be active in community activities	1

Business and Other Competencies	
Knowledge of the business and/or products	17
Selling ability	15
Record keeping ability	12
Ability to hire, supervise and train employees	12
Knowledge of farming operations or a background in agriculture	11
Ability to figure contracts and other computational skills	11
Ability to use price books, set prices, figure margin, etc	7
Merchandising skills	5
Knowledge of and ability to use advertising skills	5
Knowledge of inventory and stock control procedures	5
Reading, writing and other communications skills	4
Knowledge of credit and be able to extend it wisely	3
Business training essential	2
Knowledge of market research	1
Knowledge of filing	1

Summary

1. Fifty-seven firms and/or agencies representing 24 rather distinct businesses and covering seven agricultural occupational families were included in the sample.

2. Investigation revealed the following regarding the number and percentage of full-time and part-time workers found by agricultural occupational families:

	Full-time		Part-time	
	No. of Workers	Percent	No. of Workers	Percent
Agricultural Machinery Sales and Service	62	12.2	10	6.2
Agricultural Supplies and Equipment	144	28.3	6	3.7
Dairy Manufacturing, Processing and Sales	64	12.5	10	6.2
Agricultural Sales and Services (not elsewhere classified)	42	8.3	6	3.7
Ornamental Horticulture Production, Sales and Service	58	11.4	31	19.0
Food Products Production, Processing and Wholesaling	107	21.0	70	43.2
Retail Food Sales	32	6.3	29	18.0
Total	509	100.0	162	100.0

3. The number and percentage of full-time workers classified according to Dictionary of Occupational Titles major groups or divisions is summarized as follows:

	Full-Time		Part-Time	
Occupational Group	No. of Workers	Percent	No. of Workers	Percent
Professional and Managerial	155	30.5	0	0.0
Clerical and Sales	104	20.4	30	18.5
Service and Agricultural	85	16.7	96	59.3
Skilled	42	8.3	8	4.9
Semi-skilled and Unskilled	123	24.1	28	17.3
Total	509	100.0	162	100.0

4. Twenty of the 57 employers who responded to the question indicated that among them there was an estimated annual need for 40 full-time and 35 part-time employees.

5. Thirty-eight employers who hired sales workers ranked the following personal traits as the three highest desired of applicants: (1) the ability to meet the public, (2) the ability to have good attitudes; and (3) the ability to maintain a good personal appearance. They also ranked desired business and other competencies as follows: (1) knowledge of farm products and/or agricultural marketing procedures; (2) knowledge of farming operations; and (3) the ability to "sell."

6. Seventeen employers who responded to similar questions regarding desired traits and competencies for managers rated several factors in the same way as did the group for sales workers.

VT 000 482

VT 000 482 ED

Report on a Study of Student Interests in Five Agricultural Occupations Groups, Three Areas of New York State.

Noakes, Harold L.

New York State Educ. Dept., Albany. Bur. of Agr. Educ.

65

EDRS Price MF-$0.09 HC-$0.28 7p.

HIGH SCHOOL STUDENTS, *AGRICULTURAL OCCUPATIONS, *VOCATIONAL INTERESTS, VOCATIONAL AGRICULTURE, STUDENT ENROLLMENT, SEX (CHARACTERISTICS),

New York,

During 1964-65, questionnaires were given to 6,706 students in grades 8-10 to ascertain their interest in preparation for agricultural occupations. Students from 13 schools which offered agriculture courses, and nine which did not, were asked to indicate their interest in agricultural activities and their choice of the following -- (1) agricultural machinery and mechanics, (2) agricultural sales and service, (3) farm work, operation and management, (4) ornamental horticulture, landscaping and floriculture, (5) conservation, forestry, and campsite activities, or (6) no interest. An agricultural occupation group was selected as first choice by 2,521 of the boys and 1,658 of the girls. First choices of boys were conservation, agricultural mechanization, farm operation and management, ornamental horticulture, and agricultural business, in that order. First choices of girls were ornamental horticulture, conservation, farm operation and management, agricultural business, and agricultural mechanics, in that order. From this data, enrollments in agricultural courses were projected. (EM)

ED015348

THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
Bureau of Agricultural Education
Albany, New York 12224

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REPORT ON A STUDY OF STUDENT INTERESTS IN FIVE AGRICULTURAL OCCUPATIONS GROUPS

THREE AREAS OF NEW YORK STATE
1965

Dr. Harold L. Noakes, Associate
Bureau of Agricultural Education

During the 1964 - 1965 year, studies have been made in a number of school districts to determine the interest of students in preparing for agricultural occupations. These studies have been conducted under the direction of district, city and village superintendents of schools in cooperation with local school administrators. The Bureau of Agricultural Education has provided guidance in conducting such studies including the tabulation and analysis of data and making recommendations for program development.

The primary purpose of such studies has been to provide data which can be used as a basis of instituting and/or modifying agricultural programs to more effectively meet present and future needs.

Following is a report of a study conducted in three areas of New York State which include data from twenty-two schools. These areas include twelve schools in Oneida-Madison Counties, seven schools in Jefferson County and three schools in Columbia County.

Schools included in the study are as follows:

<u>Oneida-Madison Counties</u>

Bridgewater	New York Mills
Brookfield	Oriskany
Chadwicks	Sauquoit Valley
Clinton	Waterville
Leonardsville	Whitesboro
New Hartford	

<u>Jefferson County</u>

Clayton	Mannsville-Manor
General Brown	Hounsfield
Henderson	Watertown
Lyme	

VT00482

Columbia County

Chatham
Icabod Crane
New Lebanon

Agricultural programs now serve ten of the Oneida-Madison County schools studied, none of the Jefferson County schools studied and all of the Columbia County schools studied.

All students in grades 8, 9, and 10 were requested to complete a questionnaire indicating their interest in agricultural activities and choice of occupational families in agriculture. They were also provided an opportunity to indicate no interest in agricultural occupations.

The five occupational areas included Agricultural Machinery and Mechanics; Agricultural Sales and Service; Farm Work, Operation and Management; Ornamental Horticulture, Landscaping and Floriculture; and Conservation, Forestry and Campsite Activities.

A total of over 6700 boys and girls completed these questionnaires. Over 1600 indicated a first choice in one of the agricultural occupation groups.

These studies reveal that a significant number of students are interested in enrolling in agricultural courses provided that a variety of courses are available. It is well to note that agricultural courses are presently not available in nine schools studied. Over thirty-seven percent of the 6706 students studied indicated an interest in one or more occupational groups in the broad field of agriculture. Table 1 gives an overall picture of this interest.

TABLE 1

A Summary of Students Surveyed and the Number Interested in One or More Agricultural Occupation Groups - Three Areas of New York State - 1965

	Students Surveyed	Students Indicating 1st Choice in Agriculture			
		B	G	Total	%
12 Oneida-Madison County Schools	3611	887	508	1395	38.7
7 Jefferson County Schools	2265	573	269	842	37.2
3 Columbia County Schools	830	198	86	284	34.3
TOTAL	6706	2521	1658	863	37.6

Among the first choices of occupational groups, boys consistently placed Conservation, first; Agricultural Mechanization, second; Farm Operation and Management, third; Ornamental Horticulture, fourth; and Agricultural Business, fifth.

Girls on the other hand, tended to rank Ornamental Horticulture, first; Conservation, second; Farm Operation and Management, third; Agricultural Business, fourth; and Agricultural Mechanics, fifth.

Figure 1, shows graphically the first choice of student interest in agricultural occupation groups.

In interpreting the data, factors were applied to provide a conservative estimate of the actual enrollment which could be anticipated in the various courses. These factors are based on previous experience and the best judgment of those interpreting the data.

Following is an example of how data is tabulated and enrollments in agricultural courses projected.

SAMPLE CENTRAL SCHOOL

1965

TABLE 2

First Choice of Students Interested in Agricultural Occupations

	8		9		10		Total	
	B	G	B	G	B	G	B	G
Agr. Mech.	9	-	5	1	6	-	20	1
Agr. Bus.	4	9	2	5	1	2	7	16
Farming	7	5	6	4	4	1	17	10
Orn. Hort.	5	15	2	9	2	6	9	30
Cons.	11	14	5	6	8	4	24	24
TOTAL	36	43	20	25	21	13	77	81

TABLE 3

Estimated Number of Students to be Enrolled in Agricultural Courses

COURSE	1965-1966 B	1965-1966 G	1965-1966 Total	1966-1967 B	1966-1967 G	1966-1967 Total
Agr. 1	10	1	11	12	2	14
Agr. 2	10	1	11	10	1	11
Farm Prod. & Mgt.	5	-	5	9	1	10
Agr. Mech.	6	-	6	7	-	7
Orn. Hort.	1	2	3	2	5	7
Conservation	3	1	4	4	1	5
Agr. Bus.	-	-	-	-	-	-
TOTAL	35	5	40	44	10	54

The above tables illustrate the need for agricultural programs serving an area larger than a single school district. In the above school there is sufficient potential enrollment to warrant the offering of Agriculture 1 and 2. Students interested in the other agricultural courses should be transported to a convenient center for such instruction.

It is anticipated that if such centers are established, that in schools where there is sufficient enrollment in agricultural courses and facilities available, that the individual schools would offer such instruction. Where enrollments are small, such as in specialized agricultural courses, students would be transported to a center for instruction.

This would bring about efficiencies in instruction and use of facilities. In addition, it would make possible the offering of specialized courses in Conservation, Ornamental Horticulture, Agricultural Mechanization, Agricultural Business, and Farm Production and Management.

It is recommended that an instructional program be established to serve the needs of out-of-school youth employed in farming and off-farm agricultural occupations. This instruction would be carried on throughout the year.

The training programs in agriculture are needed to meet the expanding demand for off-farm workers in the broad field of agriculture as well as to continue to train farm operators and managers for our farms.

FIGURE 1

FIRST CHOICE OF STUDENTS IN GRADES 8-10 INTERESTED IN AGRICULTURAL OCCUPATION GROUPS IN 3 AREAS OF NEW YORK STATE

Oneida-Madison, Jefferson and Columbia Counties
1965

I. Agricultural Machinery and Mechanics

On.-Madison	B	XXXX

VT 000 483

VT 000 483

List of Selected Publications Pertaining to Teaching Agricultural Occupations.

New York State Educ. Dept., Albany. Bur. of Agr. Educ.

Jun64

DOCUMENT NOT AVAILABLE FROM EDRS 11p.

*AGRICULTURAL OCCUPATIONS, *BIBLIOGRAPHIES, *OCCUPATIONAL INFORMATION, *OFF FARM AGRICULTURAL OCCUPATIONS,

These 185 references and their sources have been selected to furnish information to the agriculture teacher, vocational counselor, and others concerned with agricultural occupations. Publishers are commercial guidance services, private businesses, professional groups, governmental agencies, colleges, and universities. Most items were published after 1950. (EM)

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THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
Bureau of Agricultural Education
Albany, New York 12224

LIST OF SELECTED PUBLICATIONS PERTAINING TO TEACHING AGRICULTURAL OCCUPATIONS

I. Occupational Briefs, Monographs and Abstracts

A. Bellman Publishing Company, P.O. Box 172, Cambridge 38, Massachusetts.

A publisher of vocational and professional careers monographs, the following are appropriate to agriculture. The price for a single copy of each is $1.00 and they vary in length from 17-23 pages.

Number	Title	Date Published
4	The Seed Industry	1946
8	Forestry	1957
46	The Meat Packing Industry	1954
83	The Dairy Industry	1955
95	The Poultry Industry	1958
99	The Canning Industry	1959

B. Chronicle Guidance Publications, Inc., Moravia, New York

This firm has published a total of 285 occupational briefs in accordance with the standards recommended by the National Vocational Guidance Association. Each brief, either 4 or 8 pages in length, provides the following information: work performed and working conditions, personal qualifications required, training requirements, training opportunities, job outlook, methods of entry, earnings, related jobs, etc. Each brief is coded with the numbering system used in the Dictionary of Occupational Titles.

More than 25 briefs refer to agricultural occupations and several others are of general interest. Additional titles are added each year and current ones are periodically revised and reprinted. An annual subscription service is also available. Prices are as follows for single copies: 4-page brief, $.35 each - 8-page brief, $.50 each. (Eight-page briefs are starred (*) in the lists below.)

Briefs Relating to Agricultural Occupations:

Catalog No.	Title	Date Published
180R	Agricultural Banker	1964
163R	Agricultural Business Manager	1962
176R	Agricultural Engineer	1964
179R	Agronomist	1964
238	Animal Husbandman	1962
291	Arborist (Tree Surgeon)	1963

VT 00483

Catalog No.	Title	Date Published
177R	County Extension Agent	1964
223	Dairy Farmer	1962
174R	Dairy Industry Jobs	1963
173R	Dairy Plant Operation	1963
244	Farm Mechanic	1962
112R	Farmer, General	1961
269	Florist	1963
88R	Forester	1963
203	Horticulturist	1960
227	Laboratory Technician (Materials-Soil Tester)	1962
164R	Landscape Architect	1963
81R	Meat Cutter	1960
99R	Nurseryman	1960
120R	Park Ranger	1961
248	Poultry Farm Manager	1963
201	Soil Conservationist	1960
291	Tree Surgeon	1963
83R	Veterinarian	1963

Briefs of General Insterest

Catalog No.	Title	Date Published
132R	Biochemist	1961
293	Civil Service Jobs	1964
14R	Inspector	1964
134	Job Hunting	1963
15R	Retail Salesperson	1962
78R	Routeman	1960
8R	Salesman	1962
137	Summer Jobs for Teen-Agers	1963
229*	Technician	1962
202	Wholesale Salesman	1960

C. Personnel Service, Inc., P.O. Box 306, Jaffrey, N. H.

Over 100 1-2 page occupational abstracts are available from this firm. Each abstract is a composite summary of available literature in several references. The material is organized into the following categories: nature of the work, qualifications, preparation, entrance and advancement, advantages and disadvantages, earnings, related occupations, etc. The abstracts are coded according to the Dictionary of Occupational Titles.

Single copies of each of the following abstracts dealing with agricultural occupations are available for $.50 with reduced prices for quantity orders.

Title	Date Published
Agronomist	1960
Dairy Farmer	1958
Florist (Rev.)	1962
Poultry Farmer	1955
Veterinary Doctor	1960

D. Science Research Associates, Inc., 259 East Erie Street, Chicago 11, Illinois.

A large publisher of materials of instruction, tests and guidance publications, SRA has available 360 Occupational briefs. Each illustrated, four-page brief provides a description of a specific occupation, including qualifications, training required, earnings, furture outlook, etc. along with selected references for follow-up research.

Single copy prices are $.35 with discounts when purchased in quantities either all of the same title or assorted. Those available dealing with agricultural and kindred occupations are:

Catalog No.	Title
92	Agricultural and Home Economics Extension Workers
202	Agricultural Engineers
127	Blacksmiths
294	Botanists
192	Butchers
58	Cannery Workers
42	Cattlemen
211	Crop Scientists
43	Dairy Farmers
262	Dairy Industry Workers
214	Dairy Technologists
303	Delivery Route Salesmen
232	Farm Equipment Dealers
41	Farm Laborers
233	Florists
117	Food Store Workers
215	Food Technologists
50	Foresters
340	Forestry Technicians
123	Frozen Food Industry Workers
44	Fruit Growers
45	Fur Farmers
330	Gardeners and Groundskeepers
173	Ice Cream Manufacturing Workers
187	Landscape Architects
105	Lumbermen
210	Market Research Workers
106	Meat Packing Workers
166	Nurserymen and landscapers
226	Paper Industry Workers
47	Poultrymen
239	Retail Sales people
114	Salesmen, Manufacturing and Wholesale
220	Soil Scientists
190	Tree Experts
48	Vegetable Farmers
139	Veterinarians
149	Wildlife Managers

In addition, SRA publishes a series of 16 Job Family Booklets. Two of these are appropriate to agriculture: #5-604GK - Jobs in Outdoor Work and 5-964GK - Jobs in Agriculture. Each booklet in this series is 32 pages, paperbound, measuring 7" x 9½" and costs $1.00.

E. The Institute for Research, 537 South Dearborn Street, Chicago 5, Illinois.

This organization publishes about 300 career monographs covering 1900 jobs. The publications give a report of detailed nation-wide research on a field of endeavor. Each monograph is 8½" x 11" in size, illustrated, and arranged two columns to the page. Topics covered include a description of the field, personal qualifications, education, and training, earnings, opportunities, how to get started, related fields, etc. The monographs cost $.95 each with discounts in quantities either mixed or of the same title. Those pertaining to agriculture are:

Catalog No.	Title
3	Careers in the Biological Sciences
13	Landscaping Architecture as a Career
20	Agricultural Science and Modern Farming
23	Forestry As A Career
53	Farm Management as a Career
63	Flower Shop Management as a Career
71	Veterinary Medicine as a Career
79	Dairy Farming as a Career
80	Careers in the Dairy Products Industry
152	Agricultural Engineering as a Career
155	Fur Farming as a Career
160	A Career as a County Agricultural Agent
166	Beef Cattle Raising as a Career
170	Poultry Farming as a Career
175	Vegetable Farming as a Career
203	A Career as a Food Chemist
204	Botany as a Career
210	Research Careers in Agriculture
242	Careers in the U.S. Department of Agriculture
245	Farm Equipment Dealership Sales and Service Careers
254	Careers in Federal and State Fish and Wildlife Service
258	Careers in the U.S. Department of Interior
291	Careers in Food Products Distribution

F. Vocational Guidance Manuals, 800 Second Avenue, New York 17, New York.

The Career Series of Manuals are paper bound books designed to provide youth with the information needed to choose and plan careers. Written by recognized authorities, each covers in detail the following information: history, importance and outlook, attributes necessary, salaries, educational preparation, advantages and disadvantages, duties, working conditions, etc.

The cost of each of these manuals is $1.45 with special school and quantity discounts. Titles in the series of agricultural interest are:

Agricultural Engineering
Forestry
Horticulture
Landscape Architecture
Poultry Industry

II. Other Commercial Publishers of Career Materials.

1. Careers, Box 522, Largo, Florida.
2. Commonwealth Book Co., 80 East Jackson Street, Chicago, Illinois (vocational guidance monograph series).
3. Hoards Dairymen, Fort Atkinson, Wisconsin, $0.75 each. "Choose Your Career in Agriculture" - a description of 48 careers in agriculture each written by workers in the field.
4. Interstate Printers and Publishers, Inc., 19-27 North Jackson Street, Danville, Illinois.

   "Handbook of Agricultural Occupations", Norman K. Hoover - one of the most comprehensive and up-to-date works of its kind. It describes the opportunities, etc. for on-farm and 55 typical off-farm occupations. 1963, 254 pp., list price $4.75.

   "Guidance in Agricultural Education", Harold M. Byram - discusses the role of the agriculture teacher in guidance work. Chapter 3 - is especially useful in providing background for teaching about agricultural occupations, 1959. 238 pp., list price, $4.75.

   "Agriculture in Our Lives", George P. Deyoe - a good test for becoming acquainted with agriculture. Chapter 4 - gives a good overview and examples of careers in agriculture. 1956, 638 pp., list price, $4.75.

   "Your Opportunities in Vocational Agriculture", Lloyd J. Phipps - a basic text on an introduction to vocational agriculture. Career information is oriented primarily to farming in Chapter 3 with only a brief mention of related occupations. 1957, 175 pp., list price, $3.25.

   "Charts of Agricultural Occupations" - H. M. Byram - a set of 3 charts: (1) Occupations in Agricultural Production, (2) Occupations in Agricultural Business, (3) Agricultural Professions - which graphically present some 84 agricultural occupations. Set of 3 charts, $2.50.

5. Occupational Index, Inc., New York University, Washington Square, New York 3, New York
6. Research Publishing Co., Inc., P.O. Box 245, Boston 1, Massachusetts.
7. World Trade Academy Press, 3 East 48th Street, New York 17, New York.

III. Other occupational materials

1. Agricultural Commission, The American Bankers Association, 12 East 36th Street, New York 16, New York.
   "Agriculturally Trained Men in Banking," 1959, $.50.

2. American Forestry Association, 919 17th Street, N. W., Washington, D. C.
   "Men Wanted" - a career reprint for prospective foresters, 29 pp. free.

3. American Institute of Cooperation, 1616 8th Street, N. W., Washington, D. C.
   "Careers in Agriculture," free.

4. American Society for Agricultural Engineers, 428 Main Street, Saint Joseph, Michigan.
   "Agricultural Engineering, A Challenging Career," 6 pp., free.
   "Agricultural Engineering as a Professional Career," 8 pp., free.

5. American Society of Agronomy, 2702 Monroe Street, Madison 5, Wisconsin.
   "Your Career in Agronomy," 12 pp. free.

6. American Society of Landscape Architects, 9 Park Street, Boston 8, Massachusetts.
   "Landscape Architecture as a Future Life Work," 1953, 2 pp., free.

7. American Veterinary Medical Association, 600 South Michigan Avenue, Chicago, 5, Illinois.
   "Veterinary Medicine as a Career," free.

8. B. F. Goodrich Company, 500 South Main Street, Akron 18, Ohio.
   "Tommy Looks at Farming," free.

9. Committee on Poultry Careers for the Poultry Science Association, C. B. Ryan, Secretary, Texas A & M College, College Station, Texas.
   "Find Your Career in the Poultry Industry," 45 pp., free. - describes the opportunities for people with poultry science training in various industries.

10. Cooperative Grange League Federation Exchange, Inc., Ithaca, New York.
    "Careers in Agriculture, GLF," free.

11. Entomological Society of America, 1530 P Street, S. W., Washington 5, D. C.
    "Opportunities in Professional Entomology," brochure No. 1, $.15.

12. General Electric Company, Educational Relations Service, 1 River Road, Schenectady 5, New York.
    "Start Planning Your Career Now," 7 pp. free.

13. Institute of Food Technologists, 176 West Adams Street, Chicago 3, Illinois.
    "Food Industry Workers in Food Technology," free.

14. International Harvester Company, Inc., Educational and Personnel Department, 180 N. Michigan Avenue, Chicago 1, Illinois.
    "Career Opportunities After Graduation," 1958 70 pp., free.

15. National Association of Manufacturers, Educational Department, 2 East 48th Street, New York 17, New York
"Your Future Is What You Make It," free.

16. National Sales Executives, Inc., 630 Third Avenue, New York 17, New York
"There's a Future in Your Farm Background," 1958, 45 pp. free. - points out the opportunities in the field of selling to farmers.

17. New York Life Insurance Company, Career Information Service, Box 51, Madison Square Station, New York 10, New York

A. Career Opportunities - a pocketbook compilation of nearly 60 4" x 6" occupational articles - pp. 397, softbound, free. included are:
"Should You be a Farmer?"
"Should You be a Forester?"
"Should You be a Public Servant?"
"Should You be a Biologist?"
"Should You be a Veterinarian?"

B. Each of the above is also available as a separate booklet, 4" x 6", 12 pp., illustrated, free.

18. New York State Conservation Department, State Campus, Albany, New York.

The following information leaflets, which are reprints from the Department's official magazine - "The New York State Conservationist" deal with careers in conservation. They are available in single copies, free from the Department.

"Careers in Soil and Water Conservation"
"Careers in Outdoor Recreation"
"Careers in Conservation Education"
"Forestry as a Career"

19. Society of American Florists, Sheraton Park Hotel, Washington 8, D. C.
"Florist Industry as a Career," 12 pp. free.

20. State University of New York, College of Forestry, Syracuse University, Syracuse, New York
"What Foresters Do," free.

21. The American Society for Horticultural Science, Michigan State University, East Lansing, Michigan.
"Horticulture, A Challenging Career," 1958, 8 pp., free.

22. The Council on Opportunities in Selling, Inc., 630 Third Avenue, New York 17, New York
"Opportunities in Selling," 1963, 22 pp., single copy free to students and teachers.

23. The Guidance Center, Ontario College of Education, University of Toronto, Toronto 5, Ontario, CANADA.
"General Farmer," 1959, 4 pp. $.13.
"Beekeeper," 1959, 4 pp. $.13.
"Florist," 1952, 4 pp. $15.

24. The American Nurseryman, 343 South Dearborn Street, Chicago 4, Illinois "Beginning in the Nursery Business," 1958, 64 pp. $1.00.

IV. Material available from the Federal Government

A. Superintendent of Documents, Government Printing Office, Washington, D.C.

1. Occupational Outlook Handbook, 1963-1964 edition, price $4.50 (employment information on major occupations for use in guidance)

2. Separate report from the Handbook
"Agricultural Occupations," Bulletin No. 1255-2, price $.20.
"Foresters," Bulletin No. 1215-38, price $.05.

3. Occupational Outlook Quarterly, $1.00 per year.

4. Occupational Briefs

A. "The Job of the Berry Farmer," No. 57, 1947, 12 pp. $.05.
B. "The Job of the Corn-Hog-Cattle Farmer," No. 55, 1947, 14 pp. $.05.
C. "The Job of the Dairy Farmer," No. 56, 1947, 14 pp. $.05.
D. "The Job of the Fruit Farmer," No. 59, 1947, 14 pp., $.05.
E. "The Job of the Poultry Farmer," No. 64, 1947, 13 pp. $.05.
F. "The Job of the Truck Farmer," No. 66, 1947, 13 pp. $.05.
G. "Agricultural Economist," No. 12, 1947, 14 pp. $.05.

5. "Starting and Managing a Small Business," Occupational Outlook Quarterly - $1.25.

6. "Establishing and Operating a Retail Feed and Farm Supply Store," Industrial Series No. 45., 38 pp., $.15.

7. "Dictionary of Occupational Titles," 2 volumes - currently a revision is being made of the previous edition and orders for this comprehensive list of occupations and descriptions should await announcement of the new edition.

8. "Careers in the United States Department of Interior, A Directory for College Students," $.25.

B. U. S. Employment Service, U. S. Department of Labor, Washington, D. C.
"Agricultural and Biological Services," Description of Professions series, pamphlet No. 1, 1948, 39 pp., free.

C. U. S. Department of Agriculture, Office of Information, Washington, D. C.

1. "Opportunities for Career Service in the U. S. Department of Agriculture, Miscellaneous Publication No. 675; 52 pp., $.25.

2. "Careers in the Soil Conservation Service," Miscellaneous Publication No. 717, free.

3. "Career Opportunities for Veterinarians in the Agriculture Research Service," Miscellaneous Publication No. 727, free.

4. "Scientific Careers in the Agricultural Research Service," Miscellaneous Publication No. 798, free.

5. "Careers in Forestry," Miscellaneous Publication No. 249, free.

6. "A Job with the Forest Service," free.

D. Fish and Wildlife Service, U. S. Department of Interior, Washington, D.C. "Opportunities in the Fish and Wildlife Service," 32 pp., free.

V. Materials available from the Bureau of Agricultural Education, State Education Department, Albany, New York 12224.

"Why Study Vocational Agriculture in High School" 34 pp., single copy free.

"How Agricultural Agencies and Organizations Serve the Farmer," 78 pp., single copy free.

VI. Materials available from the New York State College of Agriculture, Cornell University, Ithaca, New York.

A. <u>From the Admissions Office</u>

1. Several leaflets describing career opportunities at the college level in the several fields of agriculture including agronomy, agricultural engineering, agricultural economics, dairy industry, food technology, horticulture, plant science, poultry, etc., all free.

2. "Teaching Vocational Agriculture," free.

3. "I've Found my Future in Agriculture," a publication of the American Association of Land Grant Colleges and State Universities, free.

4. "A University Education in Agricultural Science," free.

5. "Agriculture at Cornell."

B. <u>From the Mailing Room</u>

1. "Choosing an Occupation," Miscellaneous Bulletin 45, 12 pp., free.

VII. Materials available from the Future Farmers' Supply Service, P. O. Box 1180, Alexandria, Virginia.

"Agriculture is More Than Farming," 22 pp., single copy $.15 - quantity discounts.

Further information can be obtained from the Bureau of Agricultural Education, The State Education Department, Albany, New York 12224.

R. C. S. Sutliff, Chief
Bureau of Agricultural Education

Joseph R. Strobel
Assistant Commissioner for
Instructional Services
(Vocational Education)

6/64

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Evaluation of Research. (Paper Presented at Central Region Research Conference in Agricultural Education, University of Nebraska, Lincoln, August 2-4, 1966).

Christensen, Virgil E.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

66

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*EDUCATIONAL RESEARCH, *EVALUATION, *GUIDELINES, *RESEARCH METHODOLOGY, *SPEECHES,

Principles providing a general framework for the evaluation of research are -- (1) Determine and clarify what is to be evaluated, (2) Select the evaluation technique in terms of the purpose to be served, (3) Consider more than one way of getting maximum yield out of the evaluations, (4) Know the limitations of evaluation techniques, and (5) Recognize that evaluation is a means to an end and not an end in itself. The recognized pitfalls are -- (1) bias, (2) noncomparable data, (3) uncritical projection of trends (overworking the data), (4) improper assumption regarding causation, (5) comparison with an abnormal base, (6) improper sampling, and (7) misuse of statistical methods. (PA)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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ED015348

EVALUATION OF RESEARCH*

Dr. Virgil E. Christensen, Consultant, Research Design
The Center for Vocational and Technical Education, Ohio State University

First of all, I have made the assumption that our primary concern for evaluation this morning would be that of evaluating research efforts, per se, and not that of evaluating a total vocational education program.

My assignment at The Center for Vocational and Technical Education at Ohio State University is concerned with both aspects--that of assisting Center specialists and other research groups concerned with vocational and technical education in designing and developing their research ideas and also working on The Center's efforts in developing a model for use by states in evaluating their total efforts in vocational and technical education.

Allow me to present a few very general thoughts on the topic now and then possibly go into greater detail in our small group discussion session later this morning.

This will be sort of a "Heinz 57 variety" discussion of evaluation. The 57 stemming from my use of five principles and seven potential pitfalls in evaluation activities.

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*Paper presented at Central Region Research Conference in Agricultural Education, University of Nebraska, Lincoln, August 2, 3, 4, 1966.

VT000513

THE FOLLOWING FIVE PRINCIPLES
PROVIDE A GENERAL FRAMEWORK
FOR THIS DISCUSSION

PRINCIPLE NO. 1 DETERMINE AND CLARIFY WHAT IT IS THAT IS TO BE EVALUATED

Mager, in his book on Preparing Instructional Objectives[1] points out that the correct stating of objectives is the key to evaluation. That the objective must be so written as to describe the intended outcome. That objectives should be so written as to tell you what the learner will be doing and under what conditions he will be doing it when he is doing what it is you expected him to be able to do. The objective, therefore, aids evaluation and evaluation in turn, contributes to the accomplishment of objectives.

To quote Mager, "an objective will communicate your intent to the degree you have described what the learner will be doing when demonstrating his achievement and how you will know when he is doing it."

Mager was of course referring to the writing of instructional objectives, however, what he says applies, at least in part, to the writing of research objectives.

In my opinion, more than half of the problems arising in evaluation stem from poorly thought out objectives, and many of the remaining problems arise in finding the right approach for assessing project outcomes.

Let me give you an example of a research proposal in which the objective and evaluation sections are so written as to create, rather than solve problems. This is a legitimate proposal recently submitted for funding; only the subject identification has been changed.

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[1]Robert F. Mager, Preparing Instructional Objectives, Fearon Publishers, Palo Alto, California, 1962, p. 53.

OBJECTIVE: To prove that the best method of teaching _____ is by use of community resources and audiovisual aids that will make _____ attractive, interesting, and meaningful.

This is the one and only objective listed in this study.

Let's next move into the proposal to see how this researcher plans to carry out his evaluation, testing to see if he has achieved his stated objective.

"THE FOLLOWING CRITERIA WILL BE USED IN EVALUATING THIS EFFORT"

1. Is the program in keeping with what we know about good education?
2. Does it grow out of regular classroom activities?
3. Does it challenge the student's interests?
4. Will it take the student beyond his present knowledge into new and enriched experiences?
5. Does it give the student an opportunity to do creative work?
6. Will it cause the student to do critical thinking?
7. Will it cause the student to develop new, broader, and deeper interests?
8. Will it give the student new insights into new interests?
9. Will multiple skills and abilities be gained by carrying on this type of activity program?

Would you say this person is whipped before he begins? The sad part about it is that this kind of writing shows up in proposals day after day with field readers given little choice but to turn them down.

WHAT CAN THE
RESEARCHERS DO?

1. Decide what the purpose is of the evaluation before he decides on any particular approach to evaluation.
2. He can make a decision as to what is to be evaluated, <u>then</u> select the data collecting devices, instruments, etc.
3. Make a decision as to what is to be valued in the evaluation and why it is important.
4. Write objectives that can be evaluated.

PRINCIPLE NO. 2 <u>SELECT THE EVALUATION TECHNIQUE IN TERMS OF THE PURPOSE TO BE SERVED</u>

Too often the techniques of measurement used are selected on the basis of accessability rather than on how accurately they assess the most "potent variable" or describe the crucial criteria or key indicators in evaluation. Almost any technique has an appropriate use and purpose--finding the one that measures the most crucial factors in your research effort is worth searching out.

PRINCIPLE NO. 3 <u>CONSIDER MORE THAN ONE WAY OF GETTING MAXIMUM YIELD OUT OF THE EVALUATION</u>

Just as no one device or technique is adequate for measuring or determining all possible outcomes. I'm also convinced that many researchers stop short of a complete evaluation. They

stop before they have gleaned the maximum information from their evaluation activity. Let me use a simple illustration of this principle.

I read recently of a rather sophisticated bit of supermarket research where the primary objective was that of trying to figure out how to get more of the housewives' dollar and keep her happy in doing so. This study, by using a simple survey technique, found out that:

the average shopper spends 20-24 minutes in the store,
buys an average of 25 items,
spends between $11-16,
2/3rds of the average income shoppers don't have a list, while
50% of upper income people do;

31% of purchases are specifically planned,
50% of purchases were unplanned (impulse buying),
17% were thought about but not specifically planned,
2% are substitute items; } = 100%

69% of brand decisions are made at the instant of purchase
65% of egg purchases were planned
75% of purchases of scatter rugs, sponges, are unplanned.

Now the researcher could stop his analysis here, publish a report and it would all make for interesting reading. It tells a lot about the shopper, but it really doesn't tell much about how the store manager can get the shopper to spend more money, which was the original objective.

I'm happy to say that this research group didn't stop with just this descriptive report, but went on into a modified time and motion study observing the shoppers movements, second by second. From this, they found that:

10 seconds is all that is spent in buying laundry soap and most of this is spent in loading it into the cart,

3.6-4.3 minutes are spent in waiting to get checked out,

2 minutes are spent in shifting items about in the cart,

50 fixed eye contacts are made of products on the shelves.

These findings go on and on, but a few of these are sufficient to illustrate a point.

How did the researchers get multiple yield from their data? They did as follows:

1. If it takes her only 10 seconds to buy laundry soap, don't spend any money on this section, give it a fairly low priority corner or end of the aisle space.
2. Keep the high mark-up items at eye level--the shopper makes an average of only 50 fixed eye contacts--make every one count.
3. Capitalize on that 3-4 minute wait at the checkout counter. Stock this area with impulse items. Chewing gum and marshmellows are two of the best "impulse items".
4. Put the bread and soft fruit near the end of the shopping pattern--this will cut down on time spent shifting items in the cart and allow a few more eye contacts.
5. Keep the candy, cookies, and breakfast cereals high enough so that the kids in the cart can see them--this extra pair of eyes increases your total number of eye contacts.

These researchers milked every idea they could from the data and it is paying dollar dividends.

How about some of our job competency studies in agricultural education? Are we getting maximum yield from them--or do we evaluate too grossly? I'm convinced that many of these studies settled for too little information. Wouldn't it help us to know more about the critical 10 seconds or 10 minutes in a workers application of skills? Or what is the best traffic pattern for teaching the "cluster skills"? This whole idea borders on the critical incidence technique now receiving increased attention in a number of educational research efforts.

PRINCIPLE NO. 4 KNOW THE LIMITATIONS OF EVALUATION TECHNIQUES

I'll skip over this area rather quickly, because the limitations are discussed more completely under the pitfalls section of this paper. There are, however, three factors to keep in mind here:

1. That even our best educational measuring instruments fall short on the amount of precision we would like to have.
2. That much of evaluation depends upon interpretation of meaning and is thus subject to many human errors.
3. That a healthy awareness of the limitations should encourage the use of more than a single evaluation technique.

PRINCIPLE NO. 5 EVALUATION IS A MEANS TO AN END AND NOT AN END IN ITSELF

This, of course, is another version of the old and often repeated statement that evaluation to be effective must be continuous.

If the research effort has been worthwhile doing and if the evaluation points out anything either positive or negative--you haven't completed the task if you stop there.

Get the results into action programs or into decision making places.

Use the results in structuring subsequent research plans.

Walter Finke, President of Electronics Data Processing Division of Honeywell, says:

> "... information is the last great frontier of man. Diligently gathered it will fill gaping holes in man's body of knowledge. Carefully organized, it can serve virtually any human discipline. Readily available, it can be marshalled at the time decisions are to be made, rather than days, weeks, or months later. Properly used, it can indeed become a deliverance from human ignorance and lack of knowledge."

We are approaching a period of time when the results from research will be fed quickly into information retrieval systems and available to all--<u>but</u>, all the information retrieval systems and piles of abstracts aren't going to be worth the microfilm they're printed on if the evaluation wasn't carried out right in the first place.

There are undoubtedly many other principles that could be added to the five presented, but let me go on to a brief discussion of seven recognized evaluation pitfalls.

PITFALL NO. 1 <u>BIAS</u>

This is one of the most prevalent pitfalls.

It is difficult for any researcher to maintain complete objectivity--to put aside his preconceived ideas on the issue, but let's face it there is sufficient flexibility possible in the treatment of most data to influence almost any finding.

Too often evaluations are completed, decisions are made and most of it based on preconceived ideas. Statistics are used only as a pretence that the decisions reached had a sound and logical base. I'm not suggesting that the data in some studies are changed, rather it is the interpretation of the findings that undergoes mass manipulation in order to put forth the "right answer".

There is a saying which says: "There is no process of amalgamation by which opinions, wrong individually can become right merely by their multitude."

So is it also with research data, there is no process of "computerization" whereby data, wrong in the first place, can become more right merely by their manipulation.

PITFALL NO. 2 NON-COMPARABLE DATA

This refers to a failure on the part of the evaluator to make sure that data used in making comparisons are comparable in every way.

This pitfall can create problems in much of our present research--we need to be very careful in drawing conclusions based upon the comparison of todays figures in vocational agriculture with those collected five years or ten years ago.

How to get comparable data is largely a design problem--but if the design is wrong, you can't skew your evaluation to correct it.

PITFALL NO. 3 UNCRITICAL PROJECTION OF TRENDS--OVERWORKING THE DATA

Here I am talking about making predictions for the future based upon existing or past trends. We need to make a number of manpower and other projections today, but in so doing, we have to take into account the factors that were influential at the time the original data was collected. We have to ask the question as to whether these same influences will be existent in the projected period. If not, the projections become meaningless and probably dangerous.

A recent publication[2] from the U. S. Office of Education entitled Research Needs in Vocational-Technical Education for Program and Career Planning lists the analysis and projection of employment, economic and demographic trends as one of the significant areas of needed research for strengthening vocational-technical education.

Those working in projecting needs in agricultural education need to be alert to the inherent problems in this pitfall as they project manpower needs, teacher needs, etc.

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[2]Research Needs in Vocational-Technical Education for Programs and Career Planning, Prepared in the Employment Opportunities Branch, Division of Adult and Vocational Research, Bureau of Research, U.S.O.E. July, 1966.

PITFALL NO. 4 IMPROPER ASSUMPTION REGARDING CAUSATION

It's not so difficult to find out what happened if you have accurate data, but why it happened is another matter and of course if you have poor data in the first place, this only compounds the problem. Understanding the cause and effect relationship between events is an extremely important element in any research effort and especially in the evaluation phase.

Too often, we jump to the quick conclusion that the change in one event was the cause of change in the other when very often an unknown third factor probably caused the change in both.

This is probably best illustrated by a story heard recently.

The story is about four people: a young, dashing, Russian army officer, a Rumanian businessman, a very pretty young girl, and an elderly woman. All were sitting in the same train compartment riding through Rumania. They came to a tunnel, and while they were in complete darkness, a resounding kiss and a slap were heard. As they come out of the tunnel, the elderly woman was thinking. "I'm certainly glad that young girl defended her honor against the Russian." And the young girl thought, "I wonder why the Russian kissed the old lady instead of me," and the Russian thought, "Clever of that Rumanian to kiss the girl and have me get slapped," and the Rumanian businessman chuckled to himself, "It's my lucky day. I kiss the back of my hand, pinched a young lady, slapped a Russian, got an old lady's mind occupied, and got away with it all."

Of course the moral to the story is to know what caused what before jumping to any hasty conclusions.

PITFALL NO. 5 MAKING COMPARISONS WITH AN ABNORMAL BASE

Here, I am referring to the comparison of results of studies with those of previous standards which were atypical.

Recently, someone pointed out to me the following error is his wife's thinking about rising food costs. His wife was comparing what she spends today for food against her old grocery figures for the same month ten years ago. It was of course several times higher, even greater than normal inflationary trends would lead her to expect. A more careful analysis, however, pointed out that it wasn't all in the rising cost, but the change that has taken place in food markets today. About 50% of this lady's food budget spent at the grocery store consisted of such items as aspirin, garden seeds, flower plants, rugs, charcoal, etc. Many of the items being included as food budget items were in past years bought at stores other than food markets. Therefore, in establishing comparative basis for current evaluation efforts in agricultural education, we need to be aware of this trap.

PITFALL NO. 6 IMPROPER SAMPLING

This has reference to taking an improper small sample and generalizing findings back to a larger group.

A good illustration here is the study made by one of the major toilet paper manufacturers who decided that they should get into the production of colored toilet paper. They hired one of the nation's leading research firms to determine what colors they should produce. A probability sample was drawn, a survey

made, and the colors one would expect to be preferred--green, yellow, blue, and pink showed up, but topping the list was rose. The company made rose colored paper, but it didn't sell. What went wrong? Did people change their minds? Do color preferences for toilet paper change with the seasons? Do people want cool colors in the summer and warm ones in the winter? Was it a poor sample? or What? The answer was in sampling, although it was a good sample from all apparent aspects, about a third of the families interviewed lived in a major housing area in which all the bathrooms were rose colored and they wanted matching paper. Across the country, there were relatively few rose colored bathrooms.

Where the sample is improperly selected, the evaluation becomes meaningless.

PITFALL NO. 7 MISUSE OF STATISTICAL METHODS

We're all guilty on this one.

Applying non-correlated techniques to correlated data.

Using analysis of co-variance on data that really deserves no more than mean, median, and mode treatment.

Probably the answer on this pitfall is to seek the advice and assistance from someone able to distinguish between the right and wrong methods for a particular situation.

Briefly, let me summarize my very random comments about evaluation emphasizing again the need for:

1. very carefully taking evaluation into account when you write your objectives,
2. for care in selecting and use of evaluation techniques, and
3. getting maximum utility from the evaluation that you do carry out.

VT 000 538

VT 000 538

Occupational Opportunities and Training Needs of Youth for Nonfarm Agricultural Jobs in the Shreveport-Bossier City Area. (Vo. Ag. Ed., no. 7).

Curtis, C. M. * Mumphrey, Anthony

Louisiana State Univ, Baton Rouge. Dep of Vocat Agr Educ.

Mar65

DOCUMENT NOT AVAILABLE FROM EDRS 66p.

*VOCATIONAL AGRICULTURE, *OFF FARM AGRICULTURAL OCCUPATIONS, *OCCUPATIONAL CLUSTERS, EMPLOYMENT LEVEL, SALARIES, WORK EXPERIENCE, EMPLOYERS, EMPLOYMENT OPPORTUNITIES, AGE, RESIDENCE REQUIREMENTS, *EMPLOYMENT QUALIFICATIONS, *EDUCATIONAL NEEDS, EDUCATIONAL SURVEYS, OCCUPATIONAL SURVEYS,

Louisiana, Shreveport,

The principal purpose of this survey was to identify off-farm agricultural occupations requiring knowledge and skill in agriculture and to obtain specific job qualifications and training requirements. One of seven surveys in metropolitan areas in the state, it was conducted by trained interviewers. A total of 221 businesses reported 4,338 employees, of which 1,717 in 294 job titles required agricultural knowledge and skill. Job titles were found in all agricultural occupational families and at nine levels with some difference in levels in different families. Job entry age preference by employers was between 25 and 45. Sales level jobs commanded the better beginning salaries. Employers were reluctant to hire those with less than a high school education, and preferred some college. No strong residential background preference was reported by employers, nor was farm experience required. Most employees were required to have agricultural knowledge and skill, with the managerial, supervisory, and sales levels needing more specific familiarity with agricultural subject areas. Recommendations are included on implementation of educational programs in light of the study results. (JM)

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March 1965

OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE SHREVEPORT - BOSSIER CITY AREA

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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BY:

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DEPARTMENT OF VOCATIONAL AGRICULTURAL EDUCATION

SCHOOL OF VOCATIONAL EDUCATION

COLLEGE OF AGRICULTURE

LOUISIANA STATE UNIVERSITY

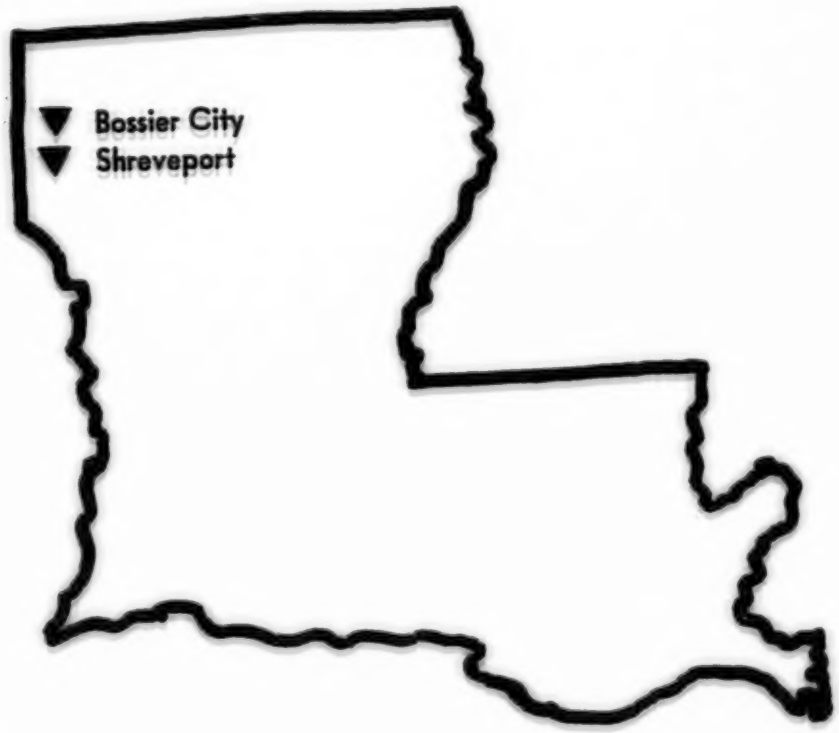
March, 1965

PREFACE

Rural youth are finding it increasingly difficult to find employment in their rural communities. They must either farm or seek employment outside the sphere encompassed by production agriculture. Only those rural individuals possessing saleable skills and specialized training in nonfarm agriculture can compete favorably with their urban counterpart for job entry in farm based agricultural occupations.

This report constitutes one segment of the state-wide survey to determine scope and magnitude of agricultural occupations and a description of jobs together with specialized training needed to gain employment in these positions.

The basic data, herein, can be used profitably by school administrators, counselors, teachers, and students to provide a platform upon which to launch a sound, realistic program for vocational agriculture with the view of meeting educational needs for employment in nonfarm agriculture.



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Invaluable aid in effecting the Shreveport-Bossier City survey was given to University Researchers by the Division of Employment Security and Officers of the Shreveport Chamber of Commerce.

Especial acknowledgement is expressed to the 221 businesses and agencies cooperating in this study.

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE SHREVEPORT - BOSSIER CITY AREA

by

C. M. Curtis* and Anthony Mumphrey**

INTRODUCTION

Shreveport and Bossier City, "The Twin Cities" comprise a metropolitan area unique in character and historical significance. The population figure for this metropolis is some 297,200.

This metropolitan area is a rich agricultural center and the nucleus of a 150 mile trading area containing many well established retail and wholesale outlets in the nature of businesses, many of which deal in products consumable on the farm or in a service available to farmers in the area.

In addition to its agricultural and business complexes, the metropolis has a diversified industrial economy, comprising some 363 industrial plants producing more than 384 different products.

The industrial and agricultural development in this area is truly in the embryonic stage and is growing at a phenomenal pace. Agriculturally, nature has endowed this metropolitan area with a most ideal agricultural climate; it favors growing any agricultural crop profitably.

There are 92 public schools in the parishes of the "Twin Cities", six of which offer vocational agriculture at the secondary school level. Two of the six secondary schools offering vocational agriculture are located within the corporate limits of the city. Fair Park and Woodlawn High Schools have

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enrollments in vocational agriculture of 51 and 107, respectively. These enrollments are indicative of much interest in employment opportunities existing in the agricultural complex of the area.

The significance of agricultural enterprises in Louisiana's successful economic history is general knowledge to all. Notwithstanding the fact that production agriculture has decreased in scope during the last 30 years, agribusiness continues to be the predominate industry, contributing the larger share of total employment and income.

In 1959 the average Louisiana farm comprised 139 acres and was valued at $21,000. Data for 1959 reveal that there are some 74,000 farms in the State with a total coverage of 19,347,328 acres.

Data in 1959 for Caddo and Bossier Parishes reveal that total land in farms was 501,000 acres and the average size farm was some 178 acres. The average size of farms in terms of acreage doubled from 1949-1959 and land use for crops decreased by more than two-thirds.

There is a considerable amount of farming in the area around Shreveport and Bossier City as measured by employment data in the industry. A greater proportion of the civilian work force is actually employed in agriculture and its services than the average in the United States as a whole.

Recent studies emphasize that as population continues to increase, the need for well trained employees in agribusiness will continue to be magnified. The trend toward fewer farmers and more individuals employed to supply service, process, and distribute will continue to expand.

PURPOSE OF THE SURVEY

The Shreveport-Bossier City survey is one segment of a Statewide study, comprising seven metropolitan areas.

The principal purpose of the survey was to identify nonfarm agricultural businesses and professional organizations having one or more job titles

requiring knowledge or skill in agricultural subjects, and to obtain specific job qualifications, including training in agriculture associated with job entry.

Funds granted to the University by the Board of Liquidation of the State Debt were used to finance the study.

The overall objective of the study was to provide those engaged in education with a knowledge of present and emerging agricultural occupations, other than farming and ranching, for which instruction in vocational agriculture should be available in public schools.

For purposes of this research, an agricultural occupation other than farming and ranching refers to one for which workers need competencies in one or more of the primary areas of plant and animal science, agricultural business management and marketing, and agricultural mechanization.

To make a determination involving extensive changes in high school programs of vocational agriculture, it was assumed that the following information had to be secured:

1) Number of employees in each and all agricultural business firms or organizations, together with employee identification according to job title held,

2) Competencies needed in agricultural subjects or skills required for job entry and advancement, and

3) Special characteristics of all job titles such as salary or wages, entry age, required formal education and experiences, legal restrictions and union regulations, licensing and certification, and a description of work performed by workers within a particular job title.

SURVEY PROCEDURE

All nonfarm agricultural businesses and organizations within the limits of the metropolitan areas of Shreveport and Bossier City were included in the survey.

Of the 9,100 workers in manufacturing industries in Caddo and Bossier Parishes, at least half are directly engaged in agribusiness endeavors as determined by their primary employment. Manufacturers of food and kindred products alone account for more than 2,000 workers.

The above data indicated from the very onset that businesses that are agriculturally oriented are of great significance as far as the economy of the metropolitan area is concerned.

As a preliminary procedure in the structure for studying the metropolitan area, a comprehensive list of all agriculturally oriented firms and organizations was developed for the Shreveport-Bossier City area; this list was evaluated and finalized to include only those businesses having one or more employees with knowledge or skill in agricultural subjects. The list was supplemented with business listings obtained from the Yellow Pages of the local Southern Bell Telephone Directory, the several trade associations, records of the Shreveport Chamber of Commerce, and the local Division of Employment Security.

Endorsement of the proposed study of these business establishments was extended by the Agricultural Committee of the Shreveport Chamber of Commerce. Officials of the Chamber corresponded with each establishment in the study. In addition, a letter explaining the purpose of the survey was sent to each business by the Dean of the College of Agriculture, Louisiana State University. Additional support was derived from the publicity given by the local newspapers, namely, The Shreveport Times and Shreveport Journal and the local radio broadcasting stations: KWKH and KEEL.

As a second phase of the study, a group of prospective interviewers was recruited by the local Division of Employment Security. They were finalized to six and trained in procedures to conduct the study by University personnel. The surveys were completed in a 15 day period under the direct supervision of University and State Department of Education personnel.

Each interviewer was given a group of firms to contact relative to acceptable time schedules for interview. All information pertinent to the study was recorded, using the survey instrument developed for the Statewide study. A sample of this schedule is included in Appendix C of this report.

A total of 221 businesses cooperated in the study--this included 100 per cent of the firms having employees with knowledge or skill in agricultural subjects.

These business establishments employed 4,338 employees, with some 1,717 having agricultural competencies. Projected for the next five years was the need for 213 additional workers possessing agricultural competencies. Nearly 40 per cent of the total employees were found to have competencies in agriculture. This figure appears to be relatively low, considering that the businesses being surveyed were assumed to be agriculturally oriented.

TREATMENT OF SURVEY INFORMATION

In order to present and interpret survey information, the data were organized under three general categories, namely,

1) Occupational families
2) Classification of job titles into levels of employment and training required in agricultural subjects, and
3) Special requirements for job entry

To provide for better coordination of summary data at the National level, occupational families were used as adopted by the National Center for Research in Vocational Agricultural Education at Ohio State University. These families were determined to be as follows:

Farm Machinery Sales and Service
Farm Supplies and Equipment
Livestock and Poultry
Crops, Forestry and Soil Conservation
Ornamental Horticulture
Wildlife and Recreation
Farm Service
Agricultural Service

The number of employees was determined for each occupational family, as well as the number of these workers having competencies in agriculture now and five years hence. Job titles were determined by occupational family and projected new job titles were surveyed in each occupational family. Job titles

were also classified according to levels of employment, that is, professional, technical, managerial, supervisory, sales, office, skilled, semi-skilled, and unskilled.

In each occupational family and level of employment, data were collected concerning age of entry into occupation, monthly salary, and number of employees needing knowledge or skill in each subject matter area, namely, crops, livestock, management, and mechanics.

More specifically, requirements for each occupational family were determined according to each job level. Such employment requirements as: education, residential background, farm experience, and continuing education required for advancement were also determined.

The data in this study were intended to reveal occupational opportunities in nonfarm agriculture in the Shreveport-Bossier City metropolitan area. These data will serve as tools to be used by secondary school guidance counselors as they guide students toward certain vocational objectives. Implementation of the facts as interpreted in this study will provide a firm basis for program development to insure students receiving vocational training necessary to gain entry and succeed in nonfarm agricultural occupations.

PRESENTATION AND ANALYSIS OF SURVEY INFORMATION

Types of Firms

The various types of firms surveyed were grouped according to occupational families. Some 130 different types of firms were included in this study of the Shreveport-Bossier City area. The occupational family (Crops, Forestry, and Soil Conservation) contained more types of firms, with the family (Farm Service) having the second greatest concentration.

A complete list of the types of firms in each occupational family follow:

I. Farm Machinery Sales and Service
   - Automation Equipment Company
   - Farm Machine and Equipment Dealer
   - Automobile Dealer
   - Contractors Equipment Company

Farm Implement Company

II. Farm Supplies and Equipment
- Hardware Store
- Fence Company
- Department Store
- Feed and Seed Store
- Louisiana Agricultural Cooperative
- Building Supply Store
- Dime Store
- Fertilizer Company
- Wholesale Distributing Company
- Chemical Dealer (Agricultural)
- Pet Market
- Garden Center
- Veterinarian Supply Company
- Feed Mill
- Dairy Farm Equipment Dealer
- Farmer's Cooperative
- Lumber Company

III. Livestock and Poultry
- Slaughter House
- Butcher Shop
- Meat Market
- Egg Processing Company
- Milk Distributorship
- Creamery
- Wholesale Meat Distributor
- Dairy Products Company
- Boarding Stables
- Livestock Auction Barn
- Rendering Plant
- Poultry Market
- Packing Plant
- Soap Corporation
- Hatchery
- Grocery Store
- Poultry and Egg Processing Company
- Poultry By-Products Company
- Stockyard

IV. Crops, Forestry, and Soil Conservation
- Louisiana Forestry Commission
- Fruit Exchange Company
- Tree Service Company
- Logging Company
- Produce Company
- Rice By-Products Company
- Coffee Company
- Fruit Company
- Forest Service (U.S.)
- Rice Mill
- Wood Preserving Company
- Grain Company
- Canned Food Company
- Lumber Company (Sawmill)

Tomato Company
Oil Mill Company
Pulpwood Company
Food Store
Cotton Gin
Cotton Brokerage Company
Paper Company
Planting Company
Sugar Company
Cotton Products Company
Creosoting Company
Fruit Stand
Cotton Division, Market Service

V. Ornamental Horticulture
Garden Center
Nursery
Florist
Landscape Company
Wholesale Florist

VI. Wildlife and Recreation
Golf Course
State Park
Riding Stable
Taxidermist
S.P.C.A.
City Park
National Park
Playground
Golf Course Service Company
Country Club
Louisiana Wildlife and Fishing Commission
State Park and Recreation Commission

VII. Farm Service
Welding Company
Machine Shop
Electric Power Supplier
Pest Exterminating Company
Artificial Breeders
Credit Association
Farmer's Home Administration (U.S.D.A.)
Radio Station
Realty Company
Aero Farm Service
Water Well Company
Auto Repair Shop
Research Consulting Firm
Building Contractor
Livestock Brand Commission
Television Station
Insurance Company
Farm Service Laboratory
Airplane Service

Iron Works Company
Land and Oil Company
Blacksmith
Plant Pest Control Division (U.S.D.A.)
Farm Bureau

VIII. Agricultural Service
Animal Hospital
Veterinarian
Agricultural Stabilization and Conservation
State College
Agriculture Extension Service
Soil Conservation Service
State Department of Agriculture
Vocational Agriculture Teacher
State Market Commission
County Agent
U. S. Department of Agriculture
Animal Disease Eradication (U.S.D.A.)
Bank (Commercial)
State Land Office
News Bulletins
Levee Board
Forest Experiment Station
Plant Pest Control (U.S.D.A.)
Bank (Federal Land Bank Association)
U. S. Air Force, S.A.C.
State Fair Association

Number Employed in Nonfarm Agriculture

Data in Table I reveal the number of agricultural businesses, industries, and agencies categorized according to occupational family. A total of 221 businesses were surveyed; more than 70 per cent of these firms were in Farm Supplies and Equipment; Crops, Forestry and Soil Conservation; Farm Service; and Agricultural Service. The greatest concentration was in Farm Supplies and Equipment.

Of the 4,338 employed in the eight occupational families, 1,717 currently had competencies in agriculture, with 1,904 workers needed with agriculture competencies five years hence.

TABLE I

NUMBER OF AGRICULTURAL BUSINESSES, INDUSTRIES, AND AGENCIES BY OCCUPATIONAL FAMILY, 1964

Occupational Family	Number
Farm Machinery, Sales and Service	8
Farm Supplies and Equipment	50
Livestock and Poultry	22
Crops, Forestry and Soil Conservation	37
Ornamental Horticulture	25
Wildlife and Recreation	4
Farm Service	32
Agricultural Service	43
Total	221

Table II indicates that 40 per cent of those employed in nonfarm agriculture in the Shreveport-Bossier City area required competencies in agriculture; a projected increase of 10 per cent needing training in agriculture does not neutralize the observation that businesses in this area could profit by employing better trained individuals for occupations which are agriculturally oriented. Management principles would appear to favor the individual who is better prepared for specific occupations.

Approximately 75 per cent currently employed having competencies in agriculture were found in only four occupational families, namely, Farm Supplies and Equipment, Livestock and Poultry, and Crops, Forestry and Soil Conservation; and Ornamental Horticulture.

All occupational families revealed an increase in projected employment of individuals having competencies in agriculture five years hence.

TABLE II

NUMBER OF PERSONS EMPLOYED IN AGRICULTURAL BUSINESSES, INDUSTRIES, AND AGENCIES, AND NUMBER OF EMPLOYEES HAVING AGRICULTURAL COMPETENCIES, BY OCCUPATIONAL FAMILY

Occupational Family	Total No. Employees	Employees Having Agricultural Competencies	
		Current Employment	Expected Employment Five Years Hence
Farm Machinery Sales & Service	367	86	105
Farm Supplies & Equipment	1,173	384	421
Livestock & Poultry	827	306	329
Crops, Forestry & Soil Conservation	418	371	379
Ornamental Horticulture	239	219	260
Wildlife & Recreation	42	21	35
Farm Service	201	129	161
Agricultural Service	1,071	201	214
Total	4,338	1,717	1,904

Job Titles According to Occupational Families and Levels of Employment

The 1,717 employees having competencies in agriculture held some 294 job titles, with more than 70 per cent of these jobs being in only four occupational families, namely, Farm Supplies and Equipment; Livestock and Poultry; Crops, Forestry and Soil Conservation; and Agricultural Service.

It is interesting to note in Table III that a projected increase of only 22 job titles is anticipated in five years. This may be due in part to management consolidating certain jobs for efficiency with possibly more new job titles being reflected than the data actually reveal.

TABLE III

NUMBER OF JOB TITLES IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING, BY OCCUPATIONAL FAMILY

Occupational Family	Number of Job Titles	Number of Job Titles Five Years Hence
Farm Machinery Sales and Service	19	19
Farm Supplies and Equipment	50	50
Livestock and Poultry	53	55
Crops, Forestry, & Soil Conservation	52	56
Ornamental Horticulture	30	31
Wildlife and Recreation	7	9
Farm Service	26	36
Agricultural Service	57	60
Total	294	316

A complete analysis of job titles is indicated for each of the eight occupational families, including the number of workers in each title as revealed by this study.

OCCUPATIONAL FAMILY	LEVEL OF EMPLOYMENT AND JOB TITLES	NUMBER OF WORKERS
Farm Machinery Sales and Service	Professional	
	Irrigation Engineer	1
	Asst. Irrigation Engineer	1
	Technical	
	Managerial	
	President	4
	Parts Dept. Manager	4
	Office Manager	1
	Sales Manager	2
	General Manager	5
	Accounting Manager	1
	Service Manager	1
	Asst. Parts Manager	1
	Supervisory	
	Shop Foreman	2
	Sales	
	Salesman	32
	Parts Salesman	2
	Office	
	Bookkeeper	2
	Skilled	
	Parts Man	3
	Mechanic	16

	Service Man	4
	Semi-Skilled	
	Shop Worker	3
	Unskilled	
	Porter	1
Farm Supplies and Equipment	Professional	
	Technical	
	Managerial	
	Manager	45
	Asst. Manager	10
	Warehouse Manager	4
	Traffic Manager	1
	President	1
	Shop Manager	1
	Owner	2
	Sales Manager	2
	Dept. Manager	13
	Branch Manager	1
	Traffic Manager	1
	Plant Manager	2
	District Manager	1
	Asst. District Manager	1
	Horticulture Dept. Manager	1
	Farm Store Manager	1
	Plumbing & Well Dept. Manager	1
	Supervisory	
	Yard Supt.	1
	Yard Foreman	1
	Mill Supt.	1
	Asst. Mill Supt.	1
	Foreman	3
	Warehouse Supt.	1
	Superintendent	1
	Wrecking Foreman	1
	Sales	
	Salesman	77
	Farm Store Salesman	3
	Agriculture Salesman	1
	Office	
	Shipping Clerk	5
	Secretary	3
	Secretary-Treasurer	2
	Clerks	24
	Bookkeepers	6
	Stock Clerk	1
	Asst. Secretary	1
	Cashier	10
	Office Employees	22
	Skilled	
	Home Improvement Consultant	1
	Estimater	1
	Operator	7
	Farm Service Man	5

	Semi-Skilled	
	Maintenance Man	11
	Semi-Skilled Production	25
	Truck Driver	28
	Warehouseman	3
	Unskilled	
	Yard Man	5
	Yard & Delivery Man	1
	Laborer	35
	Driver's Helper	1
	Fence Erector	6
Livestock and Poultry	Professional	
	Technical	
	Herdsman	1
	Fieldman	3
	Managerial	
	Manager	23
	Office Manager	6
	Sales Manager	6
	Plant Manager	1
	Production Manager	1
	Asst. Manager	3
	Farm Manager	1
	Milk Production Manager	1
	Egg Dept. Manager	1
	Marketing Manager	1
	Southern Zone Manager	1
	Killer Floor Manager	1
	President	1
	Supervisory	
	Route Supervisor	3
	Dock Foreman	1
	Store Room Supt.	1
	Sausage Foreman	1
	Dairy & Poultry Supt.	1
	Meat Supt.	1
	Plant Supt.	4
	Yard Foreman	1
	Retail Supt.	1
	Retail Supervisor	6
	Wholesale Supervisor	3
	Asst. Plant Supt.	3
	Shipping Foreman	1
	Sausage Foreman	4
	Sales	
	Salesman	75
	Merchandiser	1
	Livestock Buyers	1
	Office	
	Stock Clerk	2
	Shipping Clerk	2
	Bookkeeper	1
	Auditor	1
	Accountant	4

	Shipping Clerk	1
	Receiving Clerk	1
	Skilled	
	Ring Man	1
	Meat Cutter	8
	Butcher	5
	Auctioneer	2
	Ice Cream Maker	1
	Operator	1
	Asst. Operator	1
	Semi-Skilled	
	Truck Driver	37
	Warehouseman	12
	Order Packers	4
	Plant Workers	3
	Weigh Master	1
	Processor	37
	Unskilled	
	Laborers	21
Crops, Forestry, & Soil Conservation		
	Professional	
	Forester	1
	Public Relations	1
	Technical	
	Grader	1
	Candler	3
	Tree Surgeon	3
	Inspector	1
	Managerial	
	Manager	37
	Poultry Manager	1
	Egg Farm Manager	1
	Office Manager	5
	Sales Manager	2
	Manager Agricultural Dept.	1
	Asst. Manager	1
	Branch Manager	1
	Supervisory	
	Wood Procurement Supt.	1
	Wood Marketing Foreman	1
	Foreman #1	1
	Foreman #2	1
	Foreman #3	1
	Warehouse Supt.	1
	Warehouse Foreman	3
	Mill Supt.	1
	Foreman Lint Room	1
	Tree Surgeon Foreman	2
	Plant Supt.	1
	Superintendent	1
	Herdsman Foreman	1
	Head Forestry Dept.	1
	Sales	
	Salesman	26

	Sales Representative	1
	Buyers	4
	Office	
	Secretary	5
	Bookkeeper	15
	Secretary-Treasurer	15
	Office and Shipping Clerk	4
	Cashier	1
	Skilled	
	Ginner	2
	Ranger	1
	Press Operator	1
	Mechanic	1
	Semi-Skilled	
	Tree Trimmer	8
	Poultry Processor	15
	Truck Driver	29
	Mill Employee	25
	Tower Man	1
	Gin Stand Worker	2
	Weigher	2
	Candler	3
	Unskilled	
	Laborer	105
	Porter	2
	Warehouseman	1
Ornamental Horticulture	Professional	
	Landscape Architects	5
	Landscape Specialist	3
	Technical	
	Florist	1
	Managerial	
	Manager	19
	Nursery Manager	1
	Asst. Manager	4
	Owner	6
	Retail Sales Manager	1
	Retail Sales Asst. Manager	1
	Chem. & Fert. Dept. Manager	1
	Small House Plant Manager	1
	Nursery Stock & Tree Manager	1
	Office Manager	1
	Supervisory	
	Supervisor	1
	Landscape Foreman	4
	Foreman	1
	Greenhouse Foreman	1
	Sales	
	Salesman	18
	Landscape Salesman	4
	Office	
	Clerk	4
	Bookkeeper	1

	Skilled	
	Flower Arranger	3
	Designer	19
	Asst. Designer	4
	Semi-Skilled	
	Truck Driver	5
	Grower	2
	Landscape Gardner	4
	Unskilled	
	Gardner	78
	Greenhouse Attendant	1
	Laborer	24
Wildlife and Recreation	Professional	
	Technical	
	Managerial	
	Manager	2
	Asst. Manager	1
	Supervisory	
	Office	
	Skilled	
	Chief Greenskeeper	2
	Semi-Skilled	
	Greenskeeper	9
	Asst. Greenskeeper	1
	Unskilled	
	Golf Course Employee	5
	Groundskeeper	1
Farm Service	Professional	
	Home Economist	1
	Radio Farm Director	2
	Supervisor	1
	Farm Management Supervisor	1
	Technical	
	Inspector	1
	Pilot	7
	Managerial	
	Vice-President	1
	Manager	26
	Asst. Manager	4
	Office Manager	3
	Supervisory	
	Performance Supervisor	1
	Supervisor	1
	Service Man Supervisor	1
	Termite Dept. Head	1
	Office	
	Clerk	11
	Secretary	2
	Office Asst.	1
	Sales	
	Salesman	8
	Advertising Salesman	2

	Skilled	
	Blacksmith	2
	Reporter	16
	Serviceman	13
	Semi-Skilled	
	Ground Crew	3
	Exterminator	1
	Asst. Exterminator	2
	Unskilled	
	Lineman Helper	15
Agricultural Service	Professional	
	Veterinarian	15
	Entomologist	2
	Research Plant Pathologist	1
	Chemist	1
	County Agent	4
	Asst. County Agent	3
	Home Demonstration Agent	2
	Asst. Home Demonstration Agent	3
	Agronomist	3
	Animal Husbandry Man	1
	Forester	6
	Vocational Agriculture Teacher	4
	Livestock Director	1
	Technical	
	Agriculture Research Technician	1
	Milk Technician	1
	Sweet Potato Inspector	2
	Pink Boll Worm Inspector	3
	Pink Boll Worm Quar. Inspector	19
	Employment Security Technician	2
	Produce Inspector	1
	Pest Controller	1
	Soil Conservation Technician	1
	Soil Conservation Aide	1
	Chief Grain Inspector	1
	Managerial	
	President	2
	Vice-President	5
	Manager Livestock Loan Dept.	1
	Asst. Mgr. Livestock Loan Dept.	1
	Manager Agriculture Loans	3
	Asst. to Administration	1
	Supervisory	
	Superintendent	1
	Farm Supervisor II	2
	Employment Security Supervisor	1
	Supervisor	1
	Area Supervisor	1
	Performance Supervisor	1
	Office	
	County Office Clerk	1
	Milk Plant Auditor	5
	Receptionist	1

Secretary	2
Cashier	2
Chief Clerk	1
Clerk	29
Program Clerk	1
County Clerk	1
Reporter	10
Sales	
Laison Officer	1
Market & Produce Buyer	2
Skilled	
Plainometer Reporter	3
Semi-Skilled	
Plant Pest Control Worker	1
Fire Ant Control Worker	3
Unskilled	
Laborer	11
Veterinarian Hosp. Helper	25
Gardener	1
Grain Sampler	1

Levels of Employment in Nonfarm Agriculture

A listing of individuals employed in the various job titles and at a particular level of employment in Table IV reveals at a glance opportunities available to youth. A ranking of level of employment frequency occurring in all occupational families is as follows:

1) Unskilled
2) Managerial
3) Semi-Skilled
4) Sales
5) Office
6) Skilled
7) Supervisory
8) Professional
9) Technical

Table IV also shows a concentration in the unskilled level of employment in Livestock and Poultry, Crops and Forestry, and Ornamental Horticulture; the semi-skilled appears to build up primarily in Farm Supplies and Equipment, Livestock and Poultry, and Crops, Forestry and Soil Conservation. The management levels of employment appear to offer more opportunities in Farm Supplies and Equipment, Livestock and Poultry, and Crops, Forestry and Soil Conservation. Sales opportunities appear more frequently in Farm Supplies and Equipment, and Livestock and Poultry.

TABLE IV

TOTAL EMPLOYEES WITH AGRICULTURAL TRAINING
BY LEVELS OF EMPLOYMENT IN OCCUPATIONAL FAMILIES

Occupational Family	Levels of Employment									
	Prof.	Techn.	Mang.	Superv.	Sales	Office	Skilled	Semi-Skilled	Un-skilled	Total
Farm Machinery Sales and Service	2	0	19	2	34	2	23	3	1	86
Farm Supplies and Equipment	0	0	88	10	83	74	14	67	48	384
Livestock and Poultry	0	4	48	31	77	12	19	94	21	306
Crops, Forestry, & Soil Conservation	2	8	49	19	31	26	5	85	146	371
Ornamental Horticulture	8	1	36	7	22	5	26	11	103	219
Wildlife & Recreation	0	0	3	0	0	0	2	10	6	21
Farm Service	5	8	34	4	10	14	34	5	15	129
Agricultural Service	48	33	13	7	3	52	3	4	38	201
Total	65	54	290	80	260	185	126	279	378	1,717

Job Entry Age For Nonfarm Agricultural Workers

The average age of all employees was surveyed for each of the 221 firms, by occupational family and for each level of employment. Consideration was given to the present age, minimum age for entry, and the maximum age for entry.

It is interesting to note that the average minimum age for entry in all occupational families and for practically all levels of employment is centered around 25. The average maximum age for entry surprisingly is centered around 45.

The case in point for the average minimum of 25 connotes that possibly youngsters are generally not adequately prepared for job entry for specific occupations upon graduation from high school and that some six to seven years additional training is necessary to effect job entry. It is quite plausible that if individuals would receive sufficient training in occupational skills while still enrolled in the secondary school, the age of job entry may be reduced.

Tables V-1 through V-8 indicate average ages for each occupational family and for each level of employment within the occupational family.

TABLE V-1

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Farm Machinery Sales and Service			
Level of Employment	Present	Minimum	Maximum
Professional	30	25	25
Technical	0	0	0
Managerial	38	27	46
Supervisory	45	35	35
Sales	28	25	39
Office	35	25	45
Skilled	37	25	45
Semi-Skilled	35	25	46
Unskilled	41	22	55

TABLE V-2

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Farm Supplies and Equipment			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	39	27	42
Supervisory	40	28	48
Sales	35	25	47
Office	34	25	43
Skilled	32	25	45
Semi-Skilled	32	25	41
Unskilled	35	26	49

TABLE V-3

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Livestock and Poultry			
Level of Employment	Present	Minimum	Maximum
Professional	25	25	55
Technical	33	26	52
Managerial	43	29	46
Supervisory	50	25	45
Sales	46	27	55
Office	30	27	41
Skilled	55	35	55
Semi-Skilled	25	25	35
Unskilled	28	25	42

TABLE V-4

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Crops, Forestry, & Soil Conservation			
Level of Employment	Present	Minimum	Maximum
Professional	39	27	47
Technical	33	25	50
Managerial	42	29	44
Supervisory	41	25	36
Sales	43	26	49
Office	40	25	39
Skilled	38	35	55
Semi-Skilled	26	25	36
Unskilled	33	25	34

TABLE V-5

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Ornamental Horticulture			
Level of Employment	Present	Minimum	Maximum
Professional	37	25	48
Technical	35	25	45
Managerial	44	26	48
Supervisory	38	25	55
Sales	35	25	44
Office	28	25	45
Skilled	32	25	42
Semi-Skilled	37	25	50
Unskilled	29	25	46

TABLE V-6

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Wildlife and Recreation			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	40	25	50
Supervisory	0	0	0
Sales	0	0	0
Office	0	0	0
Skilled	28	25	42
Semi-Skilled	26	25	44
Unskilled	25	25	45

TABLE V-7

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Farm Service			
Level of Employment	Present	Minimum	Maximum
Professional	33	25	42
Technical	35	25	45
Managerial	42	28	42
Supervisory	40	25	48
Sales	45	29	35
Office	33	25	51
Skilled	27	25	33
Semi-Skilled	26	25	30
Unskilled	0	0	0

TABLE V-8

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

Agricultural Service			
Level of Employment	Present	Minimum	Maximum
Professional	34	25	41
Technical	43	25	46
Managerial	35	35	45
Supervisory	39	25	44
Sales	33	25	48
Office	33	25	41
Skilled	38	25	40
Semi-Skilled	55	25	55
Unskilled	32	25	45

Salaries of Employees Working in Nonfarm Agriculture

Median monthly salaries or wages were calculated for all occupational families and for each level of employment. Tables VI-1 through VI-8 reveal the median monthly salary, including beginning and maximum salaries.

The median monthly salary for skilled occupations was nearly $100.00 more than in the unskilled for Farm Supplies and Equipment; Wildlife and Recreation; and Farm Service.

In most instances in all the occupational families, at the professional level of employment beginning salaries were found to be less than at the technical, managerial, or supervisory levels. The Agricultural Service is manifestly an exception to this trend.

Sales as a level of employment in all the occupational families appear to hold a strong position relatively speaking as far as beginning salaries are concerned.

In all families, except Wildlife and Recreation, the professional, managerial, supervisory, and sales levels of employment revealed beginning salaries

at more than $300.00 monthly.

The usual salary for the unskilled was found to be less than $200.00 monthly, except in the case of Livestock and Poultry, and Ornamental Horticulture occupational families.

No professional personnel were found in Farm Supplies and Equipment; Livestock and Poultry; and Wildlife and Recreation.

Maximum salaries appear to be normal in character as the individual secures more experience and advances in years of service. It is interesting to note the beginning salaries of technicians in Ornamental Horticulture and Farm Service.

Those individuals employed in the unskilled level of employment not only were employed at the lower beginning salary, but did not make as much progress in building their salaries with years of service.

No technicians were found in Farm Machinery Sales and Service; Farm Supplies and Equipment, and Wildlife and Recreation.

TABLE VI-1

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Farm Machinery Sales and Service		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	376.00	476.00
Technical	000.00	000.00
Managerial	522.88	663.50
Supervisory	301.00	451.00
Sales	346.00	717.07
Office	251.00	426.00
Skilled	275.00	476.00
Semi-Skilled	371.00	470.74
Unskilled	171.00	215.00

TABLE VI-2

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Farm Supplies and Equipment		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	504.58	664.46
Supervisory	426.00	443.85
Sales	414.63	501.00
Office	199.33	311.94
Skilled	326.00	351.00
Semi-Skilled	257.06	381.00
Unskilled	188.50	223.50

TABLE VI-3

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Livestock and Poultry		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	463.50	467.66
Managerial	459.33	626.00
Supervisory	417.07	544.33
Sales	385.38	550.44
Office	251.00	426.00
Skilled	256.00	390.58
Semi-Skilled	250.00	380.00
Unskilled	247.42	380.54

TABLE VI-4

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Crops, Forestry, and Soil Conservation		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	334.33	426.00
Technical	342.66	534.33
Managerial	421.00	706.83
Supervisory	326.00	513.50
Sales	359.33	698.50
Office	198.92	326.00
Skilled	242.66	342.66
Semi-Skilled	229.12	331.00
Unskilled	188.04	220.12

TABLE VI-5

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Ornamental Horticulture		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	326.00	601.00
Technical	726.00	000.00
Managerial	344.75	559.33
Supervisory	369.75	469.75
Sales	268.85	376.00
Office	188.50	276.00
Skilled	297.42	451.00
Semi-Skilled	272.00	435.00
Unskilled	355.50	406.00

TABLE VI-6

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Wildlife and Recreation		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	401.00	625.00
Supervisory	000.00	000.00
Sales	000.00	000.00
Office	000.00	000.00
Skilled	376.00	576.00
Semi-Skilled	235.38	285.38
Unskilled	176.00	323.50

TABLE VI-7

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Farm Service		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	551.00	726.00
Technical	501.00	709.33
Managerial	681.00	705.54
Supervisory	376.00	426.00
Sales	501.00	576.00
Office	194.18	266.62
Skilled	274.68	326.00
Semi-Skilled	196.00	301.00
Unskilled	167.00	234.00

TABLE VI-8

MEDIAN MONTHLY SALARY OF OCCUPATIONS OTHER THAN FARMING
BY OCCUPATIONAL FAMILIES AND LEVEL OF EMPLOYMENT

Agricultural Service		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	478.27	715.39
Technical	197.42	201.00
Managerial	000.00	000.00
Supervisory	467.66	526.00
Sales	338.50	526.00
Office	363.50	676.00
Skilled	286.00	330.00
Semi-Skilled	276.00	326.00
Unskilled	177.28	201.00

Educational Level Desired of Persons Entering Nonfarm Agricultural Occupations

The data in Table VII reveal the educational level desired for persons entering agricultural occupations other than farming. These data are analyzed for each occupational family by number of employees desired at each educational level.

TABLE VII

EDUCATIONAL LEVEL DESIRED FOR PERSONS ENTERING
AGRICULTURAL OCCUPATIONS OTHER THAN FARMING

	Number of Employees					
Occupational Family	Less Than H.S.	H.S. Graduate	Post H.S. Technical Education	Some College	College Degree	No Preference
Farm Machinery Sales & Service	0	44	0	24	18	0
Farm Supplies & Equipment	16	179	16	69	82	22
Livestock & Poultry	66	149	3	32	51	5
Crops, Forestry & Soil Conservation	80	133	21	67	68	2
Ornamental Horticulture	20	58	0	25	16	100
Wildlife & Recreation	0	14	0	1	2	4
Farm Service	1	53	3	18	45	9
Agricultural Service	27	79	0	20	73	2
Total	210	709	43	256	355	144

As in any other business endeavor where efficiency in operation is the determining factor, the management of nonfarm agricultural businesses did not desire individuals possessing less than a high school education. Only 12.2 per cent of those employed were found to have less than some high school training. It is more significant that only 2.5 per cent of the 1,717 employees possessed post-high school technical training. This fact appears to be somewhat unusual since some of the families require competencies which seem to be highly technical.

A preference for some college was expressed for 611 or 35.6 per cent of employees in the eight occupational families, more than 40 per cent of the total employees possessed at least a high school education. This information should be of great consequence in the planning of student conferences held by secondary school guidance counselors.

Over 144 or nine per cent of the employees would be replaced without regard to formal education, provided they had the necessary knowledge and skill. This reflects the significance of education in today's work world.

Nearly 77 per cent of the employees possessed a high school education and above. This fact should offer students a great incentive to remain in school and at least complete high school.

Farm Machinery Sales and Service, and Wildlife and Recreation occupational families require some high school training for job entry in nonfarm agricultural occupations; the other occupational families would accept employees with only an elementary level of education but on a very limited basis.

Residential Background Preferred for New Employees

According to data in Table VIII, employers or their designated representatives indicated that generally they had no preference as to the residential background of the prospective employee; however, they did not indicate a

preference for the urban individual. Some 65 per cent of the job titles in all of the occupational families were given a "no preference" as to residential background preferred for new employees.

TABLE VIII

RESIDENTIAL BACKGROUND PREFERRED FOR NEW EMPLOYEES

Occupational Family	Farm		Rural-nonfarm		Urban		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	46	53	0	0	0	0	40	47
Farm Supplies & Equipment	86	22	3	1	2	.5	293	76.5
Livestock & Poultry	47	15	0	0	2	1	257	84
Crops, Forestry & Soil Conservation	192	52	9	2	3	.1	167	45
Ornamental Horticulture	17	8	1	.5	0	0	201	91.5
Wildlife & Recreation	14	67	5	24	0	0	2	25
Farm Service	85	66	11	9	0	0	33	25
Agricultural Service	50	25	20	10	0	0	131	65
Total	537		49		7		1,124	

More than 30 per cent of the jobs required a farm residential background.

Farm Experience Preferred of New Employees

The data in Table IX reveal that of the 1,717 jobs in the eight occupational families surveyed in the Shreveport-Bossier City Metropolitan Area only 537 or 31.3 per cent required a farm background for new employees.

The commercial type farm experience was preferred for only 73 or 13.59 per cent of the jobs; more than one-fourth of the jobs preferred individuals who had experience on the noncommercial type farm. The fact that nearly 60 per cent of the jobs showed "no preference" for the commercial or noncommercial types of farm experience is indicative that these skills could be

learned "on-the-job" as the individual normally pursued his work.

It is significant to note that some 77 per cent of the jobs in Livestock and Poultry indicated no preference as to farm experience; 90 per cent of the jobs in Crops, Forestry, and Soil Conservation also required no specific type of farm experience.

TABLE IX

FARM EXPERIENCE PREFERRED FOR NEW EMPLOYEES

Occupational Family	Commercial Farm		Noncommercial Farm		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	4	9	18	39	24	52
Farm Supplies & Equipment	20	23	43	50	23	27
Livestock & Poultry	6	13	5	11	36	77
Crops, Forestry, & Soil Conservation	11	6	9	5	172	90
Ornamental Horticulture	2	12	11	65	4	23
Wildlife & Recreation	1	7	10	71	3	22
Farm Service	8	9	49	58	28	33
Agricultural Service	21	42	4	8	25	50
Total	73	13.59	149	27.75	315	58.66

Agricultural Subjects With Which Prospective Workers Must Have Knowledge or Skill

Table X-1 through X-8 reveal the agricultural subject area in each occupational family with which employees must be familiar at each level of employment.

These data indicate a general trend toward the managerial, supervisory, and sales levels of employment in most occupational families requiring more familiarity with specific agricultural subject areas. The fact that only Crops, Forestry, and Soil Conservation; Ornamental Horticulture; Farm Service; and

Agricultural Service had employees at the professional level of employment clarifies to some extent the small employee frequencies relative to agricultural areas with which employees must be familiar.

With the exception of Wildlife and Recreation, there was a need for the office level of employment to be familiar generally with all agricultural subject areas. This is probably because of the necessity of the office worker having to handle terminology and data daily in routine assignments.

It is significant to note that in many of the more specialized families, even the semi-skilled and unskilled were required to be familiar with most agricultural subject areas.

In most instances, the skilled worker was required to be familiar with only his specialized field of operation rather than possess a great knowledge of agriculture as was the case with the managerial, supervisory, and sales levels of employment.

The educational implications in the case of the upper echelon levels of employment make it desirable for individuals to possess a greater volume of agricultural "know how" than at other levels of employment. A person bringing a rich supply of these experiences to a business could enhance his chances of climbing the occupational ladder.

TABLE X-1

AGRICULTURAL AREAS IN FARM MACHINERY SALES & SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequency)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	2	0	0	0	2
Technical	0	0	0	0	0
Managerial	19	11	15	18	19
Supervisory	2	1	1	1	2
Sales	34	13	33	19	34
Office	2	1	1	2	1
Skilled	23	0	5	5	23
Semi-Skilled	3	0	0	2	3
Unskilled	1	0	0	0	1
Total	86				

TABLE X-2

AGRICULTURAL AREAS IN FARM SUPPLIES & EQUIPMENT
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	88	44	64	58	41
Supervisory	10	4	8	8	4
Sales	83	49	52	44	46
Office	74	9	32	31	7
Skilled	14	2	7	2	9
Semi-Skilled	67	0	29	1	61
Unskilled	48	17	13	0	28
Total	384				

TABLE X-3

AGRICULTURAL AREAS IN LIVESTOCK AND POULTRY
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	0	0	0	0	0
Technical	4	4	1	4	1
Managerial	48	33	16	30	14
Supervisory	31	26	19	26	6
Sales	77	74	24	60	17
Office	12	8	1	5	1
Skilled	19	19	1	1	3
Semi-Skilled	94	45	0	0	49
Unskilled	21	21	1	2	1
Total	306				

TABLE X-4

AGRICULTURAL AREAS IN CROPS, FORESTRY, & SOIL CONSERVATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	2	1	2	2	2
Technical	8	4	6	3	7
Managerial	49	13	34	48	16
Supervisory	19	6	10	8	8
Sales	31	2	23	17	2
Office	26	3	5	20	1
Skilled	5	0	5	3	5
Semi-Skilled	85	18	21	3	57
Unskilled	146	87	96	0	84
Total	371				

TABLE X-5

AGRICULTURAL AREAS IN ORNAMENTAL HORTICULTURE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	8	1	2	1	1
Technical	1	0	1	1	1
Managerial	36	0	24	22	7
Supervisory	7	0	7	1	0
Sales	22	0	22	8	10
Office	5	0	4	4	0
Skilled	26	0	21	13	1
Semi-Skilled	11	0	6	0	5
Unskilled	103	0	103	0	15
Total	219				

TABLE X-6

AGRICULTURAL AREAS IN WILDLIFE AND RECREATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	3	3	3	0	0
Supervisory	0	0	0	0	0
Sales	0	0	0	0	0
Office	0	0	0	0	0
Skilled	2	0	2	1	1
Semi-Skilled	10	0	10	3	10
Unskilled	6	0	6	0	6
Total	21				

TABLE X-7

AGRICULTURAL AREAS IN FARM SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	5	1	5	4	4
Technical	8	0	1	0	7
Managerial	34	26	32	32	27
Supervisory	4	3	4	2	2
Sales	10	8	7	9	5
Office	14	5	5	13	2
Skilled	34	1	0	16	4
Semi-Skilled	5	2	2	0	3
Unskilled	15	0	0	0	15
Total	129				

TABLE X-8

AGRICULTURAL AREAS IN AGRICULTURAL SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Areas (Employee Frequencies)			
		Animal Science	Plant Science	Agri.Bus. Mangt. & Marketing	Agri. Mech. & Automation
Professional	48	27	37	24	20
Technical	33	5	30	7	6
Managerial	13	13	13	13	13
Supervisory	7	6	7	7	6
Sales	3	3	3	3	3
Office	52	17	28	41	1
Skilled	3	0	0	0	3
Semi-Skilled	4	0	4	3	0
Unskilled	38	37	2	0	9
Total	201				

Continuing Education Required of Employees and Educational Facilities Used

The data in Table XI indicate the employee frequencies by occupational family for the kind of training required for employees and the type of educational facility selected to provide this training.

TABLE XI

CONTINUING EDUCATION REQUIRED BY FIRMS TO ADVANCE IN OCCUPATIONS

		Number of Firms					
Occupational Family	No.	Firm or Industry School	On-the -job Training	Pub.Sch. Adult Educ.	Voc. School	Agri. School	None
Farm Machinery Sales & Service	86	33	47	0	40	9	3
Farm Supplies & Equipment	384	69	342	53	56	24	11
Livestock & Poultry	306	110	127	13	0	28	48
Crops, Forestry & Soil Conservation	371	14	195	5	148	138	146
Ornamental Horticulture	219	65	150	1	89	69	10
Wildlife & Recreation	21	0	4	0	0	2	15
Farm Service	129	19	101	0	27	23	13
Agricultural Service	201	14	131	1	12	29	14
Total	1,717						

The greatest concentration of continuing education as revealed for firms in the Shreveport-Bossier City Metropolitan Area in all occupational families, except Ornamental Horticulture and Wildlife and Recreation, appears to be in the firm or industry school and on-the-job training. There were some 1,421 employee frequencies out of some 2,360 responses in the various occupational families requiring continuing education on-the-job or in a firm or industry school. The greatest concentration of employee frequency was in the "on-the-job training" category. This is a clear indication that prospective employees do not possess the necessary knowledge and skills.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

For many years the primary aim of vocational agriculture has been to train present and prospective farmers for proficiency in farming. In order to carry out this aim effectively, the bulk of instructional and supervised practice programs has been in the areas of farm management and production.

There is certainly a necessity for well-trained individuals to meet the challenge of the farm today and tomorrow; however, educators are also well aware of others who need preparation for the large number of off-the-farm agricultural occupations that exist and continue to increase. This study of the Shreveport-Bossier City Metropolitan Area is an example of the dire need for such workers in the many phases of agricultural occupations found in this area. Programs of instruction for students in vocational agriculture must of necessity, therefore, include training which will meet the needs of all students.

Strong, personal relationships will need to be maintained between the teacher, the students, and their parents. A broad type of vocational education program in agriculture must be planned which will open several doors of opportunity rather than provide only narrow, specialized training for single careers. This kind of program should be made as much a part of the high school curriculum as the traditional vocational agriculture program. In addition, the program must provide the means by which boys can learn to become men while at the same time developing the needed competencies in their chosen careers.

Parents of high school students enrolled in vocational agriculture will be looking to school administrators to provide opportunities in the school for students to explore career areas in which they are interested. Along with this thinking, parents will also expect vocational courses at the secondary

school level to provide a practical application of what is learned in the classroom, and at the same time develop habits of responsibility, industry, and dependability, as well as leadership and ethical character.

Summary

Evidence in this study reveals beyond any doubt that many occupational opportunities exist in the Shreveport-Bossier City Metropolitan Area for students who are agriculturally trained in skills usable in agricultural occupations.

Because of the nature of the farming area surrounding this Metropolitan Area, there would appear to be available for employment a number of rural youths who at least possess some knowledge of the farm.

The businesses and industries surveyed in this study have employed many urban as well as rural youths. In most instances, they did not indicate a preference for the farm reared individual. It should be noted, however, that they did not indicate that they preferred the urban youth, either. The implication of these observations is that there really has been no noticeable difference between the rural and urban employee as far as skills and knowledge of agriculture is concerned.

The 221 agriculturally oriented businesses or industries and the 1,717 individuals employed having competencies in agricultural occupations is a clear indication of the need for individuals who possess a knowledge of agriculture. Secondary schools should be concerned with the preparation of youth to gain entry and succeed in the many occupational opportunities existing in the firms allied to agriculture in this Area. Management will be looking to schools to provide the steady supply of workers to replace those who normally leave or retire from occupations allied to agriculture. In addition, many additional businesses will develop in this agricultural complex as the industries expand.

A summary of the findings in this study is as follows:

1. Two hundred and twenty-one agricultural firms were surveyed in the Shreveport-Bossier City area. These firms employed some 4,338 individuals; of this number approximately 40 per cent or 1,717 had competencies in agriculture and 197 additional employees who possess agricultural skills will be needed in the next five years.

2. Some 294 job titles were indicated by employers in all of the eight occupational families, with an increase of only 22 job titles in the next five years.

3. More than 72 per cent of the job titles were found in four occupational families, namely, Farm Supplies and Equipment; Livestock and Poultry; Crops, Forestry and Soil Conservation and Agricultural Service.

4. Employees were found in all occupational families and in nine levels of employment in the businesses surveyed. A concentration in the unskilled level of employment appears in Crops, Forestry and Soil Conservation, and Ornamental Horticulture. The management levels of employment appear to offer more opportunities in Farm Supplies and Equipment; Livestock and Poultry; and Crops, Forestry and Soil Conservation; sales offer more opportunities in Farm Supplies and Equipment.

5. The mean minimum age for job entry in all occupational families and for practically all levels of employment is focused around 25. The mean maximum age for entry is 45.

6. In most occupational families, beginning salaries at the professional level of employment were lower than at the technical, managerial, or supervisory levels.

7. The professional level of employment is represented in all occupational families except Wildlife and Recreation.

8. The median monthly salary for skilled occupations was nearly $100.00 more than the unskilled for Farm Supplies and Equipment; Wildlife and Recreation; and Farm Service.

9. Sales, as a level of employment, commands a strong position compared to beginning salaries in other occupational families. Sales commissions may have a significant effect in boosting the beginning worker's salary.

10. These data reveal that individuals employed in the unskilled levels of employment not only were employed at the lower beginning salary but did not appear to make near the progress in building their salaries with years of service.

11. It is interesting to note that technicians were not found in Farm Machinery Sales and Service; Farm Supplies and Equipment; and Wildlife and Recreation.

12. The managers or representatives of nonfarm agricultural occupations surveyed in this study did not desire to employ individuals with less than a high school education.

13. A preference for some college was expressed for more than 35 per cent of the employees in all occupational families.

14. Some nine per cent of the employees were in the "no preference" category as far as educational level desired is concerned.

15. A most significant fact was revealed indicating that nearly 77 per cent of the total employees possessed a high school education and above.

16. Some 65 per cent of the positions in all of the occupational families were given "no preference" as to residential background preferred for new employees.

17. Although business representatives interviewed did not indicate a preference as to the residential background of the prospective employee, they did not indicate that the urban reared individual would be preferred.

18. Only 31.3 per cent of the 1,717 jobs in the eight occupational families surveyed in the Shreveport-Bossier City Metropolitan Area required a farm background for new employees.

19. The commercial type farm experience was preferred by employers for only 13.59 per cent of the jobs; more than one-fourth of the positions preferred individuals who had experience on the noncommercial type of farm.

20. The managerial, supervisory, and sales levels of employment in most occupational families generally required more familiarity with specific agricultural subject areas.

21. Even the semi-skilled and unskilled workers were required in many instances to be familiar with most agricultural subject areas.

22. Some 1,421 employee frequencies out of some 2,360 responses in the various occupational families required continuing education on-the-job or in a firm or industry school.

Conclusions

A study of the agricultural occupations in the Shreveport-Bossier City Metropolitan Area revealed the tremendous impact these agricultural businesses have on the economy of the Area, in addition to the many varied occupational opportunities available to properly trained individuals in nonfarm agriculture. While, in most instances individuals employed by these firms did not receive specific job training previous to being employed, many were successful in gaining job entry and received training while on-the-job. Industrial firms

as well as nonfarm agricultural businesses have expressed repeatedly, however, their desire to employ experienced young people having knowledge and skills in agriculture.

By revealing the training needs for youth to gain entry in agricultural occupations, this study opens the door to many additional employment opportunities for youth in on-farm agricultural pursuits. Secondary school educators should make every effort to offer training in employment areas for which there are occupational opportunities.

Vocational agriculture cannot continue to be completely justified in cases where the only vocational objective of students is to "farm". There are numerous and varied occupations in farm based agriculture for which youth could prepare. Vocational agriculture must accept the challenge to prepare individuals not only for the farm but for the host of other jobs supporting production agriculture. Secondary school programs should be geared to make training fcr these individuals a reality rather than a desire.

Today, an individual who does not possess a saleable skill is in reality an unemployable. There are few "jack of all trades'; an individual must be prepared to render a particular service to a business or firm to insure employment. This type of individual must be a product of the training program offered during his formative educational program.

The conclusions drawn from this study of nonfarm agriculture in the Shreveport-Bossier City Area will serve as guides in giving direction to programs intended to prepare youth for gainful employment in agricultural occupations. By so doing, the vocational agriculture program will help keep the boys "at home" and simultaneously, provide a steady flow of individuals with experiences needed for job entry in off-farm agriculture. This occurrence does not negate the fact that training for production agriculture will continue to be a vocational objective for some who study vocational agriculture

at the secondary school level.

The more significant conclusions drawn from this survey are as follows:

1. The 221 farm based businesses employing some 4,338 individuals, nearly 46 per cent having skills in agriculture, constitute a principal segment of the total economy of the Shreveport-Bossier City Metropolitan Area.
2. The 294 job titles found in all of the businesses allied to agriculture, together with the fact that only 22 additional job titles will be anticipated five years hence is revealing evidence of the stability in competencies required for efficiency in these businesses. Guidance counselors could well establish some definite trends towards the needs for specific skills in certain areas of employment.
3. Although the firms surveyed had positions available at all levels of employment, the higher echelon employment opportunities were always favoring the individual possessing more formal education.
4. The mean job entry age of 25 is more significant from the standpoint that secondary school youth must normally wait five to six years before qualifying for certain jobs. Presumably, these individuals do acquire some knowledge or skills, on their own, for job entry during this interim. Therefore, it is conceivable that the median job entry age could be lowered if the individual could secure the proper skills or training earlier.
5. The skilled individual, including those at the technical, managerial, and supervisory levels of employment maintain a commanding position in establishing the higher beginning salary for employees.
6. At least a high school education is a necessity for job entry; training beyond high school was desired for more than one-third of the employees surveyed.
7. The observation that 65 per cent of the job titles did not require a rural

residential background for new employees does not lessen the importance of the 35 per cent who must have this type of background to be employed.

8. It is apparent from the data in the study that farm experience does not necessarily have to be on the commercial farm. There appears to be few experiences the commercial farm can offer which cannot be satisfied by the noncommercial farm.

9. The farm background required for nearly one-third of the workers is most significant as far as counseling is concerned and the establishment of vocational objectives by secondary school youth.

10. Continuing education on-the-job or in a firm or industry school continues to play a dominant role in the efficiency of any industry or business today. Rapid technological changes are responsible for the "day by day" training needed by employees to increase their efficiency.

11. Salaries for all levels of employment are commensurate with the training and skills possessed by the beginning worker. His occupational progress financially is also paralleled to the individual's capacity to increase his level of performance and skill.

Recommendations:

In order for the program in vocational agriculture to be effective today, it must offer a program of instruction and experience in keeping with the general education needs of youth and specialized emphasis on individual vocational needs in the work world. This can be accomplished by identifying the vocational and specialized needs of youth and providing an educational program to match their needs.

This study reveals the tremendous impact that nonfarm agriculture has on the economy of this Region. To some extent this influence is even greater in other areas of the State. Production agriculture is creating a greater giant known as the "Supporting Agricultural Complex". The need for trained workers

is certainly reflected in the expressions by business representatives that they are willing to employ the urban as well as the rural, the individual with commercial farm as well as the one with noncommercial farm experience. Agribusiness in the Shreveport-Bossier City Area needs trained agricultural workers in considerable numbers and with a variety of agricultural skills.

The secondary school program as well as the program in vocational agriculture should accept the challenge in providing the needed personnel for the ever-expanding businesses allied to production agriculture. The employment opportunities for youth are tremendous in the host of occupations supporting the farm.

Based upon survey data the following recommendations are offered:

1. Pre-employment training is essential for individuals to gain job entry. A broadened program in vocational agriculture providing basic instruction in the science of agriculture, together with the necessary participating experiences in agricultural occupations, is needed for those who desire this type of training.
2. Educators, and especially the guidance counselor, should broaden their knowledge of the farm and the occupational skills needed to succeed in nonfarm agriculture. The training of the individual can be better channeled with this knowledge in action.
3. After making a careful analysis of the occupational opportunities in nonfarm agriculture, education should provide opportunities for the exploration of areas of interest as the student progresses in his secondary school program.
4. The general education level of students must be considered even more significant than ever before. The fact that employers want individuals with a high level of education should be motivating to youth.
5. Students should become familiar with the specific skills required in the

various occupational families and in the job titles found in those occupational families of interest to him. A job description handbook for students interested in nonfarm agriculture would be invaluable in counseling with students.

6. The necessary resources must be assembled to provide training for individuals in vocational agriculture. These resources could be marshalled to provide the necessary experiences for those planning to farm, enter agricultural occupations, or pursue further training in higher education.
7. Educators should provide youth with the training necessary to understand business and business principles and how businesses in the community provice goods and services. The individual student can, therefore, become thoroughly acquainted with the needs of employers and will be more familiar with how to make his services available to the businesses or firms.
8. Teachers of vocational agriculture should plan for the general instructional level of training youth during the early part of his vocational training and concentrating his participating experiences during the last two years to insure employee compentency when the individual is ready to offer his service.
9. Educational leaders would do well to do just as the businessman does in analyzing his business needs from year to year. If the educator and the business employers correlate their planning, and become thoroughly familiar with each others needs, individuals as well as businesses would ultimately profit.

APPENDIX A

NONFARM AGRICULTURAL BUSINESSES AND AGENCIES COOPERATING IN THE SURVEY

Tri-State Tractor Co.
F & H Equipment Co.
Peerless Supply Co., Inc.
Poulan Saw Co.
Craig Equipment Co., Inc.
Wildbanks Implement Co., Inc. (L. C. Case)
J. B. Lee Tractor & Implement Co.
Gibbs Implement Co., Inc. (John Deere)
Peavy Beard Lumber Co.
Pelican Lumber & Supply Co.
Chilean Nitrate Sales Corp.
Patrick-Reed Lumber & Supply Co., Inc.
Turpin Builders Supply, Inc.
Tri-State Feed & Seed Co.
Anchor Fence Div., Anchor Post Products, Inc.
Reigel By-Products Co.
Hardtner Lumber & Supply Co., Inc.
Jordon River Co.
Hurricane Fence Company
Tucker Lumber & Supply Co.
Planters Seed Co.
Brandon Fuel Service, Inc.
Morgan & Lindsey, Inc.
Weaver Lumber & Supply Co.
T. G. & Y. Stores
Lester Lumber & Supply Yard
Economy Lumber Co.
Gorman's Evergreen Feeds
Kalmbach-Burckett Grain & Seed Co.
The Patio Shop
Louzan Lumber & Supply Co.
Fuqua Lumber Co.
Trowbridge Lumber Co., Inc.
Swift & Co. (Agri-Chemical Div.)
Ralston Purina Co.
Sears Roebuck & Co.
American Fence Co.
Fielder's, L. L. Store
Red Barn Chemicals, Inc.
Caddo Lumber & Supply Co.
Teach's Anchor Serum Co.
Virginia Carolina Chemical Co.
Gamm, Julius Co., Inc.
Kress, S. H. & Co.
Bruce Terminix Service (Chemical)
Feeders Supply Co.
Morgan Lumber Co., Inc.
Dale Lumber Co.
Thompson-Hayward Chemical Co.

Bossier Lone Star Feed & Fertilizer Co.
Home Building Supply Co.
Caddo Hardware & Feed Co.
Hart Lumber Co.
Benton Long Leaf Lumber Co.
Clanton Lumber & Supply Co.
Associated Building Supply, Inc.
Custom Built Cabinet & Supply Co.
Shreveport Grain & Elevator Co.
Murrell, Tom Stables
Shreveport Packing Co., Inc.
Magnolia Meat Products
Britt Packing Co.
Foremost Dairies
Fulton Products Co.
Shreveport Rendering Co.
Midwest-Jersey Gold Creameries
Gerlach Whol. Meat Co., Inc.
Hormel, George A. & Co.
The Borden Co.
Lee's Poultry & Eggs
Tilsbury's Southern Meat Co., Inc.
Swift & Co. (Sales Unit)
Wilson & Co.
Fairview Farm Dairy
Clark Livestock Commission Co.
Hamel's Dairy, Inc.
Rite-Care Poultry Co., Inc.
Swift & Co. (Agri. Chem. Div.)
Dominique's Cow Palace
D. B. Distributing Co.
Houghton Wood Co., Inc.
Elm Grove Gin
Olin Mathieson Chemical Co.
AAA Tree Service
Washburn, T. L. Whol. Tomato Hse.
Morrison Tree Service
Hinton Whol. Produce Co.
Market Produce Co.
Harrison, R. D.
Ark-La-Tex Pre-packing
Gould, H. R. & Co.
Fergeson Cotton Co.
Glassell Hicks Co., Inc.
Santa Maria Whol. Produce
Tri-State Whol. Produce
D'Anna Bros. Produce Co.
Little, Raymond
Wilson Cotton Brokerage
Myers Bros., Inc.
Grove Fruit Market
Knighton Fruit Co., Inc.
Shreveport Cotton Oil Mill, Inc.
Goeder's System Tree Surgeons
Wheeler, F. M. & Son, Produce Broker

501 to 86

Lance, Inc.
International Paper Co.
Hendricks, W. H.
Louisiana Forestry Commission
Paymaster Oil Mill Co.
Friorson Gin
American Compress Warehouse
Cargill, Inc.
Fulton Produce
Crosby Food Broker
Marlowe Food Broker
Beene Plantation Co.
Bolinger Lumber & Supply Co., Inc.
Monkhouse Florist
Bossier Garden Center
Johnson Flower Shop & Greenhouse
Shreveport Flower Shop
Begbie Florist
Garrison's Greenwood Garden
Dance's Florist
Griffith's Nursery
Chapman's Nursery
Lambert Landscape Co.
Manhein Florist
Emmons Garden Center
Akins Nursery & Landscape Co.
Morrison City Florist Shop
Dixieland Nursery & Garden Center
Godfrey Landscape Construction
Wilkes, George G. Jr., & Associates
Ray Williams Blossom Shop
Lambright Nursery
Art Floral Shop & Greenhouse
Buddy Liles, Florist
Don and Bill's Flowers - Gifts
Pierremont Florist, Inc.
Southgate Garden Center
Crosslake Gardens
Meadowlake Golf Club
Shreveport Country Club
Querbes, Andrew Golf Course
Production Credit Association
Farmers Home Administration (USDA)
Farmers Home Administration
Radio Station - KEEL
Southwestern Electric Power Co.
Orkin Exterminating Co., Inc.
Teague's Blacksmith & Welding
Marak Realty Service
Grisgby, Frank W. Realtor
Anderson, Aubrey, Realtor & Bldr.
Bob White Realty Co.
DDT Spraying & Rodent Control Service
Sour, A. W. Realtor

Nor-Wes, Inc.
La. Grone D. X., Realtor
Brown-Bedingfield
Bossier Rural Electric Corp.
Jordan, O. L. - Realtor
Farm & Home Real Estate, Inc.
Anti-Pest Co., Inc.
Pilkinton Aero Farm Service
Ark-La-Tex Realty
Burton Realty Co.
International Exterminator Corp.
Scott Pest Control Service
Pest Aid Co., Inc.
Arrow Pest Control
Kem-Spray Pest Control
Matlock Exterminating Co.
Burmac Termite Control Service
Commercial National Bank
Mudd, Lee S. - Forest Consultant
State Division of Milk Testing
Milk Market Administration (USDA)
Bossier Bank & Trust Co.
Louisiana Bank & Trust Co.
American Bank & Trust Co.
Federal Land Bank Assoc. of Shreveport
National Bank of Bossier City
First National Bank
Shreveport Bank & Trust Co.
Pioneer Bank & Trust Co.
Bango, Henry L. - Forest Consultant
Red River Valley Agricultural Experiment Station
Agriculture & Immigration Div. (Entomology)
U. S. Air Force (SAC)
Agricultural Soil Conservation Service
Soil Conservation Service
Soil Conservation Service
Agricultural Stabilization & Conservation Service
La. Div. Employment Security Service
Federal & State Fruit & Vegetable Inspection Service
Linwood Animal Hospital
Glenn Veterinary Shop
Bryson Veterinary Hospital
Young's Veterinary Hospital
Caraway Veterinary Clinic
La. State Market Commission
State Department of Education
La. State Fair Association
Caddo Parish Agricultural Extension Service
Agurs Animal Clinic
USDA Pecan Field Lab.
White, E. M. Veterinary Hospital
Summer Grove Animal Hospital
Basco Animal Clinic
Bossier Animal Hospital
Veterinary Clinic

Davis Animal Hospital
McIntire Animal Hospital
Plant Pest Control Div. (USDA)
Dog & Cat Clinic
Par 3 Golf Course
Radio Station KWKH
Bossier Parish Agricultural Extension Service

APPENDIX B

PERSONS CONDUCTING INTERVIEWS TO OBTAIN SURVEY DATA

Mr. Rohmer B. Beard, P. O. Box 445, Blanchard, Louisiana

Mrs. Jeni Lou Ince, 610 Kirby Place, Shreveport, Louisiana

Mrs. Bobbie Hooper Perry, 3805 Maryland, Shreveport, Louisiana

Mr. James Donald Simmons, 648 Wichita Street, Shreveport, Louisiana

Mrs. Mary Joyce Simmons, 648 Wichita Street, Shreveport, Louisiana

Mrs. Alma H. Thomas, 1447 Parker, Shreveport, Louisiana

APPENDIX C

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form I

I. Business or Service (Business Code_____) (Firm Number_____)

A. Name of Business or Service_____

Address_____ Parish_____

B. Person Interviewed_____

Position_____

C. Estimated per cent gross income that is agriculturally oriented_____

D. Major agricultural products and/or functions of business or service_____

_____

_____

II. Employees in this Business or Service -- (Total Number)_____

A. For employees needing competencies in agriculture, complete the following:

Existing Job Titles	Number of Employees		
	Full-Time	Part-Time	Five Years
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

Form I (Cont'd.)

Anticipated New Job Titles	Number of Employees		
	Full-Time	Part-Time	Five Years
1.			
2.			
3.			
4.			

Fill out a separate Form 2 for each job title listed above.

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form II

I. Name and Address of Firm_____

_____

II. Job Title_____

III. Number of workers in this job title_____

Full-time_____ Part-time_____

Average Age_____ Min. for Entry_____ Max. for Entry_____

IV. Wage or Salary per Month: (Beginning - Maximum - Present)

_____ 150 - 200	_____ 301 - 350	_____ 451 - 500	_____ 601 - 650
_____ 201 - 250	_____ 351 - 400	_____ 501 - 550	_____ 651 - 700
_____ 251 - 300	_____ 401 - 450	_____ 551 - 600	_____ 700 and above.

V. Activities and Duties of Persons with this Job Title_____

_____

_____

_____

_____

VI. Agricultural Areas with which Worker must be Familiar to do Job:

Animal Science

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Breeding Farm Animals
_____	_____	_____	2. Livestock Feeding and Nutrition
_____	_____	_____	3. Sanitation, Disease and Parasite Control
_____	_____	_____	4. Housing and Equipment

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Animal Science (Cont'd.)

Necessary	Desirable	Not Necessary	
_____	_____	_____	5. Management
_____	_____	_____	6. The Dairy Manufacturing Industry
_____	_____	_____	7. Processing
			_____ Packing Plants
			_____ Creameries
			_____ Poultry Processing
			_____ Butchering
_____	_____	_____	8. Marketing
			_____ Packing Plants
			_____ Creameries
			_____ Poultry Processing Plants
			_____ Livestock Auctions

Plant Science

_____	_____	_____	1. Propagation
_____	_____	_____	2. Soils and Fertilization
_____	_____	_____	3. Control of insects____diseases____weeds____
_____	_____	_____	4. Management
_____	_____	_____	5. Production of Ornamental Plants
_____	_____	_____	6. Landscaping
_____	_____	_____	7. Ginning
_____	_____	_____	8. Warehousing
_____	_____	_____	9. Processing (food, seed, grain, etc.)
_____	_____	_____	10. Marketing
_____	_____	_____	11. Forestry
			_____ Establishing a Stand
			_____ Hardwood Control
			_____ Fire Control
			_____ Estimating and Grading
			_____ Disease Control
			_____ Insect Control
			_____ Harvesting
			_____ Marketing
			_____ Manufacturing
			_____ Pulp Wood

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Agricultural Business Management and Marketing

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Records and Accounts, Budgeting and Analysis
_____	_____	_____	2. Agricultural Financing, Credit and Insurance
_____	_____	_____	3. Farm Organization and Management
_____	_____	_____	4. Labor Management
_____	_____	_____	5. Marketing Problems and Practices
_____	_____	_____	6. Agricultural Policy
_____	_____	_____	7. Agricultural and Related Price Analysis
_____	_____	_____	8. Cooperatives and Business Organizations

Agricultural Mechanics and Automation

_____	_____	_____	1. Farm Power and Machinery
_____	_____	_____	2. Farm Buildings and Conveniences
_____	_____	_____	3. Farm Electrification and Processing
_____	_____	_____	4. Soil And Water Conservation
_____	_____	_____	5. Farm Shop (Welding, Plumbing, etc.)

List other agricultural competencies that are needed for this job title_____

_____

_____

_____

VII. Education Level Desired for Job Titles (Check only one)

_____ 1. Less than High School Graduate

_____ 2. High School Graduate

_____ 3. Post High School Technical Education

_____ 4. Some College

_____ 5. College Degree

_____ Baccalaureate _____ Master's _____ Doctor's

_____ 6. No Preference

VIII. Residential Background (Check only one)

1. Farm_____ 2. Rural, Nonfarm_____ 3. Urban_____ 4. No Preference_____

IX. Farm Experience

_____ 1. On a commercial farm

_____ 2. On a noncommercial farm

_____ 3. No Preference

X. Experience Desired to Enter this Job Title_____

_____

_____

XI. Limitations on Entering this Job Title

A. Licensing or Certification

_____ 1. Professional

_____ 2. Industrial

_____ 3. Civil Service

_____ 4. Other (specify) _____

_____

_____

B. Labor Law Restrictions _____

_____

C. Labor Union Restrictions _____

_____

D. Other (specify) _____

_____

XII. Education Required to Advance in this Job Title

A. Technical short course or training provided by:

_____ 1. Your firm or the industry as a whole

_____ 2. On-the-job training

_____ 3. Public school (adult education)

_____ 4. A vocational school

_____ 5. An agricultural college

_____ 6. None

VT 000 542

VT 000 542

Retraining in California.

California State Dept. of Employment, Sacramento

California State Dept. of Education, Sacramento

Jan65

DOCUMENT NOT AVAILABLE FROM EDRS 55p.

*RETRAINING, FEDERAL LEGISLATION, STATE LEGISLATION, *STUDENT CHARACTERISTICS, *ON THE JOB TRAINING, *APPRENTICESHIP, *FEDERAL PROGRAMS, VOCATIONAL EDUCATION, MANPOWER DEVELOPMENT, STATE PROGRAMS, PILOT PROJECTS,

Manpower Development and Training Act of 1962, California, Area

Redevelopment Act,

Although various retraining programs are covered, special emphasis is given to the programs developed under the Manpower Development and Training Act (MDTA) since September 1962. Occupational training is of special significance to California's rapidly changing economy. While many are unemployed, there are thousands of jobs which call for special knowledges, skills, and abilities. In 1964, six percent of the state's labor force was unemployed. From September 1962 through December 1964, 14,900 trainees have been enrolled in MDTA courses, 13,754 in school-connected courses, and 1,146 in on-the-job training programs. Of the 5,698 who had completed courses by December 31, 1964, 75 percent were gainfully employed, and 91 percent were in training-related occupations. From September 1961 through December 1964, 9,317 individuals had been approved for training under California state retraining programs with 3,626 completing training. Of these, 62 percent obtained employment within 30 days following completion. Programs under the Area Redevelopment Act involved about 80 persons. Enrollment in vocational education courses in 1963-64 was 1,034,000. Educational, occupational, and statistical data on which this report was based and the Manpower Development and Training Act of 1962 are included in the appendix. (EM)

RETRAINING IN CALIFORNIA

ED015348

Vocational Education

MDTA

ARA

Retraining Benefits

1964

Report

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Retraining in California

This is a report on vocational training in California under the Manpower Development and Training Act, California retraining benefits legislation, the Area Redevelopment Act and vocational education programs.

Training under these programs supports the intent of Congress in establishing the Manpower Development and Training Act that, . . . "it is in the national interest that current and prospective manpower shortages be identified and that persons who can be qualified for these positions through education and training be sought out and trained as quickly as is reasonably possible, in order that the Nation may meet the staffing requirements of the struggle for freedom."

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January, 20, 1965

THE HONORABLE EDMUND G. BROWN, *Governor*
The Honorable President Pro Tempore,
California State Senate
The Honorable Speaker,
California State Assembly

This is a report of the administration of the various retraining programs in California. While this report covers all training programs currently in effect in California, particular emphasis is given the Federal Manpower Development and Training Act since its inception in September of 1962. The report tells what has been accomplished under the Manpower Development and Training Act, how it has been done, what can be expected in the future and what will be required of California to continue to benefit from this legislation.

Occupational training is of special significance to California's rapidly changing economy. Today unemployment exists side by side with rising standards of living and increased business activity. And while many of our unemployed remain jobless, there are thousands of jobs unfilled because of lack of applicants with the necessary knowledges, skills and abilities. A major weapon in correcting this disparity is the MDT program.

The administration of the Manpower Development and Training Act involves three state agencies, namely, the State Departments of Employment, Education and Industrial Relations. All three of these agencies were seasoned and experienced in their basic respective roles of (1) determining training needs and placement, (2) development of curricula and giving training, and (3) development of on-the-job training. Consequently, soon after federal guidelines and funding were made available, California was able to implement the program and lead the nation in accomplishments.

California's economic future depends on the flexibility and adaptability of the state's workers. The effects of increasing technological change and automation are compounded in California by the defense-based nature of a considerable portion of California's industry. It is, therefore, realistic to concede that the combination of change and fluctuating aerospace contracts will result in recurring shifts and adjustment in our employment and occupational demands.

Particular attention is drawn in the report to funding. Although the federal government has until now provided full financing, the Manpower Development and Training Act requires that the states bear one-third of the costs of MDTA training beginning July 1, 1965, and one-half of the costs of MDTA training beginning July 1, 1966.

The following, therefore, is respectfully submitted as requested by the Senate Finance Committee during its review of the 1964–65 budget. Knowing the Legislature's deep concern, we are taking the liberty of sending a copy to each member, and shall make the report available to others interested in manpower development and training.

Sincerely,

Albert B Tieburg

ALBERT B. TIEBURG
Director of Employment

Max Rafferty

MAX RAFFERTY
Superintendent of Public Instruction

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Retraining Highlights

THE NEED

In 1964, there was an average of 422,000 unemployed in California. This represented 6 percent of a labor force of 7,064,000. Paradoxically, many thousands of jobs remained unfilled because of the lack of qualified workers.

ACCOMPLISHMENT

Manpower Development and Training Act

From September 1962 through December 31, 1964, 14,900 trainees have been enrolled in MDTA courses; 13,754 in "institutional" (school-connected) courses; and 1,146 * in on-the-job training programs. Trainees completing institutional MDTA courses as of December 31, 1964, totaled 5,698 with 4,272 or 75 percent now gainfully employed—3,876 or 91 percent in training-related occupations.

State Retraining Benefits Program

From September 1961 through December 31, 1964, 9,317 individuals have been approved for training under the California state retraining program (Senate Bill 20 of 1961,) with 3,626 completing training. Of these, 2,231 or 62 percent obtained employment within 30 days following completion,—89 percent in training-related jobs.

California is one of 20 states which has this type of retraining program.

Area Redevelopment Act

There have been two training projects approved under the Federal Area Redevelopment Act in California. One project has been completed and the other is ongoing. In the completed project, 24 trainees were enrolled, 12 completed training and 5 were placed in employment. The ongoing project enrolled 20 trainees, with two additional classes for 20 trainees each to follow. Most of the areas in California that are eligible for assistance under this Act have less than 15,000 people in their work force and have agriculture and forestry as their primary industries.

Vocational Education

During fiscal year 1963–64, there were 1,034,000 individuals enrolled in occupationally centered courses under the vocational education program. This is an increase of 51 percent over the 685,000 enrolled in such courses during fiscal year 1962–63.

* SOURCE: Bureau of Apprenticeship and Training, U.S. Department of Labor.

The Economic Impact

Retraining programs restore earning power and reduce costs of unemployment insurance, welfare and other forms of public assistance. For example, here is the projected impact of the Manpower Development and Training Act in California for those trainees who have obtained jobs through December 31, 1964:

Gross annual earnings will amount to an estimated $16,000,000:

A typical illustration showing the impact of earnings is that of an unemployed 22-year-old married man with three dependents who relied principally upon part-time or seasonal jobs which paid him from $1 to $2 per hour.

He was counseled and enrolled in an El Centro farm mechanic MDTA course. He had no mechanical training but had tinkered with cars. Upon completion of the training, he accepted a job with an automotive repair shop and received additional training as an automotive brake and front-end specialist. He is now employed full time at a salary of $90 per week.

Annual savings to the Unemployment Insurance Fund are expected to amount to $1,000,000:

A divorcée with a small child, was claiming unemployment insurance benefits. She had no saleable skill, so an Employment Service counselor tested and motivated her to accept training as a clerk-typist. After training she obtained work which she likes very much. She has now been on the job nine months and is making $305 per month.

Annual estimated savings in public assistance payments should approximate $1,000,000:

Savings in public assistance payments are illustrated by the case of a 38-year-old divorcée who was supporting her three dependent children on a small social security and veterans pension, plus a supplemental payment from the aid to needy children program.

She enrolled in an MDTA class for clerk-typist and made exceptional progress. After training she obtained work at a beginning salary of $332 per month and has now been on this job for almost a year.

Need for Retraining in California

During recent years the rapid advance in technology and the shift in the nation's economy have created a serious disparity between labor supply and demand. California has been and is expected to continue to be particularly vulnerable to these changes due to its exploding population growth and its high degree of dependence on defense-based industry.

These problems are exemplified by the statement of findings in the Federal Manpower Development and Training Act of 1962, which states in part:

> "The Congress finds that there is critical need for more and better trained personnel in many vital occupational categories, including professional, scientific, technical, and apprenticeable categories, that even in periods of high unemployment, many employment opportunities remain unfilled because of the shortages of qualified personnel; and that it is in the national interest that current and prospective manpower shortages be identified and that persons who can be qualified for these positions through education and training be sought out and trained *as quickly as is reasonably possible*, in order that the nation may meet the staffing requirements of the struggle for freedom. The Congress further finds that the skills of many persons have been rendered obsolete by dislocations in the economy arising from automation or other technological developments, foreign competition, relocation of industry, shifts in market demands, and other changes in the structure of the economy; that government leadership is necessary to insure that the benefits of automation do not become burdens of widespread unemployment; that the problem of assuring sufficient employment opportunities will be compounded by the extraordinarily rapid growth of the labor force in the next decade, particularly by the entrance of young people into the labor force . . . and that it is in the national interest that the opportunity to acquire new skills be afforded to these people with the least delay in order to alleviate the hardships of unemployment, reduce the costs of unemployment compensation and public assistance, and to increase the nation's productivity and its capacity to meet the requirements of the space age."

Occupation-centered training is not new in California. It has been pursued successfully for many years in vocational education programs in both public and private schools, in apprenticeship programs of labor and industry and in on-the-job training. In recent years these programs have been augmented by: (1) further expansion of the traditional vocational education program; (2) the California state retraining benefits program; (3) the California on-the-job training program; (4) the Area Redevelopment Act; and (5) the Manpower Development and Training Act.

VOCATIONAL EDUCATION IN CALIFORNIA

Some idea of the breadth of the California program of vocational education can be gained from the fact that in the 1963–64 period 1,034,000 individuals were enrolled in literally hundreds of occupation-centered courses, an increase of 51 percent over the 685,000 enrolled in 1962–63.

No small part of the widespread availability of such training has been the long-standing policy of the state's Department of Education with policy established by the State Board of Education to provide school districts with financial support for adult classes on a nontuition basis. Further impetus was given through assistance provided to local districts by federal funds supplied under such laws as the Smith-Hughes Act of 1917, the George Barden Act of 1946 as amended, and the National Defense Education Act of 1958.

A much greater measure of assistance is now available through the Vocational Education Act of 1963.

California's extensive vocational educational resources and tested experience grew through such prior cooperative activities as the federal emergency education program during the depression years, and the war production training program during World War II. This know-how has enabled California to be among the top leaders in providing vocational training.

Programs to

Meet the Need

CALIFORNIA STATE RETRAINING BENEFITS

The California Legislature recognized the need for retraining as early as 1959 when an amendment to the Unemployment Insurance Code made it possible for individuals in declining occupations to enroll in approved vocational training and still remain eligible for extended duration unemployment insurance benefits. This program was only available when the unemployment rate exceeded 6 percent and then only to those individuals who had exhausted their regular unemployment insurance claims and who were claiming extended duration benefits.

Because of these limitations, subsequent legislation in 1961 was enacted to broaden and strengthen the retraining provisions of the Unemployment Insurance Code. This legislation, referred to as the California state retraining benefits program or Senate Bill 20, has as its purpose:

> "Experience has shown that the ability of a large number of the population of California to compete for jobs in the labor market is impaired by advancement in technological improvements and the widespread effects of automation and relocation in our economy. It is the policy of this state to assist such individuals by providing unemployment compensation or extended duration benefits during a period of retraining to fit them for new jobs and thus avoid their being forced to remain in a job classification where work opportunities no longer exist or are diminishing."

The state retraining benefits program allows unemployed individuals whose work opportunities in their current occupation no longer exist or are diminishing, to enroll in an approved course of training and remain eligible for unemployment insurance benefits. The legal requirements to seek work and be available for work while claiming benefits are waived while the applicant is attending an approved training course. Existing vocational courses in public and private schools are used for this program. No special courses are established as is the case under MDTA. The program is limited in that the claimant must have a valid claim for unemployment insurance and must pay his own training costs.

Under the state retraining program, through December 1964, individuals approved for training totaled 9,317 including 5,257 male and 4,060 female. A total of 3,626 trainees have completed training. Of these 2,231 or 62 percent obtained employment within 30 days following completion of the course—89 percent in training-related jobs.

CALIFORNIA ON-THE-JOB TRAINING PROGRAM

Also in 1961, California Assembly Bill 2171 added Section 3093 to the Labor Code providing for the promotion and development of on-the-job training programs to supplement the traditional apprenticeship training programs. This program under the administration of the Division of Apprenticeship Standards, has provided on-the-job training for 973 trainees in several nonapprenticeable occupations.

AREA REDEVELOPMENT ACT

The Federal Area Redevelopment Act, approved May 1, 1961, provides direct financial assistance to economically distressed areas. In addition, the act has manpower training provisions which focus on providing the unemployed and underemployed residents of the designated area with an opportunity to acquire occupational skills. Training is limited in that the trainees cannot receive more than 16 weeks of allowance payments.

The impact of the Area Redevelopment Act has not been substantial in California. Of the 11 designated counties, only two have as many as 15,000 in their labor force. The other nine counties are sparsely populated and have lumber and wood products or agriculture as their principal industries. Through December 1964, two training projects have been approved under this act in California. One has been completed in Ukiah, and one is nearing completion in Modesto as this report goes to press.

The City of Oakland recently was designated as an ARA area, and the city has submitted several training proposals for approval under the act. These include courses for training ward maids, stenographers, clerk-typists, grocery checkers, and a refresher course for staff nurse. The courses are expected to start some time this year.

Meet the Need

MANPOWER DEVELOPMENT AND TRAINING ACT

OBJECTIVES

Primary objectives of the Manpower Development and Training Act can be summarized as follows: ". . . that improved planning and expanded efforts will be required to assure that men, women, and young people will be trained and available to meet shifting employment needs; that many persons now unemployed or underemployed, in order to become qualified for reemployment or full employment must be assisted in providing themselves with skills which are or will be in demand in the labor market; that the skills of many persons now employed are inadequate to enable them to make their maximum contribution to the nation's economy. . . . It is therefore the purpose of this act to require the federal government to appraise the manpower requirements and resources of the nation, and to develop and apply information and methods needed to deal with the problems of unemployment resulting from automation and technological changes and other types of persistent unemployment."

The objectives then of the Manpower Development and Training Act are to identify through the public employment service, present and future manpower shortages, seek out and train persons who can be qualified to fill these shortages through education and training, and give workers new skills to replace those outdated by technological developments and economic changes.

MANPOWER ADVISORY COMMITTEES

The act provides for advisory committees to be established on community, area and state levels consisting of representatives of community organizations, management, labor, and the state agencies involved in the MDTA program. These committees serve as advisors on matters of manpower development and provide leadership and community support to further the manpower development program.

Considerable guidance for the MDTA program is available also from the California Commission on Manpower, Automation and Technology, created by the California Legislature through Assembly Bill 49 signed into law on June 19, 1963, to which Governor Edmund G. Brown appointed outstanding representatives of the community, management, labor, the Legislature, and state agencies. The function of the commission is to study the impact of automated processes and technological developments on employment and the economy in general. A subcommittee of the commission, the State Manpower Advisory Committee, also has been established to cooperate with and assist the National Advisory Committee, as established by the MDT Act.

rovisions

ELIGIBILITY FOR TRAINING

Those eligible for training under the Manpower Development and Training Act include those who are:

1. Unemployed (includes members of farm families with less than $1,200 annual net family income);
2. Working below their skill capacities;
3. Working substantially less than full time;
4. Working or will be working less than full time or will be unemployed because their skills have become or are becoming obsolete, and
5. Those unemployed or underemployed youths 16 years of age or older who cannot be expected to obtain employment without training and schooling.

ELIGIBILITY FOR ALLOWANCES

Training allowances may be paid to those trainees who are unemployed, and

1. Have at least two years of experience in gainful employment, and are either head of a family or a household, or a member of a household in which the head of the household is unemployed, or
2. Are between the ages of 17 through 21 and require such training allowance in order to undertake training.

Subsistence payments and travel allowances are also provided for those who are enrolled in courses located outside the normal commuting distance of their regular place of residence.

STATE AGENCY RESPONSIBILITIES

The provisions of the act result in the delegation of certain responsibilities to related state agencies in California:

The California Department of Employment is responsible for:

1. Providing up-to-date information on the job market;
2. Identifying specific local employment possibilities;
3. Testing, selecting and counseling trainees;
4. Payment of allowances;
5. Providing followup counseling, job development and referral of trainees to jobs upon completion of their training courses.

The California Department of Education, Vocational Education Section (for the U.S. Secretary of Health, Education and Welfare), is responsible for development of curriculum of instruction for all classroom and laboratory training through contracts with qualified public and private schools. It arranges for classroom space, physical facilities, equipment and teachers.

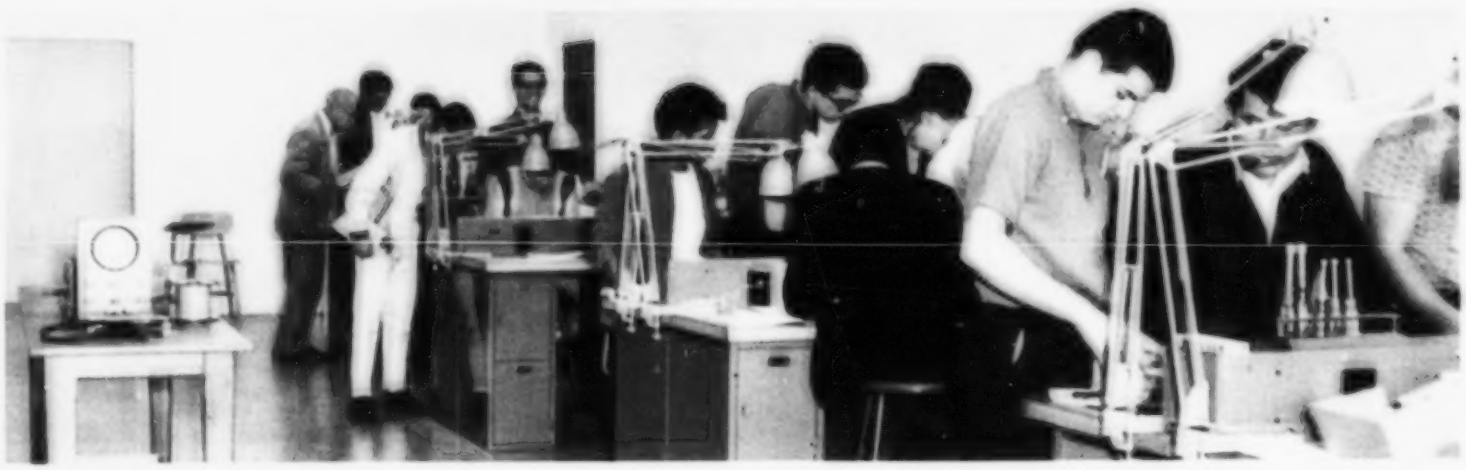
MDTA
TRAINING
CENTER

California's 74 public junior colleges located throughout the state, each with comprehensive educational programs and available physical facilities, and each with staff personnel experienced in designing special vocational programs, provide an immediate accommodation for MDTA training. In addition, hundreds of adult education centers, long experienced in meeting the training and retraining needs of adults, are available to the MDTA program.

California's public schools cooperate to the fullest extent in providing the occupational training courses required to meet the varying needs of MDTA trainees. In spite of already overcrowded facilities, courses are designed; staff, space, supplies, and equipment are secured; and referred individuals are trained so they can secure and successfully engage in gainful employment.

California's private schools also contribute to the total training effort. These institutions have long experience in providing concentrated training designed to equip individuals for employment in many different occupations. Their resources are being well utilized. Approximately 15 percent of California's MDTA courses have been conducted in private schools.

The California Department of Industrial Relations, Division of Apprenticeship Standards, and the Bureau of Apprenticeship and Training of the U.S. Department of Labor (for the U.S. Secretary of Labor) are responsible for initiation and development of on-the-job training and apprenticeship programs.



The regular and long-established adult education system meets the need of the average individual; the person who wants to upgrade himself and can either devote full time to this end or can spend a few hours each week on self-improvement.

MDTA courses are specifically designed to attract and provide selected groups with the fundamentals and skills leading to gainful employment. These are the unemployed or underemployed who have either failed to recognize their own needs or have been financially unable to undertake training. These are the very people that Congress has mandated us to seek out and train as quickly as is reasonably possible. Thus MDTA is designed to reach certain segments of the work force who, for various reasons, either have not or cannot take advantage of existing opportunities for occupational training.

Training can be accomplished under the Manpower Development and Training Act in a manner not possible under traditional vocational educational programs. While the total number of training hours under both the traditional classroom methods and MDTA may be the same, MDTA courses are highly compressed into the shortest number of weeks possible. Trainees receive as much as 40 course-hours a week.

Why

MDTA

The unique sharing of responsibilities between the Departments of Education and Employment has resulted in training opportunities made available to many people not normally reached through adult education. The Department of Employment with its close contact with the unemployed and the Department of Education with its working relationships with California schools have been able to establish courses geared particularly to trainees unable to take advantage of the traditional vocational education opportunities. These include:

1. The unemployed head of household, who has no means of providing for himself or family to enable him to undertake extended training. The allowances provided MDTA trainees alleviate this situation and permit full-time concentration on learning.
2. The member of a minority race who, because of ghetto-like or other pernicious living condition has never experienced a work situation or, as is often the case, has never lived in a home with a breadwinner in the family. These people not only need the training but must be motivated to become an employed member of society. MDTA provides such motivation.
3. The functional illiterate who has not completed elementary school, let alone high school to enable him to assimilate training. He lacks the basic fundamentals and communication skills that are necessary to be occupationally trained. Basic education must be provided.

MDTA motivation is illustrated by a trainee enrolled in a precision lens grinder course who had a serious personality problem. Because of this he almost dropped out of training and at one point his dismissal by the training facility was being considered. Constant encouragement and cooperation of the instructor and his classmates kept him in training and helped him resolve his problem. He completed the training and is now employed.

INSTITUTIONAL PROJECTS

Institutional training is that training carried out in a classroom, a laboratory, or a school-connected situation, as contrasted to on-the-job training.

As the first step toward establishing an institutional training project, the Department of Employment conducts a survey of the labor market in the area where the training need is believed to exist. This survey establishes the extent of the demand for entry workers in the specific occupation and the number of qualified potential trainees. This information, properly documented, becomes a "work order" from which the Department of Education initiates development of the training course.

The Department of Education arranges with a local public or private school and assigns to it the task of preparing a course curriculum, recruiting instructional staff, and arranging for the necessary supplies and equipment, based on the survey document. The labor market survey document, a training cost budget, allowances budget, and course outline are then presented to a federal review team for approval.

When the project is approved, the local office of the California Department of Employment selects the necessary number of trainees. Applicants are screened against the basic qualifications set up for the course. Such things as educational achievement, aptitude test results, expressed interests, and prior work record are considered.

The Department of Employment also has responsibility for payment of training allowances, the referral of trainees to jobs upon completion of the course, and followup check on actual job performance. The Department of Education has the responsibility to oversee the conduct of the school training, to assure quality of instruction, and to provide reimbursement payments to the institution conducting the program.

From September 1962 and through December 31, 1964, approved institutional projects in California totaled 418, or 8 percent of the national total; and 26,330 trainee posi-

tions, or 9 percent of the national total. Through December, 5,698 trainees had completed training. Of these, 4,272 or 75 percent had obtained employment, of which 91 percent were in training-related occupations. The average budgeted cost per trainee in California for instruction and allowances was $1,293, compared with the national average cost of $1,391.

Training Projects

ON-THE-JOB-TRAINING

The Manpower Development and Training Act gives the Secretary of Labor the mandate to encourage, develop, and secure the adoption of on-the-job training programs—by individual employers and public and private groups, including states, public and private agencies, trade associations, labor organizations, and other industrial and community groups. This gives broad impetus to the establishment of diversified training programs which use the time-tested method of training while on the job.

Under MDTA regulations, on-the-job training is defined as training which uses instruction combined with work to qualify a trainee for a particular occupation. The key identifying feature of on-the-job training is the proximity of the training to the work environment. On-the-job training may be supplemented by classroom instruction conducted by the Department of Education and public schools.

Training allowance provisions of the act previously described apply equally to on-the-job training programs. However, the trainee must be paid prevailing wages by his employer for all hours of training spent in the production of marketable goods and services.

OJT projects are initiated and developed by the Division of Apprenticeship Standards (DAS), Department of Industrial Relations, under a reimbursement contract with the U.S. Department of Labor and in cooperation with the Federal Bureau of Apprenticeship and Training (BAT).

Once an on-the-job proposal has been found feasible, the Division of Apprenticeship Standards field representative assists the applicant organization, which is to become the project contractor, to complete a detailed outline of the project. Before approval the project proposal is cleared by the local and statewide coordinating committees composed of representatives from the Division of Apprenticeship Standards, Bureau of Apprenticeship and Training, Department of Employment and Department of Education. When the project is approved, a standard contractual agreement is executed between the project contractor (sponsor) and the Secretary of Labor.

The first on-the-job training project proposal in California was approved in May 1963. As of December 31, 1964, 26 projects authorizing 2,524 trainees had been approved. In addition to the approved projects, some 20 on-the-job training proposals are currently being developed by the Division of Apprenticeship Standards and the Federal Bureau of Apprenticeship and Training.

If on-the-job training is to be supplemented by classroom instruction, the Department of Education provides this training. The Department of Education arranges with a local school district for the necessary facilities and approves the supplemental curriculum.

The Department of Employment verifies the need for training and assists in screening the applicants.

EXPERIMENTAL AND DEMONSTRATION PROJECTS

These are projects designed to experiment with and develop more effective methods and techniques to train unemployed people with particularly difficult employment problems. Unemployed school dropouts, migratory workers, older workers, socially and economically deprived persons, and functional illiterates, among others, have special occupational needs that are being identified and met in experimental and demonstration projects.

The projects supplement standard MDTA programs by adding special techniques of testing, counseling, guidance, training, remedial educational instruction, job development, placement, and followup counseling after job placement.

Techniques are devised for locating the hard-core unemployed, and then guiding them into training programs.

After training and placement the Department of Employment provides any necessary counseling services to assist them in adjusting to the demands of the job.

Seven projects are now operating in California; others are pending. The seven include Youth Opportunity Board projects in east Los Angeles and south central Los Angeles which involve counseling, motivation, testing, job development, training (basic education and vocational) and research on methods and techniques for upgrading the minority youth, predominantly Mexican American in east Los Angeles, and Negro in south central Los Angeles. MDTA is involved in the Richmond Neighborhood House, a job upgrading project designed to prepare the dropout and other unemployed young people for employment. The Visalia farm labor project training farm workers in Tulare County combines basic education with training in year-round skills. A project in San Francisco is designed to determine how best to serve employment needs of workers over age 60. A project in the Castlemont area of Oakland, predominantly Negro, provides some 1,500 adult males a specialized placement service, including counseling, testing, motivation, job development, and basic education. Lastly, a project in Santa Barbara to counsel, motivate and train 300 adults, the majority of whom are ex-migrant workers.

Characteristics of the MDTA Trainees

Employment Status. Almost all trainees were unemployed at the time of enrollment in the courses. Nearly half of the trainees had been out of work more than 14 weeks when they entered the training program, and a good many had been jobless for more than a year. A preponderance of those unemployed more than a year were women. Approximately 60 percent of the male trainees enrolled had been out of work less than 15 weeks (Table A in the appendix).

Years in the Labor Force. Most trainees enrolled in manpower training had more than three years of gainful employment. Almost half of the male trainees had 10 years or more work experience with 82 percent having at least three years. Almost half of the female trainees had three to nine years of work experience and almost a quarter had 10 years or more (Table B in the appendix).

Age. The manpower development and training program in California is training a substantial number of youth. Through December of 1964, 3,151 trainees, or 23 percent, were under the age of 22. This percentage will no doubt increase as numerous special training projects for disadvantaged youth get underway. There are 2,035,000 youth in California aged 14 through 20. About half of these are in the labor force on a full- or part-time basis, and the unemployment rates for youth are known to be at least double the rates for the labor force as a whole. It is estimated that the number of youth aged 14 through 20 will climb to 3,052,000 by the year 1975. Many of these youth will continue to enter the work force with little or no skills unless programs such as MDTA are continued on an expanded basis.

An example of MDTA service to youth is a young man, 20 years old, who resides in an extremely dilapidated area of a large city. He has enrolled in a telephone frameman course and has already been hired part time by a telephone company with a promise of fulltime permanent employment when he completes the MDTA course.

Older workers are being trained in substantial numbers. Through December of 1964, over 17 percent of the trainees in California were over the age of 45 (Table C in the appendix).

Service to older workers is illustrated by the case of a 59-year-old housewife who became major support of the family when her husband became ill and unable to work. She completed an MDTA stenographer course, with "flying colors," and has been successfully employed as a private secretary for a legal concern for almost a year.

Race. Since the Department of Employment began gathering racial data on claimants and applicants on September 1, 1963, information on participation of minority groups in the manpower development and training program is now available. From September 1963 through December 1964, 23 percent of the trainees enrolled were Negroes, 12 percent Mexican Americans, and 2 percent other nonwhites (Table D in the appendix).

Outstanding illustrations of minority participation in the MDTA program are found in a recently completed precision lens grinder course.

For example, a Negro trainee whose most significant job had been as an assembler at $1.65 an hour, was tested, counseled and found to be working far below his potential skill level. He enrolled in and successfully completed the course. He is believed to be the first of his race to work as a precision lens grinder.

Two other successful trainees from this course are the first Mexican Americans hired for technical work in the optics industry.

Family Status. Through December of 1964, 56 percent of the trainees were heads of family or household; 48 percent of the female trainees were heads of family or household. While female trainees outnumbered male trainees by almost 3 to 1, a substantial number of female trainees were the major support of the household (Table E in the appendix).

Education. Fifty percent of the manpower trainees had a high school education. At the other end of the scale, approximately 8 percent of the manpower trainees had no more than an eighth grade education (Table F in the appendix).

THE JOBS TRAINEES LEARNED

Institutional training has been approved for 73 different occupations. These are enumerated in Table G in the appendix. The main direction of this education and training has been toward the clerical occupations, which embraced 46 percent of all approved projects. Other areas of emphasis included training for service occupations (14 percent), professional and managerial occupations (16 percent), agricultural occupations (10 percent), skilled occupations, (7 percent), and semiskilled occupations (7 percent).

Clerical and Sales. Clerical courses have been predominantly in the fields of stenography and typing, many of which were aimed at bringing skills up to the level necessary to compete in the labor market. Those trained in other clerical and sales courses were predominantly without clerical experience but demonstrated aptitude through our testing program.

A unique course in this field was for salesman, building and construction equipment and supplies, a 41-week course which trained 15 men in all phases of the retail lumber business. The success of the course led to repeating it for 20 more trainees.

Service. Courses in nurse aide and hospital orderly have been the most rewarding of those offered in service fields. They vary in length from 8 to 10 weeks and include classroom and practical training in the elements of patient care, aiding nurses, and institutional housekeeping. Custodian courses for males also have been successful.

Professional and Managerial. Among these occupations, the most predominant training has been for licensed vocational nurse. The content and length of these courses conform to both hospital and state requirements. Generally, these courses are 48 to 52 weeks in duration.

Agricultural. California leads all other states in the establishment of agricultural training courses. Most of the courses are for the occupations of pruner and nurseryman. These courses have been successful in aiding the unskilled farm worker to lengthen his work season and consequently increase his earning power. The farm employer also has benefited by having trained workers available.

Semiskilled. In this category, the largest number of courses has been for electronic assembler and machine operator. In addition, courses for coin machine serviceman and instrument assembler have been offered.

Skilled. Within this group, courses for electronic technician and welder have been in highest demand. Most of these courses have been 40 weeks or more in duration.

In some instances basic literacy courses have been added to the above types of vocational training. These courses are designed for those among the long-term unemployed who cannot benefit by vocational training programs until they have acquired at least minimal ability to read and write.

The Economic Impact

Earnings. Assuming a conservative estimate of $4,300 annual wage for each trainee returned to productive employment, the projected gross annual earnings of the retrained would amount to about $16,000,000. When trainees currently in training graduate and enter the labor market, the gross annual earnings will approach $30,000,000. The gross earnings of MDTA trainees will of course continue to rise as the program expands and the workers' annual wages increase.

The earnings impact is exemplified by a parolee who enrolled in an MDTA welding course. He has now completed the training and is employed as a maintenance man at $120 per week.

Unemployment Insurance. Assuming that as few as one-quarter of the 13,754 trainees who so far have been enrolled, would have been claiming an average of $44 each week in unemployment insurance benefits, the savings to the Unemployment Insurance Fund would be more than $1,000,000 annually. This estimated saving will increase as the program continues to return the unemployed to productive work.

A case study illustrating unemployment insurance savings is that of a young mother who is supporting her invalid husband and two small children. During the past five years she has worked at three different occupations for five different employers. Prior to enrollment in an MDTA course she had been claiming unemployment insurance benefits for about six months. Four employers scheduled her for interviews when they observed her work while visiting the class. She was hired as an electronics assembler with good prospects of being promoted to lead lady.

Public Assistance. Approximately 13 percent of the trainees referred to MDTA training have been recipients of public assistance. Most of these individuals have been mothers with dependent children. The average public assistance payments under the Aid to Families with Dependent Children program is about $170 per month. An annual saving of about $1,000,000 in public assistance payments will accrue as this group becomes employed. Again, these estimated savings will increase as the program continues and more public assistance recipients are returned to gainful employment.

A typical example of savings in public assistance payments is that of a 37-year-old handicapped woman with four dependent children and a disabled husband. This family was receiving welfare assistance.

She enrolled in an MDTA clerk-typist course and earned a certificate of completion in spite of absences caused by major surgery. She obtained her assignments by telephone so that she could keep up with the class during the period she was absent.

She has now been placed in a job where she has already received a raise in salary.

To realize the full impact of these estimates it should be remembered that the above projections are for one year only and most of the trainees will probably be gainfully employed during succeeding years, thus multiplying the projected earnings and savings many times. Further benefits will be realized as these workers assume their share of the tax load.

Accomplishments under the Manpower Development and Training Act program to date are the more remarkable in the face of problems encountered in a truly "crash" program of this magnitude.

Problems

LIMITATIONS ON MALE TRAINEES

A review of the statistics will show that only 29 percent of the trainees enrolled in California are males. This is in contrast to the national figures of almost 61 percent males enrolled. Primarily this disparity is attributed to:

1. A highly developed system of vocational education in California that enrolled 1,034,000 individuals in hundreds of courses in 1963–64. Male participation in this program is very high.

2. California's leadership in the apprenticeship training program with over 22,000 active apprentices in fiscal year 1963. Because of this activity, there are many opportunities for males to train in the skilled trades through the ongoing apprenticeship programs.

3. Many women are heads of family or household. At the same time there is a long-standing shortage of trained people in such occupations as typists, stenographers and nurse aides where courses can be readily established.

4. The questions raised by some segments of organized labor concerning the advisability of MDTA institutional training in some occupations suitable for men. While these questions have been under resolution, we have deferred training in some semiskilled and skilled occupations in which males could participate.

FRAGMENTING SKILLS

Some question has been raised also that MDTA encourages unnecessary fragmentation of skills. If there is a fragmentation of skills, it is a reflection of the impact of technological developments on the labor market and not of the purpose or objectives of the MDTA program. MDTA projects are based on facts about present and prospective

manpower shortages. The labor market has to be taken as it is constituted. It is not the purpose of MDTA to dictate to management and labor the specifics of any job in any industry and negotiations in this area are better left to the collective bargaining process.

ON-THE-JOB VS. CLASSROOM TRAINING

Despite the fact that it has been demonstrated that there are many occupations in which skills can be imparted just as effectively in classroom training as in on-the-job training, there is still reluctance to accept this fact. Furthermore, on-the-job training is much more difficult to establish since employers must assume some of the costs involved even with the inducements offered by MDTA. And of greater importance is the fact that in many instances the employer's plant facilities do not allow for trainees, at least to any appreciable extent. For these reasons California is vigorously pursuing all training resources available. Relying only on the traditional methods for any given occupations would sharply curtail our ability to meet California's growing needs.

APPRENTICESHIP

Apprenticeship in California has done, and is continuing to do, a fine job in adding skilled craftsmen to our labor force. There is no doubt that an effective apprenticeship program is vitally necessary. Yet, there are a number of important occupations considered apprenticeable which have not had a registered apprentice for several years. For example, in fiscal year 1963 there were 368 occupations regarded as apprenticeable in California. Of the 22,116 active apprentices in these occupations, 20,016 or over 90 percent were registered in only 31 occupations; an additional 2,100 apprentices were registered in 127 other occupations. No active apprentices were registered in the remaining 210 occupations.

If there is no ongoing or planned apprenticeship program in a particular occupation and a demand for workers exists, MDTA programs should be established and

employers be encouraged to accept graduates as entry workers.

OCCUPATIONAL OBSOLESCENCE

For every proposed MDTA project, a careful survey is made to determine the present and future employment needs for the occupation. As a result of these careful studies, few if any of the occupations approved for training under MDTA show any signs of becoming obsolete in the immediate future.

Further, even if an occupation does become obsolete after a number of years, the trainees will still have a base upon which to build additional skills that may be in demand at that time. In the meantime the MDTA graduates have become productive members of society.

TRAINING THE FUNCTIONAL ILLITERATES

Initially a rigid interpretation was applied to the requirement that there be reasonable expectation of employment for the graduates of MDTA courses. This requirement led to the elimination of many functional illiterates who constitute the hard-core unemployed in California. Hearings before congressional committees resulted in an amendment to MDTA to allow payment of training allowances for an additional 20 weeks to provide for literacy and basic education coupled with vocational training. There are now 14 such projects approved in California that will accommodate over 5,000 trainees. In addition, many of the regular projects now being developed have provisions for remedial or basic education. Therefore, this amendment along with the new experimental and demonstration project techniques previously described, have made it possible to reach more of the educationally deficient, a major part of the hard-core unemployed.

LOW PERCENTAGE OF MEXICAN AMERICANS IN TRAINING

The Mexican American population in California in 1960 was 1.4 million or 9 percent of the total state population, the largest single minority group in California.

However, if agricultural occupations are excluded, the number of Mexican Americans enrolled in MDTA training is very low in comparison to their representation in the population as a whole.

As a group the Mexican Americans average 8.6 years of education, substantially less than the average for the state as a whole. This factor along with economic and social barriers, general lack of preparation, and language difficulties have thrown serious roadblocks in efforts to train many Mexican Americans under MDTA.

With the emphasis presently being placed on training the hard-core unemployed, new efforts will be made to include Mexican Americans in all types of MDTA training. Promising programs in this direction have already been initiated and approved for the Los Angeles and the San Francisco Bay areas.

MDTA FUNDING

The Manpower Development and Training Act when first enacted, called for the several states to provide one-half of the costs of training and allowances beginning July 1, 1964.

The act has since been amended and now calls for the states to provide one-third of the costs of training and allowances beginning July 1, 1965, and one-half of the costs of training and allowances in succeeding years. If any state does not appropriate the necessary funds as called for in the act, the program will not be operative in that state after June 30, 1965.

For the fiscal year 1964–65, $307,000,000 was appropriated by Congress for national use. California has been tentatively allocated $29,988,000 of this amount. For fiscal year 1965–1966, the first matching year, a $30,000,000 program is possible of which $20,000,000 would be federal funds and $10,000,000 state matching funds.

In California, difficulties are already being experienced in establishing training that will extend beyond June 30, 1965. Some educational facilities are understandably re-

luctant to undertake the training without assurances that their costs will be fully reimbursed. Many potential trainees do not have the financial capability to continue training without allowances after June 30, 1965, and so cannot accept the training opportunity.

These difficulties have resulted in a noticeable slowdown in the program, a situation that will become even more acute as the period of full federal financing approaches termination.

Results of MDTA Training

PRECISION LENS GRINDER COURSE

Among the outstanding successes in California's MDTA experience was the course for precision lens grinder which concluded at Citrus College, Monrovia, November 6, 1964. Twelve trainees, all males and heads of families, ranging in age from 19 through 33 years, completed the course. All had at least two tentative job offers; one individual had six offers.

One trainee, who had a police record, completed the training among the top of his class. He had two offers from employers who were aware of his record. He intends to accept employment in Massachusetts at $2.50 per hour to start.

Another trainee, a high school dropout, had a juvenile conviction. He was tendered three firm and three tentative job offers.

Another trainee who finished in the top five had considerable difficulty in comprehension of the material at the start of the course. Efforts by the instructor and other members of the class got him started and he later moved up to the top of the class. He accepted employment in Palo Alto to work in research in rare earth crystals and quartz requiring ultra high precision.

San Rafael, Clerk, General Office

A 51-year-old trainee, with no recent work history, was rated by the instructor as one of the four highest students in the class, despite the handicap of polio of the right leg which caused the trainee considerable difficulty in maintaining class attendance and participation in all training sessions. She was selected by an employer to fill a job opening in a one-girl office.

Glendale, Electronics Assembly

A 40-year-old applicant, out of the labor market for 12 years and with her entire experience limited to routine clerical work and as a beauty shop helper, was found after counseling and testing to be qualified for training as an electronics assembler. A job has already been lined up for her when she completes the course.

San Rafael, General Office Clerk

A 49-year-old trainee had done no office work since 1945 and had been able to obtain only waitress work. She did so well in class that she was placed immediately with a manufacturing concern as combination receptionist and clerk, general office.

Hayward, Licensed Vocational Nurse

A male trainee had been under the care of Alcoholics Anonymous prior to enrolling in the course. Despite successful completion of the 48-week course, without reverting back to his prior problem, he still was faced with employer resistance. Through extensive job development efforts he was placed in a job with a large San Francisco hospital.

Tree Pruning Course

"It was a revelation to the instructors to watch speed develop in men that two or three days previous had never held a shear in their hands. One orchard last year required 77 minutes on the average to prune a tree. A group of trainees after only three days was pruning trees at a rate of 70 minutes per tree."

Draftsman Course

The instructor for this course reports: "I think we can claim pretty good success. Frankly, at the start, because of the intensive schedule, I didn't think the class would last more than a month. It's been 1,000 percent better than anything I had anticipated."

Santa Rosa Clerk-typist

"I have been drawing aid for needy children for approximately one year . . . I tried to obtain employment but it seemed I did not have enough experience or knowledge . . . It is important to me to be able to support my three small children, and with this training I know I can."

Sacramento Draftsman

"It was a long program and tough course, but it was well worth while . . . It's a real good deal. I'm well satisfied. If it hadn't been for the school I never would have gotten hired."

Antelope Valley Stenographer

"Thank you for the privilege of having been able to attend the MDTA stenographic training school. I can't begin to tell you what it has done for me. I knew I was capable of doing the work, but through the teaching . . . I gained back the confidence I lacked and the initiative to go out and seek the work which I most enjoyed . . ."

San Bernardino Stenographer

"It's a wonderful feeling. Now I'll have something that can't ever be taken away from me."

Lancaster Stenographer

"This opportunity is just fantastic and I can't rave enough about this program . . . I just hope that my slow old brain will hurry up and get used to being filled up with knowledge again . . . It is a frightening thing to return to school after so many years away from it but it is fascinating too, and I really do enjoy it a lot . . ."

San Jose Stenographer

A 51-year-old divorcée with two dependent children was insistent that she would not accept assistance in the form of aid to needy children. She was confident that, in spite of a background that was predominantly industrial (now precluded for physical reasons), she could do well in office work.

Inspired by her successful completion of the MDTA stenographer course, she took and passed the GED test and made the 12th grade equivalency.

She was hired immediately on a part-time job, which was soon changed to full time. Her employer reports she is doing an excellent job.

This handicapped, independent "graduate" fulfilled her determination not to become a recipient of welfare aid. In addition, based on her knowledge of the effectiveness of her training, she has attempted to get other MDTA graduates into her office.

San Jose Nurse Aide

A 55-year-old married woman from a culturally disadvantaged group had a consuming urge to become a nurse aide. Her eighth grade education had limited her employment opportunities during the 20 years she had spent in cannery work.

A discerning interviewer realized that the results of the aptitude test were only one of the selection factors to be considered and correctly referred her to training after all other factors had been considered.

While slow to learn and average in grooming, her instructors considered her exceptional in every other respect, characterizing her as, "hard working, forceful, kind, a jewel."

Employed shortly after the completion of the training by a small hospital, this older worker from a culturally deprived group is still gainfully employed in the occupation to which she has always aspired.

CONCLUSION

Accomplishments to date under the MDTA program have been sufficiently encouraging, in what is still relatively a new program, to warrant greater effort to meet our challenging manpower problems.

As can be seen from this report, the MDTA program has been a success. It has demonstrated that the unemployed can be trained to fill today's jobs. It is also evident that only a start has been made. Continuation of the program in future years is vitally necessary so that further inroads can be made in reducing the ranks of the unemployed.

The assistance of legislators, educators, organized labor, businessmen and private citizens is welcomed so that the finest possible program can be developed.

APPENDIX

RETRAINING FACTS AND FIGURES

EMPLOYMENT AND UNEMPLOYMENT DATA (calendar year 1964)

California: 7,064,000 work force
422,000 unemployed
or 6.0 percent of work force

Nationally: 74,233,000 work force
3,867,000 unemployed
or 5.2 percent of work force

MDTA INSTITUTIONAL (school-connected) PROJECTS IN CALIFORNIA
(September 1962 through December 31, 1964)

418 approved projects, or 8 percent of national total.
26,330 trainee positions,* or 9 percent of national total.
14,957 individuals referred to training.
13,754 individuals enrolled in classes.
Male: 3,950; female: 9,804
(Included are 3,151 youth)
7,737 heads of household enrolled in classes.
Male: 3,053; female: 4,684
5,698 completed MDTA training.
4,272 or 75 percent placed on jobs after MDTA training, of which 3,876 or 91 percent placed in training-related jobs.

MDTA ON-THE-JOB TRAINING IN CALIFORNIA

26 approved projects.
2,524 trainee positions.

MINORITY PARTICIPATION IN INSTITUTIONAL MDTA
(September 1, 1963, through December 31, 1964)

9,646 trainees enrolled, all races.
2,216 or 23 percent Negro.
1,152 or 12 percent Mexican American.
6,082 or 63 percent other white.
150 or 2 percent other nonwhite.
46 not identified as to race.

FUNDING FOR MDTA

$161,000,000 authorized nationally for fiscal year 1964, of which
$110,000,000 appropriated.
$10,350,680 committed for projects in California.
$407,000,000 authorized nationally for fiscal year 1965, of which
$307,000,000 appropriated, $29,988,000 tentatively allocated for California.
$30,000,000 program possible in California for fiscal year 1966, of which
$20,000,000 would be federal funds and $10,000,000 state matching.

* "Trainee positions" are those training openings for which funds have been budgeted. Many approved courses and sections of courses have not as yet started.

Table E

FAMILY STATUS OF MDTA ENROLLEES

	Total		*Male*		*Female*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Total	13,754	100	3,950	100	9,804	100
Head of family	7,734	56	3,053	77	4,684	48
Other	6,017	44	897	23	5,120	52

Table F

EDUCATIONAL ATTAINMENT OF MDTA ENROLLEES

MDTA Enrollees—Institutional

	Total		*Male*		*Female*	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Total	13,754	100	3,950	100	9,804	100
Less than 8th grade	523	4	477	12	46	[b]
8th grade	491	4	290	7	201	2
9th to 11th grade	3,427	25	1,027	26	2,400	24
12th grade	6,920	50	1,519	38	5,401	55
More than 12th grade	2,393	17	637	16	1,756	18

[a] Percentages may not add to 100 percent due to rounding of figures.
[b] Less than one-half of 1 percent.

Table G

OCCUPATIONS APPROVED UNDER MDTA
Through December 1964

Occupational title	*Number of projects*
Auto detailer	1
Auto mechanic	1
Auto service station attendant	4
Beauty operator	1
Bookkeeping machine operator	1
Calculating machine operator	1
Carpenters apprentice	1
Carpenter (construction) (upgrading)	2
Chemist assistant	2
Clerk, general office	12
Clerk typist	58
Coin machine serviceman	3
Cook, fry	1
Custodian—janitor	5
Draftsman—mechanical, electrical	1
Draftsman—mechanical	1
Dry cleaner	1
Duplicating machine operator	1
Electrical appliance serviceman	1
Electronic assembler	4
Electronic mechanic	10
Electronics technician	1
Farm hand, general	4
Farm hand, poultry	2
Farm mechanic	4
Frameman	3
Food service assistant	1
Foreman, agriculture	1
Grocery checker	2
Groundsman—gardener	5
Groundskeeper	3
Home health aide	2
House cleaner	2
Housekeeper	2
Instrument Assembler	2
Insurance rate clerk	1
Keeper (animal caretaker)	1

Occupational title	*Number of projects*
Key punch operator	1
Licensed vocational nurse	49
Machine operator, general	5
Metal trades preapprentice	2
Nurse aide	38
Orderly	2
Nurse, general duty	11
Nurseryman II	2
Office boy	1
Office machine serviceman	2
Painter	2
Porter I	1
Precision lens grinder	2
Pruner—agriculture	16
Psychiatric technician	2
Receptionist	1
Reproduction typist	3
Salesperson	2
Salesperson, general	11
Salesperson, photo	1
Salesman, building and construction equipment	2
Secretary	17
Sewing machine operator	2
Stationary engineer	2
Stenographer	70
Surgical technician	1
Technical illustrator	2
Telephone Operator II	1
Teller (bank)	1
Tractor Operator I	5
Tractor Operator II	1
Transcribing machine operator	4
Water and sewage plant operator	2
Welder, combination	4
Welder	1
Basic or remedial education	2

Table H

TRAINEES ENROLLED IN MDTA INSTITUTIONAL TRAINING PROJECTS BY OCCUPATIONAL GROUP AND SEX
July 1962 through December 1964

Occupational group	*Total*	*Male*		*Female*	
		Number	*Percent*	*Number*	*Percent*
Total through 12/31/64 [a]	13,754	3,950	29	9,804	71
Professional and managerial	1,821	229	13	1,592	87
Clerical and sales	6,695	597	9	6,098	91
Service	2,183	408	19	1,775	81
Agriculture	1,272	1,271	100	1	[b]
Skilled occupations	809	796	98	13	2
Semiskilled occupations	884	597	68	287	32
Basic or remedial education	90	52	58	38	42

[a] Percentages may not add to 100 percent due to rounding of figures.
[b] Less than one-half of 1 percent.

Table I

ON-THE-JOB TRAINING OCCUPATIONS APPROVED UNDER MDTA

Linofilm operator
Teletypesetter
Offset cameraman and platemaker
Electronic assembler
Lathers
Hospital orderly
Draftsman
Various furniture upholstery occupations
Mill cabinet layout
Fortran
Programmers
Offset cameraman and offset pressman
Machinist apprentice
Custom upholsterers
Operating engineer
Marine cooks
Floor maintenance mechanic
Tile setters
Tile setter apprentices
Broom makers

U.S. CIVILIAN LABOR FORCE—BY AGE AND SEX
1960–1964
(Thousands)

	1960	*1961*	*1962*	*1963*	*1964*
Total civilian labor force	70,612	71,602	71,853	72,975	74,233
Under 25	12,528	13,031	13,237	13,754	14,494
25–44	30,653	30,719	30,613	30,836	30,824
45 and over	27,432	27,849	28,004	28,387	28,912
Male	47,025	47,378	47,380	47,867	48,410
Under 25	7,546	7,773	7,828	8,159	8,559
25–44	21,219	21,188	21,037	21,062	21,030
45 and over	18,261	18,417	18,514	18,647	18,819
Female	23,587	24,225	24,473	25,108	25,823
Under 25	4,982	5,258	5,407	5,595	5,935
25–44	9,434	9,531	9,576	9,774	9,794
45 and over	9,171	9,432	9,490	9,740	10,093

SOURCES: Labor Force, Employment and Unemployment Statistics, 1947–61, Table 4. Employment and Earnings, February, 1964, Tables A-2 and A-11. Employment and Earnings, January, 1965, Tables A-1 and A-16. Bureau of Labor Statistics, Washington, D.C.

CALIFORNIA CIVILIAN EMPLOYMENT—BY INDUSTRY
1950, 1960, 1961, 1962, 1963, 1964
(Thousands)

	1950	*1960*	*1961*	*1962*	*1963*	*1964*
Total civilian labor force	4,501	6,298	6,479	6,649	6,858	7,064
Unemployed						
Number	347	367	446	389	411	422
Rate	7.7	5.8	6.9	5.9	6.0	6.0
Employed	4,154	5,931	6,034	6,260	6,447	6,642
Agriculture, forestry, and fishing	374	350	348	345	338	341
Mining	35	32	32	31	31	31
Construction	289	359	358	369	386	413
Manufacturing	797	1,357	1,359	1,428	1,458	1,435
Transp., communications, utilities	320	372	366	372	381	387
Trade	973	1,255	1,269	1,307	1,346	1,409
Finance, insurance, real estate	174	285	296	306	318	342
Services	656	1,043	1,086	1,129	1,181	1,240
Government	533	874	920	964	1,005	1,045
Production and related workers in manufacturing	581	872	856	884	880	880
Production workers as a percent of total manufacturing employment	72.9	64.3	63.0	61.9	60.4	61.3

SOURCES: California Department of Employment (Research and Statistics), technical paper, series LF-6.2, February 27, 1963. *Employment and Unemployment in California*, January 1964, and January, 1965. California Department of Industrial Relations, *Estimated Civilian Employees in California*, Directory; Unpublished data and directory.

MANPOWER DEVELOPMENT AND TRAINING ACT OF 1962 AS AMENDED[1]
(42 U.S.C. 2571–2620)

AN ACT

Relating to manpower requirements, resources, development, and utilization, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Manpower Development and Training Act of 1962".

TITLE I—MANPOWER REQUIREMENTS, DEVELOPMENT, AND UTILIZATION

Statement of Findings and Purpose

SEC. 101. The Congress finds that there is critical need for more and better trained personnel in many vital occupational categories, including professional, scientific, technical, and apprenticeable categories; that even in periods of high unemployment, many employment opportunities remain unfilled because of the shortages of qualified personnel; and that it is in the national interest that current and prospective manpower shortages be identified and that persons who can be qualified for these positions through education and training be sought out and trained as quickly as is reasonably possible, in order that the Nation may meet the staffing requirements of the struggle for freedom. The Congress further finds that the skills of many persons have been rendered obsolete by dislocations in the economy arising from automation or other technological developments, foreign competition, relocation of industry, shifts in market demands, and other changes in the structure of the economy; that Government leadership is necessary to insure that the benefits of automation do not become burdens of widespread unemployment; that the problem of assuring sufficient employment opportunities will be compounded by the extraordinarily rapid growth of the labor force in the next decade, particularly by the entrance of young people into the labor force, that improved planning and expanded efforts will be required to assure that men, women, and young people will be trained and available to meet shifting employment needs; that many persons now unemployed or underemployed, in order to become qualified for reemployment or full employment must be assisted in providing themselves with skills which are or will be in demand in the labor market; that the skills of many persons now employed are inadequate to enable them to make their maximum contribution to the Nation's economy; and that it is in the national interest that the opportunity to acquire new skills be afforded to these people with the least delay in order to alleviate the hardships of unemployment, reduce the costs of unemployment compensation and public assistance, and to increase the Nation's productivity and its capacity to meet the requirements of the space age. It is therefore the purpose of this Act to require the Federal Government to appraise the manpower requirements and resources of the Nation, and to develop and apply the information and methods needed to deal with the problems of unemployment resulting from automation and technological changes and other types of persistent unemployment.

Evaluation, Information, and Research

SEC. 102. To assist the Nation in accomplishing the objectives of technological progress while avoiding or minimizing individual hardship and widespread unemployment, the Secretary of Labor shall—

(1) evaluate the impact of, and benefits and problems created by automation, technological progress, and other changes in the structure of production and demand on the use of the Nation's human resources; establish techniques and methods for detecting in advance the potential impact of such developments; develop solutions to these problems, and publish findings pertaining thereto;

(2) establish a program of factual studies of practices of employers and unions which tend to impede the mobility of workers or which facilitate mobility, including but not limited to early retirement and vesting provisions and practices under private compensation plans; the extension of health, welfare, and insurance benefits to laid-off workers; the operation of severance pay plans; and the use of extended leave plans for education and

[1] P.L. 87–415, Mar. 15, 1962, 76 Stat. 24–33, as amended by P.L. 87–729, Oct. 1, 1962, 76 Stat. 679; as amended by P.L. 88–214, Dec. 19, 1963.

training purposes. A report on these studies shall be included as a part of the Secretary's report required under section 104;

(3) appraise the adequacy of the Nation's manpower development efforts to meet foreseeable manpower needs and recommend needed adjustments including methods for promoting the most effective occupational utilization of and providing useful work experience and training opportunities for untrained and inexperienced youth;

(4) promote, encourage, or directly engage in programs of information and communication concerning manpower requirements, development, and utilization, including prevention and amelioration of undesirable manpower effects from automation and other technological developments and improvement of the mobility of workers; and

(5) arrange for the conduct of such research and investigations as give promise of furthering the objectives of this Act.

Skill and Training Requirements

SEC. 103. The Secretary of Labor shall develop, compile, and make available, in such manner as he deems appropriate, information regarding skill requirements, occupational outlook, job opportunities, labor supply in various skills, and employment trends on a National, State, area, or other appropriate basis which shall be used in the educational, training, counseling, and placement activities performed under this Act.

Manpower Report

SEC. 104. The Secretary of Labor shall make such reports and recommendations to the President as he deems appropriate pertaining to manpower requirements, resources, use, and training; and the President shall transmit to the Congress within sixty days after the beginning of each regular session (commencing with the year 1963) a report pertaining to manpower requirements, resources, utilization and training.

TITLE II—TRAINING AND SKILL DEVELOPMENT PROGRAMS

PART A—DUTIES OF THE SECRETARY OF LABOR

General Responsibility

SEC. 201. In carrying out the purposes of this Act, the Secretary of Labor shall determine the skill requirements of the economy, develop policies for the adequate occupational development and maximum utilization of the skills of the Nation's workers, promote and encourage the development of broad and diversified training programs, including on-the-job training, designed to qualify for employment the many persons who cannot reasonably be expected to secure full-time employment without such training, and to equip the Nation's workers with the new and improved skills that are or will be required.

Selection of Trainees

SEC. 202. (a) The Secretary of Labor shall provide a program for testing, counseling, and selecting for occupational training under this Act those unemployed or underemployed persons who cannot reasonably be expected to secure appropriate full-time employment without training. Workers in farm families with less than $1,200 annual net family income shall be considered unemployed for the purpose of this Act.

(b) Whenever appropriate the Secretary shall provide a special program for the testing, counseling, selection, and referral of youths, sixteen years of age or older, for occupational training and further schooling, who because of inadequate educational background and work preparation are unable to qualify for and obtain employment without such training and schooling.

(c) Although priority in referral for training shall be extended to unemployed persons, the Secretary of Labor shall, to the maximum extent possible, also refer other persons qualified for training programs which will enable them to acquire needed skills. Priority in referral for training shall also be extended to persons to be trained for skills needed within, first, the labor market area in which they reside and, second, within the State of their residence.

(d) The Secretary of Labor shall determine the occupational training needs of referred persons, provide for their orderly selection and referral for training under this Act, and provide counseling and placement services to persons who have completed their training, as well as follow-up studies to determine whether the programs provided meet the occupational training needs of the persons referred.

(e) Before selecting a person for training, other than for training under subsection (i), the Secretary shall determine that there is a reasonable expectation of employment in the occupation for which the person is to be trained. If such employment is not available in the area in which the person resides, the Secretary shall obtain reasonable

assurance of such person's willingness to accept employment outside his area of residence.

(f) The Secretary shall not refer persons for training in an occupation which requires less than two weeks training, unless there are immediate employment opportunities in such occupation.

(g) The duration of any training program to which a person is referred shall be reasonable and consistent with the occupation for which the person is being trained.

(h) Upon certification by the responsible training agency that a person who has been referred for training does not have a satisfactory attendance record or is not making satisfactory progress in such training absent good cause, the Secretary shall forthwith terminate his training and subsistence allowances, and his transportation allowances except such as may be necessary to enable him to return to his regular place of residence after termination of training, and withdraw his referral. Such person shall not be eligible for such allowances for one year thereafter.

(i) Whenever appropriate, the Secretary of Labor may also refer for the attainment of basic education skills those eligible persons who indicate their intention to, and will thereby be able to, pursue courses of occupational training of a type for which there appears to be reasonable expectation of employment. Such referrals shall be considered a referral for training within the meaning of this Act, and such person shall be eligible for training allowances for not to exceed an additional twenty weeks.

Training Allowances

SEC. 203. (a) The Secretary of Labor may, on behalf of the United States, enter into agreements with States under which the Secretary of Labor shall make payments to such States either in advance or by way of reimbursement for the purpose of enabling such States, as agents for the United States, to make payment of weekly training allowances to unemployed persons selected for training pursuant to the provisions of section 202 and undergoing such training in a program operated pursuant to the provisions of the Act. Such payments shall be made for a period not exceeding fifty-two weeks, (except where authorized for individuals referred for training under section 202(i)), and the amount of any such payment in any week for persons undergoing training, including uncompensated employer-provided training, shall not exceed $10 more than the amount of the average weekly unemployment compensation payment (including allowances for dependents) for a week of total unemployment in the State making such payments during the most recent quarter for which such data are available: *Provided however*, That in any week an individual who, but for his training, would be entitled to unemployment compensation in excess of such allowance, shall receive an allowance increased by the amount of such excess. With respect to Guam and the Virgin Islands the Secretary shall by regulation determine the amount of the training allowance to be paid any eligible person taking training under this Act.

With respect to any week for which a person receives unemployment compensation under title XV of the Social Security Act or any other Federal or State unemployment compensation law which is less than $10 more than the average weekly unemployment compensation payment (including allowances for dependents) for a week of total unemployment in the State making such payments during the most recent quarter for which such data are available, a supplemental training allowance may be paid to a person eligible for a training allowance under this Act. This supplemental training allowance shall not exceed the difference between his unemployment compensation and $10 more than the average weekly unemployment compensation payment referred to above.

For persons undergoing on-the-job training, the amount of any payment which would otherwise be made by the Secretary of Labor under this section shall be reduced by an amount which bears the same ratio to that payment as the number of compensated hours per week bears to forty hours.

The training allowance of a person engaged in full-time training under section 231 shall not be reduced on account of his part-time employment which does not exceed twenty hours per week, but shall be reduced in an amount equal to his full earnings for hours worked in excess of twenty hours per week.

(b) The Secretary of Labor is authorized to pay to any person engaged in training under this title, including compensated full-time on-the-job training, such sums as he may determine to be necessary to defray transportation and subsistence expenses for separate maintenance of such persons when such training is provided in facilities which are not within commuting distance of their regular place of residence: *Provided*, That the Secretary in defraying such subsistence expenses shall not afford any individual an allowance exceeding $35 per week, at the rate of $5 per day;

nor shall the Secretary authorize any transportation expenditure exceeding the rate of 10 cents per mile.

(c) The Secretary of Labor shall pay training allowances only to unemployed persons who have had not less than two years of experience in gainful employment and who are either heads of families or heads of households as defined in the Internal Revenue Code of 1954, or who are members of a household in which the head of the household or the head of the family is unemployed: *Provided*, That not more than one person in any one household may be receiving training allowances under this Act at any particular time. Notwithstanding the preceding sentence, the Secretary may pay training allowances at a rate not in excess of $20 a week to youths seventeen years of age or older who require such training allowance in order to undertake training, who are referred for training in accordance with section 202(b), and who are not entitled to allowances under the preceding sentence, except that no such training allowance shall be paid to any such youth who has not graduated from high school, unless the Secretary has satisfied himself that such youth has continuously failed to attend school for a period of not less than one year and that the local authorities after pursuing all appropriate procedures, including guidance and counseling, have concluded, after considering any assistance available under section 13 of the Vocational Education Act of 1963, that further school attendance by such youth in any regular academic or vocational program is no longer practicable under the circumstances. Not more than 25 per centum of the persons who are receiving training allowances (or who would be entitled thereto but for receipt of unemployment compensation) may be youths under the age of twenty-two.

(d) For the fiscal year ending June 30, 1966, any amount paid to a State for training allowances under this section, or as reimbursement for unemployment compensation under subsection (h), shall be paid on condition that such State shall bear 33⅓ per centum of the amount of such payments, and for each fiscal year thereafter such amounts shall be paid on condition that such State shall bear 50 per centum of the amount of such payments.

(e) No training allowance shall be made to any person otherwise eligible who, with respect to the week for which such payment would be made, has received or is seeking unemployment compensation under title XV of the Social Security Act or any other Federal or State unemployment compensation law, but if the appropriate State or Federal agency finally determines that a person denied training allowances for any week because of this subsection was not entitled to unemployment compensation under title XV of the Social Security Act or such Federal or State law with respect to such week, this subsection shall not apply with respect to such week.

(f) A person who refuses, without good cause, to accept training under this Act shall not, for one year thereafter, be entitled to training allowances.

(g) Any agreement under this section may contain such provisions (including, as far as may be appropriate, provisions authorized or made applicable with respect to agreements concluded by the Secretary of Labor pursuant to title XV of the Social Security Act) as will promote effective administration, protect the United States against loss and insure the proper application of payments made to the State under such agreement. Except as may be provided in such agreements, or in regulations hereinafter authorized determinations by any duly designated officer or agency as to the eligibility of persons for weekly training allowances under this section shall be final and conclusive for any purposes and not subject to review by any court or any other officer.

(h)(1) If State unemployment compensation payments are paid to a person taking training under this Act and eligible for a training allowance, the State making such payments shall be reimbursed from funds herein appropriated. The amount of such reimbursement shall be determined by the Secretary of Labor on the basis of reports furnished to him by the States and such amount shall then be placed in the State's unemployment trust fund account.

(2) If employment benefits under the Railroad Unemployment Insurance Act are paid to a person taking training under this Act and eligible for a training allowance, the railroad unemployment insurance account in the unemployment trust fund shall be reimbursed, from funds herein appropriated, for all of such benefits paid prior to July 1, 1965, for 66⅔ per centum of the amount of such benefits paid during the fiscal year ending June 30, 1966, and 50 per centum of the amount of such benefits paid thereafter. The amount of such reimbursement shall be determined by the Secretary of Labor on the basis of reports furnished to him by the Railroad Retirement Board and such amount shall then be placed in the railroad unemployment insurance account.

(i) A person who, in connection with an occupational training program, has received a training allowance or whose unemployment compensation payments were reimbursed under the provisions of this Act or any other Federal Act shall not be entitled to training allowances under this Act for one year after the completion or other termination (for other than good cause) of the training with respect to which such allowance or payment was made.

(j) No training allowance shall be paid to any person who is receiving training for an occupation which requires a training period of less than six days.

On-the-Job Training

SEC. 204. (a) The Secretary of Labor shall encourage, develop, and secure the adoption of programs for on-the-job training needed to equip persons selected for training with the appropriate skills. The Secretary shall, to the maximum extent possible, secure the adoption by the States and by private and public agencies, employers, trade associations, labor organizations and other industrial and community groups which he determines are qualified to conduct effective training programs under this title of such programs as he approves, and for this purpose he is authorized to enter into appropriate agreements with them.

(b) In adopting or approving any training program under this part, and as a condition to the expenditure of funds for any such program, the Secretary shall make such arrangements as he deems necessary to insure adherence to appropriate training standards, including assurances—

(1) that the training content of the program is adequate, involves reasonable progression, and will result in the qualification of trainees for suitable employment;

(2) that the training period is reasonable and consistent with periods customarily required for comparable training;

(3) that adequate and safe facilities, and adequate personnel and records of attendance and progress are provided; and

(4) that the trainees are compensated by the employer at such rates, including periodic increases, as may be deemed reasonable under regulations hereinafter authorized, considering such factors as industry, geographical region, and trainee proficiency.

(c) Where on-the-job training programs under this part require supplementary classroom instruction, appropriate arrangements for such instruction shall be agreed to by the Secretary of Health, Education, and Welfare and the Secretary of Labor.

Advisory Committees

SEC. 205. (a) The Secretary shall appoint a National Advisory Committee which shall consist of ten members and shall be composed of representatives of labor, management, agriculture, education, and training, and the public in general. From the members appointed to such Committee the Secretary shall designate a Chairman. Such Committee, or any duly established subcommittee thereof, shall from time to time make recommendations to the Secretary relative to the carrying out of his duties under this Act. Such Committee shall hold not less than two meetings during each calendar year.

(b) For the purpose of making expert assistance available to persons formulating and carrying on programs under this title, the Secretary shall, where appropriate, require the organization on a community, State and/or regional basis of labor-management-public advisory committees.

(c) The National Advisory Committee may accept gifts or bequests, either for carrying out specific programs or for its general activities or for its responsibilities under subsection (b) of this section.

(d) Appointed members of the National Advisory Committee shall be paid compensation at the rate of $50 per diem when engaged in the work of the National Advisory Committee, including travel time, and shall be allowed travel expenses and per diem in lieu of subsistence as authorized by law (5 U.S.C. 73b-2) for persons in the Government service employed intermittently and receiving compensation on a per diem, when actually employed, basis.

(e)(1) Any member of the National Advisory Committee is hereby exempted, with respect to such appointment, from the operation of sections 281, 283, and 1914 of title 18 of the United States Code, and section 190 of the Revised Statutes (5 U.S.C. 99), except as otherwise specified in paragraph (2) of this subsection.

(2) The exemption granted by paragraph (1) of this subsection shall not extend—

(A) to the receipt or payment of salary in connection with the appointee's Government service from any source other than the private employer of the appointee at the time of his appointment, or

(B) during the period of such appointment, to the prosecution or participa-

tion in the prosecution, by any person so appointed, of any claim against the Government involving any matter with which such person, during such period, is or was directly connected by reason of such appointment.

State Agreements

SEC. 206. (a) The Secretary of Labor is authorized to enter into an agreement with each State, or with the appropriate agency of each State, pursuant to which the Secretary of Labor may, for the purpose of carrying out his functions and duties under this title, utilize the services of the appropriate State agency and, notwithstanding any other provision of law, may make payments to such State or appropriate agency for expenses incurred for such purposes.

(b) Any agreement under this section may contain such provisions as will promote effective administration, protect the United States against loss and insure that the functions and duties to be carried out by the appropriate State agency are performed in a manner satisfactory to the Secretary.

Rules and Regulations

SEC. 207. The Secretary of Labor shall prescribe such rules and regulations as he may deem necessary and appropriate to carry out the provisions of this part.

Labor Mobility Demonstration Projects

SEC. 208. During the period ending June 30, 1965, the Secretary of Labor shall develop and carry out, in a limited number of geographical areas, pilot projects designed to assess or demonstrate the effectiveness in reducing unemployment of programs to increase the mobility of unemployed workers by providing assistance to meet their relocation expenses. In carrying out such projects the Secretary may provide such assistance, in the form of grants or loans, or both, only to involuntary unemployed individuals who cannot reasonably be expected to secure full-time employment in the community in which they reside, have bona fide offers of employment (other than temporary or seasonal employment), and are deemed qualified to perform the work for which they are being employed. Where such assistance is provided in the form of grants, such grants may not exceed 50 per centum of the expenses incurred reasonably necessary to the transportation of the person who is relocating, and his family, and their household effects. Where such assistance is provided in the form of loans, or a combination of loans and grants, the total amount thereof may not exceed 100 per centum of such expenses and shall be made subject to such terms and conditions as the Secretary may prescribe. Of the funds appropriated for a fiscal year to carry out this title, not more than 2 per centum thereof, or $4,000,000, whichever is the lesser, may be used for the purposes of this section.

PART B—DUTIES OF THE SECRETARY OF HEALTH, EDUCATION, AND WELFARE

General Responsibility

SEC. 231. The Secretary of Health, Education, and Welfare shall, pursuant to the provisions of this title enter into agreements with States under which the appropriate State vocational education agencies will undertake to provide training needed to equip persons referred to the Secretary of Health, Education, and Welfare by the Secretary of Labor pursuant to section 202, for the occupations specified in the referrals, except that with respect to education to be provided pursuant to referrals under subsection (b) or (i) of section 202, the Secretary of Health, Education, and Welfare may make arrangements for the provision of the education to be provided under such subsection through other appropriate education agencies. Such State agencies shall provide for such training through public education agencies or institutions or through arrangements with private educational or training institutions where such institutions can provide substantially equivalent training with reduced Federal expenditures. The State agency shall be paid 50 per centum of the cost to the State of carrying out the agreement, except that for the period ending June 30, 1965, the State agency shall be paid 100 per centum of the cost to the State of carrying out the agreement with respect to unemployed persons, and for the fiscal year ending June 30, 1966, the State agency shall be paid 66⅔ per centum of such cost. Such agreements shall contain such other provisions as will promote effective administration (including provision (1) for reports on the attendance and performance of trainees, (2) for immediate certification to the Secretary of Labor by the responsible training agency with respect to each person referred for training who does not have a satisfactory attendance record or is not making satisfactory progress in such training absent good cause, and (3) for continuous supervision of the training programs conducted under the agreement to insure the quality and adequacy of the training provided), protect the United States against loss,

and assure that the functions and duties to be carried out by such State agency are performed in such fashion as will carry out the purposes of this title. In the case of any State which does not enter into an agreement under this section, and in the case of any training which the State agency does not provide under such an agreement, the Secretary of Health, Education, and Welfare may provide the needed training by agreement or contract with public or private educational or training institutions.

Rules and Regulations

SEC. 232. The Secretary of Health, Education, and Welfare may prescribe such rules and regulations as he may deem necessary and appropriate to carry out the provisions of this part.

TITLE III—MISCELLANEOUS

Apportionment of Benefits

SEC. 301. For the purpose of effecting an equitable apportionment of Federal expenditures among the States in carrying out the programs authorized under title II of this Act, the Secretary of Labor and the Secretary of Health, Education, and Welfare shall make such apportionment in accordance with uniform standards and in arriving at such standards shall consider only the following factors: (1) the proportion which the labor force of a State bears to the total labor force of the United States, (2) the proportion which the unemployed in a State during the preceding calendar year bears to the total number of unemployed in the United States in the preceding calendar year, (3) the lack of appropriate full-time employment in the State, (4) the proportion which the insured unemployed within a State bears to the total number of insured employed within such State, and (5) the average weekly unemployment compensation benefits paid by the State. The Secretary of Labor and the Secretary of Health, Education, and Welfare are authorized to make reapportionments from time to time where the total amounts apportioned under this section have not been fully obligated in a particular State, or where the State or appropriate agencies in the State have not entered into the necessary agreements, and the Secretaries find that any other State is in need of additional funds to carry out the programs authorized by this Act.

Maintenance of State Effort

SEC. 302. No training program which is financed in whole or in part by the Federal Government under this Act shall be approved unless the Secretary of Labor, if the program is authorized under Part A of title II, or the Secretary of Health, Education, and Welfare, if the program is authorized under part B of title II, satisfies himself that neither the State nor the locality in which the training is carried out has reduced or is reducing its own level of expenditures for vocational education and training, including program operation under provisions of the Smith-Hughes Vocational Education Act and titles I, II, and III of the Vocational Education Act of 1946, except for reductions unrelated to the provisions or purposes of this Act.

Other Agencies and Departments

SEC. 303. (a) In the performance of their function under this Act, the Secretary of Labor and the Secretary of Health, Education, and Welfare, in order to avoid unnecessary expense and duplication of functions among Government agencies, shall use the available services or facilities of other agencies and instrumentalities of the Federal Government, under conditions specified in section 306(a). Each department, agency, or establishment of the United States is authorized and directed to cooperate with the Secretary of Labor and the Secretary of Health, Education, and Welfare and, to the extent permitted by law, to provide such services and facilities as either may request for his assistance in the performance of his functions under this Act.

(b) The Secretary of Labor and the Secretary of Health, Education, and Welfare shall carry out their responsibilities under this Act through the maximum utilization of all possible resources for skill development available in industry, labor, public and private educational and training institutions, State, Federal, and local agencies, and other appropriate public and private organizations and facilities.

Appropriations Authorized

SEC. 304. (a) There are hereby authorized to be appropriated $2,000,000 for the fiscal year ending June 30, 1963, $3,000,000 for the fiscal year ending June 30, 1964, and each of the two succeeding fiscal years, for the purpose of carrying out title I.

(b) There are hereby authorized to be appropriated $97,000,000 for the fiscal year ending June 30, 1963, $161,000,000 for the fiscal year ending June 30, 1964, $407,000,000 for the fiscal year ending June 30, 1965, and $281,000,000 for the fiscal year ending June 30, 1966, for the purpose of carrying out title II.

(c) There are hereby authorized to be appropriated $1,000,000 for the fiscal year ending June 30, 1963, $1,000,000 for the fiscal year ending June 30, 1964, and each of the two succeeding fiscal years, for the purpose of carrying out title III.

(d) There are hereby authorized to be appropriated $5,000,000 for the fiscal year ending June 30, 1962, for planning and starting programs under this Act.

Limitations on Use of Appropriated Funds

SEC. 305. (a) Funds appropriated under the authorization of this Act may be transferred, with the approval of the Director of the Bureau of the Budget, between departments and agencies of the Government, if such funds are used for the purposes for which they are specifically authorized and appropriated.

(b) Any equipment and teaching aids purchased by a State or local education agency with funds appropriated to carry out the provisions of part B shall become the property of the State.

(c) No portion of the funds to be used under part B of this Act shall be appropriated directly or indirectly to the purchase, erection, or repair of any building except for minor remodeling of a public building necessary to make it suitable for use in training under part B.

(d) Funds appropriated under this Act shall remain available for one fiscal year beyond that in which appropriated.

Authority to Contract

SEC. 306. (a) The Secretary of Labor and the Secretary of Health, Education, and Welfare may make such contracts or agreements, establish such procedures, and make such payments, either in advance or by way of reimbursement, or otherwise allocate or expend funds made available under this Act, as they deem necessary to carry out the provisions of this Act.

(b) The Secretary of Labor and the Secretary of Health, Education, and Welfare shall not use any authority conferred by this Act to assist in relocating establishments from one area to another. Such limitation shall not prohibit assistance to a business entity in the establishment of a new branch, affiliate, or subsidiary of such entity if the Secretary of Labor finds that assistance will not result in an increase in unemployment in the area of original location or in any other area where such entity conducts business operations, unless he has reason to believe that such branch, affiliate, or subsidiary is being established with the intention of closing down the operations of the existing business entity in the area of its original location or in any other area where it conducts such operations.

Selection and Referral

SEC. 307. The selection of persons for training under this Act and for placement of such persons shall not be contingent upon such person's membership or nonmembership in a labor organization.

Definition

SEC. 308. For the purposes of this Act, the term "State" includes the District of Columbia, Puerto Rico, the Virgin Islands, and Guam.

Secretaries' Reports

SEC. 309. (a) Prior to March 1, 1963, and again prior to April 1, 1964, April 1, 1965, and April 1, 1966, the Secretary of Labor shall make a report to Congress. Such report shall contain an evaluation of the programs under title I and part A of title II, including the number of persons trained and the number and types of training activities under this Act, the number of unemployed or underemployed persons who have secured full-time employment as a result of such training, and the nature of such employment, the need for continuing such programs, and recommendations for improvement.

(b) Prior to March 1, 1963, and again prior to April 1, 1964, April 1, 1965, and April 1, 1966, the Secretary of Health, Education, and Welfare shall also make a report to Congress. Such report shall contain an evaluation of the programs under part B of title II, the need for continuing such programs, and recommendations for improvement. The first such report shall also contain the results of the vocational training survey which is presently being conducted under the supervision of the Secretary.

Termination of Authority

SEC. 310. (a) All authority conferred under title II of this Act shall terminate at the close of June 30, 1966.

(b) Notwithstanding the foregoing, the termination of title II shall not affect the disbursement of funds under, or the carrying out of, any contract, commitment or other obligation entered into prior to the date of such termination: *Provided*, That no disbursement of funds shall be made pursuant to the authority conferred under title II of this Act after December 30, 1966.

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North Atlantic Regional Conference for Supervisors, Teacher Trainers and Directors of Agricultural Education, 43rd Annual, Hotel Warwick, Philadelphia, Pennsylvania, April 1-5, 1963.

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Vermont Univ., Burlington. Dept. of Agr. Education

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*AGRICULTURAL EDUCATION, SUPERVISORS, *CONFERENCES, *EDUCATIONAL RESEARCH, TEACHER EDUCATORS, *PROGRAM DEVELOPMENT,

A conference was attended by 109 persons representing supervision and teacher education in 13 states, the American Vocational Association, and the U.S. Office of Education. Graduate students from three states, and representatives of industry from seven states were guests. Minutes of the business session and of seven conference sessions are included. Brief excerpts are given from talks by Mary Allen, Duane Nielsen, A. W. Tenney, Carsie Hammonds, and Lane Ash. Brief reports are given for presentations by participating conferees on a wide range of topics relative to research, program development, teacher education, and supervision. (JM)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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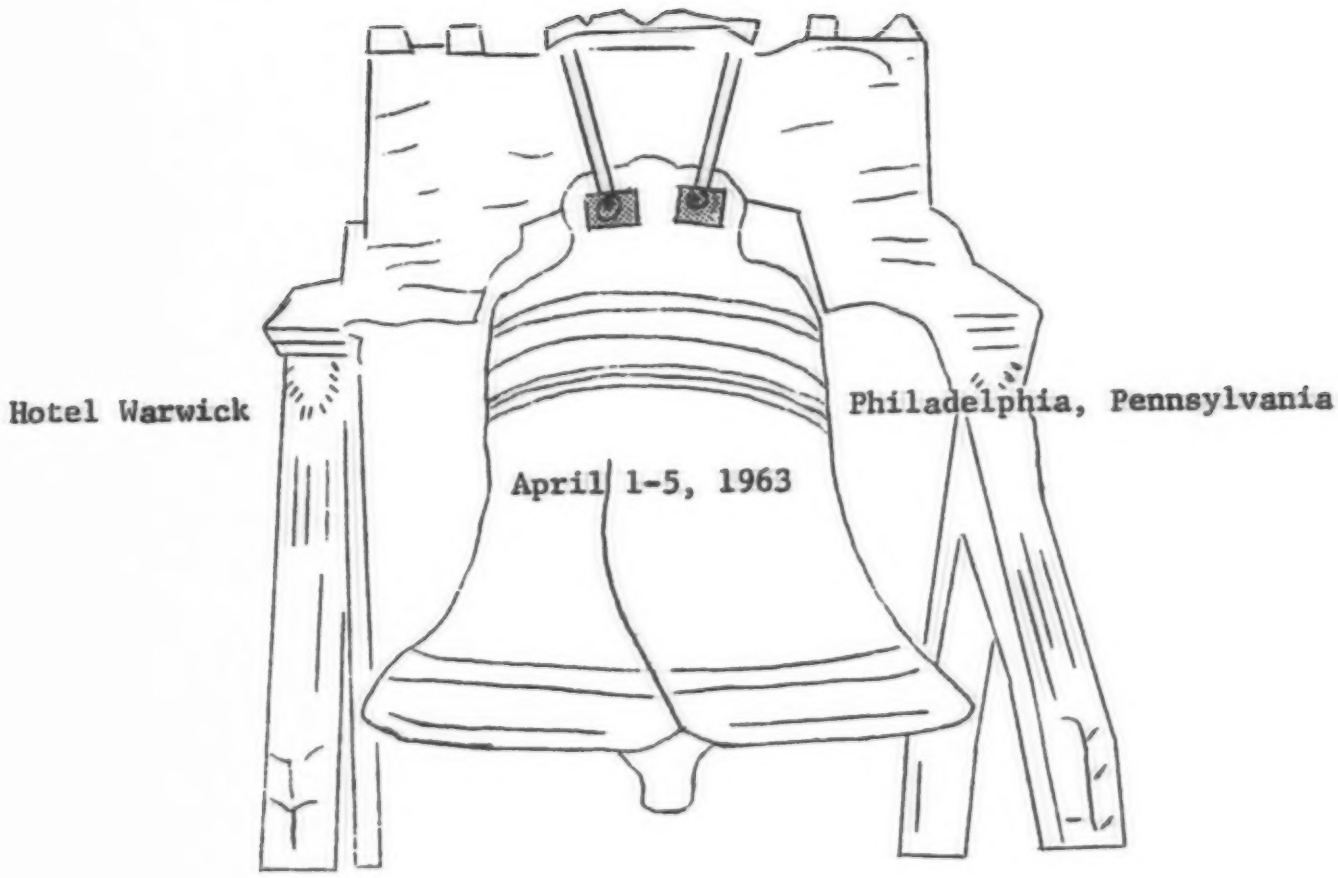
Proceedings
Forty-Third Annual Conference

Agricultural Education
North Atlantic Region



Proceedings Assembled and Distributed by
Bruce Gaylord and the Conference Secretary
Agricultural Education Department
University of Vermont
Burlington, Vermont

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NORTH ATLANTIC REGIONAL CONFERENCE

For Supervisors, Teacher Trainers, and
Directors of Agricultural Education

April 1-5, 1963

Washington Room, Hotel Warwick
Philadelphia, Pennsylvania

Theme: "Adjusting Programs to Future Needs----Agenda for Action"

Conference Officials

General Chairman	H. Neville Hunsicker
Chairman Program Planning Committee	Homer E. Edwards
General Secretary*	Bruce Gaylord
Secretary to the Conference	Mrs. Harriett Purnell
Registration	Daniel E. Koble
	Wilson Carnes
Conference Treasurer	Clodus Smith
Photographers	Guy E. Cain
	Gene M. Love
Visual Aid Equipment	C. F. H. Wuesthoff
Conference Exhibits	Claude McGhee

*Includes preparation of Proceedings

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Preface

The Proceedings of the 43rd Annual North Atlantic Regional Conference of Supervisors, Teacher Trainers and Directors of Agricultural Education was assembled and mimeographed under the direction of Dr. Bruce Gaylord, Head, Department of Agricultural Education, University of Vermont, Burlington, Vermont, who served as General Secretary of the Conference. It includes a record of conference sessions, addresses not distributed by the speakers but made available to the session secretary, committee reports, and other matters taken up by the group.

Since the content of this publication includes chiefly the expression of opinions by the participants as summarized and recorded by session secretaries, it is not to be taken as official pronouncements of the U. S. Office of Education. Grateful appreciation, however, is extended to Miss Edith Williams of the Division of Vocational and Technical Education of the Office of Education for her editorial assistance.

ROSTER OF CONFERENCE MEMBERS

Connecticut

L. L. Turner, Hartford	s
W. Howard Martin, Storrs	tt
Archie Holdridge, Hartford	f

Delaware

Daniel E. Koble, Dover	s
Ralph Barwick, Newark	tt
Mrs. H. Purnell, Dover	-
W. R. Wynder, Dover	tt
W. Lyle Mowlds, Dover	-
Paul Hodgson, Dover	d

Maine

Wallace Elliott, Orono	s

Maryland

Harry M. McDonald, Baltimore	s
Glenn Lewis, Baltimore	f
V. Ray Cardozier, College Park	tt
Clodus Smith, College Park	tt
Ernest L. Cullen, College Park	f
Claude Marion, Princess Anne	tt

Massachusetts

Jesse A. Taft, Boston	s
Robert C. Jones, Amherst	tt
Thomas McGarr, Amherst	s

New Hampshire

Neal Andrew, Concord	s
William H. Annis, Durham	tt

New Jersey

George Lange, Trenton	s
William H. Evans, New Brunswick	tt
Albert E. Jochen, Trenton	d
Donald Springle, Camden	t
Adam LaSota, Springfield	t
Paul Weiss, Camden	t
Edward Milewski	t

New York

R. C. S. Sutliff, Albany	s
Everett Lattimer, Albany	s
Ernest Nohle, Albany	s
Julian Carter, Lyons Falls	s
Steve Smith, Yorkshire	s

New York (con't)

Joe P. Bail, Ithaca	tt
William E. Drake, Ithaca	tt
Harold Cushman, Ithaca	tt
Fred Lechner, Ithaca	fm
Donald C. Burgett, Ithaca	sms
George Chrein, New York	t

Pennsylvania

James C. Fink, Harrisburg	s
W. W. Schrock, Indiana	s
C. F. H. Wuesthoff, Doylestown	s
Austin McBride, Huntingdon	s
Charles F. Lebo, Harrisburg	s
David F. Shontz, Sandy Lake	s
G. Floyd Dye, Somerset	s
Clyde Jackson, West Chester	s
David R. McClay, University Park	tt
Norman K. Hoover, University Park	tt
Gene M. Love, University Park	tt
Glenn Z. Stevens, University Park	tt
Charles Drawbaugh, Dover	t
Ben K. Bristol, University Park	tt
Wenroy Smith, Saltsburg	t
Robert Walker, Hollidaysburg	t
Leroy Smeltz, Higins	t
Stratton B. Stevens, West Chester	t
Thomas Weyant, Shippensburg	t

Rhode Island

Raymond C. Northup, Providence	s
James Cobble, Kingston	-
John Ball, Coventry	t

Vermont

Cola Watson, Montpelier	s
Bruce Gaylord, Burlington	tt

West Virginia

Homer E. Edwards, Charleston	s
W. H. Wayman, Clarksburg	s
Guy E. Cain, Charleston	s
Carl Thomas, Charleston	s
R. Clark Butler, Morgantown	tt
Claude McGhee, Morgantown	tt
Warren Kelly, Morgantown	tt

Washington, D. C.

A. W. Tenney	ooe
H. Neville Hunsicker	ooe
A. H. Hollenberg	ooe
Lane Ash	ooe
Duane Nielsen	ooe
Mary P. Allen	ooe
M. D. Mobley	AVA
Wilson Carnes	ff
Howard Carter	ff
W. T. Spanton	-

Key:

s - Supervisor
tt - Teacher Trainer
t - Teacher
fm - Farm Mechanic Specialist
f - FFA Executive Secretary
ooe - U. S. Office of Education
ff - National FFA
sms - Subject Matter Specialist

ROSTER OF CONFERENCE GUESTS

Name	Address	Title and/or Organization
T. L. Ayers	Washington, D. C.	Asst. Adm. ACP-Dept. of Ag.
Mrs. Mary Ahalt	College Park Md.	
Joe Dan Boyd	Philadelphia, Pa.	Farm Journal
Leland Bradley	Lafayette, Ind.	American Zinc Institute
Willard Cheek	Detroit, Mich.	Speaker, G. M. Corp.
Gene Brown	Chicago, Ill.	National Safety Council
Louis S. Brubaker	Akron, Ohio	B. F. Goodrich Co.
Merle Douglas	Philadelphia, Pa.	Sears-Roebuck Foundation
John Daneke	Detroit, Mich.	Retired G. M. Official
Raymond O. Darling	Detroit, Mich.	General Motors Corp.
George Derr	Harrisburg, Pa.	MDTA - Department of Education
James L. Givens	Winchester, Va.	NVATA - Vice President
Russell L. Guin	Danville, Ill.	Interstate Publishers
George Webster	Philadelphia, Pa.	WFIL - TV

Graduate Students Attending:

Cornell University: L. W. Becket, James Hannemann, J. Alex Hash, Frank Pearce, Charles Rogers, Muhsin Al-Solman and Raymond Bwadley

Pennsylvania State University: Charles Huffman, Williams L. Hull, Lamar Land, Joseph Moore and Russell Weller

University of Maryland: Ernest Cullen and Takumi Kono

Business Session

Monday Evening, April 1, 1963

Chairman: Norman K. Hoover Secretary: Ralph Barwick

The business session was called to order by the Chairman at 7:30 p.m.

The invocation was given by Daniel Koble.

Dr. M. D. Mobley, Executive Secretary, AVA spoke on the "Outlook for Vocational Education."

R. C. S. Sutliff, National AVA Vice-President for Agriculture, reviewed the organizational structure of AVA. He appointed a committee to meet with Dr. A. W. Tenney to review a brochure entitled "Agriculture is More Than Farming," that is being prepared to present the true facts concerning agriculture. Members of the committee are Wenroy Smith, Cola Watson, Homer Edwards, Joe Bail and Ray Cardozier.

Wenroy Smith, NVATA President, addressed the Conference and commented upon the excellent relationship between supervisors, teacher trainers and teachers.

Julian Carter, Chairman of the Agricultural Division, AVA Membership Committee, distributed and discussed AVA membership materials.

Dave McClay stressed the importance of AVA membership and urged activation of State Membership Committees.

Committee Reports

Representatives of the following National Committees reported on their respective meetings in Milwaukee, Wisconsin, in December, 1962:

1. Research - Glenn Z. Stevens
2. Standards and Policies - Jesse A. Taft (Recommendation combined with the Regional Conference reports to be presented on Thursday)
3. Teacher Education - Robert C. Jones (Recommendation combined with reports to be presented on Thursday)
4. Professional Information - Everett C. Lattimer (Reports distributed)
5. Professional Relations - Neal Andrew (Reports distributed)

Other Reports

Other reports which were presented are as follows:

1. Managing Board of the Agricultural Education Magazine - Cola D. Watson (See Supplement B)

   The suggestion that the name "The Agricultural Education Magazine" be change to "Journal of Agricultural Education, was tabled until a later date.

2. Editorial Staff of the Agricultural Education Magazine - Gene M. Love (See Supplement C)

Chairman Hoover appointed Wallace Elliott, chairman of the next year's Program Committee, to serve as chairman of the Nominating Committee.

Koble

SUPPLEMENT A

Research Committee

Dr. George O'Kelley, Jr., Chairman, presided at the meeting in Milwaukee in December, 1962.

The major item considered was publication of the National Young Farmer Study. Dr. Aga presented a first draft of several sections of the data. Dr. Blake reported progress on other parts of the proposed report. Dr. Murray Straus has prepared the section on his Rural Attitudes Profile. Dr. Nielsen explained that the Office of Education has scheduled the publication of the study. A separate State report has been completed in Michigan, and others for Illinois and Pennsylvania will be issued.

Dr. Nielsen reported that the First National Seminar on Research in Vocational Education will be held at Purdue University in February. Dr. Stevens made a progress report of experimental studies in Tennessee, Oklahoma, Indiana and Pennsylvania. Proposals have been written for studies in Illinois, Michigan and Wisconsin.

Abstracts for the Summaries of Studies, Supplement 16, had been received by the chairman. Printing of Supplement 15 was considerably delayed last year.

Reports of Regional Research Conferences on university campuses in the North Atlantic, Southern and Central Regions indicated that increasing attention is being given to research designs. More supervisors are attending and sharing in research projects in their States.

SUPPLEMENT B

Managing Board - Agricultural Education Magazine

The following points were discussed by C. D. Watson, Member of the Board:

1. There was only a 2% loss of subscribers as a result of subscription rate increase.

2. The Magazine is now mailed out one week earlier.

3. Several changes have been made in Magazine format and content

4. Special efforts are being made to establish better communications among the Special Editors, the Editing - Managing Board, the Editor and the Business Manager on the status of subscriptions and improvement plans.

5. There is a possibility of increasing the size of the Magazine from 24 to 32 pages.

6. Nearly one-third of the articles submitted are now published.

7. The proposal to change the name of the Magazine to the "Journal of Agricultural Education," will be considered at the AVA Convention in December, 1963.

8. Every professional person in agricultural education is invited to submit articles to the Magazine.

SUPPLEMENT C

A summary of the articles by States published in the Agricultural Education in 1962 and those submitted for 1963 are as follows:

MAGAZINE ARTICLES						
STATE	Vo-Ag Teachers	Teacher Education	Super.	Others	1963 Total	1963 (Total Only)
Conn.		1			1	1
Del.						
Maine						1
Md.	3	2			5	3
Mass.					2	1
N. H.						1
N. J.						
N. Y.	2	2			4	7
Pa.	1	2		1	4	6
R. I.						
Va.	1				1	
W. Va.						3
Total	7	7	0	1	17	23

Tuesday Morning Session, April 2, 1963

Chairman: Bruce Gaylord Secretary: Guy E. Gain

The 43rd Annual Conference was called to order at 8:30 a. m.

The invocation was given by Gene Love.

L. L. Turner of Connecticut requested that everyone stand for a moment of silent prayer in memory of Mr. and Mrs. Ray Hahn, who passed away on December 21 and January 7 respectively. Mr. Hahn was a teacher and State Supervisor in Connecticut from 1922 to 1954.

Mr. H. N. Hunsicker, General Chairman, presented plans for the Conference and anticipated outcomes. He stressed that the work groups were an important feature of the Conference. If and when the present laws are changed or new legislation enacted, we must have programs ready for high school youth, post high school youth, and also for young and adult farmers. The work groups should identify such programs and suggest procedures for developing them.

Symposium: "Recommendations of the Panel of Consultants on Vocational Education"

Participating members were:

Miss Mary Allen, Assistant Director, Panel of Consultant, Office of Education, Washington, D. C.

Dr. Duane Nielsen, Program Specialist, Teacher Training Research, Agricultural Education, Washington, D. C.

Dr. A. W. Tenney, Director, Agricultural Education Branch, gave a talk entitled "Implications of the Panel's Recommendations for Agricultural Education." (See Supplement C) Dr. Tenney also emphasized the need for evaluating current programs and for conducting studies to determine future needs.

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Mr. R. C. S. Sutliff of New York reported on progress New York State had made in conducting a study of occupational training needs in agriculture. He told of their plans for determining the need for area vocational schools and in meeting the needs for offering training in off-farm occupations.

Mr. Louis A. Brubaker, represented Mr. J. Ward Keener, Chairman of the National FFA Foundation Sponsoring Committee. Mr. Brubaker gave a brief report of the Foundation's activities for the current year.

H. E. Edwards of West Virginia explained the plan for organizing the work groups for "Developing the Agenda for Action" regarding future programs in agricultural education Those present were divided into the following groups:

Group A - Developing Instructional Programs in Agriculture for high school youth

Group B - Developing Instructional Programs for post high school youth

Group C - Developing Instructional Programs for adults (Includes Young Farmers)

The groups met from 11:00 a.m. to 12:15 p.m. and also again on Thursday afternoon.

Forms for use in evaluating the Conference were distributed and Conference members were requested to fill them out and to return them Friday morning.

SUPPLEMENT A

Excerpts from Talk by Miss Mary Allen

The Panel is of considerable historical significance. Not since the Commission of 1914 has a president of the United States asked for a study of this kind. Congress has made studies - and other groups have made studies and recommendations - and one President even recommended that the financial responsibility for vocational education be returned entirely to the States. However, I think it is fair to say that the Panel of Consultants had a point of departure which differed somewhat from that of other studies and commissions - that point being contained in the message of the President himself. This message to Congress in 1961, in which the President requested the appointment of an advisory group on vocational education, was in itself something of an evaluation of vocational education. The President said:

> "The basic purpose of our vocational education effort is sound and sufficiently broad to provide a basis for meeting future needs. However, the technological changes which have occurred in all occupations call for a review and re-evaluation of these Acts, with a view toward their modernization."

The Panel approached its study by concerning itself with the social, economic and technological changes that are taking place in our world.

The Panel involved the time and effort of three full-time professional staff members; it cost the taxpayer $200,000; consumed the time and energy of 25 Panel members; it absorbed considerable time and effort of the people in the Division of Vocational and Technical Education of the USOE, and I know that countless hundreds of individual vocational educators made contributions to our work. For all these reasons, It is my hope that each of you, and I am sure you do, feel a professional responsibility to take a look at the report and evaluate it carefully in terms of your own activities and responsibilities.

The Panel report is organized into these parts: Review, Evaluation, Improvement and Redirection.

As you can well imagine, our work was not simple. While there is an abundance of information on some aspects of vocational education, it was extremely difficult to organize this material in such a way as to get a complete review and evaluation of vocational education. The study was limited in scope to the public school vocational education programs and the Federal role in vocational education. The panel also focused its attention primarily on the decade of the 1960's.

In attempting to assess the environment in which vocational education will take place in the 1960's, the Panel considered these factors to be of great significance:

1. The population explosion - the greatly increasing number of people in this country

2. The mobility of population - every year nearly one American in five changes his residential address. One in four now live in a State other than the one in which he was born. Two major trends in population mobility were noted: A westward movement - and movement to the States bordering the Pacific and Atlantic Oceans - the Gulf of Mexico and the Great Lakes.

3. A movement to the metropolitan areas - The Panel was also concerned about the economic aspects of vocational education. The Report pointed out that our Nation, along with 19 other nations, has joined the Organization for Economic Cooperation and Development - the OECD. These nations have, in substance, pledged themselves to attain a 50% increase in combined national output during the decade of the 1960's - this means that America must have an average annual growth rate of 4.1%. The Panel study attempts to relate education, and more specifically vocational education, in a positive way to economic growth.

Returning now to the organization of the Panel Study. Some "simple truths" that we can all glean from the study about vocational education:

1. Vocational education and training are sound investments in people. People who have vocational skills are more employable than those who do not have them. Vocational graduates have an increased earning capacity. Vocational education graduates do, in fact, work in the fields related to their training.

2. The local-State-Federal partnerships in vocational education teaches the skills that the Nation needs. Vocational education does make a significant contribution to the National welfare.

This, may sound simple to you - but may I suggest that this is <u>OUR</u> story - and it is one that we must begin to tell. I suggest to you, too, that there is not in all the world, a more thrilling or eloquent story. It says that education is good for people and because it has been good for them, America has achieved its present eminence in the world - and it says, too, that America's future will continue to depend upon the character and competence of those who teach.

SUPPLEMENT B

Excerpts from Talk by Dr. Duane Nielsen

The Panel Report states:

By 1970, 87,000,000 people will be working full time.

Schools must help. Of every ten youngsters now in grade school only two will finish four years of college.

During 1960-70, the most rapidly expanding occupations will require training.

Education and training are sound investments in people.

The local, State, Federal partnership teaches skills people need. Vocational Education is not available in enough schools.

Vocational education is not available to all who need it.

Vocational education is not preparing for enough jobs.

Technical training after high school is a critical need.

It is proposed that the Federal Government should provide at least four hundred million dollars in 1963-64 to train the necessary people for the labor force.

SUPPLEMENT C

Implementing Programs in Agricultural Education - Dr. A. W. Tenney

Current Programs:

Determine Needs - Find out what has been done in the various States to meet them.

Expand as Needed - Develop a program to meet these needs.

Improve Quality - Improve the quality of existing programs.

Evaluate - Continue to evaluate the progress made and make plans for improvement.

Broaden Programs - Management must be emphasized. The phase of farm management including finance must be broadened. Farm mechanization must be emphasized. Automation is moving in on the farm. Training in forestry, conservation, horticulture and recreation must be emphasized.

Off-Farm Agricultural Occupations - Lack of information about them is our greatest limitation.

Conduct Studies - Not prepared now to more into this field. States must make some studies before moving into this field at the National level.

Cluster Jobs - Need to pull together certain jobs into clusters.

Write Job Description - Need to know what job involves, what it pays and its demands.

Outline Courses -

Prepare Teaching Aids - Enlarged staff on both National and State level will be needed.

Develop Pilot Programs - Need to go through foregoing steps before setting up pilot programs.

Determine Teacher Qualifications -

Plan Facilities -

Plan Administration - Should be under Agricultural Education Branch so it can be coordinated closely with Vocational Agriculture Program.

Decide Where to Offer -

Plan Teacher Education - What type of teacher education program will be needed?

Cooperation - Cooperation needed between various fields of vocational education.

Conferences - Plan to call meetings on national basis of head teacher trainers and State Supervisors.

Tuesday Afternoon, April 2, 1963

The five standing committees met separately and worked on selected projects. The reports of these committees are as follows:

Standards and Policies Committee - Chairman: Jesse A. Taft

Vice Chairman: J. C. Fink Secretary: Ben K. Bristol

1. Dr. Tenney reported that Monograph #21 would be revised and published as soon as legislation is passed. He is entertaining suggested changes.

2. C. D. Watson presented, "Criteria for Self-Evaluation of State Programs of Supervision in Agricultural Education - North Atlantic Region." It was agreed to give it a one-year trial in the Region.

3. H. Edwards reported on the trial of "Local Policy Statements for Vocational Agriculture," and the Committee strongly recommended all States in the Region make full use of the booklet.

4. B. K. Bristol reported on the special meeting of the Farm Mechanics Committee. It was agreed by the Standards and Policy Committee to include the Farm Mechanics Committee as a sub-committee. It was also moved to recommend to AVA that a similar structure be adopted at the national level. (See Supplement A)

5. J. A. Taft agreed to submit copies of "Guiding Principles in Developing Farm Experience Centers" to all Committee members for comments, to be reported at the next Regional Conference.

6. The sub-committee on "Revising Supervisory Guide" was discharged.

7. Voted to recommend to the National Standards and Policy Committee that contact be made with the officials of the association in charge of secondary school evaluations offering consulting services on the section of this evaluative criteria pertaining to vocational agriculture programs.

8. Moved that a list of approved MDTA projects be sent to head teacher educators and supervisors monthly by the U. S. Office of Education.

9. H. E. Edwards reported on "A Safety Check-list for Vocational Agriculture." Voted by Committee to establish a sub-committee within the Regional Standards and Policies Committee entitled "Safety Education in Vocational Agriculture" to be chaired by Edwards.

10. R. C. S. Sutliff was appointed to serve on the Planning Sub-Committee for the North Atlantic Regional Research Conference.

11. Committee went on record as being highly in favor of the National Center for Advanced Study at Ohio State University and pledged its continued support and cooperation.

Committee members:

H. E. Edwards, C. D. Watson, E. F. Nohle, W. H. Evans, R. C. S. Sutliff, A. H. Hollenberg, J. A. Taft, J. C. Fink, Ben K. Bristol and Harry McDonald

SUPPLEMENT A

Farm Mechanics Sub-Committee

Chairman: B. K. Bristol Secretary: Guy E. Cain

1. Nohle distributed Farm Mechanics material developed in New York, and McGarr did so for Massachusetts. McGhee distributed source units prepared in West Virginia.

2. Annis of New Hampshire reported on Farm Mechanics contest features in Massachusetts and New Hampshire and distributed University of New Hampshire and USDA Bulletins. Hollenberg and Bristol reported on Farm Mechanics bulletins and also on Farm Mechanics studies which are being conducted.

3. Lechner of New York proposed that each State check with its Agricultural Engineeri Department and determine trends in each of the areas of Farm Mechanics that related to farmers. Those responsible for obtaining this information in the respective States are:

W. Va.	- Claude McGhee	Maine	- Wallace Elliott
Pa.	- B. K. Bristol	Vt.	- Bruce A. Gaylord
N. H.	- William Annis	R. I.	- Raymond Northup
N. Y.	- Fred Lechner	N. J.	- William Evans
Mass.	- Tom McGarr	Conn.	- Howard Martin
Dela.	- W. R. Wynder	Md.	- Clodus Smith

4. Annis was elected chairman, and Guy Cain was elected secretary of the Regional Farm Mechanics Committee.

5. Bill Annis moved that each member of the Farm Mechanics Sub-Committee be sent a Copy of the minutes of this meeting. Seconded by McGhee. Passed.

6. Agreed that Mr. Hollenberg should continue his work on identifying Farm Mechanics needs which was started last year.

7. Pennsylvania and New Hampshire will cooperate during the coming year on the project, "On-Farm Service Centers in Mechanized Farming."

8. Fred Lechner agreed to send each member of the Farm Mechanics Committee a copy of a study in New York, "Economics of Owning Tools in a Farm Shop."

9. Robert C. Jones of Massachusetts was requested to furnish each member of the Farm Mechanics Committee a copy of work he has underway.

10. The Chairman was requested to send a reminder to all members of the Committee in January to bring any materials available from their State for exchange between members of the Committee. Also ideas that are or have been used.

11. Other members of the Committee not listed under item three are: James C. Finck, Ernest Nohle and Guy Cain.

<u>Professional Information Committee</u> - Chairman: Everett Lattimer

Vice Chairman: Norman Hoover Secretary: George Lange

1. Lattimer reported on "A Descriptive and Source Listing of Professional Information in Agricultural Education." The Committee recommended the continuation of this service.

2. A Pennsylvania study by Robert Walker was reported by its author relative to vocational agriculture interest inventory which was validated and appeared to have considerable potential for use by guidance personnel.

3. Martin of Connecticut reported on "Supervised Work Experience Records in Vocation Agriculture," and indicated the availability of the record book. Price 14¢ per copy from French Bray Publishing Company.

4. William Annis was elected to the Planning Committee for Regional Research Conference for 1963.

5. Dr. Tenney commended the group for the publication on Supervised Work Experience by Martin and pointed out its potential use in keeping records of experience in Agricultural Related Occupation.

6. A discussion was held on identifying employment opportunities and competencies for off-farm agricultural occupations. A Committee composed of Bail and Hoover was elected to collect Regional data on this topic for national statistical use.

7. Annis, McGarr and Thomas were elected to a Committee to prepare news releases on vocational agriculture relative to "What It is - Where It Leads."

<u>Committee members</u>:

Everett Lattimer, George Lange, Norman Hoover, Joe Bail, W. R. Wynder, Joe Bailey, W. H. Annis, Fred Lechner, Tom McGarr, Carl Thomas, Steve Smith and Charles Shoup

Teacher Education Committee - Chairman: R. C. Jones

Vice Chairman: Bruch Gaylord Secretary: Warren Kelly

1. Kelly of West Virginia reported on "Trends in Developing Courses of Study," and his sub-committee was instructed to continue working on an acceptable "Guide" to be used by States. It was the intent that "The Guide" be developed so as to include any new features which may arise with the passage of new legislation.

2. Cushman reported on methods tried in New York to determine the effectiveness of recruiting procedures for potential agricultural education majors in teacher education.

3. McClay was named chairman of a sub-committee to work on "Development of Teacher Education Programs for the Future."

4. Committee officers elected for a three-year period included: Gaylord, Chairman; Kelly, Vice Chairman; and Cardozier, Secretary.

5. Gaylord was elected as a representative on the Program Planning Committee of the Regional Research Conference.

6. Cushman reported on the publication "Experiences for Student Teachers in Agriculture Education." He reported that Interstate would publish it for 25 cents a copy. Cushman was commissioned to request a supply to be printed as soon as possible.

Committee members:

Robert Jones, Bruce Gaylord, Warren Kelly, Raymond Northup, Wallace Elliott, Frank Anthony, Paul Gilman, W. H. Wayman, Julian Carter, Ray Cardozier and David McClay.

Professional Relations Committee - Chairman: Neal Andrew

Vice Chairman: William Drake Secretary: R. C. Butler

1. Butler of West Virginia reported on the status of a study entitled, "What Materials are Available in the Occupations File for High School Students Pertaining to Careers in Agriculture, Agricultural Education and Vocational Agriculture." - This project to be continued.

2. Cain reported on, "The Role of Vocational Agriculture in the Suburban High School." - This project to be continued.

3. Turner of Connecticut suggested a study on, "Determining the Specific Kinds of Training and Experiences Needed for Success in Selected Agricultural Occupations.'

4. Andrew of New Hampshire reported on work on the project, "What Practices and Procedures are Best in Presenting Guidance Personnel with Career Information Dealing with Agriculture, Agricultural Education and Vocational Agriculture."

5. A new study entitled, "The Role of Vocational Agriculture in Area Redevelopment" was undertaken, but it was agreed that it should be entended to include RAD as well.

6. The following members were elected for three-year terms on the Committee: William Drake, Chairman; R. C. Butler, Vice Chairman; D. E. Koble, Secretary; and Willaim Drake, Regional Research Committee Representative.

7. William Drake will be in charge of developing sample stories for news releases about vocational agriculture and will report at the 1964 Conference.

Committee members:

Neal Andrew, R. C. Butler, William Drake, J. O. Sanders, Daniel Koble, Guy Cain, L. L. Turner, Archie Holdridge, Claude Marion and Ernest Cullen

Research Committee - Chairman: Glenn Z. Stevens

Vice Chairman: Fred Tom Secretary: Gene Love

Dr. David R. McClay presented a brief report on the Objectives Committee, which had been appointed by the Conference to review and revise the objectives for vocational education in agriculture. He reported that the list of new objectives suggested and presented at the 1962 Conference had been further revised at the North Atlantic Regional Research Conference in Amherst, Massachusetts, and by the agricultural education supervisors, teacher trainers and teachers in Pennsylvania during the preceeding year.

Mr. Claude McGhee presented a summary of research completed in the State of West Virginia since the last Conference. He distributed copies of abstracts of three studies and briefly discussed two others.

Mr. Russell Weller reported progress on a Penn State Staff Study dealing with an experimental study titled "Efficiency and Educational Effectiveness of Three Patterns of Scheduling and of Supervision and Instruction in a Quality Milk Production Course for Teachers."

Mr. David F. Shontz also reported progress on another teaching experiment which was conducted as the Pennsylvania State University and which deals with agricultural occupations information.

Dr. Duane Nielsen reported on present and proposed State studies of off-farm agricultural occupations. Progress is being made in eight States with sampling surveys directed at administrative problems dealing with training for off-farm agricultural occupations.

Dr. Nielsen directed a discussion of the research techniques employed in the surveys cited above and mentioned efforts he has made during the past year to coordinate these research efforts among conferences and among States. He announced a three-day meeting of State Project Leaders to be held at the National Study Center at Ohio State University, May 27-29.

Dr. Robert Walker reported development of the Pennsylvania Vocational Agriculture Interest Inventory.

Ernest Nohle nominated Dr. Harold Noakes, Supervisor from New York State to fill the unexpired term of Vice Chairman, Fred K. Tom, Teacher Education, Cornell University, who is presently on leave.

Committee members:

Glenn Stevens, Fred Tom, Gene Love, Howard Martin, C. W. Hill, Clodus Smith, Harold Noakes, Claude McGhee, Ralph Barwick and Harold Cushman

Wednesday Morning, April 3, 1963

Chairman: James C. Fink Secretary: Clodus Smith

The session was called to order at 8:30. Dr. R. C. Butler gave the invocation.

Robert C. Jones gave the report for the Teacher Education Committee. (See page 10)

Noteworthy Developments in the High School Program

1. West Virginia - Forestry Centered Programs - R. C. Butler
Warren Kelly

The vo-ag program at the Parsons High School was expanded this year to a two teacher department with one teacher devoting full time to the area of forestry. The school is located near the Monongahela National Forest and there are also many privately owned wooded areas and sawmills in the county. The teacher is a college graduate and experienced forester but lacks training in agricultural education. He plan to enroll in off-campus courses in professional agricultural education and eventually to qualify as a vocational instructor. The Parsons program is considered a pilot center. Students who have interests and objectives in forestry are enrolled. There are two classes each of which meets for three consecutive hour periods per day. The forestry program is two years in length and is limited chiefly to junior and senior students. Three, one-hour class periods are needed to allow for both theory and practice in forestry and agricultural mechanics. Students also are required to carry a full load of academic courses which will qualify them for high school graduation and some

The principal and superintendent have shared in all decisions in connection with the forestry course, and they are greatly interested in it.

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2. Pennsylvania - Agri-Business Centered Programs - Thomas Wayant

Mr. Wayant reported that the ever increasing complexity of the agricultural industry has created a demand for better trained personnel in all its facets. Positions in allied fields of marketing and distribution especially need personnel with agricultural background as well as with instruction for specific jobs.

An editorial in the January, 1962 issue of the Farm Bureau Mirror helps to substantiate this claim when it states: "Selling for and to farmers is a field that has been sadly neglected, particularly from the angle of selecting salesmen with a farm background and then following through with proper agricultural training."

The same statement can be made about all other positions in marketing and distribution connected with agriculture.

Part of the reason for the lack of proper training has been the arbitrary divisions between vocational agriculture and distributive education programs. Vocational agriculture has been concentrated in schools serving rural youth while distributive education has been located almost exclusively in schools in or near large urban areas. The training of the teachers in each field has been separate and distinct.

The problem has been further heightened by the rather rapid increase in the mobility of rural youth resulting in a diversification of their occupational aspirations. With automobiles and good highways has come the "commuting farmer" who is able to drive long distances to work in larger urban centers. Types of work are now available to farm youth for which they receive little or no training in the typical rural high school.

Mechanization of farms now makes it possible for fewer persons to produce the same, and in many cases more, agricultural products. It becomes obvious that if schools are to help students discover the kind of work they want to do they must offer more occupational training opportunities to the rural youth. A pilot program was initiated in the Cumberland Valley with vocational agriculture and distributive education cooperating. The objectives of this program are:

A. To develop a cooperative vocational agriculture - distributive education program.
B. To provide opportunities for training in the field of marketing and distribution for rural youth.
C. To determine the amount and kinds of training needed for students and instructors to prepare them for positions in marketing and distribution.
D. To determine the feasibility of creating a State-wide program of distributive education in rural areas.
E. To test a cooperative vocational agriculture - distributive education program for use in are vocational schools.

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3. New York - Programs in Urban Areas - George Ehrein

When I was preparing to teach vocational agriculture at Cornell, we used as our main text "Teaching Agricultural Vocations" by Stewart and Getman. In a chapter dealing with "Guiding Pupils in Curriculum Choices," the authors had this to say - some 36 years ago - "When the true interests of many farm boys are discovered, we find that they have ambitions for a professional career or a career in urban industry. Likewise, many city-bred boys find in a farming occupation opportunity for self-expression and the keen satisfaction which the farm boy may be inclined to seek elsewhere."

From the beginning it has been accepted that there are opportunities in the city for those born and schooled in the country. What is not readily recognized is that it is a two-way street. The son of a city dweller may and often does find usefulness and happiness in the country.

Many of these young people are in the city partly as a matter of chance. I am sure you will find in hundreds of cases - backgrounds, ties, and traditions are essentially rural. Some, for no demonstrable reason, long for a different environment. The urge is there just as it must always be in a free society.

Today, as all of us know, one does not have to own or acquire a farm to associate himself with agriculture.

Our Program

A. Approximately 100 students
B. 37 in senior class - we expect 75 - 80% of these young men to further their education in the two year technical institutes or four year colleges of agriculture. To date, this is a brief record of the present senior class - 37:

College	No. Accepted	Major Areas
Delhi AT1	3	2 - Animal Husbantry
		1 - Dairy Technology
Farmingdale AT9	9	4 - Food Processing
		2 - Ornamental Horticulture
		1 - Agr. Eng. Tech.
		1 - Bilogical Tech.
		1 - Agronomy
Cobleskill AT1	2	1 - Animal Husbantry
		1 - Agronomy
Canton AT1	1	1 - Dairy Technology
Penn State	1	1 - Agr. Engineering
Delaware Valley College Science & Agriculture	1	1 - Dairy Nutrition
University of Idaho	1	1 - Wildlife Conservation
University of Vermont	1	1 - Agricultural Education
Clemson	1	1 - General Agriculture
University of Montana	1	1 - Wildlife Conservation
University of Maryland	1	1 - General Agriculture
Cornell University	3	1 - Agricultural Education
		1 - Dairy Industry
		1 - Agricultural Engineering
TOTAL	25	

Many - at least ten - are still waiting to hear from the schools where they have applied. One has already applied for service in the Peace Corps.

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4. New Jersey - Vocational Agriculture for the Handicapped - John E. Radramy

The New Jersey School for the Deaf is part of the public school system of New Jersey. It is maintained as a State school under the direction of the State Board of Education for boys and girls between the ages of 14 - 21 whose hearing is so impaired that satisfactory progress cannot be made in normal hearing school.

The vocational department offers 17 trades for boys and girls. Floriculture is available to both boys and girls. A complete program is offered in gardening, the propogation and growth of trees, shrubs and the growing of all types of flowers and plants. Training is provided in planting, spotting, watering, fertilization, cutting, floral arranging and greenhouse maintenance. The length of time needed to complete the course is at least three years and virtually 100 percent of the graduates are employed.

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5. Maine - Consolidated (Area) Program - W. H. Elliott

This comprehensive area school is located in Sanford, Maine near the geographical center of York County. The community lies adjacent to New Hampshire, is fifteen miles from the coast and has a population of 15,000. York County in 1959 had 1,283 farms of which 575 are commercial. The number of specialized farms are: Dairy, 670; Poultry, 408; and Apple farms, 156.

In 1954 the community faced a grave crisis when the major textile industry moved out. The need for vocational educational to prepare labor for new employment was

immediately recognized, and plans for such a program were initiated by the school administrators. As a result of this effort the vocational program moved into a new building in 1960.

At the present time Sanford has a four-year senior high school with an enrollment of 960 pupils and 49 teachers. The school serves eight other towns, representing 300 tuition students. Next year the total enrollment will be nearly 1,100 students.

There are five vocational teachers on the regular staff, not including Home Economics, and twelve special teachers for the adult program. The enrollment in the vocational day school program, excluding Home Economics, is around 285 pupils. Of this number 45 are enrolled in Vocational Agriculture, and 46 percent of those are tuition pupils. The adult program in Vocational Agriculture has enrolled from seventeen towns, or 61 percent of the towns in York County.

Course offerings for the day school classes in vocational education now include: Machine Shop, Power Mechanics (automotive), related subjects (drafting, drawing and blueprints), Agriculture, and Home Economics.

The adult program offers courses in General and Heliarc Welding, blueprint reading, oil burners, Automotive (technical), Sheet Metal, Agriculture (farm buildings, soils), Creative Art and Bookkeeping.

Starting next fall, Maine will have another consolidated program in agriculture involving five towns and two vocational agriculture departments.

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Address by Dr. Carsie Hammonds

"Our Concern with Doing in Learning" was the title of a major address by Dr. Carsie Hammonds, Head, Department of Agricultural Education, University of Kentucky. Dr. Hammonds' presentation was followed by a questioning panel comprised of V. R. Cardozier, Everett Lattimer and Wenroy Smith.

Dr. Hammonds' presentation was mimeographed by Dr. Clodus Smith, University of Maryland, and it has been mailed to all State staff members. A few of the especially significant statements which he made are as follows:

1. There can be no adequate training in vocational agriculture (farming or other agricultural vocations) that does not have its foundation in participation in the tasks for which the abilities are needed. That is why we have supervised or directed practice.

2. Practice is essential to learning. Our students must do what we would have them to learn to do.

3. Without supervised farming, vocational agriculture would not have been vocational. It would not have survived.

4. The public wants vocational agriculture that results in the ability to do. Somehow the public realizes that both the social and the economic worth of man depends upon his doings.

5. Theory and practice must be experienced together in learning if they are to contribute to each other.

6. We learn what we do or practice: Continued use or practice is usually necessary for retention of the learning.

7. If the "doing" is to result in the desired learning, supervision of the doing is needed. If one is to learn from the errors he makes, the errors must be noted and understood by him so that a more adequate response can be tried.

8. Regardless of what may come under the umbrella of vocational agriculture, it is my opinion we should have good supervised practice - that the learning should be brought "to an end by action."

9. The ability of students to generalize depends greatly on their experiences related to the learning situation - their concrete experiences. If students have not had the necessary experiences, the experiences should be provided - in school or out.

10. We cannot teach everything in agriculture specifically. What we teach must be taught so as to secure a large amount of transfer, much use in other situations.

11. One does not teach unless he has teaching objectives. Teaching is an intentional process.

Note:

A new 1963 mimeographed publication (181 pages) by Dr. Hammonds is entitled "A Basis for Effective Teaching." One will gain a deeper insight in the principles of teaching by reading it.

Wednesday Afternoon, April 3, 1963

Chairman: R. C. Butler Secretary: W. H. Evans

The session was called to order at 1:30 p.m.

Morton LeBow, Information Specialist, Social Security Administration, Baltimore, Maryland, explained "A Teaching Unit on Social Security." He stressed the fact that many people in agriculture did not know benefits to which they might be entitled under Social Security. Dave McClay made a few comments as to how the unit was developed and how it might be used in our instructional program. Copies of the unit were distributed.

Noteworthy Developments for Post High School Youth

1. New Hampshire - Programs at the Thompson School - Neal Andrew

The Thompson School of Agriculture is a two-year program designed primarily for post high school youth. In recent years, the emphasis on instruction has been shifting in the direction of technician type training. The three basic curriculums, including general agriculture, animal science and horticulture, are still being offered. Three years ago an agricultural business course was added to the curriculums and this past year a course in forest technology and soil and water conservation were introduced. Al areas of instruction are currently in operation but by far the most popular is the forest technology. Thompson School graduates continue to be in high demand. Applicants for admission to the school are turned away each year due to lack of facilities to handle all who wish to enroll. It is felt that the success of the Thompson School has been due largely to the vocational background of its instructors for each one is a qualified teacher of vocational agriculture. Some attempts have been made to

combine instructional staff with that of the four year college. The administration of vocational education has felt strongly that this was not practical or in the best interest of the Thompson School program.

Forestry instructors are not fully qualified in vocational agriculture because such individuals are not available. However, each one is in the process of becoming certified.

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2. Delaware - Plans for the Sussex County Vocational-Technical School
Daniel E. Koble

Dan Koble projected plans for the Sussex County Vocational-Technical School. He stated that Delaware is the second smallest State in the Union, being only 100 miles long and 36 miles across at the widest point. Living in this relatively small area are about 500,000 people and this population is increasing each year at the rate of 18,000 new citizens. This situation creates for agriculture not only problems but many opportunities as well. The State is blessed with fertile soil and a moderate climate. Evidence of this is the fact that the cash receipts from marketings per farm averages about $20,000 per year. This is the third highest in the nation and is exceeded by only Arizona and California. An even greater agricultural asset is the fact that Delaware farmers are located within a half day's drive of 30 million potential consumers.

Agriculture in Delaware is changing: In 1950 one out of five persons lived on a farm but by 1960 only one out of every twenty citizens lived on a farm. Today Delaware is the fifth fastest growing State in the country. To give you some idea of the impact this increasing population has on agriculture, here is a partial list of the space and service requirements which accompany each 1,000 new people added to our population. One thousand new people equal about 270 families. They require approximately 130 acres of land, 270 more houses, 400 more automobiles, 2 more miles of improved streets, 7 more classrooms, 10 more teachers and about 120,000 more gallons of water per day.

Two years ago a vocational-technical center was established in one of the three counties of the State. At that time a course in farm machinery repair for grades 10 through 12 was added. This year plans were made to convert this program to a post high school level and title it "Farm Equipment Technology." Local departments of vocational agriculture will serve as feeder schools in supplying students with backgrounds in general agriculture to these technical level training progams.

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Talk by Mr. Lane Ash

Lane C. Ash, Deputy Assistant Commissioner for Vocational and Technical Education, addressed the Conference. He referred to the Panel of Consultants' report and predicted a bright future for Vocational Education. Also there is a reservoir of talent in vocational education which can be tapped in resolving problems of unemployed youth currently estimated to be 700,000 to one million.

He also pointed out that Manpower Training and Development and ARA are indicative of new challenges confronting vocational education. He also expressed concern for the "poor image" which is being presented to the public through articles in current magazines such as Harpers and The Saturday Evening Post.

Tour

At 3:00 p.m. the Conference toured the Camden County Vocational School and observed the outstanding work of its vocational agriculture department in the area of Ornamental Horticulture and Landscaping.

Thursday Morning, April 4, 1963

Chairman: Joe P. Bail Secretary: Tom McGarr

The session was called to order at 8:30.

Dr. William Drake gave the invocation.

Experimental Research

Charles C. Drawbaugh described a teaching experiment in the use of greenhouse facilities which he conducted with the cooperation of twenty-seven departments in the State of Pennsylvania.

According to the 1959 census, the horticultural specialty industry in Pennsylvania is a 54 million dollar business. Pennsylvania ranks second in total sales volume in the United States in horticultural specialty items. There are more than 3,500 establishments which account for the State's total volume having 17.7 million square feet of greenhouse area. The number employed in the horticultural specialty business in Pennsylvania totals more than 10,000 people.

Operational Structure for Future Research Conferences

Clodus Smith presented a paper indicating the thinking of the 1962 Regional Research Conference which provides a bond between the North Atlantic Regional Conference and the Regional Research Conference through representatives of the five standing committees. These representatives and a representative of the host State comprise the Regioanl Research Conference Planning Committee. Tenure of the Planning Committee will extend from one Regional Conference to the next. The U. S. Office of Education representative will serve in a liason capacity to the Regional Research Conference Planning Committee.

Note:

See page 11, Proceedings of the 1962 North Atlantic Regional Research Conference for a diagram of the operational structure.

Plans for 1963 Research Conference at Cornell University - Dr. Harold Cushman

The general theme for this year's Research Conference will be "Research for Program Adjustments." The Conference will be held at Cornell University on November 5, 6, & Emphasis will be equally divided into three categories:

A. Progress reports of studies identifying vocational training needs
B. Sharpening research competency
C. Action Committee will begin the work assigned it

The Research Conference is an activity of the North Atlantic Regional Conference and will include representatives of all the teacher training institutions in agriculture for the North East and a representative from the supervisory staff in each State.

The 1964 Research Conference tentatively is scheduled to be held at the University of Maryland.

Notewort Developments in Adult Education in Agriculture (Includes Young Farmers)

1. Rhode Island - Programs for Urban People - John Ball

An adult class centered around "Beautifying the Home Grounds" enrolled thirteen persons, all from urban areas. Those enrolled were very much interested in landscaping and did much to beautify their surroundings. The teacher made wide use of visual aids, demonstrations, field trips, the school greenhouse, and group discussions in teaching the class. All members were provided individual instruction at their homes.

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2. New Jersey - Programs in Landscaping and Turf Management - Adam P. LaSota

In the fall of 1957, accompanied by the State Supervisor, I paid a visit to the Union County Park Commission to discuss the possibility of the Commission hiring some of our senior Vo-Ag students for work experience. During our discussion the question of our training park employees arose.

The discussion was followed up with a plan of training which was presented to the Superintendent of Maintenance and Construction and approved wholeheartedly.

This program included lectures, demonstrations field trips and follow-up visits which covered plant propagation, shade tree management and turf management. It covered a period of 10 weeks during which we met for two evenings a week for two hours each meeting.

The program was of great value to the 37 enrollees men as well as the group they represented. In the first place we provided them with information and training which improved their abilities as employees. This was evidenced by the fact that each of the students who attended at least 70% of the meetings received a certificate and the certificate immediately made them eligible for the next step on their salary guide

In the second place the program provided more competent employees for the County Park System. This system is the largest in the State. It operates two, eighteen-hole golf courses, fourteen parks, as well as maintains grasslands and picnic grounds along every brook in the county. The commission is in constant need of trained personnel as well as men with supervisory ability. Our program has provided them with such men.

Since the inception of this program training has been provided in tractor repair and maintenance, small motors, welding, landscaping in parks, selection of annuals, perennials, insects and diseases of shrubs, aquatic weed control, safety and individual instruction on the job.

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3. Maryland - Countywide Programs in Farm Business Management - Harry McDonald

A program in Farm Business Management, patterned somewhat after the Minnesota program is operated in Montgomery and Frederic Counties in Maryland. A full-time instructor of adult farmers has been employed in Montgomery County for several years. He has 80 enrollees and has developed his own record book. Many of the farmers keep comprehensive records which are summarized and analyzed by the instructor. The instructional program deals with the solutions to problems revealed by the records of the enrollees as well as the mechanics of keeping records.

In Frederick County the adult program in farm management is two years old. One teacher devotes full time to the work. Another full-time teacher of adult farmers will be employed immediately. The program is operated in four different centers. The enrollment exceeds 100 farmers. Each farmer pays $15 - $20 to have his records summarized. Class sessions are centered chiefly around the problems revealed by the records and current agricultural policies.

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4. Massachusetts - Programs for the Unemployed - Jesse A. Taft

Three programs for unemployed persons are presently being conducted. The objective is the training of arborists. All programs are being conducted at the three county agricultural schools. The Bristol program operated under the Area Redevelopment Act. The Essex and Norfolk programs are under the Manpower Development and Training Act.

Last fall, one ARA program was completed for arobrists at Bristol. Thirteen individuals completed the course. All were placed with tree service firms. This class was conducted by a day-school instructor, supplemented by a specialist from the University for some tree climbing and rope work. A second class is now in training for arborist work at Bristol.

Three special instructors who operate tree service firms have been employed. Regular day-school instructors teach the related subject matter between 3:30 p.m. to 5:00 p.m. About 20% of the course is devoted to related subject matter.

These programs were initiated on the basis of the industry's needs as expressed by the Massachusetts Arborists Association. According to the Association's estimate, there is a need for 2,000 trained arborists to meet the current need. These jobs are not considered seasonal although some lay-off in large firms takes place in the winter months.

Our experience has shown that an ample supply of qualified trainees exists. It has been necessary to place individuals desiring training on a waiting list. At the outset it was our plan to equip only two centers - one on the North Shore and one on the South Shore. However, we were pressured to set up a third center because of 20 additional referrals for training as arborists.

Budget to Establish an Arborist Course Ranges Between $7,700 - $9,500

Initial costs run high----------$500 - $600 per trainee
Succeeding classes run less----------$400 per trainee

Instructors are paid $25 for a six-hour day

Related subject teachers are paid on an hourly basis - $4 - $5
Teacher serving as both instructor and supervisor - $6

Length of Course - 400 hours to 480 hours

Experience has shown that a 10 week's course of 40 hours each is optimum to train an arborist acceptable to the employer.

Trainees Equipment - Special shoes are purchased and given trainees at the end of the course.

Insurance - Group liability coverage for instructor and 15 trainees is purchased at $480.

Establishing a program under either the ARA or MDTA is a frustrating experience. Excessive paper work and approval required of so many agencies and persons make the program very cumbersome. Our experience indicates that it takes ten weeks to set a program into operation.

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Rural Areas Development

Mr. J. L. Patrick of the Rural Areas Development Office in Washington, distributed to each State Supervisor a set of slides and an accompanying script describing the aims and objectives of the RAD Program. He requested the supervisors to make the slides available to their vocational agriculture teachers.

Mr. Patrick stated that vocational agriculture is more important today than ever before. Many rural families are living in dire poverty. They need training and an educational program to help them improve their standard of living.

The Rural Area Development Department is eager to help supply speakers at State Conventions if requests are made to the Washington Office. He strongly recommended the use of the RAD Department as contact agents for all departments in the U.S.D.A.

The Supervised Work Experience Record Book in Vocational Agriculture - Howard Martin

Dr. Martin explained that a revision of this book began as a Regional project and was developed into a national project under the guidance of Neville Hunsicker. The Regional Committees met with the national staff in Washington in making the final revisions.

The Committee's objectives were:

1. To reduce the size and cost of the book
2. To develop a record book exclusively for students on work experience
3. To develop a record book which might be adapted for occupations other than farming
4. To eliminate the project enterprise records as a part of the Work Experience Record Book

The following changes were identified:

Page 1. A concise resume' of career selections of student resulting from previous units taught by the agricultural teacher in the field of guidance.

2. Space for recording farm information for more than one farm.

3. Space to record supplementary agricultural work experience other than farm placement.

4. Space for recording managerial abilities developed.

5. Permits each teacher to develop his own rating system.

6. The placement agreement form has been toned down so that the employer would be more anxious to cooperate in signing it. The employer should recognize that placement is a training program.

8. The parents have an opportunity to check and approve the living and working conditions made available to their boy or girl.

A teacher's guide was developed by the committee. A limited number of mimeographed copies are avialable to each State. The committee did not have time to have the guides printed, but this will be done by January 1, 1964.

Professionals Relations Committee

Dr. R. C. Butler gave the report of the Professional Relations Committee. (See page 10)

Recent Developments in the FFA

1. The National FFA Board of Directors - H. E. Edwards, regional representative on the FFA Board, called special attention to the following:

a. Revisions in the application for the American Farmer Degree and the new procedure for selecting and approving them.
b. The efficient and expanding operations of the FFA supply service. A new wing (7000 sq. ft.) has been added to the building.
c. The neccessity to increase the subscription rates to 50¢ for the National Future Farmer Magazine. The price of the FFA calendars has been reduced substantially. States are urged to further promote the use of both of these public relations media.
d. State associations should call to the attention of chapter members the National FFA Code of Ethics and the official Policies Regarding the use of the FFA Name and Emblem. Close adherance to these policies should be encouraged. See pages 14 and 122 in the FFA manual (1963 Edition)
e. The FFA plans to increase its international activities.

2. National FFA Judging Contests - W. H. Wayman, regional representative on the Special Study Committee for National Judging Contests, reported the recommendations of his committee and called attention to the fact that further consideration and final decision will be made on contests and regulations by the committee during the 1963 FFA Convention. The question of combining such contests as Dairy Cattle and Dairy Products will be discussed. Other events such as Production classes of poultry may be eliminated and other events added. State Staff members are requested to keep the regional representatives (Wayman and Hoover) informed of their wishes.

3. National Future Farmer Magazine - A report of the subscription status by States and the operation of the National Future Farmer Magazine was made by Wilson Carnes, the editor. He stated that FFA members in six States in the region subscribe 100% but there are also more than 9000 members who are not subscribing. The magazine should become a part of the total vo-ag program for each student.

4. Peace Corps - A. W. Tenney

A contract will be signed in the near future for an FFA - NFA Peace Corps Project in Pakistan. A total of 40 persons will be selected. The candidates should be 18 years of age and former FFA or NFA members.

A pending arrangement with Columbia may necessitate another 40 persons. This is the start of an International Agricultural project by the FFA and NFA.

Mr. James Lay, Agricultural Department of the Peace Corps, also was introduced and told about successful Peace Corps projects.

Dr. Spanton's Comments

Dr. Spanton described an inequality which exists in the present civil service retirement program. Teachers of vocational agriculture cannot receive retirement benefits for the length of service at the local and State levels. He hopes that vo-ag teachers will have the same opportunity as others serving the Federal government by being able to pay into the Federal retirement program after serving for five years. Legislation which would make this possible has been introduced on two occasions and has received an adverse vote. He hopes that the present bill will be adopted so that the ten thousand people who should benefit by this law will be permitted to do so in subsequent years.

Thursday Afternoon, April 4, 1963

Chairman: Raymond C. Northup Secretary: Claude McGhee

The session was called to order at 1:30.

Business Session

Dr. Norman Hoover, Regional AVA Chairman presided. Wallace Elliott presented the following report of the Nominating Committee. It was accepted and the individuals were elected to the respective positions:

Position	Name	State
1. Program Committee Five-year Term (1963-1968)	Joe Paul Bail	New York
2. National FFA Board of Directors Two-year Term (1963-1965)	Neil Andrew	New Hampshire
Alternate	James C. Fink	Pennsylvania
3. AVA Regional Group Two-year Term (1963-1965)		
Chairman	George Lange	New Jersey
Vice Chairman	Norman Hoover	Pennsylvania
Secretary	Clark Butler	West Virginia
Alternate Secretary	V. R. Cardozier	Maryland
4. National FFA Judging Contests One-year Extension To July 1, 1964	Norman Hoover	Pennsylvania
	W. H. Wayman	West Virginia

CONFIRMATIONS (Con't)

Position	Name	State
5. National FFA Convention One-year Term	W. H. Wayman	West Virginia
	Norman Hoover	Pennsylvania
6. National Study Center One-year Term (1964)	H. E. Edwards	West Virginia
Four-year Term (1967)	C. W. Hill	New York
7. Teacher Education Committee Three-year Term (1963-1966)		
Chairman	Bruce Gaylord	Vermont
Vice Chairman	Warren Kelly	West Virginia
Secretary	V. R. Cardozier	Maryland
8. Professional Relations Committee Three-year Term (1963-1966)		
Chairman	William Drake	New York
Vice Chairman	R. C. Butler	West Virginia
Secretary	Dan E. Koble	Delaware
9. Supervisors Group Two-year Term (1963-1965)		
Chairman	W. H. Wayman	West Virginia
Vice Chairman	Cola Watson	Vermont
Secretary	L. L. Turner	Connecticut
10. Research Committee Vice Chairman (unexpired term - 1964)	Harold Noakes	New York

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Resolution: Liason Requested Between Vocational Agriculture and the U. S. Department of Agriculture

Motion passed unanimously that the North Atlantic Regional Conference group submit the following resolutions to the Director, Agricultural Education Branch, U. S. Office of Education, to be transmitted to the Secretary, U. S. Department of Agriculture:

"Be it resolved that due to the increasing complexity of agriculture and the rapid changes and developments taking place in it technically, professionally and in government agriculture programs. And, also due to the desire of workers in vocational education in agriculture to be kept informed of such changes and developments, the U. S. Secretary of Agriculture is hereby requested to favorably consider the assignment of a member of his administrative staff as a liason between the U. S. Department of Agriculture and the staff of the Agricultural Education Branch, U. S. Office of Education. It is also requested that the Director of the Agricultural Education Branch be asked to transmit this resolution to the Secretary of Agriculture and to explain to him personally the intent and over-all purpose of this resolution as well as the desire of the North Atlantic Regional Conference group to work closely with the agencies of the Department of Agriculture in advancing all phases of agriculture."

Committee Reports

1. ASAE Committee report was presented by Dr. Frank Anthony. He stated that a National office of the Farm Electrification Council (FEC) has been established in Oakbrook, Illinois and that Mr. John Turrell is the full-time coordinator and Executive Secretary. Mr. Turrell has asked for the cooperation of teacher educators and supervisors in the area of farm mechanics to assist in the establishment of State Councils of FEC so that educational programs in farm electrification may be expanded. The membership to the State Councils will include representatives of power companies (private and cooperative), Department of Agriculture Engineering and Department of Agricultural Education in the State Department of Public Instruction. Teachers of agriculture may look forward to a valuable source of teaching materials in farm electrification as State Councils are established in each State.

Attention was called to the fact that the FEC annually sponsors a dinner meeting on Friday noon during the National FFA Convention in Kansas City for all State Winners of the FFA Foundation Farm Electrification Award. Each State in the North Atlantic Region is invited to send its State winners plus his vocational agriculture teacher and State Advisor or his representative.

2. The Treasurers Report for the Regional Conference was presented by Dr. Clodus Smith.

April 6, 1962 - Balance was - $ 83.96
April 4, 1963 - Balance was - 110.24
(Complete report was distributed and a copy is on file)

3. Plans for the 1964 Regional Conference were outlined by Wallace Elliott, Program Committee Chairman.

Date - April 6 to 10, 1964
Place - New England area - The Planning Committee to determine the specific location
Note: (The 1964 Conference will be held at the Hotel Somerset in Boston, Massachusetts.)

4. Evaluations of the 1963 Conference were collected by H. E. Edwards..

5. National Center for Advanced Study and Research in Agricultural Education

a. H. E. Edwards gave a brief progress report:
(1) The National Committee of which he and Dr. C. W. Hill are members representing the North Atlantic Region, met in Washington July 26-27, 1962 and selected Ohio State as site for the center. The

choice was unamious. Applications were received from six States.

(2) Dr. Robert E. Taylor was named Acting Director of the center on August 23, 1962.

(3) The National Committee met in Milwaukee on December 2, 1962 and approved a statement of policies governing the center. Dr. Taylor's title was changed to Director and he will devote full time to this position.

(4) Summary: Our National Center for Advanced Study is no longer a dream. Many people want to come in with us to make the Center a National Center for Advanced Study for all of vocational education. Our success will be dependent on you people. We need ideas, participation and support---now, and in the future.

b. Dr. Robert Taylor, Director of the National Study and Research Center, reported:

(1) The desirability of Federal funds to help support the Center.

(2) The main role of the Center is to supplement and enhance existing graduate and research programs.

(3) All activities will not be confined to Ohio State. Workshops will also be held on a regional basis.

(4) The National Agricultural Education Seminar will be held at Ohio State University, July 22 - August 2. The theme for the conference will be "A Design for the Future." The Seminar will be centered around State staff responsibilities and implementing recommendations of the Panel of Consultants.

(5) Many outstanding leaders in vocational education will participate in the Seminar.

(6) Seminar will be non credit, but credit can be arranged. Every State should be represented by a supervisor and a teacher trainer; 32 States now registered.

Noteworthy Developments in Agricultural Education - In Special Services and Facilitie

1. Connecticut - Using a State Consulting Committee - L. L. Turner

a. The State Consulting Committee of Connecticut consists of 23 members representing: the State Department of Agriculture, the College of Agriculture, a farm newspaper editor, public utilities, farm director of a broadcasting company, the high school principal's association, teacher trainer, a farmer cooperative, a farm business, a superintendent of schools, Farm Bureau, president of Vo-Ag teachers and farmers. The committee meets annually during National FFA Week.

b. The committee has prepared ground work material and has proposed bills passed by the 1955 legislative session. These bills were prepared so as to:

(1) Provide for local control of policy and administration of vo-ag within the frame work of the State Plan.

(2) Provide State aid to prevent financial burden on towns receiving students from other towns.

(3) Provide a facility which can serve as a community agricultural center.

(4) Provide State aid for sending towns operating their own high schools, so that there would be little increased financial burden to sending towns. (townships & districts)

(5) Provide State support for adult programs.
(6) Provide State aid for transportation in sending students to vo-ag centers.
(7) Provide equitable distribution of Federal funds for vo-ag regardless of the amount received by the State.

C. Consulting Committees are needed at the State level to a greater extent as time progresses. The Connecticut committee is a group with good attendance, high enthusiasm and noteworthy progress.

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2 Vermont - Continuous Inservice Training for Teachers - Bruce Gaylord

A. Pattern of inservice training in Vermont:
(1) Follow up of first year teachers with an average of six visits by teacher trainer
(2) Evaluation of all first year teachers by supervisor, teacher trainer and supervising teacher.

B. Annual self-evaluation is conducted by all teachers by use of the "Supervisory Guide." All teachers use their findings in redesigning their annual programs.

C. The structure of the Vermont Agricultural Teachers Association is patterned after the NVATA. Through use of committees the teachers participate in carrying out all phases of their State association's program.

D. Conferences include: (1) Joint Vermont - New Hampshire Agricultural Teachers Conference, (2) Sectional Vermont Vocational Association, (3) Sectional and joint Vermont Education Association.

E. Summer session offerings are provided annually, workshops are conducted annually, and individual conferences are scheduled throughout the year.

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3. New Hampshire - A New Approach to Teacher Education - William H. Annis

The Department of Agricultural Education, University of New Hampshire has recently become the umbrella covering the pre-service training and graduate programs for both vocational Agriculture and Agricultural Extension. Dr. Hammonds in his book Teaching Agriculture, states: "All school teachers of Agriculture should be familiar with the work of the Extension Service. Likewise, all persons engaged in Extension Work in Agriculture should be familiar with what the schools do, or should do in teaching Agriculture. Extension is an educational enterprise----Thus, teaching Agriculture, whether through the school or through some other agency, qualifies as a profession." We have merely accepted Dr. Hammonds' philosophy at the University of New Hampshire. We did not modify the name of the Department, but rather accepted the concept that Extension personnel were working in Agriculture and by virture of their programs were educators. Agricultural Education is the umbrella covering both Extension Education and Teacher Preparation in Agriculture.

The program can perhaps be visualized through the continued use of the umbrella. As an umbrella is composed of ribs and sections, so our program is composed of courses. Here we see the first pre-service course, Principles of Agricultural Education. This course covers basic data of both the Vo-Ag and Extension work. It includes the role of teaching in our society today; the history and philosophy of Vo-Ag and Extension, program planning and the FFA and 4-H.

The methods course entitled Planning for Teaching is the next portion of our program and is available to both prospective County Extension personnel and Vo-Ag teachers. This course is offered concurrently with supervised practice student teaching and is taught both on and off campus.

The next section of our umbrella is Adult Education. This course is also offered concurrently with supervised practice and is taught both on and off campus. It covers the areas of young and adult farmer education.

The Supervised Practices phase of our program is unique in terms of programming in Agricultural Education. Students are placed in County Extension offices for 8 weeks and in Vo-Ag centers for 8 weeks. This allows each student the opportunity to gain a knowledge of the programs of each agency. A check list of participating experiences for Extension is in the process of being developed and will be used by the students during their supervised practice period in the County Extension offices. The students in Extension offices will be supervised in part by the State Extension personnel as well as by personnel in the Agricultural Education Department. These three courses will be offered during the fall semester each year and open to seniors and graduate students.

A Seminar course completes our pre-service training program and will center on problems encountered during the Supervised Practice phase of the program.

In addition to the pre-service courses, a program of follow-up of first year teachers of Agriculture is conducted by the Department.

A graduate program is available for both teachers of Vocational Agriculture and County Extension personnel leading to a Masters in Agricultural Education Degree. These graduate programs are tailored to meet individual needs through course offering throughout the year. Our completed umbrella consisting of: pre-service courses, follow-up of first year teachers and the graduate program.

This is a program in New Hampshire which it is felt will meet the needs of our State in the preparation of both teachers of Agriculture and County Extension personnel. It is only one approach to the problem. There are others which might be equally effective.

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Meetings of Action Groups

These meetings were a continuation of the work begun during the Tuesday morning session. The following conclusions of the groups were reported and discussed at the Friday morning session.

Group A - Developing Instructional Programs in Agriculture for High School Youth

Leader: H. M. McDonald Recorder: W. H. Elliott
Keynoter: W. Howard Martin

Five major points were stressed by Dr. Martin, based on the President's Panel Report. Dr. Martin stated that "The Panel's Report, in popular version, implies that the instructional programs for the all-day students should be:

1. Developed with regard to many agricultural careers including farming.

2. Improved with regard to both depth and breadth of experiences.

3. Competitively attractive with other instructional programs in the secondary school.

4. Include necessary instructional materials and facilities.

5. Adaptable, in some situations, to the needs of disadvantaged or handicapped youth."

After considerable discussion by the Committee, seven points were developed for further consideration:

1. Encourage teachers to find off-farm opportunities for "Supplementary Agricultural Work," for students, in addition to their regular supervised farming programs, such as, greenhouses, hatcheries, nurseries, etc.

2. Identify and locate desirable off-farm occupations for graduates that will:
   a. Provide supervised farm work experience
   b. Provide full-time employment after graduation

   Note: In doing this it is recognized that we must be extremely careful not to weaken our present farmer training program.

3. Provide a sufficient number of general units for basic learning, and one or two special units designed to meet individual interests and aptitudes.

4. Insist upon a broad two or three year core program in vocational agriculture prior to providing any higher degree of specialization.

5. Develop area centers for grades 11 and 12 to provide for specific instruction in agricultural occupations.

6. Encourage teachers to attend college for the purpose of specialization, to earn a M. S. Degree, and return to high school teaching.

7. Summarize and study the information available from completed research in order to determine possible courses for action.

It was voted that this Committee recommend that Dr. Tenney be urged to convene, as soon as possible, a series of conferences of supervisors and teacher trainers, to expedite the structure of Agricultural Education Programs to fit today's needs.

Group B - Developing Instructional Programs for Post High School Youth

Leader: R. C. S. Sutliff Recorder: Jesse A. Taft
Keynoter: Neal Andrew

We believe that the leadership in agricultural education within a State has the responsibility to see that systematic post high school instruction in agriculture of less than a Baccalaureate Degree is provided for interested students. Such instruction should develop in the student's salable skills and competencies in agriculture which will assist them to enter into and progress successfully in the occupations of their choice.

The following are the suggested activities in which a State may engage in order to provide for the development of opportunities for post high school instruction in agriculture. No significance is attached to the order of this listing.

1. Assess employment opportunities needing competencies in agriculture including self-employment and farming.
2. Determine agricultural abilities necessary and/or desirable.
3. Cluster these abilities which are necessary and/or desirable.
4. Develop the training program based on the needs
   a. Develop curricula
   b. Develop plan for work experiences
   c. Determine length of courses
   d. Develop criteria for selection of students
   e. Counsel and enroll students
5. Arrange for the selection and training of the teaching staff.
6. Determine and provide facilities and equipment.
7. Determine teaching and other staff needed.
8. Utilize Advisory Consulting Committees.
9. Determine how the program will be financed and administered.
10. Determine how to provide instructional materials and teaching aids.
11. Provide for appropriate public relations activities.
12. Study existing programs of a similar nature in the State and neighboring States
13. Establish program objectives.
14. Evaluate programs periodically.
15. Establish placement and follow-up activities.
16. Secure counsel and advice of other vocational education services.
17. Cooperate with other vocational education services where appropriate.
18. Develop cooperative working relationship with educational institutions in determining programs and providing for continuing education.
19. Develop a plan for recruiting students.
20. Develop operational policy.

****

Group C - Developing Instructional Programs in Agriculture for Adults
(Includes Young Farmers)

Leader: David R. McClay Recorder: W. H. Evans
Keynoter: Cola Watson

1. The different groups of adults with which we are concerned are:
   a. Adult farmers in the business of farming
   b. Young men wanting to become successfully established fully in farming (broad interpretation of farming)
   c. Part-time farmers
   d. Migratory farm workers
   e. Employer-employee relationships of the above groups
   f. Special skill occupational groups
   g. Suburban home owners

2. How are the educational needs determined for the above groups?
   a. Use of existing agencies in communities, such as S.C.S., Ag. Ext., Employment Services, etc.
   b. Knowledge gained from working with adults in courses or from knowledge gained by local teachers in working in the community.

3. Some principles for developing successful instructional programs for adults:
   a. Use local resources and agencies in determining needs
   b. Use agricultural councils
   c. Use advisory committees
   d. Individual on-farm visitation is an important way of determining instructional needs.
   e. The Young-Adult Farmer program should consist of a series of unit courses planned over a period of years to meet the recognized needs of the group.
   f. Education for entry into specialized occupations should consist of the development of considerable competence in skills and understandings required in the occupation by the individual.
   g. Qualified instructors, with time provided them to do the job, should be used for teaching adults.
   h. Graduate programs can stimulate teacher's interest in teaching courses for adults.
   i. One of the functions of a comprehensive high school is to support and to give leadership in meeting the adult education needs of the community. School administrators and boards of educaton should be favorably convinced of the importance of this function of their school. It is difficult for an adult education program to succeed without the blessing and encouragement of the school administration.
   j. More in-service education must be provided in order that the teacher be kept abreast with new developments both technically and professionally.

Friday Morning, April 5, 1963

Chairman: V. R. Cardozier Secretary: Archie Holdridge

After Breakfast Meeting of Supervisors

Approximately 35 supervisors and special guests attended the after breakfast meeting of supervisors beginning at 8:00 o'clock. Harry McDonald served as chairman. A summary of the items discussed as submitted by W. H. Wayman, secretary, is as follows:

A. Farm Management Workshop - Dr. Joe P. Bail reviewed plans for the workshop to be held at Cornell University, June 10-14, 1963. It was stressed that, if possible, all States be represented by a supervisor, a teacher trainer, and a representative of the college agricultural economics department. A tentative program was distributed.

B. New Reporting System in Agricultural Education - Mr. H. N. Hunsicker reviewed and discussed a New Reporting System in Agricultural Education. These forms have been prepared by the Office of Education, Department of Health, Education and Welfare for vocational and technical education. He urged that report forms used in States be reviewed and modified, where necessary, in order to secure the data requested.

C. Improving Supervision - R. C. S. Sutliff reviewed the plan used in certain districts in New York for improving supervision. The school districts are requesting Cooperative Review Service from the State Department of Education. Some information is obtained prior to the evaluation. A team evaluates the total school program. A report is made of the evaluation of the different departments, administration, etc., and then combined into a comprehensive report. This report is reviewed with the local school officials and a check made later as to improvements implemented. A supervisory guide, that has been used in vocational agriculture, was distributed.

D. Provisions for Insuring Equal Opportunities - Dr. A. W. Tenney commented concerning Provisions for Insuring Equal Opportunities. He stated that,"Any Federally sponsored program should be available to all who can benefit from the training."

E. Business Session - Comment by Mr. Ayers, Assistant Administrator, ACP, U. S. Department of Agriculture, reported that the department is eager to cooperate with all States in providing assistance for improving education programs. He stated that every effort will be made to carry out the wishes of this conference group as expressed in its resolution. (See minutes of the Thursday afternoon session

National Study Center - Dr. Robert Taylor briefly described plans for the National Study Center. It is hoped that all States will have a supervisor and teacher trainer attend the seminar to be held July 22-August 2, 1963. Tentative plans are being made to conduct specific workshops. The Central Region Conference suggested that a National Conference be held for FFA executive secretaries.

Proposed Organization of State Vocational Agricultural Supervisors - H. E. Edwards discussed a proposed plan. A questionnaire was distributed to obtain information for planning the new organization.

1962 NEPPCO Report - Neal Andrew reported that the 1962 Exposition was successful. It is important that each State make specific arrangements for serving term as chairman in rotation system. More emphasis should be given in some States regarding proper dress for the occasion. All States should make detailed arrangements for participation. The "Best Poultry Boy" must be present for interview to be eligible to receive the award.

1963 NEPPCO Plans - Jesse A. Taft reported that he attended the Neppco meeting in in New York in January. He briefly outlined plans for the 1963 Exposition to be held in Harrisburg, Pennsylvania, October 6 to 7. Detailed instructions will be mailed to all States. The State Supervisor in Maryland will replace him as chairman in 1964.

Eastern States Exposition - Jesse Taft reported that the name of the Eastern States Exposition Committee has been changed to North Atlantic Regional FFA Planning Committee. Jack Reynolds, manager of Eastern States Expositon, accepted the proposed increased budget and agreed to make the suggested changes and improvements. Plans are being made for participation of a demonstration team of two FFA members from the New England States. Others in the region may participate. Plans also are being made to conduct a Tractor Operation Contest.

Honorary American Farmers - Wallace Elliott listed recommended names for the Honorary American Farmer Degree. H. E. Edwards nominated Harry Grant. Jesse Taft nominated Charles Oliver. By vote the two were approved.

Tri-State Public Speaking Contests - W. H. Wayman, reviewed plans and set the date for the 1963 contests. He called attention to the fact that the States responsible for holding these events in 1963, 1964 and 1965 are listed in the Information Bulletin No. 3591. Host States are urged to follow the procedure recommended by the North Atlantic Regional Conference in 1957.

Recommendations for Improving National FFA Judging Contests - W. H. Wayman reported on proposed changes for the contests. By show of hands the States were equally divided regarding the acceptance of the proposed changes.

Sub-Regional FFA Leadership Workshops for State Officers - L. L. Turner reported that Connecticut State FFA Officers who took part in last year's workshop were better able to help local chapter officers become aware of their responsibilities and do a better job on the local level. An informal poll of the New England States indicated the workshops are worthwhile and should be continued. Problems encountered are: 1. Better coordination between neighboring States in sponsoring workshops. 2. Agreement as to purpose of such workshops. 3. Developing a program. 4. Participation of National officers. 5. Desirable facilities. 6 Costs. 7. Length of Workshop. 8. Time to schedule workshop. 9. Adult participation, and 10. Out-of-State travel.

Problems Facing the Agricultural Education Magazine - Cola Watson stressed the importance of obtaining subscriptions for the Agricultural Education Magazine. The States will be polled regarding change of name for the magazine.

Election of Officers - The following persons were unamiously elected to serve a two year term as officers of the Supervisors Group: Wallace Elliott, Chairman; Cola Watson, Vice Chairman; H. E. Edwards, Secretary.

****

After Breakfast Meeting of Teacher Trainers (AATEA)

Twenty-one teacher trainers and guests attended the after breakfast meeting of AATEA, beginning at 8:00 o'clock. Ben Bristol, chairman, presided and Ralph Barnwick, secretary, recorded the following minutes:

A. Report by Dr. McClay regarding the following highlights of the National Meeting last December in Milwaukee:

   1. Dr. H. M. Hamilin was presented with the first AATEA Distinguished Service Award.

2. Dr. Knuti reported 15,000 copies of the recruiting brochure had been sold @ 5¢ per copy.
3. Dr. Peterson reported that AATEA was now affiliated with AOTE. (Associated Organizations of Teacher Education)
4. Dr. Cardozier, AATEA treasurer reported 139 paid members.
5. President Clarence Bundy appointed a committee to determine the possibility of establishing a summer institute.
6. Dr. Cline would continue as editor of the publication.
7. The need for a Collegiate FFA Convention at the National FFA Convention was discussed.

B. Moved by the group to favor a joint Collegiate FFA - Student teacher meeting at Kansas City in conjunction with the National FFA Convention.

C. The group voted that the Regional section of AATEA endorse the printing of the revised Experiences for Student Teachers in Agricultural Education sufficien for a two year Regional supply.

D. Dr. Cardozier urged all teacher trainers to submit articles for the AATEA Journal.

E. Dr. Bail of Cornell reported on the plans for the Farm Management Workshop (June 10-14, 1963 at Cornell)

F. A discussion of the National Study Center for Agricultural Education and the Agricultural Education Magazine was held.

G. Dr. McClay requested ideas from the group relative to the program for the Agricultural Education section of AVA.

H. Dr. Cardozier reminded the group that a Vice President of AVA for a three year period will be elected at the next convention of AVA.

I. Dr. Annis moved that the program committee consider Portland, Maine as a site for the '64 Regional Conference. Motion passed.

J. Dr. Smith proposed that college programs in Agricultural Education be expanded to include other areas of training. It was further suggested that ample time be provided at a future conference to further discuss these possibilities. Martin suggested that papers be presented on the subject at a future conference. Dr. McClay pointed out that Penn State now offered a course in Agricultural College Teaching.

K. Bail moved that the above topics be included on the agenda for next year's Regional Conference after-breakfast meeting. Action passed.

L. Due to leave of absences and the resignation of Ben Bristol the following new slate of AATEA Officers was elected for a one year term: Clodus Smith Regional Chairman and 1st Vice President; Ralph Barnick, 2nd Vice President; and, William Drake, alternate Vice President and Regional Secretary. The group also passed a motion by Dr. McClay that the above slate of officers serve an additional regular term with offices expiring in 1966. (Note: This motion was not in order since the constitution provides for only two year terms.)

General Session

The general session was called to order by Dr. Cardozier at 11:15.

A Symposium-Panel comprised of H. E. Edwards, Harry McDonald, R. C. S. Sutliff and David McClay summarized and discussed the conclusions of the work groups which met on Tuesday and Thursday. The panel members reported that their respective groups focused their attention on developing "An Agenda for Action" with respect to vocational agriculture in the years ahead. A list of their specific recommendations is included in the minutes of the Thursday afternoon session.

Accomplishing the Agenda for Action - H. N. Hunsicker

The Regional Program Specialist, by use of flannel board, pointed out specific needs which must be met in order to implement the proposed "Agenda for Action":

1. Dynamic Leadership (National, State and local)
2. Adequate Staffs
3. Annual Evaluation of Programs
4. Program Planning - (Especially by State Staffs)
   a. Get facts - Discover real needs
   b. Set goals
   c. Develop ways and means
5. Modernized Courses of Instruction
6. Realistic Enrollments
7. Consulting (advisory) Committees
8. Pre-service and Inservice Training for:
   a. Teachers
   b. School Administrators
   c. Guidance Workers
   d. State Staffs
9. Improved Image of Vocational Agriculture
   What It Is?
   Where It Leads?
   a. Personal Contacts and Relationships
   b. Publicity
   c. Be Represented
10. Get started

"The future belongs to those who prepare for it."

Adjournment

1. Dan Koble and James Fink were cited for their special assistance with the conference arrangements and registration.

2. Appreciation and an appropriate gift was presented to Mrs. Harriet Purnell, secretary to Mr. Koble, for serving as secretary for the conference.

3. The conference group expressed regrets to Ben Bristol of Pennsylvania upon his leaving the Region but wished him well in his new location.

4. Neville Hunsicker, A. W. Tenney, A. H. Hollenberg and the Program Planning Committee were given a rising vote of appreciation and applause for their effective contribution and work in making this a worthwhile and successful conference.

5. The Conference was adjourned at 12:35 p.m.

VT 000 545

VT 000 545

Occupational Opportunities and Training Needs of Youth for Nonfarm Agricultural Jobs in the Monroe-West Monroe Area. (Vo. Ag. Ed., no. 10).

Curtis, C. M. * Mumphrey, Anthony

Louisiana State Univ, Baton Rouge. Dep of Vocat Agr Educ.

Apr65

DOCUMENT NOT AVAILABLE FROM EDRS 63p.

*VOCATIONAL AGRICULTURE, *OFF FARM AGRICULTURAL OCCUPATIONS, *OCCUPATIONAL CLUSTERS, EMPLOYMENT LEVEL, EMPLOYMENT OPPORTUNITIES, WORK EXPERIENCE, *EMPLOYMENT QUALIFICATIONS, SALARIES, AGE, RESIDENCE REQUIREMENTS, *EDUCATIONAL NEEDS, OCCUPATIONAL SURVEYS, EDUCATIONAL SURVEYS, EMPLOYERS,

Louisiana, Monroe,

The objectives of this survey, one of seven area studies in the state, were to identify off-farm agricultural businesses, to secure qualifications for the jobs, and to determine agricultural training requirements. Using a survey questionnaire, trained interviewers gathered data from businesses identified as agriculturally oriented. Of the 4,110 employed in 108 agricultural firms, 1,225 in 222 job titles needed agricultural knowledge and skill. When classified by occupational families, it was found that -- (1) crops, forestry, and soil conservation, and (2) farm supplies and equipment were prominent. Unskilled, managerial, and semiskilled levels of employment were most frequently reported. There were few at the professional and technical levels. Preferred job entry age was between 25 and 45. Employees with more training and experience received higher salaries. Employers favored employees with high school and college education. Employees with a farm residential background were not favored, though farm experience was important. The greatest need for familiarity with agricultural subjects was in the managerial, supervisory, sales, and skilled levels of employment. Firm or industry schools and on-the-job training were preferred over public vocational school and agricultural colleges, as presently constituted for continuing education. Recommendations are included for revising training programs. (JM)

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE MONROE - WEST MONROE AREA

CENTER FOR VOCATIONAL
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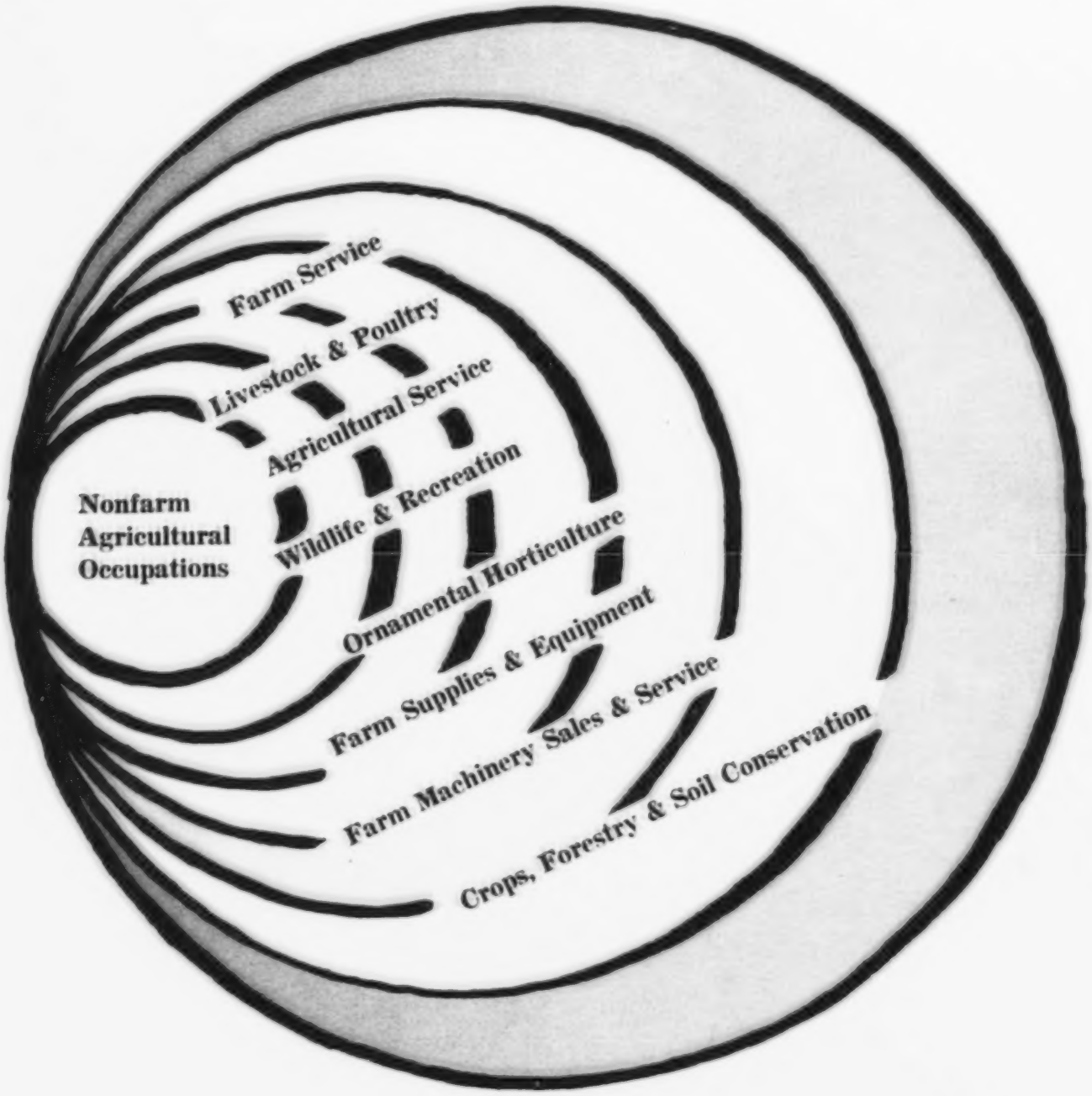

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May, 1965

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Department of Vocational Agricultural Education
School of Vocational Education
College of Agriculture
Louisiana State University
Baton Rouge

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE MONROE-WEST MONROE AREA

BY:

C. M. Curtis and Anthony Mumphrey

DEPARTMENT OF VOCATIONAL AGRICULTURAL EDUCATION

SCHOOL OF VOCATIONAL EDUCATION

COLLEGE OF AGRICULTURE

LOUISIANA STATE UNIVERSITY

April, 1965

CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION
980 KINNEAR ROAD
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PREFACE

The rural boy of today who does not plan to farm and desires employment in nonfarm agriculture finds himself in an "occupational gap" which is too large and deep for him to bridge successfully. Many occupational opportunities that could be available to him exist as merely "dreams" because of his lack of training and experience in jobs occurring in the emerging, broad agricultural complex known as "agribusiness". The urban boy, consequently, competes favorably in securing many of the jobs earmarked for rural youth.

This report is one segment of a statewide study which was designed primarily to locate and identify job titles in agricultural occupations and provide job descriptions, including knowledge and skill required for securing employment. This kind of information will serve as an invaluable tool for school administrators, counselors, and teachers of vocational agriculture who will be planning programs in vocational agriculture to meet the needs of individuals who anticipate employment in nonfarm agriculture.

ACKNOWLEDGEMENTS

This REPORT was made possible by action of the Louisiana Vocational Agricultural Teachers Association, the Vocational Agricultural Education staff, and the State Department of Education, in obtaining a grant from the Board of Liquidation of the State Debt for use by Louisiana State University in making this study.

Invaluable assistance in making the Monroe-West Monroe survey was extended to University researchers by the Division of Employment Security and officials of the Monroe and West Monroe Chambers of Commerce.

Appreciation is also expressed to the 108 businesses and agencies cooperating in the Survey.

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OCCUPATIONAL OPPORTUNITIES AND TRAINING NEEDS OF YOUTH FOR NONFARM AGRICULTURAL JOBS IN THE MONROE-WEST MONROE AREA

by

C. M. Curtis* and Anthony Mumphrey**

INTRODUCTION

Monroe and West Monroe, the Twin Cities of the Ouachita River Basin, are the hub-center for a vast trading region comprising some 18 parishes. The twin cities act both as a retail and wholesale distribution center for nearly 500,000 people in the North Louisiana-South Arkansas Region.

Monroe, the Parish seat of Ouachita, has approximately 62,000 inhabitants; while West Monroe's population is 19,000. Nearly 69 per cent of the population of the Parish is concentrated in this Metropolitan Area. This Metropolis, therefore, is the major generator of employment opportunities.

Total farm population in the 18 Parish Region is 69,566; Monroe-West Monroe businesses and agencies service the farm population needs.

In addition to off-farm agriculture in the total trade Area, there are some 19,520 farms. These farms comprise more than 2.5 million acres; the average size farm is approximately 142 acres. Major crops for this Area include: cotton, corn, row crops and grain. Dairying and beef cattle enterprises have developed into a sizeable entity in this Agricultural Complex.

Within the Metropolitan Area some 100 manufacturing plants of widely diversified products are included in the total economy. The major manufacturing

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interests are in paper and paper products, furniture manufacturing, and chemicals. More than 5,500 employees can be found in manufacturing interests alone, with retail trade employing over 5,000 workers.

Twenty per cent of the job opportunities are in retail and wholesale trade; total employment is encompassed in some 41,150 jobs. Government establishments offer approximately 5,300 positions, while service trades account for over 4,200 employees.

Although agriculture appears to include a significant segment of the entire economy of the Area, vocational agriculture is not presently offered in any of the secondary schools in the Metropolitan Area under investigation, and there is only one Department of Vocational Agriculture in the Parish, namely, Calhoun.

Monroe and West Monroe have shown a most progressive growth during the last five years. A greater movement to the suburbs has been underway for the past three years. Major growth in the future can, therefore, be expected primarily in the fringe areas. Such a movement will ultimately lead to the further development of the Area for additional diversified progress and expansion.

PURPOSE OF THE SURVEY

The Monroe-West Monroe survey constitutes one distinct segment of a Statewide study of seven metropolitan areas. Each metropolitan area contributed to the Statewide report compiled with the data of the seven areas under investigation.

The primary purposes of the survey were: 1) to identify nonfarm agricultural businesses and professional organizations having one or more job titles requiring competence in agricultural subjects, 2) to secure specific qualifications for jobs, and 3) to determine the kinds of training in agriculture associated with job entry and maintaining competence in employment.

This comprehensive study of agricultural occupations was made possible by a grant to the University from the Board of Liquidation of the State Debt.

The general objective of the study was to provide leaders in education in public schools with information concerning present and emerging occupations in agriculture other than farming and ranching for which instruction in vocational agriculture is profitable and essential.

An agricultural occupation other than farming and ranching, for purposes of this study, refers to one for which individuals need competencies in one or more of the essential areas of plant and animal science, agricultural business, management and marketing, and agricultural mechanization.

In order to help determine the changes necessary in high school programs of vocational agriculture, it was assumed that the following data were essential:

1. Number of employees in each and all agricultural business firms or organizations, including employee identification according to job title

2. Competencies needed in agricultural subjects or skills required to gain job entry and for advancement, and

3. Distinguishing characteristics of all job titles such as: salary or wages, entry age, required formal education and experiences, legal restrictions, and union regulations, licensing and certification and a description of work performed by workers within a specific job title.

SURVEY PROCEDURE

All nonfarm agricultural businesses and organizations within the Metropolitan Area of Monroe-West Monroe were surveyed in this study.

General data concerning this area reveal the significance of agriculturally oriented businesses to the economy of this sector of the South.

A comprehensive list of all agriculturally oriented firms and businesses was developed for the Monroe-West Monroe Area; the list was evaluated and finalized to include those firms having one or more employees with knowledge or skill in agricultural subjects. This list was supplemented with business listings secured from the Yellow Pages of the local Southern Bell Telephone Directory,

the several trade associations, records of the Monroe and West Monroe Chambers of Commerce, and the local Division of Employment Security.

The Agricultural Committee of the Chamber of Commerce gave its endorsement to the study. Officers of the Chamber corresponded with owners or representatives of the business concerns, thus facilitating subsequent interview procedures. In addition, the Dean of the College of Agriculture, Louisiana State University, sent a letter of explanation concerning the study to each firm. The local newspapers; namely, The Monroe Morning World and Monroe News Star, gave supporting publicity for this investigation.

To establish a platform from which to launch the study, the local Division of Employment Security recruited a group of prospective interviewers. This group was reduced to six and trained by University Personnel in the proper procedures to conduct the study. The instruments were completed in an eleven day period under the direct supervision of University personnel.

Each interviewer was given a list of firms to survey; each worker making his own arrangements with the employer or his representative relative to the time of interview. All information pertinent to the investigation was noted, using the survey instrument developed for the Statewide study.

A total of 108 agricultural businesses provided data for this report; 100 per cent of the firms were categorized as having nonfarm agricultural occupations.

The agricultural businesses in the Monroe-West Monroe Metropolitan Area employed 4,110 employees with 1,225 having competencies in agriculture. A need for 117 additional workers having agricultural competencies was indicated. Only 29.8 per cent of the total employees were found to have special competencies in agriculture. This determination reveals a large segment of the total agricultural business functioning with individuals not possessing specialized training in agricultural subjects.

TREATMENT OF SURVEY INFORMATION

To facilitate an orderly presentation and interpretation of survey information, the data gathered were categorized to include the following:

1. Occupational families
2. Classification of job titles into levels of employment and training required in agricultural subjects, and
3. Special requirements for job entry

In order that the National Study be better coordinated, occupational families were used as adopted by the National Center for Research in Vocational Agricultural Education at Ohio State University. The families included in this investigation were as follows:

1. Farm Machinery Sales and Service
2. Farm Supplies and Equipment
3. Livestock and Poultry
4. Crops, Forestry and Soil Conservation
5. Ornamental Horticulture
6. Wildlife and Recreation
7. Farm Service
8. Agricultural Service

Total number of employees was determined for each occupational family and the current employment having agricultural competencies, including the number of additional employees having competencies in agriculture five years hence.

Job titles were determined for each occupational family and the projection of new job titles surveyed for each occupational family. Each job title was also classified according to levels of employment; namely, professional, technical, managerial, supervisory, sales, office, skilled, semi-skilled and unskilled.

Data were collected in each occupational family and each level of employment to include: age of entry into occupation, monthly salary, and number of employees having knowledge or skill in each subject matter area, namely, crops, livestock, management and mechanics.

Categorically, education requirements were determined for each job level in each occupational family. Such requirements as education, residential background, farm experience and continuing education necessary for advancement were also ascertained.

These data were gathered with the idea of revealing occupational opportunities in nonfarm agriculture in the Monroe-West Monroe Metropolitan Area. Guidance counselors as well as school administrators will be in a better position to guide youth in the projection of vocational objectives, as a description and increasing need of jobs in nonfarm agriculture become available to them. If teachers of vocational agriculture would use these employment data, they could develop a program which would insure the type and kind of training necessary for students to gain entry and advance in jobs needed in nonfarm agriculture.

PRESENTATION AND ANALYSIS OF SURVEY INFORMATION

Occupational Families

The 108 businesses and agencies comprising the Monroe-West Monroe agricultural complex were classified according to appropriate occupational families. These organizations were fairly well distributed over all of the eight families except Ornamental Horticulture, and Wildlife and Recreation where only a limited number appeared.

A complete classification of the various kinds of firms and agencies is given by occupational family:

I. Farm Machinery Sales and Service
   - Tractor and Implement Company
   - Industrial Equipment Company
   - Truck Company
   - Equipment Company

II. Farm Supplies and Equipment
   - Lumber Company
   - Feed and Seed Company
   - Farm Supply Company
   - Department Store
   - Chemical Company
   - Wholesale Company
   - Food Store

III. Livestock and Poultry
- Dairy Products Company
- Meat and Packing Company
- Livestock Sales Barn

IV. Crops, Forestry and Soil Conservation
- Forestry Commission
- Forestry Products Company
- Grain Company
- Oil Mill Company
- Curb Market
- Cotton Company
- Pecan Company

V. Ornamental Horticulture
- Garden Center

VI. Wildlife and Recreation
- Golf Club
- Park

VII. Farm Service
- Well Service Company
- Pest Control Company
- Welding Service
- Machine Work
- Tree Service

VIII. Agricultural Service
- Bank
- Department of Agriculture (College)
- U. S. Department of Agriculture
- Experiment Station
- Extension Service

In Table I the businesses or firms in the Monroe-West Monroe Metropolitan Area were categorized into eight occupational families. Farm Supplies and Equipment, and Farm Service occupational families contained nearly 50 per cent of the 108 firms included in this investigation; the greatest concentration was in Farm Service and Ornamental Horticulture.

The rank of occupational families according to number of establishments was as follows:

1. Farm Service
2. Farm Supplies and Equipment
3. Crops, Forestry and Soil Conservation
4. Agricultural Service
5. Livestock and Poultry
6. Farm Machinery Sales and Service
7. Wildlife and Recreation
8. Ornamental Horticulture

TABLE I

NUMBER OF AGRICULTURAL BUSINESSES, INDUSTRIES, AND AGENCIES BY OCCUPATIONAL FAMILY, 1964

Occupational Family	Number
Farm Machinery Sales and Service	11
Farm Supplies and Equipment	24
Livestock and Poultry	12
Crops, Forestry and Soil Conservation	17
Ornamental Horticulture	1
Wildlife and Recreation	3
Farm Service	26
Agricultural Service	14
Total	108

Number Employed in Nonfarm Agriculture

Table II reveals the number of persons employed in agricultural businesses, industries, and agencies; and the number of employees having agricultural competencies for the Monroe-West Monroe Metropolitan Area.

These data show that 4,110 employees were employed in the 108 agricultural businesses, with some 1,225 currently employed having competencies in agriculture. This latter figure represented nearly 30 per cent of the total number employed in this Metropolitan Area in agricultural businesses.

More than 50 per cent of all those currently employed were contained in Farm Supplies and Equipment; and Crops, Forestry and Soil Conservation. Less than five per cent of those actively engaged in these businesses were in Ornamental Horticulture, and Wildlife and Recreation.

Expected employment of individuals with agricultural competencies five years hence is expected to increase by some 117 employees.

The greatest increase in employment five years hence is indicated to be concentrated in Farm Supplies and Equipment, with some 45 additional employees needed with competencies in agriculture.

TABLE II

NUMBER OF PERSONS EMPLOYED IN AGRICULTURAL BUSINESSES, INDUSTRIES AND AGENCIES, AND NUMBER OF EMPLOYEES HAVING AGRICULTURAL COMPETENCIES, BY OCCUPATIONAL FAMILY

Occupational Family	Total No. Employees	Employees Having Agricultural Competencies	
		Current Employment	Expected Employment Five Years Hence
Farm Machinery Sales & Service	345	154	179
Farm Supplies & Equipment	639	247	292
Livestock & Poultry	291	101	103
Crops, Forestry & Soil Conservation	1,392	403	420
Ornamental Horticulture	2	2	2
Wildlife & Recreation	657	58	58
Farm Service	312	137	145
Agricultural Service	472	123	143
Total	4,110	1,225	1,342

Occupational families ranked according to numbers employed having agricultural competencies are as follows:

1. Crops, Forestry and Soil Conservation
2. Farm Supplies and Equipment
3. Farm Machinery Sales and Service
4. Farm Service
5. Agricultural Service
6. Livestock and Poultry
7. Wildlife and Recreation
8. Ornamental Horticulture

Only two of the eight occupational families were not expected to increase in employment five years hence, with reference to individuals having competencies in agriculture: Ornamental Horticulture, and Wildlife and Recreation.

Job Titles According to Occupational Families and Levels of Employment

The 1,225 individuals currently employed in the 108 agricultural businesses in the Metropolis of Monroe-West Monroe were found in 222 different job titles. The number of job titles five years hence is expected to increase by 39.

The data in Table III indicate that more than 45 per cent of the job titles were concentrated in two occupational families, namely, Crops, Forestry and Soil Conservation, and Farm Supplies and Equipment.

Less than five per cent of the job titles were found in Ornamental Horticulture, and Wildlife and Recreation.

The number of job titles was not expected to increase five years hence in Livestock and Poultry, Ornamental Horticulture, and Wildlife and Recreation.

TABLE III

NUMBER OF JOB TITLES IN AGRICULTURAL OCCUPATIONS OTHER THAN FARMING BY OCCUPATIONAL FAMILY

Occupational Family	Number of Job Titles	Number of Job Titles Five Years Hence
Farm Machinery Sales & Service	23	29
Farm Supplies & Equipment	44	48
Livestock & Poultry	32	32
Crops, Forestry & Soil Conservation	57	73
Ornamental Horticulture	2	2
Wildlife and Recreation	8	8
Farm Service	25	35
Agricultural Service	33	34
Total	222	261

The list to follow reveals the job titles in each of the eight occupational families, including in addition, the number of workers found in each job title.

OCCUPATIONAL FAMILY	LEVEL OF EMPLOYMENT AND JOB TITLES	NUMBER OF WORKERS
Farm Machinery Sales and Service	Professional	
	Technical	
	Managerial	
	President	4
	Manager	12
	Vice President	1
	Service Manager	5
	Parts Manager	7
	General Manager	3
	Asst. Manager	2

	Asst. Parts Manager	1
	Truck Manager	1
	Shop Manager	1
	Used Car Manager	1
	Credit Manager	1
	Supervisory	
	Shop Foreman	3
	Sales	
	Manufacturing Agent	1
	Truck Salesman	8
	Salesman	25
	Farm Equipment Salesman	5
	Office	
	Bookkeeper	2
	Skilled	
	Mechanic	54
	Semi-Skilled	
	Warehouseman	4
	Assemblyman	5
	Parts Man	6
	Mechanic Helper	2
	Unskilled	
Farm Supplies and Equipment		
	Professional	
	Agronomist	2
	Technical	
	Managerial	
	Manager	20
	Asst. Manager	5
	Farm Dept. Manager	5
	President	7
	Secretary-Treasurer	2
	Personnel Manager	1
	Division Manager	2
	Catalogue Manager	1
	Service Dept. Manager	1
	Sales Manager	2
	General Manager	2
	Production Manager	1
	Vice President	1
	Treasurer	1
	Supervisory	
	Warehouse Foreman	1
	General Foreman	1
	Erection Foreman	1
	Sales	
	Salesman	53
	Outside Salesman	5
	Counterman	5
	Inside Salesman	2
	Office	
	Bookkeeper	3
	Clerk	2
	Service Clerk	2
	Secretary	3

	Office Clerk	2
	Shipping Clerk	4
	Skilled	
	Saddle Maker	1
	Plant Operator	1
	Welder	1
	Semi-Skilled	
	Truck Driver	15
	Deluxer	1
	Serviceman	19
	Repairman	4
	Warehouseman	6
	Maintenance Man	1
	Packers	4
	Fence Erector	6
	Unskilled	
	Laborer	39
	Deliveryman	9
	Truck Helper	4
	Plant Helper	1
Livestock and Poultry		
	Professional	
	Technical	
	Auctioneer	1
	Managerial	
	President	2
	Vice President	2
	Secretary-Treasurer	1
	Farm Manager	1
	Manager	9
	Asst. Manager	1
	Office Manager	1
	Sales Manager	1
	Supervisory	
	Plant Superintendent	2
	Asst. Plant Superintendent	1
	Supervisor	1
	Asst. Supervisor	2
	Sales	
	Salesman	8
	Merchandising Man	1
	Route Salesman	17
	Office	
	Shipping Clerk	2
	Clerical Help	5
	Order Packer	2
	Bookkeeper	1
	Skilled	
	Butcher	4
	Steaks Cutter	1
	Meat Cutter	2
	Butcher	5
	Semi-Skilled	
	Sausage Maker	3
	Ring Man	1

	Weighman	1
	Truck Driver	4
	Butcher Helper	3
	Load-Out-Man	1
	Unskilled	
	Sausage Packer & Peeler	3
	Laborer	12
Crops, Forestry & Soil Conservation		
	Professional	
	Forester	1
	Work Unit Conservationist	1
	Soil Scientist	4
	District Forester	1
	Asst. Dist. Forester	1
	Service Forester	1
	District Ranger	1
	Technical	
	Enforcement Agent	1
	Radio Technician	1
	Managerial	
	Manager	26
	Asst. Office Manager	1
	Asst. Manager	13
	Produce Dept. Manager	5
	Market Manager	5
	Meat Dept. Manager	1
	Office Manager	2
	Sales Manager	2
	President	2
	Vice President	1
	Secretary-Treasurer	2
	Field Manager	1
	Supervisory	
	Superintendent	1
	Asst. Superintendent	4
	Plant Superintendent	1
	Foreman	2
	Erection Foreman	1
	General Shipping Supervisor	1
	Supt. Oil Mill	1
	Sales	
	Salesman	11
	Dairy Clerk	1
	Food Clerk	10
	Sales Clerk	4
	Office	
	Shipping Clerk	4
	Secretary	2
	Weigher	7
	Typist Clerk	2
	Bookkeeper	6
	Clerk	4
	Payroll Clerk	1
	Skilled	
	Draftsman	3

	Meat Cutter	10
	Edgerman	1
	Trimmer	1
	Ginner	2
	Welder	1
	Forest Ranger	3
	Semi-Skilled	
	Lift Truck Operator	1
	Truck Driver	10
	Crawler Driver	1
	Log Scaler	1
	Asst. Ginner	2
	Welder Helper	1
	Forest Towerman	13
	Forest Fireman	44
	Unskilled	
	Laborer	171
	Block Setter	2
Ornamental Horticulture		
	Professional	
	Technical	
	Managerial	
	Manager	1
	Supervisory	
	Sales	
	Office	
	Skilled	
	Semi-Skilled	
	Unskilled	
	Laborer	1
Wildlife and Recreation		
	Professional	
	Commissioner	1
	Technical	
	Managerial	
	General Manager	2
	Asst. Manager	1
	Supervisory	
	Foreman	1
	Superintendent	4
	Sales	
	Office	
	Skilled	
	Mechanic	1
	Semi-Skilled	
	Maintenance Man	7
	Unskilled	
	Laborer	41
Farm Service		
	Professional	
	Technical	
	Managerial	
	Manager	23
	Office Manager	5
	President	1

	Vice President	1
	General Manager	2
	Service Manager	1
	Parts Manager	1
	Divisional Manager	5
	Supervisory	
	Shop Foreman	1
	Asst. Shop Foreman	1
	Supervisor	1
	Foreman	1
	Sales	
	Salesman	13
	Office	
	Skilled	
	Welder	19
	Machinist	6
	Mechanic	1
	Track Press Operator	1
	Driller	1
	Semi-Skilled	
	Apprentice Machinist	2
	Tool Room Man	1
	Termite Control Man	7
	Welder Helper	2
	Serviceman	29
	Tree Climber	2
	Unskilled	
	Laborer	10
Agricultural Service		
	Professional	
	Prof. of Horticulture	1
	Assoc. Prof. Horticulture	1
	Asst. Prof. Poultry Science	1
	Assoc. Prof. Dairy Science	1
	Veterinarian	1
	Research Agronomist	1
	Asst. Agronomist	1
	Asst. Prof. Horticulture	1
	Chairman, Agriculture Dept.	1
	Prof. of Agronomy	1
	Assoc. Prof. Ag. Engineering	1
	Assoc. Prof. Animal Science	1
	County Agent	1
	Assoc. County Agent	3
	Home Agent	1
	Asst. Home Agent	1
	Technical	
	Managerial	
	President	5
	Vice President	23
	Asst. Vice President	5
	Trust Officer	1
	Secretary-Treasurer	1
	Manager	3
	Supervisory	
	Farm Supervisor	3

Sales	
Office	
Cashier	1
Asst. Cashier	15
Note Teller	16
Auditor	1
Interviewer	2
Secretary	1
Collector	2
Investigator	1
Skilled	
Field Reporter	3
Semi-Skilled	
Unskilled	
Laborer	21

Levels of Employment in Nonfarm Agriculture

The data in Table IV show the total employees with agricultural training by levels of employment in each occupational family.

A review of the levels of employment frequencies in all occupational families indicates at a glance their relative ranking. They are ranked according to numbers employed in each category as follows:

1. Unskilled
2. Managerial
3. Semi-Skilled
4. Sales
5. Skilled
6. Office
7. Supervisory
8. Professional
9. Technical

TABLE IV

TOTAL EMPLOYEES WITH AGRICULTURAL TRAINING
BY LEVELS OF EMPLOYMENT IN OCCUPATIONAL FAMILIES

Occupational Family	Levels of Employment									
	Prof.	Techn.	Mang.	Superv.	Sales	Office	Skilled	Semi-Skilled	Un-skilled	Total
Farm Machinery Sales & Service	0	0	39	3	39	2	54	17	0	154
Farm Supplies & Equipment	2	0	49	3	65	16	3	56	53	247
Livestock & Poultry	0	1	18	6	26	10	12	13	15	101
Crops, Forestry & Soil Conservation	10	2	61	11	26	26	21	73	173	403
Ornamental Horticulture	0	0	1	0	0	0	0	0	1	2
Wildlife & Recreation	1	0	3	5	0	0	1	7	41	58
Farm Service	0	0	39	4	13	0	28	43	10	137
Agricultural Service	19	0	38	3	0	39	3	0	21	123
Total	32	3	248	35	169	93	122	209	314	1,225

It is interesting to note that three occupational families; namely, Farm Machinery Sales and Service; Ornamental Horticulture; and Farm Service did not have workers at the professional and technical levels of employment. Ornamental Horticulture had employees only at the managerial and unskilled levels of employment.

Farm Supplies and Equipment had the greatest number in sales; Crops, Forestry and Soil Conservation, the larger numbers in managerial, supervisory, semi-skilled, and unskilled; Agricultural Service, the greatest number in the professional level of employment.

The number of individuals employed at the technical level of employment in all occupational families for the Monroe-West Monroe Metropolitan Area was statistically insignificant.

No unskilled workers were found in Farm Machinery Sales and Service.

Job Entry Age for Nonfarm Agricultural Workers

The age of the 1,225 employees having competencies in agriculture was surveyed by occupational family and level of employment. Ages were designated as: present, minimum, and maximum for job entry.

Tables V-1 through V-8 give the average age of entry into off-the-farm agricultural occupations for each level of employment and in each occupational family.

TABLE V-1

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM MACHINERY SALES AND SERVICE			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	40	27	48
Supervisory	42	25	48
Sales	35	25	47
Office	35	25	45
Skilled	44	0	50
Semi-Skilled	30	25	38
Unskilled	0	0	0

TABLE V-2

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM SUPPLIES AND EQUIPMENT			
Level of Employment	Present	Minimum	Maximum
Professional	35	35	45
Technical	0	0	0
Managerial	37	27	44
Supervisory	45	35	45
Sales	30	25	43
Office	36	25	46
Skilled	31	25	43
Semi-Skilled	34	25	39
Unskilled	35	25	42

TABLE V-3

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

LIVESTOCK AND POULTRY			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	36	25	45
Managerial	47	29	47
Supervisory	41	30	45
Sales	35	25	38
Office	31	25	38
Skilled	31	25	43
Semi-Skilled	25	25	35
Unskilled	28	25	34

TABLE V-4

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

CROPS, FORESTRY AND SOIL CONSERVATION			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	31	25	45
Managerial	39	28	45
Supervisory	41	25	50
Sales	39	28	51
Office	28	26	48
Skilled	31	25	38
Semi-Skilled	32	25	40
Unskilled	39	25	51

TABLE V-5

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

ORNAMENTAL HORTICULTURE			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	55	55	55
Supervisory	0	0	0
Sales	0	0	0
Office	0	0	0
Skilled	0	0	0
Semi-Skilled	0	0	0
Unskilled	55	25	55

TABLE V-6

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

WILDLIFE AND RECREATION			
Level of Employment	Present	Minimum	Maximum
Professional	55	35	55
Technical	0	0	0
Managerial	35	25	48
Supervisory	51	25	53
Sales	0	0	0
Office	0	0	0
Skilled	35	25	55
Semi-Skilled	35	25	55
Unskilled	35	35	55

TABLE V-7

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

FARM SERVICE			
Level of Employment	Present	Minimum	Maximum
Professional	0	0	0
Technical	0	0	0
Managerial	45	25	46
Supervisory	37	25	47
Sales	32	25	52
Office	30	25	36
Skilled	38	25	52
Semi-Skilled	28	25	40
Unskilled	39	25	35

TABLE V-8

AVERAGE PRESENT AGE---AVERAGE MINIMUM AND AVERAGE MAXIMUM AGE OF ENTRY INTO OFF-THE-FARM AGRICULTURE OCCUPATIONS BY OCCUPATIONAL FAMILY AND LEVEL OF EMPLOYMENT

AGRICULTURAL SERVICE			
Level of Employment	Present	Minimum	Maximum
Professional	44	25	44
Technical	43	25	54
Managerial	38	25	35
Supervisory	33	25	45
Sales	0	0	0
Office	43	25	45
Skilled	42	22	0
Semi-Skilled	0	0	0
Unskilled	29	25	45

The minimum average job entry age at all levels of employment was focused at 25 years; while prospective employees past the age of 45 appeared to have little opportunity to begin their employment in agricultural businesses of this Area.

Secondary school students and others less than 25 years of age would find it extremely difficult to gain entry in those occupations; however, individuals willing to prepare themselves for specific occupations could well enhance their opportunities for earlier employment in these businesses. Business representatives clearly indicated that youth less than 25 years of age usually do not possess salable skills which are of value to them in a growing, competitive business.

Educators could develop training programs in keeping with the occupational needs of the businesses allied to agriculture in this Metropolitan Area and prepare youth for job entry after completion of their formal secondary school program of studies. This would not only increase the earning capacity of individuals, but would also provide more vertical movement to the higher level of employment at an earlier age, thus increasing the years of service of an outstanding individual to a business or industry.

Salaries of Workers Employed in Nonfarm Agriculture

Median monthly salaries of employees in the agricultural business of the Monroe-West Monroe Area were calculated for each occupational family and for the nine levels of employment surveyed in this investigation. Median salaries were limited in scope to the beginning and maximum monthly salaries.

Tables VI-1 through VI-8 give these data for the 108 businesses and 1,225 workers in this study.

TABLE VI-1

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

FARM MACHINERY SALES AND SERVICE

Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	468.50	717.66
Supervisory	401.00	476.00
Sales	401.00	723.00
Office	351.00	451.00
Skilled	218.00	493.18
Semi-Skilled	301.00	326.00
Unskilled	000.00	000.00

TABLE VI-2

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

FARM SUPPLIES AND EQUIPMENT

Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	476.00	726.00
Technical	000.00	000.00
Managerial	401.00	702.25
Supervisory	401.00	426.00
Sales	286.60	531.00
Office	257.25	317.66
Skilled	356.35	602.78
Semi-Skilled	201.00	374.21
Unskilled	199.44	291.32

TABLE VI-3

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

LIVESTOCK AND POULTRY

Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	000.00	000.00
Managerial	476.00	711.00
Supervisory	513.50	601.00
Sales	392.66	663.50
Office	228.08	392.66
Skilled	201.00	401.00
Semi-Skilled	176.00	276.00
Unskilled	186.41	234.33

TABLE VI-4

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

CROPS, FORESTRY AND SOIL CONSERVATION

Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	726.00	726.00
Technical	415.00	550.00
Managerial	430.54	653.77
Supervisory	413.50	601.00
Sales	305.16	553.77
Office	231.51	287.00
Skilled	286.00	456.55
Semi-Skilled	287.11	287.11
Unskilled	209.04	463.76

TABLE VI-5

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

ORNAMENTAL HORTICULTURE		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	576.00	726.00
Managerial	000.00	000.00
Supervisory	000.00	000.00
Sales	000.00	000.00
Office	000.00	000.00
Skilled	000.00	000.00
Semi-Skilled	000.00	000.00
Unskilled	000.00	000.00

TABLE VI-6

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

WILDLIFE AND RECREATION		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	726.00	726.00
Technical	000.00	000.00
Managerial	726.00	726.00
Supervisory	332.25	476.00
Sales	000.00	000.00
Office	000.00	000.00
Skilled	276.00	376.00
Semi-Skilled	176.00	176.00
Unskilled	177.25	424.75

TABLE VI-7

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

FARM SERVICE		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	000.00	000.00
Technical	340.28	679.78
Managerial	551.00	714.02
Supervisory	334.33	476.00
Sales	251.00	476.00
Office	340.58	528.08
Skilled	342.66	496.00
Semi-Skilled	263.50	326.00
Unskilled	221.00	257.25

TABLE VI-8

MEDIAN MONTHLY SALARY OF OCCUPATIONS
OTHER THAN FARMING BY OCCUPATIONAL
FAMILIES AND LEVEL OF EMPLOYMENT

AGRICULTURAL SERVICE		
Level of Employment	Median Monthly Salary	
	Beginning	Maximum
Professional	576.00	710.37
Technical	181.26	281.26
Managerial	726.00	726.00
Supervisory	334.33	484.33
Sales	000.00	000.00
Office	467.66	467.66
Skilled	470.00	470.00
Semi-Skilled	000.00	000.00
Unskilled	176.00	178.77

The median beginning salary for the skilled worker was more than $100.00 higher in most occupational families than the beginning salary for the unskilled individual; the unskilled worker did not make as impressive a gain in salary level with the increase of tenure on the job as did the skilled worker. Beginning salaries for the unskilled worker were more frequently under $200.00 monthly.

Managerial positions invariably revealed beginning salaries in excess of $450.00 monthly, with significant increases in salary with job tenure. Supervisory positions also commanded significant step increases as job tenure increased.

As was anticipated, the professional level of employment offered a higher beginning salary than any other level; subsequent increases in salary with years of service was also at the highest plateau.

Although this study did not reveal large numbers employed as technicians in the agricultural businesses of this area, this level of employment commanded a very attractive beginning salary whenever it appeared, with impressive salary increases as the worker stayed on the job.

Sales as a level of employment in practically all occupational families offered very attractive positions with good beginning salaries and considerable increases in salary with the accumulation of experience and years of service. Much of this increase in salary is reflected in the individual's ability to increase his sales volume and consequently, increase his total commission on sales. The salary of these workers is limited only by the individual's ability and desire for achievement.

Educational Level Desired of Persons Entering Nonfarm Agricultural Occupations

In Table VII data indicate the number of employees in each occupational family and the educational level desired for the 1,225 workers in the 108 agricultural businesses in this survey.

TABLE VII

EDUCATIONAL LEVEL DESIRED FOR PERSONS
ENTERING AGRICULTURAL OCCUPATIONS
OTHER THAN FARMING

Occupational Family	Number of Employees					
	Less Than H.S.	H.S. Graduate	Post H.S. Technical Education	Some College	College Degree	No Preference
Farm Machinery Sales & Service	4	24	26	46	5	49
Farm Supplies & Equipment	32	110	6	38	33	28
Livestock & Poultry	6	54	25	7	9	0
Crops, Forestry & Soil Conservation	30	266	12	41	22	32
Ornamental Horticulture	0	1	0	0	1	0
Wildlife & Recreation	0	51	2	1	2	2
Farm Service	4	71	19	24	9	10
Agricultural Service	15	35	2	12	59	0
Total	91	612	92	169	140	121

The data in this segment of the study were parallel to all other agricultural businesses and industries throughout the State in that the competent business manager or representative was not desirous of employing, in significant numbers, individuals with less than a high school education. Only seven per cent of the employees were in the less than high school category.

Business executives leaned more heavily upon the high school graduate, however, with nearly 50 per cent of the total employees possessing a high school education.

No individual with less than a high school education was desired in Ornamental Horticulture, and Wildlife and Recreation.

A preference for some college was expressed for nearly 14 per cent of the total number employed; college completion was desired for more than 11 per cent of those employed in agricultural businesses.

Only 7.5 per cent of the workers were desired to possess post-high school technical education. This statistical fact, however, must be interpreted from the standpoint that businesses did not indicate a great need, in number, for the technician in the agricultural businesses of this Area.

These data show that more than 70 per cent of the employees were required to have at least the high school graduate level or beyond. This fact should be motivating to youth in continuing their education beyond high school.

Farm Supplies and Equipment; Farm Service; and Crops, Forestry and Soil Conservation contained the largest number of employees meeting the high school graduate educational requirement for persons entering agricultural occupations. Farm Supplies and Equipment and Agricultural Service required more workers to have a college degree for job entry.

Agricultural business firms expressed a "no preference" for some 10 per cent of the employees with regard to educational level desired for employment. However, many employers were most verbose about the noticeable differences in performance, which favored the individual with the higher level of education.

Residential Background Preferred for New Employees

According to the data in Table VIII, employers expressed a preference, in the case of the farm, rural nonfarm, or urban youth, for less than 45 per cent of the 1,225 individuals employed having competencies in agriculture.

These data indicate the extent that employers express a preference for the farm, rural nonfarm, and urban reared individual as new employees if they had to replace their current work force. Data were collected for each occupational family with regard to residential background preferred for new employees.

TABLE VIII

RESIDENTIAL BACKGROUND PREFERRED FOR NEW EMPLOYEES

Occupational Family	Farm		Rural-nonfarm		Urban		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	50	32	0	0	0	0	104	68
Farm Supplies & Equipment	30	12	4	2	30	12	183	74
Livestock & Poultry	54	54	1	1	2	2	44	43
Crops, Forestry & Soil Conservation	226	56	4	1	1	.25	172	42.75
Ornamental Horticulture	2	100	0	0	0	0	0	0
Wildlife & Recreation	2	3	0	0	0	0	56	97
Farm Service	27	20	4	3	1	1	105	76
Agricultural Service	65	53	44	36	0	0	14	11
Total	456		57		34		678	

Employers expressed the desire for the individual with a farm residential background for more than 37 per cent of the total number employed in the agricultural businesses of the Area being surveyed. Subsequently, employers would replace individuals with new employees having farm residential background at about the same ratio.

It is worthy of note, however, that the urban reared individual was preferred in less than three per cent of the future number to be employed in these agricultural businesses.

Farm Experience Preferred for New Employees

Data in Table IX show that more than 50 per cent of the employees having competencies in agriculture have farm experience. Nearly 37 per cent of all individuals employed, as previously stated, were required to possess competencies in agriculture to gain job entry.

The data in Table IX reveal that the noncommercial type of farm experience is somewhat more preferable for new employees; however, employers would probably select individuals from either category without a great deal of reluctance.

TABLE IX

FARM EXPERIENCE PREFERRED FOR NEW EMPLOYEES

Occupational Family	Commercial Farm		Noncommercial Farm		No Preference	
	No.	Per Cent	No.	Per Cent	No.	Per Cent
Farm Machinery Sales & Service	25	50	1	2	24	48
Farm Supplies & Equipment	13	43	13	43	4	14
Livestock & Poultry	4	7	50	93	0	0
Crops, Forestry & Soil Conservation	32	14	24	11	170	75
Ornamental Horticulture	0	0	2	100	0	0
Wildlife & Recreation	0	0	0	0	2	100
Farm Service	5	19	16	59	6	22
Agricultural Service	35	54	26	40	4	6
Total	114		132		210	

One would expect that Farm Machinery Sales and Service businesses would give preference to the commercial type of farm experience, since the familiarity with heavy equipment is almost a necessity for new employees in this type of work.

Farm Supplies and Equipment firms, however, appear to prefer the noncommercial type of farm experience with equal regularity as they prefer the commercial type.

In the Livestock and Poultry, and Ornamental Horticulture occupational families, business firms leaned overwhelmingly in favor of the noncommercial type of farm experience; Agricultural Service would draw heavily upon individuals who possess commercial farm experiences, but would also select the

noncommercial farm experienced individual without extreme prejudice.

Firms representing Crops, Forestry and Soil Conservation indicated that they would have "no preference" for farm experience with as many as 75 per cent of their new employees. It should be noted, however, that in this family of occupations, some 25 per cent with commercial and noncommercial types of farm experiences constitute a nucleus for efficient operation, although 75 per cent were not required to have these experiences.

Wildlife and Recreation gives no preference to the individual with farm experience; Farm Machinery Sales and Service firms would hire 50 per cent of their new employees without farm experience.

Agricultural Subjects With Which Prospective Workers Must Have Knowledge or Skill

Tables X-1 through X-8 indicate the agricultural subject area in each occupational family with which employees must be familiar at each level of employment.

Agriculture was divided into four general areas in order to survey the knowledge or skill needed to gain job entry, namely, 1) animal science, 2) plant science, 3) agricultural business management and marketing; and 4) agricultural mechanics and automation.

Each occupational family and the nine levels of employment structured for this study served as a basis for determining the agricultural subject areas with which the individual must be familiar to secure initial employment.

TABLE X-1

AGRICULTURAL AREAS IN FARM MACHINERY SALES AND SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	39	11	13	15	17
Supervisory	3	1	0	2	3
Sales	39	17	16	19	39
Office	2	0	0	2	1
Skilled	54	18	28	18	54
Semi-Skilled	17	0	0	0	17
Unskilled	0	0	0	0	0
Total	154				

TABLE X-2

AGRICULTURAL AREAS IN FARM SUPPLIES AND EQUIPMENT
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	2	0	2	0	0
Technical	0	0	0	0	0
Managerial	49	19	29	28	30
Supervisory	3	0	1	1	3
Sales	65	37	53	43	40
Office	16	5	11	9	3
Skilled	3	2	1	2	2
Semi-Skilled	56	1	10	4	46
Unskilled	53	13	5	1	42
Total	247				

TABLE X-3

AGRICULTURAL AREAS IN LIVESTOCK AND POULTRY
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	1	0	0	0	0
Managerial	18	8	10	16	10
Supervisory	6	5	5	6	2
Sales	26	26	1	23	0
Office	10	10	2	3	0
Skilled	12	12	2	3	0
Semi-Skilled	13	9	1	1	5
Unskilled	15	15	0	1	0
Total	101				

TABLE X-4

AGRICULTURAL AREAS IN CROPS, FORESTRY AND SOIL CONSERVATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	10	9	10	0	9
Technical	2	0	0	0	2
Managerial	61	35	52	43	15
Supervisory	11	3	8	6	3
Sales	26	0	26	5	4
Office	26	16	0	26	0
Skilled	21	38	6	6	8
Semi-Skilled	73	0	57	0	16
Unskilled	173	17	157	0	16
Total	403				

TABLE X-5

AGRICULTURAL AREAS IN ORNAMENTAL HORTICULTURE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	1	0	1	1	1
Supervisory	0	0	0	0	0
Sales	0	0	0	0	0
Office	0	0	0	0	0
Skilled	0	0	0	0	0
Semi-Skilled	0	0	0	0	0
Unskilled	1	0	1	0	0
Total	2				

TABLE X-6

AGRICULTURAL AREAS IN WILDLIFE AND RECREATION
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	1	1	1	1	1
Technical	0	0	0	0	0
Managerial	3	0	3	3	3
Supervisory	5	0	5	4	5
Sales	0	0	0	0	0
Office	0	0	0	0	0
Skilled	1	0	0	0	0
Semi-Skilled	7	0	7	0	7
Unskilled	41	0	41	0	0
Total	58				

TABLE X-7

AGRICULTURAL AREAS IN FARM SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	0	0	0	0	0
Technical	0	0	0	0	0
Managerial	39	30	26	39	39
Supervisory	4	2	4	2	4
Sales	13	4	12	13	12
Office	0	0	0	0	0
Skilled	28	14	15	8	28
Semi-Skilled	43	36	36	1	1
Unskilled	10	0	0	0	10
Total	137				

TABLE X-8

AGRICULTURAL AREAS IN AGRICULTURAL SERVICE
WITH WHICH EMPLOYEES MUST BE FAMILIAR

Level of Employment	No.	Agricultural Subject Area (Employee Frequencies)			
		Animal Science	Plant Science	Agri. Bus. Mangt. and Marketing	Agri. Mech. and Automation
Professional	19	10	13	11	8
Technical	0	0	0	0	0
Managerial	38	30	36	38	1
Supervisory	3	3	3	0	3
Sales	0	0	0	0	0
Office	39	0	3	39	0
Skilled	3	0	3	0	0
Semi-Skilled	0	0	0	0	0
Unskilled	21	0	0	0	21
Total	123				

These data show that the greatest need for general familiarity with agricultural subjects was in the managerial, supervisory, sales, and skilled levels of employment. In the professional level of employment, there was also a need for general knowledge and skills in agricultural subjects, however, because of the few workers employed at the professional level in this study, data appear fragmentary in this regard.

A general trend exists in some levels of employment in certain occupational families for specialized training in a particular field to be more desirable, such as, Livestock and Poultry, Animal Science, and Agricultural Business Management and Marketing.

Ironically, however, managers of an agricultural business were expected to be familiar with the entire agricultural business and its ramifications.

The unskilled worker, generally, was not required to have control at the information level of the four agricultural subject areas surveyed in this study.

At the technical level of employment only a few workers were found in the eight occupational families. One would certainly surmise that those individuals in whatever capacity they performed would be trained for performance in one of the specialized agricultural subject fields.

Employees at the office level of employment, in most cases, were expected to have a concentrated knowledge of agricultural business, management, and marketing. This is obvious since most of these individuals must have daily contact with terminology and business procedures which normally occur in any business or industry.

Continuing Education Required of Employees and Educational Facilities Used

Table XI is concerned with the continuing education required of employees for each occupational family. Employees indicated that this continuing education was necessary for employees to advance in occupational status. The kinds of continuing education preferred are tabulated as firm or industry school,

on-the-job training, public school adult education, vocational school, and agricultural college.

TABLE XI

CONTINUING EDUCATION REQUIRED BY FIRMS TO ADVANCE IN OCCUPATIONS

Occupational Family	No.	Number of Firms					
		Firm or Industry School	On-the-job Training	Pub.Sch. Adult Educ.	Voc. School	Agri. School	None
Farm Machinery Sales & Service	154	117	103	5	3	3	6
Farm Supplies & Equipment	247	114	164	0	14	18	5
Livestock & Poultry	101	41	60	0	2	3	1
Crops, Forestry & Soil Conservation	403	290	196	0	5	3	80
Ornamental Horticulture	2	0	2	0	0	1	0
Wildlife & Recreation	58	10	57	0	1	0	1
Farm Service	137	108	99	4	10	16	14
Agricultural Service	123	2	39	44	0	15	21
Total	1,225						

The greatest concentration of continuing education required of employees in Farm Machinery Sales and Service; Farm Supplies and Equipment; Livestock and Poultry; Crops, Forestry and Soil Conservation; and Farm Service was at the firm or industry school and on-the-job training. The vocational school and agricultural college were statistically of some importance in Farm Supplies and Equipment, and Farm Service.

Ornamental Horticulture, and Wildlife and Recreation employers required basically on-the-job training as a continuance of education required for advancement in occupations.

Employers in Agricultural Service required on-the-job training and, to an

even greater degree, public school adult education.

Nearly 15 per cent of the employee frequencies in Crops, Forestry and Soil Conservation required no continuing education for advancement in occupational status. The implication in this case in point, however, is that most of these individuals are at the unskilled level of employment and therefore, are primarily engaged in routine duties not likely to be differentiated from time to time.

The vocational school and agricultural college were mentioned infrequently in all occupational families when compared statistically with the firm or industry school or on-the-job training.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Teachers of vocational agriculture, school officials, and guidance counselors are becoming increasingly aware of the important functions that agricultural courses in secondary schools can serve in preparing youth for gainful employment in agricultural occupations. Professional educators in agriculture and at all levels need to close ranks and articulate their efforts.

The total task of education in agriculture in the United States and elsewhere is increasing in scope and significance, yearly. As in all educational areas, the instruction needed should and must change with changes in technology and needs of the individual.

Presently, it appears that a more favorable climate is emerging for the development of programs in vocational agriculture to train individuals for employment in nonfarm occupations in agriculture. More people today realize that agriculture is no longer as simple as it was at the turn of the century. Scientific and technological developments have ushered in a new agricultural era of tremendous complexity. Great numbers of people are now needed to service the farmer and rancher, and a vast army of workers is required to process products from farms and deliver them to consumers.

The facts revealed by this investigation of the occupational opportunities for employment in nonfarm agriculture are a clear indication of the needs existing in preparing youth for job entry in the agricultural business of this Area.

Much can be accomplished by a closer liaison between business and education; the educational program certainly, in some dimension, has a close correlation to the needs of business and industry. In addition, the public secondary school must develop a broader type of vocational education program in agriculture; programs must be planned to open all the doors of opportunity rather than provide narrow, specialized training for single careers.

Summary

The impact of agriculture on the economy of the Monroe-West Monroe Metropolitan Area is tremendous. Considering the production phase of agriculture in the total trade Area, represented by more than 19,520 farms, averaging some 142 acres in size, one would immediately conclude that agriculture plays a most significant economic role and is a vibrant generator of employment in other businesses, even those not allied to agriculture. The potential employment capacity in agricultural occupations in this Area is almost unlimited.

The 108 agricultural businesses surveyed contained 222 different job titles and employed 1,225 individuals having competencies in agriculture. This kind of employment potential, coupled with projected growth of current and additional industries likely to locate in this kind of economic environment, merits the attention of all those concerned with the education of our youth.

More and more, management in agricultural business will be looking for and expecting individuals to begin their employment in the business without having to be completely trained; the increased competence of these individuals can then be directed in the projection of improvement in the business.

A summary of the findings in this study is as follows:

1. As a result of this investigation 108 agricultural firms were surveyed for occupational opportunities in off-farm agricultural occupations. These agricultural businesses employed 4,110 individuals; 1,225 of these workers were required to have competencies in agriculture.

2. Employers or their representatives projected an increase of 117 workers in all occupational families five years hence.

3. A total of 222 job titles were found in the 108 agricultural businesses; this number was expected to increase to 261 five years hence.

4. More than 45 per cent of the job titles were focused in two occupational families, namely, Crops, Forestry and Soil Conservation; and Farm Supplies and Equipment.

5. The number of job titles was not anticipated to increase in the next five years in Livestock and Poultry; Ornamental Horticulture; and Wildlife and Recreation.

6. The levels of employment frequencies in all occupational families according to numbers employed having agricultural competencies were ranked as follows:
    1. Unskilled
    2. Managerial
    3. Semi-skilled
    4. Sales
    5. Skilled
    6. Office
    7. Supervisory
    8. Professional
    9. Technical

7. The number of individuals employed at the technical level of employment in all occupational families was statistically insignificant.

8. The minimum average job entry age at all levels of employment was centered at 25 years; prospective employees past the age of 45 were not in demand in the agricultural business of this Area.

9. The median beginning salary for the skilled worker was more than $100.00 higher monthly than that of the unskilled worker; the unskilled worker did not make as impressive a gain in salary level with the increase of tenure on the job as the skilled worker.

10. Managerial positions commanded beginning salaries in excess of $450.00 monthly, with stimulating salary increments with longevity in employment. This fact was frequently found to be true in supervisory positions, also.

11. This study did not reveal significant numbers employed as technicians in the agricultural businesses of the Area; however, whenever this level did appear, it was represented by a very impressive beginning salary, together with encouraging salary increases with job tenure.

12. Sales positions in all occupational families offered very attractive beginning salaries and significant increases in salary with longevity in years of service on the job.

13. Business executives catered to the high school graduate in positions in nearly all occupational families in selecting persons entering agricultural occupations; almost 50 per cent of the 1,225 persons having agricultural competencies were found in this designation.

14. Twenty-five per cent of the workers with agricultural competencies were required to have some college training--11 per cent of them were college graduates.

15. More than 70 per cent of the employees having agricultural competencies were required to have an educational background at the high school graduate level or beyond.

16. Employers did not express a preference as to residential background for 55 per cent of the 1,225 individuals employed having agricultural competencies; however, it was significant that the urban reared youth was preferred in less than three per cent of the employees.

17. More than 50 per cent of the new employees having agricultural competencies were preferred to have some kind of farm experience; the noncommercial type of farm experience exhibited more frequencies in the case of new employees.

18. Employers appeared to show little discrimination between the commercial or noncommercial types of farm experience for new employees. One appeared to be selected with little reluctance over the other.

19. Nearly 50 per cent of the employers had no preference for either the commercial or noncommercial type of farm experience with future employees.

20. The greatest need for familiarity with agricultural subject was in the managerial, supervisory, sales and skilled levels of employment.

21. Managers of an agricultural business were expected to be familiar with the entire aspect of the business.

22. Employees at the clerical level of employment were expected to have a concentrated knowledge of agriculture business, management and marketing.

23. The greater concentration of continuing education required of employees in Farm Machinery Sales and Service, Farm Supplies and Equipment; Livestock and Poultry; Crops, Forestry and Soil Conservation; and Farm Service, was at the firm or industry school and on-the-job training.

24. The vocational school and agricultural college were mentioned infrequently in all occupational families when compared statistically with the firm or industry school or on-the-job training types of continuing education.

Conclusions

This study revealed the great impact of nonfarm agriculture to the total economy of the Monroe-West Monroe Metropolitan Area. By identifying the job opportunities and the knowledge and skills needed for these positions, this investigation provides a platform upon which can be launched a program for meeting the training needs of youth interested in and having aptitude for occupations in businesses supporting the agricultural complex of this Area.

It was most apparent from the interviews held with various business executives that, presently, there is much to be desired in the training possessed by individuals seeking their initial employment in businesses allied to agriculture. Basic training in agricultural businesses is essential, especially to assist the individual to firmly entrench himself in his employment responsibilities.

Today, an individual who possesses a general type of preparation is at a tremendous disadvantage in the labor market; the prospective employee must be trained in some field which indicates a concentration of knowledge and skill, especially, if that individual is objectively looking to the mastery of a particular field of endeavor.

The conclusions drawn from the data in this study should be of some value and use to administrators, teachers, and students to establish general guidelines necessary to effect a core of concentration for training individuals for nonfarm agricultural occupations. In addition, these data may be significant from the standpoint of revealing the dire need for more educational programs in agriculture in Ouachita Parish to help satisfy some of the employment needs of farm based businesses and industries in the Area.

The following are among the more pertinent conclusions drawn from the survey:

1. Nonfarm agriculture has made a tremendous impact on the total economy of this metropolitan area. The 108 businesses employed 4,110 individuals, with some 1,225 of these workers having competencies in agriculture.

2. Crops, Forestry and Soil Conservation, and Farm Supplies and Equipment occupational families contained the greatest concentration of job titles and they were not expected to increase significantly over the next five years. This is indicative of well established businesses associated with these occupational families.

3. Training for the technician in nonfarm agriculture is not presently in great demand in the industries and businesses of this Area. This conclusion is based primarily on the number of individuals employed at the technical level of employment, together with the familiarity of subject areas of technicians in the occupational families represented.

4. Employers are not willing to employ individuals until they have acquired at least a beginning knowledge of the type of work they plan to enter. Prospective employees, not specifically trained, have little opportunity for employment prior to the age of 25 or after the age of 45. Employers are looking for individuals who can render longer years of service in their respective businesses. More comprehensive training programs could lower the job entry age for those planning to enter nonfarm agricultural employment.

5. Employees are paid salaries commensurate with their training and experience; those with specific knowledges and skills command the higher salaries. The unskilled worker cannot expect to be paid salaries comparable to other workers, nor can he receive salary increments as the more competent employee.

6. The high school graduate is in great demand for most of the positions in the agricultural businesses of this Area. A better trained high school graduate in terms of knowledge and skills in agricultural occupations would be in even greater demand.

7. There are many lucrative positions in Sales in all occupational families in nonfarm agriculture. Depending on the training, experience, and desire for achievement, these positions could command salaries out of the reach of even many of the higher echelon positions.

8. The farm residential background is still being given considerable recognition by managers and firm representatives in the employment of new individuals in off-farm agricultural occupations. This kind of experience is difficult to match primarily because it involves the matter of attitudes formulated during the formative period in the development of the individual. This statement is strengthened by the fact that more than 37 per cent of the firms wanted individuals with a farm residential background.

9. Firm representatives did not have particular preference between the commercial and noncommercial farm experienced individual. The implication in this case is that either type of experience prepares the individual equally well for nonfarm agricultural occupations.

10. Continuing education is the order of the day; employees are expected to learn their jobs well and to keep pace with changes in their employment requirements. The firm or industry school and on-the-job training, for the present, are the primary sources of training for individuals employed in these agricultural businesses.

Recommendations

Today, vocational agricultural instruction at the secondary school level is concerned with preparing students to enter into the world of work with knowledge and skills in a host of new occupations allied to agriculture. Preparing individuals for these occupations will require adjustments in present programs of instruction in order that the vocational and specialized needs of youth are identified and an educational program provided to match their needs.

The data in this investigation give a "new vision" for nonfarm agriculture in the Monroe-West Monroe Metropolitan Area. The need for trained workers in the eight occupational families is reflected by the 1,225 employees currently employed having competencies in agriculture. An even greater need for trained workers in agribusiness appears apparent in the future as indicated by expressions concerning the future growth and development of present businesses and

industries in the Area.

A challenge has been extended to the secondary school program and others concerned with the preparation of youth for the world of work. Programs of instruction should be provided in quantity and quality to offer opportunities for youth to train for off-farm agricultural occupations.

On the farm there is need for well trained managers who wisely use capital and all the elements of production necessary to achieve high yields of animal and plant products. Off-the-farm there is a growing need for people to supply the goods and services for the large productive units that the economy depends upon. To assume that agriculture is a field of collapsing opportunity is to assume that the population is declining and that people will stop wearing clothes, stop eating, and lose interest in their environment. There are many opportunities for gainful employment in agriculture today and the outlook is for more of these occupational opportunities.

The following recommendations are offered as a result of the data gathered and interpreted in this investigation:

1. Guidance personnel in the secondary school should assemble all data pertinent to occupational information and counsel with students, parents, and teachers with the idea of implementing these data in planning educational programs to meet the needs of the individuals and businesses concerned.
2. The program in vocational agriculture in the secondary school should be broad in scope; thus, providing a strong, basic study of the science of agriculture and in addition, the necessary work experiences to make this knowledge functional in the life of the individual.
3. More opportunities should be provided in the secondary school program for the exploration of areas of interest in vocational programs in order that more specific programs may be planned to prepare individuals for gainful employment in nonfarm agriculture.

4. The 108 businesses employing some 1,225 individuals having competencies in agriculture are being served by only one department of vocational agriculture. The demand for replacement workers and increase in number of job titles and employees in these businesses are sufficient to justify additional sources to provide needed trained workers in off-farm agricultural occupations.

5. The general education level of the student was considered of tremendous importance by business representatives in this study. This fact was reflected by the data indicating that students needed at least a high school education to gain job entry.

   It is therefore necessary that students become familiar with the educational requirements needed to enter the work world not only in agricultural occupations but in other pursuits as well.

6. There is enough demand for employees at the present time in existing businesses in the world of work to warrant familiarizing students with the basic principles, organization, and practices involving a sound business operation.

7. The business an and educator need to cooperatively plan educational programs in terms of the needs of both the individuals and businesses. Individuals should be prepared to become gainfully employed at the completion of their secondary school programs. This would not necessarily involve great changes in curricular patterns, but basically, changes in content of courses already being offered in order to emphasize knowledge and skills identifiable with particular occupations.

8. A compilation containing a description of the various jobs found in the Monroe-West Monroe agricultural businesses would be helpful to all concerned with the education of youth. This would provide established guidelines for program planning, leading to employment in nonfarm agricultural occupations.

APPENDIX A

NONFARM AGRICULTURAL BUSINESSES AND AGENCIES COOPERATING IN THE SURVEY

Jones Tractor Company
Automation Equipment Company
Farm Implement and Industrial Equipment Co.
Farmar Bros. (Dodge)
Southern Equipment and Tractor Co., Inc.
West Monroe Tractor Co.
Adair G.M.C., Inc.
Scott Tractor & Equipment Company.
Contractors Equipment Co., Inc.
Brown-Rivers-Scogin, Inc.
Gregg Implement Co.
Superior Lumber Co., Inc.
Pickens Welding Service
West Feed Mills, Inc.
Cattlemans' Equipment & Vet. Supply
Tri-State Veterinary Supplies
Sears Roebuck & Co.
Montgomery Ward & Co.
Tyner-Petrus Co.
Cotton States Chemical Co., Inc.
Red Barn Chemical Inc.
Farm Chemical Service, Inc.
Weaks Supply Co., Ltd.
Monroe Bearing & Supply Co.
Tom Sanders Bldg. Mart
McCoy, J. B. Lumber Co., Inc.
Forest Chemical & Supply Co., Inc.
Lane Wilson Seed Co.
Green, W. E. & Co.
Tyner-Petrus Co.
Royal Feed & Seed Store
Barkers Your Family Discount Store
Carter's Feed & Seed
Farmer's Seed & Feed
Gibson's Wholesale Co.
The Borden Co.
Foremost Dairies, Inc.
West Monroe Rendering Plant
The Merchants Co.
McCormick's Poultry & Egg Mkt.
Wade Meat Co.
West Monroe Livestock Auction, Inc.
Monroe Packing Co.
Clover Leaf Dairy Products, Inc.
Swift & Co.
Cloyd's Packing Co.
Green Brothers Dairy
Louisiana Forestry Commission
Union Oil Mill, Inc.
Simonton Grain Co.
Wilds-Russel Pulpwood Dealers

Lee's Curb Market
Vowell's Curb Market
Marks Cotton Co.
Nelson, W. B. Lumber Co.
Kellog, Walter Lumber Co., Inc.
Piggly-Wiggly Food Stores
Bayles Fur & Pecan Co.
Albright Sawmill & Lumber Co.
Safeway Stores
Safeway Stores
Morgan & Lindsey
Bosco Gin Co.
Federal Compress
Bagwells Gardens
City of Monroe - Parks
Bayou Desiard Country Club
Highland Park Country Club
Mann Machine Works
Kelly's Welding & Mfg. Co.
F & N Water Well Co.
Dixie Water Wells
Tommie's Welding & Repair Shop
Twin City Welding & Machine Shop
Taylor's Welding & Auto Repair
Gore Pest Control & Termite Co.
Monroe Exterminating Co.
Louisiana Farmers Credit Bureau
Bruce-Terminix Service
Anti-Pest & Veitch, Inc.
Brooks Tree Service
Arrow Pest Control Co.
Mitchell's Welding & Marine Ways
Thompson's Tree Surgery
Johnstons Welding Works
L & F Welding and Press Service
Smith, Jack L., & Co., Inc.
Kirk, S. R., Repair Shop
Grayson Welding Service
Loper Machine Works
Tiger Machine Works
Orkin Exterminating Co., Inc.
Louisiana Machine Co.
James Machine Works, Inc.
Central Savings Bank & Trust Co.
Soil Conservation Service
Sterlington Bank
First National Bank of W. Monroe
Northeast La. State College, Dept. of Agri.
L.S.U. Agri. Extension Service
Agricultural Stabilization & Conservation Service
De Kalb Agricultural Assoc., Inc.
Twin City Veterinary Hospital
Small Animal Clinic
Animal Hospital
North La. Experiment Station
Ouachita National Bank
Highland Veterinary Clinic

APPENDIX B

PERSONS CONDUCTING INTERVIEWS TO OBTAIN SURVEY DATA

Mrs. Pauline Thompson Halbert, 405 Circle Dr., West Monroe, Louisiana

Mrs. Gladys Marie Hansen, 2112 Valencia, Monroe, Louisiana

Mrs. Patricia E. McClendon, 1200A Hinkle Dr., West Monroe, Louisiana

Mrs. Goldie H. Smith, 118 Riverbend Dr., West Monroe, Louisiana

Mrs. Eva Ratcliff White, 204 Pershing, Monroe, Louisiana

Mrs. Willie Mae White, 121 Pinewoods Dr., West Monroe, Louisiana

APPENDIX C

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form I

I. Business or Service (Business Code_____)(Firm Number_____)

A. Name of Business or Service_____

Address_____Parish_____

B. Person Interviewed_____

Position_____

C. Estimated per cent gross income that is agriculturally oriented_____

D. Major agricultural products and/or functions of business or service_____

_____

_____

_____

II. Employees in this Business or Service -- (Total Number)_____

A. For employees needing competencies in agriculture, complete the following:

Existing Job Titles	Number of Employees		
	Full-Time	Part-Time	Five Year
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			

	Anticipated New Job Titles	Number of Employees		
		Full-Time	Part-Time	Five Year
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

Fill out a separate Form 2 for each job title listed above.

Louisiana State University
College of Agriculture
Department of Agricultural Education
Baton Rouge, Louisiana

Interviewer_____

Date of Interview_____

CONFIDENTIAL

Pre-Employment and Continuing Educational Needs of Persons Engaged in Off-The-Farm Agricultural Occupations in Selected Areas of Louisiana

Form II

I. Name and Address of Firm_____

_____

II. Job Title_____

III. Number of workers in this job title_____

Full-time_____ Part-time_____

Average Age_____ Min. for Entry_____ Max. for Entry_____

IV. Wage or Salary per Month: (Beginning - Maximum - Present)

_____ 150 - 200	_____ 301 - 350	_____ 451 - 500	_____ 601 - 650
_____ 201 - 250	_____ 351 - 400	_____ 501 - 550	_____ 651 - 700
_____ 251 - 300	_____ 401 - 450	_____ 551 - 600	_____ 700 and above.

V. Activities and Duties of Persons with this Job Title_____

_____

_____

_____

_____

VI. Agricultural Areas with which Worker must be Familiar to do Job:

Animal Science

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Breeding Farm Animals
_____	_____	_____	2. Livestock Feeding and Nutrition
_____	_____	_____	3. Sanitation, Disease and Parasite Control
_____	_____	_____	4. Housing and Equipment

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Animal Science (Cont'd.)

Necessary	Desirable	Not Necessary	
_____	_____	_____	5. Management
_____	_____	_____	6. The Dairy Manufacturing Industry
_____	_____	_____	7. Processing _____ Packing Plants _____ Creameries _____ Poultry Processing _____ Butchering
_____	_____	_____	8. Marketing _____ Packing Plants _____ Creameries _____ Poultry Processing Plants _____ Livestock Auctions

Plant Science

_____	_____	_____	1. Propagation
_____	_____	_____	2. Soils and Fertilization
_____	_____	_____	3. Control of insects_____diseases_____weeds_____
_____	_____	_____	4. Management
_____	_____	_____	5. Production of Ornamental Plants
_____	_____	_____	6. Landscaping
_____	_____	_____	7. Ginning
_____	_____	_____	8. Warehousing
_____	_____	_____	9. Processing (food, seed, grain, etc.)
_____	_____	_____	10. Marketing
_____	_____	_____	11. Forestry _____ Establishing a Stand _____ Hardwood Control _____ Fire Control _____ Estimating and Grading _____ Disease Control _____ Insect Control _____ Harvesting _____ Marketing _____ Manufacturing _____ Pulp Wood

VI. Agricultural Areas with which Worker must be Familiar to do Job: (Cont'd.)

Agricultural Business Management and Marketing

Necessary	Desirable	Not Necessary	
_____	_____	_____	1. Records and Accounts, Budgeting and Analysis
_____	_____	_____	2. Agricultural Financing, Credit and Insurance
_____	_____	_____	3. Farm Organization and Management
_____	_____	_____	4. Labor Management
_____	_____	_____	5. Marketing Problems and Practices
_____	_____	_____	6. Agricultural Policy
_____	_____	_____	7. Agricultural and Related Price Analysis
_____	_____	_____	8. Cooperatives and Business Organizations

Agricultural Mechanics and Automation

_____	_____	_____	1. Farm Power and Machinery
_____	_____	_____	2. Farm Buildings and Conveniences
_____	_____	_____	3. Farm Electrification and Processing
_____	_____	_____	4. Soil and Water Conservation
_____	_____	_____	5. Farm Shop (Welding, Plumbing, etc.)
_____	_____	_____	6. Farm Construction and Maintenance

List other agricultural competencies that are needed for this job title_____

_____

_____

_____

VII. Education Level Desired for Job Titles (Check only one)

_____ 1. Less than High School Graduate

_____ 2. High School Graduate

_____ 3. Post High School Technical Education

_____ 4. Some College

_____ 5. College Degree

_____Baccalaureate _____Master's _____Doctor's

_____ 6. No Preference

VIII. Residential Background (Check only one)

1. Farm_____ 2. Rural, Nonfarm_____ 3. Urban_____ 4. No Preference_____

IX. Farm Experience

_____ 1. On a commercial farm

_____ 2. On a noncommercial farm

_____ 3. No Preference

X. Experience Desired to Enter this Job Title_____

_____

_____

XI. Limitations on Entering this Job Title

A. Licensing or Certification

_____ 1. Professional

_____ 2. Industrial

_____ 3. Civil Service

_____ 4. Other (specify)_____

_____

_____

B. Labor Law Restrictions_____

_____

C. Labor Union Restrictions_____

_____

D. Other (specify)_____

_____

XII. Education Required to Advance in this Job Title

A. Technical short course or training provided by:

_____ 1. Your firm or the industry as a whole

_____ 2. On-the-job training

_____ 3. Public school (adult education)

_____ 4. A vocational school

_____ 5. An agricultural college

_____ 6. None

VT 000 607

VT 000 607 ED 011 031

Follow-Up of 1965 Graduates.

Connecticut State Dep. of Educ., Div. of Vocat. Educ.

66

EDRS Price MF-$0.09 HC-$1.96 49p.

*VOCATIONAL FOLLOWUP, *GRADUATES, DISTRIBUTIVE EDUCATION, VOCATIONAL AGRICULTURE, TRADE AND INDUSTRIAL EDUCATION, SEX (CHARACTERISTICS), *TECHNICAL INSTITUTES, *HIGH SCHOOLS, *VOCATIONAL SCHOOLS, HOMEMAKING EDUCATION, HEALTH OCCUPATIONS EDUCATION,

Connecticut

The 48 Connecticut schools and institutes supplying information for this study reported 2,736 vocational graduates in 1965. Of these, 85 percent were employed in occupations for which they were trained. Although there were 311 more graduates than in 1964, there was a 3.2 percent decrease in graduates continuing their education. Unemployment decreased from 1.6 percent in 1964 to 1.2 percent in 1965. The 1,732 who were employed in their field would earn a gross income of $7,061,918. Tables of data are shown for male and female graduates by schools, programs, occupations, and towns. For each classification, data show the number of courses offered, graduates in 1965, those who continued training in full-time school, those who entered the armed services, those available for employment, the mean hourly wage earned, the number employed in occupations not related to trade, the unemployed, and those not accounted for. A table and graphs show total graduates, numbers employed at trade, and numbers continuing full-time education since 1956. (EM)

ED015348

CONNECTICUT

CONNECTICUT STATE DEPARTMENT

Division of Vocational Education

1965

GRADUATE FOLLOW-UP

VT 00607

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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CONNECTICUT STATE DEPARTMENT OF EDUCATION

Division of Vocational Education

Follow-up Of 1965 Graduates

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FOREWORD

This year's Graduate Follow-Up Report has been expanded to show not only the placement data for Trade and Industrial graduates, but also to provide a more complete picture of graduate placement for other vocational programs administered by the Division of Vocational Education.

As a result, the 1965 report provides a breakdown of placement data by courses and by training institutions for each of the vocational programs having graduates in 1965. These areas include Distributive Education, Technical Institutes and Vocational Agriculture.

Present plans call for continued expansion of this report to include all new vocational programs as they develop. It is hoped that, in due time, we may be able to provide every vocational educator in the State with a complete report and an analysis of what becomes of the graduates of all vocational courses.

This is the first year that data processing techniques have been used to compile the Graduate Follow-Up Report. The Research Coordinating Unit has worked diligently to adapt reporting procedures for data processing and have already planned several further refinements for next year's report.

We hope that the information contained in this booklet will be of continued assistance in assessing the value of vocational programs.

Joseph F. Murphy
Director
Division of Vocational Education

ACKNOWLEDGEMENTS

This report represents the culmination of the efforts of teachers, counselors, and administrators in forty-eight schools and institutes which reported vocational graduates last year. These individuals deserve much credit for the many hours they spent attempting to reach the 2,736 graduates reported herein.

Our sincere appreciation is extended to Dr. Maurice Ross, Chief of the Bureau of Research, Statistics and Finance and to Mr. Herbert Hill of his staff who arranged for the key-punching of data cards. Special thanks is due Mr. Evan Confrey for his invaluable assistance in the programming and computer phases of the study.

We would like to thank Dr. Herbert Righthand and Mr. Errol J. Terrell for lending us helpful advice based on their experience with past follow-up studies.

Lastly, our thanks goes out to the clerks, typists, and all others who assisted in any way in the preparation of this report.

The Research Coordinating Unit

Robert E. Bennett

Philip T. Masley

Richard C. Wilson

INTRODUCTION

	1964	1965
Total Number of Courses	188	195
Total Number of Graduates	2425	2736
Continued Training - Full-time School	384	346
Percent Continued Training	15.8	12.6
Entered Armed Service	233	279
Percent Entered Armed Service	9.6	10.2
Other	52	66
Available for Employment	1756	2045
Number Employed in Occupation for Which Trained	1490	1732
Percent	85	85
Mean Hourly Wage	1.93	1.96
Employed in Occupation Not Related to Training	189	228
Unemployed	35	19
Percent Unemployed	1.6	1.2
Unaccounted For	42	50

The 2736 vocational graduates reported in 1965 completed programs in Distributive Education, Vocational Agriculture, and Vocational-Technical courses on the secondary school level and Technical Institute courses on the post-secondary level. All of these programs are supervised by the Division of Vocational Education, Connecticut State Department of Education.

Eighty-five percent of these graduates were employed in occupations in which they used the specialized training gained in their vocational courses. This is the same placement percentage as reported last year for the 1964 graduates.

The most significant difference appears in the figures indicating those graduates who continued full-time schooling. Despite an increase of 311 in the total number of graduates, there was a decrease of 38 or 3.2% of the total continuing their education. This might be attributed to the increased military activity during the year and may be partially reflected in the .6% increase in graduates entering military service.

Another noticeable difference was the decrease in the unemployment rate from a very low 1.6% in 1964 to a lower 1.2% in 1965. We can attribute this to the fact that the 1965 graduates entered a labor market in which unemployment was at its lowest point in several years and in which employment opportunities for skilled workers were quite abundant.

The 1732 graduates who were employed in their field of training will earn a gross income of $7,061,918.

Richard C. Wilson
Chief Investigator

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Placement Data For Division Programs

- Distributive Education
- Technical Institutes
- Vocational Agriculture
- Vocational Technical Schools

DIVISION PROGRAMS Placement Data	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DISTRIBUTIVE EDUCATION												
(Male)		255	53	42	8	152	108	71	1.53	33	8	3
(Female)		191	28	0	16	147	109	73	1.53	32	3	3
TOTAL -	16	446	81	42	24	299	217	73	1.53	65	11	6
TECHNICAL INSTITUTES												
(Male)		226	28	20	0	178	154	86	2.75*	6	2	16
(Female)		5	0	0	0	5	5	100	2.75*	0	0	0
TOTAL -	16	231	28	20	0	183	159	87	2.75*	6	2	16
VOCATIONAL AGRICULTURE												
(Male)		121	53	7	0	61	46	76	1.61	15	0	0
(Female)		3	1	0	1	1	0	0	-	1	0	0
TOTAL -	15	124	54	7	1	62	46	74	1.61	16	0	0
VOCATIONAL TECHNICAL SCHOOLS												
(Male)		1438	158	208	28	1044	907	87	2.00	105	9	23
(Female)		497	25	2	13	457	403	88	1.50	36	13	5
TOTAL -	148	1935	183	210	41	1501	1310	87	1.94	141	22	28
ALL PROGRAMS												
(Male)		2040	292	277	36	1435	1215	85	2.04	159	16	42
(Female)		696	54	2	30	610	517	85	1.52	69	19	8
GRAND TOTAL -	195	2736	346	279	66	2045	1732	85	1.96	228	35	50

*For comparison purposes average annual salaries reported were converted to hourly wages on basis of 40 hour week and 50 week year. Technical Institute programs are post-secondary.

Placement Data For

Distributive Education Programs

DISTRIBUTIVE EDUCATION PROGRAMS	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
DANBURY												
Danbury High School												
Male		11	2	2	0	7	5	71	1.80	2	0	0
Female		5	3	0	0	2	2	100	1.80	0	0	0
EAST HARTFORD												
Penney High School												
Male		22	4	4	0	14	9	64	-	5	0	0
Female		19	2	0	2	15	3	20	-	11	0	1
East Hartford High School												
Male		23	6	5	0	12	10	83	1.89	2	0	0
Female		12	1	0	0	11	7	63	1.89	4	0	0
EAST HAVEN												
East Haven High School												
Male		26	1	5	8	12	12	100	1.30	0	0	0
Female		16	0	0	2	14	14	100	1.30	0	0	0
GREENWICH												
Greenwich High School												
Male		8	4	0	0	4	4	100	1.71	0	0	0
Female		7	2	0	0	5	4	80	1.71	1	0	0
HARTFORD												
Hartford Public High School												
Male		26	6	6	0	14	7	50	1.34	4	1	2
Female		30	1	0	4	25	17	68	1.34	7	0	1
MILFORD												
Milford High School												
Male		26	12	8	0	6	6	100	1.55	0	0	0
Female		9	5	0	0	4	3	75	1.55	0	0	1
Jonathan Law High School												
Male		29	2	4	0	23	23	100	-	0	0	0
Female		30	2	0	6	22	22	100	-	0	0	0

DISTRIBUTIVE EDUCATION PROGRAMS (Cont'd)	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
NEW HAVEN												
Wilbur Cross High School												
Male		18	0	1	0	17	0	0	-	11	6	0
Female		9	0	0	0	9	1	11	1.30	6	2	0
NORWALK												
Brien McMahon High School												
Male		11	1	0	0	10	10	100	1.50	0	0	0
Female		8	0	0	0	8	8	100	1.50	0	0	0
STAMFORD												
Stamford High School												
Male		7	5	1	0	1	0	0	-	1	0	0
Female		19	0	0	2	17	16	94	1.28	1	0	0
TORRINGTON												
Torrington High School												
Male		7	3	1	0	3	2	67	-	1	0	0
Female		5	3	0	0	2	2	100	-	0	0	0
WALLINGFORD												
Lyman Hall High School												
Male		10	2	1	0	7	6	86	1.45	0	0	1
Female		4	2	0	0	2	1	50	-	1	0	0
WATERTOWN												
Watertown High School												
Male		9	2	1	0	6	4	67	1.57	2	0	0
Female		9	5	0	0	4	3	75	1.57	0	1	0
WEST HAVEN												
West Haven High School												
Male		12	3	3	0	6	0	0	-	5	1	0
Female		3	2	0	0	1	0	0	-	1	0	0

DISTRIBUTIVE EDUCATION PROGRAMS (Cont'd)	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
WILLIMANTIC												
Windham High School												
Male		10	0	0	0	10	10	100	1.59	0	0	0
Female		6	0	0	0	6	6	100	1.59	0	0	0
TOTAL (All Schools)	16	446	81	42	24	299	217	73	1.53	65	11	6
Male		255	53	42	8	152	108	71	1.53	33	8	3
Female		191	28	0	16	147	109	73	1.53	32	3	3

Placement Data For

Technical Institutes

TECHNOLOGIES (BY INSTITUTES)	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CHEMICAL	2	16	2	2	0	12	10	83	2.83	1	1	0
Norwalk		12	1	2	0	9	9	100	2.86	0	0	0
Thames Valley (Norwich)		4	1	0	0	3	1	33	2.80	1	1	0
DATA PROCESSING	2	21	2	2	0	17	13	77	2.71	1	1	2
Hartford		12	1	0	0	11	7	63	2.64	1	1	2
Norwalk		9	1	2	0	6	6	100	2.79	0	0	0
ELECTRICAL	3	54	6	6	0	42	41	97	2.84	0	0	1
Hartford		14	0	1	0	13	13	100	2.73	0	0	0
Norwalk		31	6	4	0	21	20	95	2.78	0	0	1
Thames Valley		9	0	1	0	8	8	100	3.02	0	0	0
MECHANICAL	3	64	10	5	0	49	44	90	2.73	3	0	2
Hartford		19	3	1	0	15	13	86	2.80	0	0	2
Norwalk		31	5	4	0	22	19	86	2.71	3	0	0
Thames Valley		14	2	0	0	12	12	100	2.70	0	0	0
CIVIL	1	30	3	0	0	27	19	70	2.55	1	0	7
Hartford		30	3	0	0	27	19	70	2.55	1	0	7
TOOL	3	28	3	2	0	23	20	87	2.72	0	0	3
Hartford		7	0	0	0	7	4	57	2.56	0	0	3
Norwalk		9	2	2	0	5	5	100	2.86	0	0	0
Thames Valley		12	1	0	0	11	11	100	2.74	0	0	0
ELECTRO-MECHANICAL	1	5	1	2	0	2	2	100	2.86	0	0	0
Norwalk		5	1	2	0	2	2	100	2.86	0	0	0
METALLURGICAL	1	13	1	1	0	11	10	90	2.72	0	0	1
Norwalk		13	1	1	0	11	10	90	2.72	0	0	1

STATE TECHNICAL INSTITUTES (BY TECHNOLOGIES)	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
HARTFORD												
Data Processing		12	1	0	0	11	7	63	2.64	1	1	2
Electrical		14	0	1	0	13	13	100	2.73	0	0	0
Mechanical		19	3	1	0	15	13	86	2.80	0	0	2
Civil		30	3	0	0	27	19	70	2.55	1	0	7
Tool		7	0	0	0	7	4	57	2.56	0	0	3
ALL TECHNOLOGIES		82	7	2	0	73	56	76	2.65	2	1	14
NORWALK												
Chemical		12	1	2	0	9	9	100	2.86	0	0	0
Data Processing		9	1	2	0	6	6	100	2.79	0	0	0
Electrical		31	6	4	0	21	20	95	2.78	0	0	1
Mechanical		31	5	4	0	22	19	86	2.71	3	0	0
Tool		9	2	2	0	5	5	100	2.86	0	0	0
Electro-Mechanical		5	1	2	0	2	2	100	2.86	0	0	0
Metallurgical		13	1	1	0	11	10	90	2.72	0	0	1
ALL TECHNOLOGIES		110	17	17	0	76	71	93	2.79	3	0	2
THAMES VALLEY (NORWICH)												
Chemical		4	1	0	0	3	1	33	2.80	1	1	0
Electrical		9	0	1	0	8	8	100	3.02	0	0	0
Mechanical		14	2	0	0	12	12	100	2.70	0	0	0
Tool		12	1	0	0	11	11	100	2.74	0	0	0
ALL TECHNOLOGIES		39	4	1	0	34	32	91	2.81	1	1	0
ALL SCHOOLS (ALL TECHNOLOGIES)		231	28	20	0	183	159	87	2.75	6	2	16

Placement Data For Vocational Agriculture Programs

VOCATIONAL AGRICULTURE CENTERS	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CANAAN												
Housatonic Valley Regional High School		5	1	1	0	3	3	100	1.50	0	0	0
DANIELSON												
Killingly High School		6	3	1	0	2	1	50	2.25	1	0	0
GLASTONBURY												
Glastonbury High School		4	0	0	0	4	4	100	1.50	0	0	0
LEBANON												
Lyman Memorial High School		6	3	0	0	3	3	100	-	0	0	0
LITCHFIELD												
Wamogo Regional High School		10	6	0	0	4	4	100	1.32	0	0	0
MIDDLETOWN												
Woodrow Wilson High School		11	6	0	0	5	4	80	1.75	1	0	0
MOODUS												
Nathan Hale-Ray High School		7	0	1	0	6	2	33	1.57	4	0	0
NORWICH												
Norwich Free Academy		4	1	0	0	3	3	100	-	0	0	0
NEW MILFORD												
New Milford High School		3	0	0	0	3	3	100	1.70	0	0	0
ROCKVILLE												
Rockville High School		17	11	1	0	5	1	20	-	4	0	0
SOUTHINGTON												
Southington High School		3	0	0	0	3	0	0	-	3	0	0
STORRS												
Edwin O. Smith High School		4	2	0	0	2	0	0	-	2	0	0

VOCATIONAL AGRICULTURE CENTERS (Cont'd)	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
WALLINGFORD												
Lyman Hall High School												
Male		22	13	0	0	9	9	100	1.37	0	0	0
Female		2	1	0	1	0	-	-	-	0	0	0
WOODBURY												
Ellis Clark Regional Vo-Ag Center												
Male		15	3	3	0	9	9	100	1.40	0	0	0
Female		1	0	0	0	1	0	0	-	1	0	0
WOODSTOCK												
Woodstock Academy		4	4	0	0	0	-	-	-	0	0	0
TOTAL (All Centers)	15	124	54	7	1	62	46	74	1.61	16	0	0
Male		121	53	7	0	61	46	76	1.61	15	0	0
Female		3	1	0	1	1	0	0	-	1	0	0

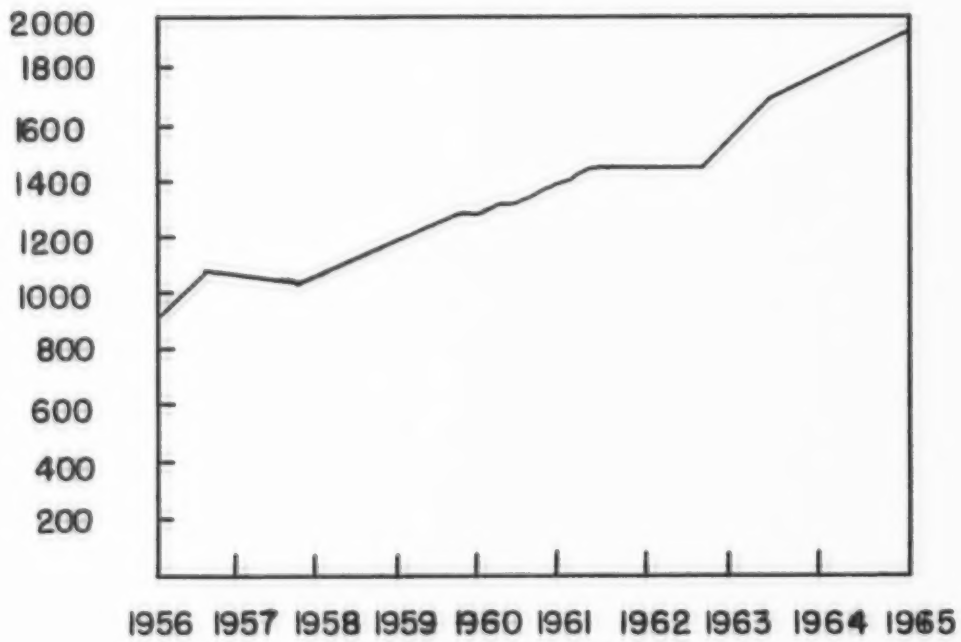
Placement Data For

Vocational - Technical Schools

VOCATIONAL-TECHNICAL SCHOOL GRADUATES 1956-1965	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1956		918	52	154	-	712	629	88	1.58	72	4	7
1957		1071	70	169	-	832	683	82	1.64	112	12	25
1958		1047	91	191	-	765	564	74	1.48	125	54	22
1959		1196	117	192	-	886	711	80	1.60	127	15	33
1960		1323	140	215	-	968	810	84	1.64	92	29	37
1961		1399	156	216	-	1027	848	83	1.70	116	27	36
1962		1504	151	193	-	1160	967	83	1.70	130	26	37
1963		1510	155	174	9	1172	981	84	1.80	116	31	44
1964		1797	222	173	33	1369	1183	86	1.87	132	27	27
1965		1935	183	210	41	1501	1310	87	1.94	141	22	28

VOCATIONAL-TECHNICAL SCHOOL GRADUATES

1956 - 1965



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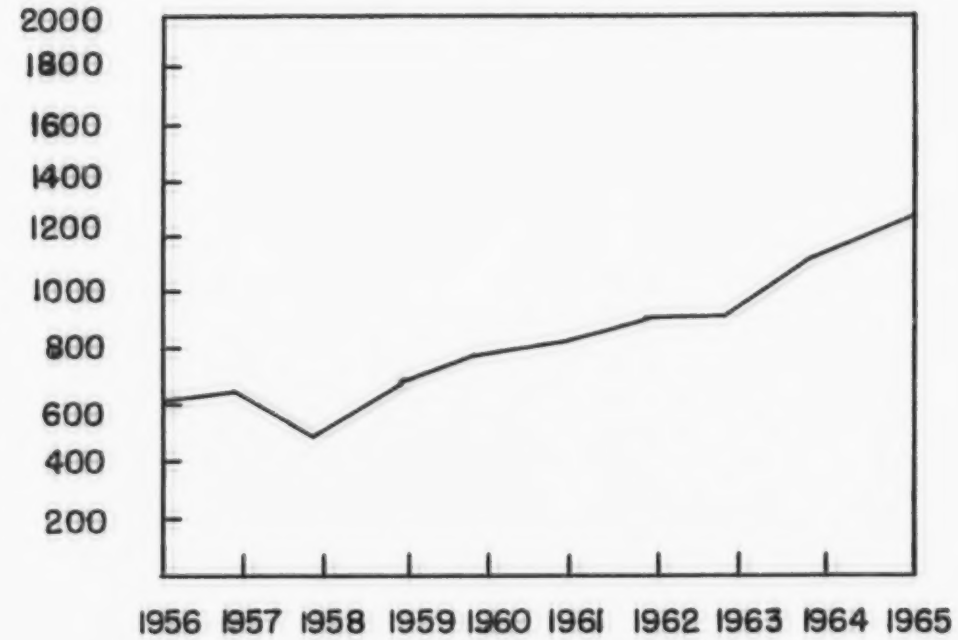

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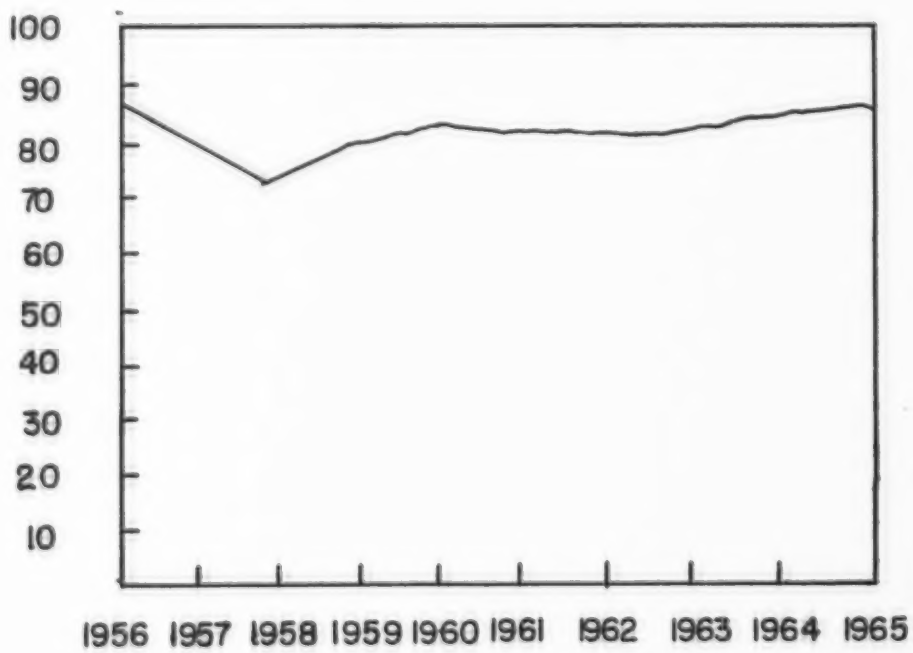
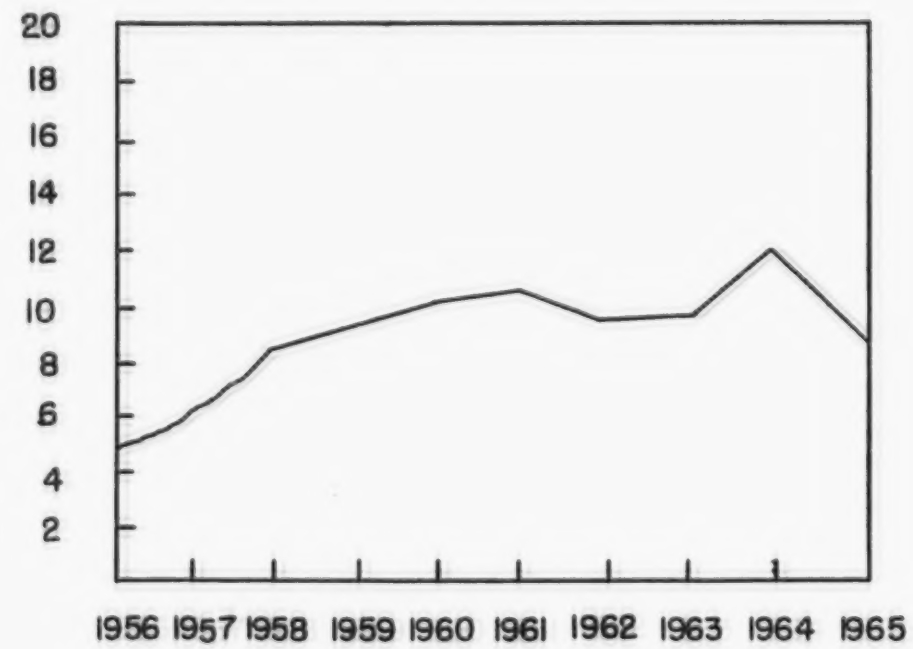


PERCENT EMPLOYED AT TRADE



PERCENT CONTINUED FULL-TIME SCHOOL

Placement Data by Schools

Vocational-Technical Schools

BULLARD-HAVENS REGIONAL VOCATIONAL TECHNICAL SCHOOL 500 Palisades Avenue Bridgeport, Connecticut	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Baker		7	0	0	0	7	5	71	2.00	2	0	0
Barber		11	0	0	0	11	11	100	1.75	0	0	0
*Barber		3	0	0	0	3	3	100	1.75	0	0	0
*Beauty Operator		14	4	0	0	10	9	90	1.50	1	0	0
Brick & Stonemason		9	0	3	0	6	5	83	2.50	0	1	0
Carpenter		27	0	2	0	25	23	92	2.10	2	0	0
Draftsman, Architectural		12	2	2	0	8	6	75	1.75	2	0	0
Draftsman, Mechanical		10	3	3	0	4	3	75	1.75	1	0	0
Electrician		24	2	8	0	14	13	92	2.00	1	0	0
Machinist		19	2	4	0	13	12	92	2.00	1	0	0
Mechanics & Repairmen (Auto)		22	3	3	0	16	15	93	1.75	1	0	0
*Needle Trades (Fashion Design)		21	2	1	0	18	11	61	1.45	4	3	0
*Nurse, Practical		47	1	0	0	46	46	100	1.85	0	0	0
Painter-Decorator		8	0	3	1	4	4	100	1.75	0	0	0
Plumber & Pipefitter		12	0	8	0	4	4	100	1.75	0	0	0
Printing Occupations		9	0	0	0	9	9	100	1.65	0	0	0
Technician (Electronics)		27	8	5	0	14	13	92	1.75	1	0	0
Tool & Die Maker		6	0	0	0	6	6	100	2.25	0	0	0
Vocational Homemaker		2	0	0	0	2	2	100	1.35	0	0	0
ALL TRADES		290	26	42	1	220	196	90	1.82	16	4	0
Male		203	20	41	1	141	126	91	1.91	11	1	0
*Female		87	6	1	0	79	70	89	1.58	5	3	0

HENRY ABBOTT REGIONAL VOCATIONAL TECHNICAL SCHOOL Hayestown Road Danbury, Connecticut	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Carpenter		11	2	2	0	7	6	85	2.49	1	0	0
Draftsman, Mechanical		13	0	1	0	12	9	75	1.85	3	0	0
Electrician		21	2	3	0	16	15	93	1.81	1	0	0
Machinist		18	1	2	0	15	14	93	2.01	1	0	0
Mechanics & Repairmen (Auto)		15	1	4	0	10	7	70	1.86	3	0	0
Technician, Electronics		9	5	0	0	4	4	100	1.83	0	0	0
ALL TRADES (All Male)		87	11	12	0	64	55	86	1.97	9	0	0

H. H. ELLIS
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
Maple Avenue
Danielson, Connecticut

(1)	(1a) NUMBER OF COURSES	(2) TOTAL NUMBER OF GRADUATES CLASS OF 1965	(3) CONTINUED TRAINING IN FULL-TIME SCHOOL	(4) ENTERED ARMED SERVICE	(5) OTHER	(6) AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION (7) NUMBER	(8) PERCENT	(9) MEAN HOURLY WAGE	(10) EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	(11) UNEMPLOYED	(12) UNACCOUNTED FOR
*Beauty Operator		7	0	0	1	6	6	100	1.28	0	0	0
Carpentry & Building Construction		7	0	0	0	7	6	85	2.21	1	0	0
Draftsman, Architectural		11	1	1	0	9	8	88	2.26	1	0	0
Draftsman, Mechanical		4	1	1	0	2	2	100	1.98	0	0	0
Electrician		11	3	1	0	7	6	88	1.75	0	0	1
Electronics		7	1	0	0	6	6	100	2.50	0	0	0
Machinist		8	2	0	0	6	6	100	2.28	0	0	0
Mechanics & Repairmen (Airplane)		14	3	3	0	8	8	100	2.44	0	0	0
Mechanics & Repairmen (Auto)		1	0	0	0	1	1	100	1.75	0	0	0
Tool & Die Maker		4	0	0	0	4	4	100	2.28	0	0	0
*Vocational Homemaker		3	0	0	1	2	2	100	1.60	0	0	0
ALL TRADES		77	11	6	2	58	55	95	2.03	2	0	1
Male		67	11	6	0	50	47	94	2.16	2	0	1
*Female		10	0	0	2	8	8	100	1.44	0	0	0

ELI WHITNEY REGIONAL VOCATIONAL TECHNICAL SCHOOL Jones Road Hamden, Connecticut	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
*Beauty Operator		11	0	0	0	11	7	63	1.33	1	2	1
Carpenter		15	0	5	0	10	9	90	2.18	1	0	0
*Certified Dental Assistant		24	1	0	0	23	18	78	1.52	3	2	0
Draftsman, Architectural		5	1	0	0	4	4	100	2.09	0	0	0
Draftsman, Mechanical		14	1	2	0	11	8	72	2.17	3	0	0
Electrician		18	3	2	0	13	12	92	1.78	1	0	0
Machinist		24	8	1	0	15	9	60	1.98	6	0	0
Mechanics & Repairmen (Auto)		25	3	7	0	15	10	66	1.78	4	0	1
*Needle Trades (Fashion Design)		12	2	0	0	10	7	70	1.38	3	0	0
Nurse, Practical (Male)		1	0	0	0	1	0	0	—	1	0	0
* (Female)		68	2	0	0	66	62	93	1.73	1	3	0
Plumber & Pipefitter		8	1	2	0	5	4	80	1.69	1	0	0
Printing Occupations		15	1	4	0	10	7	70	1.69	3	0	0
Lithographer		9	1	5	0	3	2	66	2.40	0	1	0
Technician (Electronics)		14	8	1	0	5	2	40	1.66	3	0	0
Tool & Die Maker		11	3	0	0	8	8	100	2.11	0	0	0
ALL TRADES		274	35	29	0	210	169	80	1.83	31	8	2
Male		159	30	29	0	100	75	75	2.02	23	1	1
*Female		115	5	0	0	110	94	85	1.41	8	7	1

ALBERT I. PRINCE
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
500 Brookfield Street
Hartford, Connecticut

(1)	(1a) NUMBER OF COURSES	(2) TOTAL NUMBER OF GRADUATES CLASS OF 1965	(3) CONTINUED TRAINING IN FULL-TIME SCHOOL	(4) ENTERED ARMED SERVICE	(5) OTHER	(6) AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION (7) NUMBER	(8) PERCENT	(9) MEAN HOURLY WAGE	(10) EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	(11) UNEMPLOYED	(12) UNACCOUNTED FOR
Barber		15	0	3	0	12	12	100	1.75	0	0	0
*Barber		4	0	0	0	4	4	100	1.75	0	0	0
*Beauty Operator		18	1	0	0	17	14	82	1.25	3	0	0
Carpenter		19	0	3	0	16	13	81	1.99	2	0	1
Draftsman, Mechanical		7	1	0	0	6	6	100	2.00	0	0	0
Electrician		31	3	4	0	24	22	91	1.64	0	0	2
Lithographer		3	0	0	0	3	3	100	1.68	0	0	0
Machinist		22	0	0	0	22	22	100	2.25	0	0	0
Masonry		13	2	0	0	11	11	100	2.23	0	0	0
Mechanics & Repairmen (Auto)		18	0	0	0	18	14	77	1.88	4	0	0
*Needle Trades (Fashion Design)		9	3	0	0	6	6	100	1.32	0	0	0
Plumber & Pipefitter		11	0	2	0	9	9	100	1.95	0	0	0
Printing Occupations		7	1	1	0	5	4	80	1.65	0	0	1
Technician (Electronics)		20	1	1	0	18	16	89	1.98	2	0	0
Tool & Die Maker		4	0	0	0	4	4	100	2.71	0	0	0
ALL TRADES		201	12	14	0	175	160	90	1.88	11	0	4
Male		170	8	14	0	148	136	91	1.98	8	0	4
*Female		31	4	0	0	27	24	88	1.44	3	0	0

HOWELL CHENEY
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
Tolland Turnpike
Manchester, Connecticut

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
Carpenter		4	0	1	0	3	3	100	2.25	0	0	0
Draftsman, Mechanical		5	2	2	0	1	1	100	2.20	0	0	0
Electrician		8	1	2	0	5	4	80	2.00	1	0	0
Machinist		7	0	1	0	6	6	100	2.35	0	0	0
Mechanics & Repairmen (Auto)		2	0	0	0	2	2	100	2.25	0	0	0
Tool & Die Maker		2	0	0	0	2	2	100	2.50	0	0	0
ALL TRADES (All Male)		28	3	6	0	19	18	94	2.25	1	0	0

HORACE C. WILCOX
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
Oregon Road,
Meriden, Connecticut

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
*Beauty Operator		8	0	1	3	4	2	50	1.37	2	0	0
Carpenter		11	0	2	0	9	9	100	2.11	0	0	0
Draftsman, Mechanical		15	0	1	2	12	9	75	1.95	2	1	0
*Draftsman, Mechanical		1	0	0	0	1	0	0	-	1	0	0
Electrician		10	0	6	3	1	1	100	1.92	0	0	0
Machinist		17	0	3	4	10	7	70	2.06	2	0	1
Mechanics & Repairmen (Auto)		12	0	0	0	12	11	91	1.85	1	0	0
Printing Occupations		8	0	0	3	5	4	80	1.63	1	0	0
Sheet Metal		6	0	4	0	2	1	50	2.32	1	0	0
Technician, Electronics		16	0	1	8	7	4	57	1.90	3	0	0
Took & Die Maker		14	0	2	2	10	10	100	2.20	0	0	0
ALL TRADES		118	0	20	25	73	58	80	1.93	13	1	1
Male		109	0	19	22	68	56	82	1.99	10	1	1
*Female		9	0	1	3	5	2	40	1.37	3	0	0

VINAL
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
60 Daniels Street
Middletown, Connecticut

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
Carpenter		8	0	0	0	8	6	75	1.77	2	0	0
Draftsman, Mechanical		5	1	0	0	4	1	25	1.78	3	0	0
Electrician		2	0	1	0	1	1	100	2.00	0	0	0
Machinist		4	0	0	0	4	4	100	1.81	0	0	0
Mechanics & Repairmen (Auto)		6	0	1	0	5	5	100	1.57	0	0	0
Technician, Electronics		7	2	1	0	4	3	75	1.81	1	0	0
Tool & Die Maker		4	0	0	0	4	4	100	1.84	0	0	0
ALL TRADES (All Male)		36	3	3	0	30	24	80	1.79	6	0	0

E. C. GOODWIN
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
735 Slater Road
New Britain, Connecticut

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
Baker		2	1	1	0	0	-	-	-	0	0	0
*Beauty Operator		11	0	0	1	10	8	80	1.35	1	1	0
Carpenter		12	0	1	0	11	4	36	2.10	5	0	2
Draftsman, Mechanical		14	3	0	0	11	10	90	2.25	0	0	1
Electrician		14	2	3	0	9	6	66	2.20	2	0	1
Food Trades Worker (Male)		5	0	0	0	5	5	100	2.00	0	0	0
*(Female)		5	1	0	0	4	2	50	2.00	0	0	2
Machinist		29	0	4	0	25	22	88	2.00	0	1	2
Machinist (Automatic Screw)		6	0	2	0	4	3	75	2.10	0	0	1
Mechanics & Repairmen (Auto)		9	1	3	0	5	4	80	2.10	0	0	1
*Needle Trades (Fashion Design)		9	0	0	0	9	7	77	1.50	2	0	0
*Nurse, Practical		99	0	0	1	98	93	94	1.85	5	0	0
Plumber & Pipefitter		2	0	0	0	2	2	100	1.90	0	0	0
Printing Occupations (Male)		5	0	2	0	3	3	100	1.75	0	0	0
Technician, Electronics		14	8	2	0	4	3	75	2.00	1	0	0
Tool & Diemaker		5	0	0	0	5	5	100	2.00	0	0	0
ALL TRADES		241	16	18	2	205	172	84	1.93	16	2	10
Male		117	15	18	0	84	64	79	2.05	8	1	8
*Female		124	1	0	2	121	108	90	1.60	8	1	2

NORWICH
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
590 New London Turnpike
Norwich, Connecticut

	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Carpenter		13	0	1	0	12	9	75	1.90	3	0	0
Draftsman, Mechanical		20	5	2	0	13	9	69	2.00	2	0	2
*Draftsman, Mechanical		1	1	0	0	0	-	-	-	0	0	0
Electrician		20	4	3	0	13	13	100	1.94	0	0	0
Machinist		17	0	3	0	14	13	92	2.45	1	0	0
Mechanics & Repairmen (Auto)		11	0	1	0	10	10	100	2.00	0	0	0
*Needle Trades (Fashion Design)		2	1	0	1	0	-	-	-	0	0	0
Plumber & Pipefitter		5	0	0	0	5	5	100	2.22	0	0	0
Sheet Metal		6	0	1	0	5	4	80	2.27	1	0	0
ALL TRADES		95	11	11	1	72	63	88	2.13	7	0	2
Male		92	9	11	0	72	63	88	2.13	7	0	2
*Female		3	2	0	1	0	-	-	-	0	0	0

J. M. WRIGHT REGIONAL VOCATIONAL TECHNICAL SCHOOL Woodside Park Stamford, Connecticut	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
*Beauty Operator		16	1	0	0	15	15	100	1.48	0	0	0
Carpenter		13	0	3	0	10	10	100	2.20	0	0	0
Draftsman, Mechanical (Male)		9	3	0	0	6	4	66	1.84	2	0	0
Electrician		23	7	4	3	9	8	88	1.80	1	0	0
Food Trades Worker		7	1	0	0	6	6	100	1.55	0	0	0
*Licensed Practical Nurse		32	1	0	4	27	25	92	1.88	2	0	0
Machinist		6	0	1	0	5	5	100	1.83	0	0	0
Mechanics & Repairmen (Auto)		16	0	1	0	15	15	100	1.89	0	0	0
Plumber & Pipefitter		7	0	0	0	7	7	100	2.06	0	0	0
Printing Occupations		10	3	1	0	6	6	100	1.43	0	0	0
Sheet Metal Worker		5	0	0	0	5	5	100	2.37	0	0	0
Technician (Chemical) (Male)		1	1	0	0	0	-	-	-	0	0	0
*(Female)		5	1	0	0	4	4	100	1.80	0	0	0
Technician (Electronics)		7	0	1	0	6	6	100	2.20	0	0	0
Tool & Die Maker		10	1	1	0	8	8	100	1.89	0	0	0
*Vocational Homemaker		8	1	0	0	7	7	100	1.48	0	0	0
ALL TRADES		175	20	12	7	136	131	96	1.84	5	0	0
Male		114	16	12	3	83	80	96	1.91	3	0	0
*Female		61	4	0	4	53	51	96	1.61	2	0	0

OLIVER WOLCOTT REGIONAL VOCATIONAL TECHNICAL SCHOOL 75 Oliver Street Torrington, Connecticut	NUMBER OF COURSES	TOTAL NUMBER OF GRADUATES CLASS OF 1965	CONTINUED TRAINING IN FULL-TIME SCHOOL	ENTERED ARMED SERVICE	OTHER	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION			EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	UNEMPLOYED	UNACCOUNTED FOR
							NUMBER	PERCENT	MEAN HOURLY WAGE			
(1)	(1a)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Carpenter		16	1	3	0	12	11	91	2.20	1	0	0
Draftsman, Mechanical		13	3	1	0	9	9	100	2.05	0	0	0
Electrician		14	1	5	0	8	7	87	2.25	1	0	0
Machinist		15	0	0	0	15	14	93	1.90	1	0	0
Mechanics & Repairmen (Auto)		8	1	1	0	6	4	66	1.45	2	0	0
ALL TRADES (All Males)		66	6	10	0	50	45	90	1.97	5	0	0

WARREN F. KAYNOR
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
43 Tompkins Street
Waterbury, Connecticut

(1)	(1a) NUMBER OF COURSES	(2) TOTAL NUMBER OF GRADUATES CLASS OF 1965	(3) CONTINUED TRAINING IN FULL-TIME SCHOOL	(4) ENTERED ARMED SERVICE	(5) OTHER	(6) AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION (7) NUMBER	(8) PERCENT	(9) MEAN HOURLY WAGE	(10) EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	(11) UNEMPLOYED	(12) UNACCOUNTED FOR
*Beauty Operator		9	1	0	0	8	5	62	1.44	1	1	1
Carpenter		6	0	1	0	5	5	100	2.21	0	0	0
Draftsman, Mechanical		32	9	3	1	19	16	84	1.88	1	0	2
Electrician		13	6	0	0	7	7	100	1.67	0	0	0
Machinist		38	3	1	0	34	32	94	1.97	0	2	0
Mechanics & Repairmen (Auto Body)		6	0	0	0	6	6	100	1.77	0	0	0
Mechanics & Repairmen (Auto)		9	0	2	0	7	5	71	1.55	1	0	1
Mechanics & Repairmen (Instrument)		9	1	2	0	6	5	83	2.10	1	0	0
*Needle Trades (Fashion Design)		10	1	0	0	9	7	77	1.30	1	0	1
Tool & Die Maker		1	0	0	0	1	1	100	1.97	0	0	0
ALL TRADES		133	21	9	1	102	89	87	1.78	5	3	5
Male		114	19	9	1	85	77	90	1.91	3	2	3
*Female		19	2	0	0	17	12	70	1.37	2	1	2

WINDHAM
REGIONAL VOCATIONAL
TECHNICAL SCHOOL
210 Birch Street
Willimantic, Connecticut

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
Carpenter		8	0	0	0	8	7	87	2.10	0	0	1
Draftsman, Architectural		5	0	1	1	3	3	100	2.08	0	0	0
Draftsman, Mechanical		10	2	4	0	4	3	75	1.88	1	0	0
Electrician		15	4	5	0	6	3	50	2.19	2	0	1
Machinist		19	0	3	0	16	12	75	2.20	2	2	0
Mechanics & Repairmen (Auto)		9	0	0	0	9	6	66	1.90	3	0	0
*Nurse, Practical		38	0	0	1	37	31	83	1.70	5	1	0
Technician (Electronics)		10	1	5	0	4	1	25	1.56	1	1	1
ALL TRADES		114	7	18	2	87	66	76	1.95	14	4	3
Male		76	7	18	1	50	35	70	1.99	9	3	3
*Female		38	0	0	1	37	31	83	1.70	5	1	0

Placement Data by Occupations

Vocational-Technical Schools

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
BAKER (All Male)	2	9	1	1	0	7	5	71	2.00	2	0	0
BRIDGEPORT		7	0	0	0	7	5	71	2.00	2	0	0
NEW BRITAIN		2	1	1	0	0	-	-	-	0	0	0
BARBER	2	33	0	3	0	30	30	100	1.75	0	0	0
(Male)		26	0	3	0	23	23	100	1.75	0	0	0
(Female)		7	0	0	0	7	7	100	1.75	0	0	0
BRIDGEPORT (Male)		11	0	0	0	11	11	100	1.75	0	0	0
(Female)		3	0	0	0	3	3	100	1.75	0	0	0
HARTFORD (Male)		15	0	3	0	12	12	100	1.75	0	0	0
(Female)		4	0	0	0	4	4	100	1.75	0	0	0
BEAUTY OPERATOR (All Female)	8	94	7	1	5	81	66	81	1.37	9	4	2
BRIDGEPORT		14	4	0	0	10	9	90	1.50	1	0	0
DANIELSON		7	0	0	1	6	6	100	1.28	0	0	0
HAMDEN		11	0	0	0	11	7	63	1.33	1	2	1
HARTFORD		18	1	0	0	17	14	82	1.25	3	0	0
MERIDEN		8	0	1	3	4	2	50	1.37	2	0	0
NEW BRITAIN		11	0	0	1	10	8	80	1.35	1	1	0
STAMFORD		16	1	0	0	15	15	100	1.48	0	0	0
WATERBURY		9	1	0	0	8	5	62	1.44	1	1	1
BRICK & STONEMASON (All Male)	2	22	2	3	0	17	16	94	2.36	0	1	0
BRIDGEPORT		9	0	3	0	6	5	83	2.50	0	1	0
HARTFORD		13	2	0	0	11	11	100	2.23	0	0	0
CARPENTER (All Male)	14	170	3	24	0	143	121	84	2.13	19	0	3
BRIDGEPORT		27	0	2	0	25	23	92	2.10	2	0	0
DANBURY		11	2	2	0	7	6	85	2.49	1	0	0
DANIELSON		7	0	0	0	7	6	85	2.21	1	0	0

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
CARPENTER (Cont'd)												
HAMDEN		15	0	5	0	10	9	90	2.18	1	0	0
HARTFORD		19	0	3	0	16	13	81	1.99	2	0	1
MANCHESTER		4	0	1	0	3	3	100	2.25	0	0	0
MERIDEN		11	0	2	0	9	9	100	2.11	0	0	0
MIDDLETOWN		8	0	0	0	8	6	75	1.77	2	0	0
NEW BRITAIN		12	0	1	0	11	4	36	2.10	5	0	2
NORWICH		13	0	1	0	12	9	75	1.90	3	0	0
STAMFORD		13	0	3	0	10	10	100	2.20	0	0	0
TORRINGTON		16	1	3	0	12	11	91	2.20	1	0	0
WATERBURY		6	0	1	0	5	5	100	2.21	0	0	0
WILLIMANTIC		8	0	0	0	8	7	87	2.10	0	0	1
CERTIFIED DENTAL ASSISTANT												
(All Female)	1	24	1	0	0	23	18	78	1.52	3	2	0
HAMDEN		24	1	0	0	23	18	78	1.52	3	2	0
DRAFTSMAN ARCHITECTURAL												
(All Male)	4	33	4	4	1	24	21	87	2.04	3	0	0
BRIDGEPORT		12	2	2	0	8	6	75	1.75	2	0	0
DANIELSON		11	1	1	0	9	8	88	2.26	1	0	0
HAMDEN		5	1	0	0	4	4	100	2.09	0	0	0
WILLIMANTIC		5	0	1	1	3	3	100	2.08	0	0	0
DRAFTSMAN MECHANICAL	14	173	35	20	3	115	90	78	1.96	19	1	5
Male		171	34	20	3	114	90	78	1.96	18	1	5
Female		2	1	0	0	1	0	0	-	1	0	0

(1)	(1a) NUMBER OF COURSES	(2) TOTAL NUMBER OF GRADUATES CLASS OF 1965	(3) CONTINUED TRAINING IN FULL-TIME SCHOOL	(4) ENTERED ARMED SERVICE	(5) OTHER	(6) AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION (7) NUMBER	(8) PERCENT	(9) MEAN HOURLY WAGE	(10) EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	(11) UNEMPLOYED	(12) UNACCOUNTED FOR
DRAFTSMAN MECHANICAL (Cont'd)												
BRIDGEPORT (Male)		10	3	3	0	4	3	75	1.75	1	0	0
DANBURY (Male)		13	0	1	0	12	9	75	1.85	3	0	0
DANIELSON (Male)		4	1	1	0	2	2	100	1.98	0	0	0
HAMDEN (Male)		14	1	2	0	11	8	72	2.17	3	0	0
HARTFORD (Male)		7	1	0	0	6	6	100	2.00	0	0	0
MANCHESTER (Male)		5	2	2	0	1	1	100	2.20	0	0	0
MERIDEN (Male)		15	0	1	2	12	9	75	1.95	2	1	0
(Female)		1	0	0	0	1	0	0	-	1	0	0
MIDDLETOWN (Male)		5	1	0	0	4	1	25	1.78	3	0	0
NEW BRITAIN (Male)		14	3	0	0	11	10	90	2.25	0	0	1
NORWICH (Male)		20	5	2	0	13	9	69	1.95	2	0	2
(Female)		1	1	0	0	0	-	-	-	0	0	0
STAMFORD (Male)		9	3	0	0	6	4	66	1.84	2	0	0
TORRINGTON (Male)		13	3	1	0	9	9	100	2.05	0	0	0
WATERBURY (Male)		32	9	3	1	19	16	84	1.88	1	0	2
WILLIMANTIC (Male)		10	2	4	0	4	3	75	1.88	1	0	0
ELECTRICIAN (All Male)	14	224	38	47	6	133	118	88	1.92	10	0	5
BRIDGEPORT		24	2	8	0	14	13	92	2.00	1	0	0
DANBURY		21	2	3	0	16	15	93	1.81	1	0	0
DANIELSON		11	3	1	0	7	6	85	1.75	0	0	1
HAMDEN		18	3	2	0	13	12	92	1.78	1	0	0
HARTFORD		31	3	4	0	24	22	91	1.64	0	0	2
MANCHESTER		8	1	2	0	5	4	80	2.00	1	0	0
MERIDEN		10	0	6	3	1	1	100	1.92	0	0	0
MIDDLETOWN		2	0	1	0	1	1	100	2.00	0	0	0
NEW BRITAIN		14	2	3	0	9	6	66	2.20	2	0	1
NORWICH		20	4	3	0	13	13	100	1.94	0	0	0
STAMFORD		23	7	4	3	9	8	88	1.80	1	0	0
TORRINGTON		14	1	5	0	8	7	87	2.25	1	0	0
WATERBURY		13	6	0	0	7	7	100	1.67	0	0	0

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
ELECTRICIAN (Cont'd)												
WILLIMANTIC		15	4	5	0	6	3	50	2.19	2	0	1
FOOD TRADES WORKER	2	17	2	0	0	15	13	87	1.77	0	0	2
(Male)		12	1	0	0	11	11	100	1.77	0	0	0
(Female)		5	1	0	0	4	2	50	2.00	0	0	2
NEW BRITAIN (Male)		5	0	0	0	5	5	100	2.00	0	0	0
(Female)		5	1	0	0	4	2	50	2.00	0	0	2
STAMFORD (Male)		7	1	0	0	6	6	100	1.55	0	0	0
MACHINIST (All Male)	14	243	16	23	4	200	178	89	2.07	14	5	3
BRIDGEPORT		19	2	4	0	13	12	92	2.00	1	0	0
DANBURY		18	1	2	0	15	14	93	2.01	1	0	0
DANIELSON		8	2	0	0	6	6	100	2.28	0	0	0
HAMDEN		24	8	1	0	15	9	60	1.98	6	0	0
HARTFORD		22	0	0	0	22	22	100	2.25	0	0	0
MANCHESTER		7	0	1	0	6	6	100	2.35	0	0	0
MERIDEN		17	0	3	4	10	7	70	2.06	2	0	1
MIDDLETOWN		4	0	0	0	4	4	100	1.81	0	0	0
NEW BRITAIN		29	0	4	0	25	22	88	2.00	0	1	2
NORWICH		17	0	3	0	14	13	92	2.45	1	0	0
STAMFORD		6	0	1	0	5	5	100	1.83	0	0	0
TORRINGTON		15	0	0	0	15	14	93	1.90	1	0	0
WATERBURY		38	3	1	0	34	32	94	1.97	0	2	0
WILLIMANTIC		19	0	3	0	16	12	75	2.20	2	2	0
MACHINIST (Automatic Screw)												
(All Male)	1	6	0	2	0	4	3	75	2.10	0	0	1
NEW BRITAIN		6	0	2	0	4	3	75	2.10	0	0	1
MECHANICS & REPAIRMEN												
(Airplane) (All Male)	1	14	3	3	0	8	8	100	2.44	0	0	0

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(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
MECHANICS & REPAIRMEN (Cont'd)												
DANIELSON		14	3	3	0	8	8	100	2.44	0	0	0
MECHANICS & REPAIRMEN												
(Auto Body, Fender)												
(All Male)	1	6	0	0	0	6	6	100	1.77	0	0	0
WATERBURY		6	0	0	0	6	6	100	1.77	0	0	0
MECHANICS & REPAIRMEN												
(Automotive) (All Male)	14	163	9	23	0	131	109	83	1.82	19	0	3
BRIDGEPORT		22	3	3	0	16	15	93	1.75	1	0	0
DANBURY		15	1	4	0	10	7	70	1.86	3	0	0
DANIELSON		1	0	0	0	1	1	100	1.75	0	0	0
HAMDEN		25	3	7	0	15	10	66	1.78	4	0	1
HARTFORD		18	0	0	0	18	14	77	1.88	4	0	0
MANCHESTER		2	0	0	0	2	2	100	2.25	0	0	0
MERIDEN		12	0	0	0	12	11	91	1.85	1	0	0
MIDDLETOWN		6	0	1	0	5	5	100	1.57	0	0	0
NEW BRITAIN		9	1	3	0	5	4	80	2.10	0	0	1
NORWICH		11	0	1	0	10	10	100	2.00	0	0	0
STAMFORD		16	0	1	0	15	15	100	1.89	0	0	0
TORRINGTON		8	1	1	0	6	4	66	1.45	2	0	0
WATERBURY		9	0	2	0	7	5	71	1.55	1	0	1
WILLIMANTIC		9	0	0	0	9	6	66	1.90	3	0	0
MECHANICS & REPAIRMEN												
(Instrument) (All Male)	1	9	1	2	0	6	5	83	2.10	1	0	0
WATERBURY		9	1	2	0	6	5	83	2.10	1	0	0
NEEDLE TRADES (All Female)												
(Fashion Design)	6	63	9	1	1	52	38	73	1.39	10	3	1

(1)	(1a) NUMBER OF COURSES	(2) TOTAL NUMBER OF GRADUATES CLASS OF 1965	(3) CONTINUED TRAINING IN FULL-TIME SCHOOL	(4) ENTERED ARMED SERVICE	(5) OTHER	(6) AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION (7) NUMBER	(8) PERCENT	(9) MEAN HOURLY WAGE	(10) EMPLOYED IN OCCUPATION NOT RELATED TO TRADE	(11) UNEMPLOYED	(12) UNACCOUNTED FOR
NEEDLE TRADES (Cont'd)												
BRIDGEPORT		21	2	1	0	18	11	61	1.45	4	3	0
HAMDEN		12	2	0	0	10	7	70	1.38	3	0	0
HARTFORD		9	3	0	0	6	6	100	1.32	0	0	0
NEW BRITAIN		9	0	0	0	9	7	77	1.50	2	0	0
NORWICH		2	1	0	1	0	-	-	-	0	0	0
WATERBURY		10	1	0	0	9	7	77	1.30	1	0	1
NURSE, PRACTICAL	5	285	4	0	6	275	257	93	1.80	14	4	0
Male		1	0	0	0	1	0	0	-	1	0	0
Female		284	4	0	6	274	257	93	1.80	13	4	0
BRIDGEPORT (Female)		47	1	0	0	46	46	100	1.85	0	0	0
HAMDEN (Female)		68	2	0	0	66	62	93	1.73	1	3	0
(Male)		1	0	0	0	1	0	0	-	1	0	0
NEW BRITAIN (Female)		99	0	0	1	98	93	94	1.85	5	0	0
STAMFORD (Female)		32	1	0	4	27	25	92	1.88	2	0	0
WILLIMANTIC (Female)		38	0	0	1	37	31	83	1.70	5	1	0
PAINTER-DECORATOR (All Male)	1	8	0	3	1	4	4	100	1.75	0	0	0
BRIDGEPORT		8	0	3	1	4	4	100	1.75	0	0	0
PLUMBER & PIPE-FITTER (All Male)	6	45	1	12	0	32	31	96	1.92	1	0	0
BRIDGEPORT		12	0	8	0	4	4	100	1.75	0	0	0
HAMDEN		8	1	2	0	5	4	80	1.69	1	0	0
HARTFORD		11	0	2	0	9	9	100	1.95	0	0	0
NEW BRITAIN		2	0	0	0	2	2	100	1.90	0	0	0
NORWICH		5	0	0	0	5	5	100	2.22	0	0	0

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
PLUMBER & PIPE-FITTER (Cont'd)												
STAMFORD		7	0	0	0	7	7	100	2.06	0	0	0
PRINTING OCCUPATIONS (All Male)	6	54	5	8	3	38	33	86	1.63	4	0	1
BRIDGEPORT		9	0	0	0	9	9	100	1.65	0	0	0
HAMDEN		15	1	4	0	10	7	100	1.69	3	0	0
HARTFORD		7	1	1	0	5	4	80	1.65	1	0	0
MERIDEN		8	0	0	3	5	4	80	1.63	1	0	0
NEW BRITAIN		5	0	2	0	3	3	100	1.75	0	0	0
STAMFORD		10	3	1	0	6	6	100	1.43	0	0	0
LITHOGRAPHER (All Male)	2	12	1	5	0	6	5	83	2.04	0	1	0
HAMDEN		9	1	5	0	3	2	66	2.40	0	1	0
HARTFORD		3	0	0	0	3	3	100	1.68	0	0	0
SHEET METAL WORKER (All Male)	3	17	0	5	0	12	10	83	2.32	2	0	0
MERIDEN		6	0	4	0	2	1	50	2.32	1	0	0
NORWICH		6	0	1	0	5	4	80	2.27	1	0	0
STAMFORD		5	0	0	0	5	5	100	2.37	0	0	0
TECHNICIAN (Chemical)	1	6	2	0	0	4	4	100	1.80	0	0	0
Male		1	1	0	0	0	-	-	-	0	0	0
Female		5	1	0	0	4	4	100	1.80	0	0	0
STAMFORD (Male)		1	1	0	0	0	-	-	-	0	0	0
(Female)		5	1	0	0	4	4	100	1.80	0	0	0
TECHNICIAN (Electronics) (All Male)	10	131	34	17	8	72	58	81	1.92	12	1	1

(1)	NUMBER OF COURSES (1a)	TOTAL NUMBER OF GRADUATES CLASS OF 1965 (2)	CONTINUED TRAINING IN FULL-TIME SCHOOL (3)	ENTERED ARMED SERVICE (4)	OTHER (5)	AVAILABLE FOR EMPLOYMENT (Col. 2 minus 3, 4, and 5) (Col. 7 plus 10 to 12) (6)	EMPLOYED IN OCCUPATION FOR WHICH TRAINED OR IN RELATED OCCUPATION: NUMBER (7)	PERCENT (8)	MEAN HOURLY WAGE (9)	EMPLOYED IN OCCUPATION NOT RELATED TO TRADE (10)	UNEMPLOYED (11)	UNACCOUNTED FOR (12)
TECHNICIAN (Electronics) (Cont'd)												
BRIDGEPORT		27	8	5	0	14	13	92	1.75	1	0	0
DANBURY		9	5	0	0	4	4	100	1.83	0	0	0
DANIELSON		7	1	0	0	6	6	100	2.50	0	0	0
HAMDEN		14	8	1	0	5	2	40	1.66	3	0	0
HARTFORD		20	1	1	0	18	16	89	1.91	2	0	0
MERIDEN		16	0	1	8	7	4	57	1.90	3	0	0
MIDDLETOWN		7	2	1	0	4	3	75	1.81	1	0	0
NEW BRITAIN		14	8	2	0	4	3	75	2.00	1	0	0
STAMFORD		7	0	1	0	6	6	100	2.20	0	0	0
WILLIMANTIC		10	1	5	0	4	1	25	1.56	1	1	1
TOOL & DIE MAKER (All Male)	10	61	4	3	2	52	52	100	2.17	0	0	0
BRIDGEPORT		6	0	0	0	6	6	100	2.25	0	0	0
DANIELSON		4	0	0	0	4	4	100	2.28	0	0	0
HAMDEN		11	3	0	0	8	8	100	2.11	0	0	0
HARTFORD		4	0	0	0	4	4	100	2.71	0	0	0
MANCHESTER		2	0	0	0	2	2	100	2.50	0	0	0
MERIDEN		14	0	2	2	10	10	100	2.20	0	0	0
MIDDLETOWN		4	0	0	0	4	4	100	1.84	0	0	0
NEW BRITAIN		5	0	0	0	5	5	100	2.00	0	0	0
STAMFORD		10	1	1	0	8	8	100	1.89	0	0	0
WATERBURY		1	0	0	0	1	1	100	1.97	0	0	0
VOCATIONAL HOMEMAKER (All Female)	2	10	1	0	0	9	9	100	1.45	0	0	0
BRIDGEPORT		2	0	0	0	2	2	100	1.35	0	0	0
STAMFORD		8	1	0	0	7	7	100	1.48	0	0	0

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Summary of Research Findings in Off-Farm Agricultural Occupations.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

Aug65

EDRS Price MF-$0.18 HC-$3.76 94p.

*VOCATIONAL AGRICULTURE, *OFF FARM AGRICULTURAL OCCUPATIONS, EMPLOYMENT OPPORTUNITIES, *AGRICULTURAL SKILLS, EMPLOYMENT TRENDS, OCCUPATIONAL SURVEYS, EMPLOYMENT STATISTICS, SALARIES, EDUCATIONAL NEEDS, AGE, RESIDENCE REQUIREMENTS,

As a result of two conferences held in 1963-64, interview-type surveys of employment needs in off-farm agricultural businesses were conducted in 26 states in 1964. The analysis of the findings resulted in this synthesis. Information is given on -- (1) numbers of people employed, (2) present number, estimated increase, occupational group and level of employment of workers needing agricultural competencies, (3) occupational titles, (4) groups of agricultural competencies, and (5) salaries, educational and age requirements, and background preferred. Brief summaries of the state studies are given. Findings were -- (1) Almost half of those employed needed education in agriculture with a 20 percent increase expected in five years, (2) The greatest need for agriculturally trained employees will be in agricultural supplies sales and services, agricultural machinery sales and services, ornamental horticulture services, and livestock and crop food products marketing and distribution, (3) Competency needs are determined by the products handled by the business, (4) Subjects taught to students preparing for production farming are also needed, (5) Vocational agriculture may support or be supported by other vocational subjects in many instances, (6) Salesmanship, human relations, and business management are competencies needed by all employees, and (7) Beginning salaries and wages for service workers are relatively low. (JM)

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SUMMARY OF RESEARCH FINDINGS IN OFF-FARM AGRICULTURAL OCCUPATIONS

The Center for Research and Leadership Development
in Vocational and Technical Education

The Ohio State University
980 Kinnear Road
Columbus, Ohio, 43212

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from the
Division of Adult and Vocational Research
United States Office of Education

August, 1965

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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SUMMARY OF RESEARCH FINDINGS IN OFF-FARM AGRICULTURAL OCCUPATIONS

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Publications on Off-Farm Agricultural Occupations
Available From
The Center for Research and Leadership Development
in Vocational and Technical Education
The Ohio State University
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This publication is one of a series relating to Off-Farm Agricultural Occupations developed at the Center for Vocational and Technical Education under a grant from the Division of Adult and Vocational Research, U. S. Office of Education. Each of these publications was designed for a specific purpose. However, they are designed to complement and reinforce each other. It is suggested that persons using any of these materials will want to familiarize themselves with the other publications in this series. Following is a complete listing of this series.

1. Policy and Administrative Decisions in Introducing Vocational and Technical Education in Agriculture for Off-Farm Occupations

2. Vocational and Technical Education in Agriculture for Off-Farm Occupations

3. Summary of Research Findings in Off-Farm Agricultural Occupations

4. Planning and Conducting Cooperative Occupational Experience for Off-Farm Agriculture

5. Occupational Guidance for Off-Farm Agriculture

6. Horticulture - Service Occupations
(Course outline and twelve modules)

7. Agricultural Supply - Sales and Service Occupations
(Course outline and twelve modules)

8. Agricultural Machinery - Service Occupations
(Course outline and sixteen modules)

9. Agricultural Chemical Technology
(Course outline and nine modules)

PREFACE

Tremendous shifts have taken place in the agricultural industry in recent years. A broad complex of off-farm agricultural businesses and services has evolved to facilitate the work of the production farmer and rancher. Agricultural educators and others are becoming increasingly aware that agriculture and farming are no longer synonymous. These have been reflected in recent developments in vocational and technical education. The President's Panel of Consultants on Vocational Education in their summary report recommended that:

> The vocational agriculture program, under Federal reimbursement, should be broadened to include instruction and increased emphasis on management, finance, farm mechanization, conservation, forestry, transportation, processing, marketing the products of the farm, and other similar topics.

This recommendation was implemented in PL 88-210. The Act specifically states in Sec. 10 B:

> Any amounts allotted (or apportioned) under such titles, Act, or Acts for agriculture may be used for vocational education in any occupation involving knowledge and skills in agricultural subjects, whether or not such occupation involves work of the farm or of the farm home, and such education may be provided without directed or supervised practice on a farm.

In recognition of this need and in anticipation of this broadened responsibility for vocational agriculture, two National Research Coordination Conferences on Off-Farm Agricultural Occupations were sponsored by The National Center for Advanced Study and Research in Agricultural Education located at The Ohio State University in cooperation with the Office of Education. These conferences were held in May of 1963 and January of 1964 and involved representatives of 23 states. The broad purpose of these meetings was to stimulate research needed to provide data on employment opportunities and projections, training needs, and other similar information essential to intelligently planning vocational education programs for off-farm agricultural occupations. The conferences

also provided a means of encouraging commonality and coordination among state studies, sharing materials, and encouraging comparable studies. These meetings also served as a "clearing house" whereby representative states could share experiences and benefit from the progress and developments in other states.

Dr. Roy M. Kottman, Dean of the College of Agriculture and Home Economics, The Ohio State University, provided funds to begin work on coordinating and summarizing these state efforts prior to the grant from the Office of Education.

This publication, developed under the leadership of Dr. Glenn Z. Stevens, of the Department of Agricultural Education, Pennsylvania State University, and associate project leader, is a synthesis of state studies completed in the area. As noted, a considerable portion of the research is not yet completed, but sufficient data had been accumulated to merit this synthesis as a basis for developing program and instructional materials in off-farm agricultural occupations, and for refining and redirecting future research efforts.

We would like to acknowledge the support and assistance that we have received from representatives in economics, sociology, and other areas of vocational education in reviewing and interpreting these data. Other task force members working with Dr. Stevens on this publication include William W. Stevenson, Oklahoma State University; Homer V. Judge, University of Massachusetts: and Don F. Seaman, Graduate assistant in agricultural education, The Ohio State University, and Leonard Giambra, Graduate Assistant in Pschyology at Ohio State University. Recognition and thanks also are due the many state staff members and state project research directors for their cooperation and assistance in this and other phases of the Task Force effort.

We encourage readers to contact individual researchers in the states for further information, understandings, and implications of the independent state studies.

ROBERT E. TAYLOR, Director
The Center for Research and Leadership
Development in Vocational and
Technical Education

DIGEST

A summarization has been made of the findings of predominantly interview-type surveys of employment needs in off-farm agricultural businesses in 26 states. Nearly all of these surveys were conducted in 1964. There was considerable variation in the way the states conducted the studies and reported the findings. Much of the research is still in progress and additional state publications will be issued.

The report is divided into four sections. The first deals with numbers of people employed, numbers needing agricultural competencies, and expected numbers of new workers to be hired in the next five years. The second section analyzes the competencies needed by persons in the different characteristics such as age, education, background, and salary. The fourth section is a brief summary of the results of each state survey.

Generalizations that may be drawn from the findings are:

1. Almost half the people employed in off-farm agricultural businesses need education or training in agriculture.
2. Employers expect about a twenty per cent increase in the number of employees needing agricultural competencies in the next five years. This parallels the anticipated expansion in the total labor force.
3. Need for greatest numbers of agriculturally-trained employees will be in agricultural supplies sales and services, agricultural machinery sales and services, ornamental horticulture services, and livestock and crop food products marketing and distribution.
4. Agricultural competencies needed are mainly determined by the products handled by the business.

5. Many of the agricultural subjects taught to students preparing for production farming also will be needed by students who enter off-farm agricultural occupations.

6. There are many instances in which vocational agriculture may support, or be supported by, other vocational subjects taught.

7. Salesmanship, human relations, and business management are competencies needed by all employees, but in varying degrees.

8. Industrial competency needs generally are low for most fields of activity in agricultural businesses.

9. Beginning salaries and wages for service workers are relatively low. Effective training programs should make it possible for new employees to earn higher incomes.

10. To continue in a vocational-technical education program beyond the twelfth grade is appropriate for many persons, since most employers consider twenty years to be a minimum entry age.

11. Trainees with a farm background or farm experience have a definite advantage when seeking employment in off-farm agricultural businesses.

12. Occupational titles needing the greatest number of new employees, not including professional workers, in the next five years are:

Agricultural Machinery Mechanic	Greenhouse Grower
Agricultural Machinery Mechanic's Helper	Greenhouse Worker
Agricultural Machinery Set-up Man	Nursery Worker
Agricultural Machinery Salesman	Greenskeeper
Agricultural Machinery Partsman	Groundskeeper
Agricultural Supplies Salesman	Food Products Processman
Agricultural Supplies Serviceman	Food Products Salesman
Agricultural Supplies Deliveryman	Food Products Department Manager

Research in this area is just beginning to provide direction to curriculum planning. Much more is needed as vocational education in agriculture continues to serve the needs of students and the industry.

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SUMMARY OF RESEARCH FINDINGS IN OFF-FARM AGRICULTURAL OCCUPATIONS

Introduction

Persons employed in many industries, businesses, services and agencies need competencies in agriculture. Most off-farm agricultural occupations are known in all states by the same or similar titles. Combinations of several functions and activities increase the numbers of occupational titles.

The demand for workers with agricultural occupations is based upon and proportional to the production farming outputs in a state or region. Changes in numbers employed and in the responsibilities of the workers in various occupational fields of activity closely follow technological advances. Production inputs, the products and services that modern specialized farmers must purchase, are influenced by research in agricultural science. Processing and distribution developments both cause and respond to changes in consumer preferences and result in new or changed knowledge and skill requirements of specific workers.

It was a growing awareness of urgent need for more definite information on requirements for occupational education involving competencies in agriculture that brought state leaders in agricultural education together at planning conferences at The Ohio State University in May, 1963, and January, 1964. The combined effort of the participants accounts for the considerable similarity in objectives and in data collection procedures that characterizes the individual state reports that have been issued. It was intended that the common purposes and design of the surveys would make feasible a summary publication from the cooperative project.

Objectives of the State Studies

In recognition of the need to change programs of vocational education in agriculture to prepare persons for employment in off-farm agriculture, as well as for farming and ranching, and in anticipation of new legislation, state leaders in agricultural education gave careful consideration to designing state studies. The plans for surveys to be made in 1964 were oriented to achieving the following basic objectives:

1. To identify present and emerging off-farm occupations needing agricultural competencies, and for which vocational and technical education in agriculture should be available.
2. To determine present and anticipated numbers of employees in each occupation, using classifications by industry, by function, and by field of activity designations.
3. To estimate annual entry opportunities for full-time and part-time workers.
4. To determine competencies in agriculture and in related business, distribution, and industrial fields needed for job entry and for advancement.
5. To cluster occupations with common educational needs in categories that will facilitate efficient curricular and course organization in schools.
6. To obtain information on other worker traits that will be of aid in selection, guidance, and placement of individuals in order that their persistence, advancement, productivity, and satisfaction may reach maximum potential.

General Statement of Procedure

In the absence of a census or other source of lists of all employed persons in whose occupations agricultural competencies are needed, leaders of the survey projects in most states turned to available listings of all businesses, industries, agencies, and services. The Department of Labor, and the Bureau of Employment Security, in each state was able to furnish this information.

The second step, in most states, was to assemble committees of persons who could with high reliability sort out the firms that were likely to have employees that use agricultural competencies in their work. The organization without likelihood of having such employees were not visited. Yellow pages of telephone directories were the starting point in some states.

The next consideration was to draw a random sample of the businesses. This was done in a stratified manner in some states, meaning that the randomization was within parts of each total list of firms. Varying sample percentages, ten per cent to seldom more than fifty per cent, were used.

Interview data schedules were prepared and pre-tested. Interviewer's manuals were written in most states and used to train both paid and unpaid interviewers. The unpaid interviewers usually were teacher volunteers who lived in the geographic areas, often school districts, that were being surveyed. Reports of failure to effect successful interviews with the manager or personnel director in each business were nearly nonexistent. Cooperation and interest on the part of employers were excellent. Most states tabulated numbers of employees by each of several classifications. Only a few states have as yet processed the data on knowledge, skills, and abilities needed by employees.

Present Number and Estimated Increase in Workers Needing Agricultural Competencies

Data from typical states which conducted research on a state-wide or area basis are used in Table 1 to illustrate the number and percentage of workers in off-farm businesses, industries, and agencies who need agricultural competencies. The findings show that almost half of all workers in these types of businesses need some knowledge or skills in agriculture. This was determined, in most cases, by asking the employer if each occupational title carried with it the need for agricultural competencies.

It must be kept in mind that the data from most of the states do not include all of the professional agricultural workers who are employed by state and federal agencies. The state studies represented in Table 1 and 2 cover only the most readily recognized agricultural businesses in the state. A more exhaustive search on both the state and local levels would uncover additional employment situations in which agricultural knowledge is used.

The estimated percentage increase in the next five years in numbers of workers needing agricultural competencies as shown in Table 2 indicates that the median is about 20 per cent. This may be divided by five to represent an advance in numbers of 4 per cent per year. Reference to data in the individual state abstracts on pages 32 to 83 will give the reader more detailed information. Several reports include data on the total numbers of replacements as well as added new positions. Hiring of replacement workers is largest in businesses that have the most part-time employees.

Table 1

NUMBER AND PER CENT OF EMPLOYEES IN OFF-FARM AGRICULTURAL BUSINESS IN SELECTED STATES IN 1964 WHO NEED AGRICULTURAL COMPETENCIES[1]

State	No. Off-Farm Agricultural Businesses	Total No. of Persons Employed	Number Needing Agricultural Competencies	Per Cent Needing Agricultural Competencies
Alabama 20 counties	5,443	16,983	4,204	25
Colorado	2,921	27,275	20,433	75
Delaware	2,053	32,766	5,050	15
Louisiana 7 metropolitan areas	1,067	30,300	9,087	30
Massachusetts	3,479	31,954	20,275	63
Missouri 220 school districts	3,315	33,314	19,796	59
Montana 10 community areas	1,127	21,854	12,334	56
Oklahoma	1,879	25,113	9,498	38
Pennsylvania 17 counties	2,142	26,380	12,537	47
West Virginia	1,717	13,851	7,626	55

[1]Data from interviews with owners or managers in a sampling of businesses.

Table 2

NUMBER OF PERSONS NEEDING AGRICULTURAL COMPETENCIES WORKING IN OFF-FARM AGRICULTURAL BUSINESS IN 1964, ESTIMATED NUMBER TO BE WORKING IN 1969, AND PER CENT INCREASE

State	Number of Persons Needing Agricultural Competencies		Per Cent Increase
	1964	1969	
Alabama 20 counties	4,204	4,936	17
Colorado	20,433	23,136	13
Connecticut	4,556	6,709	47
Delaware	5,050	5,945	18
Louisiana 7 metropolitan areas	9,087	9,836	8
Michigan 13 businesses	1,231	1,535	25
Minnesota 4 counties	2,028	2,595	28
Mississippi 11 counties	4,692	4,809	3
Montana 10 community areas	12,334	14,294	16
New York 260 school districts	28,685	34,152	19
Oklahoma	9,498	12,768	34
Pennsylvania 17 counties	12,537	14,035	12
Utah 2 counties	5,837	6,633	14

Industry and Employment Level Distribution of Workers by States

The distribution by major occupational group of employees needing agricultural competencies is given in Tables 3 and 4 for selected states, or designated part of each state. The figures in Table 3 are for states in which interviewing was done only at the local community level. The states in Table 4 also obtained figures for state level businesses, agencies of government and other centralized organizations.

The figures in Table 3 and 4 are percentage distributions of the total numbers of persons who were found to need agricultural competencies. There is a general similarity from state to state within each occupational group.

Agricultural Machinery workers form a larger percentage of the total in the states most predominantly known as commercial crop producing areas. The Agricultural Supplies figures are large primarily in farming states. Large number of employees in Ornamental Horticulture were found in states with greater urban populations. Livestock and Poultry industries, which perhaps should be known as Food Products (Meat, Milk, Poultry) businesses revealed the largest employment in concentrated, one-product areas.

It may be that the nature of the sampling, particularly in reference to whether certain types of businesses, such as greenhouses, supermarkets, hardware stores, lumber yards, were or were not included in the interviews has greatly influenced the distribution of employment opportunities by occupational group.

Table 5 was constructed on the basis of the "Level of Employment" concept. It shows, for instance, a uniformity in percentage of sales employees by states.

Table 3

DISTRIBUTION OF WORKERS NEEDING AGRICULTURAL COMPETENCIES BY OCCUPATIONAL GROUPS[1]
Data from Surveys in Selected States in 1964

Occupational Group	Colorado State Total	Massachusetts State Total	Missouri 220 School Districts	Montana 10 Communities	New York 16 School Districts	Oklahoma State Total
	Per Cent Distribution of Workers Listed by Employers as Needing Agricultural Competencies					
Agricultural Machinery	6%	15%	15%	8%	9%	20%
Agricultural Supplies	5	18	38	20	21	22
Livestock and Poultry Industries	50	18	24	36	9	19
Crops, Forestry Industries	12	12	13	7	32	13
Ornamental Horticulture	12	21	3	12	6	21
Recreation and Wildlife Services	1	4	0	0	4	0
Agricultural Services	14	12	7	17	19	5

[1]Figures are totals of full-time and part-time employees in businesses, industries, and agencies other than production farming or ranching. State-level professional, education, research, regulatory, and commercial organization employees were not included.

Table 4

DISTRIBUTION OF WORKERS NEEDING AGRICULTURAL COMPETENCIES BY OCCUPATIONAL GROUPS[1]
Data from Surveys in Selected States in 1964

Occupational Group	Alabama Twenty Counties	Delaware State Total	Louisiana Seven Cities	Pennsylvania Seventeen Counties	Utah Two Counties	West Virginia State Total
	Per Cent Distribution of Workers Listed by Employers as Needing Agricultural Competencies					
Agricultural Machinery	6%	3%	5%	8%	20%	3%
Agricultural Supplies	16	45	14	23	0	10
Livestock and Poultry Industries	26	8	16	21	48	18
Crops, Forestry Industries	10	9	25	8	8	39
Ornamental Horticulture	9	25	8	23	14	10
Recreation and Wildlife Services	0	0	3	1	1	6
Agricultural Services	33	10	29	16	9	14

[1]Figures are totals of full-time and part-time employees in businesses, industries, and agencies other than production farming or ranching. Included are state-level professional, educational, research and regulatory employees of government and commercial organizations.

Table 5

DISTRIBUTION PER 100 WORKERS NEEDING AGRICULTURAL COMPETENCIES BY LEVEL OF EMPLOYMENT
Data for Several States that Conducted Studies in 1964

Level of Employment	Ala.	Ariz.	La.	Mo.	Mont.	N. Y.	Okla.	Pa.	W. Va.
Professional	13	12	8	1	1	3	2	7	11
Technical	15	4	10	2	4	3	4	4	5
Managerial	8		16	11	12	10	22	11	9
Supervisory	5	9	5	4	11		6	6	
Sales	15	11	12	13	12	12	11	12	12
Clerical	3		6	8	3	3	3	2	4
Skilled	31	23	10	21	25	19	32	20	21
Semi-skilled	10	41	15	27	32	47	20	38	30
Unskilled			16	13		4			9

Development of Lists of Current Occupational Titles

The interviewers and the state project leaders reported much greater difficulty in classifying individual job titles within industry function groups than among occupational groups. The lists which follow on the next three pages are for the Agricultural Machinery, Agricultural Supplies, and Ornamental Horticulture businesses. They are industry areas that employ large numbers of workers.

The attempt to provide uniformity in the lists is desirable but must not be carried beyond the point of essential individualization. For example, there are production phases customarily associated with nursery and floral businesses and with landscape and garden center establishments.

The term "Manager" is used over a wide range of degrees of management responsibility. Close examination of the activities performed by a worker in a position with a particular title including the word "Manager" needs to be made before deciding whether the occupation of the worker might better be classified as another type of responsibility.

Continuous work on comparing the competency ratings of occupations that seem not to be different may be aided by consultation with systems and personnel leaders in the larger businesses. It is quite possible that, for good reasons, they are striving either to have two occupational titles become more divergent or to merge into one.

More detailed information on which occupations employ the most workers, and will have the largest increases in the next five years, may be found in the abstracts of individual state studies that form another section of this report.

Occupational Titles in AGRICULTURAL SUPPLIES
by Field of Activity
(with related titles used in some businesses or states)

Field of Activity	Occupational Titles	Related Titles and Other Designations
Managerial	Agricultural Supplies Manager	
	Ag. Supplies Department Manager	Ag. Supplies Product Manager Ag. Supplies Sales Manager Ag. Supplies Service Manager Ag. Supplies Office Manager
Professional	Ag. Supplies Research and Development Director	Agronomist Nutritionist Entomologist Pathologist
Technical	Ag. Supplies Fieldman	Feed Specialist Seed Specialist Fertilizer Specialist Chemicals Specialist Petroleum Specialist Equipment Specialist
Clerical	Ag. Supplies Bookkeeper	Ag. Supplies Office Clerk
	Ag. Supplies Secretary	
Sales	Ag. Supplies Salesman	Ag. Supplies Sales Supervisor Ag. Supplies Product Salesman
	Ag. Supplies Sales Clerk	
Service	Ag. Supplies Serviceman	Ag. Supplies Service Supervisor Ag. Supplies Service Mechanic Ag. Supplies Applicator
	Ag. Supplies Equipment Operator	Ag. Supplies Mill Operator
	Ag. Supplies Worker	Ag. Supplies Warehouseman Ag. Supplies Maintenance Worker
	Ag. Supplies Deliveryman	Ag. Supplies Truck Driver

Occupational Titles in AGRICULTURAL MACHINERY
by Field of Activity
(with related titles used in some businesses or states)

Field of Activity	Occupational Titles	Related Titles and Other Designations
Managerial	Agricultural Machinery Branch Manager	
	Ag. Machinery Manager	Ag. Machinery Dealer
	Ag. Machinery Department Manager	Ag. Machinery Sales Manager Ag. Machinery Service Manager Ag. Machinery Parts Manager Ag. Machinery Office Manager
Professional and Technical	Ag. Machinery Engineer	Ag. Machinery Product Engineer Ag. Machinery Field Engineer
	Ag. Machinery Fieldman	Ag. Machinery Sales Representative Ag. Machinery Service Representative
Clerical	Ag. Machinery Bookkeeper	Ag. Machinery Office Clerk
	Ag. Machinery Secretary	
Sales	Ag. Machinery Salesman	Ag. Machinery Sales Supervisor Ag. Machinery Product Salesman
	Ag. Machinery Sales Clerk	
Service	Ag. Machinery Mechanic	Ag. Machinery Service Supervisor Tractor Mechanic Ag. Machinery Welder
	Ag. Machinery Field Mechanic	
	Ag. Machinery Parts Man	Ag. Machinery Parts Clerk
	Ag. Machinery Mechanic's Helper	Ag. Machinery Maintenance Worker
	Ag. Machinery Set-Up Man	Ag. Machinery Warehouseman
	Ag. Machinery Deliveryman	Ag. Machinery Truck Driver

Occupational Titles in ORNAMENTAL HORTICULTURE
by Field of Activity
(with related titles used in some businesses or states)

Field of Activity	Occupational Titles	Related Titles and Other Designations
Managerial	Ornamental Horticulture Manager	Nursery Manager Greenhouse Manager Garden Center Manager Florist Park Superintendent Golf Course Superintendent Tree Service Manager
Professional	Landscape Architect Floriculturist Ornamental Horticulturist Orn. Hort. Entomologist Orn. Hort. Pathologist	
Technical	Landscape Consultant	Landscape Designer Landscape Estimator
	Floral Designer	
Clerical	Orn. Hort. Bookkeeper Orn. Hort. Secretary	Orn. Hort. Office Manager Orn. Hort. Office Clerk
Production	Nursery Grower Nursery Worker	Orn. Hort. Propagator
	Greenhouse Grower Greenhouse Worker	
Sales	Orn. Hort. Salesman	Nursery Salesman Orn. Hort. Supplies Salesman Garden Center Salesman
	Orn. Hort Sales Clerk	
Service	Arborist	Tree Surgeon Tree Pruner Tree Sprayer
	Landscape Worker	
	Groundskeeper	Asst. Groundskeeper
	Greenskeeper	Asst. Greenskeeper
	Garden Center Worker	Garden Center Mechanic
	Orn. Hort. Deliveryman	Orn. Hort. Truck Driver

Grouping of Competencies and Job Titles

At the time each employer interviewed furnished the information about numbers of present and future employees in each job title in the business, a checklist of competencies (knowledge, skills, and abilities) was filled out separately for each job title. For each item on the checklist (a total of about sixty to eighty items), the employer marked the degree of competency required, from None to High, on a three to five point scale.

A representative profile of the degree of competency needed in each knowledge or job activity was made for each occupation by determining the mode (or calculating the mean to the nearest whole number value). A factor analysis program with varimax rotation was used to determine correlations between competencies as well as between job titles. "Factors" which emerge, as illustrated on the following pages with data from the Oklahoma study, are groupings of competencies or job titles with high "factor loadings."

The groupings of the job titles divided the workers both by type of business and by field of activity. The type of business groups were further divided into one cluster which included sales and management and another which indicated service workers. The mean ratings in Table 6 were calculated for each competency group in relation to the job title groups.

In general, it was found that the management category had higher competency requirements than the service group. One significant exception to this rule is in the competency area of agricultural machinery and power where the needs of service workers exceed those of management. In reading down the list of the fields of activity in Table 7, it may be seen that the competency ratings drop in most instances.

COMPETENCY FACTOR GROUPS[1]

Employee Traits--Human Relations

Inventory, stock control, warehousing
Worker welfare (insurance, retirement, etc.)
Job opportunities and trends
Job applications, interviews
Buying and merchandising
Receiving, marking, shipping
Internal business organizations
Capital management, financing
Accounting, taxes
Experience in management decisions and problem solving
Employee-supervisor relations
Supervision
Employee relations with fellow employees

Salesmanship

Salesmanship
Customer relations
Public speech
Window and store display
Mathematics
Bookkeeping, business mathematics
Buying and merchandising

Business Management

Legal relations in business management
Government regulations (ICC, FICA, etc.)
Writing
Agricultural policy
Legal requirements of the job
Surveying
Trade relationships, promotion, advertising
Experience in management decisions and problem solving
Time study
Public speech
Accounting, taxes

Agricultural Business Management

Agricultural budgeting, records, and analysis
Farm financing (credit, taxes, etc.)
Accounting, taxes
Bookkeeping, business mathematics
Capital management, financing
Agricultural labor management

[1]From factor analysis of 60 competencies, 100 job titles, Oklahoma interviews with 700 businesses.

Plant and Soil Science

Physical characteristics of soil
Chemical characteristics of soil
Additional plant production practices
Plant growth, fertilization
Soil conservation
Plant propagation, seed production
Controlling insects, diseases, weeds

Animal Science

Animal growth, feeding
Animal breeding, selection
Animal housing and equipment
Animal health and sanitation
Agricultural marketing practices

Agricultural Machinery and Power

Safety skills
Sheet metal skills
Farm power and machinery
Welding skills
Manuals, technical and service, use of
Engines, repair and maintenance

Building Construction Technology

Carpentry and cabinet working
Plumbing
Blueprint reading
Heating and ventilation
Electricity
Masonry
Drafting and design
Farm buildings and conveniences
Farm construction and maintenance
Sheet metal skills
Rural electrification and processing
Soil structures (ditches, ponds, etc.)
Agricultural labor management
Tool and die making
Trade relationships
Electronics
Industrial chemistry

Table 6

AVERAGE COMPETENCY RATING FOR EMPLOYEES IN TWO FIELDS OF ACTIVITY IN FOUR KINDS OF AGRICULTURAL BUSINESS

Competency Group (Subject Matter) Average Ratings

Type of Business and Field of Activity	Employee Traits, Human Relations	Sales-manship	Business Manage-ment	Agricultur-al Business Management	Plant and Soil Science	Animal Science	Agricultur-al Machinery and Power	Building Construction Technology
Agricultural Supplies: Mgt. and Sales	2.0	2.2	1.9	1.9	2.2	2.1	1.3	1.2
Service	1.8	2.1	1.6	1.5	2.0	1.3	1.6	1.2
Agricultural Machinery: Mgt. and Sales	2.4	2.5	2.1	1.8	2.1	1.4	1.8	1.4
Service	1.7	1.9	1.6	1.3	1.6	1.4	2.3	1.2
Ornamental Horticulture: Mgt. and Sales	2.3	2.2	2.0	1.6	2.9	1.3	1.5	1.2
Service	2.0	2.1	1.8	1.3	2.5	1.1	1.6	1.2
Meat, Milk, and Eggs: Mgt. and Sales	2.0	2.1	2.0	1.7	1.0	2.1	1.3	1.2
Service	1.4	1.5	1.4	1.1	1.0	1.6	1.5	1.1

Competency Rating Scale: High 3, Some 2, None 1
(Oklahoma Data)

Table 7

AVERAGE COMPETENCY RATING FOR EMPLOYEES BY FIELD OF ACTIVITY

Competency Group (Subject Matter)	Field of Activity Average Ratings				
	Manager, Field Man	Assistant Manager	Salesman	Book-keeper	Service Worker
Employee Traits, Human Relations	2.0	2.4	1.8	1.7	1.4
Salesmanship	2.2	2.2	2.6	2.3	1.7
Business Management	1.9	2.1	2.2	1.9	1.4
Ag. Business Management	1.7	2.0	1.5	2.1	1.1
Plant and Soil Science	2.1	2.0	1.8	1.8	1.2
Animal Science	2.1	1.3	1.2	1.4	1.5
Ag. Machinery and Power	1.6	1.6	1.6	1.3	1.4
Building Construction Technology	1.3	1.3	1.1	1.1	1.1

Competency Rating Scale: High-3, Some-2, None-1
(Oklahoma Data)

The agricultural competencies needed by employees in off-farm occupations fall into four groups--plant and soil science, animal science, agricultural power and machinery, and agricultural business management. The need for these competencies to be developed in future employees ranged from low to high in the estimation of the employers. The four competency groups represent subjects that have been traditionally taught in vocational agriculture to young men going into production agriculture. The subjects might be taught in the first two or three years of vocational agriculture in preparation for a more intensive twelfth grade educational program including on-the-job experience in a selected off-farm agricultural business. The following tabulation illustrates the relative importance which managers in Oklahoma placed on competency in the four areas of agriculture:

	Agricultural Competency Needed			
Type of Business	Agricultural Business Management	Plant and Soil Science	Animal Science	Agricultural Machinery and Power
Agricultural Supplies:				
Management and Sales	high	high	high	low
Service	some	high	low	high
Agricultural Machinery:				
Management and Sales	high	high	some	high
Service	low	high	some	high
Ornamental Horticulture:				
Management and Sales	high	high	low	some
Service	low	high	low	high
Meat, Milk, and Eggs:				
Management and Sales	high	low	high	low
Service	low	low	high	some

Role of Vocational Agriculture in Supporting Education in Off-Farm Agricultural Occupations

The survey studies in off-farm agricultural occupations have brought out many instances in which vocational agriculture may support, or be supported by, other vocational subjects taught in the comprehensive high school. More of this type of supporting education must be included in curriculum planning if vocational education is to be effective in preparing youth for the complex world of work. One example of this need for supporting education is found in the area of clerical workers in off-farm agricultural business. Many of the students taking business education in high school will go into jobs in off-farm agricultural businesses. Managers were asked to rate the agricultural competencies needed for bookkeepers seeking employment with them. The following tabulation of Oklahoma data shows the results of the average ratings grouped by agriculture courses which might be taught as a supporting program to business training:

Type of Business	Agricultural Competency Needed by Clerical Workers			
	Plant and Soil Science	Animal Science	Agricultural Management	Agricultural Machinery
Agricultural Supplies	high	some	high	low
Agricultural Machinery	some	low	high	low
Ornamental Horticulture	high	low	low	low
Meat, Milk, and Eggs	low	some	some	low

There is a demonstrated need for some agricultural knowledge for beginning clerical workers. From the tabulation it may be concluded that most of the instruction would be in the area of agricultural management and plant and soil science.

Characteristics of Workers in Off-Farm Agricultural Occupations

Survey studies in the various states concerning employment in off-farm agricultural occupations also investigated certain worker characteristics. Many of the states in interviewing employers asked for information concerning such worker characteristics as minimum and maximum salary levels, minimum educational requirements, minimum and maximum age for job entry, and residential background preference. The breadth and depth of the interviews as they were conducted should give a comprehensive view of the conditions and requirements of many of the job titles in off-farm agricultural businesses.

Minimum and maximum salaries and wages. As would be expected, Table 8 shows that there was considerable variation in salaries for various levels of employment among the different states. As a matter of fact, there was less difference among types of business than there was within businesses. For this reason the wages earned are specified by level of employment and by states rather than by type of business. Generally, the professional and managerial levels of employment commanded higher pay, sales and technical levels occupied the middle area, and the service and clerical categories received relatively less. While beginning earnings were low in some of the job titles and in some of the states, average maximum salaries were acceptable in most instances. Many of the businesses have had to take beginning employees with practically no training, thus depressing wages in these areas. Effective education and training programs could improve this situation to a marked degree.

Table 8

AVERAGE BEGINNING AND MAXIMUM MONTHLY SALARY IN OFF-FARM AGRICULTURAL BUSINESSES IN SELECTED STATES BY FIELD OF ACTIVITY

Field of Activity	Average Beginning Monthly Salary						
	Ariz.	Colo.	La.	Mich.	Miss.	Okla.	Range
Managerial	$557	$432	$421	$650	$384	$414	$384-650
Professional	609	484	458	665	412	410	410-665
Technical	565	352	415	601	409	335	335-601
Clerical	---	280	274	513	253	285	253-513
Sales	401	344	344	370	285	344	285-401
Service	409	260	243	343	206	288	206-409

Field of Activity	Average Maximum Monthly Salary						
	Ariz.	Colo.	La.	Mich.	Miss.	Okla.	Range
Managerial	$614	$624	$619	$918	$546	$543	$543-918
Professional	690	720	643	892	575	630	575-892
Technical	617	476	572	783	447	443	443-783
Clerical	---	428	390	804	352	341	341-804
Sales	532	520	570	516	542	500	500-570
Service	574	360	350	464	290	362	290-574

Minimum educational requirements. Information supplied by fifteen states indicate in Table 9 that about fifty per cent of the jobs available in off-farm agricultural businesses can be filled by people with a high school education. Another ten per cent require a minimum of less than high school graduation. This raises a question when compared with the minimum age requirements as specified by the employers interviewed. In most cases, employers were unwilling to hire employees under about twenty years of age. This condition leaves a gap of two or three years which must be filled before the high school graduate can go to work. Additional education beyond high school seems to be logical in order to fill this gap. On the other hand, a more thorough training program on the high school level might lower the age minimum considerably.

Another consideration which the information naturally raises is the relatively low percentage of jobs requiring technical and/or college training (12 and 9 per cent, respectively). This would seem to indicate that employers simply have not had much experience with beginning employees trained in these ways. In states that have been providing technical training above the high school level, the per cent of employers requiring this type of experience was greater. The nation will for some time continue to be faced with the prospect of high school graduates who will be seeking immediate employment, and with employers who are willing to hire them provided their general preparation has been sufficient to meet job entrance requirements.

Minimum age to enter employment. It is logical to consider entry age by level of employment rather than by type of business. As would be expected, Table 10 shows that entry age advances as the training and responsibility associated with the job is increased. Entry into the

Table 9

PER CENT OF EMPLOYEES BY MINIMUM EDUCATION REQUIRED TO ENTER OFF-FARM AGRICULTURAL BUSINESSES IN SELECTED STATES

State	Per Cent of Employees by Minimum Education					
	Less than High School Graduate	High School Graduate	Post High School Tech. Ed.	Some College	College Degree	No Preference
Alabama	24%	50%	16%	---	10%	---
Arizona	--	66	--	9%	18	7%
California	--	34	--	36	29	1
Colorado	12	33	39	12	4	--
Kansas	21	62	--	14	3	--
Kentucky	13	56	6	7	9	9
Louisiana	10	44	4	15	21	6
Michigan	--	53	32	10	5	--
Minnesota	13	75	--	--	8	4
Mississippi	9	44	19	--	17	11
New York	17	57	10	4	4	8
Oklahoma	3	50	14	20	13	--
Pennsylvania	10	62	14	8	6	--
West Virginia	23	22	26	4	13	12

Table 10

MINIMUM AGE RANGE TO ENTER DIFFERENT LEVELS OF EMPLOYMENT IN OFF-FARM AGRICULTURAL OCCUPATIONS IN SEVERAL STATES

Level of Employment	Minimum Age Range Among Occupations			
	Michigan	Montana	Oklahoma	Louisiana
Professional	29-31	30-40	25-30	25
Technical	21-29	22-30	21-30	25
Managerial	25-35	25-35	20-40	28
Sales	21-28	20-27	18-32	16
Clerical	20-23	20-25	18-30	25
Skilled	17-36	25-35	18-40	27
Semi-skilled	20-30	28-25	16-30	25

service (skilled and semi-skilled) and clerical positions is at about twenty years of age, although in a few instances entry at sixteen to eighteen was possible. Sales and technical workers may enter in their early twenties, while the minimum age for managers and professional workers is mostly from twenty-five to thirty years of age.

Residential background preference. In twelve state surveys employer preferences for rural or urban residential background of new employees were recorded and reported. The data in Table 11 shows that the range among states was from thirty-eight to ninety-two per cent. Half of the states were within five per cent of the median of 63 per cent. Farm experience was considered to be an important asset and a definite advantage to beginning workers seeking employment in off-farm agricultural occupations.

Several reasons were given by employers for their preference for young men with farm experience. The farm youth has a store of marketable knowledge which educators and counselors might take for granted but which an employer values greatly. To the employers interviewed, another advantage of a farm background is that a young man with this background has learned to work. Through experience, business managers have learned that rural youth can and will work hard. They are punctual, have orderly work habits, and accept responsibility. Young men with a farm background know how to talk farmers' language. They respect farmers and are sympathetic to farm problems. For these reasons the owners and managers of businesses which deal with farmers and farm products are looking for men with a farm background.

It is significant to note that few off-farm agricultural business employers stated definite preference for workers with an urban background. Table 11 indicates that many employers had no preference as to residential background of new employees.

Table 11

PER CENT DISTRIBUTION OF EMPLOYEE RESIDENTIAL BACKGROUND PREFERENCE AS STATED BY MANAGERS OF OFF-FARM AGRICULTURAL BUSINESSES IN SELECTED STATES

State	Residential Background			
	Farm	Rural Non-Farm	Urban	No Preference
Alabama	63%	7%	1%	29%
Arizona	62	--	--	38
California	61	--	--	39
Colorado	63	16	2	19
Kentucky	92	--	--	8
Louisiana	38	4	1	57
Michigan	64	20	--	16
Minnesota	89	--	--	11
Mississippi	38	1	1	60
Montana	49	1	--	50
Oklahoma	78	4	--	18
Pennsylvania	58	14	1	27

Conclusions and Implications

Vocational educators in agriculture have obtained valuable experience through conducting state surveys of off-farm occupations. New educational programs will be initiated with confidence resulting from participation in and interpretation of the findings of the surveys of competencies needed by workers. Pilot programs will test promising alternatives in organization of the teaching-learning process. Citizens, industries, schools, and related agencies are aware of the potential contribution to the total effort in education for employment that can be made in the broad range of off-farm occupations needing competencies in agriculture.

In general the Agricultural Machinery, Agricultural Supplies, and Ornamental Horticulture industries show probability of hiring the largest numbers of persons needing knowledge in agriculture in the next five years. A large field which may soon require the greatest numbers of employees is that of Food Products Marketing and Distribution. The state studies in 1964 located many jobs in the marketing and distribution of Meat, Milk, and Poultry.

In specialized areas of the country, certain states may consider establishing a limited number of training programs in commodity marketing and processing of products such as grain, cotton, fruits and vegetables. Forest Products and Recreation are fields of expanding employment in some states.

Evidence was obtained that there will be an increase in hiring of persons with more than high school education. The surveys were not designed to separate needs for two years of education beyond high school from requirements of a bachelor's degree. Perhaps employers could not

at this time react to something their states and communities do not yet provide.

Some lower level positions pay wages insufficient to attract even young people to training programs. How to raise the efficiency and productivity of the worker in order that the wage scale may be reclassified higher was recognized as a challenge.

From data on numbers of production units in farming, it may be reasonable to conclude that in many states there are almost the same numbers of commercial farms as there are workers in off-farm occupations, when this classification is limited to those employees who need agricultural knowledge. Partly because there are substantial numbers of seasonal workers in fields as Ornamental Horticulture and in Fruit and Vegetable Marketing and Distribution, the annual requirements for new employees in these businesses are larger than in farming.

State studies uniformly found that advancement within an occupation required a higher average level of competency than was required to gain initial entry. This shows need for continuing adult education.

While only preliminary analysis has been made of specific competencies needed in each occupational group and employee field of activity, the general need for business education is clear. Product knowledge is specific to the several major areas of agriculture, including plant and soil science, animal science, agricultural mechanization, and agricultural business management.

It is quite certain that the findings of the series of state studies now being completed will have a marked effect on programs soon to be initiated. It is just as certain that there is urgent need to strengthen, to re-design, to advance the scope and intensity of research in the next several years.

Abstracts of Twenty-Six State Studies

The section of the report which follows contains a two-page abstract of each of the twenty-six state research studies of off-farm agricultural occupations.

The sub-headings in each abstract are (1) Purpose, (2) Method, (3) Findings and (4) Report. The last heading gives the names of the author(s), title of the report, place and date of publication.

In nearly all of the abstracts, a tabular presentation emphasizes some of the important results of the state survey.

ALABAMA

Purpose

The purpose of this study was to ascertain the nature and extent of off-farm agricultural employment opportunities.

Method

Interviews were made with representatives of agricultural businesses and agencies. The study used a modified random sample from 20 counties.

Findings

The extent of off-farm agricultural employment opportunities in the state by business and occupational group is shown below:

Business and Occupational Group	Employees Needing Agricultural Competencies[1]		
	Current Employment	Increase in 5 Years	Percent Increase in Next 5 Years
Agricultural Chemical Manufacture and Sales	352	121	34
Farm Machinery Sales and Services	622	96	15
Farm Supplies and Equipment	807	128	17
Livestock and Poultry	1,065	170	16
Crops, Forestry, and Soil Conservation	361	57	16
Ornamental Horticulture	754	108	14
Agricultural Service	243	52	21
Total	4,204	732	17

[1]Data for 474 payroll firms in 20 counties.

Alabama continued

There were 16,983 persons employed in the 474 payroll firms contacted. Of the total employees, 4,204 or 24.7 per cent were employed in an agricultural occupation. Of the 4,204 persons employed, 830 or 19.7 per cent were employed part-time. The categories with the largest numbers of persons employed had small percentages engaged in agricultural occupations. The largest numbers of part-time employees were engaged in horticulture and in livestock and crop food processing.

In addition to the 4,204 agricultural workers located by the local business interviews, state and federal government agencies reported 2,481 persons employed in agricultural services. Ten per cent were part-time workers. Most required college education. By function, the categories were: Education, 685; Education and Research, 223; Finance and Credit, 99; Regulatory, 424; Service, 1,050.

There were 184 different off-farm agricultural occupations found in the twenty sample counties. A factor analysis of job titles and competencies has been completed for this study.

Report

Baker, R. A., A Study of Employment Opportunities in Off-Farm Agricultural Occupations in Alabama, A Joint Study by the Agricultural Education Service, Alabama State Department of Education, Montgomery, and the Department of Vocational, Technical, and Practical Art Education, School of Education, Auburn University, Auburn, 1965.

ARIZONA

Purpose

The purposes of this study were (1) to determine the essential skills and knowledge needed by individuals for both initial employment and upgrading on the job in various competency areas, and (2) to determine the number of persons employed in the off-farm agricultural occupations by function of the company and by level of employment.

Method

Interviews were made with employers in 121 establishments providing some kind of agricultural service to farm operators. The study was conducted in one county of the state.

Findings

The present employment and future opportunities in the off-farm agricultural occupations are shown by level of employment below:

Level of Employment	Number of Companies	Employees Needing Agricultural Competencies		
		Current Employment	Employment in 5 Years	Number Increase
Professional	39	92	119	27
Technical	16	34	65	31
Supervisory	54	68	76	8
Sales	84	88	131	43
Service	124	497	546	49
Total	317	779	937	158

Arizona continued

A twenty per cent estimated increase in the next five years in the number of employees who need agricultural training was reported by the 121 establishments. Service personnel will be in greatest demand; sales personnel will be in the second greatest demand.

Of the 5,427 total employees in the establishments, 779, or 14.4 per cent currently needed training in agriculture. Of 3,174 employees engaged in processing functions, only 178 or 5.6 per cent needed agricultural competencies.

Report

Wagley, L. A., Educational Requirements for Off-Farm Agricultural Occupations in Yuma County, Arizona. Dissertation, D. Ed., 119 pages. Library, University of Arizona, Tucson, 1964.

CALIFORNIA

Purpose

The purposes of the study were (1) to determine the number and kinds of positions in agricultural businesses that seem to require agricultural training, and (2) to determine the training requirement, both agricultural and business, for workers in these positions.

Method

Interviews were conducted with representatives of 327 companies in 14 centers who had employees needing agricultural training.

Findings

1. The most common types of businesses employing agriculturally-trained persons were those engaged in sales and service of agricultural products and farm supplies.
2. About 20 per cent of the 24,305 persons employed by the companies needed agricultural training.
3. Over 1,400 new agriculturally trained employees will be needed in the near future to fill anticipated new positions in the companies.
4. High school graduation was desired for all levels of employment.
5. The need for actual farm experience was rated high by all employers.
6. Agricultural training ending at the high school level was adequate for a large portion of the semi-skilled and skilled groups, while more advanced training was needed for sales personnel. For consultants, supervisors, and managers, college agriculture was almost a must.

California continued

7. It was apparent that no clear-cut pattern existed for obtaining new employees who have agricultural and business training. The most popular procedure used to find qualified persons was to hire them from another company.

A study was conducted to identify technical workers in California agriculture and their needs in training programs. Some of the findings of the study were:

1. Over 85 per cent of all work activity by technicians was in general fields of work other than farming and ranching.
2. About one-half again as much work activity is engaged in by technicians in the field of agriculture services as in any other general field.
3. Workers engaged in the five general fields of agricultural services, agricultural industry, agricultural research, agricultural business, and farming and ranching account for almost four-fifths of the technical activity in agriculture.
4. Participation in many different activities is evidenced by technicians being engaged in 134 of the 165 possible entries.
5. A need was indicated for training in basic mechanical skills for about two-fifths of all technician positions reported.

Report

Sutherland, S. S., and Thompson, O. E. The Training Required by Workers in Agricultural Business and Industry in California. California State Department of Education, Sacramento, 1957.

Halterman, J. J. Technicians in Agriculture. California State Department of Education, Sacramento, 1962.

COLORADO

Purpose

The purposes of the study were (1) to identify present and emerging agricultural occupations in Colorado, other than farming and ranching, (2) to determine present and anticipated numbers of employees needed in the occupations, and (3) to determine job requirements and other characteristics of the occupations.

Method

Interviews were made in 1964 with employers in businesses, agencies, and organizations whose personnel use agricultural abilities in performance of their duties. The study used a 6.2 per cent state-wide sample.

Findings

The estimated increase in the state of employees needing agricultural competencies by number and per cent is shown below:

Business and Occupational Group	Employees Needing Agricultural Competencies		
	Current Employment	Employment in 5 Years	Per Cent Increase
Farm Machinery Sales and Service	1,155	1,350	16.9
Farm Supplies and Equipment	960	1,004	4.6
Livestock and Poultry Industries	10,132	10,504	3.7
Crops, Forestry, and Soil Conservation	2,366	2,834	19.8
Ornamental Horticulture	2,510	3,803	51.1
Wildlife and Recreation	242	250	3.3
Agricultural Service	3,068	3,391	10.5
Total	20,433	23,136	13.2

Colorado continued

An increase of 13 per cent in workers needing agricultural competencies during the next five years was anticipated. The largest increase is expected in Ornamental Horticulture. The employers interviewed preferred an employee with a "farm reared" residential background. Having had work experience on a farm is an equivalent.

The education level for initial employment desired of prospective employees was "high school plus special training." High school graduation was selected as a minimum requirement by more than 95 per cent of all employers interviewed.

The median weekly salary for beginning employees by levels of employment was as follows:

Level of Employment	Median Weekly Salary
Professional	$121.00
Technical	88.00
Managerial	108.00
Supervisory	87.00
Sales	86.00
Clerical	70.00
Service[1]	62.00

[1]Includes skilled and semi-skilled.

Report

Foster, Paul J., A Study of Agricultural Occupations Other Than Farming and Ranching in Colorado. (Preliminary Report), State Board for Vocational Education, Denver, 1965.

CONNECTICUT

Purpose

To identify occupations other than farming in which competencies in agriculture are needed, to estimate present and future numbers of workers, and to determine curricular offerings that should be considered in new programs.

Method

Teachers of agriculture interviewed firms identified from telephone directories. The sample of 43 towns was equivalent to a 25 per cent sample of the state.

Findings

The state-wide estimate showed full and part-time employment of 22,704 persons in 290 different job titles. The table lists full-time and part-time employees needing competencies in agriculture to be hired by 1970. Major conclusions were:

1. The opportunity to provide agriculturally oriented instructional programs for adults merits early consideration.
2. Most agricultural education departments may consider offerings oriented to the occupational families of livestock industry, ornamental horticulture and food handling and processing. Some departments may consider special programs in other areas.
3. Curricula which focus on agri-business, with secondary stress on agricultural and mechanical competencies seem indicated.
4. Part-time employment opportunities appear to afford good prospects for directed experience.

Connecticut continued

Occupational Family	Current Employment		Number of Employees to Be Hired by 1970	
	Full-Time	Part-Time	Full-Time	Part-Time
Agricultural and Farm Service	568	156	36	167
Crops, Forestry and Soil Conservation	1,200	29	88	15
Farm Machinery Sales and Service	949	146	196	165
Farm Supplies and Equipment	882	90	151	106
Food Handling and Processing*	1,108	510	603	1,149
Livestock Industry	5,852	717	1,705	610
Ornamental Horticulture	6,129	1,965	2,197	2,536
Wildlife and Recreation	512	1,891	328	776
Total	17,200	5,504	5,304	5,524

*Based on a total count of four major chain stores and eighteen wholesale fruit companies.

Report

The data presented are from a preliminary report by W. H. Martin and Philip T. Masley, University of Connecticut, July, 1965.

DELAWARE

Purpose

The purposes of this study were (1) to identify present and emerging agricultural occupations by job title for which scientific, technical, and vocational agricultural education is needed in Delaware, (2) to list present numbers of workers and estimate numbers to be employed in these occupations in the future, (3) to determine competencies needed, and (4) to describe other characteristics of these occupations.

Method

A disproportionate random sampling method was used to select 267 businesses with employees that needed agricultural knowledge. The interviews conducted averaged a 13 per cent state-wide sample.

Findings

The estimated present total employment in the state in 2053 off-farm agricultural businesses, the number of present employees needing agricultural competencies, and the number to be hired during the next five years are shown in the tabulation on the next page. The 32,776 employees were 20 per cent of the total labor force in Delaware.

The occupational group having the greatest number of employees to be hired during the next five years was Food Marketing and Distribution, with 1,067 needed. Nearly half of them will be part-time workers. Occupational groups having small percentages of employees needing agricultural competencies were Livestock and Poultry; Crops, Forestry and Soil Conservation; and Agricultural Services.

For each seven farmers in the state, there were five workers in off-farm occupations needing agricultural competencies. Approximately

Delaware continued

three per cent of all workers employed in the state, excluding farming, needed agricultural competencies.

Business and Occupational Group	Total Employees in 2,053 Off-Farm Agricultural Businesses	Employees Needing Agricultural Competencies	
		Current (1964)	To Be Hired[1] in 5 Years
Farm Machinery	262	169	82
Farm Supplies	2,998	604	99
Livestock and Poultry	6,102	383	159
Crops, Forestry, and Soil Conservation	6,005	478	216
Ornamental Horticulture	2,663	1,209	385
Wildlife and Recreation	40	8	2
Agricultural Services	8,367	527	144
Food Marketing, Distribution	6,339	1,672	1,067
Total	32,776	5,050	2,154

[1]Employees to be hired during the next five years include additional employees and replacement employees.

Report

Barwick, R. P., Identification of Off-Farm Agricultural Occupations. Preliminary Report, Agricultural Education Publication No. 3., 38 pages, School of Agriculture, University of Delaware, Newark, 1965.

ILLINOIS

Purpose

The purpose of this study was to determine the need for technical education for persons living in and serving rural areas in Illinois.

Method

Interviews were conducted with representatives of businesses which were stratified by the following classifications:

Type 1 - Businesses that are agriculturally oriented

Type 2 - Businesses that are not agriculturally oriented, but often employ workers who must have competence in agricultural knowledge and skills

Type 3 - Non-agricultural businesses

The study used a random sample of 196 stratified businesses in 14 counties in east central Illinois.

Findings

The estimated numbers of workers currently employed who need a knowledge of agriculture and the increase expected in five years, in population centers of less than 25,000, are shown below:

Type of Business	Total Workers	Number Needing Agricultural Competencies: Current Employment	Number Needing Agricultural Competencies: Increase in Next 5 Years
Type 1	8,896	5,487	2,471
Type 2	41,533	3,591	386
Type 3	27,439	558	768
Total	77,868	9,636	3,625

Illinois continued

An estimated 6,020 workers who need some post-high school technical education were employed in businesses of population centers of less than 25,000. Estimates indicate these accounted for 30 per cent of all employees in Type 1 businesses, 6 per cent in Type 2 businesses, and 4 per cent in Type 3 businesses.

After careful inspection of the data, 292 job titles were identified in which some degree of technical education was required. These 292 job titles included 454 technicians and workers needing some post-high school education.

Activities of workers may be used to infer the type of educational program needed. An attempt was made to cluster job titles in terms of the common activities performed by employees using a principal axis factor analysis with a varimax rotation. Twelve activity factors were obtained. For each job title, a factor score was obtained for each of the twelve activity factors.

Report

Phipps, L. J., Krebs, A. H., Hemp, P., Warmbrod, R., and Fuller, G. R., Technicians and Other Workers Who Need Technical Knowledge. Joint Study--Vocational and Technical Education Department, College of Education, and Bureau of Educational Research, University of Illinois, Urbana; and Vocational and Technical Education Division, Springfield, 1964.

Warmbrod, J. Robert, Workers Employed and Employment Opportunities for Workers Needing a Knowledge of Agriculture. 28 p. (mimeo) From Preliminary Report No. 2, Division of Agricultural Education, University of Illinois, Urbana, 1964.

IOWA

Purpose

The purposes of a group of studies of agricultural industires were to determine (1) the employment opportunities in selected off-farm occupations in agriculture, (2) the agricultural competencies needed by males employed in these occupations, and (3) the degree each competency was needed and possessed by employees in these occupations.

Method

The 15 most outstanding employers in selected off-farm agricultural occupation areas served as panels of specialists to develop lists of the agricultural competencies needed by males employed in these businesses. Each list of agricultural competencies, as prepared by the panel of specialists, was submitted to the top ten per cent of the businesses in each of the selected areas. Employers and selected employees in each of the businesses receiving the lists evaluated the degree each competency was needed by employees to effectively carry out their jobs, and the degree of competency employees actually possessed. In addition, employers typical of those in the industry being studied were asked to indicate the present and future manpower needs of their businesses. This information was used to establish future employment opportunities in each of the industries. The study of each of the selected occupational areas is part of an overall state-wide study of the off-farm occupations in agriculture.

Findings

1. The degree of competency needed among the occupational areas within the off-farm agricultural occupation industries varied

Iowa continued

according to the type of understanding, ability, and occupation level.

2. The agricultural competencies needed by sales and managerial employees were similar, but different from those of clerical or service employees.
3. Employer evaluations of employees and employee self-evaluations revealed that a greater degree of competency was needed in agriculture than employees possessed.
4. The smaller the business, the more competent employees needed to be in a greater number of knowledges and skills.
5. As years of farm background increased, the degree of competency needed and possessed by employees increased.
6. In the main, as years of vocational agriculture background increased, the degree of competency needed and possessed by employees increased.
7. As size of business increased, the degree of competency needed and possessed increased in the competencies characteristic of a level of employment.

Report

Bundy, C. E. and Blake, D. L. Competencies in Agriculture Needed by Males Employed in Off-Farm Agricultural Occupations. Cooperative Study - Department of Education, and Iowa Agriculture and Home Economics Experiment Station, Iowa State University of Science and Technology, Ames, and the Vocational Agriculture Section, State Department of Public Instruction, Des Moines, 1965.

KANSAS

Purpose

The purpose of this study was to locate and identify agriculturally oriented occupations in four types of businesses--farm implement, farm produce, farm supply, and farm service.

Method

Interviews were conducted with representatives of the selected businesses which were agriculturally oriented. The study used a 17 per cent random sample of the state which was stratified into four population groups.

Findings

1. From the employers interviewed, it was estimated that 6,787 persons had been employed during the past five years. It was also estimated that 2,823 additional employees would be needed in the State of Kansas in the next five years due solely to the growth in agricultural off-farm business. This figure is in addition to those needed for the normal turnover of employees.
2. A study was made of the special prerequisites for gaining employment in the various job titles. A variety of response was received for the various jobs. More than 88 per cent of the responses reflected a belief that the requirements could be met by a program of special training.
3. Employers were asked to state the minimum educational requirement for entry into the jobs. With two exceptions, the model measure of the responses was for the high school graduate.

Kansas continued

4. Employers were asked to identify those areas, strictly agricultural, with which employees in the various jobs should be familiar. The following are the most frequently selected subject matter areas in order of importance given them by the employers:

   a. General agricultural knowledge

   b. Salesmanship

   c. Tractor, power units, and mechanics

   d. Soils and crops

   e. Agricultural chemicals, insect and pest control

Report

Agan, R. J., A Study of Non-Farm Agricultural Occupations in Kansas. Cooperative Study--Kansas State Board for Vocational Education and The School of Education, Kansas State University, Manhattan, 1963.

KENTUCKY

Purpose

The purposes of this study were (1) to determine the agricultural occupations other than farming, with implications for vocational education, in the following type of businesses: farm machinery, farm supply, agricultural chemical, nursery, and livestock marketing, (2) to determine competency areas important for workers in the businesses, and (3) to determine other characteristics of workers in the businesses.

Method

Interviews were conducted with representatives of businesses and agencies employing workers needing off-farm agricultural competencies. The study covered ten counties in the state.

Findings

1. Farm machinery mechanic was one of the most significant occupations on the basis of frequency of occurrence, job openings, and number of people employed. Others included sales and managerial positions.
2. Farm supply store jobs most significant to vocational education were assistant manager, salesman, and mill operator.
3. Jobs in nursery and related-type businesses most significant were manager, landscape designer, and foreman, at the higher level, and greenhouse, nursery, and landscape crew workers at the lower level.
4. Job openings in agricultural chemical businesses and livestock marketing agencies were very limited in number.

Kentucky continued

5. High school completion was the proper level of education for job entry according to 57 per cent of the responses. Something below was adequate for 23 per cent of the job titles.
6. When four areas of background were studied for people who were planning to enter off-farm agricultural occupations, the rank order of importance was: farm background, prior work experience, high school agriculture, and college agriculture.
7. Dependability was rated more important than personal appearance, politeness, desire to learn, and personal character.

Report

Bingham, W. Agricultural Occupations Other Than Farming in Selected Kentucky Counties, With Implications for Vocational Education. Dissertation, Ph. D., Department of Agricultural Education, College of Education, University of Kentucky, Lexington, 1964.

LOUISIANA

Purpose

The purposes of this study were (1) to determine present numbers of different job titles according to occupational group and levels of employment, (2) to determine agricultural competencies needed for job entry and advancement, (3) to determine special job characteristics and requirements, and (4) to predict trends in occupational opportunities in agriculture.

Method

Interviews were conducted with representatives of businesses and agencies engaged in handling farm products or providing agricultural services. The study sampled seven metropolitan areas of the state.

Findings

The total employment in the businesses interviewed and the numbers of employees needing agricultural competencies are shown below:

Business and Occupational Group	Total Number of Employees	Employees Needing Agricultural Competencies	
		Current Employment	Employment in 5 Years
Farm Machinery Sales and Service	1,056	439	500
Farm Supplies and Equipment	6,128	1,308	1,438
Livestock and Poultry	5,326	1,451	1,519
Crops, Forestry and Soil Conservation	5,927	2,305	2,413
Ornamental Horticulture	872	748	845
Wildlife and Recreation	1,536	300	339
Agricultural Service	9,455	2,536	2,782
Total	30,300	9,087	9,836

Louisiana continued

Report

Mondart, C. L., and Curtis, C. M., Occupational Opportunities and Training Needs for Nonfarm Agricultural Jobs in the Metropolitan Areas of Louisiana, Vocational Agriculture Education No. 6, School of Vocational Education, College of Agriculture, Louisiana State University, Baton Rouge, 1965.

Separate reports have been published for the seven metropolitan areas. Partial summaries from three areas are as follows:

New Orleans

There were 253 businesses surveyed, employing 10,333 workers, of which 1,606 needed agricultural competencies. This number is expected to rise to 1,741 in five years. The present total of 241 different job titles is expected to increase to 278 in five years.

Baton Rouge

There were 153 businesses surveyed, employing 4,612 workers, of which 2,495 needed agricultural competencies. This number is expected to increase to 2,608 in five years. The 2,495 workers were found in 326 job titles, a total that is expected to increase to 388 in five years.

Alexandria-Pineville

There were 139 businesses surveyed, employing 3,048 workers, of which 913 needed agricultural competencies. This number is expected to increase to 975 in five years. The total of 224 job titles is expected to increase to 252 in five years.

MASSACHUSETTS

Purpose

The purposes of this study were (1) to determine employment opportunities in non-farm agricultural occupations in Massachusetts, (2) to determine competencies required by workers in those occupations, and (3) to determine the need for educational programs for entry and advancement in agricultural occupations.

Method

Interviews were conducted with selected employers of workers in agricultural businesses. The study used a 10 per cent state-wide sample.

Findings

The estimated employment and number of workers needing agricultural competencies by level of employment are shown below:

Level of Employment	Total Number of Employees	Number Needing Agricultural Competencies	Per Cent Needing Agricultural Competencies
Professional	2,178	2,150	99
Technical	921	884	96
Managerial	1,343	1,095	82
Sales	6,822	4,661	68
Clerical	2,648	1,557	59
Service	18,042	9,928	55
Total	31,954	20,275	63

Massachusetts continued

Over one-half of the firms interviewed listed sales as the main function of the firm. Over 60 per cent of the employers stated they would be willing to hire high school students as trainees in their firms.

There were 25,494 full-time and 6,460 part-time workers employed in agricultural businesses, compared with 17,000 persons engaged in production on farms in the state. Sixty-three per cent of the workers in the businesses needed agricultural competencies.

A list of 216 job titles was developed from those given by employers and recorded by the interviewers. A condensed list of job titles was then developed by combining the job titles in the original list which appeared to refer to essentially the same duties of employees, resulting in a list of 119 job titles used in the coding and in calculations of characteristics and competencies needed by workers.

Report

Judge, Homer V., Employment Opportunities and Needed Competencies in Off-Farm Agricultural Occupations in Massachusetts. Massachusetts Department of Education, Division of Vocational Education, Boston 16, Massachusetts.

MICHIGAN

Purpose

The purposes of this study were (1) to identify present and emerging agricultural occupations, other than farming and ranching, for which vocational-technical agricultural education should be available, (2) to determine present and anticipated numbers of employees in the occupations, (3) to estimate annual entry opportunities, (4) to determine competencies for entry and satisfactory performance, and (5) to determine other characteristics of the occupations, such as salary, age for entry, formal education, restrictions, etc.

Method

The Michigan Agricultural Conference appointed an Opportunities for Youth committee consisting of representatives from seventeen member firms and organizations. These member groups aided the Vocational Agriculture Service in preparing and testing survey forms. Thirteen firms supplied data for the study. For two of them, the data were expanded to be an estimate of employees on a state-wide basis. They were farm machinery sales and service, and ornamental horticulture (see numbers in parentheses).

Findings

The estimated number of workers needing agricultural competencies is shown on the next page.

Michigan continued

Business and Occupational Group	Employees Having Agricultural Job Titles: Current Employment	Employment in 5 Years	Per Cent Increase in 5 Years
Farm Machinery Sales and Service	238 (3,451)	314 (4,553)	32
Farm Supplies and Equipment	231	305	32
Livestock and Poultry	94	135	44
Crops, Forestry, and Soil Conservation	254	266	5
Ornamental Horticulture	1,058 (3,443)	1,470 (4,750)	38
Agricultural Service	414	515	24
Total	2,289	3,005	31

The firms surveyed employed a total of 4,974 persons, of which, 2,289 or 46 per cent had agricultural job titles. The firms expect to employ 3,005 agricultural workers in five years, an increase of 31 per cent. Eighty different agricultural job titles were identified.

The greatest number increase estimated is in agricultural service occupations. This is in line with Employment Service figures which predict greatest increases in service occupations and least increases in occupations that deal with the production of goods.

Report

Langdon, C. L., A Survey of Agricultural Occupations in Michigan, Vocational Agriculture Service, Michigan Department of Public Instruction, Lansing, and the Michigan Agricultural Conference, 1965.

MINNESOTA

Purpose

The purposes of this study were (1) to identify present and emerging off-farm agricultural occupations, (2) to determine opportunities for employment and competencies required in the occupations, (3) to determine the need for occupational training or retraining and the need for pre-employment vocational education for employees in off-farm agricultural occupations, and (4) to group job titles into occupational groups for which there are common technical education needs.

Method

Interviews were conducted with employers of off-farm agricultural businesses. The data represent four counties in the state.

Findings

The current employment and estimated increase in five years of employees needing agricultural competencies are shown below:

Business and Occupational Group	Employees Needing Agricultural Competencies		
	Current		To Be Hired in Next 5 Years
	Full-time	Part-time	
Farm Machinery	720	122	372
Crops, Forestry, and Soil Conservation	176	36	48
Livestock and Poultry	434	66	53
Ornamental Horticulture	31	69	12
Wildlife and Recreation	10	9	--
Agricultural Service	229	126	81
Total	1,600	428	566

Minnesota continued

The anticipated number of employees needed in the next five years is a conservative estimate. The interviewers found very few employers who kept a record of the number of employees hired during the past.

Weighted-frequency distribution indexes of competencies have been computed for some of the business and occupational groups. Job titles at various levels and product areas with like competencies are being consolidated for future use.

The total number of employees in relation to the employees needing agricultural competencies is considerably higher in rural counties.

Report

Freier, E. E., The Minnesota Agricultural Off-Farm Occupational Opportunities and Training Needs, Mankato Area Vocational-Technical School, Mankato, Minnesota, May, 1965.

MISSISSIPPI

Purpose

The purposes of this study were (1) to identify present agricultural occupations other than farming, (2) to determine employment opportunities in those occupations, (3) to determine needed competencies for employment and other characteristics of those agricultural occupations.

Method

Interviews were conducted with representatives of businesses, industries, and agencies whose employees use agricultural knowledge in their work. The study used a survey of three counties in the Mississippi Delta area.

Findings

The estimated total employment, number of persons needing agricultural competencies, and those needed in five years are shown below for the eleven counties of the Mississippi Delta area.

Business and Occupational Group	Total Employment	Employees Needing Agricultural Competencies	
		Current Employment	Employment in 5 Years
Farm Machinery Sales and Service	1,188	1,148	1,212
Farm Supplies and Equipment	173	139	149
Livestock and Poultry	176	153	166
Crops, Forestry, and Soil Conservation	29	16	16
Ornamental Horticulture	76	73	73
Agricultural Service	3,269	3,163	3,193
Total	4,911	4,692	4,809

Mississippi continued

The total expected increase of workers needing agricultural competencies during the next five years is 2.5 per cent of current employment numbers. Largest expected increases are in the areas of Farm Supplies and Equipment and Livestock and Poultry.

Report

Snowden, O. L., A Study of Employment Opportunities and Needed Competencies in Agricultural Occupations Other than Farming in Eleven Counties of the Mississippi Delta. Mississippi State University, State College, 1965.

MISSOURI

Purpose

The purposes of this study were (1) to identify present and emerging agricultural occupations other than farming, (2) to determine the trends of employment in the occupations, (3) to relate the predominance of certain types of occupations to different sections of the state, (4) to determine specific characteristics about the occupations, and (5) to determine specific characteristics about agricultural businesses.

Method

Interviews were conducted with agriculturally-related businesses which employed personnel where a knowledge of agriculture was beneficial in their job performance. The study was conducted in the communities of 220 school districts in the state.

Findings

The total employment of the firms surveyed and the number of workers that were oriented in agriculture are shown below:

Business and Occupational Group	Total Employment	Employees Oriented in Agriculture	
		Number	Per Cent
Farm Machinery Sales and Service	3,597	2,888	80
Farm Supplies and Equipment	11,090	7,513	68
Livestock and Poultry	10,031	4,801	48
Crops, Forestry, and Soil Conservation	4,287	2,621	61
Ornamental Horticulture	1,152	596	52
Wildlife and Recreation	48	40	83
Agricultural Services	3,157	1,337	41
Total	33,362	19,796	60

Missouri continued

Almost one-half of the firms surveyed were classified under the occupational group of farm supplies. No professional, federal, or state agencies are included in this report. A majority of the firms had been in business over 15 years. Almost 70 per cent of the firms would be willing to cooperate in a program of hiring high school students as trainees.

Most frequently used by employers for obtaining agriculturally oriented personnel were: friends' recommendations, persons dropping in seeking employment, and present employees' recommendations.

Report

Griffin, W. L., Agricultural Occupations Other Than Farming in Missouri, Joint Staff Study, State Department of Education, Jefferson City, Agricultural Education Department, University of Missouri, Columbia, and Teachers of Vocational Agriculture, State of Missouri, 1964.

MONTANA

Purpose

The purposes of this study were (1) to identify present and emerging agricultural occupations, other than farming and ranching, for which vocational and technical education are needed in Montana, (2) to determine present and anticipated numbers of employees by job titles, (3) to determine competencies needed for entry and advancement by occupational group and level of employment, (4) to determine other characteristics of the job titles and occupations, and (5) to identify a "core curriculum" for use in vocational and technical education at the high school, post-high school, and adult levels.

Method

Interviews were made with 161 randomly selected businesses in ten communities of Montana who have employees needing agricultural knowledge, skills and abilities. The study used a 14.4 per cent sample of the ten communities. It included urban as well as rural areas and sampled businesses needing agricultural competencies in hub cities of Montana where agriculture is very strong in the area around the city. The figures represent geographical areas in which one-fourth of the population lives.

Findings

The firms surveyed employed 3,122 persons. Of these, 1,762 or 56.4 per cent needed agricultural competencies. The businesses planned to hire 1,199 employees needing agricultural competencies in the next five years.

Montana continued

Business and Occupational Group	Employees Needing Agricultural Competencies[1] Current Employment	Expected in Five Years	Number To Be Hired
Farm Machinery Sales and Service	1,001	1,204	266
Farm Supplies and Equipment	2,450	2,597	1,344
Livestock and Poultry	4,466	5,362	1,617
Crops, Forestry, and Soil Conservation	840	1,001	952
Ornamental Horticulture	1,505	1,645	2,401
Agricultural Services	2,072	2,485	1,813
Total	12,334	14,294	8,393

[1]Data expanded from the 14.4 per cent sample to a 100 per cent estimate for the ten community areas.

Of the 1,762 total employees needing agricultural competencies, the greatest number of employees are in Livestock Occupations, followed by Farm Supplies and Equipment, and Farm Services.

Report

Heaney, D. S., Vocational and Technical Training Needed for Off-Farm Agricultural Occupations in Selected Communities of Montana. A report will be issued in cooperation with the State Department of Education in Montana and with the Montana State University.

NEVADA

Purpose

To determine numbers of present employees needing an agricultural background and to estimate entry opportunities due to expansion and replacement during the next five years. Also, to determine employee characteristics desired in future workers and to obtain employer judgments of types of schools and subject areas for training new employees.

Method

Names of non-farm business firms and government agencies classified in seven major occupational groups of economic importance in Nevada were obtained from telephone directories, state license lists, and from county agents and vocational agriculture teachers. The data for numbers of employees are for interviews with 363 of a total of 450 firms and for 39 agencies in the state. Employee characteristics by job titles were reported for 310 firms.

Findings

Data on employees in 363 firms interviewed classified by major occupational group, on an industry basis, are tabulated here:

Occupational Group	No. of Firms	Total Employees	Needing Agricultural Background	
			Number	Per Cent
Agricultural and Allied Mechanics	88	1,294	111	8.6
Animal Industry	66	1,027	172	16.7
Agricultural Business, Supply Service	134	15,170	287	1.9
Horticulture Orn. and Turf	46	427	70	17.8
Plant Industry	29	258	76	29.4

Nevada continued

In eight government agencies in Agricultural Mechanics, Animal Industry, Plant Industry and Agricultural Business, 80 per cent of 141 employees needed an agricultural background. Of 2,421 workers in 14 ornamental horticulture related agencies only 3.7 per cent needed agricultural knowledge. There were 17 educational, research, land and forest management, and wildlife and recreation agencies with 588 of 1,063 employees needing agricultural background.

In Nevada 9,362 of 163,262 total persons employed are engaged in agricultural production and 1,493 are in off-farm business occupations needing an agricultural background.

The greatest expansion in total employees in off-farm agricultural businesses in the next five years will be in the Las Vegas area (75 per cent) and the Reno area (46 per cent). In the other areas of the state a 23 per cent expansion is estimated.

Employers readily listed desirable worker traits. They desire ambition, dependability, honesty, and initiative. Potential for management and sales positions was sought in new employees.

Report

Christensen, Howard H., Employment Opportunities in Selected Non-Farm Businesses and Government Agencies as Related to Agricultural Training or Background, Nevada, 1965. 96 p. Agricultural Economics and Education Department, University of Nevada, Reno, 1965. (preliminary mimeo report)

NEW YORK

Purpose

The purposes of this study were (1) to identify the off-farm agricultural occupations, (2) to determine present employment and future employment opportunities in the occupations, (3) to determine the agricultural competencies needed by workers in the occupations, and (4) to determine other characteristics of the occupations.

Method

Interviews were conducted by teachers of agriculture in eighteen school districts with representatives of businesses and services which have employees needing agricultural competencies. The data were expanded to estimates for the 260 school districts offering instruction in agriculture in New York.

Findings

The estimated current full-time employment and the employment expected in five years by business and occupational groups is shown below:

Business and Occupational Group	Employees Needing Agricultural Competencies: Current Employment	Expected in Five Years	Per Cent Increase
Farm Machinery Sales and Service	4,879	6,181	27
Farm Supplies and Equipment	8,967	10,289	15
Livestock and Poultry	3,725	4,007	8
Crops, Forestry, and Soil Conservation	1,169	1,484	27
Ornamental Horticulture	871	1,049	20
Wildlife and Recreation	517	660	28
Agricultural Services	8,557	10,482	22
Total	28,685	34,152	19

New York continued

Based on employers' estimates, workers in the 213 off-farm agricultural occupations spend an average of 83 per cent of their work time on tasks requiring agricultural competencies. The proportion of time thus spent varied from 15 per cent for some job titles to 100 per cent for others.

In addition to the estimated 28,685 full-time employees needing agricultural competencies, it was further estimated that an additional 16,841 persons were employed part-time.

Employers reported that high school graduation was required for 57 per cent of the full-time workers and that 18 per cent needed education beyond high school. Seventeen per cent were reported to need less than high school education.

Report

Cushman, H. R., Christiansen, V. E., and Bice, G. R., Off-Farm Agricultural Occupations in New York State, A Cooperative Research Project of the Rural Education Division, New York State College of Agriculture, Cornell University, Ithaca, Bureau of Agricultural Education, State Education Department, Albany, Contributing Boards of Education, and Boards of Cooperative Educational Services in New York State, 1965.

NORTH CAROLINA

Purpose

The purposes of the study were (1) to determine the nature and extent of the need for providing training in agricultural technology for workers already employed in off-farm agricultural occupations, and (2) to determine the nature and extent of the need for providing training in agricultural technology for individuals who wish to prepare for entering off-farm agricultural occupations.

Method

Interviews and questionnaires were utilized with agricultural industry and business firms; questionnaires were administered to the boys of the 1961 graduating class and were sent to graduates and drop-outs of the 1959 and 1960 classes in vocational agriculture. The study used a nine-county area in the state.

Findings

1. Many agricultural industry and business firms have individuals employed who need additional training. Many of the firms do not have an organized training program.
2. It is evident that technical training should be provided for individuals who wish to be employed by agricultural industry and business firms. Relative to other types of employees, the need for training of the skilled plant worker is by far the greatest.

North Carolina continued

3. It is very apparent that a large per cent of the high school senior boys in 1961 do not plan to attend college, and need and desire an opportunity to take additional training of less than college grade. This also seemed to be true with vocational agriculture graduates and dropouts of 1959 and 1960.

Report

Blackmon, J. H., and Dawson, C. G., Need for Training for Non-Farming Agriculture Occupations. Vocational Division, North Carolina Department of Public Instruction, Raleigh, North Carolina, 1961.

OHIO

Purpose

The purposes of this study were (1) to determine the number of people working off the farm who need at least one agricultural competency in order to maintain their employment, and (2) to identify businesses who employ these workers.

Method

Mail questionnaries were sent to 6,750 businesses, firms, and agencies who employed any workers except farmers, 975 manufacturing firms, and to local governmental agencies, colleges and universities, for a total of 7,874. The study used a 10 per cent sample of the state.

Findings

The estimated number and per cent of Ohio off-farm employees by competency groups is shown in the following tabulation:

Competency Groups	Number of Employees	Per Cent
Industrial	997,276	32.2
Business and Service	860,401	27.7
Agricultural	165,262	5.3
Other	1,081,261	34.8
Total	3,104,200	100.0

Ohio continued

In addition to persons actively engaged in farming, 5.3 per cent of the workers in the state of Ohio need agricultural competencies. There will be 15,000 new off-farm employees having agricultural competencies needed for the next year (includes replacements).

Of all workers required to have competency in agriculture, employers preferred 6.5 per cent to have a farm background. Employers had no background preference for 88 per cent of their employees.

When compared with the Industrial or Business and Service competency groups, a higher per cent of the workers in the Agricultural competency group earned more than $80 per week.

Report

Brum, H. D. Employment Opportunities and Needed Competencies for Workers in Ohio, Ohio Department of Education in cooperation with The Ohio State University and Agencies of the State and Federal Government, Columbus, 1964.

OKLAHOMA

Purpose

The purposes of this study were (1) to identify present and emerging off-farm agricultural occupations for which vocational, technical or higher education should be available, (2) to determine present numbers of employees, annual turnover and entry opportunities, and competencies needed for entry and advancement in the occupations, and (3) to determine other characteristics of the occupations.

Method

Interviews were conducted with representatives of agricultural industries and businesses. The study used a stratified random sample of the state. In interviewing 700 businesses, over 2,000 job-title interviews were made.

Findings

The estimated increase of employees in the state who need agricultural competencies is shown in the following tabulation:

Business and Occupational Group	Employees Needing Agricultural Competencies: Current Employment	Employment in 5 Years	Per Cent Increase
Farm Machinery	1,962	2,780	41.7%
Farm Supplies	2,205	2,775	25.9
Livestock and Poultry	1,659	2,243	35.2
Crops, Forestry, and Soil Conservation	1,029	1,236	20.1
Ornamental Horticulture	2,100	3,063	45.9
Agricultural Service	544	671	23.3
Total	9,499	12,768	34.4

Oklahoma continued

Of the businesses interviewed, the estimated percentage increase during the next five years of the total full-time workers is 32.2 per cent, and of the total part-time workers is 43.0 per cent. The three levels of employment with the greatest numbers of workers in jobs requiring agricultural competencies were service, managerial, and sales, in that order of importance.

A factor analysis of all job titles and competencies showed groupings which may be used in program planning.

Report

Edington, E. D., and Stevenson, B. W., Determining Training and Educational Needs for Persons Employed in Agricultural Occupations in Oklahoma. Cooperative Study--College of Agriculture, Oklahoma State University, and the Oklahoma State Department of Vocational Education, Stillwater, 1964.

PENNSYLVANIA

Purpose

The purposes of this study were (1) to identify agricultural occupations and job titles, (2) to estimate present numbers of employees and entry opportunities, (3) to list competencies needed for entry and advancement, (4) to determine other job characteristics, and (5) to group occupations and job titles for which there are common technical education needs.

Method

Interviews were conducted with representatives of businesses having employees needing agricultural competencies. The study used a random sample of 17 counties.

Findings

The estimated increase of employees needing agricultural competencies during the next five years is shown by the following:

Business and Occupational Group	Employees Needing Agricultural Competencies		
	Current Employment	Employment in 5 Years	To Be Hired During Next Five Years
Farm Machinery Sales and Service	1,056	1,252	444
Farm Supplies and Equipment	3,372	3,920	1,264
Livestock and Poultry	2,820	2,972	872
Crops, Forestry, and Soil Conservation	1,170	1,248	290
Ornamental Horticulture	3,344	3,784	2,180
Wildlife and Recreation	71	85	27
Agricultural Service	704	774	186
Total	12,537	14,035	5,263

Pennsylvania continued

Thirty-five job titles account for 85 per cent of the increase in numbers of workers expected in the next five years.

Seventy-five job titles account for 85 per cent of all workers expected to be hired in the next five years. Twelve service titles, mostly in horticulture, represent over 50 per cent of the turnover, not increase. In the largest occupational groups, salesmen, mill workers, mechanics, and delivery men account for most of the increase expected in full-time workers.

Factor analysis of competencies and of occupational titles by type of business is being done using profiles of competency ratings for classified job titles. Courses to be taught to high school students and to employed adults in off-farm agricultural businesses may be established on the basis of concentrations of degrees of need.

Report

Hoover, N. K., McClay, D. R., and Stevens, G. Z., Technical Education Needs of Persons Engaged in Agricultural Occupations. Joint study--Department of Agricultural Education, The Pennsylvania State University, University Park, and the Division of Agricultural Education, Pennsylvania State Department of Public Instruction, Harrisburg, 1965.

UTAH

Purpose

The purposes of this study were (1) to identify present and emerging agricultural occupations for which vocational and technical agricultural education should be available, (2) to determine present and anticipated numbers of employees, annual entry opportunities, and competencies needed for entry into the occupations, and (3) to determine other characteristics of the occupations.

Method

Interviews were conducted with managers of businesses employing workers who need agricultural competencies. The study used two counties in the state.

Findings

1. In September, 1962, the total work force for the two counties surveyed was 158,819. Approximately 5,729 or 3.6 per cent of the workers were employed in occupations related to farming.
2. The greatest demands for workers were in the areas of animal science, agricultural mechanics, and crops. The specific needs were in meats, trucking, and nursery work.
3. The needs for agricultural training were highest in meats and horticulture. Employers in these occupations are looking for trained employees.
4. The agricultural mechanics area needs experienced men in sales and service. Knowledge of farm equipment is essential to salesmen.

Utah continued

5. The demands are great in almost all fields of off-farm agriculture. Training should be provided for persons on both the high school and the post-high school levels.

Report

Schank, D. R., A Study of the Off-Farm Agriculture Occupations of Utah's Salt Lake and South Davis Counties to Determine Educational Needs. Department of Agricultural Education, Utah State University, Logan, Utah, 1964.

WASHINGTON

Purpose

The purpose of this study was to determine the number and kinds of positions in agricultural businesses that require an agricultural background of experience, or that require training in agriculture and business.

Method

Interviews were made with managers of businesses associated with agriculture. The study used a 17 per cent stratified random sample of the state.

Findings

1. The 241 businesses used in the study indicated that 1,836 or 13.6 per cent of 13,494 present employees needed training in agriculture.
2. When projecting future employment needs, three businesses expected a decrease, 112 expected to remain about the same, and 126, or 52.4 per cent will hire some 550 agriculturally-trained persons within the next five years.
3. It was estimated from the current agriculturally-trained persons in the 241 associated businesses that approximately 3,300 additional employees will be required in the State of Washington in the near future.
4. High school graduation was desired for all levels of employment and will become a must for persons planning to enter the field of agricultural business. Over two-thirds of the

Washington continued

employers asked four years of college preparation of prospective consultants, supervisors, and managers.

5. Starting salaries in agricultural businesses compared favorably with positions in other occupations requiring comparable training and experience

Report

Brown, B. L., Training Requirements of Workers in Business Associated with Agriculture, State Board for Vocational Education, Olympia, 1959.

WEST VIRGINIA

Purpose

The purposes of this study were (1) to identify the various agencies having employees required to possess agricultural competencies, (2) to determine the number of employees in various off-farm agricultural job classifications, (3) to determine some of the basic requirements for entering off-farm agricultural employment, and (4) to identify certain occupations for which training programs may be implemented at high school and post-high school levels for successful entrance.

Method

Interviews were conducted with representatives of a state-wide sampling of businesses with off-farm agricultural employees.

Findings

The present employment and estimated number of persons needed in five years in agricultural occupations are shown in the following:

Business and Occupational Group	Agricultural Occupations Workers		Added Number of Persons Needed in Five Years
	Number	Per Cent	
Farm Supplies and Equipment	1,773	12.8	34
Livestock and Poultry	2,507	18.1	64
Crops, Forestry, and Soil Conservation	5,416	39.1	586
Ornamental Horticulture	1,344	9.7	125
Wildlife and Recreation	831	6.0	122
Agricultural Service	1,980	14.3	140
Total	13,851	100.0	1,071

West Virginia continued

Of the 385,150 persons in the total labor force, 3.6 per cent were in off-farm agricultural occupations and 5.4 per cent in farming. For every two off-farm agricultural workers, there were three workers in production agriculture. Eighty-four per cent of the employing agencies employed less than ten agricultural workers. An eight per cent increase in off-farm agricultural employment was anticipated in the next five years. In the geographic regions where the percentage of workers in farming was higher than the state average, the percentage in off-farm agricultural occupations was also above average.

Report

Bailey, J. K., Non-Farm Agricultural Employment in West Virginia with Implications for Vocational Education Programs, Division of Vocational, Technical, and Adult Education, Charleston, 1965.

How to Obtain Copies of Individual State Reports and Further Information on Studies in Progress

Author(s), title, place and date of publication have been listed at the end of the two-page abstract of each of the twenty-six individual state studies on pages 33 to 85 in this report. A copy of a particular publication may be obtained by writing to the author, to the State University, Department of Agricultural Education, or to the office of the State Supervisor of Vocational Agriculture.

Many of the leaders of the state studies of off-farm agricultural occupations are continuing the analysis of data obtained on interview schedules. They intend to publish additional reports, with emphasis on competency groupings and course of study recommendations. Correspondence with a study leader may result in more rapid dissemination of findings and of research procedures worthy of adaptation to other states.

New research projects in occupations areas are being designed in several states that have completed one or more studies. Different theoretical considerations form the basic approach, and new data schedules have components not previously included.

States such as New Hampshire, Vermont, Rhode Island, New Jersey, Tennessee, Virginia, Florida, Indiana, and others for which information is not yet released will initiate and/or complete and publish studies in the near future. The Summaries of Studies in Agricultural Education series and other sources listing staff and thesis research will continue to report a steadily increasing output of valuable regional and local research on agricultural occupations.

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Occupations in Colorado. Part I, Outlook By Industries.

Colorado Vocat Educ Res Coordinating Unit, Fort Collins

Jun66

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*EMPLOYMENT TRENDS, *EMPLOYMENT STATISTICS, *OCCUPATIONS, *LABOR FORCE,

Colorado,

Current and projected employment statistics are given for the state and for the Denver Standard Metropolitan Statistical Area which includes Adams, Arapahoe, Boulder, Denver, and Jefferson Counties. Data were obtained from the Colorado Department of Employment, Denver Research Institute, U.S. Census, University of Colorado, Mountain States Telephone Company, and Public Service Company publications. Employment figures for 1950, 1960, 1965, and 1970 are shown for agriculture, mining, construction, total manufacturing, food products, textiles and apparels, rubber and plastic products, chemicals, printing and publishing, other nondurable goods, furniture, lumber and wood products, primary metals, fabricated metals and ordnance, machinery except electrical, electrical machinery, electrical equipment and supplies, transportation equipment, other durable goods, railroads, trucking and warehousing, other transportation, communications, utilities and sanitary services, business and repair services, entertainment and recreation services, medical and health, wholesale, total retail, food stores, eating and drinking, general merchandise and variety stores, auto dealers and gas stations, finance, insurance and real estate, federal government, and state and local government. Trends in each classification are commented on. (PS)

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OCCUPATIONS IN COLORADO

Part I
Outlook By Industries

Prepared By:

The Vocational Education Research Coordinating Unit
Colorado State University
Fort Collins, Colorado

June, 1966

VT 007944

OCCUPATIONS IN COLORADO

The purpose of this report is to present information about occupations in the State of Colorado and briefly discuss the apparent occupational outlook by industry and then by occupation. No new data are presented in the report; rather, the tables are simply a reorganization of existing data drawn primarily from the following sources.

1. Labor Market Highlights, Colorado Department of Employment, A monthly publication.
2. Mahar, J. T., Coddington, D. C., and Gilmore, J. S. Economic Forces Behind Colorado's Growth, 1870-1962 with Projections to 1970. Denver Research Institute, 1963.
3. Colorado--General Social and Economic Characteristics. U.S. Census. 1960.
4. Vaughn, R. D. Denver Metropolitan Area Economic and Social Profile. Mountain States Telephone Co., Denver. 1963.
5. Public Service Company. An Analysis of Colorado's Economy with Projections to 1970. Denver. 1965.
6. First Annual Colorado Business and Economic Outlook Forum. Univ. of Colorado and Colorado Division of Commerce and Development. 1965.

In the first part of the report, employment data are presented for industrial classifications for the State and for the Denver Standard Metopolitan Statistical Area which includes Adams, Arapahoe, Boulder, Denver, and Jefferson Counties.

The 1950 data for the state are census data. We originally used the census reports for the 1960 state data, but several inconsistencies appeared perhaps because census data are based on self-reports. The census figures generally seemed to be too large when compared with other sources and did not fit the 1965 figures and the 1970 projections as well as the data from other sources. Consequently, most of the 1960 figures for the state were obtained from reports number two, five, and six above, except where otherwise indicated. The 1965 figures for the state were taken from the Labor Market Highlights and the projections are mainly from the Mahar, et. al. report; number two above.

The Denver figures for 1950, 1960, and 1970 were taken from the Vaughn report; number four above. The 1965 figures for Denver are from the Labor Market Highlights. The 1960 figures in the Vaughn report were taken from census reports and one should keep in mind that these figures may be overestimates of actual employment in Denver in 1960. No other source was available for employment in Denver in 1960.

The data in the tables should be interpreted cautiously for various reasons. One reason is indicated in the above paragraphs; another reason is that the various reports may have used differing definitions for the categories, a third source of inaccuracy is the possibility that different techniques of projection were used by the investigators, and a fourth source is the extent to which certain assumptions are violated or not met in making the projections.

The reader who is interested in a more detailed analysis of the employment situation in the state than is provided in this report should examine the references cited above. The Public Service Report and The First Annual Forum Report (numbers five and six) are recent and provide good analyses of the employment situation in the state.

TOTAL EMPLOYMENT
(Does not include self-employed)
(In Thousands)

1950 No.	1960 No.		1965 No.	1970 No.
476	625		631	783
		Denver		
234	353		374	480

Total employment in the state is increasing, but the growth from 1960-1965 for the State and for Denver suggests that the 1970 projections may be high. Many factors influence this employment picture, however, and any significant change in one or a combination of these factors can influence the employment figure a great deal. Because of the many factors operating on employment, long term projections are very hazardous.

The Mahar, et. al., projections are based on the following assumptions.

1. That no major discontinuities will occur in Colorado industry. An example of a major discontinuity would be the location of the atom smasher in Colorado.
2. No major depression will occur.
3. No major war will occur.
4. The Cold War will continue.
5. Climate and governmental policy will not vary from the usual pattern.

It is evident that all of these assumptions have not been completely met, and to the extent that any have been violated to that extent might the data be misleading.

An overall summary of the data indicates that the employment pattern, by industry in terms of numbers employed is as follows:

Declining	Stable	Expanding
Agriculture	Mining	Construction
Railroads	Manufacturing of:	Manufacturing of:
	Textiles and Apparel	Fabricated Metals & Ordinance
	Rubber and Plastics	Electrical Machinery
	Furniture and Wood Products	Transportation Eqpt.
		Printing & Publishing
	Machinery, except electrical	Total Manufacturing
	Primary Metals	Communications
	Chemicals	Services
	Wood and Kindred Products	Wholesale Trade
	Trucking and Warehousing	Retail Trade
	Other Transportation	Finance & Insurance
		Government

AGRICULTURE
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
72.4	15.2	48.6	7.8	45.4	7.2	44.0	5.5
			Denver SMSA				
8.8	3.8	7.0	2.0	5.0	1.1	5.5	1.1

The data in the above table reflect the established fact that agricultural employment is declining at a rather rapid pace. Rehnberg has reported data which suggest that the decline in agricultural employment is primarily due to a decline in farm operators, and that other agricultural employment is remaining somewhat more constant. His data are in the following table taken from Rehnberg, R.D. "Growth of Farms and Optimal Rates of Out-Migration from Farm to Non-Farm Communities". (Mimeographed Paper)

COLORADO FARM OPERATORS, PAST AND PROJECTED

1950	1960	1970	1980
45,500	33,100	24,400	17,200

The 1970 projection figure for total agricultural employment in the state appears to be a reasonable estimate based on what has happened between 1960 and 1965.

The Denver SMSA figures indicate that agricultural employment is limited in this area as would be expected. The 1970 projection for the Denver SMSA appears to be somewhat of an overestimate since fewer than the projected figure were employed in this industry in 1965.

MINING
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
10.3	2.1	14.2	2.3	12.4	1.9	15.0	1.9
			Denver SMSA				
1.3	0.6	3.3	0.9	3.3	0.8	4.3	0.9

The mining industry presents a relatively stable picture in terms of employment in the state. The decline from 1960 to 1965 suggests that the 1970 figure is an overestimate. The Public Service Report for 1965 projects employment in mining to reach 13,000 in 1970 which may be more realistic than the above figure of 15,000. Most mining activity is expected in petroleum (including shale oil), molybdenum, coal, and the non-metals such as clay, stone, brick, etc. Output of uranium, gold, silver, lead, and zinc is expected to decline unless government policy changes with respect to these metals.*

Mining employment is quite small in the Denver SMSA.

*See reference number five on page one of this report.

CONSTRUCTION
(State)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
38.8	8.1	44.2	7.0	35.7	5.6	60.0	7.5
			Denver				
19.5	8.3	24.7	7.0	21.5	5.4	32.2	6.7

The data are not clear with respect to construction employment. Perhaps this is an area where differing definitions have been used. The census data and the 1970 projections report on a category of "construction" whereas the Labor Market Highlights use a category called "contract construction". Whether these are defined the same is not clear. The Public Service Report indicates construction employment to be about 50,000 in the state in 1965 which suggests that the "contract construction" category is more restrictive than the "construction" category. Assuming this is so, it would appear the 1970 projection is a reasonable estimate. Construction employment, however, is quite sensitive to economic changes, and if, for example, the atom smasher installation were to be awarded to Colorado, the projected figure would likely be an underestimate.

The construction employment figures for Denver parallel the State figures quite closely which suggests that one might use Denver employment data for this industry as an estimate of State data.

TOTAL MANUFACTURING
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
56.7		88.0	14.8	88.3	14.0	110.0	14.0
			Denver				
37.4	16.0	67.6	19.1	62.2	15.8	91.7	19.1

Employment in manufacturing remained stable during the period of 1960 to 1965. The Public Service Report indicates manufacturing employment to be about 88,000 in 1960 and the Mahar, et al., report shows manufacturing employment at 90,800 in 1962.

The curve for manufacturing employment since 1950 shows a general increasing trend and even though the trend was not maintained in the first half of the decade, it is likely that manufacturing employment will increase by 1970 although the projected figures seem to be quite high.

Manufacturing employment in Denver is proportionately greater than for the rest of the state. Because the manufacturing employment totals in Denver account for a sizable proportion of the total state manufacturing employment, it would appear such data for the Denver area would allow reasonable estimates of the State. The accuracy of these estimates will vary with type of manufacturing as is evidenced in the following 13 tables.

FOOD AND KINDRED PRODUCTS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
13.8	3.4	17.0	2.7	18.3	2.9	18.0	2.3
			Denver				
8.6	3.7	11.5	3.3	12.5	3.1	14.7	3.1

Employment in the manufacturing of food and kindred products is remaining relatively stable. The output of these products has increased, but improved production techniques have allowed production increase without a corresponding increase in employment.

The 1970 employment projection figures appear to be reasonable estimates, although the state growth from 1960 to 1965 suggests the state figure for 1970 may be somewhat of an underestimate.

The Denver data parallel the state data fairly well, and suggest that what occurs in this industry in the Denver area will reflect the State situation fairly well.

TEXTILES AND APPARELS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
1.6	.3	2.0	.3	2.3	.4	2.5	.3
			Denver				
1.4	.6	1.9	.6	2.2	.6	2.7	.6

Employment in the manufacture of textiles and apparel is quite limited in the state, but is showing some growth. The growth is about consistent with total employment expansion. The projection figures seem to be quite reasonable, except that the Denver projection may be slightly high.

RUBBER AND PLASTIC PRODUCTS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
NA		6.0	.9	5.1	.8	6.5	.8
			Denver				
NA		5.9	1.7	5.1	1.3	6.5	1.3

Some inconsistency of reporting is likely occuring with respect to employment in this area. Some reporters use a classification of Leather, Rubber, and Plastic Products and others combine Leather with the Textiles and Apparel category. Thus, the decline from 1960 to 1965 indicated in the table may be a matter of definition. The 1970 estimates may be slightly high, but do not appear unreasonable.

Apparently nearly all of such manufacturing is centered in the Denver area, and thus the data for Denver are indicative of the state-wide employment in this industry.

CHEMICALS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
1.7	.4	2.6	.4	2.1	.3	3.0	.3
			Denver				
1.7	.7	2.6	.7	1.6	.4	3.8	.8

Employment in the manufacturing of chemicals is not a large factor in the total employment picture. The 1970 projection for the state appears to be reasonable, but the Denver projection seems to be an overestimate. These differences probably reflect a different projection technique used by the two investigators.

PRINTING AND PUBLISHING
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
6.8	1.2	8.0	1.5	8.2	1.3	9.5	1.2
				Denver			
4.4	1.9	6.9	2.0	6.0	1.5	9.4	2.0

The employment in this industry shows a steady growth pattern, and indicates the 1970 projections are realistic.

There is some inconsistency in the two projection figures, either the State figure is too low or the Denver figure is too high. The Denver growth from 1960 to 1965 suggests that the Denver projection is an overestimate. One should keep in mind also the possibility that the 1960 figures for Denver are somewhat high.

OTHER NONDURABLE GOODS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
NA		4.7	.8	4.6	.7	6.3	.8
				Denver			
NA		4.7	1.3	4.1	1.0	7.1	1.5

This is a "catch-all" category and the figures are difficult to interpret. The difference between the 1970 projection figures probably reflects a methodological difference between the two investigators.

FURNITURE, LUMBER AND WOOD PRODUCTS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
2.9	0.6	3.0	0.5	3.4	0.6	3.5	0.4
			Denver				
1.3	0.5	1.4	0.4	1.7	0.4	1.9	0.4

Employment in this industry is showing a small but steady pattern of growth. The expansion from 1960 to 1965 suggests that the 1970 projection may be somewhat low.

The employment in this industry in Denver in relation to total employment seems to be quite representative of statewide employment in the manufacture of furniture, lumber, and wood products.

PRIMARY METALS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
9.4	1.9	8.8	1.5	8.7	1.4	10.0	1.3
			Denver				
1.9	0.8	1.6	0.4	1.4	.3	1.3	0.3

Employment in primary metals manufacturing has apparently declined from 1960 to 1965. Considering all the figures, it would appear that the 1970 projection for the state is somewhat higher than seems reasonable.

Employment in the primary metals industry in Denver does not appear to be representative of the state. One employer, in fact, provides about 80% of the employment in this industry, and this one employer is outside of Denver.

FABRICATED METALS AND ORDNANCE
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
NA		18.7	2.8*	15.8	2.5	21.0	2.9
			Denver				
1.9	0.8	14.8	4.2	14.4	3.6	19.0	4.0

The employment pattern in this industry is somewhat confusing because of the decline from 1960 to 1965. An immediate interpretation is that the State decline is related to the reduction at the Martin-Marietta Corporation, but this is not reflected in the Denver figures. The Martin-Marietta Corporation is located in the Denver SMSA.

The 1960 figures may be somewhat high, but no other source than the census is available for comparison in this specific category because the other sources have combined this category with other categories.

Based on the available 1960-1965 figures, it would appear the 1970 projections are overestimates. It should be recognized, however, the employment in this industry is very much influenced by what happens in one or two firms, and if the Martin-Marietta Corporation, for example, were to be awarded additional defense contracts the projection figures would be attained or surpassed.

*1960 census figure

MACHINERY, Except Electrical
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
NA		6.9	1.0*	6.3	1.0	7.5	.9
			Denver				
3.0	1.3	5.1	1.5	4.9	1.2	7.2	1.5

Employment in the manufacturing of machinery appears to be relatively stable although the 1970 projections may be somewhat overestimated.

Much of this industry is apparently located in the Denver area, and employment figures for the Denver area would seem to be rather reliable indicators of the employment growth pattern for the state.

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
NA		3.8	0.6*	4.9	0.7	6.0	0.8
			Denver				
0.7	0.3	2.6	0.7	2.1	0.6	6.2	1.3

Manufacturing of electrical machinery, equipment, and supplies is becoming increasingly important in the state. The figures in the table indicate a moderate growth and the statewide 1970 projection seems reasonable. Much of the growth in this industry is occurring outside of the Denver area so that the 1970 projection for Denver appears to be an overestimate. It should be pointed out, however, that the IBM installation near Boulder and the expansion of Ball Brothers at Boulder will be reflected in the Denver area employment figures. Considering these developments, it would seem that the Denver projection is realistic and the statewide projection is an underestimate.

All forecasters predict growth in industries that manufacture a commodity with a high value per pound such as this one is.

*1960 census figure

TRANSPORTATION EQUIPMENT
(State)
(In Thousands)

	1950		1960		1965		1970	
	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
	NA		3.9	0.6*	3.6	0.6	6.0	0.8
Denver	0.9	0.2	2.7	0.8	2.9	0.8	3.8	0.8

Employment in the manufacture of transportation equipment has remained relatively stable through the first five years of the decade. The projection figures seem to be overestimated somewhat.

OTHER DURABLE GOODS
(State)
(In Thousands)

	1950		1960		1965		1970	
	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
	NA		8.0	1.2	7.8	1.2	11.7	1.5
Denver	3.4	1.5	5.6	1.6	5.2	1.3	8.1	1.7

This is another "catch-all" category so that the figures are difficult to discuss.

*1960 census figure

RAILROADS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
15.1	3.2	10.0	1.5	8.8	1.3	9.0	1.1
			Denver				
8.0	3.4	5.4	1.5	5.1	1.3	4.8	1.0

Rail employment has continued to decline from 1960 to 1965. Forecasters are predicting that the railroads' competitive position will improve thus increasing business. The employment effect of this increased business is that it will offset employment reduction due to technological improvements. If this forecast is accurate, then the employment in railroads should stabilize and the 1970 projection seems reasonable. The decline from 1960 to 1965 suggests, however, that the 1970 projection is high for the state, and realistic for Denver.

Employment in the railroad industry in Denver in relation to total employment is very similar to the state pattern.

TRUCKING AND WAREHOUSING
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
5.9	1.2	11.0	1.7	10.6	1.5	12.0	1.5
			Denver				
4.6	2.0	7.1	2.0	7.9	2.0	9.1	1.9

Employment in the trucking industry appears to have leveled off and the 1970 projections seem to be reasonable estimates. The apparent decline in the state from 1960 to 1965 is rather small and likely will be reversed with the completion of additional segments of the Interstate Highways.

OTHER TRANSPORTATION (Air, Cabs, Buses, Pipelines)
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
6.1	1.3	7.0	1.5	6.8	1.1	5.8	0.7
			Denver				
4.7	2.0	5.9	1.7	5.9	1.5	7.7	1.6

Employment in this category has declined from 1960 to 1965 in the state and remained stable in Denver for the same period. The 1970 projection figures for the state and for Denver differ considerably. Recent developments, such as the opening of the United Airlines training facility and the opening of the new Stapleton airfield terminal, will likely stimulate employment in the air industry in the state. It would appear then that the 1970 projection figure for the State may be somewhat of an underestimate.

COMMUNICATIONS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
8.6	1.8	10.0	1.6	10.9	1.7	12.0	1.5
			Denver				
4.6	2.0	6.5	1.8	7.5	1.9	8.2	1.7

The communications industry is expanding at a steady rate and employment from technological advance is off-set by increased production.

The 1970 projection figures appear to be reasonable for the State and for Denver. The pattern of employment in this industry appears to be similar in Denver and the State.

UTILITIES AND SANITARY SERVICES
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
5.2	1.1	7.0	1.5	7.4	1.1	8.3	1.1
			Denver				
3.9	1.7	5.1	1.4	4.2	1.1	6.7	1.4

Employment in this category appears to be stable and the 1970 projection seems reasonable.

HOTEL SERVICES
(State)
(In Thousands)

	1950		1960		1965		1970	
	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
	68.0	14.3	76.3	16.4	96.0	15.2	130.0	16.6
Denver								
	NA		69.2	17.6	64.2	16.3	96.0	20.0

Employment in the services industry is expanding in terms of numbers employed although perhaps the expansion rate is not consistent with total employment. The 1970 projections appear to be somewhat high in view of the 1960-65 figures.

BUSINESS AND REPAIR SERVICES
(State)
(In Thousands)

	1950		1960		1965		1970	
	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
	NA		14.0	2.6	14.6	2.2	19.0	NA
Denver								
	7.7	3.3	10.6	3.0	11.2	2.8	16.3	3.4

Employment in business and repair services seems to be growing. The 1970 projections for the state and for Denver both seem to be quite high, however, in view of the rather limited growth that has occurred between 1960 and 1965.

ENTERTAINMENT AND RECREATION SERVICES
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
NA		5.0	0.9	6.3	1.0	10.0	NA
			Denver				
2.9	1.2	3.3	0.9	3.9	1.0	4.8	1.0

The figures indicate employment in this category is rising. The 1970 projection for the state is from the Public Service Report and appears to be high in comparison with the other data. One should consider, however, that employment in this category is very much related to the increased amount of leisure time and to the development of the tourist industry in the state so that it may be that the projected figure will be attained.

MEDICAL AND OTHER HEALTH SERVICES
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
NA		21.0	4.9	28.1	4.4	40.0	NA
			Denver				
7.4	3.2	16.9	5.1	18.0	4.6	16.7	3.4

Employment in medical services has increased from 1960-65. The Public Service Report projection of about 40,000 for the State in 1970 appears to be somewhat of an overestimate on the basis of the 1960-65 figures, and the Denver projection appears to be a considerable underestimate.

WHOLESALE TRADE
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
23.0	4.8	30.0	3.7	36.2	5.7	39.0	4.9
			Denver				
12.8	5.5	17.4	4.9	30.0	7.6	22.6	4.7

The U.S. Department of Commerce Report on Wholesale Trade--Colorado, 1963 cites a figure of about 30,000 employed in the wholesale trade in Colorado in 1958. Using the figure of 30,000 in the State for 1960 the pattern seems to be reasonable.

In the state, there appears to be a continued growth in employment in the wholesale trade industry and the 1970 projection appears reasonable. The Denver projection, on the other hand appears to be a large underestimate, and on the basis of the other data in the table a figure of 32.6 would seem more reasonable.

TOTAL RETAIL TRADE
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
65.5	13.8	90.0	15.4	103.0	16.3	121.0	15.4
			Denver				
43.3	18.5	57.4	16.2	63.4	16.1	76.1	15.7

Employment in retail trade is growing at a pace consistent with total employment growth. The 1970 projections appear reasonable, both for the state and for Denver.

FOOD STORES
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
8.3	1.8	15.0	2.4	15.5	2.4	16.4	2.1
Denver							
6.8	2.9	9.3	2.6	9.9	2.5	12.0	2.5

Employment in food stores is growing at a steady pace and the 1970 projections appear reasonable.

EATING AND DRINKING
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
12.1	2.5	20.0	3.1	23.8	3.7	25.8	3.3
Denver							
8.3	3.6	10.9	3.1	14.3	3.6	14.4	3.0

The employment pattern in this industry is also showing a steady growth rate. The 1970 projections appear reasonable although the Denver projection may be somewhat low.

GENERAL MCHDSE AND VARIETY STORES
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
16.8	3.5	16.0	2.4	24.3	3.8	NA	
			Denver				
NA		10.7	3.0	17.4	4.4	NA	

Employment in general merchandise and variety stores is expanding. No projection figures are available for this category.

AUTO DEALERS AND GAS STATIONS
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
11.3	2.4	15.0	2.4	16.2	2.6	NA	
			Denver				
NA		NA		8.9	2.3	NA	

Employment in this category also seems to be growing. The data are not available for many of the cells. The rise of tourism and the increased number of cars both are factors that suggest employment in this category will continue to grow.

OTHER RETAIL
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
28.3	5.9	24.0	7.5	39.4	6.2	NA	
			Denver				
NA		26.5	7.5	21.8	5.5	NA	

This is a "catch-all" category, with rather significant numbers in the cells. It is, however, difficult to interpret because of the varied definitions used in other categories by the investigators with the result that these residuals also differ considerably.

FINANCE, INSURANCE, AND REAL ESTATE
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
16.9	3.5	29.0	4.7	31.1	4.9	40.0	5.1
			Denver				
11.7	5.0	20.7	5.9	23.7	6.0	30.6	6.3

Employment in this industry appears to be growing at a somewhat higher rate than total employment. The 1970 projections appear reasonable for the State and for Denver.

FEDERAL GOVERNMENT
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
24.9	5.2	33.9	5.4	40.1	6.3	41.4	5.3
			Denver				
NA		NA		24.0	6.1	NA	

Federal government employment is increasing in the state. The 1970 projection may be somewhat low in view of the 1960-65 growth. Only the 1965 figures are available for Denver.

STATE AND LOCAL GOVT.
(State)
(In Thousands)

1950		1960		1965		1970	
Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed	Number	Proportion of Employed
46.6	10.0	78.1	12.4	98.1	15.5	103.1	13.1
			Denver				
NA		NA		46.6	11.8	NA	

State and local government employment is also increasing and the 1960-65 growth suggests that the 1970 projection is somewhat low.

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Estimating the Human Resources for Research in Occupational Education in Minnesota.

Pucel, David J. * and others

Minnesota Res Coord Unit in Occup Educ., Minneapolis

66

EDRS Price MF-$0.09 HC-$0.96 24p.

*EDUCATIONAL RESEARCH, *VOCATIONAL EDUCATION, QUESTIONNAIRES, SURVEYS, *ADMINISTRATOR ATTITUDES, *TEACHER ATTITUDES, RESEARCH SKILLS, PRACTICAL ARTS, COUNSELORS, INTEREST RESEARCH, TEACHERS, EDUCATIONAL PROGRAMS,

Minnesota,

One survey identifies educators in the state who are interested in conducting or receiving training for research in occupational education and estimates their present level of research competence. A second survey identifies the educational administrators in the state who have supportive attitudes toward their staff's participation in occupational education research. Questionnaires were mailed to 5,441 persons -- (1) all the vocational and practical arts educators and guidance counselors in the state at the junior, senior, and post high school level, and (2) educators in related fields in colleges. Of this group, 454 (8.2 percent) expressed an interest in research, and 410 expressed a desire to receive additional research training. Of those who expressed an interest, 48 percent had adequate research experience. The greatest number of interested persons were in industrial arts, guidance, and business and distributive education. The population of the second survey consisted of superintendents, principals, directors, deans, and department heads (648 of 1,186 responded). Approximately 54 percent of the educational administrators in the state had supportive attitudes toward research in occupational education. They perceived the availability of local support as the major obstacle for initiating occupational education research projects. (PS)

ED015348

ESTIMATING THE HUMAN RESOURCES FOR RESEARCH IN OCCUPATIONAL EDUCATION IN MINNESOTA

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FOREWORD

Every research coordination unit is faced with the task of stimulating and facilitating occupational education research in its state. To accomplish the task it may elect to work with well-known, competent researchers. Units may also choose to identify and cultivate potential investigators as part of a long range effort to increase the research resources in the state. This report describes two coordinated survey studies that constitute an attempt to assess the current human resource potential for occupational education research in Minnesota.

The first survey identifies educators in the State who are interested in conducting, and/or in receiving training for research in occupational education, and estimates their present level of research competence. The second survey identifies the educational administrators in the State who have supportive attitudes toward their staff's participation in occupational education research, and determines the kinds of problems the administration perceive as barriers to initiating research in their schools or school systems. By combining the findings of these two studies, the Minnesota Research Coordination Unit now knows administrators' attitudes and perceived problems in each school employing interested potential researchers. This information will guide the Unit's future stimulation and research training activities, and assist in making dissemination efforts more efficient.

Jerome Moss, Jr., Co-Director
Minnesota Research Coordination
Unit in Occupational Education

CHAPTER I

THE FIRST SURVEY

The Problem

The problem of the first survey was to identify those persons teaching in Minnesota in fields related to vocational and practical arts education, including guidance counselors, who were either interested in conducting research and/or in acquiring further research training. Since it was hoped that the group identified would ultimately become involved in research, it was also necessary to assess their research competencies.

Definitions

Research Interest: A response (returned questionnaire) was assumed to indicate that the respondent was interested in research, and conversely, a non-response indicated a lack of interest. Interest was classified into categories of (1) an interest in conducting research, (2) an interest in acquiring further research training, or (3) both of the above.

Research Competencies: A competent researcher was defined as a person possessing both adequate academic preparation and research experience, (i.e. a person who is presumably prepared to undertake an experimental research project and carry it to completion with a minimum of technical assistance). On the basis of responses to the questionnaire items (see Appendix A) persons were categorized into one of three categories of academic research preparation: (1) adequate, (2) limited, and (3) inadequate, and one of two categories of research experience, (1) adequate, and (2) inadequate.

Objectives

As indicated in the problem statement the principal questions to be answered by the study were:

1. Who are the persons in the population that are interested in conducting research and/or in acquiring further research training in occupational education?

2. Is there a sufficient number of persons in the population interested in acquiring further research training to justify the establishment of a research training institute in occupational education?

3. What are the research competencies of those persons in the population expressing an interest in conducting research and/or in acquiring further research training?

Methodology

Population: The population surveyed consisted of a) all the vocational and practical arts educators in the State of Minnesota, 1965-66, including guidance counselors, at the junior, senior and post high school levels, and b) educators in "related" fields in collegiate institutions. The total population of 5441 persons was stratified according to their respective areas of specialization, (e.g. trade and industrial education, home economics education, business education, industrial arts education, counseling, etc.)

The Questionnaire and Mailing Procedures: One mailing was used without a follow-up procedure in light of the assumption that a response indicated interest and no response indicated a lack of interest. The contents of the mailing to the total population consisted of a two-color, printed brochure announcing the establishment and proposed purposes of the Minnesota Research Coordination Unit in Occupational Education, and a printed business reply card questionnaire. The questionnaire contained a number of items about the respondent's research interest and competence. Other items were designed to assess field of specialization and employing institution (see Appendix A.) All recipients were urged to complete and return the card if they possessed an interest in some phase of occupational education research or research training.

Determining Level of Research Competence: A panel of five experienced researchers in the College of Education, University of Minnesota, agreed that a rough estimate could be made of an individual's competence to conduct experimental research by determining the amount and kind of his academic preparation and research experience. In order to evaluate academic preparation the panel further agreed upon the appropriateness and relative weights of the following factors:

(6) Inferential Statistics	(6) Doctorate Degree
(4) Research Methods Course	(4) Masters Degree Plus
(3) Research Assistantship	(3) Masters Degree
(2) Descriptive Statistics	(2) Bachelors Degree Plus
	(1) Bachelors Degree
	(0) No Degree

Recency of Research Preparation: (0) 1955 (1) 1956-60 (2) 1961-65

"Adequate experimental researchers were defined as those respondents who had a total score of 16-23 on the above factors; "limited" researchers were defined as respondents with total scores between 7 and 15; "inadequate" researchers had total scores of 6 or less.

At the panel's suggestion, the number and recency of studies completed (including research to satisfy degree requirements) were measured to assess research experience. The following values were assigned to numbers of studies completed: (0) none, (6) one, (10) two-four, (16) five or more. The date of the last study completed determined the recency of experience, and was evaluated as follows: (0) 1955 or before, (2) 1955-60, (4) 1961-65. Only two categories of respondents were identified on research experience. "Adequate" was defined as respondents with a total amount and recency score of 10-20; "inadequate" had a total score of 9 or less.

No attempt was made to combine the evaluations of academic preparation and research experience. Since no data were collected concerning the nature or quality of the research experience, it was assumed that academic preparation would provide the primary basis for evaluating competence to conduct experimental research. Research experience could then be used as supplemental information. As questionnaires were received responses were converted to numerical values, and recorded on a summary card color coded by area of specialization.

Findings

The findings are presented in terms of the objectives stated above.

> Objective 1: Who are the persons in the population that are interested in conducting research and/or in acquiring further research training in occupational education?

Table 1 contains a summary of the questionnaire returns classified according to expressed research interests by areas of specialization.

Four hundred fifty four people, or 8.2% of the total population, expressed an interest in research. Of this group, 9.7% were interested in only conducting research, 11% in only acquiring research training and 79.3% in both conducting research and acquiring further research training.

> Objective 2: Is there a sufficient number of persons in the population interested in acquiring further research training to justify the establishment of an institute for occupational education research?

Since 360 people indicated an interest in both conducting research and acquiring further training and 50 persons indicated an interest in only acquiring further training, a total of 410 persons in the State expressed a desire to receive additional research training. This appears to be a sufficient number to warrant the establishment of a research training institute.[1]

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[1]A seven week institute in occupational education research sponsored by the U.S. Office of Education was conducted by the Unit during the 1966 summer session. Eighty applications were received from the 410 persons identified in the study.

Table 1

NUMBERS AND PERCENTS OF PERSONS EXPRESSING AN INTEREST IN CONDUCTING RESEARCH AND/OR ACQUIRING FURTHER RESEARCH TRAINING BY AREA OF SPECIALIZATION

Area of Specialization	No. Sent	No. Returns	% of Returns	Conduct		Acquire Training		Both	
				No.	%	No.	%	No.	%
Administration and Miscellaneous	472	32	6.8	6	18.8	2	6.2	24	75.0
Agricultural Education	380	55	14.5	5	9.1	6	10.9	44	80.0
Business and Distributive Education	1455	81	5.6	6	7.4	11	13.6	64	79.0
Guidance	687	109	15.9	10	9.2	9	8.2	90	82.6
Home Economics Education	963	31	3.2	0	0	5	16.1	26	83.9
Industrial Arts Education	1188	126	10.6	15	11.9	13	10.3	98	77.8
Trade and Industrial Education	396	20	5.1	2	10.0	4	20.0	14	70.0
OVERALL TOTAL	5541	454	8.2	44	9.7	50	11	360	79.3

Objective 3: What are the research competencies of those persons in the population expressing an interest in conducting research and/or in acquiring further training?

In Table 2, the numerically weighted responses to the research competency items are combined and related to area of specialization.

The sum of percentages of columns A, B, and C indicates that about 48% of the respondents have adequate research experience, and that about 52% have inadequate research experience.

The sums of total percentages in column A and D, B and E, and C and F reveal that approximately 7% have adequate academic preparation, 34% limited preparation, and 59% inadequate preparation, respectively.

Conclusions

1. The individuals completing and returning the post card questionnaire have expressed their interest in conducting research and/or in acquiring further research training in occupational education. The limited number of responses, however, indicates that persons related to occupational education in Minnesota are generally not strongly motivated to participate in research activities. Among the various areas of specialization within occupational education, the greatest numbers of interested individuals are in industrial arts, guidance, and business and distributive education.

2. The numbers of persons expressing a desire to acquire further research training appears to justify an attempt to provide a research training institute in occupational education.

3. Most of the persons expressing an interest in occupational education research lack the academic preparation judged necessary to conduct useful experimental studies. The most fruitful source of interested competent researchers is now in the area of guidance.

Table 2

NUMBERS AND PERCENTS OF RESEARCH INTERESTED PERSONS BY LEVEL OF RESEARCH COMPETENCE AND AREA OF SPECIALIZATION

(N=454)

Area of Specialization	Adequate Research Experience						Inadequate Research Experience					
	Adequate Preparation (A)		Limited Preparation (B)		Inadequate Preparation (C)		Adequate Preparation (D)		Limited Preparation (E)		Inadequate Preparation (F)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Administration and Miscellaneous (32)	7	21.8	6	18.8	6	18.8	0	0	5	15.6	8	25.0
Agricultural Education (55)	1	1.8	10	18.2	15	27.3	0	0	2	3.6	27	49.1
Business and Distributive Education (81)	3	3.7	18	22.2	12	14.8	1	1.2	8	9.9	39	48.2
Guidance (109)	10	9.2	38	34.9	27	24.8	1	.9	17	15.6	16	14.7
Home Economics Education (31)	0	0	0	0	5	16.1	0	0	5	16.1	21	67.7
Industrial Arts Education (126)	4	3.2	27	21.4	18	14.3	2	1.6	15	11.9	60	47.6
Trade and Industrial Education (20)	1	5.0	3	15.0	6	30.0	0	0	1	5.0	9	45.0
OVERALL TOTALS	26	5.8	102	22.5	89	19.6	4	.9	53	11.7	180	39.6

CHAPTER II

THE SECOND SURVEY

The Problem

The principal purpose of the second survey was to determine the attitudes of educational administrators in the State toward occupational education research in general, and more specifically, toward their own staff's actual involvement in it. Since an actual administrative decision to approve the conduct of a study is a function of particular modifying conditions as well as attitude toward research, the survey assessed problems perceived by administrators in their respective institutions for the conduct of research. These problems were then related to size of school and the administrative position of the respondent.

Objectives

The three major questions to be answered by the study were:

1. Who are the educational administrators in the State who have supportive attitudes toward occupational education research in general, and more specifically, toward their own staff's involvement in it?

2. What are the problems the supportive attitude administrators perceive as barriers to the conduct of occupational education research in their schools or school system?

3. Is there a relationship between the perceived problems identified above, the supportive administrator's position, and size of school?

Methodology

Population: The population consisted of all the a) superintendents of public school districts, b) principals of public junior and senior high schools, c) deans and heads of departments related to occupational education in the University, junior colleges, state colleges, and private colleges, and d) directors of public and private vocational-technical schools in the State of Minnesota during the 1965-66 academic year.

The Questionnaire: Administrators' attitudes toward research and the problems they perceived in conducting studies in their schools were elicited by a printed post card questionnaire (Appendix B).

Four selection type items determined the respondent's positive or negative attitudes toward research in general, occupational education research, and their own staff's involvement in either the conduct of or training for occupational education research. Four additional selection and one supply item were used to determine administrative reasons for not giving complete encouragement to proposed research projects. The selection items dealt with staff availability of local project support while the supply item permitted the addition of other perceived problems. Information concerning the respondent's administrative position and the type and size of his school was also secured by the questionnaire.

Procedures: The printed post card questionnaire was mailed to the total population together with a printed two-color brochure entitled, "Funds Available for Research in Occupational Education." The brochure announced the establishment of the Minnesota Research Coordination Unit in Occupational Education and outlined the availability of government research funds and the procedures to be used in applying for them. The scope of occupational education research was described in the brochure as "...projects designed to help present and prospective members of the labor force acquire the knowledge, skills, and characteristics necessary to contribute to the nation's economic progress." At intervals of approximately four weeks, two follow-up letters were mailed to non-respondents. The completed returned questionnaires were coded for administrative position, school district, size of school[2], and perceived problem categories.

Analysis: The chi-square statistic at the specified .05 level of significance was used to test for relationships between the problems perceived by administrators, their positions, and the size of their schools. Since the chi-square statistic is most reliable with a minimum frequency of five cases per cell, many potential relationships were not tested; type of school was among those variables excluded because of this limitation.

Findings

The findings are presented in terms of the objectives.

> Objective 1: Who are the educational administrators in the State who have supportive attitudes toward occupational education research in general, and more specifically, toward their own staff's involvement in it?

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[2](1) 1-99 students; (2) 100-199 students; (3) 200-499 students; (4) 500-999 students; (5) 1000-1999 students; (6) 2000-4999 students; (7) 5000-9999 students; (8) 10,000 and over.

Table 3

ADMINISTRATIVE POPULATION, RESPONSE RATES, AND PERCENTS OF RESPONDENTS WITH SUPPORTIVE ATTITUDES TOWARD VARIOUS ASPECTS OF RESEARCH

Administrative Position	Population	Responses		Percents of Respondents with Supportive Attitudes Toward:							
				Educational Research		Research in Occup. Educ.		Staff Participation in Occup. Education Research		Staff Participation in Training for Occup. Ed. Research	
		No.	%	No.	%	No.	%	No.	%	No.	%
Superintendents	347	265	76.4	265	100.0	265	100.0	258	97.4	255	96.2
Principals and Directors	765	356	46.5	355	99.7	355	99.7	350	98.6	344	96.7
Deans and Department Head	74	27	36.5	27	100.0	27	100.0	24	88.9	20	74.1
TOTAL	1186	648	54.6	647	99.8	647	99.8	632	97.5	619	95.5

The population is presented in Table 3 by administrative position, response rates to the questionnaire, and percents of respondents with expressed supportive attitudes toward various aspects of research. The 54.6% of administrators who responded to the questionnaire were overwhelmingly in favor of educational research, research in occupational education, and their own staff's participation in occupational education research and research training. It is likely, however, that the 45.4% of non-responding administrators were less favorably disposed toward research.

Objective 2: What are the problems supportive attitude administrators perceive as barriers to the conduct of occupational education research in their schools or school systems?

Table 4 shows the numbers and percents of supportive attitude administrators, by position, who felt their institutions would encounter certain problems in initiating occupational education research.

Table 4

NUMBERS AND PERCENTS OF SUPPORTIVE ATTITUDE ADMINISTRATORS EXPRESSING VARIOUS PROBLEMS IN INITIATING RESEARCH

(N=648)

Administrative Position	Staff Qualifications		Staff Availability		Use of School Facilities		Admin. of Project Funds		Availabili of Project Support	
	No.	%	No.	%	No.	%	No.	%	No.	%
Superintendents (265)	16	6.0	24	9	2	.8	10	3.8	100	37.7
Principals and Directors (356)	8	2.2	32	8.9	0	0	24	5.6	118	33.0
Deans and Department Heads (27)	0	0	4	14.8	0	0	3	11.1	6	22.2
TOTAL	24	3.7	60	9.3	2	.3	37	5.7	224	34.5

The most serious obstacle to the initiation of occupational education research, in the minds of administrators with supportive research attitudes, is securing local contributions for the support of the project. It is possible that this perception may be changed if made available to them.

<u>Objective 3</u>: Is there a relationship between the perceived problems identified, the supportive administrator's position, and size of school?

Table 5 gives the response frequencies of the supportive administrators categorized by administrative position and their three greatest perceived problems--staff availability, administering project funds, and the availability of local project support. Because of insufficient expected frequencies, the administrative positions of Deans and Department Heads have been combined with Principals and Directors.

Table 5

RESPONSE FREQUENCIES OF SUPPORTIVE ADMINISTRATORS BY ADMINISTRATIVE POSITION, PROBLEMS IN INITIATING RESEARCH

	Staff Availability		Administering Project Funds		Availability of Local Project Support	
Responses	Superintendents	Principals, Directors, Deans and Dept. Heads	Superintendents	Principals Directors, Deans and Dept. Heads	Superintendents	Principals Directors, Deans and Dept. Head
A Problem	24	36	10	27	100	124
No Problem	241	347	242	259	134	145
No Response	-	-	13	97	31	114

Application of the chi-square statistic reveals no relationship between administrative position and the administrators perception of whether or not staff availability (time) is a problem in initiating research (χ^2 = .02, P = .90). Even though there is no significant relationship between the superintendent group and the principal, director, dean and department head group, they agreed upon the extent of the problem. On the other hand, there are significant relationships between administrative position and the three categories of administrator responses to perceived problems of administering project funds and availability of local support. (χ^2 = 52.8, P = .001, χ^2 = 30.0, P = .01). These findings seem to indicate that superintendents tend to respond more frequently to financial administrative questionnaire items than principals, et. al., which might logically be expected because of their financial duties and

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responsibilities. Because it appeared that the chi-square calculations were unduly weighted by the "no response" frequency, separate calculations were necessary to assess the extent of relationship of only those who responded. There is a significant relationship between the administrative groups in their assessment of problems involved in administering project funds ($\chi^2 = 6.26$, $P = .02$). Probably because of the nature of their duties and responsibilities the superintendents may be more aware of the mechanics of administering project funds, thus, they do not foresee this as a critical problem for initiating research. On the other hand there was no significant relationship between tne two administrative groups on their perception of the problem of availability of local support for research projects. ($\chi^2 = .46$, $P = .50$). This finding seems to indicate that administrators in general, are not certain that local support for research projects can be made available, thus, they tend to agree that this is a problem for initiating research.

Tables 6, 7, and 8 present the frequencies of supportive administrator's responses categorized by size of school and according to their perceptions of the staff availability, administering project funds, and availability of local project support problems. Categories of school size have been combined where necessary to yield a minimum expected frequency of five per cell.

Table 6

RESPONSE FREQUENCIES OF SUPPORTIVE ADMINISTRATORS
BY SCHOOL SIZE TO THE PROBLEM OF STAFF AVAILABILITY

Response	School Size					
	0-99	100-199	200-499	500-999	1000-1999	2000 and over
A Problem	5	9	23	11	7	5
No Problem	19	90	229	129	79	42
No Response	-	-	-	-	-	-

Table 7

RESPONSE FREQUENCIES OF SUPPORTIVE ADMINISTRATORS BY SCHOOL SIZE TO THE PROBLEM OF ADMINISTERING PROJECT FUNDS

Response	School Size			
	0-199	200-499	500-999	1000 and over
A Problem	7	17	6	7
No Problem	95	201	109	96
No Response	21	34	25	30

Table 8

RESPONSE FREQUENCIES OF SUPPORTIVE ADMINISTRATORS BY SCHOOL SIZE TO THE PROBLEM OF AVAILABILITY OF LOCAL PROJECT SUPPORT

Response	School Size				
	0-199	200-499	500-999	1000-1999	2000 and over
A Problem	52	104	36	12	10
No Problem	53	113	f54	42	27
No Response	18	35	50	32	10

The chi-square test revealed no relationship between school size and the administrators' responses to the perceived problems of staff availability or the administration of project funds (χ^2 = 6.0, P = .50, χ^2 = 3.4, P = .80). There is, however, significant relationship between school size and the perceived problem of availability of project support (χ^2 = 61.6, P = .01). Administrators in schools with less than 500 students perceive a more definite local support problem than administrators in schools with 500 or more pupils; the latter group is less certain that support will be a real problem.

Conclusions

The following conclusions are limited to the State of Minnesota:

1. Approximately 54% of the educational administrators in the State may be considered to have "supportive" attitudes toward research in occupational education and their own staff's participation in occupational education research and research training activities. The remaining 46% of administrators have questionable attitudes towards this type of staff activity.

2. Administrators with supportive attitudes presently perceive the availability of local support as the major obstacle for initiating occupational education research projects in their schools. Other perceived problems do not appear to be critical.

3. Superintendents seem more willing to make judgments and respond more frequently to questions concerning the potential financial policy problems of administering project funds and availability of local support for projects than does the combined group of principals, directors, deans and department heads. Superintendents also tend to be more optimistic about the problem of administering project funds. However, both groups tend to agree that obtaining local project support constitutes a problem. Administrators of schools with enrollments of less than 500 appear more definite in their perception of a local support problem than are administrators of schools with larger enrollments.

CHAPTER III

IMPLICATIONS

By combining the results of both surveys, the Unit has identified individuals with an interest in research and research training, as well as the attitudes and perceived problems of their administrators toward their participation in research activities. For the purposes of making future stimulation efforts more effective, the Unit may now encourage certain persons to engage in particular types of studies, and provide relevant research training programs for others. The Unit may now also proceed with attempts to change attitudes toward research and to supply individuals with information that will dispel misconceptions about research requirements. Specifically, the Unit should:

1. Meet with individuals identified as "competent" researchers with supportive administrators for the purpose of involving them in the conduct of research studies.

2. Provide research training institutes, fellowships, etc. for interested individuals who can benefit from them.

3. Supply administrators with information about the methods and requirements for securing research funds and contributing partial local support.

4. Engage in studies to discover feasible means for increasing interest in occupational education research among educational personnel in the State.

Appendix A

POST CARD QUESTIONNAIRE TO OCCUPATIONAL EDUCATION PERSONNEL

Name_____ Institution_____

Address_____ Field of Specialization_____

Check the appropriate boxes:

I. Interested in:

☐ Conducting research ☐ Acquiring research training ☐ Both

II. Preparation: Check all your formal educational experiences and attainments:

☐ Descriptive Statistics ☐ Inferential Statistics
☐ Research Assistant ☐ Research Methods Course
☐ No Degree ☐ Bachelors Degree ☐ Bachelor Plus
☐ Masters ☐ Masters Plus ☐ Doctorate

Institution providing majority of research related experience_____

Recency of preparation:

☐ Before 1955 ☐ 1956-60 ☐ 1961-65

III. Experience: Total number of research studies completed or in progress requiring the collection of original data (including degree fulfilling studies)

☐ None ☐ One ☐ 2-4 ☐ 5 or more

Recency of last study:

☐ Before 1955 ☐ 1956-60 ☐ 1961-65

Appendix B

POST CARD QUESTIONNAIRE TO ADMINISTRATORS

After Reviewing the Brochure Complete All of the Items.
The Opinions You Give Will Not Commit You or Your Institution in Any Way.

Name_____
(Last) (First) (Middle)

Name of Institution_____

City_____

Type of Institution ☐ Jr. High ☐ Sr. High ☐ Jr. College ☐ State College
☐ Private College ☐ University ☐ Area Vocational School ☐ Private Tech. School

Position ☐ Principal ☐ Superintendent ☐ Department Head ☐ Dean

1. Do you believe that research should be conducted on educational problems? ☐ Yes ☐ No
2. Do you believe that research should be conducted on **occupational education** problems? (e.g. trade and industrial education, agricultural education, home economics education, distributive education, industrial arts, business education) ☐ Yes ☐ No
3. Does your staff presently include persons whom you feel are qualified to conduct research in occupational education? ☐ Yes ☐ No
4. Assuming that research training institutes were available, would you encourage certain members of your staff to participate and become better qualified to conduct research in occupational education? ☐ Yes ☐ No
5. Assuming a qualified researcher on your staff wishes to apply for a research grant to conduct a study in occupational education:
   A. Do you consider this an appropriate activity for a member of your staff?
   ☐ Yes ☐ No
   B. Would you recommend that he be relieved of a portion of his teaching or other duties if the grant refunded his salary for the amount of time he spent on the project?
   ☐ Yes ☐ No
   C. Would you allow him to utilize school facilities and conduct research during the summer months? ☐ Yes ☐ No
   D. Would your business office be permitted to administer the project funds for the research? ☐ Yes ☐ No
   E. Do you believe your institution or school district would be willing to contribute toward the support of a research project in one or more of the following forms? (e.g. all or part of the salary of a faculty member for the time he spends on the project, overhead costs, secretarial help, office supplies, etc.) ☐ Yes ☐ No
6. Are there any reasons not indicated above why you believe it would not be feasible for personnel at your school to conduct research in occupational education? (Please note briefly)

(O) **Fold, Staple and Mail.**

VT 001 098

VT 001 098 ED 011 036

Report of a National Seminar on Agricultural Education, "Program Development and Research," August 9 to 13, 1965. (Vocational Education Leadership Study, no. 1).

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

65

EDRS Price MF-$0.27 HC-$7.64 191p.

*LEADERSHIP TRAINING, *PROGRAM DEVELOPMENT, *EDUCATIONAL RESEARCH, *SEMINARS, *AGRICULTURAL EDUCATION, STATE DEPARTMENTS OF EDUCATION, OFF FARM AGRICULTURAL OCCUPATIONS, PILOT PROJECTS, PROGRAM EVALUATION, EDUCATIONAL CHANGE, ADOPTION (IDEAS), INNOVATION, VOCATIONAL AGRICULTURE TEACHERS, LEADERSHIP, STATE PROGRAMS,

Nebraska,

The major purpose of the seminar was to provide an opportunity for state leaders to cooperatively formulate plans for initiating and improving state research and development programs. Attending were 68 state and national leaders in agricultural education, vocational education and supporting disciplines from 31 states. They considered the state leadership role in -- (1) research and development program planning, (2) outside resource utilization, (3) pilot program planning, conduct, and evaluation, (4) new program adoption, (5) fund source identification, and (6) regional research program review and plans. Presentations included -- "The Need for State Programs of Research and Development," by R. E. Taylor, "Developing Comprehensive State Programs of Research and Development," by Lloyd J. Phipps, "Utilizing Outside Resources in Research and Development," by O. E. Thompson, "Opportunities and Responsibilities for Research and Development," by Duane Nielsen, "Developing Proposals for Funding Research and Development Projects," by John Caster, "Are We Asking the Right Question," by L. S. Kellogg, "Promising Research Directions in Off-Farm Agricultural Occupations," by Glenn Stevens, "Priority Areas for Program Development in Agricultural Education," by H. N. Hunsicker, "State Leadership Responsibilities in Planning and Conducting Pilot Programs," by Glen Strain, and "Evaluation of Pilot Programs," by G. L. Kelley, Jr. (JM)

ED015348

Report of

A National Seminar on Agricultural Education

PROGRAM DEVELOPMENT AND RESEARCH

AUGUST 9 TO 13, 1965

The Center for Vocational and Technical Education
The Ohio State University
Columbus

VT 01098

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Vocational Education Leadership Study No. 1

REPORT

OF

A NATIONAL SEMINAR ON AGRICULTURAL EDUCATION

"PROGRAM DEVELOPMENT AND RESEARCH"

The Center for Research and Leadership Development
in Vocational and Technical Education

August 9 to 13, 1965

The Ohio State University

Columbus, Ohio

A C K N O W L E D G E M E N T

The Center gratefully acknowledges a grant from The Sears-Roebuck Foundation to underwrite the expenses of this seminar.

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PREFACE

It has been said that there never was a better climate or greater urgency for replanning programs of agricultural education. The new Vocational Education Act, with funds for both program development and research, gives emphasis to the need for state leadership to carefully plan comprehensive, continuing state programs of research and development.

Relative success in these areas will be determined in large measure by the quality of long-range planning and leadership exerted by state staffs. State programs of research and development should be initiated to evaluate present efforts, to stimulate the improvement and extension of agricultural education, and to provide a systematic means of developing and refining promising program innovations. We are concerned not only with identifying more efficient and effective ways of serving agricultural education needs, but also with increasing our effectiveness as state leaders in accelerating the adoption of improved programs.

The major purpose of the seminar was to provide an opportunity for state leaders in vocational agriculture and vocational education to pool their resources and thinking in formulating plans for initiating and improving state programs of research and development.

During the seminar, participants addressed themselves to such key questions as the leadership role of state staffs in:

1. Developing plans for comprehensive, continuing state programs of research and development;

2. Utilizing outside resources to assist in program development and research;

3. Planning, conducting, and evaluating pilot programs;

4. Facilitating the adoption of new programs in agricultural education;

5. Identifying sources of funds for program development and research activities;

6. Reviewing and planning regional research programs.

For a more detailed overview of the seminar purposes and setting in which these purposes were implemented, the reader is referred to the presentation, "The Need for State Programs of Research and Development."

Over 68 state and national leaders in agricultural education, vocational education and supporting disciplines representing 31 states met at The Center, August 9 to 13, to focus on their responsibilities in providing leadership to state program development and research.

In reflecting on the seminar, the discussions were characterized by a positive, stimulating spirit of free inquiry. Traditional practices and concepts were questioned and re-evaluated in light of present or future circumstances. The seminar did not attempt to develop policies or establish definite guidelines for program development and research, but, rather, examined alternative approaches. The presentations of the consultant staff constituted the point of departure and framework for the major thoughts introduced for discussion. They should have continuing value to state staffs, graduate students and others as they continue their efforts in this area.

As would be expected in meetings of this nature, the major benefits were derived by the participants as they shared ideas, raised questions, acquired new insights, and broadened and extended their concepts and understandings of state programs of development and research. We believe the interest and enthusiasm kindled during these sessions will spark new interests and thrusts in the states represented at the seminar.

As seminar director, I would like to express my appreciation to the participants for the enthusiasm and cooperation they exhibited throughout the week. Acknowledgement is also due the consultant staff who, through their forward-looking and thought-provoking presentations, added an immeasurable dimension to our deliberations. Mr. Sidney S. Sutherland, Professor Emeritus, University of California at Davis, who served as coordinator-director; Mr. James E. Christiansen and Mr. Robert V. Kerwood, Research Associates at The Center, also merit our thanks for their splendid work during the seminar.

Agricultural education, vocational education, and The Center acknowledge their appreciation to the SEARS-ROEBUCK FOUNDATION for underwriting the expenses of the seminar.

Robert E. Taylor
Director

P A R T I C I P A N T S

State	Name	Position
Alabama	R. A. Baker	Assistant Professor, Vocational, Technical, and Practical Arts Education, Auburn University
	W. E. Cooper	Special Supervisor, Vocational Agriculture
	J. C. Hollis	District Supervisor, Vocational Agricultural Education
	Byron F. Rawls	Subject Matter Specialist, Vocational Agriculture, Auburn University
Arkansas	Denver B. Hutson	Head, Department of Vocational Teacher Education, University of Arkansas
Colorado	Earl E. Julson	Associate Professor, Agricultural Education, Colorado State University
Florida	W. T. Loften	Head, Department of Agricultural Education, The University of Florida
Georgia	Ralph H. Tolbert	Chairman, Division of Vocational Education, The University of Georgia
Illinois	Gerald R. Fuller	Assistant Professor, Division of Agricultural Education, University of Illinois
	Russell Guinn	Interstate Printers and Publishers
Indiana	R. R. Bentley	Research Teacher Trainer, Agricultural Education, Purdue University
	E. E. Clanin	Head Teacher Educator in Agricultural Education, Purdue University
Iowa	C. E. Bundy	Professor, Agricultural Education, Iowa State University
	John McClelland	Professor, Agricultural Education, Iowa State University
	Ken Russell	Assistant Consultant, Agricultural Education

State	Name	Position
Kansas	Ray J. Agan	Professor, Agricultural Education, Kansas State University
Kentucky	Carl F. Lamar	Research Specialist in Vocational Education, University of Kentucky
	C. O. Neel	Supervisor, Agricultural Education
Louisiana	T. S. Colvin	Area Supervisor, Vocational Agriculture
Maryland	V. R. Cardozier	Professor, Department of Agricultural and Extension Education, University of Maryland
	Glenn W. Lewis	State Supervisor of Vocational Agriculture
Massachusetts	Jesse A. Taft	Senior Supervisor, Agricultural Education
Michigan	Raymond M. Clark	Assistant Teacher Trainer, Agricultural Education, Michigan State University
	H. P. Sweany	Professor of Education, Michigan State University
Minnesota	Harry W. Kitts	Professor, Department of Agricultural Education, University of Minnesota
Mississippi	J. Roland Hamilton	Professor of Agricultural Education, Mississippi State University
	Willie F. Jackson	Assistant Teacher Trainer, Agricultural Education, Alcorn A. & M. College
	Obed L. Snowden	Head, Agricultural Education Department, Mississippi State College
Missouri	G. F. Ekstrom	Professor, Department of Agricultural Education, University of Missouri
New Hampshire	Neal D. Andrew	Supervisor of Vocational Agriculture

State	Name	Position
New York	Charles W. Hill	Professor, Agricultural Education, Cornell University
	Robert E. Norton	Graduate Student, Rural Education Department, Cornell University
	James A. Scanlon	Research Assistant, Agricultural Education, Cornell University
North Carolina	C. E. Dean	Teacher Trainer, Agricultural Education, A. & T. College
	J. W. Warren, Jr.	Assistant Supervisor, Vocational Agriculture
Ohio	Harold Anderson	Research Associate, The Center for Vocational and Technical Education
	Ralph E. Bender	Professor & Chairman, Department of Agricultural Education, Ohio State University
	Herbert D. Brum	Assistant Supervisor, Vocational Agriculture
	Leslie F. Crabbe	Assistant Supervisor, Vocational Agriculture
	Ramsey M. Groves	Research Associate, The Center for Vocational and Technical Education
	Gilbert S. Guiler	Associate Professor, Agricultural Education, Ohio State University
	Carlton E. Johnson	Associate Professor, Agricultural Engineering, Ohio State University
	Alan A. Kahler	Consultant, The Center for Vocational and Technical Education
	J. H. Lintner	Consultant, The Center for Vocational and Technical Education
	Paul F. Pulse	Supervisor, Agricultural Education, Ohio State University
	Harlan Ridenour	Instructional Materials Consultant, Vocational Agriculture
	John T. Starling	Assistant Supervisor, Vocational Agriculture
	Warren G. Weiler	State Supervisor, Vocational Agriculture
	Willard H. Wolf	Professor, Agricultural Education, Ohio State University
	Ralph J. Woodin	Professor, Agricultural Education, Ohio State University

State	Name	Position
Oklahoma	Cleo A. Dupy	Graduate Assistant, Agricultural Education Department, Oklahoma State University
	William L. Hull	Assistant Professor, Department of Agricultural Education, Oklahoma State University
	Robert R. Price	Head, Department of Agricultural Education, Oklahoma State University
	Bill W. Stevenson	Assistant Professor, Department of Agricultural Education, Oklahoma State University
	Jimmie Wolf	Graduate Student, Agricultural Education, Oklahoma State University
Pennsylvania	Gene Love	Associate Professor, Department of Agricultural Education, Pennsylvania State University
Rhode Island	Ray C. Northrup	State Supervisor, Agricultural Education
	David F. Shontz	Head, Department of Agricultural Education, University of Rhode Island
South Carolina	J. Alex Hash	Assistant Teacher Trainer, Department of Agricultural Education, Clemson University
Tennessee	George W. Wiegers, Jr.	Head, Department of Agricultural Education, University of Tennessee
Texas	Lewis Eggenberger	Associate Professor, Department of Agricultural Education, Texas Technological College
	J. R. Powell	Teacher Trainer, Agricultural Education, Prairie View A. and M. College
Virginia	A. T. Adams	Area Supervisor of Vocational Agriculture
	John H. Rodgers	Head, Agricultural Education, Virginia Polytechnic Institute
	John Foltz	Advertising Manager, National Future Farmer

State	Name	Position
Washington	C. O. Loreen	Teacher Educator, Agricultural Education, Washington State University
West Virginia	Joseph K. Bailey	Supervisor, Vocational Program Services
	Robert V. Kerwood	Assistant Professor, Agricultural Education Department, West Virginia University
	O. Claude McGhee	Assistant Professor, Agricultural Education Department, West Virginia University
Wisconsin	James W. Hensel	Assistant Professor, Department of Agricultural Education, University of Wisconsin

C O N S U L T A N T S

Name	Position
James E. Christiansen	Research Associate, The Center for Vocational and Technical Education
John K. Coster	Professor, Department of Agricultural Education, University of Nebraska
Daryl J. Hobbs	Associate Professor, Department of Rural Sociology, University of Missouri
H. Neville Hunsicker	Head, Agricultural Education Occupations Branch, U. S. Office of Education
Lester S. Kellogg	Director of Economic Research, Deere and Company
Roy M. Kottman	Dean, College of Agriculture and Home Economics, The Ohio State University
Otto Legg	Research Specialist, Educational Resources Development Branch, U. S. Office of Education
Marvin G. Linson	Assistant State Director, Vocational Education, Colorado
R. V. Mullen	Director, Youth and Rural Programs, The Sears-Roebuck Foundation
Duane M. Nielsen	Director, Educational Resources Development Branch, U. S. Office of Education
George L. O'Kelley, Jr.	Professor, Department of Agricultural Education, University of Georgia
Lloyd J. Phipps	Chairman, Department of Agricultural Education, University of Illinois
Glenn Z. Stevens	Professor, Department of Agricultural Education, Pennsylvania State University
Glen H. Strain	State Director, Agricultural Education, Nebraska
S. S. Sutherland	Emeritus Professor, Department of Agricultura Education, University of California, Davis
Orville E. Thompson	Chairman, Department of Agricultural Education, University of California, Davis

An outstanding group of national consultants made presentations during the seminar. A question and discussion period followed each presentation. Here, S. S. Sutherland, Emeritus Professor, Department of Agricultural Education, University of California, is awaiting questions from the group concerning, "Developing Comprehensive State Programs of Research and Development," a presentation by Lloyd J. Phipps, Chairman, Department of Agricultural Education, University of Illinois.

PART I

SEMINAR GUIDELINES

THE NEED FOR STATE PROGRAMS OF RESEARCH AND DEVELOPMENT

by
Robert E. Taylor, Director
The Center for Research and Leadership Development
in Vocational and Technical Education
The Ohio State University

In setting the stage for our week's activities I would like to do four things:

1. Review briefly the setting and circumstances which contribute to the rationale for this specific seminar on program development and research;

2. Highlight briefly some limitations and continuing problems in our state research and development programs; in short, present a cursory review of the "state of the art";

3. Look at some of the major concerns in this area as we move ahead in expanding and improving our research and development activities;

4. Overview the organizational structure of this seminar, our purposes, and the manner in which we will address ourselves to these problems and opportunities.

As I have mentioned earlier in other meetings, the focus of this seminar, program development and research, was one of several priority areas identified by The Center Advisory Committee as needing primary emphasis and leadership from The Center during the year. I am sure we can readily see and appreciate some of the factors that contributed to their recommendation.

Through the Vocational Education Act and other federal and private funding sources, we have witnessed a tremendous expansion and development of vocational and technical education programs. Concurrent with this development, we are constantly confronted with the need for improving the quality and quantity of our research efforts as a means of providing a constant "growing edge" of knowledge and practice. We also are aware of other educational innovations and program developments that need rapid dissemination, diffusion, and adoption by the "establishment". In short, we appear to be on the threshold of a "new era" in research and development in vocational and technical education.

The ten percent of the Vocational Education Act funds set aside under Section 4(c) for research and training and experimental, developmental, or pilot programs provides considerable thrust and impetus to this area. Through the 4(a) funds to the states and other sources of state fundings, research and development programs are being given additional prominence and support.

The approval of 24 state research coordination units in vocational education to be funded at approximately the $100,000 level not only gives additional emphasis and leadership to research and development in vocational education broadly but promises to be the forerunner of state organizational structure, coordination, and planning. We could safely conclude that research and development in our field are literally exploding; that it is feast after famine, the flood following the long drought.

It doesn't seem unreasonable to ask, "Are we equal to the task? Do we have the research and development capacity, the leadership ability to effectively plan, initiate, and conduct comprehensive continuing state programs of research and development?" The challenge to improve the quality and quantity of our efforts in this area gives rise to questions relating to organizational structure, planning and coordination, funding, relationships, involvement of other disciplines and agencies, and so on.

Before we move further in this area, it seems appropriate to review some of our past efforts. Let's look rather quickly at some of the problems or limitations in our current research efforts which restrict our improving the effectiveness of our research and development efforts. In my judgment, these problems and limitations are not unique to agricultural education or vocational education. They are not sharp and discrete items but complex and interrelated ones. They may well be syndromes. Furthermore, I am not saying they exist in all of your states (or in any of them, for that matter), but based on experience and observation, they seem to apply broadly. Think about them. Determine if they have implications for our discussion this week, for your situation.

The first syndrome is the widespread misunderstanding of research--what it is, how it functions, what it can do, what it cannot do. Many fail to appreciate the full implications of the research and development process. In many instances we have failed to recognize that research and development encompass a wide range and level of activities--problem identification, design, basic research, development, field testing, and dissemination, to mention a few. There are several steps in the complete process and in many instances we have not included these essential steps; hence, we have become prematurely disenchanted or have condemned research broadly. Perhaps we have failed to properly appreciate what is involved in moving from research design to action programs.

There are some indications that program administrators have expected research to provide "spot answers"; hoping that research could remove their burden of decision-making; hoping that research could take away all doubt or risk of failure.

In other quarters research is viewed as a requirement, rather than a valuable procedure for program improvement and development. Some individuals frequently do not see research as a "working tool". There are also indications that some groups look upon research as their "private domain" and protect it

jealously. Conversely, we see other personnel in the total program shirking their responsibilities in this area and assuming no responsibilities for research and development.

Another apparent widespread limitation is failure to recognize the dymanics, the climate which research must have to properly function. We fail to appreciate the need for a continuous, sustained, adequately supported research effort to build up capacity in this area. Too often we wait until our "britches are on fire" and then turn to research to "put out the flame". Not only is it too late but the capacity frequently is not there. It has been starved from a lack of attention and funds.

Perhaps we have too much fear of failure. We seem to expect that all research will pay off big; perhaps if not immediately, then certainly just a little later. We have failed to recognize that knowledge accumulates slowly and that the major breakthrough is the exception rather than the rule. Even then it is probably the result of continuous, sustained, additive research efforts in the area. We cannot expect every study to be an educational penicillin or a pedagogical Salk vaccine. To know what will not work is also of value.

Another major cluster of problems and limitations restricting our research and development efforts is that frequently the wrong people are doing research. A majority of research in agricultural education has been conducted by graduate students who, at best, are interns, not qualified researchers. In addition to limitations of methodology, there are frequently limitations of problem selection. In too many instances problems selected are out of the main stream, concentrated on the past rather than the future, and not significant in terms of their implications for state-wide programs of agricultural education. They are not coordinated with other studies and usually do not contribute to an organized body of knowledge. They do not hook up or add up. They have low generalizability, both from the standpoint of problem setting and research procedures. They provide little help in projecting and improving state programs.

If even a portion of these statements are valid, they should convince us that we can no longer rely solely on graduate students for our research programs. We frequently decry low utilization of research. What can be done to make teachers and other practitioners more intelligent consumers of research, to have them more appreciative of the role of research and development activities in improving and extending our educational services to the broad agricultural industry?

Our past research efforts have been marked by a lack of interdisciplinary and team research. We have failed to reach out and successfully utilize the capacities and talents of researchers in other areas of vocational education and supporting disciplines.

Another aspect of this syndrome of the wrong people conducting research is the time restrictions on our senior staff. Perhaps we have not adequately

explored the possibilities of experiment station appointments, of affiliation with and support from college of education research bureaus. We need to secure vocational education funds to establish and maintain definite budgets for research. ("Hard money" is needed in addition to the "quick silver" of proposals and special project funding.) We need more people devoting a majority of their time to research. In this connection, we may have proliferated or "frittered away" our existing research capacity by assigning one-eighth or one-fourth time for research to several staff people. Such small-time allotments are difficult to protect and usually do not yield significant research results. We may need to concentrate our efforts and perhaps rotate research assignments among staff.

Then, too, I would like to raise the question of how many of us who talk about research are really interested in conducting research and development activities, or are we more interested in teaching? Perhaps we will need to give more attention to identifying research talent in our future personnel selections.

Another problem area, it seems to me, is that we may not have involved decision-makers in our research efforts. In many instances we have failed to incorporate one of the basic values of action research in our programs. I refer to the principle of involvement. When we have been able to develop something through research that has had state-wide implications, we have not, in many instances, been able to fit it into the administrative framework for dissemination and implementation.

Experiences also would seem to reveal that we have not given enough attention to coordinating research projects across state lines, that more massive and global confrontations of priority problems through research are needed and feasible.

The foregoing enumeration was not intended to be exhaustive but rather to point our thinking toward some of the basic difficulties and limitations as we focus on organizing for continuing state programs of research and development. I am sure you will think of other problems and limitations that restrict our state-wide research efforts. In any event, we don't need to identify other problems to indicate that this seminar is needed.

I believe it also appropriate to observe that we see many vigorous seeds of change and improvement in many of these problem areas. I am optimistic concerning pending developments in this area.

We too long have viewed research in a narrow and restricted context in relation to state programs of vocational agriculture. We have tended to see it as limited to graduate degree work, as a formal, ritualistic activity outside the main stream of program development and operation rather than as a solid base for program development, improvement, and projection, as a basis for direction finding.

In contrast, industry has long followed the pattern of trying to make its present products obsolete. Education has not. We frequently try to prove that what we are doing is right rather than devise means of improving what

we are or ought to be doing. I submit that organizing for research is educational leadership; that it is program planning in its broad context. No longer can we afford the luxury of an anemic, isolated, undernourished research and development effort. A broad, comprehensive, organized state research program may well be the heart of state programs in the future.

If we were to try to synthesize the foregoing problems and limitations into a single global problem, we might identify it as the absence of planned state programs of research. We need in each state comprehensive, planned, purposeful means--an organizational structure--for renewing vocational agriculture. We need a division for re-evolution, a section for research and development, a systematic procedure for innovation; not a slipshod, Scotch-tape, chewing gum program. We cannot leave such a vital development to accident or fortuitous circumstances. We must have a carefully conceived, deliberate mechanism built into and coordinated with the state administrative organizational structure of vocational agriculture and vocational education. This mechanism must provide for the several steps in the research and development process. We need a mechanism that will do for agricultural education what the experiment station and extension service have done for agricultural science and technology.

In establishing this structure we need to consider providing a mechanism for:

1. Identifying significant problems.

2. Assigning priorities.

3. Amassing needed resources and personnel (not bootlegging).

4. Evaluating research findings in terms of their implications for state-wide dissemination.

5. Providing for the complete spectrum of needs in research and development (problem identification, design, basic research, development, field testing, and dissemination).

6. Demonstrating promising innovations. We have lost sight of the word "promote" in vocational agriculture. We must recognize what it takes to effect change; concentrate our resources on significant efforts.

7. Coordinating research efforts with other groups in agricultural education, vocational education, and education; within the state and beyond as well (regional projects).

8. Building into the mechanism the team approach to research.

As we approach this needed development we must also give attention to such essentials as:

1. Selecting and developing researchers (specialists).

2. Building into state plans permissive policies and procedures for research and development, freedom for experimentation.

3. Reviewing relationships (supervisors, teacher educators, teachers, vocational educators, experiment stations, educational research bureaus, research coordination units, state departments of education, etc.).

4. Identifying funds. We need to take money off the top for this basic need. What is educationally sound is administratively feasible.

The fundamental problem is: How should agricultural education organize itself on a state-wide basis to effectively meet its responsibilities and opportunities in research and development? How can we systematically and deliberately make agricultural education and vocational education self-renewing? We recognize the urgency of the task. We believe we can make a strong case for an organized approach in terms of its efficiency and effectiveness. Perhaps even more important, what progress can we make here this week in addressing ourselves to this critical problem of planning for comprehensive, continuing state programs of research and development? How can we effectively utilize outside resources to assist in program development and research? What is the leadership role of state staffs in planning, conducting, and evaluating pilot programs? How can state staff members facilitate the adoption of new programs in agricultural education? How can we accelerate the change process? How can we successfully identify and secure sources of funds for program development and research activities? These are some of the primary concerns of the seminar. These are the areas to which we want to address ourselves during the week. These appear to be the major areas that will provide the most help to state staffs in developing long-range programs of research and development.

How, then, do we proceed to maximize the potential benefits from this seminar to your respective states and to improve programs of research and development broadly? First, we want to emphasize the need for and values of your participation. The experiences and insights of eighty people with extensive and diverse backgrounds from thirty-five states constitute a rich resource. We encourage; we want; yes, even require, your best thinking and participation. Everyone's ideas are important, regardless of position. Irregardless of the size of your state program, whether or not you have previously been involved in research and development, your years of experience notwithstanding, we want your ideas and questions. Hopefully, we will have active participants, not passive observers.

You will note that the seminar is structured to provide you with the opportunity to raise questions with members of the consultant staff. We are proud of the consultant staff that has been assembled for this seminar. We

believe their unique experiences, coupled with the advanced thought and preparation they have given these problems, will yield real dividends during the week. They have been asked to react to key questions. We hope that you will raise probing, searching questions with these consultants to "tease out" the various alternatives and situational factors inherent in this critical area.

Mr. S. S. Sutherland will be serving as coordinator of the seminar. I am sure that his masterful touch in group processes and his keen insight into the problems underlying this seminar will further contribute to our deliberations and accomplishments.

Further, may I emphasize that this seminar is not a policy-developing or action organization. It is primarily a study group. The outcomes of the seminar will be guides to individuals and states who are free to accept or reject suggestions as they deem appropriate. I would express the hope that we can operate in a spirit of openmindedness, in a free and permissive climate that will permit honest expressions and differences of opinion; that we will set our sights high in terms of quality and standards, focusing on what ought to be rather than merely perpetuating or protecting what we have. I hope, too, that we will recognize and accept our responsibilities as state staff to give the leadership needed for desired changes, redirection, and extensions in agricultural education through carefully conceived and executed programs of research and development.

As we think through our responsibilities in this area, I hope that we can continually be aware of the need for and opportunities to involve and work with representatives of other vocational services and supporting disciplines.

While it may be premature at this point to suggest specific follow-ups for this meeting, it, nevertheless, seems appropriate to at least call your attention to some possibilities at this stage.

1. Report on this seminar to your fellow staff members upon your return to your home state.

2. Review the implications of this seminar for your state. Identify priorities, determine responsibilities, and provide leadership in developing comprehensive, long-range state programs of research and development.

3. Consider a state seminar on this topic, involving appropriate educational, agricultural, and vocational education leaders.

4. Resolve to participate in future Center programs; follow up activities of this seminar.

5. Provide a feed-back to the Center. Keep us posted on developments, activities, and progress in implementing some of the seminar outcomes. Give us your suggestions concerning ways and means The Center can further assist you in this area.

In summary, we have the prospects of a stimulating and rewarding experience during the next week. The essential ingredients are here. We have an urgent task, common concerns, a rich background of experience, an outstanding consultant staff, a favorable climate, and, we hope, an appropriate setting for effective group effort here at The Center. Let's make the most of it.

PART II

PRESENTATIONS

BY THE

CONSULTANT STAFF

Maximum interaction for seminar participants was provided by group discussion meetings. Shown here is a discussion group being led by Dr. Ray Cardozier (center, rear row, bow tie), Head, Agricultural and Extension Education, University of Maryland. Consultants shown with the group are: Dr. Duane M. Nielsen (front row, second from left), Director, Educational Resources Development Branch, U. S. Office of Education: George L. O'Kelley, Jr. (front row, fourth from left), Professor, Department of Agricultural Education, University of Georgia; and John K. Coster (left center, rear row, checked jacket), Professor, Department of Agricultural Education, University of Nebraska.

Mr. Neville Hunsicker, Head, Agricultural Education Occupations Branch, U. S. Office of Education, addressed a luncheon meeting of the seminar group. His topic was, "Priority Areas for Program Development in Agricultural Education." Seated at the head table (left to right) are: John T. Mount, Vice President for Educational Services, The Ohio State University; R. V. Mullen, Director, Youth and Rural Programs, Sears-Roebuck Foundation, Chicago, Illinois; Robert E. Taylor, Director, The Center for Research and Leadership Development in Vocational and Technical Education.

DEVELOPING COMPREHENSIVE STATE PROGRAMS OF RESEARCH AND DEVELOPMENT

by
Lloyd J. Phipps
Chairman, Department of Agricultural Education
University of Illinois

Situation

We are entering a "golden age" of vocational and technical education. Whether or not we in agricultural education participate in this "golden age" and serve the welfare of mankind, as we can serve and as we should serve, will depend on our ability, foresight and imagination in research and development.

The President's Panel on Vocational Education gave agriculture educators and other vocational educators a mandate to research, develop and evaluate their programs. Because of the unfavorable image of agriculture, the Panel, in my opinion, was especially emphatic regarding the necessity to research, develop and evaluate the program in agricultural education. Congress legitimized the mandate of the President's Panel through the Vocational Education Act of 1963 and emphasized in the Act the necessity for research, development and evaluation in agricultural education. Congress has given unparalleled and unequaled opportunities for research, development and evaluation of agricultural education by providing unprecedented amounts of monies for these activities in the Vocational Education Act of 1963, in other public school legislation and in such legislation as The Economic Opportunity Act. They have even earmarked vast sums for research and development in a period when there is a trend away from earmarked funds in Federal assistance programs for education.

Why do we have this sudden and unprecedented interest in research and development, including evaluation, in vocational education? Changes in America have created some compelling reasons. We in education may not be fully cognizant of the changes in the employment situation that are impinging on our society. We in agricultural education have been acutely aware for some time of the effect of automation in farming upon the manpower needs for production. We and other vocational educators, however, may not be fully acquainted with the growing impact of automation on all types of production. If we have been aware of the impacts of automation on nonfarm production, it is doubtful that we have been fully aware of their implications for agricultural education. Changes in nonagricultural manpower requirements in reality will create many opportunities for new educational services in agriculture and it has opened a "Pandora's Box" of demands and opportunities for research, development and evaluation in agricultural education.

Let us take a closer look at the present and emerging manpower situation in America and its implications for agricultural education

and for research, development and evaluation in agricultural education. Grant Venn says,

"The impact of automation on the labor market has been profound. Automatic elevators have recently displaced 40,000 elevator operators in New York City alone. New equipment in the Census Bureau enabled 50 statisticians to do the work in 1960 that required 4,000 such people in 1950. The check-writing staff in the Treasury Department has been reduced from 400 people to four. The airline flight engineer and the railroad fireman may soon disappear completely. Thirty thousand packing-house workers have been automated out of their jobs in the past few years. Enormous machines have helped reduce employment in the coal fields from 415,000 in 1950 to 136,000 in 1962. While construction work has leaped 32 percent since 1956, construction jobs have shown a 24 percent decline."

W. H. Ferry, Vice-President of the Fund for the Republic, says,

"The unemployed and under-employed are no longer almost exclusively the unskilled, the recent immigrants, the colored, and the groups at the end of the economic scale who have customarily borne the heaviest weight of economic slides. White-collar workers are joining this group as automation reaches the office. There is some reason for thinking that white-collar workers will after a few years comprise most of the growing category of technologically displaced. Herbert Simon has observed that by 1985 machines can do away with all of middle management, if Americans want it that way."

Ralph Bellman, a computer expert for the Rand Corporation, says,

"Industrial automation has reached the point of no return. The scientific knowledge to automate American industry almost completely is already available and is certain to be used. Banks could cut their staffs in half easily by further automation; the steel and automotive industries could increase their use of automation a hundredfold. Lower and middle management as well as production workers will be displaced for there will be no need for decision-making at that level. Unemployment resulting from automation would be greater right now except that many industries are holding back--at a sacrifice to their profits to avoid increasing the severity of the problem. Self-restraint on the part of industries cannot continue indefinitely. Automation itself will produce few jobs. Two percent of the population will in the discernible future be able to produce all the goods needed to feed, clothe, and run our society."

If the statement that misery loves company is true, we in agricultural education should be in very "loving company" with all other vocational educators in the next few decades. Some agricultural educators in the past decade have developed inferiority feelings because they were engaged in an educational field with rapidly shrinking job opportunities in farming. The recent studies identifying job opportunities requiring agricultural education in areas serving farming have

increased morale and our feeling of worth materially. We cannot rest on our laurels, however, because many of these jobs will also disappear with automation.

Gordon Swanson, Professor of Agricultural Education and President of Phi Delta Kappa, made, in my opinion, a very cogent statement in the April issue of the "Phi Delta Kappan." He said that in the future vocational educators should not be content with preparing persons to fill jobs; they should create job opportunities. I assume that he meant that we can create job opportunities by preparing persons for jobs that do not now exist and by helping these persons to develop and obtain employment in these areas.

In planning comprehensive research and development programs in agricultural education to adjust, along with other vocational fields, to the changing manpower requirements of America, we should also be cognizant of the new look in vocational education resulting from recent legislation.

1. At present and in the future various teachers in other vocational fields and even nonschool agencies may "stake claims" to educate persons for jobs we consider agricultural.

2. We are also in a position to "stake claims" for educating persons for jobs which other vocational fields and nonschool agencies have considered as their "backyard."

We need comprehensive research and development programs to determine what we can do best and what help we can obtain from others, or in other words, what they can do better than we can do. The problem of educating for gainful employment in America is so critical that society is going to demand that the specialized talents of various vocational teachers be utilized in the ways that will produce the most good for the greatest number. If we really take seriously the task of educating people for all jobs below the professional level, we will have inadequate staffs in all areas of vocational education for the foreseeable future, and longer. It also appears to me that if we accept the challenge of providing the kinds and types of instruction for gainful employment for all jobs requiring knowledge and skill in plant and animal science and related disciplines that exist or can be created, that we will have a chronic shortage of vocational educators with special competencies in agricultural subjects because of the increasing demands for their services.

Through research and development programs we need to learn where the special talents of present and future vocational agriculture teachers may best be used. There are many tasks in vocational education that teachers of agriculture because of their training are better qualified to do than any other vocational teacher. We need to identify, develop and obtain utilization of these special talents in the schools' total vocational education programs.

In planning comprehensive research and development programs, we also need to be aware of the changing attitudes of society. The pendulum is definitely swinging in America and among educators toward a more

favorable attitude regarding vocational and technical education. Whether or not we profit from this changing attitude will depend to a large extent on our research and development programs. Rationalizations for not changing vocational agriculture will only lead us down the path of disaster. In my opinion the best way to protect and extend our quality program of vocational education for farming, and I believe it is essential for society that it be protected and extended, is to become identified with that type of vocational education dedicated to the preparing and upgrading of persons to meet the changing and emerging jobs resulting from automation. Many persons, including many agricultural educators, have not recognized the new and changing nonproduction job opportunities in plant and animal science, in both rural and urban areas, that should receive our attention because no other vocational group is interested in preparing persons for these jobs, or are as well qualified as agricultural educators for providing effective and efficient programs. These emerging and changing jobs are not in farming or related to farming, but they are applied biological science jobs.

Research and Development Programs Needed

As implied in the previous remarks, we need to get into the "mainstream" of vocational and technical education. An extremely important segment of vocational and technical education in the future will continue to be the education of production workers. It is doubtful that a program in the future, however, will receive maximum public support if its total function is the education of production workers. The attention of the populace is going to be focused on changing and emerging jobs. These jobs are probably going to be in five areas:

a. Research
b. Teaching
c. Learning
d. Services
e. Recreation

It does not take much imagination to recognize that a large and important segment of the total job opportunities in these five areas will require vocational education in agricultural subjects (or applied biological science). The future for agricultural education will be challenging and exciting if we can develop research programs that will chart the course for the cultivating of the opportunities and responsibilities that are on the horizon.

1. If we are to serve society as we should and as society needs to be served, an immediate step is the changing of the image of agricultural education. We have vocational agriculture departments that have broadened their objectives and program, but the teachers, guidance personnel, parents and laymen in these communities still view their vocational agriculture program as a program designed exclusively for educating for gainful employment in farming. The program has changed but the image has remained static. The image held and propagated by certain

economists and the mass media is that we will soon have a minus number of farms and farmers and that it is a waste of taxpayers' monies to maintain vocational agriculture in the school and a waste of the talents of human beings to study vocational agriculture. To combat this image of the future in farming we need to do more than change vocational agriculture programs. We need to change the image of vocational agriculture. Research and development programs may be utilized in changing the image of vocational agriculture.

2. We need to learn how to broaden agricultural education so that it will be serving all who need, for gainful employment, knowledge and skill in plant and animal science and related disciplines.

3. We need to learn how to provide effective education in agriculture, broadly defined, for the everyday affairs of living. This is an educational service to society that will become of increasing importance as all types of work are reduced through automation. It is also important because until the image of vocational agriculture is drastically changed, it is needed as a feeder program for vocational education in agriculture.

4. We need to learn how, as mentioned previously, the specialized talents of vocational agriculture teachers may be utilized profitably and effectively in the schools' total vocational education program in teaching the content common to all types of vocational education for gainful employment. Teachers of agriculture have specialized talents that may be utilized. Dr. Agan, Kansas, has a U.S. Office of Education supported research project designed to provide some information in this area. You should observe carefully the outcomes of this project. The results may be very rewarding.

5. We also need to learn how the specialized talents of other vocational teachers, guidance counselors, nonvocational teachers, administrators and persons from industry may be utilized to decrease the heavy burden of teachers of agriculture.

6. We need to learn how to serve effectively disadvantaged youth and adults. We also need to learn how to serve effectively the upper end of the continuum, or advantaged youth and adults. Agricultural educators have an enviable record of providing effective vocational education for the disadvantaged, the poor, and the down-trodden segments of society. Agricultural educators have had more experience and more success in this field than most other vocational teachers.

We have often provided education for this group of people under protest and we have often felt that our vocational

agriculture departments were being used as "dumping grounds". Providing good vocational education for this segment of society has in certain instances made it difficult or impossible to provide effective vocational education in agriculture for the more advantaged youth and adults. We need to learn how to organize programs so that we can provide good vocational education in agriculture for all groups, and we must organize so that the disadvantaged can receive agricultural education in situations and in an atmosphere which will motivate teachers of agriculture to want to teach the disadvantaged in our society who need and can profit from agricultural education. Much research and development is needed in this area. Almost nothing has been done to date. Dr. Fuller and I have a study supported by the U. S. Office of Education that will be in operation until May 31, 1970, which we hope will provide some of the answers relating to the teaching of the disadvantaged. It is called Project R E D Y.

Organizing for Research and Development

If we are to meet the research and development needs just mentioned, plus many other needs which time limitations do not permit me to discuss, we must get better organized for research and development. Perhaps all or some of the following activities should be undertaken. (Some states have already utilized many or all of the suggestions I am about to mention.)

1. Research and development committees should be established at all universities preparing vocational teachers. These committees should have representatives from all content areas in vocational education plus access to consultants from subject matter fields. Teacher educators in agriculture can profit from participation on such committees. Such participation will broaden our educational horizons and keep us from being too provincial.

2. Earmarked time should be devoted in agricultural education staff meetings at universities to the planning and analysis of research and development projects. Earmarked time should also be devoted at supervisors' staff meetings to the planning and analysis of research and development projects.

3. Joint meetings of teacher educators and supervisors, with teacher representatives, should be regularly scheduled for the exclusive consideration of research and development in agricultural education.

4. Vocational agriculture teacher associations at both the state and national levels should be encouraged to establish research and development committees and to devote adequate time at association meetings to research and development in agricultural education.

5. The joint state staff of teacher educators and supervisors should establish special ad hoc research and development committees as needed. These special committees should report back to the joint staff.

6. Supervisors should encourage the establishment of a research and development committee with membership from all vocational education content areas. Agriculture education supervisors should be represented on this committee for the same reason given for the representation of teacher educators in agriculture on university vocational education research and development committees.

7. The supervisory staff in agricultural education should initiate the use of citizen and industry committees to advise regarding research and development programs needed. Mr. Guthrie, Chief of Agricultural Education in Illinois, has utilized the services of industry committees in (1) ornamental horticulture, (2) agricultural machinery and equipment, and (3) agricultural supply. Their use has been very worthwhile.

8. Teacher educators and supervisors should encourage action research among teachers. We have often educated and supervised teachers of agriculture with such a "tight rein" that we have virtually eliminated all their initiative and imagination. We are too prone to tell teachers what will not work instead of listening to their plans, and providing supporting encouragement to conduct action research. Only after we have done this should we even mention some of the possible "pitfalls" they may encounter. We have played "God" and have used the vocational education acts and the state plans for vocational education as clubs to stifle action research and to maintain the status quo. We have often"worshipped at the feet of tradition." The result has often been the loss of departments of vocational agriculture in many areas where agricultural education is of vital and growing importance--notably the urban areas. For example, in Illinois the Woodrow Wilson Branch of the Chicago Junior College established for 1965-66 a vocational agriculture program in the ornamental horticulture field. This development is launched after many schools surrounding Chicago dropped their vocational agriculture programs because their service area had become almost completely urban. Encouragement of action research and a more extensive research and development program, which is now possible because of the Vocational Education Act of 1963, may have saved some of these departments of vocational agriculture and their teachers could now be making their contributions in eliminating the unemployment problem in this urban area.

9. Agricultural educators should develop policies that will promote the freedom of researchers. The best way to stifle effective and productive research is to interfere with the freedom of researchers. Good research workers do not work effectively and frequently refuse to operate in an administrative "straight jacket." Some may abuse their freedom, but their number will be few. It is a small price to pay for the increased potential results.

10. Agricultural educators should encourage research by individuals. Individuals are, after all, the only ones that can do research. Do not insist that all or even most research fits into a state "mold" for research. Remember that good researchers are difficult to "harness" into a national, regional or state program of research.

11. Delegate responsibility for a research project to a definite person. I am completely disenchanted with group research projects, cooperative research projects, regional and national research projects. They lead to compromise in design and to mediocracy. We can have effective research cooperation, however, as Duane Nielsen and others promoted such cooperation in the thirty-nine states that conducted the studies of nonfarm agricultural job opportunities. There was a common objective, but each researcher was free to design his study as he wished.

12. Encourage and support both project research and program and development research. Project research is an essential ingredient of any total research and development program. Excessive reliance on project research and development, however, often stifles initiative and innovation among research workers. Program research provides a leavening ingredient for a total program of research and development. It assists in the prevention of the excessive bureaucracy and regimentation that may accompany project research and development. It provides "hard" money in contrast to the "soft" money for project research and development. "Hard" money is needed to establish and maintain an adequate staff of research and development workers.

Summary

Who initiates action? The persons in this audience, your colleagues, and officers of national and state vocational agriculture teacher associations must take major responsibility for initiating action for comprehensive state research and development programs. This is one responsibility that cannot and must not be delegated. It is too important to be neglected. The first step in initiating action is the development or revision of administrative machinery, perhaps along the lines just mentioned. Do not worry about the funding of research and development projects. If you get your administrative machinery for promoting and developing research projects developed properly, and

if you obtain well designed research proposals, funds to support your proposed research will be available. Funds from many sources are now available and more funds are on the way. Our main task is to get "geared up" for good research and development. The needs and opportunities are available. The only limitations are our enthusiasm, imagination and ability as research workers and administrators. In looking over the remaining portions of the program for this national seminar, it appears that your enthusiasm and imagination for research and development will be amply stimulated, and you should receive much help in the development of abilities for research and in the administration of research.

UTILIZING OUTSIDE RESOURCES IN RESEARCH AND DEVELOPMENT

by
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Many questions come to mind when one begins to think about utilizing outside (and inside) resources in research and development in agricultural education. First of all, the field of agricultural education is increasing in scope. When we're considering the use of resources, are we thinking about the preparation of teachers, the supervision of the programs, classroom instruction, youth programs, or are we including the broad area of human resources in agriculture? To most people, the word resources generally means financial support. However, as one thinks more about resources, he begins to realize that money is only one resource. In one's clamor to secure money, one perhaps bypasses readily available inexpensive resources. Possibly in the final analysis many of these resources which we overlook could yield results which would dwarf that which money can buy. Obviously I mean the human resource of interested people who are available in every community. The lay resource available to agricultural education has only been partially tapped. This in itself would make an interesting theme for a conference, but since this conference is to deal more with the professional and the financial side of resources, that of the lay participation as a resource for research and development will only be mentioned in passing.

This presentation will be in four major sections. The first will be a resume of where we are in research and development. This will be followed by a review of what may be called an expanded responsibility for agricultural education. This expanded concept of agricultural education will be illustrated by a report on the changes of emphasis and philosophy in my institution. Next will be a review of what is happening in other states in terms of resource utilization. The final section will include some suggestions and precautions in the use of the new resources now available.

When looking over the program for this conference, my attention was drawn to the topic, "Are We Asking The Right Questions," which will be discussed by Mr. Kellogg tomorrow. This was particularly intriguing to me and should be to all of us in agricultural education whether our area is supervision, teacher education, administration, or research, for if we're not asking the right questions, the rest of our efforts may be in vain. This becomes particularily significant now, when we're expanding the kinds of questions and number of questions we're asking, and the kinds of people to whom we are directing questions.

It is not news to most of you that we have been asking questions about agricultural education for many years, and during the last decade some have been asking questions that others did not wish to hear, nor were the answers to these questions readily sought. I'm not certain if we asked the right questions then, or if we are asking the right questions now. I'll be interested in what Mr. Kellogg has to say on this topic tomorrow. However, I am certain of one thing. While our previous question-asking was primarily of our colleagues in vocational agriculture, we can no longer restrict ourselves to this group. Really it has been pretty cozy talking among ourselves. We have been able to protect ourselves and our professional standing, and in a way we weren't vulnerable to the outside world. We had a close-knit empire and still do to a certain extent, and I think we could defend our empire in almost any manner or form during its time. Our empire, as many other somewhat self-contained institutions, developed a familiar pattern of characteristics: its members became complacent with success, they obtained their security in the past, they became oblivious to the present, and they repulsed efforts to direct their attention to the future. This began to happen in vocational agriculture in spite of the warning from a minority both inside and outside our ranks. As a result of this and other recent incidents, we have been brought to realize that no longer can we get the complete answers to our questions, whether they are the right or whether they are the wrong questions simply from within our ranks. Those of us in agricultural education have always operated as applied social scientists as we have attempted to bring our knowledge of psychology, sociology, economics, and other basic social sciences to the problems in our field. As such, we have perhaps been guilty of having too little command of any one of the basic fields to make maximum utilization of what is known in that field on the problem we had under study. While it is hard to think of any one situation where we have made gross errors resulting from insufficient knowledge, perhaps the accumulative effect of many partially inadequate answers could have had adverse effects upon our progress. Also, we probably have limited the depth of our inquiries because we lacked the knowledge of the basic social science principles involved.

In the answering of questions in areas of education today there is an effort to bring a community of disciplines to bear upon the situation. In the past the physicist, the mathematician, the chemist, and the sociologist weren't particularly concerned with the elementary or secondary school educational process. They were ready and willing to leave this in the province of the educators. Times have change--partially through the efforts of the educator to make others concerned about problems in education, but perhaps most from the scientist's own dissatisfaction with the results the educator was achieving. And we must admit that the scientist has made a positive contribution to education. Taking a key from what has been accomplished in the other fields of education, we have increased our concern about arriving at the best possible solutions to our problems. We believe our colleagues in the social sciences

can make a contribution to the solution to problems in vocational education by bringing the resources of their basic discipline to the situation. This will then be one of the outside resources which I will discuss more fully during my presentation.

I have chosen what is happening at my institution as an example in the crossing and mixing of disciplines in the solution of problems in agricultural education. The Davis campus of the University of California is one of the three and by far the largest of the colleges of agriculture in the University system. The major in agricultural education is offered only on the Davis campus. We have a University Dean of Agriculture who is over the three colleges and a Dean of Agriculture for each campus. Our University Dean of Agriculture was appointed three years ago, while our College Dean is completing his second year in that position. While these two men are renowned biological sciencists, they have become increasingly concerned over the obvious lack of attention in California over the years to the human resource (social sciences) in agriculture and farming. Their overall interest plus a similar concern of members of our department under the leadership of our recently retired chairman, Sidney S. Sutherland, has resulted in the following action during the past two years:

1. Eleven-month appointments with Experiment Station titles have become available for our staff members.

2. Financial support for research in agricultural education has become available from the Experiment Station.

3. A statewide program for the study of farm labor has been initiated. This has included the addition of a staff member to coordinate farm foremen training classes.

4. A research program to study the backgrounds, interests, and motivational drives of the migrant farm worker has been launched. A pilot study among strawberry pickers has been completed and a study of the tomato picker is under way.

5. A committee to study the need for research on the socio-economic aspects of agricultural labor has been appointed by the University Dean of Agriculture. This committee includes an agricultural economist, a sociologist, the Director of the Agricultural Extension Service, and the chairman of the Department of Agricultural Education. This committee also serves as an advisory group for farm studies.

6. A staff member has been added to our department to give leadership in adult education. Initially this will include a teacher education program for instructors of adult illiterates and research on the barriers adults encounter in learning. From this we hope to find ways to improve our approach to adult education in vocational agriculture and agricultural extension.

7. A full professor position has been given to our department to expand our program of teaching and research in the social sciences related to agriculture. (We are currently recruiting for this position.) This person is to study the need for research on the human resources in agriculture.

8. A College of Agriculture committee has been named to make recommendations for the development of social science research (other than economics) in the Agriculture Experiment Station. Membership on this committee includes a sociologist, a political scientist, an agricultural economist, a home economist, a geneticist, and an agricultural educationist. This committee has recommended that the agricultural education department provide aggressive leadership in research in the human resource need in agriculture.

9. The 1966-67 budget to the legislature includes a request for four new academic staff positions for the Department of Agricultural Education. These persons are charged with the study of the problems of the migrant and unskilled laborer in the rural and outdoor environment. It is specified that these staff positions include a sociologist, a psychologist, an educator, and a specialist in research and analysis.

10. A reorganization within the Department of Home Economics has resulted in the addition of two staff members in child development and a nursery school to the Department of Agricultural Education. This was an effort to place all the social sciences (except agricultural economics) in the College of Agriculture into one department. The administration believes that we should approach the problems of human resources in agriculture from all levels of education--i.e. from the nursery age child through the adult.

You might wonder what this kind of a program has to do with the traditional function associated with departments of agricultural education--that of preparation of teachers of vocational agriculture in high school, the supervision of these programs, the development of teaching materials, the work with Future Farmers of America, and the host of other activities involved. Yes, we will continue these, but we feel that agricultural education has a charge beyond that of its traditional function. In addition to preparing young men for careers in agriculture we need to study the whole human resource in agriculture. Previously, research efforts in California at least have concentrated on the agricultural technology, the economics of production, marketing, and processing agricultural products. Again in California--which has up to a half-million in the farm labor force--practically no effort has been made to study this important input. We have always subscribed to the objectives in vocational agriculture to prepare young men for farming and agricultural occupations

through the application of the principles of science and economics, yet we have bypassed study of perhaps the most important ingredient in agricultural production--and that is the human who does the work--makes the decisions and reaps the profits or the losses from his efforts. We have been given the responsibility for this effort at our institution and the resources to proceed. It is a challenging task indeed.

Needless to say, the assuming of additional responsibilities by a department creates a host of problems, not the least of which is that we must not go outside the resources of our department and college both for financial support and for professional assistance. As you already know, it's usually much easier for us to communicate with our colleagues in education and agriculture than it is with our professional colleagues in the basic social sciences. While we feel we need the assistance of professionals in the basic social sciences, not all of these people share our concern for the study of problems in education. It's not unusual to find these people are already overburdened with their individual research interests, and some question the value of the contribution their discipline can make to the solutions to problems in education. For example, it has taken a number of meetings of our college committee on social sciences in agriculture just to be able to communicate with each other. It becomes immediately obvious in these kinds of situations that those of us in education, in agricultural education, and in agriculture have not achieved general understanding of our problems with our colleagues on "the other side of the campus" or "in other agencies." We have kept to ourselves too long. However, there are times when one wonders if it wouldn't be better or at least much easier to continue to keep to ourselves. I know it would be less frustrating.

Thus, one of the outside resources we're using for research and development in agriculture education is professionals in the social sciences. To date we haven't used these persons directly on problems in vocational agriculture. However, we expect to in the future, for we now have our Deans of Agriculture, the Director of Agricultural Extension Service, The Dean of University Extension, state personnel in adult education, agricultural economists, and others involved in one way or another with our program in agricultural education. The mere fact that we have reason to interact with these people has paved the way for future opportunities to obtain assistance from these individuals in problems in vocational agriculture. One concrete example of benefit came recently when the chairman of the Department of Sociology asked if he could contract for one of the staff members in Agricultural Education to teach an upper division course in his department next spring semester. We have recently affected a joint appointment for a staff member with University Extension to work in the field of adult education. This is the first of its kind on our campus--already there is talk of another. Then it is obvious that the success of our expanded program is dependent upon how well we can utilize outside resources in research and development in agricultural education.

Another outside-inside resource we've used is the procurement of financial support for research. While our operation is in its infancy, this year we'll have funds from sources such as the Experiment Station, Campus Research Committee, Chancellor's Office, University Extension, Economic Opportunity Act, Public Law 88-452 Title II-B, Vocational Education Act of 1963, and from the Cooperative Research Branch of the U.S. Office of Education.

In order to find the extent of use of outside resources in agricultural education by other states a survey was made of a sample of states, and as you might expect, states are using many sources for the procurement of support. The following are but a few examples of how states are capitalizing on resources. Colorado has 4-(c) funds for an occupational study in which they are using the resources of the University research foundation, their guidance and testing service, and their data processing center. This fall Colorado will have a graduate assistantship supported by their State Board for Vocational Education. New York obtains financial support for research from an Agricultural Businesses and Industries Group, from the Council of Agricultural Cooperatives, and from a Ford Foundation grant in teacher education. In Illinois support is obtained from the Production Credit Association and from the Illinois Agricultural Association Youth Committee. Minnesota utilizes the Upper Midwest Research Center, the Veterans Administration, in addition to the State Labor office. In New Mexico one rather small Chamber of Commerce is contributing $2000 for an area occupational study. Pennsylvania obtains outside resources from the Federal Land Bank of Baltimore, Pennsylvania Rural Electric Association, Game Commission of Pennsylvania, Employment Security Agency, and the National Defense Education Act. Maryland obtains funds from the McIntyre-Stennis Act for study of forest recreation opportunities. Missouri has four NDEA fellowships in vocational education. In Iowa assistance is obtained from the Iowa Farm Equipment Club, from the Western Feed and Grain Dealers Association, and from the Iowa Grain Dealers Association. Many others could be mentioned. However, I think this listing gives some idea of the variety of sources now used by agricultural educators. Reference to usual sources such as the state departments of education and experiment stations was purposely omitted. If we were to add those concerns and agencies who support development of agricultural education through the Future Farmer organization, the list would be still more extensive.

However, few of the some twenty states surveyed reported use of resources other than those which provided money or a service such as data processing. Either use of professionals in the social sciences wasn't a common practice or the questions asked weren't clear. I suspect that involvement of persons in other disciplines in our programs of supervision, teacher education, and research in agricultural education is being approached with caution--as perhaps it should be. Several states mentioned that the availability of competent professionals in agricultural education was a limiting factor in their program in research and development.

In reviewing the reports from the various states, the impact of the Vocational Education Act of 1963 was obvious. Most states mentioned they either had resources from this act or they planned to apply for funds from this source. Another example of increased research productivity in agricultural education is the number of reports of studies we have received during the past year.

It now appears to me that we have overcome, or are in the process of overcoming, the three major barriers we've faced in obtaining resources for research and development in agricultural education.

The first of these barriers is fear. For years the leadership in agricultural education consciously and subconsciously was held back by restrictions they felt were placed upon them by the legislative acts from which they received funds. Too few states were brazen enough to forge ahead in the face of criticism. I'm confident that the obsolescence of which we are accused--and too often were guilty--can be attributed to this fear under which we operated. We are conservatively ten years behind in updating our thinking and programs in agricultural education. Now when we need and have the resources to forge ahead we don't have the research to give us guidance. Current legislation should eliminate the basis for any fear of nonconformity to Federal regulations.

The second of these barriers I will call excessive exclusiveness. We were a fraternity and still are, but now at least some restrictions upon membership have been lessened. We're now offering associate membership to some of our colleagues in the social sciences related to our field. Previously, we have been more closely identified with agriculture professionally than we have to the other half of our area--that of education. We should not lessen our intimate contacts with the technical field of agriculture while increasing our bonds with social sciences. Overcoming this barrier has been in two parts: the first and maybe the most difficult was to accept the fact that we didn't have all the answers to our problems and that others in social science may be able to help. Once this was accepted, and this had taken several years, we needed to take the next step--that of taking the initiative in approaching these persons for help. Indications are that we are making progress in this direction.

The third of these barriers which is being overcome is the obtaining of partial, if not adequate, financial assistance. Evidence from the various states suggests that progress is being made in obtaining money from various sources to further the efforts in research and development in agricultural education. Extensive use is already being made of Vocational Education funds--obviously additional funds will be available from the Economic Opportunity Act and others. As has been mentioned previously, obtaining interested and qualified researchers in this field is a problem yet to be overcome and one which this center is and should take the leadership.

Now, what are my personal reactions to this over-all development and the limitations which I see in the direction which agricultural education is taking as it seeks its place in research?

During the past decade the availability of outside resources for research has had terrifying influence upon research in colleges and universities. This money came first to the physical sciences, then to the biological, and now to the social sciences. On the positive side it has enabled the researcher to expand the frontiers of knowledge in the various sciences far beyond what would have otherwise been possible, and, therefore, to the over-all benefit of society is positive. On the other hand let's look at the freedom of the individual researcher and the institution of the University as a free agent in research. Is the individual really doing the research he truly wants to do or is he doing what he knows will be acceptable to the review committee who decides the destiny of his research proposal and maybe his own position? The size of the National Science or the National Health grant or contract the individual controls has become a prestige factor on many campuses. The poor researcher without a grant has to borrow equipment from his grant-rich coworker and stay at home while his coworker jets off to meetings across the U.S. and the world at grant expense to report his findings. I truly hope that those administering the funds from the Vocational Education Act will be able to improve upon the systems to which other federal agencies have become victims. Certainly, there must be another way of allocating funds than by a competitive project basis. I hope it can be found. It might be profitable to look for guidance to the system the U.S.D.A. uses to allocate funds to regional experiment station projects.

Two limitations are implied in the above statement: one is the restriction put upon what the researcher or institution wants to do by the granting agency. Certainly it is recognized that neither public now private granting agencies can allocate funds indiscriminately. They have a responsibility to the public or their boards of directors to insure that the money is used intelligently. Yet, the researcher and the institution needs more freedom than is available in many situations today. Some grantors require detailed quarterly reports and annual renewals which take an unjustifiable amount of the researcher's time from his work. The pump-priming policies of some foundations and agencies, while worthy in intent, may leave institutions unable to continue certain beneficial research centers and like activities once the grantor has fulfilled its original commitment. There have been instances where an institution found it easier to promise to obtain funds to continue an activity than it was to convince legislators and others of the necessity for funds. The insecurity in "soft money" operations has adversely affected the ability to recruit and hold a qualified staff.

A second limitation is the paper work--the delay, the inconvenience, and the frustration involved in obtaining money by the project method. In our state the last review panel had over a thousand proposals to

evaluate. The sheer mechanics of handling the proposals has become overwhelming. Many hundreds of man-days were used by professional educators just to review the proposals--and this happens twice a year. In a sense, every vocational program is operating on "soft money." This seems to be inherent in the usage of private as well as public funds.

In moving ahead in obtaining resources for research and development let's keep asking ourselves questions such as the following:

1. Are we maintaining a balance in our program of supervision, teacher education, and research? Are we sacrificing the quality of our teacher education and supervision program to take on added responsibilities in research? What activities are we going to de-emphasize when we add new functions and assume added responsibilities.

2. Where can we obtain new staff and other personnel to conduct research? How can we upgrade the research competency of our present personnel?

3. How can we identify and recruit social scientists who are experts in their fields and also interested in research in agricultural education?

4. How can we get a steady flow of "hard money" for research and development? (How can we obtain "soft money" for projects?)

5. How can we keep the added activities of research and development from adversely affecting the quality of our classroom teaching?

6. Are we researching the most important problems in agricultural education or are we pursuing our individual interests without due regard to the overall needs of vocational agriculture? Are we working toward some basic as well as applied research activities? Can we accomplish both?

7. Are we assuming more responsibilities than it is possible for us to supervise?

These are the kinds of questions we must face as we move ahead in research and development.

By now you perhaps feel that I can see no good in using outside resources for research and development. Quite to the contrary. I realize that we are victims of a system with which we must learn how to work, as change is beyond our power. Outside monies are a real ray of hope in education, as obtaining additional funds from our individual state legislatures appears hopeless. Utilizing outside professionals offers another ray of hope for progress and maturity in agricultural

education. However, in our contacts with our colleagues in the basic social sciences let's not give the mistaken impression that we are desperate for help. Let's let them know we have a good program in agricultural education but we think they can help us make it better. Let them know that the public acceptance and public recognition of the value of vocational education has never been better. Let them know that we are asking them to join a winning team and a team that is on the move. So let's see how we can make the fullest use of the financial resources from the Vocational Education Act and other sources to solve problems in agricultural education, and in the planning and in the process, let's consult with and involve our colleagues from the related social sciences in our research activities. Let's see if we can get some regional research activities underway so we can revive what we lost with the elimination of our old regional system. The challenge is here--the resources are available. How we utilize these in the further development of agricultural education is our challenge. First, however, we must find if we are asking the right questions.

OPPORTUNITIES AND RESPONSIBILITIES FOR RESEARCH AND DEVELOPMENT

by
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Gentlemen, it is a distinct pleasure to be a participant in this seminar. I appreciate the opportunity to associate with you again for I have grown to respect you highly through the years. May I take this opportunity to commend each of you for the dedication you have exhibited and contributions you have made to the development of agricultural education programs. It is also pleasant to participate in an activity that is this well planned and administered, particularly when we recognize the significance of this seminar, and comparable activities, to the future of vocational and technical education. The adjustments and expansion in agricultural education necessitated by a dynamically changing agricultural economy will occur, to a great extent, through the efforts of individuals like you who are responsible for the research and development activities which give direction to operating programs.

Several of you were present five years ago at the Regional Agricultural Education Conference in Chicago when I made an illustrated presentation on the needs for vocational education in agriculture and challenges confronting the program. Most of the rest of you here today heard the presentation at subsequent Regional, State or National Conferences. I indicated at that time we were crossing the threshold of what would become the most dynamic decade in the history of agricultural education. It would be dynamic in the extent to which we successfully met the needs for program development or equally dynamic in our failure to do so. One of the priorities identified was the generation of a research and development capability equal to the task.

You may remember the transparency illustrating the little chameleon and its ability to adapt its color to match its environment. It got along fine in life until some enterprising soul put it on a piece of scotch plaid, and it died of frustration. We're not out of that scotch plaid situation. Our kilt may be a little shorter, a little longer, or the plaid may be a bit different in terms of its components, but we are still in a multiplicity of complexities and will be for years ahead. Adequate research and development is a virtual necessity to programming under these conditions.

We are not members of a static society or industry; we are participants in rapid change. Thus, the supreme challenge to research and development in agricultural education is to innovate, experiment, and demonstrate so that programs may more effectively serve a broadened clientele. This task will not permit us to sit on our hands, it will not permit us to stagnate, it will not permit us to build on dead yesterdays - we must concentrate on unborn tomorrows.

This does not mean that we wipe the slate clean, assuming that all we have done has gone by the board with no value. During this conference, as we plan more effective ways of stimulating, conducting, disseminating, and implementing research and developmental activities, we must remember and respect those numerous program strengths that have developed through the years. We should build on those procedures and materials which we have found to be effective; expand them and strengthen them while exhibiting the clarity of vision that will permit us to adapt, to adjust, and to be realistically creative. This is our charter for the future and one of the commitments to take home from this conference. You who are here today have the authority and the opportunity in your positions to respond to this challenge.

With that introduction, may we now focus on the three areas I would like to discuss with you. First, it has been suggested that I review the July 1 reorganization of the Office of Education. Although indirectly related to our topic, discussion of the reorganization does have relevancy to opportunities for research and development in that it will expose the new Office of Education administrative structure for such activities. Second, I would like to give you a progress report on the fiscal 1965 activities of our program operated under Section 4(c) of P.L. 88-210, the Vocational Education Act of 1963. Third, I will suggest some priority areas for research and development concentration in agricultural education.

Reorganization

When the Department of Education was created by Congress in 1867, the new government unit was authorized to have a Commissioner of Education and three clerks. Total budget: $9,400 a year. Ninety-three years later -- in 1960 -- the Office of Education had 1,100 employees and was running 20 separate education programs with annual expenditures of $500,000,000. Today, the Office of Education is handling more than 40 education programs with more than $3,300,000,000 authorized. It has 1,600 employees.

The statistics demonstrate the obvious. Education has finally come into its own. It is not growing -- it is exploding. Congress has given the U. S. Office of Education major responsibilities for carrying out programs to improve American education.

Early in 1965, the President of the United States -- at the request of HEW Secretary Celebrezze -- appointed a special Task Force "to advise and assist the Office of Education to meet its new program responsibilities." The Task Force, headed by Dwight Ink of the Atomic Energy Commission, included members of both the Bureau of the Budget and the Civil Service Commission.

For three months, the Ink group probed, questioned, investigated, and evaluated. On June 14, 1965, the Task Force completed its work. Four days later, Secretary Celebrezze submitted the Task Force's recommendations to the President and the Cabinet.

The Task Force's recommendations became public as a neat, pencilled chart of organization boxes. Transparency 1 shows the Office of Education administrative structure prior to the reorganization, and Transparency 2 illustrates the new structure recommended by the Task Force, as it became effective July 1.

The Task Force concluded that the Office of Education had become "fragmented and unduly layered" by a patchwork of organizational units created for each new education law -- sometimes for each new title of a law. A reorganization was necessary. But the neat little boxes were only part of the story.

The Ink group singled out a most important element in revamping the Office of Education -- new blood. First priority, said the Task Force, is to recruit new personnel. It urged that competent personnel from disciplines other than professional education be carefully considered for service in the Office of Education. It called for an ad hoc committee under the Deputy Commissioner to identify vacancies, review applications, and set up recruiting teams. It asked for hard-hitting recruiting efforts at both professional and clerical levels.

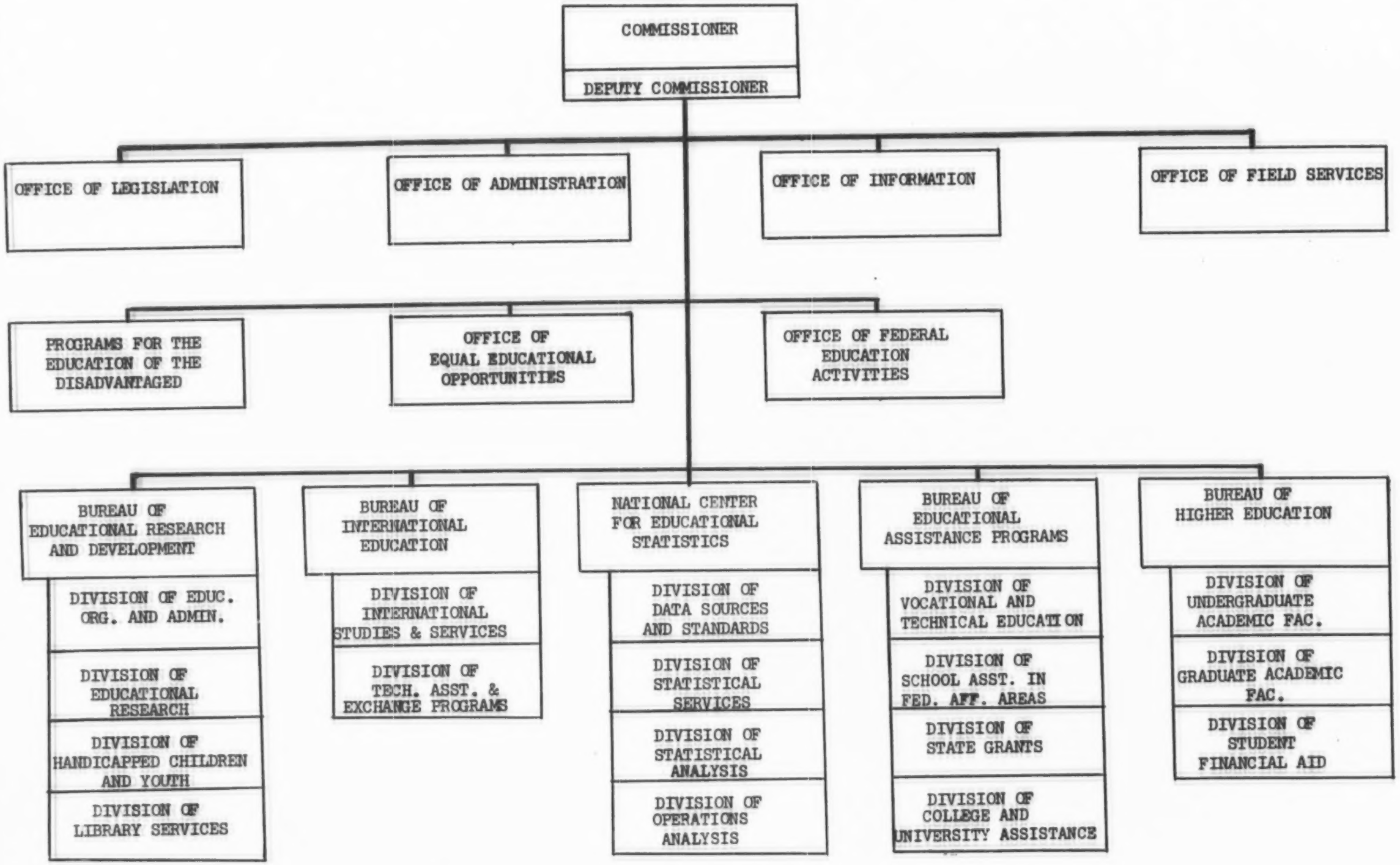
As the Ink proposals were carried into effect, the Office of Education prepared for orderly chaos. Eight hundred new personnel had to be hired -- including many top-level super-graders. Personnel from defunct bureaus had to be reassigned. Additional office space had to be found in buildings outside 400 Maryland Avenue. The Bureau of Higher Education, for example, went from 187 to 336 positions. Entire bureaus were moved physically to new locations. Other bureaus merely evaporated. Transparency 3 provides additional detail on the reorganization in that it indicates administrative personnel assignments and locations as of July 30.

The major reorganization and adjustment involving the vocational and technical education research and development program, and the administration of Section 4(c) of P.L. 88-210, is that we were formerly the Occupational Research and Planning Program (ORP) in the Division of Vocational and Technical Education (DVTE). We are now the Division of Adult and Vocational Research (DAVR) in the new Bureau of Research (BR). The DVTE-ORP structure prior to reorganization is shown in Transparency 4 and the DVTE structure after reorganization in Transparency 5. The present BR-DAVR organizational pattern was indicated in Transparency 3 and additional DAVR organizational and staffing detail is given in Transparency 6.

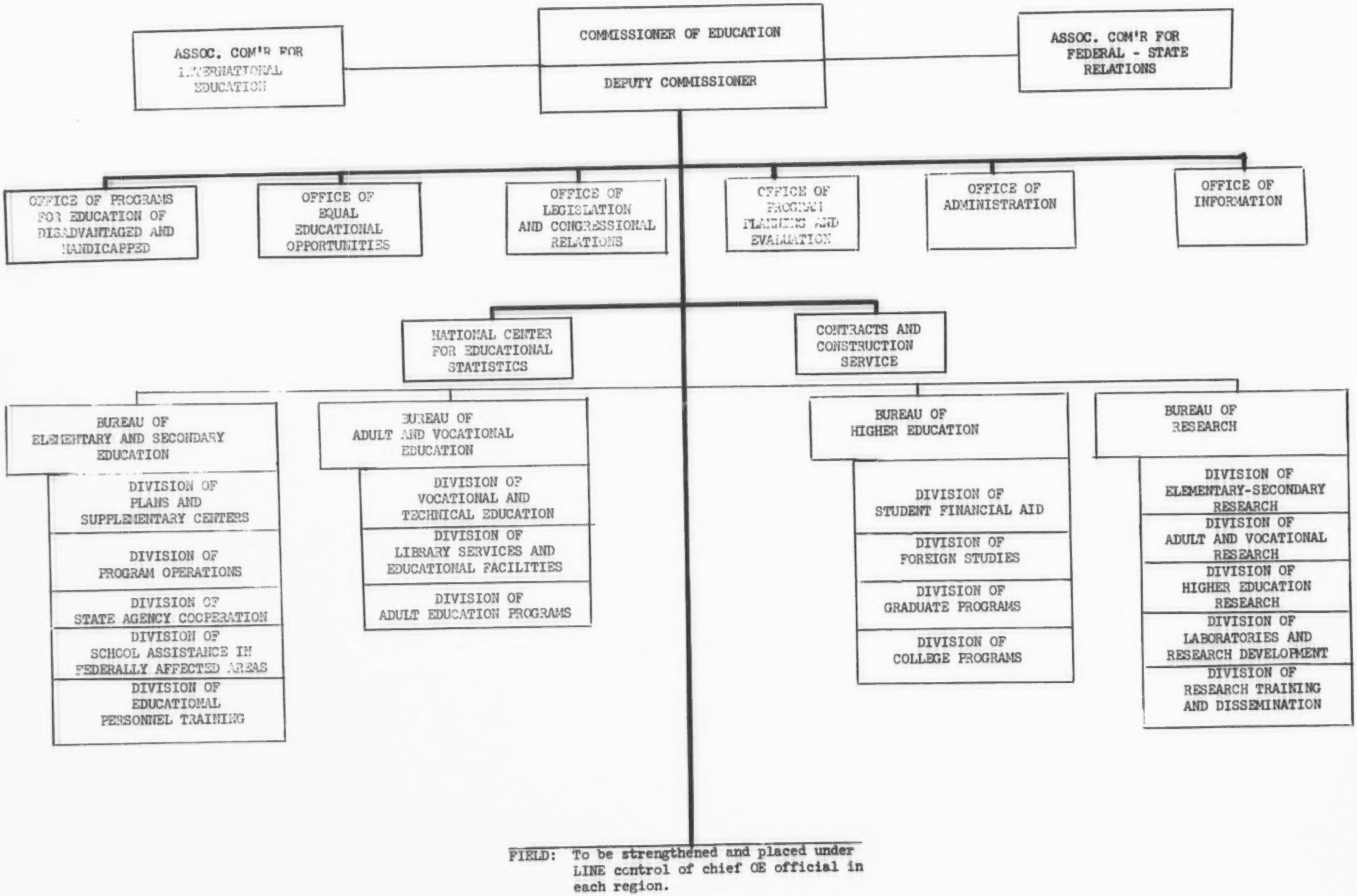
Specific procedures have been implemented to assure close coordination and communication between DAVR and DVTE. This is essential if research and development and program operation are to render effective service. Joint staff meetings, committees, project and program review are parts of this effort. There are definite advantages to DAVR and the other OE research programs being centralized in the new Bureau of Research. Uniform procedures and a coordinated concentration on research and development priorities in education should result in increased program efficiency. One combined policies and procedures document for the Bureau of Research is being prepared. Until

it is distributed, initiators of vocational education proposals should continue to follow OE-4262, "Conditions and Procedures: Grants for Research, Training, Experimental, Developmental, or Pilot Programs in Vocational and Technical Education." All proposals should be sent to the Bureau of Research, U. S. Office of Education, where they will be assigned to the appropriate Division for processing.

U. S. Office of Education

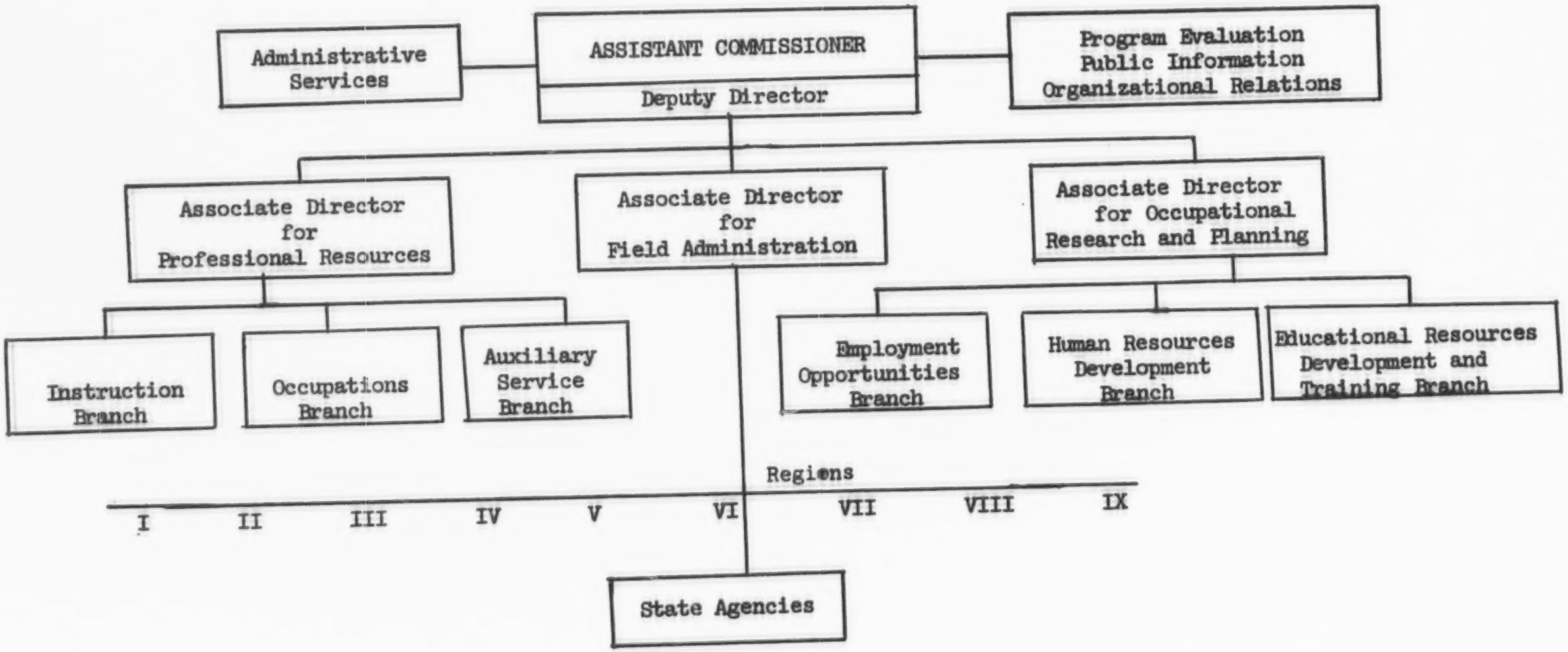


TRANSPARENCY 1. OE Organizational Structure Prior to July 1, 1965



TRANSPARENCY 2. OE Organizational Structure Effective July 1. 1965

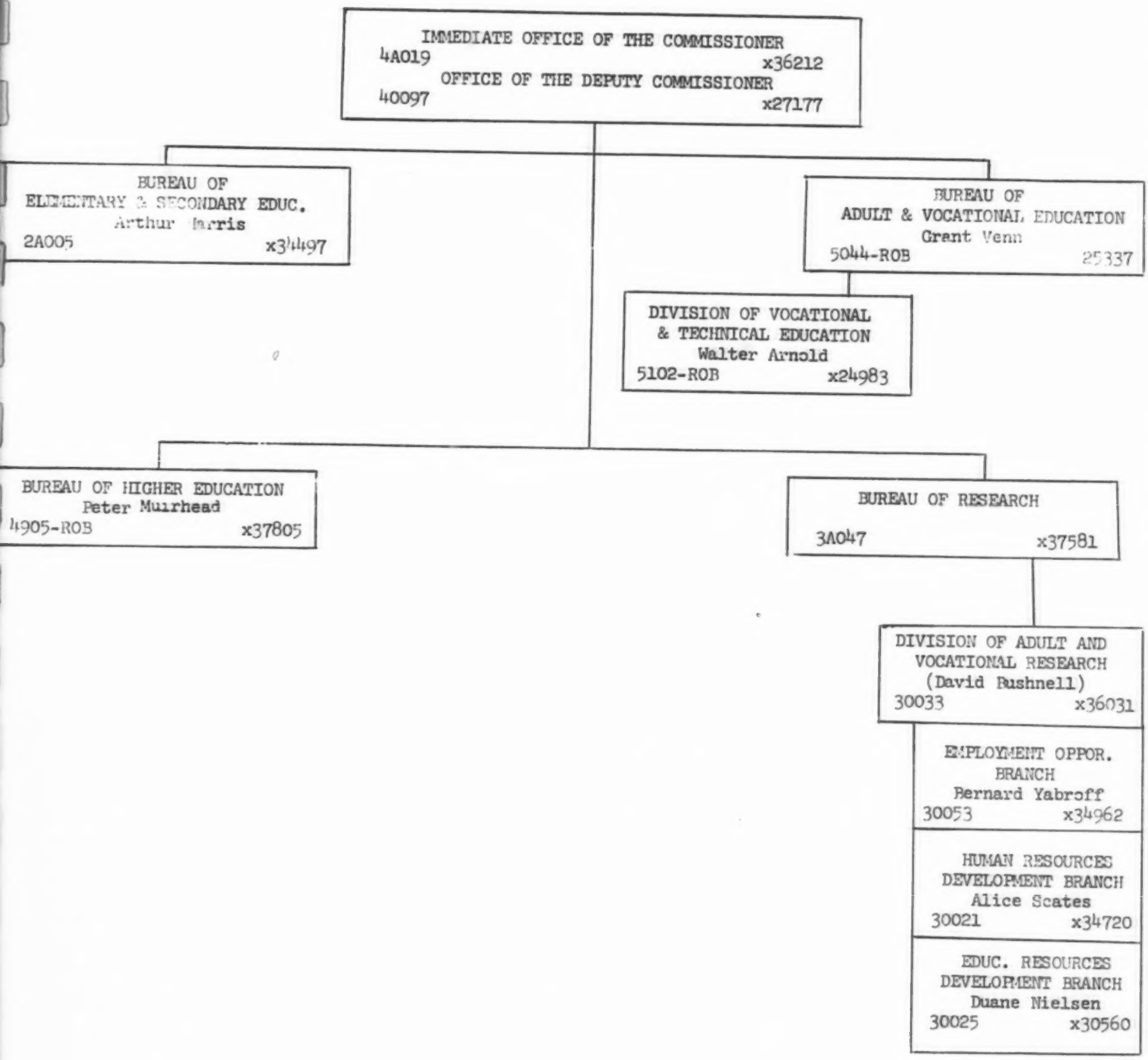
DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION



TRANSPARENCY 4. DVTE Organ: :tional Structure Prior to July 1, 1965

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

OFFICE OF EDUCATION



TRANSPARENCY 3. OE Administrative Personnel Assignments as of July 30, 1965

DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION

ASSISTANT COMMISSIONER
W. M. Arnold
Asst.to the Director-L.Cornelsen
Program Assistant-E.Williams

PROGRAM EVALUATION
Prog. Eval. Spec.-B. Michael
Prog. Eval. Specialist-Vacant

ADMINISTRATIVE SERVICES
Executive Asst.-R. Grim
Budget Acctg. Officer-E. Jennings
Management Advisor - Vacant
Budget Acctg. Analyst - T. Yazek
Reports Analyst - D.Gray

PUBLICATIONS - J. McCarthy

INFORMATION AND REPORTS
Public Inform Officer-J. Billings
Writer-Editor-A.Berzen,M.Underwood

ORGANIZATIONAL RELATIONS-W. Tenney

MANPOWER DEVELOPMENT AND TRAINING BRANCH
Director-H. Matthews

INSTITUTIONAL TRAINING Asst.Dir-Vac.	NATIONAL PROGRAMS Asst.Dir.-D.Crum
Inst.Tr.Prog. Proj.Analysis Proj.Review & Evaluation Pre-Voc. Trng. Facil. & Equip. Utilization Proj. Manag. & Coordination	Exp. & Dem.Tr. Nat'l Tr. Prog. OJT Related In. ARA Training State Supervis. Utilization Retraining & Em. of Women Sec.'s Report on MDTA To Congress

PROGRAM SERVICES BRANCH
Director - L. Ash

CURRICULUM AND INSTRUCTIONAL MATERIALS Asst.Dir. E.Bowler	ANCILLARY SERVICES Asst.Dir. M. Strong
Curriculum Needs Survey Curriculum Dev. & Design Instructional Mtls. Devel.	Teacher Educ. Inservice Preservice Voc.Guidance Occup.Inform. WorkStudyProg. Basic Educ.

STATE VOCATIONAL SERVICES BRANCH
Director-E. Rumpf

STATE PLANS AND ACTIVITIES Asst.Dir-H.Duis	OCCUPATIONS Asst.Dir. J. Beaumont
State Plans & Agreements State Projected Prog.Activit. Grant Programs State Activity Coordination Policy Interpr.	Office Occup. Dist.&Marketing Occupations Technical Occup Health Occup. Home Economics* Trade & Ind.Occ. Agriculture Occ# *FHA #FFA

PROGRAM PLANNING AND DEVELOPMENT BRANCH
Director-S.McMillen

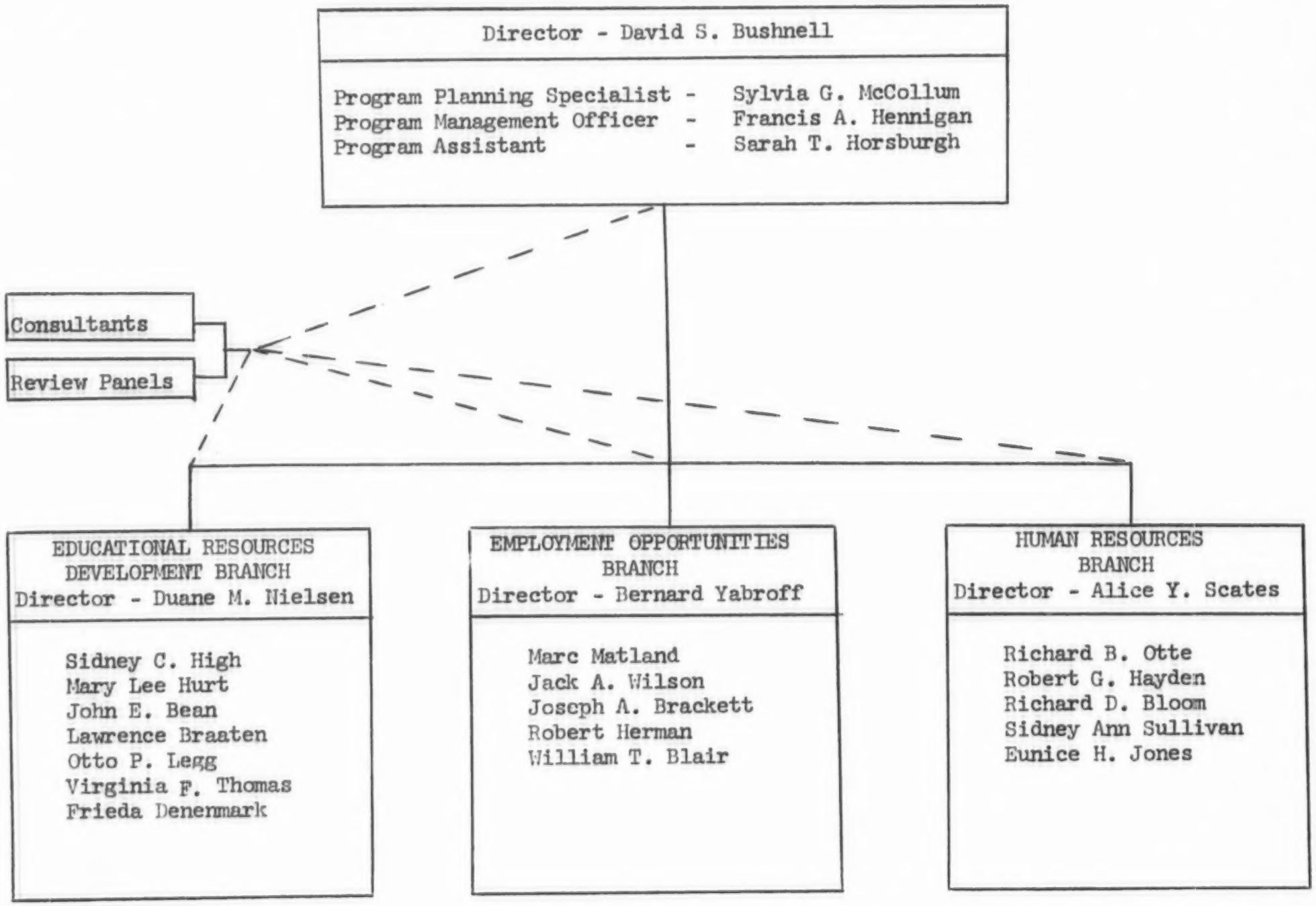
PROGRAM PLANNING AND DEVELOPMENT Asst. Dir-Vac.	FACILITIES PLANNING AND DEVELOPMENT Asst.Dir.M.Russo
Prog.Finc.Proj. Pers.Trg.&Dev. Mgmt.Analysis Research Lias. Secondary Prog. Post-Sec.Prog. Adult Programs Special Prog. Professional Personnel Exchange	Facilities Design Residential Schools Appalachian Construction

REGIONAL OFFICES

I II III IV V VI VII VIII IX

TRANSPARENCY 5. DVTE Organizational Structure Effective July 1, 1965

DIVISION OF ADULT AND VOCATIONAL RESEARCH



TRANSPARENCY 6. DAVR Organizational Structure Effective July 1, 1965

FY 1965

On June 30, 1965, the Occupational Research and Planning Program (DAVR since July 1) completed its first year of activity. Although the program had been in operation slightly less than nine months the response was impressive. In summary:

- 475 proposals were received, almost double our January 1965 estimate. Assuming that each proposal represents five man days of effort by those in the research community on vocational problems, the program generated 2,400 man days of effort at no expense to the Government.

- 146 proposals or 31 percent of the total received were approved by the Commissioner and all will become firm contracts within the next few weeks.

- The total appropriation of $11.85 million for fiscal year 1965 was expended.

The distributions of projects approved during fiscal 1965 are shown in the next four transparencies. A brief examination of these distributions provides an overview of the scope and diversity of program activity. Transparency 7 indicates the distribution of approved projects by areas of major impact.

TRANSPARENCY 7. DISTRIBUTION OF APPROVED VOCATIONAL RESEARCH AND DEVELOPMENT PROJECTS BY AREAS OF MAJOR IMPORT, FY 1965 (N-146)

Job Analysis	6	4%
Testing and Evaluation	6	4%
Curriculum	13	9%
School Organization, Administration, and Special Programs	7	5%
Methods, Material, Media	7	5%
Teacher Education and Training	22	16%
Individual and Social Characteristics	14	10%
Career Choice	5	3%
Guidance and Counseling	8	5%
Special Groups (Drop-outs, Adults, Disadvantaged, and Slow Learners)	19	13%
Research and Development Planning and Administration	39	26%

Classification of the projects into areas of major impact yielded a 16 percent distribution of approved projects for teacher education and training, 13 percent for immediate vocational needs of dropouts, adults, disadvantaged and slow learners; 26 percent for the training and support of research personnel, and the rest scattered among the other eight classifications. The latter area includes two vocational research centers, 23 State Vocational Research Coordinating Units, and several small projects aimed at improving research management. A high multiplier effect from these projects is expected and reflects a sound first-year investment in program growth potential. There is a reasonably good distribution of projects covering topics stressed during FY '65, e.g. identification of emerging job opportunities, optimum location of vocational schools, evaluation of teacher certification requirements, in-service training for vocational teachers, and the improvement and expansion of State vocational education planning organizational and administrative capabilities. We are also supporting or participating in a number of projects concerned with exploiting new information handling techniques through computer-assisted instruction, and electronic data processing of information on the statistics of the vocational system and on research activities completed or in process. Application of systems analysis and operation research techniques to major vocational problems is also being attempted.

The distributions of Branch program area, submitting institutions and type of project are given in Transparency 8.

TRANSPARENCY 8. DISTRIBUTION OF APPROVED VOCATIONAL RESEARCH AND DEVELOPMENT PROJECTS BY BRANCH PROGRAM AREAS, INSTITUTIONS AND TYPES, FY 1965.

PROGRAM AREAS (N=146)			INSTITUTIONS (N=146)				TYPES (N=146)				
EO	HRD	ERD	Colleges & Universities	State Education Departments	Local Education Agencies	Private Organizations	Res.	E-D-P	Tng.	C	RCU
13	36	97	105	24	7	10	46	42	33	2	23
9%	24%	67%	72%	16%	5%	7%	32%	29%	22%	1%	16%

PROGRAMS

EO - Employment Opportunities
HRD - Human Resources Development
ERD - Educational Resources Development

TYPES

Res. Research
E-D-P Experimental, Developmental, and Pilot
Tng. Training
C Centers
RCU Research Coordinating Units

The distribution by Branch program areas shows 67 percent of the projects falling under Educational Resources and Development, 24 percent under Human Resources Development, and 9 percent under Employment Opportunities. The high percentage in Educational Resources is consistent with the relatively heavy emphasis noted above on training programs and on demonstration projects.

The problem of attracting competent behavioral scientists to work on vocational aspects of human resources development, and competent economists to undertake occupational research projects has delayed the response in these two program areas. The situation is improving, but for the next few years we will be in competition with other research and development programs for behavioral and social science research talent.

A substantial number of approved projects - 72 percent - went to colleges and universities. These statistics can be misleading, however, because many university projects were undertaken on behalf of State and local school systems.

A better balance was achieved in the distribution of types of projects. Thirty-two percent was for research; 29 percent for experimental, developmental and pilot programs; 22 percent for training; and 17 percent for research centers and State Coordinating Units. The relatively large proportion of experimental and training projects should yield early and visible results and thereby make immediate contributions to an improved vocational system.

The geographical distribution shown in Transparency 9 reflects a concentration of projects in California, Illinois, Michigan, New York, and Pennsylvania, with 57 percent of the total number in these five States. Only 13 States show no approved projects.

TRANSPARENCY 9. DISTRIBUTION OF APPROVED VOCATIONAL RESEARCH AND DEVELOPMENT PROJECTS BY STATES, FY 1965. (N=146)

Alabama	0
Alaska	0
Arizona	1
Arkansas	2
California	16
Colorado	5
Connecticut	2
Delaware	1
District of Columbia	4
Florida	7
Georgia	2
Hawaii	0
Idaho	2
Illinois	11
Indiana	0
Iowa	4
Kansas	1
Kentucky	3
Louisiana	1
Maine	0
Maryland	3
Massachusetts	5
Michigan	9
Minnesota	3
Mississippi	1
Missouri	2
Montana	1
Nebraska	2
Nevada	0
New Hampshire	0
New Jersey	3
New Mexico	1
New York	12
North Carolina	2
North Dakota	1
Ohio	5
Oklahoma	7
Oregon	4
Pennsylvania	9
Rhode Island	1
South Carolina	1
South Dakota	0
Tennessee	0
Texas	3
Utah	1
Vermont	0
Virginia	0
Washington	2
West Virginia	0
Wisconsin	6
Wyoming	0

Transparency 10 lists the projects approved during FY 1965 which have relevancy to agricultural education. Those received and awaiting review action are listed in Transparency 11. Although several of these projects have more than one investigator, only the name of the principal initiator is listed. In addition, portions of the programs at the two approved centers, Ohio State University and North Carolina State University, will relate to agricultural education. Also, the five major research and development units and 23 research coordinating units will conduct activities relevant to agricultural education.

TRANSPARENCY 10. APPROVED PROJECTS RELATED TO AGRICULTURAL EDUCATION, FY 1965

Proposal No. & Branch	Initiator and Agency	Title
001 ERD	Dr. John K. Coster Professor and Director of Research Department of Agricultural Education University of Nebraska Lincoln, Nebraska	An Experimental Evaluation of Approaches to Preparing High School Students for Agricultural Occupations Other than Farming
002 ERD	Dr. Robert E. Taylor Director Center for Research and Leadership Development in Vocational and Technical Education The Ohio State University Columbus, Ohio	A Determination of Needed Adjustments and Extensions in the Curricular Patterns of Vocational Education in Agriculture
038 EO	Dr. Roy D. Dillon Associate Professor and Chairman Agricultural Education Morehead State College Morehead, Kentucky	Employment Opportunities and Agricultural Competencies Needed by Workers in Present and Emerging Non-Farm Agricultural Occupations in Selected Counties in the Appalachian Region
049 ERD	Dr. Harold R. Binkley Chairman Division of Vocational Education University of Kentucky Lexington, Kentucky	Demonstration Center at Reidland High School for Training Farm Youth in Non-Farm Agricultural Occupations
067 ERD	Dr. Gene M. Love Associate Professor Department of Agricultural Education The Pennsylvania State University University Park, Pennsylvania	Development and Evaluation of Instructional Units in Ornamental Nursery, Floriculture, and Turf Occupations for High School Students and Adults in Northeastern United States

TRANSPARENCY 11. PROPOSALS RELATED TO AGRICULTURAL EDUCATION AWAITING REVIEW ACTION, AUGUST 1, 1965

Proposal No. & Branch	Initiator and Agency	Title
427 EO	Mr. Edgar Persons Department of Agricultural Education College of Education University of Minnesota	A Micro-Economic Study of the Investment Effects of Education in Agriculture
449 ERD	Mr. Dale C. Abebisher Chief, Agricultural Education State Board of Vocational and Adult Education Madison, Wisconsin	Development of Curricula, Course Outlines and Instructional Materials for Programs of Vocational Education for High School Students in Agriculture
451 ERD	Mr. R. A. McKinney Director, Agricultural Education State Department of Public Instruction Indianapolis, Indiana	Development of Curricula, Course Outlines and Instructional Materials for Programs of Vocational Education for High School Students in Agriculture
460 ERD	Dr. Lloyd J. Phipps Professor of Vocational and Technical Education University of Illinois	A Study in Communication Between High School Teachers of Vocational Agriculture and Socio-Economically Disadvantaged youth by the use of Semantic Differential
461 ERD	Mr. A. O. Duncan Department of Agricultural Education University of Georgia	The Development of a Teacher's Guide on Keeping and Analyzing Supervised Farming Records in Vocational Education in Agriculture

Proposal No. & Branch	Initiator and Agency	Title
075 ERD	Mr. Glen Teeter Vocational Agriculture Instructor Magnet Cove High School Malvern, Arkansas	Evaluation of the Effectiveness of Using Specialized Instructors in Providing Occupational Training for Industrial Jobs for High School Vocational Agricultural Students
105 EO	Dr. C. L. Mondart Director School of Vocational Education Louisiana State University Baton Rouge, Louisiana	The Development of Training Programs for Youth Preparing to Enter Non-Farm Agricultural Jobs
108 HR	Dr. Lloyd J. Phipps Professor and Chairman Agricultural Education University of Illinois Urbana, Illinois	Development of Human Resources of Youth Through a Vocationally Oriented Educational Program for Disadvantaged Families in Depressed Rural Areas
201 ERD	Dr. B. Klare Sommers Dean of Faculty Agriculture and Technical College Delhi, New York	A New Program of National Significance to Train Students as Animal Science Technologists
202 ERD	Dr. Everett D. Edington Professor Department of Agricultural Education Oklahoma State University Stillwater, Oklahoma	Training Institute to Upgrade Teachers of Vocational Agriculture in Distributive Education and Supervised Training Off-Farm Agricultural Occupations
205 ERD	Dr. Ray J. Agan Chairman Department of Agricultural Education Kansas State University Manhattan, Kansas	The Development and Demonstration of a Coordinated and Integrated Program of Occupational Information, Selection and Preparation in a Secondary School

Proposal No. & Branch	Initiator and Agency	Title
239 EO	Mr. James J. Albracht College of Education Michigan State University East Lansing, Michigan	Determining Vocational Competencies for Performance of Essential Activities for Sales Personnel in the Feed Industry, and the Loci at Which the Competencies Could be Taught
369 ERD	Dr. Harold R. Cushman Professor Department of Agricultural Education Cornell University Ithaca, New York	The Development and Improvement of Directed Work Experience Programs in Expanded Vocational Education Offerings in Agriculture at the Secondary School Level
389 HR	Dr. D. R. Bentley Department of Agricultural Education Purdue University Lafayette, Indiana	Changing Teacher Morale; An Experiment in Feedback of Identified Problems to teachers and Principles

Overall, the statistics indicate program activity at a much higher level than we expected. Where imbalances existed, adjustments have been sought through active solicitation and sponsorship of needed studies. We expect to do more of this as our professional staff expands.

Behind the proposal and project statistics lie a number of accomplishments and problems which provide a different perspective of the program.

The Conditions and Procedures and the Federal Regulations governing the submission and handling of proposals and the administration of contracts were first issued in November 1964. Over 15,000 copies have been distributed throughout the educational and research communities. In March, supplementary Conditions and Procedures were issued for submitting proposals on vocational research centers, and in April for proposals on State research coordinating units.

A Preliminary Statement of Guidelines for the Occupational Research and Planning Program was issued simultaneously with the Conditions and Procedures. This statement of program objectives and research priorities reinforced the more legalistic program documents and enabled us to announce our presence and state our program interests to the public. More than 15,000 copies have been distributed.

Two interim research review panels of outside consultants were established, one dealing with proposals in both the Employment Opportunities and Human Resources areas, and the other with Educational Resources proposals. Arrangements are now underway to expand to three permanent panels as authorized by the Secretary of Health, Education, and Welfare. These panels are essential components of the Office of Education's research proposal review machinery and have been helpful in shaping the total program. Their members contribute their professional advice not only on individual proposals but also on program plans and procedures. They have been most helpful and unsparing in offering their time and effort. An additional benefit from their participation has been wider program visibility among professional educators and research scientists. Full panel meetings were held in November, January, and March. Special ad hoc panel meetings were convened in May to review Research and Development Center and State Research Coordinating Unit proposals. In all, 230 proposals were reviewed by these outside panelists between November and May.

In March, the Commissioner approved a special staff review system for training and conference proposals under $50,000, and for research, experimental, developmental and pilot (small grants) proposals under $7,500. Seventeen staff review panels were convened between March 15 and June 30 to review 115 proposals.

A favorable legal opinion was obtained on the payment of subsistence allowances, travel, per diem, and tuition and related fees for professional persons participating in training programs. This kind of support is critical to the success of teacher and researcher training programs. The favorable ruling permitted funding action on more than 30 summer conference and institute proposals and should stimulate a large number of similar proposals in the future. We estimate that about 1,000 teachers will be trained through these 1965 summer projects.

An interdisciplinary staff has been recruited. Of the professional research positions available, 22 had been filled by June 30. The remaining seven vacancies should be filled by August 31. The professional distribution of the staff includes social and behavioral scientists, economists, general educators, and vocational educators.

Among its varied activities, the staff had major roles in developing and planning a summer inservice training program at the University of Maryland for Division and State professional personnel. This program, stressing both vocational education and social science topics, has proved helpful in orienting new personnel.

The large number of staff vacancies during the early months was, and remains, a severe handicap. At times, it has been difficult to balance the large influx of proposals and requests for assistance resulting from these contacts against the production demands of the proposal review and processing system. Fortunately, we had considerable assistance from other OE offices, and the large measure of procedural latitude usually granted new programs permitted us to take some helpful shortcuts. With a full staff complement in fiscal year 1966 we hope to speed up our review and processing procedures.

Research program planning and development received high priority during this first year of activity. The major conferences and seminars sponsored were:

1. A November conference of leading vocational researchers;

2. A March conference of trade association executives;

3. A May conference at MIT of key representatives of the education, research, business, and governmental communities, to plan a major study of possible innovations in vocational curriculum;

4. A June conference at the University of Wisconsin, of leading economists to gauge the economic data needs of the vocational program;

5. A summer conference at Michigan State University for AFL-CIO union representatives from each of the 52 States; and

6. Four seminars for vocational and technical education researchers.

Every available opportunity has been followed up to initiate meetings with other Federal agencies, professional societies, foundations, and business organizations having an actual or potential role in vocational research. At the annual conventions of the American Vocational Association, the American Educational Research Association, and the American Psychological Association, the new program was presented to large and receptive audiences. Presentations were also made at nine regional conferences, conducted in January and February by the Division of Vocational and Technical Education for State Directors of Vocational Education and their staffs.

Modest efforts were made in the dissemination of research results. Lines of communication have been established with State Directors of Vocational Education and State Department of Education Research staffs through the distribution of periodical listings and abstracts of proposals received and funded. Arrangements have also been made to furnish information regularly to research journals and newsletters. Directors of Centers and State Research Coordinating Units will become an integral part of this dissemination and communication function.

Hopefully, the recent reorganization of the Office of Education should help us to improve this vital function. Within the new Bureau of Research will be a Division of Research Dissemination and Training. It will, among other things, make available an Electronic Data Processing System for the storage, retrieval, and dissemination of research information.

Closely related to stimulation and dissemination efforts is the provision of consultative services to prospective sponsors of proposals. These services range from expressing an opinion on the relative merits of a budding concept to lengthy and involved meetings and exchanges of correspondence on the actual development and drafting of a formal proposal. These services provide a rich area for both teaching and receiving instruction on research and development design and methods; they probably provide the most severe tests of the professional skills and attitudes of the program research staff. We have not been able, of course, to accommodate all requests. In recognition of this problem, we have indirectly expanded our consultative capabilities by funding the two vocational research centers and 23 State Research Coordinating Units. In addition, the series of intensive seminars was conducted at four major universities for vocational researchers on research objectives and proposal preparation procedures and methods. We intend to expand support for this type of activity.

The earlier mentioned preponderance of university sponsors of projects in fiscal year 1965 emphasizes the need to improve the research capabilities of State and local educational agencies. Most of the efforts discussed above point in this direction. The lack of response on the part of State and local school districts is often not so much a shortage of available research talent as a need for training professionally qualified persons in the mechanics of preparing proposals. The creation of the new Bureau of Research gives the Office of Education an excellent opportunity to revamp and simplify its research application and funding procedures, and the Division of Adult and Vocational Research expects to play a strong role in this process.

Considerable effort has been made to develop and maintain close relationships with other Government agencies. An immediate concern is with working out effective operating relationships between the Division of Vocational and Technical Education and the Division of Adult and Vocational Research, and with the four other Divisions in the new Bureau of Research: Division of Research Training and Dissemination; Division of Elementary and Secondary Research; Division of Higher Education Research; and Division of Laboratories and Research Development.

We have, of course, considerable experience in working with the Division of Vocational and Technical Education, and the legislative mandate in the 1963 Act enables us to concentrate on providing research and development support to its programs. The disadvantages of organizational separation between the research and operating programs should be offset by the ability of the Division of Adult and Vocational Research to focus all applicable program resources of the Bureau of Research on the needs of the vocational system. For example, the Division of Research Training and Dissemination and the Division of Laboratories and Research Development offer new and promising support potential.

We are also engaged in efforts to define the vocational implications of the research provisions of the 1965 Elementary and Secondary Education Act, and have been active in developing methods of funding comprehensive projects from the resources of several other statutory programs.

In improving our coordination with other Federal agencies, we have concentrated principally with the Office of Manpower, Automation and Training of the Labor Department, and the Office of Economic Opportunity. With OMAT we have developed a good division of labor on complementary research and development areas of emphasis. Although the programs of the Office of Economic Opportunity are still being defined, we have had some success in working out joint support arrangements for vocationally oriented projects involving both that agency and the Office of Education. During the next fiscal year we plan to strengthen program contacts with the Departments of Agriculture and Commerce, and with agencies such as Defense and NASA which also make major investments in manpower research and training.

Seven areas of special emphasis have been selected by DAVR for priority attention during the coming year. Listed in the order of their priority, they are:

1. Program Evaluation
2. Curriculum Development and Experimentation
3. Personal and Social Significance of Work
4. Personnel Recruitment and Development
5. Program Organization and Administration
6. Adult and Continuing Education
7. Occupational Information and Career Choice

I will discuss these priority areas in terms of their application to vocational and technical education in general, however, the implications for agricultural education are obvious.

1. Program Evaluation

The Vocational Education Act of 1963 requires that a report evaluating Federally supported programs in vocational education be presented to the President and the Congress not later than January 1, 1968. Research projects designed to contribute to this evaluation have a high priority since they must necessarily be completed well in advance of the January 1, 1968, date. Research will be directed to the following specific problem areas:

(1) Determining the effectiveness of new vocational education programs supported by Federal funds under the 1965 Act with reference to career patterns, employment records, and incomes of graduates and non-graduates; the amounts and kinds of vocational and on-the-job training considered necessary by employers; high school dropout rates; and other measurable factors relating to the success or lack of success of participants in such programs. Particular attention will be focused on the intergovernmental fiscal relations aspect of vocational education; e.g., the extent to which matching funds for new programs represent new resources devoted to vocational education.

(2) Comparative studies of alternative methods of preparing individuals for work and economic evaluation of training programs in particular occupational fields. Studies which seek to determine the relative effectiveness and relative costs of the many ways young people are prepared for work and the ways in which experienced workers acquire additional training will be actively pursued.

(3) The impact of vocational education on job changes (among areas, occupations, and industries) and other aspects of economic resources mobility will be carefully considered.

2. Curriculum Development and Experimentation

The basic objective of this area of concentration has been to stimulate a critical examination of present educational practices in vocational and adult education, particularly those that relate to the teaching of disadvantaged youth and to encourage and support research and development projects in curriculum and teaching of new and emerging occupational skills. Among the highest priority items in vocational education is the need to identify the knowledge and skills required to qualify for a cluster of rapidly developing occupational opportunities. The establishment of new configurations of vocational programs which will concentrate on groupings of related occupations, such as the health services or agriculture services occupations, will be explored.

The best developed instructional resources, media, and facilities will be applied in the development of these new skills. Recent innovations in simulation training and computer based instruction, particularly those pioneered by NASA and the Armed Forces, will be explored for their relevance to vocational education. Experiences gained at the Job Corps Centers and MDTA programs will be evaluated and emulated where applicable.

The Division will be interested in curriculum proposals which examine, experiment with, and offer well articulated programs at various grade levels below that of professional, including the specification of teaching methods, and materials in the following occupational fields:

(1) Health services occupations
(2) Engineering-technician occupations
(3) Recreational occupations
(4) Ornamental horticulture and agricultural services occupations
(5) Building maintenance
(6) Public service occupations
(7) Social welfare occupations
(8) Office occupations

In addition, studies which evaluate these and other curriculum offerings and curriculum materials are desired. The principal purpose will be to identify the relative effectiveness of different methods of teaching and the best combination of practices and materials in preparing people for newly emerging job opportunities.

Research and experimentation will also be focused on new administrative structures and organizational patterns for establishing and carrying out new occupational training and adult education programs. This should include consideration of new and improved methods of teacher utilization and the application of educational technology to the needs of adult and vocational education.

3. Personal and Social Significance of Work

The concept of work as a major factor in adult life is central in our society. From his work the individual derives not only his income but also many of his personal satisfactions and his status in the social groups with which he has contact. In order to prepare him for his role as an employed adult and to help him continue to grow both as an individual and as a member of society, it is necessary for us to increase our understanding of how a person forms his concepts of work. We need to know more about the kinds of things which motivate him in various work-related situations and the ways in which he derives his satisfaction from them. Knowledge about a person's aspirations and their relationship to his abilities are vital in providing counseling and guidance. The place of

different kinds of work in the individual's value structure and also in the value structure of various social groups is of major importance in his choice of an occupation. The interaction of his work and his self-concept throughout the various life-stages of adolescence through maturity must be considered in preparing the person for work entry as well as continuing education and training.

Understanding the worker as an individual and as a member of society is crucial in planning his education and evaluating his performance. Research in terms of the non-college bound will be encouraged in all of the areas mentioned above, and development projects which utilize such knowledge for purposes of counseling or designing better educational programs will be considered.

4. Personnel Recruitment and Development

Accelerated technological change, space research and development, a rapid expansion of the service industries, and an expanded vocational education program at the secondary and post-secondary levels has increased the demand for vocational teachers. New area vocational schools are being built. Many high schools and community colleges are adding vocational courses. To keep pace, it is imperative that high priority be accorded to the recruitment and development of competent vocational and adult education personnel; thus the goal of this fourth area is to assist in the development of an adequate supply of the types of personnel needed to staff new programs of vocational and adult education and to develop procedures to permit the upgrading of present personnel.

Studies are needed which relate to the determination of the numbers, qualifications, and sources of people needed to meet the staffing requirements of current and projected adult and vocational programs.

Research is needed to determine what vocational teachers should be taught and how teacher preparation programs should be organized at our Nation's colleges and universities.

The development of experimental programs for training new and current personnel are required. This should include the training not only of vocational teachers and counselors but also of school administrators and related vocational-technical-adult educational personnel. Funds are available to conduct summer and other institutes for teachers for new and emerging occupations or to upgrade the competencies of teachers presently engaged in adult and vocational programs.

5. Program Organization and Administration

A number of investigations should be directed to the improvement of existing organizational structures of vocational education at State and local levels. The identification of factors which influence change, such as attitudes of State boards for vocational education; use of advisory groups; involvement of appropriate groups in the formulation of State plans, of matching funds, and other patterns of organization which facilitate rapid adaptation of program activities is urgently needed.

Successful local, State, and regional programs and their related organizational structures need to be identified and communicated elsewhere. Organizational and administrative patterns of vocational education programs already in existence need evaluation. Those that are successful need recognition and communication to other practitioners. Recent trends in general education, such as ungraded schools, team teaching, flexible scheduling, and individualized instruction need to be adapted to the purposes of vocational education.

6. Adult and Continuing Education

The increased emphasis on adult and continuing education is reflected in a substantial number of Federal programs, such as the Manpower Development and Training Act and the Economic Opportunity Act. This rapidly growing field requires definition and improved institutional patterns. Many previous attempts at planning have failed because of the lack of knowledge about the number and kinds of adults presently engaged in educational activities and of the number and kinds of courses and programs available to them. It is not possible to build a sound plan without a more accurate picture of the size and scope of the current enterprise.

Emphasis will be given first to determining the extent of participation in adult and continuing education activities. This undertaking will probably be in the nature of a census which will provide more reliable data on the numbers of adults participating in specific kinds of educational activities.

A second undertaking of equal importance is the assessment of the kinds of courses and programs for adults currently available in this country. Substantial programs in adult education are carried on by such diverse agencies and organizations as departments of the Federal government, colleges and universities, junior and community colleges, proprietary schools, industrial firms, labor unions, public school systems, libraries and museums, and voluntary organizations of various kinds. It is necessary to understand the nature and scope of these offerings before attempting the design of future large-scale programs for adults.

Research is also needed on the problem of what motivates adults to continue learning and how they learn. It seems clear that both the motives of adults in seeking to learn and the process itself is different from what happens with children and adolescents, but definitive knowledge is lacking.

Emphasis will be placed on the development and evaluation of:

(1) The methods of recruiting and training teachers and leaders for adult and continuing activities;

(2) Ways in which adult education organizations and agencies can be coordinated in bringing their resources to bear on areas in which there is critical need for social action;

(3) Definition of the needs of older persons for broadening their education or learning new work skills;

(4) Educational programs for semiliterate adults to enable them to live more successfully in an urban environment; and

(5) Patterns of organizing and administering new institutions or agencies designed specifically for the education of adults.

7. Occupational Information and Career Choice

One of the severest handicaps to vocational and technical education has been the dearth of relevant occupational data and methods for effective communication of such information. Lack of knowledge about the ways in which career decisions are shaped has all too often led to the selection and preparation of youngsters for inappropriate careers, particularly those who can least afford to make wrong commitments.

Occupational information needs will be met through a variety of studies. For example, new and growing occupational fields will be surveyed to identify skill competencies and training requirements, and to determine future employment needs. Occupational classification systems will be analyzed for possible improvement. The costs of vocational education which are borne by students - such as tuition, transportation, and earnings given up to attend school - will be weighed against the returns to the individual in personal income, job satisfaction, and other benefits.

Projects which relate to improved methods of packaging and disseminating occupational opportunity information will also be sought in order to meet the needs of specific audiences, such as the high school dropout, the slow learner, disadvantaged youngsters, parents, hard core unemployed, etc.

Studies of the process of recruiting and selecting counselors and the entire process of vocational guidance and career choice are also important. We need to expand counseling practices which provide occupational information to the non-college bound student. We need to assess counselor competencies and to develop methods for their upgrading.

A limited number of additional projects which do not fall in one of these seven priority areas may be funded if conditions warrant support of such programs.

May I repeat again that it is a pleasure for me to participate in this seminar. We have a challenging opportunity before us. I feel confident that our experiences here will contribute greatly to our ability to more adequately serve vocational and technical education.

DEVELOPING PROPOSALS FOR FUNDING RESEARCH AND DEVELOPMENT PROJECTS

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In enacting the historic legislation, Public Law 88-210, the Congress of the United States clearly enunciated the position that the research and development activities and efforts related to vocational and technical education are to be elevated to full partnership with instructional, supervisory, and teacher education activities. Not only is the U.S. Commissioner of Education required to withhold 10 percent of all monies appropriated under the authorizations of the Vocational Education Act of 1963 for support of research and development programs, for which applications are made to the Commissioner of Education, but, fully as important, State Boards of Education are required to use 3 percent or more of all funds allocated to their respective States for ancillary services, which may include state supported research and development programs.

The impact of the Act of Congress to provide for and stimulate research and development activities, and the translation of this provision into operational machinery for the stimulation and administration of research and development programs at the National level, within the Office of Education, originally in the Occupational Research and Planning Program of the Division of Vocational and Technical Education, and more recently, following the reorganization of the U.S. Office of Education, within the Division of Adult and Vocational Research within the Bureau of Research, has stimulated one of the most exciting eras in the history of vocational and technical education. The idea is the thing, and the staff of the Division of Adult and Vocational Research, a staff of dedicated, competent, well-trained, and hard working professional educators, has set into motion the plans and operation for searching out and putting into operational form ideas which may be translated into proposals, and the proposals translated into plans of development, research and training, which, when completed, may be expected to improve the quality of future programs of vocational and technical education and occupational preparation and retraining.

Policies and procedures have been set up so that any person interested in vocational and technical education or in supporting disciplines which may relate and contribute to vocational and technical education may participate in research and development activities, and may apply for Federal support. Applicants for Federal support include persons or agencies representing local school corporations, state departments of education, universities and colleges, and not-for-profit educational agencies and foundations. Underlying the entire program, I believe, is the tacit assumption that no one person or type of person, or that no one agency or type of agency has a

monopoly on ideas, and that there should be a clear-cut set of policies and procedures developed which will encourage the ideas in proposal forms for support as research and development projects.

At the outset it should be pointed out and emphasized that the proposals which will be recommended for financial support from funds authorized under Section 4(c) of the Vocational Education Act of 1963 will be the proposals which will, in the judgment of members of the review panels and the U.S. Commissioner of Education, have the widest possible impact on the program of vocational and technical education in the nation. Innovation and generalizability, therefore, are two of the prime requisites of an approvable proposal. For this reason, strong emphasis should be placed on the importance of allocating adequate funds at the state level to support research and development programs wherein the primary focal points of interest are restricted to state and local programs. Many states already have allocated a portion of funds for research and development activities. In Indiana, for example, the State Board of Vocational Education passed a resolution authorizing $15,000 in Fiscal Year 1964, and $40,000 thereafter to be assigned to research and development programs for which local school corporations or colleges and universities could make application. The action of this Board, together with the actions of other boards, preceeded the action of Congress to make funds available for the support of research and development activities as is provided under the provision of Section 4 (c) of the Vocational Education Act of 1963.

The action of Congress to make Federal funds available for the support of research and development programs does not negate the importance of providing financial support of programs within the several States. The provision of funds for ancillary services, which are available to the several states, and which, at the discretion of the State Boards for Vocational Education, may exceed the minimum of 3 percent of Federal funds allocated to the States, provide states with additional resources for research and development activities, and judicious utilization of these resources within the States should be encouraged to the fullest extent possible.

Returning to program operation at the national level, I am pleased to report that, in my opinion, there is no evidence of a paucity of ideas for research and development projects in the research, training, developmental, experimental, and pilot programs. On the contrary, there has come forth from teachers in the field and from experienced researchers, from personnel in State Departments of Education and from established research organizations, from the experienced researcher and from persons who are submitting their first proposal for consideration, a large number of intriguing, innovative, practical, and researchable ideas, which have been approved or are in the process of being approved, and which, I believe, will further vocational and technical education in the United States. But even though I argue that there is no paucity of ideas for research and development, I would hasten to add that, in my opinion, there is evidence of a paucity of time allocated to persons interested in

contributing to the future of vocational and technical education through the initiation and execution of research and development projects and programs for the full and complete development of such projects. Funds for research and development programs provided at Federal and State levels should be regarded as an instrument of progress to be allocated to proposals upon which adequate time has been devoted for their full and complete preparation.

Participation in research and development activities is not the sole responsibility of the nucleus of educators who are assigned to these activities by reason of interest and academic preparation, or who wish to make their principal contributions to the continued improvement of vocational and technical education through research and development activities. These responsibilities must be shared with all persons responsible for the administration and organization of vocational and technical education.

If progress is to be effected in vocational and technical education through research and development programs, it is imperative, therefore, that persons interested in making their contributions to the future of vocational and technical education through these avenues be identified, adequately prepared, and supported in their efforts. Not all vocational educators are interested in these activities. But the process of progress is a team effort to which all persons may contribute. The climate for research and development which is created and maintained within a State Department of Education or within the teacher education department of a college or university is as vital to the success of the program as the actual participation of the program. Part of the climate refers to the freedom of operation which is granted to the researcher or developer. But freedom must be tempered with integrity, and integrity dictates a dual dimension. On the one hand integrity associated with freedom demands that the researcher or developer selects problems which are relevant, vital, and essential to the welfare of society. And on the other hand, integrity refers to the wise and judicious request for and management of financial resources available for the development of ideas. It is imperative that financial resources appropriated from federal and state or private funding sources be regarded as instruments of progress as translated through the human resources available to the researcher, and it is equally imperative that the researcher regard his own abilities as instruments of progress which may be translated into reality through the medium of the financial resources which may be made available to him. And both human and financial resources are to be regarded as vehicles for the welfare of society and the individuals to be served through programs of vocational and technical education.

I have been requested to give attention to the elements of developing a proposal for submission to a funding agency, such as the Division of Adult and Vocational Research of the U.S. Office of Education. Education, in America, is quite largely a public enterprise supported with funds obtained from the financial resources obtained by taxation. It is entirely logical that research and development programs related to education be supported from public funds, as are such functions as instruction and counseling. But

whereas funds to support instruction may be distributed on a proportionate per capita basis, prudence dictates that funds for research and development be allocated on the basis of the merits of the proposal and the financial resources needed to assure the adequate completion of the project.

The formal proposal has become the basis which has been utilized by the Federal government for supporting research and development programs. Although the fund administration agency, such as the Division of Adult and Vocational Research, may establish priorities and suggest areas of research and development, the major responsibility for the initiation of a proposal rests with the individual researcher or developer, or, perhaps, a research and development team. As was mentioned earlier, the idea is the thing. But it is imperative that the idea be developed to the extent that the initiator communicates clearly to the person or persons who are called upon to render professional judgments regarding the suitability or feasibility of the program, details regarding the nature and importance of the idea or problem, the objectives to be attained, and the procedures to be used. In short, the proposal must show that the initiator knows and understands exactly what he proposes to do, what work has been done previously that bears upon his problem, and how he plans to proceed. I have selected seven elements of a sound proposal for further treatment.

A. The Development and Elaboration of the Problem

The development and elaboration of the problem includes the translation of the initiator's idea into the statement of the problem, the presentation of supporting evidence in the form of review of related literature, the formulation of a theoretical framework or construct, rationale, or model, and culminates in the statement of the objectives of the study.

The problem. I suggest that the problem be stated in broad terms at the beginning of the proposal, preferably in the first paragraph. The statement of the problem may be followed by supporting arguments for the importance and significance of the problem.

The review of literature. Ideas are not generated in a vacuum. They emerge from a chain of experiences based upon the initiator's own experiences and the experiences of others. It is essential that this chain of experiences be woven into a workable rationale which sets forth the observations, experiences, and research and development background from which the central idea sprung, and which will point to the direction that the research, training, or development program will take. The review of literature that is requested in the Conditions and Procedures, OE-4262*, for projects to be submitted under Section 4(c) of the Vocational Education Act of 1963 serves as a basis for reviewers to ascertain the extent to which the initiator has devoted time to determine what research and development programs have been completed which impinge upon the central idea or problem from which the rationale or framework is to be based. No proposal is regarded

*Conditions and Procedures: Grants for Research Training, Experimental Development or Pilot Program - Vocational and Technical Education. OE4262, U. S. Department of Health, Education and Welfare, Office of Education, Washington, D. C., 1964.

lightly, but proposals which do not include adequate evidence that the initiator has given adequate attention to previous work tend to fall short of acceptable standards for approval.

The rationale. The rationale, theoretical framework or construct, or model is a brief conceptualization of the problem, based on the problem itself and the review of related studies. In more basic studies, the rationale consists of the theoretical statement that the initiator wishes to test. In applied research, the rationale consists of an operational statement of the proposal. In experimental, developmental, and pilot programs, the rationale consists of a descriptive statement of the innovation. The rationale essentially is a transition step in the chain of logic in which the initiator bridges the gap between the previous work to be done and the objectives of the proposal in which he conceptualizes the basis of the problem.

The objectives. The development and elaboration of the problem culminates in a statement of objectives of the proposal. The objectives should be stated as succinctly as possible. When appropriate, they may be stated as questions to be answered, or, in the case of statistically designed studies, as hypotheses to be tested. The objectives determine the direction of the project, guide the selection of appropriate procedures, and serve as the basis for the selection of the evaluative procedures which will be discussed in a subsequent subsection.

B. Innovation

The second element to be considered in a proposal is its innovative qualities. Innovation is especially important in training, experimental, development, and pilot projects. If the proposal is not innovative, if it represents work which has been ongoing for a number of years and in a number of schools, then it is reasoned that the idea contained in the proposal should be part of the ongoing educational process of schools, and that the program should be funded from regular federal, state and local funds.

Training proposals should represent a new dimension in the preparation of vocational and technical educators or in the development of training programs for prospective and present workers. A regrouping of existing courses at either college or high school levels does not meet the innovative criterion. Nor is it necessarily innovative to indicate that the future of vocational and technical education will be expanded if stipends are furnished to trainees. The policies regarding stipends at present have not been clarified inasmuch as the Vocational Education Act of 1963 does not provide for stipends. This policy may be modified in the future. But even if the policy is modified, and stipends may be made available to trainees, it seems imperative that the training program itself should be innovative, and that the programs offered should represent a new

and distinctively unique thrust into the preparation of vocational educators and other persons who reasonably might be expected to receive further training under the provision of Section 4(c) of the Vocational Education Act of 1963.

Essentially the same criterion may be applied to experimental, developmental, and pilot programs. These programs are essential in the total research and development program both for trying out and testing new ideas and for demonstrating the findings of significant and relevant research. It is imperative that the most creative persons in vocational education be encouraged to develop these programs. And in many cases, these persons may be found in the ranks of the vocational teachers. Many innovations in vocational education in agriculture, for example, had their inception in the imaginative behavior of vocational teachers. Members of supervisory and teacher education staffs should attempt to identify the creative, imaginative teachers, and encourage them to develop their innovative ideas. Ancillary funds avilable to the states might well be used to fund a portion of these teachers' time to enable them to develop their ideas into proposal form. Too frequently, the experimental, developmental, and pilot programs that have been submitted represent an innovation only to the specific school system submitting the proposal, and in actual practice the idea has been tried and tested in other schools.

C. Significance of the Proposal.

The third element refers to the significance of the study, and, particularly, to the significance of the proposal for vocational and technical education. The first criterion applied to the evaluation of proposals, as set forth in OE-4262, calls for a judgement as to the significance of the proposal to vocational and technical education.

As the research and development program administered by the Division of Adult and Vocational Education develops, it is hoped that an optimum balance will be achieved between basic and applied research, and among research, training, and experimental, developmental, and pilot programs. Undoubtedly, there is both the need for and interest in research and developmental programs which involve the related disciplines which support and give depth to vocational and technical education programs. But if the research is defined as basic research, it is imperative that a clear-cut relationship be developed between the basic area of the research problem and the furtherance of vocational and technical education. If the proposal deals with basic educational skills, such as reading, it is necessary that the proposal demonstrates how such training is to be related to the preparation of persons for initial entry into the labor force. Hence, if the initiator prepares a proposal which deals with the problem of reading effectiveness of junior high school students, then it is necessary that he demonstrate how this work is to be related to preparation of occupational proficiency or for initial gainful employment at the high school or post-high school levels. It is also necessary to show the evaluative criterion to be used to demonstrate the efficiency of the program.

D. Design or Plan

The design or plan, or procedures, in any research and development program should be presented in sufficient detail so that the reviewer of the proposal can ascertain (1) whether the initiator has given adequate attention to planning the procedures by which the objectives of the project are to be attained, and (2) whether the procedures are appropriate for attaining the objectives. Specific points to be emphasized in each of the three types of programs which may be submitted under the provisions of Section 4(c) of the Vocational Education Act of 1963 follow.

Research programs. Adequate attention should be given to the description of dependent variables or criterion measures, to the identification of classification and treatment factors and to their levels, to the experimental design in statistically designed experiments including the test statistics, and to controls of the experiment, such as randomization, classification, and the use of the analysis of covariance. Where the study involves the two traditional levels of a treatment factor, the treatment and the "control," attention should be given as to how the experimental environment or "Hawthorne" effect is to be controlled. Sampling procedures should be explained thoroughly, and if a stratified sample is used, the rationale underlying the stratification should be explained. The population of interest should be clearly defined. Research programs may assume a variety of forms, such as historical research, sample surveys, descriptive studies, predictive studies, analytical studies, and statistically designed experiments. But they have in common, tightness and adequacy of design, adequate delimination of the scope of the study, adequate attention to procedures, and the selection of appropriate methods of analysis and test statistics.

Training programs. In the design or plan of training programs, emphasis is placed on the content of the training programs. Adequate rationale should be developed in terms of the appropriateness of the content, how the training program is innovative, how it is to be organized, and modes of presentation.

Experimental, developmental, and pilot programs. The design of experimental, developmental, or pilot programs should give adequate attention to the design of the programs, the subject -- schools or individuals -- for which the program is appropriate, the methods and materials to be used, and the details of the plan of operation. Even though the developmental features of these programs will likely be a part of the process of the program -- for example, one of the objectives of the program may be to develop new curriculum materials in response to a specific problem of interest -- the general feature of the materials should be specified in the plan of operation. The programs feature, generally, a concentration of fiscal and human resources on the locale of the study, but prudence in the use of Federal funds to support such programs dictates that the value of the program extend beyond the locale of the study. Hence, it is imperative that the description of the program relate the locale to

a general class of locales, and that the generalizability of the program be emphasized.

E. Evaluation

Evaluation refers both to the methods or techniques of collecting data to be used in measuring the effectiveness of the program and to the selection and/or preparation of appropriate instruments of criterion measures or dependent variables.

Evaluation is a weakness inherent in most of the proposals which have been submitted. This is especially true of most of us whose background has been in vocational and technical education. Our training in measurement and evaluation has been limited largely to one or two courses in test of measurements offered as part of a master's or doctor's program. Regardless, if the proposal which we are preparing is a research proposal or an experimental, developmental, or pilot program, we are hypothesizing, in effect, that an effect or difference in gain in some aspect of human behavior is likely to result from the program or treatment which we envision, and we must be prepared to show how this effect is to be measured. In a research program, we normally would accomplish this end by setting up a project designed to evaluate the effect of two treatments on the dependent variable or variables which are to be measured.

The data obtained from the experiment may be analyzed by an appropriate technique such as the analysis of variance, and an appropriate test statistic may be applied to determine whether the effect approaches a predetermined standard which is set by the experimenter. In developmental, experimental, and pilot programs, the effect, that is the difference in gain, related to the dependent variable or criterion measure is more difficult to detect. One school, for example, does not constitute a sample, and the use of typical statistical procedures is not especially appropriate for the single program. Further, a pilot program represents something special. Attention is focused on the pilot program, people are involved and interested in it, and this involvement or interest in itself is likely to produce an effect. Yet it is possible to apply a reasonable degree of objectivity in the evaluation of the effectiveness of an experimental, developmental, or pilot program. Norms or standards may be established, based upon the past history of the school, or based upon established norms which are available for standardized tests. The researcher may determine on the basis of his best judgment the standard he would be willing to accept as evidence of the effectiveness of the program, taking into consideration both the nature of the program and the likely effect which may be attributable to the special involvement of the professional staff, the students, and the community.

Perhaps the most difficult part of the evaluation of the results of the program rests in the relative absence of standardized tests. New tests may need to be developed, and when these new tests are developed, standardized norms are not readily available. If this is the case, then it is necessary to demonstrate how the tests are

to be standardized, and how the results are to be used in the evaluation of the program. Not all outcomes can be, nor should they be, measured against standardized tests. In one study, the development of a procedure was proposed as one of the basis of evaluation. Also involved in the evaluation was the number of persons to be enrolled in vocational programs in the school, and the increase in dollar investment in vocational and technical education which might be attributable to the involvement of the people in the program.

In many instances it is desirable that the evaluation procedures not terminate with the termination of the formal training program. It is desirable that follow-up measures be taken in order to determine whether there is any evidence of permanance of the effect generated. The length of time of follow-up measures may be somewhat difficult to set as an absolute minimum. It probably would be desirable if the program deals with high school students to evaluate the program at the end of ten years. Most projects will not run for this length of time. Follow-up measures taken at the end of two years would certainly be superior to evaluation at the termination of the formal instructional period.

F. Personnel and Facilities

The fifth relative absolute pertains to adequacy of personnel and facilities. It is not necessary that each person initiating the proposal be regarded as a national figure in research and development in education or in vocational education. Each of us must get our start somewhere along the line. From a tactical point of view, it perhaps is desirable to initiate a research and development program with a relatively modest proposal. But if the project calls for a much larger budget in order to assure the effectiveness of the proposal, some questions regarding the competency of individuals conducting the proposal may be alleviated by ascertaining that at least one member of the research team be a person who has demonstrated proficiency in research and development. Wise and judicious use of consulting personnel is another technique which may be used effectively to demonstrate that competent advice regarding the development of the problem is available to the researcher. Narrative descriptions of the qualifications of the key personnel are desirable, but it is equally desirable that adequate evidence regarding the competency of the key personnel be supported with references to the previous research work of the individual.

In defining the qualifications of the personnel, modesty is no particular virtue. Lists of publications which support and attest to the experience and qualifications of the key personnel are extremely desirable. Few proposals are denied support due to inadequate facilities. But it is equally important to demonstrate that the researcher has the necessary sources available to his disposal in order to assure the successful completion of the project.

G. Economic Efficiency

The last element relates to the economic efficiency of the project. The economic efficiency of a project is a matter of judgment. But

the judgment is based upon experience. It is extremely important that the project not be overpriced. Excessive and unnecessary replications are to be avoided. Hence, if a project is designed to evaluate the effect of a methodology or materials on some dependent variable of interest, one or two replications may be adequate, and nothing much may be gained by running the same project for two or three years. Fortunately, the contracts and grants section of the Division of Adult and Vocational Education has taken the highly enlightened view of contractual arrangements, and while questions regarding specific items may be raised, there nevertheless is intense desire to ascertain that the budget is adequate in order to obtain the objectives of the program.

I have enumerated elements of a sound proposal. To a certain extent these elements relate to the weaknesses which have been observed in a number of proposals. The limitations cut across the board and are not pertinent to any single discipline in vocational education. With regard to weaknesses, agricultural education does not differ from the other vocational fields. Time has been spent in the development of research competency among agricultural educators in the regional research conferences which have been in effect throughout the nation for a number of years, and through the national seminars on research in vocational education as has been reflected in the relatively large number of proposals funded from the agricultural education group. The problem of assigning adequate time to research and development as a part of the individual's work assignment applies to agricultural education as well as to the other fields. If agricultural education is to continue to assume leadership in research and development, it is imperative that staffing assignments be re-examined and the persons who are interested in research and development be assigned activity for this area. In my estimation, the most creative minds in the vocational education field should be assigned and channeled into the area of the developmental, experimental, and pilot programs.

Even though a relatively large number of proposals have been approved in which the key personnel represent vocational education only, I am inclined to believe that a far greater impact upon the future of vocational and technical education may be made through the involvement of the related disciplines in such fields as sociology, economics, and psychology to the problems of vocational and technical education. The problem of motivation, for example, is a persistent problem in vocational education, and here we may well rely upon and build upon the research of the sociologist. Although the educational psychologist does not necessarily have a monopoly upon measurement and evaluation, it seems reasonable to assume that any measurement and evaluation program may be augmented through the establishment of a working relationship with personnel who are trained as educational psychologists. The team approach to conducting research generates problems in itself, but if the team can be marshalled and organized toward the goal of the project, then the outcomes may more than offset the problems of team research.

Summary and Conclusions

It was suggested that attention be given to some specific suggestions for preparing proposals. I should like to fulfill this assignment by first listing some positive suggestions, then re-emphasize some of the points which have been mentioned by presenting a list of points to avoid in the preparation of proposals.

A. Some Positive Suggestions for the Preparation of Proposals

1. Start with a significant problem or innovation, and build a logical and coherent chain of reasoning and experiences for the statement and elaboration of the problem through the objectives, procedures and evaluation. State exactly what is to be done in a straightforward manner.

2. Delimit the problem to a manageable part of the area with which the problem is concerned, but demonstrate generalizability.

3. Show the experiences from which the problem evolved, present and analyze relevant studies, and state the rationale or model which is to serve as the basis of the study.

4. State the objectives succinctly.

5. Detail the procedures to denote clarity at each step.

6. Show that the treatment to be used, the training program to be offered, or the innovation are significant, appropriate, and operationally feasible.

7. Use an appropriate design which will permit the testing of hypotheses and the control of extraneous variables, with adequate attention to populations and samples.

8. Work out a complete plan of evaluation and measurements. Show how instruments are to be constructed, if new instruments are needed.

9. Integrate objectives, hypotheses, procedures, and evaluation.

10. Show adequacy of personnel. Use consultants where needed. Specify names of personnel, and avoid large scale listing of qualified specialists who have not been contacted to serve as a consultant on the project. List completed studies and publications of key personnel.

11. Price the project judiciously.

12. Show how results are to be disseminated.

B. Some Points to Avoid in Preparing Proposal

1. Don't write in terms of generalities. Avoid such phrases as "Much has been written," "It is a well-known fact," "This is a new and unique idea."

2. Don't start the proposal by the tearing down process. All that has happened in the past is not wrong or inadequate. Build on the good, the sound, the known. Show deficiencies or weaknesses which are of interest in the proposal, but use these elements as appropriate points of departure for the study.

3. Don't try to include everything in one proposal. Delimit and select the important elements which represent the greatest concern.

4. Don't delimit the generalizability of the project. The locale of the study should be somewhat incidental. The selection of the schools, if not selected randomly, should be made on the basis of representativeness to a number of comparable schools throughout the state or nation in which the innovation might have possibilities.

5. Don't assume knowledge of the problem on the part of the reader or proposal reviewer.

6. Don't build a project around a single instrument or even a group of instruments.

7. Don't use the 4(c) funds to support instructional programs that should be carried out as part of the ongoing vocational education program. Do apply for support to innovate, develop, evaluate, and demonstrate.

8. Don't expect a small idea to carry a large budget in a developmental, pilot or experimental program.

9. Don't fail to budget for specialized personnel, if needed.

10. Don't extend the duration of a project for an unnecessarily long period.

11. Don't be hasty. It is better to miss the deadline than to have a proposal disapproved.

12. Don't ignore the Condition and Procedures, OE-4262.

Nearly a half century has elapsed since the enactment of the Vocational Education Act of 1917. We in vocational education have concentrated largely upon the operational and instructional phases of the program. We have prided ourselves on being practical educators, and we have not assigned an adequate proportion of our time

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11. Price the project judiciously.

12. Show how results are to be disseminated.

ARE WE ASKING THE RIGHT QUESTIONS?

by
Lester S. Kellogg
Director of Economic Research
Deere & Company

Introduction

Gentlemen--I, too, along with the other speakers, am pleased to be here. The sessions so far have been most interesting, and I regret that I will not be able to complete the whole week with you.

Your work and the subject of this Seminar are, I assure you, of great interest to Deere & Company. All of you know John Deere, I am sure, and most of you have been acquainted for many years with members of our organization who have spent their lives in dedication to agriculture, and some of them especially to vocational agriculture. Those of you who have taught courses in vocational agriculture have, in nine cases out of ten, probably used our textbook, "The Operation, Care, and Repair of Farm Machinery," which, I am told, continues to be one of the outstanding textbooks for high school use in farm mechanics.

Deere wants to continue to help in education for agriculture and will watch with interest the continued results of your efforts and especially those which will be directed in the future to research in vocational agriculture.

In speaking to you here, I speak as a member--a free, responsible member--of the Deere organization. I represent the Company only in a sense; I do not speak for the Company as such, nor does any other member of our organization do that. During my working career I have been employed by several large universities, the Federal Government, and one big, private enterprise. Of all of these, I have enjoyed greatest freedom in the latter. It is with the responsibility that such freedon requires that I speak to you sincerely this afternoon.

The subject of my talk, in the light of what I have heard so far yesterday and today, leads me to believe that I should have added a subtitle. If I had, my talk should be entitled, "Are we Asking the Right Questions--or Are We Letting Our Biases Show?"

"Are we asking the right questions?" can only be answered in the context of our objectives--our goals. Perhaps this paper should start by asking the more basic question, "Have we established the right goals?"

This is a seminar, according to Bob Taylor, on "Program Development and Research in Agricultural Education." It is organized under the banner of The Center for Research and Leadership Development in Vocational

and Technical Education. These are words. I find myself somewhat baffled by them so that I've concluded for myself that you are here because you believe that vocational education is important--perhaps essential for some goals. Your major, real interest, though, is in vocational agriculture, and, more importantly than anything else, in how to be successful in dipping in the public till. In fact, most of you set out to engage in vocational agriculture--teach probably--and now find it necessary to change your directions--to initiate, participate in, even direct research, mainly because money is available. But how do you relate research to these changes? What kind of research do you really want to do?

If I were in your position and having to change direction, I should choose that path which should take me toward serving the greatest need. Is the purpose of your research to provide the guide lines--the navigational markers--to meet these needs? If so, the research that will point toward desirable objectives has largely been done. To the extent that the necessary research is still incomplete, the major gaps can be quickly filled. So what are the major questions--the major right questions?

You will say pilot studies--developmental guide lines--but are you philosophically really ready to accept what your research may suggest?

Several years ago, my attention--quite by accident--was directed to the court-martial questioning of Brigadier General Billy Mitchell. I have found it extremely stimulating and perhaps appropriate for the kinds of discussion under way here.

Remember--and some of you will--that in 1925 General Billy Mitchell was court-martialled for insubordination for the way he criticized his superiors for their failure to see the future of air development as clearly as he could see it. Listen to the following sample of questions put to him and his answers:

Prosecutor: You say that "In future wars soldiers will invade by leaping in parachutes from airplanes." Would you care to reveal who gave you this startling information?

Mitchell: Nobody gave it to me. It's quite obvious to anyone with the slightest foresight.

Prosecutor: It is your actual belief that this country is vulnerable to attack from the air?

Mitchell: In the foreseeable future.

Prosecutor: Colonel Mitchell, do you have any idea of the width of the Atlantic Ocean?

Mitchell: Approximately 3,000 miles.

Prosecutor: You say that "Airships traveling 1,000 miles an hour will fight each other in the stratosphere." Have you any comprehension how fast a thousand miles an hour is? Do you know that it is faster than the speed of sound?

Mitchell: Approximately 250 miles faster.

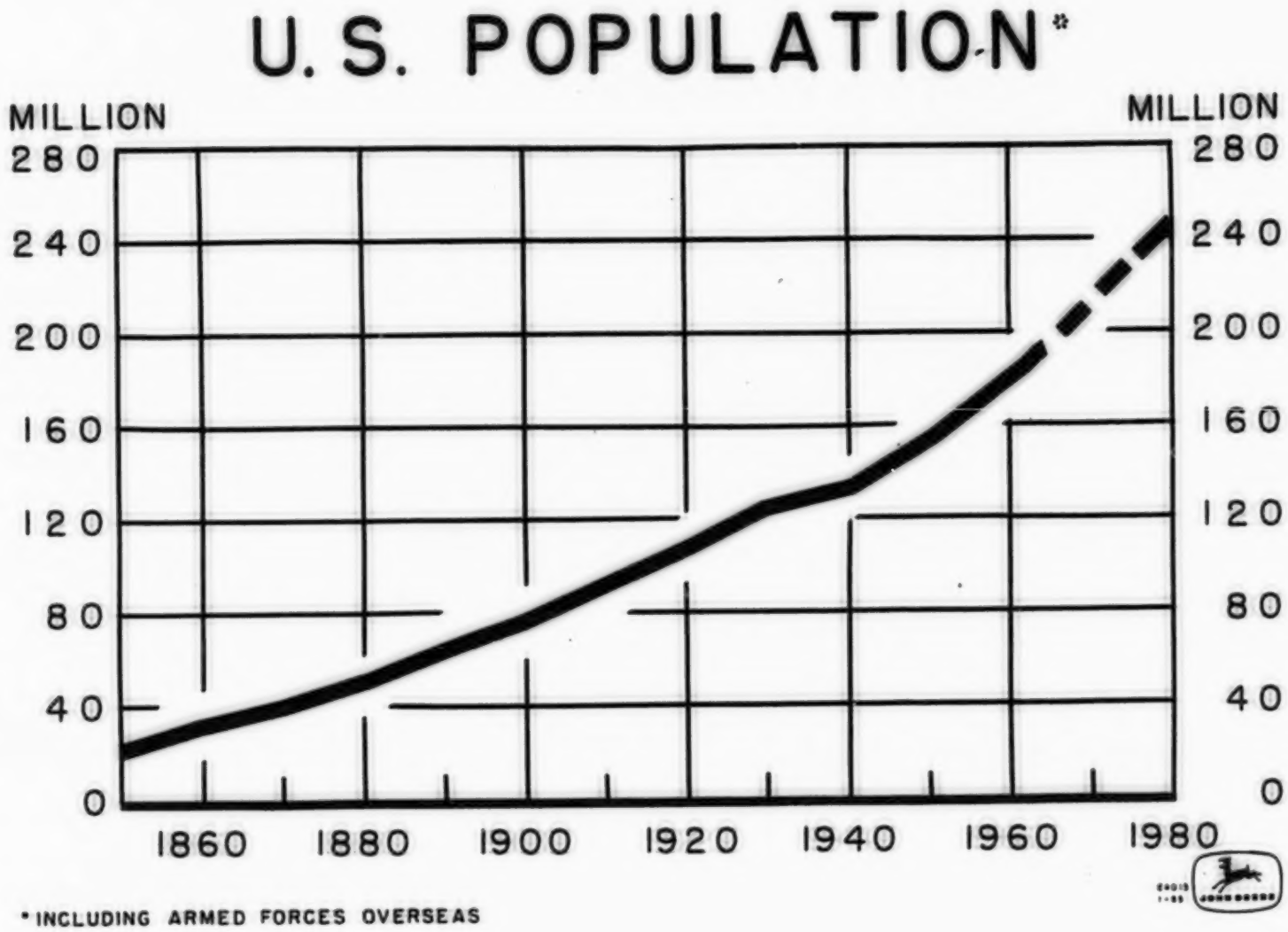
Since a good deal of my work relates to the long look ahead for agriculture and the farm machinery industry, I am going to show you a few charts and then describe what projections of the trends may portend. Usually I use these charts in the context of the implications of the long-range projections for agriculture and our industry and management groups. In this instance, I shall tell you briefly what they seem to say to management, and I will raise questions for you about what the trends may say about whether you are "asking the right questions."

United States Population

We all know that U. S. population continues to grow at a rapid rate. By 1980--just fifteen years away--we can expect a population of 240-280 millions. The figure is more likely to be in the neighborhood of 250 millions. In the next fifteen years we will add one-fourth as many people as in our whole history to date. That's a lot of people! Since my birth, the population has increased some 125 percent!

For management, such a growth in population indicates that the demands for agricultural products will continue to grow. To satisfy such demands will require continued growth in agricultural demands for capital and supplies.

For you vocational educators, the population growth also reflects increasing demands for all of the goods and services required by an increasingly affluent society, rural and urban. To satisfy these demands will require workers with the education, training, skills, and qualities necessary to support the growing affluence. This broad area of demand will obviously be the greatest challenge that can be laid down for those of you responsible for education--elementary, secondary, vocational, collegiate, graduate and adult. Of all the demands an increasingly affluent society will make, those for various kinds of services will be greatest. To satisfy such demands requires of those who serve--in addition to skills developed through vocational education and training--understanding and willingness to serve. Closely associated with willingness to serve are those personal qualities of health, grooming, patience, courtesy, etc. The youth of every sector of the economy must be challenged, including those from rural areas, to whom most of you have dedicated your efforts.

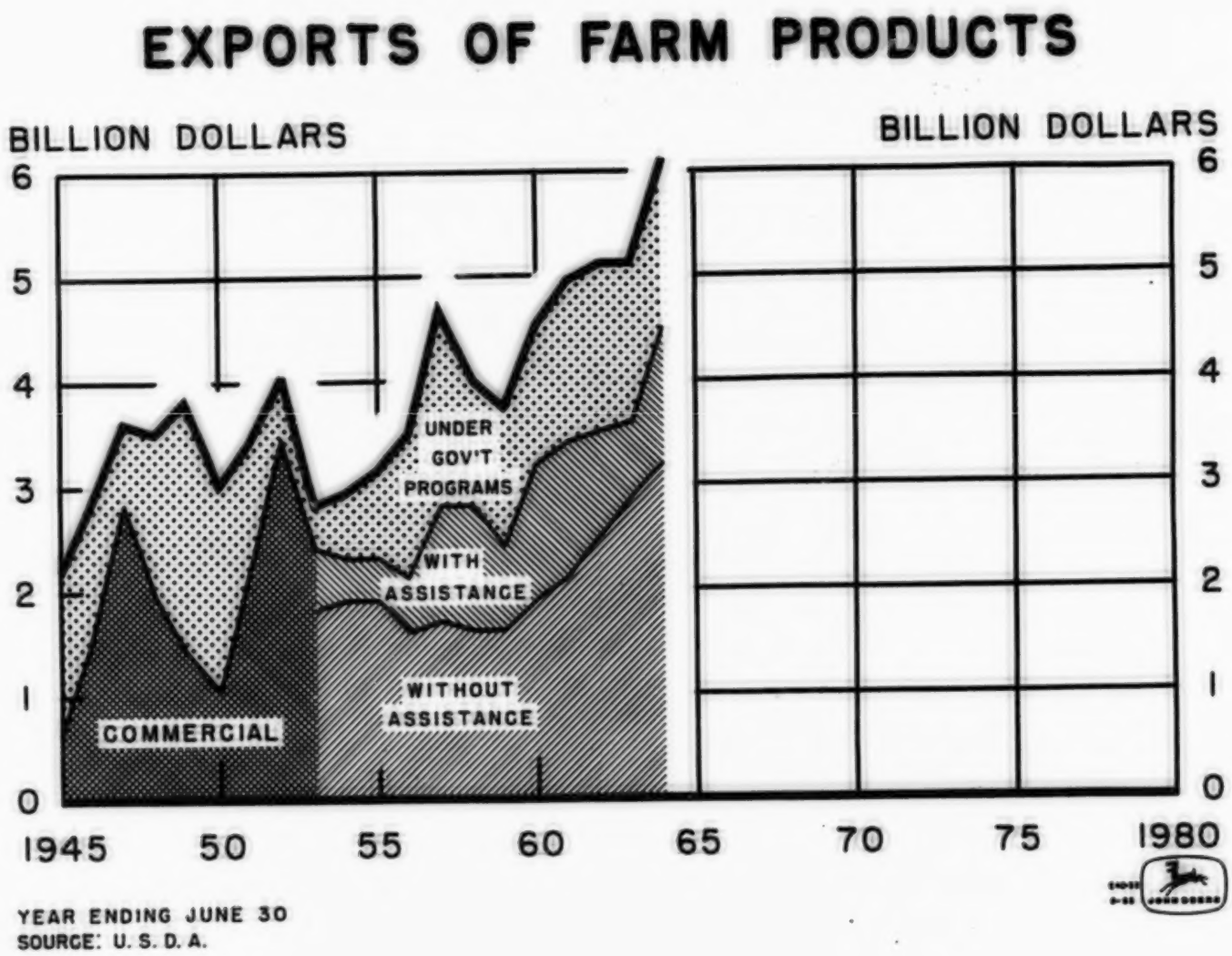


Exports of Farm Products

The United States--in fact, North America--in the future will supply--in addition to the demands of its own population--the demands for food and fiber of many other parts of the world. Casual observation should confirm--detailed study will convince--that, at current and near-future rates of population growth, most other parts of the world are not able--and will not be able in the foreseeable future--to meet the demands of their people for their subsistence--let alone good health and longevity. Exports from North America will increasingly, as time goes on, help meet these needs.

For management, this means added support for increasing demands for highly productive farm machinery and equipment.

For you, it adds several dimensions to the education and training of young people and adults and should provide additional incentives for the exercise of many different aptitudes. As we talk about exports and

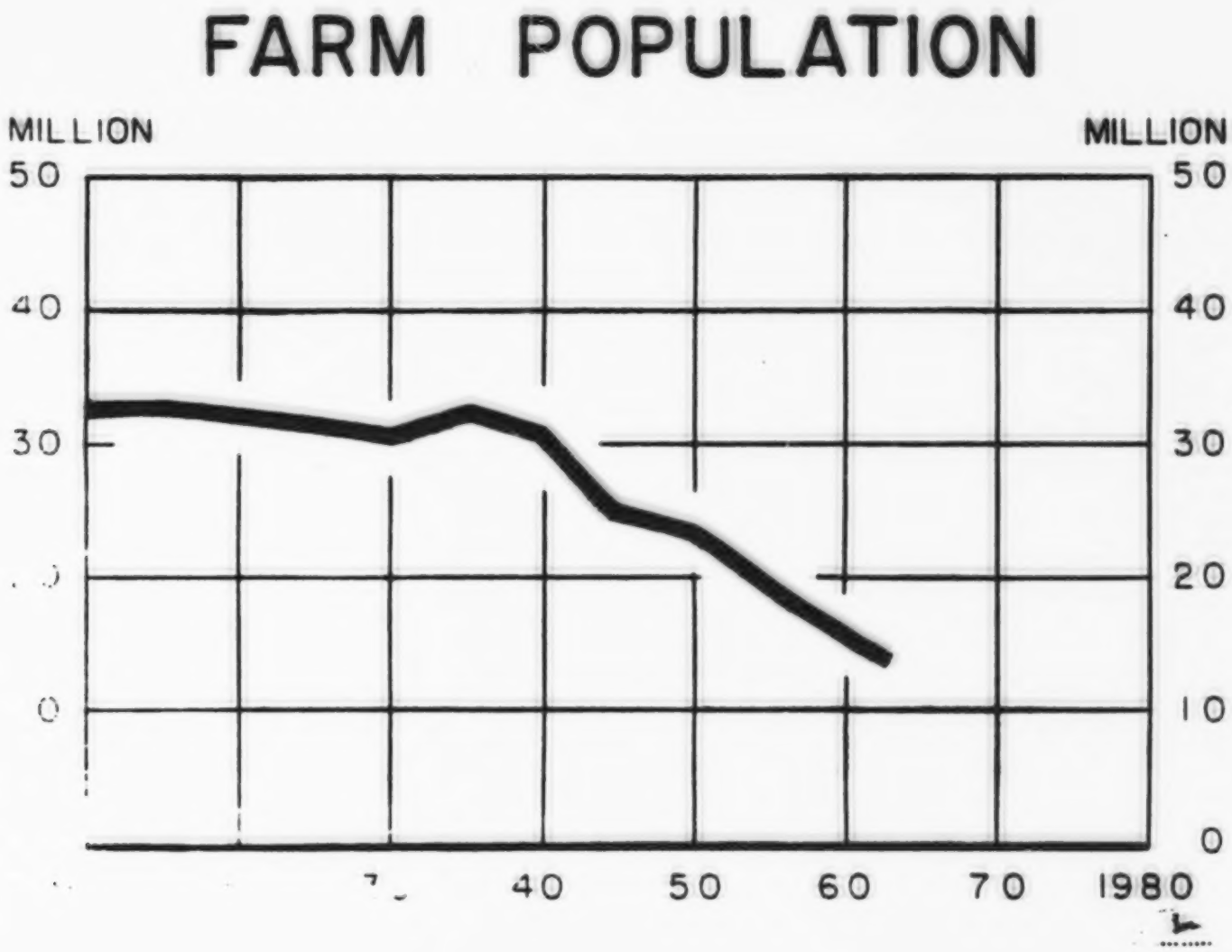


assistance to foreign areas, it is essential that we know something about those areas, that we can communicate with people of different tongues, and that we have some understanding of governments, of different economic systems, and of their basic laws. The detailed specifications of the education and training involved in these requirements, I leave to you. This may need research. This challenge alone is great. "Are you asking the right questions to understand and meet it?" I haven't heard them.

Farm Population

Farm population has been declining steadily from its peak in the mid-thirties. It will contine to decline, and, in fact, as a description of a portion of our total population, it may disappear. If we were to define for the next fifteen years farm population as a total number of people living on what we will define as farms, the total by 1980 might be as small as 8-10 million.

In 1960, 8 to 10 percent of our total population was so classified; by 1980 the proportion may be as low as 3 1/2 to 5 percent. In England, the most advanced country in the world in this respect, the farm population amounts to 4 percent or less now.



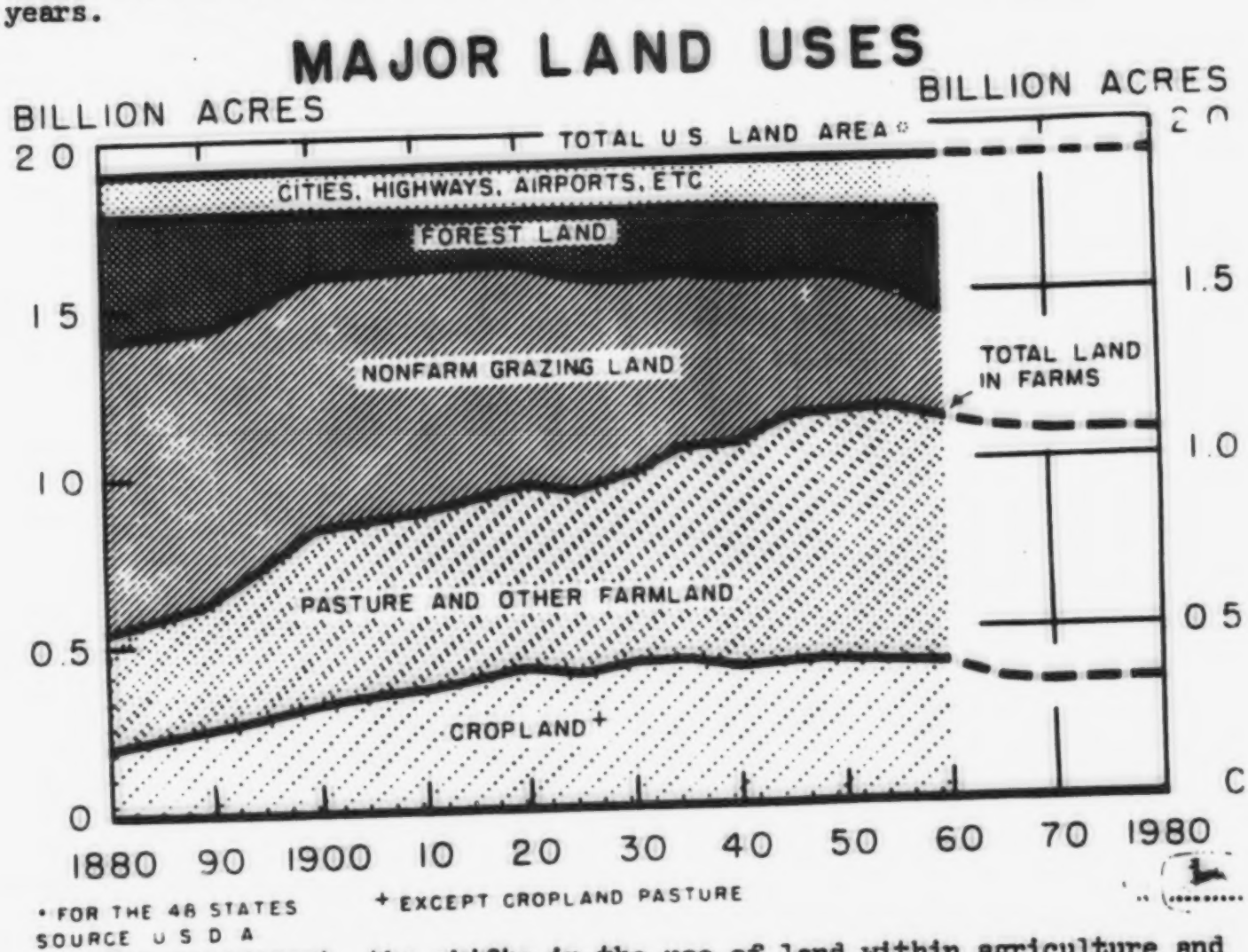
For management, this means fewer customers and fewer easily accessible machinery operators. It suggests the need for more powerful, more flexible, more functional and chore-saving farm machinery and equipment.

For you, it has several meanings. The number of young people of farm origin is declining so fast that the historic job of vocational agriculture must take on new meaning. If the young people now living on farms are to be educated, trained, and stimulated to prepare for the tasks which lie ahead, they should not be misled by devoted vo-ag teachers who, "worshipping at the altar of tradition," to quote Professor Phipps, have in the past provided such great stimuli for such young people to prepare for work on the farms. The opportunities for work in agriculture per se in the future will decline, but the opportunities for servicing this highly productive enterprise in the same ways that urban demands are met will increase. In the future there will be little distinction in the demands for service and the supply of commodities as between those engaged in agriculture and people engaged in other major productive activities. If this statement is true, the services demanded can equally well be provided by the well-educated, trained, and

stimulated children of farmers, of farmers who have left agriculture in the last decade and now live in urban areas, or of those of the rest of the urban population, since the distinctions we accredited to agriculture for so long will have largely been dissipated or diffused. In fact, one of my major frustrations here is education vs. agricultural education

Major Land Uses and Acres in Farms

From these charts several conclusions about the future emerge. The total U. S. Land areas is relatively fixed. The total land in cities, highways, airports, and forest lands --much of which will be in parks or greens, as the Europeans say -- will increase. Nonfarm grasslands will continue to decrease; pasture and other farmland will decrease slowly; and cropland planted and harvested in the next fifteen years may continue to decline. As areas for cities, highways, and airports expand to serve the growing population, land will be taken -- usually from cropland. This, in turn, will put a draft on current farmland. This movement can go on, without greatly affecting the efficiency of our agricultural production, for a number of years.

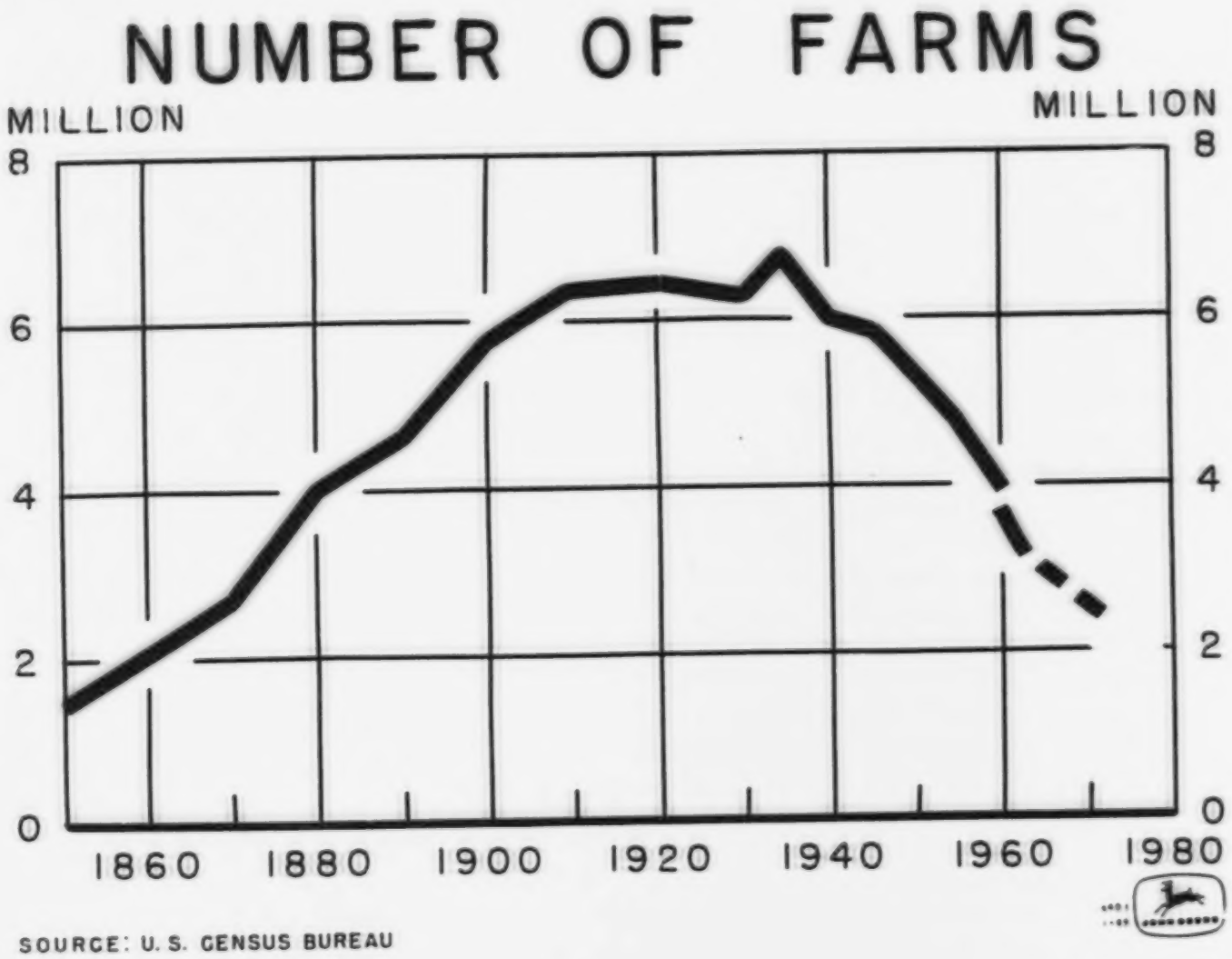


For management, the shifts in the use of land within agriculture and among the several alternate nonagricultural uses provide further support of demand for earth-moving and other types of machinery and equipment heretofore thought of as agricultural.

For you, it provides some broad bounds for imaginative thinking about uses of land which, until recent years, have been left largely to the U. S. Department of the Interior, to city planners and zoners, and urban real estate developers. As demands for recreation and the use of our natural resources for growing populations increase, additional dimensions will be added to requirements for basic education, specific training, and vocational education which will require detailed attention. These demands, of course, can be supplied -- shall I say, equally well, and if not, why not -- by people who have been reared in urban as well as in rural areas. There is no advantage that one can discern superficially for providing such training by one group as against another.

Number of Farms

This chart makes clear that number of farms, as defined by the Census, reached a peak by 1920 and then started to decline. The decline was arrested briefly in the thirties, when, during the Great Depression, people who had left the farms returned -- usually young people -- returning to



their relatives' homes until they could again pick up their off-farm activities. The downward trend has continued since the end of the depression and may decline to some place between 1 1/2 and 2 million units by 1980. The number of large farms will increase; the number of small farms will decrease greatly.

For management, these trends provide an additional reason for a great decline in the number of customers, but for higher powered, faster, more productive machinery and for greater understanding of the specialized and industrialized agriculture which will move ahead at a fast pace.

For you, these trends make clear that there will be fewer owners and operators of farms. Fewer of the young people now studying agriculture will have the chance to own or even to operate agricultural enterprises. The specialization and industrialization of agriculture will require less general but more specific basic education and specific training. It will put greater demands upon the kinds and quality of service required to maintain equipment. The management of the amount and nature of resources involved will be only slightly different for agricultural enterprises than for enterprises in other industries. From the management point of view, the distinction between the management of an agricultural enterprise and any other kind of enterprise will continue to diminish.

Apropos this discussion, consider how Paul C. Johnson of The Prairie Farmer[1] says it:

> "Consider this! The quantity and quality of farm production will continue to grow as our population grows. Somebody will be needed for this important work. As the capital requirement of a good going farm climbs to $100,000 and even $250,000, it will be harder, in fact nearly impossible, for a farm operator to own all his land. There are few people in big business or in the professions who can put together that kind of money in a lifetime. So we may have to give up the idea of owning all the land we operate. But somebody will be owning that land, and whoever owns it will have to find someone to operate it skillfully. A sloppy job won't do because taxes and interest are too high.
>
> "I predict that in the future management, not ownership, will command the highest price. This is already true in corporate business. Farmers are getting older. Before long there will be a shortage of good ones who are able to deal with the complexities of modern farming.
>
> "Farmers of the future will be well paid, but they must be equal to their task, which is a big one. They'll need brains and education, plus a knack for management. I know

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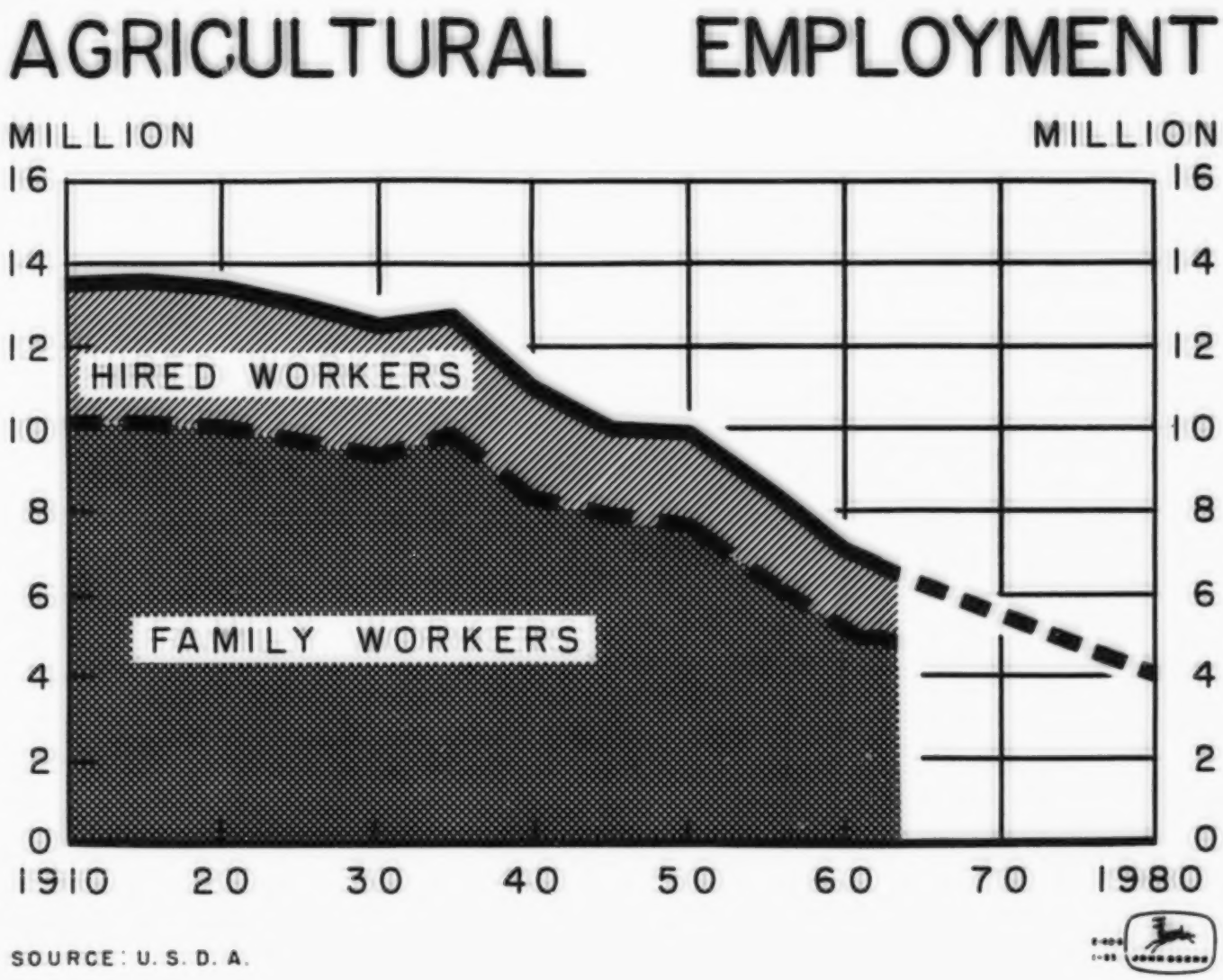
1 Johnson, Paul C., "What Does the Future Hold for Farm Youth?" The Prairie Farmer, Illinois Edition, June 19, 1965, p.17.

many successful older farmers who have very little schooling but who achieved self-education in one way or another. But such a course will be much, much harder in the new generation. Therefore, everyone who intends to be a farmer should have a high school education, and he can't stop there. If he can't go on to college he will have to continue his schooling with night classes, short courses, field days, and much reading and studying."

Agricultural Employment



The trends in agricultural employment -- whether we talk about the total hired workers, or family workers -- have been steadily downward, except for a brief period in the early 1900's. A mathematical projection of these trends would read zero shortly after 1980. It is clear that we cannot depend upon such a projection, but it is equally clear that there will be further substantial declines in employment in agriculture. The effects of new legislation and increased agricultural productivity in the recent past are clearly evident in the decline from the preceding year in agricultural employment, during the past fifteen months. In the last fifteen months the decline from the same month last year has been continuously in the neighborhood of 9 to 12 percent; for many years the decline has been at an annual compound rate of approximately 3 percent.

For management, these trends have been both effect and cause. The declines over the years in agricultural employment, to a great extent, have resulted from the introduction of new and more productive farm machinery and equipment. To the extent that in some instances the supply of new equipment has been ahead of the demand, the adoption of such new equipment has been the cause for further declines in employment. The current difficulties faced by those managing agricultural enterprises in obtaining labor and sufficient skills to meet their needs have provided additional incentives for labor-reducing or eliminating equipment. There is still a long way to go.

For you, these trends are convincing confirmation of the rapid declines in opportunities for individuals to work in agricultural enterprises per se. It is in this area that you must give most perceptive thought to the specific needs in the future for basic education, training, and the provision of a great variety of services, since it is so difficult to indicate what the specific requirements of the future will be.

Folke Dovring[2] raises another aspect of this problem. He says:

> "The most obvious consequence for rural areas is the thinning out of their population. When farmers become fewer, so do also many other groups of rural residents -- the service people who get fewer customers. Even though the aggregate gross income of farmers in a given area goes up, as it will in most areas, a larger part than before is spent on production requisites that, more often than not, are produced outside the areas. In addition, with country towns declining and transportation improving, farmers are likely to spend more of their net incomes in medium-sized cities at some distance from where they live, which still further reduces the scope of commercial and service activity in the country town. Thus the local tax base may shrink, and the cost of community services may go up. All of these disadvantages are not large enough to undo the advantages of the substitution of capital for labor in agriculture, but they are serious enough to cause apprehension and to start a search for remedies."

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2 Dovring, Folke, "When Farmers Become Fewer," Illinois Agricultural Economics. Urbana, Illinois, University of Illinois, Vol. 5 (July 1965) p. 7.

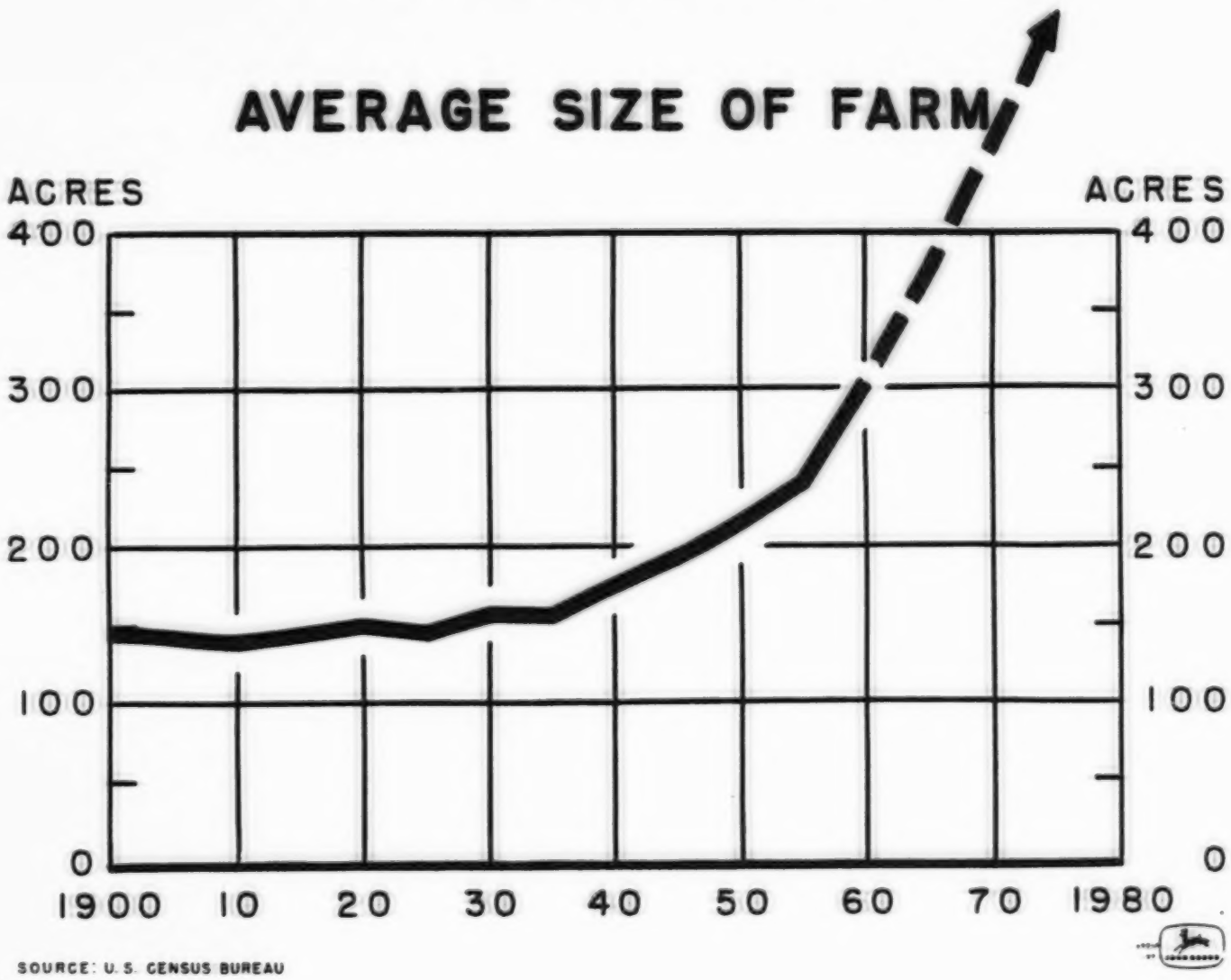
What are the right goals? Are you asking the "right questions" in the research projects you have submitted?

Average Size of Farm

The trend in this characteristic of agriculture, as you know, has been continuously upward. In years ahead it will continue its upward course. Where or when it will stop, nobody knows. Farms are currently being consolidated at probably the fastest rates in history. To project the average size of a farm in 1980 is hazardous; more importantly, it is, to a great extent, meaningless. The reason for this is that the farm is closely related to the nature of the crop, the state of the art, and the extent of knowledge in that particular crop. Closely associated with this problem is the continuous flow of new findings with respect to the most efficient uses of and renewal of our soils, methods of tillage, etc.

For management, this information simply presents, from a different point of view, the confirmation of agirculture's needs for more productive and probably fewer agricultural units.

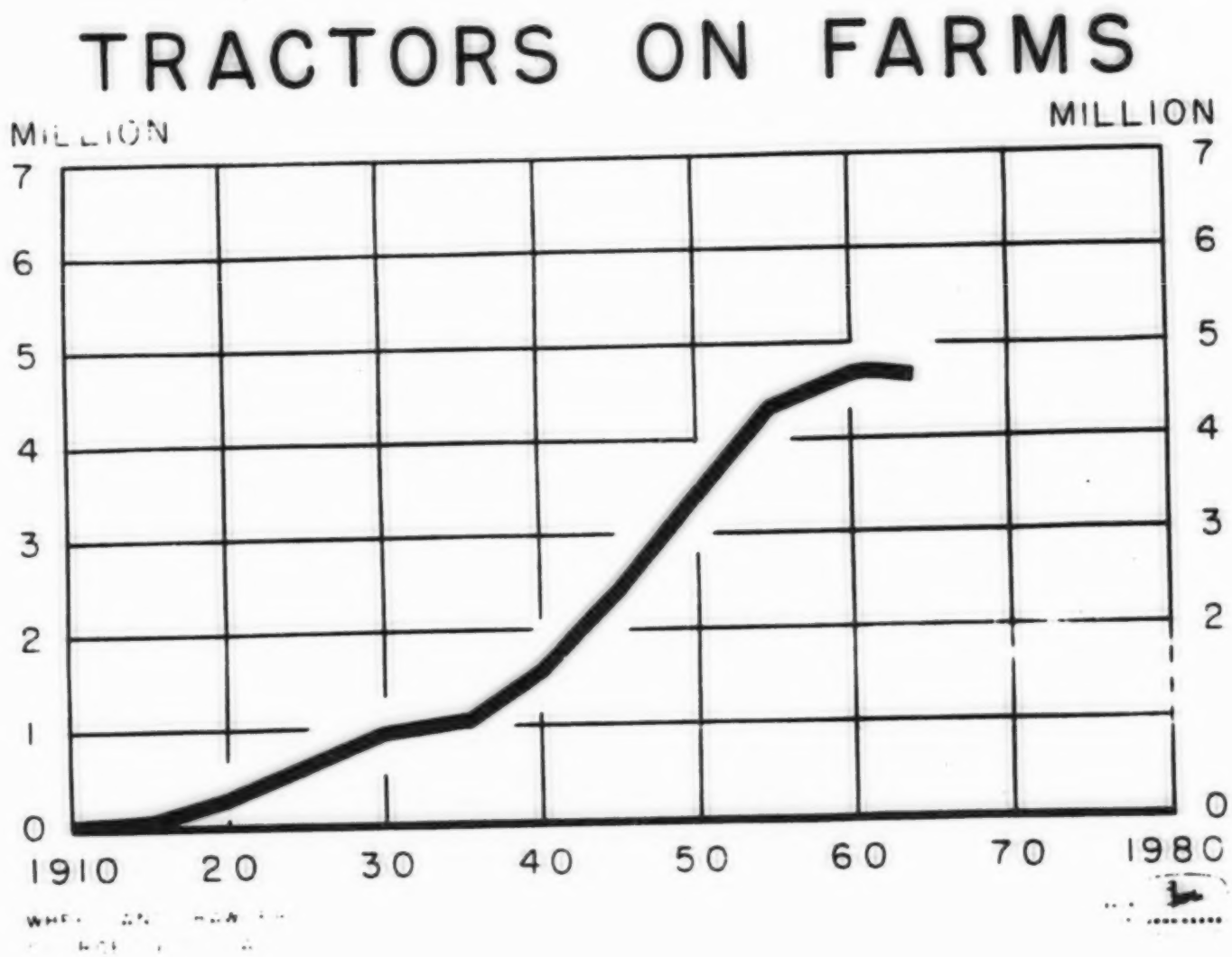
For you, it should be confirming of the need for greater skill in managing large aggregates of resources. It should raise questions relative to the ways in which resource management can be taught and in what educational areas it will get most attention.



Tractors on Farms

The total number of tractors on farms in the United States has gradually trended up into the early sixties and is now declining. The total, however, has little meaning. The important tractors on farms are those on highly productive enterprises -- and especially those less than ten years old. What I have said is confirmed by the trends in sales to users in recent years. Retail sales have trended downward; the horsepower-per-unit has trended upward; and the total horsepower shipped was held constant.

For management, these trends also tend to confirm what has been revealed already by other trends -- that the demand for tractors per se will decline, but that the total demand for horsepower will continue to be high or to increase in order to provide increased productivity, flexibility of use, and comfort and safety to the operators. It is likely that the total capital expenditure for tractors as prime movers or for engines for self-propelled equipment will more than offset the reduction in the number of units required.



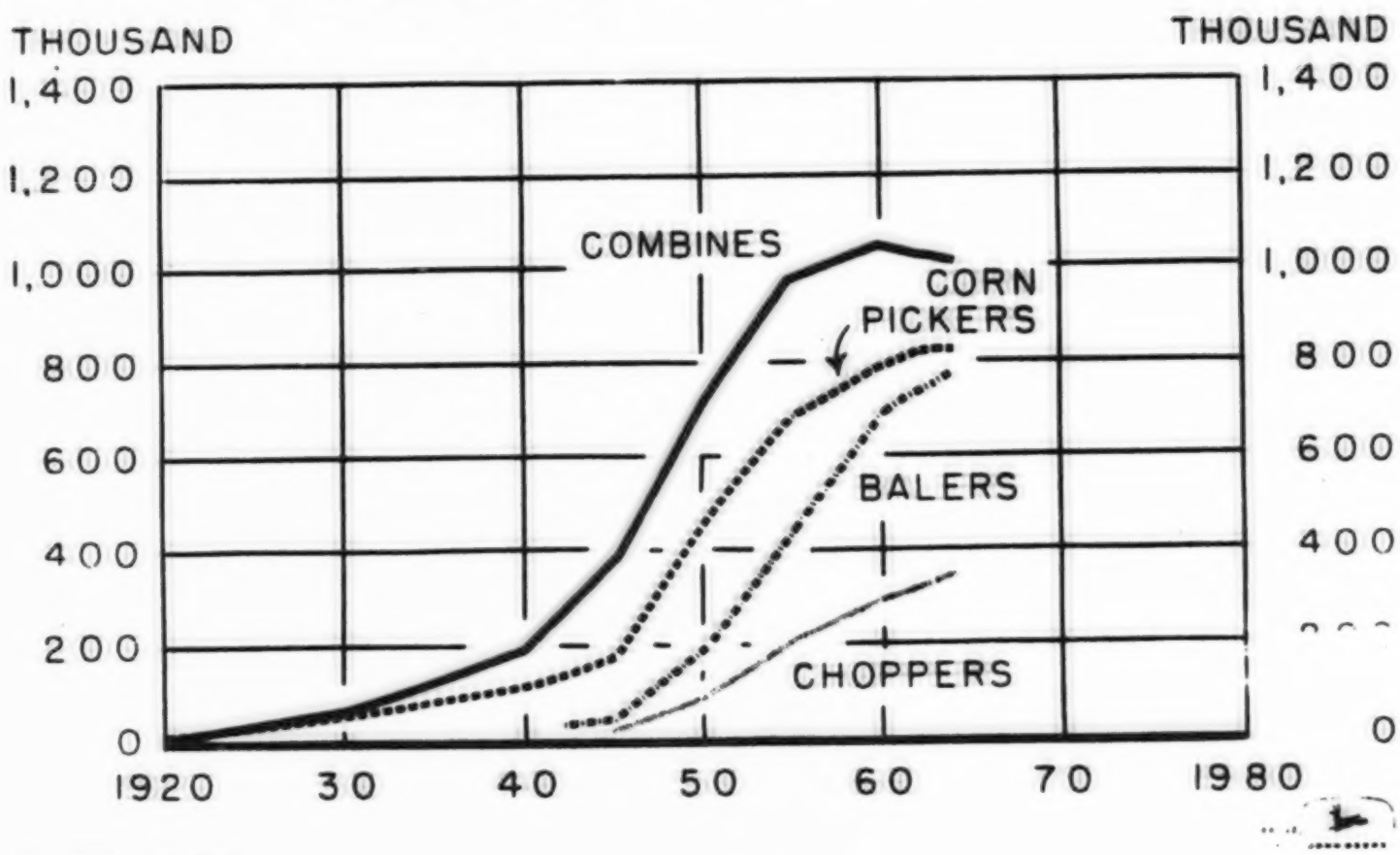
For you, these trends should confirm that there will be great demand for imaginative and able engineers, for skilled workmen, for high degrees of servicing skills since maintenance and repair of such equipment can no longer be done on farms but will, of necessity, be done by specialists with use of industrial-type equipment with high degree of accuracy and precision. This is an area that might benefit from close relationships to industry. The decision to introduce multiple-cylinder tractors was made at Deere in 1953. Servicing labor wasn't ready.

Combines, Pickers, Choppers, and Balers on Farms

The trends shown here are very similar to that for tractors. They simply lag -- usually by a few years -- reflecting later development and delayed farmer adoption.

For management, they add further confirmation of demands for more productive and more specialized equipment.

COMBINES, PICKERS, BALERS & CHOPPERS ON FARMS



SOURCE USDA

For you, they reveal the nature of trends for the employment of operators and support the argument for increased numbers of people with skills to service highly complex agricultural machinery. George Seferovich,[3] Editor of Implement & Tractor, made this point clear when he said:

> "Training tomorrow's farm equipment personnel is becoming a new specialty for technical schools. Latest entrant is the Springfield and Clark County Technical School, Springfield, Ohio. Its program was developed after a study of the industry's needs and with the help of Charles Whitney of the Farm & Power Equipment Retailers of Ohio. The Minnesota area vocational schools continue to develop mechanics for dealers with encouragement and placement help through Ken Austin of the Minnesota dealers' association. A different and broader approach is that of the Agricultural and Technical Institute of the State University of New York at Alfred. Value of higher education to industry is attested to by North Dakota State University survey among its recent ag college grads. Study showed private industry absorbed one-fourth of the 1964 graduating class, up from 22 percent of the 1963 class."

Income from Agriculture

The trend for cash receipts from agriculture has been steadily upward since 1940, and we believe that the trend will continue -- certainly to 1980 and beyond. Such income will be divided among many fewer recipients and will be large enough so that the agricultural enterprise can stand on its own feet to a greater extent than at any time in the last three decades.

For management, these trends indicate that farmers will have the necessary financial basis for steady improvement of their capital investment and for being treated by financial institutions as management units warranting long-range financing.

For you, these trends suggest detailed studies of agricultural operating statements and balance sheets in the same way that such management tools have been studied for other industries. They may indicate that treatment of the agricultural enterprise largely as a family enterprise is coming to an end. Consideration of this problem will lead to many questions relative to the kinds of education and training and attitudes which will be required to meet the demands of the enterprise. Especially important is that you understand that the training of young people reared on farms and that opportunities provided by the land-grant colleges have been and are deficient in this area. To the extent that this is true, managers of

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3 Seferovich, George H., "What's Ahead," Implement & Tractor, June 21, 1965, p. 13.

agricultural enterprises may preferably be selected from those nonagriculturally oriented institutions of learning which have provided the broad and basic backgrounds and narrower specialized training. Increasingly, as government legistlation -- originally designed for urban industry -- is applied to agriculture, enterprise managers must be trained in such areas.

So much for this set of projections. We could easily expand on their implications for education and training, and we could supply projections of additional variables. Time doesn't permit.

Before leaving this approach, I want to mention several simple warnings --

First, you must try to be objective -- don't let your biases show in doing your research or in making your appraisals.

Second, your job is to anticipate the future so that education and training of young people will prepare them, to the greatest possible extent, for growth and shifts, in order to be prepared for obsolescence of their "knowledge" or skills.

A seminar dedicated to discussing the specific problems you will face -- maybe you've held it -- should be appropriate.

Now, for a couple of minutes, I want to shift directions.

Your group is not basically a research-oriented group. It has been a closely-knit, tradition-bound group, as several of you have emphasized -- nonetheless a good and highly productive one. But you have had little or no experience in asking research questions. So I raise the question, "Can you ask the right questions?"

I know you can't stop your immediate job. You have -- or will have in the next few weeks -- day-to-day responsibilities which must be carried on, and you must think continuously of these jobs. Now, in addition, you are charged with thinking of research and trying to ask questions to which research can be directed.

If you are to ask the "right questions" for which research is essential, you will, it seems to me, be required to take a look ahead at least ten to twenty years. Your research -- if backward looking -- will be mainly history unless it is very carefully done and appraised in the light of the implications for the future. You must look ahead for another reason -- to see if the product -- the vocational-trained boy or girl -- you want to develop is a new one. If it is, keep in mind that you face the same kind of a problem John Deere does. To conceive, design, and test a new product takes time -- not just days, weeks, or months -- but years. To design the new product requires asking questions and attempting to get answers to them. Can you do it? There is a possibility, of course that you can't. In this connection, I am reminded of a story recently told by Secretary of Agriculture

Freeman. A third-grade school teacher, in her arithmetic class, said, "Children, if I lay two eggs on my desk and I lay two eggs on my chair, how many eggs will I have?" Seeing no hands raised, she asked Johnny for an answer. After some thought, he said, "Teacher, I don't think you can do it."

The presentation and discussion I have heard here so far lead me to several observations:

> You are obviously worried about your image. You are on the defensive. It is my strong belief that you have no need to worry about your image if you will update your substance in the way it should be updated. This, of course, means -- asking the right questions.
>
> A second major worry that has been bothering you for a day and a half is, "How do I get on the gravy train fastest?" You haven't called it that, but that is essentially what you are talking about. You have spent the seminar's time -- not on research, how-to-ask questions, or which questions to answer, but rather on "How can I be sure to get my share of the $22 1/2 million earmarked for vocational education?" Maybe you shouldn't get any of it! Maybe it will be best if the $22 1/2 million remains unspent. I have seen no evidence that any amount of money is required -- let alone this great amount.
>
> As an economist, I am worried about your use of the term, "hard money." The diseconomies of hard money may live to haunt you. They may damage your future image. I'd be careful of it. The diseconomies will arise from the hiring of <u>permanent</u> staff to conduct <u>temporary</u> research.
>
> I am also worried about speed. The speed which you are trying to attain can be injurious. Be careful! Don't do research just to be doing research. Do it to solve problems -- and take enough time to do a good job.
>
> I am worried, too, over the need I have heard expressed here for a research program in every state. I have heard similar-sounding projects proposed by representatives from Iowa and Illinois. I live at the state boundary between the two states; I see no differences among the people on either side of the state line. I wonder why we should hazard such duplication of efforts.
>
> One of the major problems you will have -- in addition to asking the right questions -- will be that of determining the directions in which you will go.

Largely offsetting the worries which I have just expressed is the hope that the newly confirmed Secretary of Health, Education, and Welfare, John W. Gardner, will be able to instill in his department the procedures of

"self-renewal" and the standards of "excellence" which he has so well developed in his recent publications. In closing, I quote from his "Excellence."[4]

"In order to help young people in this direction, the following steps are essential:

"1. We must make available to young people far more information than they now have on post-high school opportunities other than college.

"2. Parents, teachers and high school counselors must recognize that if the youngster who is not going to college is to continue his growth and learning he must receive as much sagacious help and counsel as a college-bound student.

"3. We must do what we can do to alter the negative attitude toward education held by many youngsters who fail to go on to college. They must understand that they have been exposed to only one kind of learning experience and that the failures and frustrations encountered in school are not necessarily predictive of failure in every other kind of learning.

"4. We must enable the young person to understand that his stature as an individual and his value as a member of society depend upon continued learning -- not just for four years or a decade, but throughout life."

And now -- as a guide to a philosophy which you might consider accepting -- this is what he says,[5]

"The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water."

Thank you very much for your patience and close attention.

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4 Gardner, John W., "Excellence," Harper & Brothers, New York. 1961. pp. 90-91.

5 Ibid, p. 86.

Promising Research Directions in
Off-Farm Agricultural Occupations

by
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Twenty-five states have completed comprehensive surveys of off-farm agricultural occupations. Most of them have published reports recently. Pioneering efforts several years ago in five states, California, Michigan, New York, North Carolina and Washington, established a general descriptive research procedure that has influenced all of the surveys. Richly promising new research directions are emerging.

The first needs were to learn what the jobs are, where they are, anticipated changes and trends in employment, and the kinds and amounts of education and training required for entry and for advancement. That information is now available. It is in the process of being disseminated. Interpretation is the next objective.

The initiation of organized state programs of research and the encouragement of formally approved and funded pilot projects in local and area schools, the two major emphases of this seminar, are strongly supported by administrators. New school facilities must be constructed, competent teachers hired, and effective courses planned and taught. Supervision and evaluation are of prime concern.

Instructors must devise course outlines and prepare teaching plans. Coordination with individual on-the-job learning experiences must be arranged for each student, high school and adult. Predictions are that the numbers of commercial farms will remain nearly constant in the next ten years. The competence of farmers must steadily advance. Vocational education in agriculture seldom has effectively reached more than a minor fraction of commercial farm owner-operators. The state surveys of off-farm agricultural occupations have yielded generally a clear-cut likelihood that the numbers of such positions in the total American labor force in which the worker uses agricultural knowledge will increase fifteen to thirty percent in the next five to ten years. This rate of increase closely parallels the expected expansion in the total numbers of persons gainfully employed.

Interviews with random samples of several hundreds of employers in businesses and services other than farming in each state uniformly revealed a readiness, often an eagerness, to become involved in new programs of occupational education. Business and industry surely are not reluctant partners. An amazing clarity of differentiation of employee functions, and of competencies required, was evidenced by the employers interviewed.

A first direction of research in the immediate future should be the classification of job titles by fields of activity and the grouping of subject matter areas by communalities of knowledge, skills and human relations abilities. Businesses have one group of employees whose main function is management. In some, the sales function is closely allied to management. Service occupations normally require the largest numbers of employees. New workers, especially recent high school graduates, often must enter the positions that have the fewest prerequisites of education or training.

Factor analysis of competencies and of job titles is underway in several states. There are many approaches--even numerous variations of the way that principal components analysis using the Kaiser varimax rotation procedure may be applied. As published reports are shared, research workers in the several states now using factor analysis will be able to appraise the usefulness of their findings. It is quite likely that new lists of competencies will be constructed, thus requiring a return to the field for new sampling interviews. The outcomes of descriptive classification prodedures can be no better than the quality of the questions asked. Shrewd, discerning, imaginative ability lists will surely uncover associations that will aid in better course planning.

Multiple discriminant analysis is a promising computer-based technique that will be tried in vocational education somewhere in the near future. It starts with several quantitative measures, such as competency ratings, interest inventory, and ability scores, and predicts to which one of several designated and different categories an individual belongs. Since in many small businesses an employee performs several functions, some of them quite different, there may be here a uniquely useful aid.

A second major area of research is concerned with teaching-learning experiments using subject matter of the off-farm agricultural occupations. The major independent variables may be psychological elements of learning theory or practice. Even though no significant differences are found among treatments, the instructional materials will have been tested and revised. The revision step is not to be forgotten. Available soon from the occupations project at the Center for Vocational and Technical Education, The Ohio State University, will be coordinated teaching modules in agricultural supply, agricultural mechanics, ornamental horticulture and agricultural chemicals. They are ready for research utilization. A pilot program may be planned to yield research results.

A third suggested direction for productive research is in the term "supporting education." There is a new report form of the Office of Education that asks the states for numbers of students in each vocational field who received supporting instruction furnished by another of the fields. Whether to teach distribution methodology, communications skills, or human relations areas as an integral part of a product knowledge course or as separate courses certainly is worth research funds and staff time. The answers need to come from actual school and industry settings. Quite likely they need to be replicated and validated with

widely differing age groups, levels of student ability and of education, and among varying types of businesses.

As a fourth, and in this brief presentation, a last direction in which research effort can profitably be aimed, systematic programs of placement and adult counseling may be named. Post-high school education is definitely occupationally oriented. Colleges accept responsibility for the placement function. So should vocational training programs. Involvement with industry and with the Bureau of Employment Security should be the focus of research projects in all states. Reporting and record-keeping systems deserve research development. Evaluation, as envisioned in the Vocational Education Act of 1963, will be implemented at the same time.

In conclusion, credit certainly has been earned by the leaders who have sponsored the succession of research coordination conferences in the past several years at The Ohio State University. Special appreciation is due the Vocational and Technical Division, Office of Education, for support of the national, regional and state research conferences. All states have freely shared the outcomes of research. Citizen and industry groups along with experts in related professional fields have given full cooperation. They will be invaluable as, with the adequate funding now available, larger numbers of well-trained research workers address themselves to what are chosen as the most promising new directions in research.

PRIORITY AREAS FOR PROGRAM DEVELOPMENT
IN AGRICULTURAL EDUCATION

By H. Neville Hunsicker
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I am sure that all agricultural educato s very much appreciate the outstanding work underway by the staff of the National Center for Vocational and Technical Education. The fact that the idea of a National Center for Research and Leadership Development was initiated and championed by personnel in agricultural education should give us much satisfaction and a sense of pride.

We who are attending this National Research Seminar and our staff associates at home are the leaders in agricultural education in America today. Our role is important. What we say, as well as what we do, will determine the program's future. Let us constantly re-examine our practice which inescapably sets the direction for our program. Let us continuously modernize our practices that our training may be geared to opportunities in agriculture and the training needs of students (of all ages) who intend to be employed in it.

The following are ten high priority areas for program development in agricultural education. The first five are especially critical ones:

1. Telling the Story of the Importance of Agriculture to America
   a. Its influence on our economy
   b. Its role in our defense
   c. The declining surpluses - (50% less than in 1960)
   d. The population prediction by year 2000 (doubled)
   e. Agriculture is vital to America

2. Expanding Vocational Education in Agriculture
   a. Its identity (must be) maintained
      (1) If identity is lost, not much use to discuss program development.
      (2) We cannot expect that those whose allegiance is to some other phase of education or occupations to render the educational services needed in American Agriculture.
   b. Concept of agriculture and of agricultural education must be broadened to include: (1))Production (2) Service (3) Processing (4) Distribution (marketing).
   c. Survival and certainly further growth requires a well informed school administration and lay public.

3. Solving the Problem of Teacher Supply
   a. The shortage of teachers is the most critical in years - (an estimated 1500 new teachers needed in 1966 and nearly 2500 in 1967).
   b. Without teachers we won't need research, in-service training or other aspects of the program.

c. Study the effect of the current research emphasis on teacher supply. Is it increasing or decreasing the supply?
d. Adjustments may be needed in certification.
   (1) More emphasis on specialities such as agricultural mechanics, dairying and ornamental horticulture.
e. Special training and use of emergency teachers may be a necessity.

4. Exerting Dynamic State (and Natl.) Leadership in Agricultural Education

   a. Staff of adequate size
   b. Freedom to operate
   c. Ability to persuade
   d. Vision of future programs
   e. Willingness to plan...and do it
   f. Distribution of responsibilities
   g. Maintenance of cooperative relationships

5. Establishing Post-High School Technician Training Programs
   a. An area for immediate action - appropriate agricultural curriculum must be included in these institutions.
   b. Many general educators want vocational education to move to the post-high school level.
   c. A problem for study: Semester versus quarter system of operation.

6. Expanding Adult Education Programs in Agriculture
   a. This is one of our greatest un-met needs in agricultural education.
   b. Opportunities unlimited in Farm Management, Farm Mechanics and Occupational Specialities.
   c. Actively promote and establish programs under MDTA, Appalachia and with other financing.
   d. Make use of available resources such as ASCS, economic opportunity programs, and trade organization representatives.

7. Extending and Improving the High School Program
   a. In cities as well as in rural schools
   b. In area schools
   c. Provide respectable facilities--not toys or playhouses
   d. Caution able students about early career specialization
   e. Realistic enrollments per teacher, which will permit good vocational education
   f. Continuous work on course content will be needed
   g. Establish pilot programs for disadvantaged youth

8. Using the FFA Effectively
   a. Recognizing its indispensable role in vocational agriculture
   b. Consideration of a post-high school branch
   c. Establishing leadership development centers (camps or conference centers)
   d. Modernizing the FFA Constitution and activities

9. Preparing Instructional Materials and Doing Needed Research
   a. Establish priorities -- avoid undesirable duplication
   b. Emphasis is on applied research
   c. Continue the occupational studies--a national summary is needed

10. Emphasizing High Quality Occupational Experience
   a. Essential for students of all ages in all types of classes
   b. Emphasis on employability of graduates in terms of their training objectives.

Obviously, these areas are only a few of the ones requiring our attention in 1966. Many of them are similar to those of two, five, or even 10 or more years ago. However, as we look at the areas of agricultural education today, the experience may be compared to climbing a circular stairway in an observation tower. The higher we climb, the landscape and direction of our vision may be the same, but the perspective is different--and we can see farther. Let us then arise to the new challenges and opportunities before us in agricultural education and exert the leadership which will be required to make the needed adapations. Also, let us hope we have the right perspective of employment opportunities and of the training needs of students.

STATE LEADERSHIP RESPONSIBILITIES IN PLANNING
AND CONDUCTING PILOT PROGRAMS

by
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Colorado

As I went about the task of preparing my remarks for today, I found it difficult to be very profound for much of what I am going to say has been said before. Furthermore, I was constantly reminded, as I thought of who might be in the audience, that most of you are more knowledgeable on this subject than I am. I consoled myself, however, with the thought that as busy as we all are these days, it is well that we be reminded occasionally of those things we all know are right, but in our speed we sometimes neglect because the right way is not always the easiest or the fastest way of getting things done.

I firmly believe that although time is of the essence in our race to keep vocational education ahead of the needs of the people, we dare not sacrifice quality in our programs for the sake of speed or quantity. I am suggesting, as you can readily guess, that pilot programs can and should be our quality control in vocational education.

Why Do We Need A Systematic, Continuing State Program for Piloting Promising Innovations in Agriculture Education?

It has been said that the one thing we can be certain of is that tomorrow will bring change. If we are to be creators and not followers of change, we need to be organized in such a way that our efforts in creating change will be as routine but perhaps better planned than any of our other day to day tasks.

I say better planned, because we dare not subscribe to or promote change just for the sake of change, and in my humble opinion the directing or creating of change is state leadership's best opportunity to fulfill its leadership function. Only if we organize our efforts in such a manner that a certain percentage of our time is devoted to designing, testing, and disseminating innovations, will we be worthy of the leadership titles we hold.

Anyone in a management position in any of our major industrial concerns today would soon find his company loosing its share of the market if he did not constantly expend large portions of their profits to make obsolete the very product which made the profit in the first place. And, furthermore, that same management person would soon find his job in jeopardy.

I suggest to you that one of the major reasons many other groups are concerning themselves with vocational education is because we have failed primarily at the state department level to provide this kind of leadership.

I realize that as supervisors we have a responsibility for defending and maintaining the kinds of programs we have described in the state plans. I, also, realize it is difficult to destroy that which we have sworn to defend.

Industrial leadership finds it possible, however, to serve the dual kind of role I have described--that of promoting the present product while at the same time they are encouraging their research staffs to find something better. Their motivation is profit. Ours is not, but it may be even more important--our very life. This may sound as though I believe we should promote change in order to preserve our jobs, and that is exactly what I believe--not my job or your job necessarily, but I am egotistical enough to believe that the state boards for vocational education in the various states provide the best structure for fostering, promoting, and administering vocational education. We will succeed in maintaining a leadership role in vocational education only if we earn the right to be called vocational education leaders. In a democracy, leadership should never be vested in anyone or any group for any other reason.

I have said, so far, that we need a systematic, continuing program for piloting promising innovations because it is essential if we are to provide the leadership function given to state departments of education by our Constitution, and I have said no one can do it as well as we can. But there are other reasons every bit as important. Vocational education has a responsibility to those it serves--the student, the employer, and society in general. This responsibility is to provide training which will enable students to enter the labor market as well trained and efficient as possible.

The rapid changes taking place in agriculture and industry make it imperative that we change our programs in order that we might never be justly accused of training unemployables. We need to know what, if any, changes in program will be needed to serve tomorrow's agriculture. We shouldn't guess. We should try out our best ideas in controlled experimental programs, so that we might disseminate widely that which is good and destroy that which proves to be undesirable.

As brilliant as some of our researchers may be, and as capable as some of our educators and educational planners may be, they have made and they will continue to make mistakes. It is the purpose of pilot programs to guard against these mistakes or to keep them to a minimum. General Motors would never consider placing a new design on the market before it had been tested at the proving gound. So, as new ideas are advanced which effect the teaching-learning process, they should be tested in pilot programs to ascertain their value in vocational education programs.

I am sure that all of us at some time or another have deplored the "extremes" of the educational pendulum. I believe the wise, continuing, and systematic use of pilot programs will shorten the arc of the pendulum and hasten the development of educationally sound programs in vocational agriculture.

In my opinion, a third most important reason exists for systematic, continuing state programs for piloting promising innovations. This reason relates to "climate,"--the fear of change and misunderstanding of what we mean when we refer to pilot programs.

I heard an assistant state supervisor in a large state make the statement that there were some new kinds of programs being tried in his region, but he didn't want the head supervisor to know about it until the program succeeded or failed. The implication was that the program would not have been approved for reimbursement. This certainly isn't the kind of climate which would encourage innovation. Perhaps, the real reason that such a climate exists in this state is the fact that no systematic, organized plan exists for conducting pilot programs.

It is normal to resist change, and it is easy to see why people, especially educators, fear change. For as you analyze how we have gone about planning for change, you realize it has been haphazard at its best.

Brickel, in his study of educational change in schools in the state of New York, concluded that "the most formidable block to instructional improvement today is that education unlike medicine, agriculture, and industry fails to distinguish the three phases of change--design, evaluation, and dissemination. Moreover, it fails to support adequately the basic research which should precede the design stage." I subscribe fully to this statement for I know it is true in at least one other state--my own.

State leadership, if it is to make any noticeable contribution to the development of new ideas, must recognize the differences in each of these phases, and, furthermore, they must recognize the part that they can and should play in each phase.

We have discussed some of the "whys" to this point. Before we proceed to the "hows," I think it is best that we define a pilot program. In The Report Of The Second Research Coordinating Conference On Agricultural Occupations, a pilot program was defined as "a planned activity for testing a new idea in a realistic situation."

Since I believe that a pilot program is something more than the testing of a new idea, I am suggesting that for the purpose of unity of thought that you think of a pilot program as a planned activity in the development and adoption of innovation, and further that there are the following four distinct steps in a pilot program.

1. Identifying new ideas and concepts
2. Designing ideas into workable educational programs of action
3. Evaluation through field testing
4. Disseminating ideas which have proven successful

Each of these steps calls for a different set of circumstances, different people, different atmosphere, and different purpose. If each step is to serve its proper purpose, it must be completed before the next step is started, and they must be conducted in the proper order. The responsibility for the proper use of the steps in proper sequence seems to me to be that of state leadership.

I am discussing these steps not because I don't think you are familiar with them, but rather to point out the state leadership responsibility associated with each step. I am sure teacher educators, supervisors, local teachers, and local school administrators feel that given the time and money, they could and should be responsible for each of these steps. But if we are practical, I think we may agree that because of time, money, and the very nature of our organizational structures some of the groups mentioned are better equipped to do the job than others, and some have a greater obligation than others.

In step number one, we identify the ideas which are currently in the minds of people that have implications for educational innovation. Priority should be assigned to those ideas which have particular significance for further development.

The second step involves the process of designing the significant ideas found in step one into a workable plan for action in local schools.

The third step is one of evaluation. Here the plan conceived in step two is tried out where it can be thoroughly tested to determine its educational values. When a new idea has been proven valuable to education, it then is ready for wide dissemination through a fourth step often referred to as demonstration programs.

Each of these four steps are related to each other, but each one is a separate and distinct step that can and should be treated as an individual problem.

Generally speaking, leaders in agricultural education have not recognized the importance of these four steps nor have they recognized that their responsibility varies considerably in each step.

I would like to review briefly with you the unique characteristics of each step, and the procedures which I believe are essential if satisfactory results are to follow.

Step I--Identifying Ideas for Innovations in Agricultural Education

Teachers, state department personnel, teacher educators, and lay citizens all have ideas for improving vocational agriculture programs. Some of these ideas are known only to the person that has the idea, and others have been disseminated widely through the written and spoken word. Some ideas have limited possibilities for application in a statewide program. Some of these ideas are good and some no doubt would prove undesirable. Some ideas have been tried and found successful. Others have been tried and have been abandoned. In many instances the results of either are known only to a few.

Unless the state supervisory staff provides some means of gathering these ideas, many will never be made known. The state staff needs to develop an atmosphere which encourages free communication of these ideas. They, also, need to provide the structure for the handling and processing of these ideas in order that each idea receives consideration for further development.

To implement Step I, the state board through its staff might well establish the following definite procedures.

1. A procedure should be established for continuous evaluation of present programs in the state as a means of identifying needs.

2. Establish a committee to receive ideas, evaluate ideas, and suggest those for which pilot programs should be developed. This committee should also be responsible for determining what changes have recently been made in their own and other states. The National Center, The U. S. Office of Education, and the American Vocational Association Research Committees should provide this kind of information as a continuing service to the states.

3. Periodic requests should be made of those affected by vocational agriculture programs to submit their suggestions for program improvement (advisory committees, teachers, administrators, and teacher educators).

4. Priorities should be assigned to promising ideas.

5. The necessary structure to move ideas from Step I to Step II should be provided.

As I see it, state leadership has a responsibility at this step for creating a permissive atmosphere regarding change. I believe the reason we have been reluctant to create this atmosphere is because we have feared the indiscriminate, haphazard, and uncontolled change that has characterized so many changes in education. I suggest that if this step and the others that are to follow are conducted in an orderly, systematic manner, we will have no reason to fear change.

Step II--Designing the Educational Plan

Everyone in agricultural education at one time or another has thought of something which he felt would improve the program with which he worked. Many of these ideas lie dormant because of a lack of time on the part of the inventor to develop the idea to the point that it could be put into action. Others lie dormant because the inventor lacks the understandings necessary to design a sound program.

This step must be conducted by competent people, given the necessary time and the freedom from normal controls, standards, and regulations.

All rules, except those necessary for the protection of health and saftey of students should be suspended for those who are designing innovation.

State Leadership should provide for the following:

1. A project coordinator who will be assigned major responsibility for coordinating the development of a plan to the point where he believes it can be tried out in one or more schools with a better than average chance of succeeding. Free him from other duties.

2. Specialized consultants who will be given time and freedom to test ideas against known factors and basic research.

3. A critical review of the plan by specialists, staff members, school administrators, and others who are qualified by training and experience to make such an appraisal.

4. A plan that includes the following detail:

   a. Objectives of the innovation

   b. A step by step procedure that will be followed in putting the plan into operation

   c. A list of teaching materials and equipment needed

   d. The kind of enrollment appropriate for the program

   e. A procedure for selecting students

   f. The kind of community and school setting needed for the trial stage

   g. The qualities of teachers and/or others who will be in charge of program and training needed

h. The length of time to complete trial

i. The evaluation instruments that will be used and who will evaluate

j. The number and description of control centers where all factors of evaluation are matched with the evaluation centers to the highest degree possible

k. The time schedule

l. The number of schools needed for experimental centers

m. The approximate (extra) cost of conducting the evaluation step and the source of funds

n. The changes evaluation centers will need to make in their traditional operation

5. Approval of the plan and necessary financing

6. A local project coordinator in each pilot center

Brickel says, "The basic ingredients of a good invention setting are a richness of talent and a freedom to explore. At its best, Step II provides for 1) a group of highly intelligent people, 2) a somewhat limited problem, 3) time to concentrate on a solution, 4) ample money and resources, 5) freedom to try almost anything, 6) the likelihood that the solution will be used somewhere, and 7) the prospect of personal recognition if the problem is solved. The more artificial, enriched and free the setting, the more distinctive the innovation it is likely to produce. Freedom is essential. The atmosphere and the actuality of freedom must be deliberately created."

State leadership has a responsibility here for initiating the structure and organization which can carry out the design step. Few state legislatures would finance this kind of an operation in the state department knowingly and most state staffs are not large enough to free many of their staff at any one time for this kind of an assignment. There are means, however, of providing reimbursement--100% if necessary--to colleges, universities, and local schools for the purpose of getting this job done. It is also possible for the state to contract with private agencies and individuals for certain kinds of consultant services. In addition to the securing of finances, I would think that state leadership has a responsibility for promotion and supervision of these design activities.

Step III--Evaluation or Testing

This step involves taking the completed plan agreed upon in Step II, and putting it into operation in one or more local schools. The plan is field tested under actual working conditions.

It should be realized that a teacher who is introducing a major change, will need varying amounts of assistance. Evaluation of the innovation should be constant. Immediate evaluation may be found in student reaction. Other subjective and objective means of evaluating progress should also be used extensively.

The special attention the teacher receives during innovation may cause him to overproduce to the extent that the apparent beneficial effects of a given innovation will be due to the added effort on his part rather than from the innovation itself. To insure a more accurate evaluation, it may be necessary to give the teachers of control groups the same kind of special attention.

There are undoubtedly other means of guarding against the "Hawthorne" effect. Persons who are knowledgeable in this area of research should be utilized in designing proper methods of evaluating the innovation while it is being tried under actual field conditions.

Every effort should be made to conduct experimental programs under carefully controlled conditions which permit little deviation from the designed plan. Adequate financing to insure proper teaching materials, facilities, and teacher time for preparation is essential. Since evaluation programs are untried and may deviate considerably from standard procedure, it seems wise not to involve more schools than are necessary for proper evaluation. A limited number of schools, never more than those which can be properly supervised, should be selected at any one time.

State leadership should provide for the following:

1. Adequate evaluation and/or control schools

2. The cooperation of the superintendents and others who will be involved

3. Personnel and materials needed in the evaluation and control centers

4. Financial aid that might be supplied from the state department

5. Appropriate contracts between the schools and the state department which clearly states the responsibilities of the local school which will enable it to receive reimbursement

6. Provision for training the personnel who are to work the project

7. Provision for describing innovation in professional publications

Since field testing is often done for the purpose of comparing one method or one program with another for the purpose of advocating change, it seems locical that state leadership should control this step if possible or at least observe it closely if control is not possible.

Those who have made a study of educational innovation tell us that this step has traditionally been skipped. Too often pilot programs have moved from the design stage to the demonstration stage. We not only have the opportunity to stop this trend: we have the responsibility for reversing it.

Some success factors in this stage might include:

1. Avoid overloading teachers

2. Changes in plans must be avoided after experiment starts to assure reliable evaluation

3. Evaluation procedure should be rigidly followed

4. Visitors who are not directly responsible for the operation of project should be discouraged

5. Reports of progress should be made only to school and state board officials and should not be published until the evaluation is completed

6. Recognize if a program isn't working and stop. (But appreciate the benefits derived from knowing that it won't work and share this knowledge as completely as if it had succeeded)

Step IV--Demonstrating Field Tested Innovations

The adoption of new ideas is at best a slow process. People seldom try a new practice until they have had an opportunity to observe someone else do it. There are exceptions to this rule, of course, but people who have studied the process of dissemination of new ideas indicate that written or oral reports of innovations bring about adoption at a much slower rate than does observation.

It is also true that people generally are slow to accept new practices unless they are observed in situations similar to their own. The smaller farmer is inclined to believe that new practices on large farms may not be applicable on his farm. School administrators in a small district may follow the same reasoning in rejecting a new practice which is successful in a larger or wealthier district.

The demonstration of new practices takes place only after evaluation has shown, during the evaluation stage, that the practice is educationally sound. Consequently, the purpose of a demonstration in a pilot center is to disseminate the idea or practice as rapidly as possible in as many centers as possible. During the demonstration process, it may be advisable to avoid artificial, enriched, abnormal, or unrealistic settings or conditions. It may also be profitable to reward the demonstration center with recognition and attention.

State Leadership Should Provide for the Following:

1. A written description of the innovation including details necessary for the implementation of the idea or practice

2. A variety of schools to serve as demonstration centers

3. Arrangements for superintendents and other school people to visit successful programs in the original evaluation phase

4. Training for teachers and others, necessary to enable them them to conduct the new plan or procedure

5. The necessary equipment and qualified people

6. The selection of many but varied centers where the innovations may be conducted under normal conditions

7. An evaluation procedure to compare with results obtained during evaluation phase

8. Revision of the state plan to allow for normal financial assistance for programs proven successful in evaluation stage

9. Arrange for as many teachers and administrators as possible to observe demonstration centers

10. Wide publicity, by oral and written word, to explain the accomplishments of the demonstration schools and the value of the innovation to education

11. Arrange for key people to observe the demonstration. Special attention should be given to leaders in the profession and to people who are known to adopt change readily, as well as, leaders of various social cliques

12. Workshops for other teachers in the state to teach the procedures needed in handling the new practices

13. Revision of the pre-service training program

At this stage, state leadership has a major responsibility for "spreading the word" and training teachers. We have a responsibility for telling others about the bad, as well as the good, and we have a responsibility for training beginning, as well as established teachers so that they might carry on the types of programs which have proven to be worthwhile.

In discussing the specific steps in pilot programs and the procedures to be followed in implementing each step, we have suggested many activities for state staff personnel both at the supervisory and teacher education levels.

There are several points I made or alluded to that need to be re-emphasized, however, as they apply to the administration of pilot programs in any given state.

The first one concerns the number of pilot programs which should be under way at any one time. I believe that there should never be any more pilot programs under way (at the evaluation or testing stage) than there are field personnel on the supervisory and teacher education staff. If there are two supervisors and one teacher educator in a state who normally visit local schools for a large portion of their time, then there should not be more than three experimental programs in process. In smaller states where there might only be one supervisor and one teacher educator, I would think that more than one experimental program at any one time would be too many.

When programs have been proven and are at the dissemination stage, I would not be as concerned about the numbers, provided each demonstration center could be visited at least three or four times a year.

Another point that I believe can be defended is that at least one full time person be assigned the responsibility for coordinating, and promoting action research activities at the state level. This person to be in addition to the teacher education personnel who are assigned research duties.

Third, I believe every state plan and/or policy manual should not only provide for research activities of all kinds, but should spell out in some detail the procedures for identifying, designing, evaluating, and demonstrating pilot programs in order that every person engaged in vocational education will be aware of their responsibility for improving the state-wide program through innovation.

If this procedure works for agriculture, medicine, and industry, it is time we bring the same orderly, systematic approach to action research in education.

Fourth, the responsibility for financing pilot programs is primarily that of the state--especially in Steps I, II, and III. The Vocational Education Act of 1963 provided funds for this purpose. I hope that we will make every effort to use it wisely.

Since our purpose in promoting pilot programs is to focus attention on problems of importance to the state-wide program, it is unreasonable to expect that a single school district can be expected to bear more than a minor portion of the expense. The cost of carrying on a pilot program, properly done, is much greater than the traditional on-going program and since it benefits the entire state, it should be the responsibility of the entire state. A local school superintendent often finds it impossible to perform Step III without defending the expenditures through volumes of publicity. This defeats the purpose of the testing stage.

If state funds are supporting the project, less objection may be found locally and interference can be controlled by those who are concerned primarily with the findings of the study rather than the cost per pupil. The local project director and/or teachers may be freed of outside duties without objection from other staff members who may be carrying heavier teaching loads.

Fifth, great care needs to be taken to assure that there be clear-cut distinction between the testing stage and the demonstration or dissemination stage.

In closing let me review with you some key words that clearly describe the characteristics of the four steps in piloting an innovation.

<u>Step I--Identification</u>

Permissiveness,
Persuasion, Coordination

<u>Step II--Design</u>

Intelligent People, Ample Resources,
Ample Time, Freedom From Any Other Assignment,
Limited Problem, Availability of Consultants

<u>Step III--Testing (Evaluation)</u>

Controlled, Closely Observed,
Restricted, Enriched, Diverse Settings

Step IV--Dissemination

Unenriched, Normal But Diverse Settings, Carefully Trained Teachers, In-Service Training

I am sure that some of you will disagree with some of the things that I have said, but I am hopeful that we can all agree that vocational education can benefit from the increased use of properly conducted pilot programs, and further that it is the responsibility of state leadership to initiate a major trend in this direction immediately.

NEBRASKA'S PLAN FOR PILOT PROGRAMS

by
Glen H. Strain
State Director of Agricultural Education
Nebraska

Past History of Research in Agricultural Education in Nebraska

For many years this area in Nebraska was very limited. This was primarily due to the lack of adequate staffing and inadequate funding. One man was employed on the Teacher Education Staff. His salary was partially reimbursed with State funds. This man, however, due to a multiplicity of responsibilities, was able to spend less than 50% of his time in this area.

In the fall of 1959 this staff member, along with one member of the Supervisory Staff and one instructor, was selected to discuss the needs, values and purposes for research, an effective way to get research planned, conducted and utilized, and the needs for an organizational structure. An interim advisory committee, composed of a representative from each of the eight-instructor districts in the State, was set up to work with the three man committee. This was in the year of 1960.

In the spring of 1963 a "Nebraska Advisory Council for Research in Agricultural Education" was set up. Dr. James Horner, on the Teacher Education Staff, was selected as coordinator. Personnel on the council includes sixteen active members and seven ex-officio members.

A. Active members include the following:

1. Four teachers of agriculture
2. Four county agents
3. One farmer
4. One off-farm agriculturist
5. One on-farm, non-farming agriculturist
6. One farmer organization representative
7. One school administrator
8. One Vocational Division representative, Agricultural Education Department, University of Nebraska
9. One State Department of Education representative
10. One State Extension Staff member

B. Ex-officio members include:

1. The Director of the Agricultural Experiment Station
2. State Director of Agriculture
3. Director of Agricultural Education, State Department of Education
4. Commissioner of Education
5. Chairman of the Agricultural Education Department, University of Nebraska

6. Director of the Cooperative Extension Service
7. Director of Resident Instruction

Although this council has been in operation a relatively short time, it does show considerable promise of helping move forward research in agricultural education.

With the passage of the 1963 Vocational Education Act and the possibility of special funds for research, an evaluation was made. In the spring of 1964, Dr. Howard Deems, Chairman of the University Agricultural Education Department, called a meeting of the Assistant Commissioner of Education in charge of Vocational Education, and the State Director of Agricultural Education. It was mutually agreed that another person for research should be hired as a member of the Teacher Education Staff, with the State again reimbursing part of his salary. Dr. John Coster, from Purdue, and a member of the Indiana Staff, was the man we chose. Fortunately for Nebraska, Dr. Coster was interested and became a member of our Staff on July 1, 1964.

Development of Nebraska's Plan for Pilot Programs

The Central Region Research Conference in August, 1964, at Columbia, Missouri, provided the challenge and impetus needed for our staffs to start the ball rolling.

A meeting was called for the staff members present at the conference. It was agreed that one thing about which we knew very little was the new area of off-farm agricultural occupations. Questions such as the following were asked:

A. Is any instruction in Vocational Agriculture essential to initiate entry into agricultural occupations other than farming?

B. Won't our present Vocational Agriculture program take care of this?

C. How much on-the-job experience should students in this area have?

D. Should a general related class be given to these students as well as on-the-job experience?

As the discussion proceeded, it was quite obvious we needed something to help answer some of these questions. A pilot program was suggested. Dr. Coster said he had given this some thought and presented those in attendance an idea of what he had in mind. Everyone agreed that Dr. Coster and Dr. Horner should proceed.

Several staff meetings were held which again included the Assistant Commissioner of Education in charge of Vocational Education. The purpose was to keep all informed of the process and progress.

Birth of Nebraska Project No. 1

Project Title: "An Experimental Evaluation of Approaches to Preparing High School Students for Agricultural Occupations Other Than Farming." This was submitted to the U. S. Commissioner of Education under the Provisions of Section 4(c) of the Vocational Education Act of 1963.
Applicant: University of Nebraska
Initiated By: John K. Coster, Professor and Director of Research, and Howard W. Deems, Professor and Chairman, Department of Agricultural Education, College of Agriculture and Home Economics, University of Nebraska, Lincoln, Nebraska.

Principal Investigators: John K. Coster
James T. Horner
Duane E. Loewenstein
Douglas D. Sjogren
Glen H. Strain

Submitted By: H. H. Kramer, Director, Agricultural Experiment Station, College of Agriculture and Home Economics, University of Nebraska, Lincoln, Nebraska.

Federal Funds Requested: $12,780 for fiscal 1965
$38,000 for fiscal 1966
$290,000 for eight years

Duration: Beginning 1 January, 1965
Ending December, 1972

Date Transmitted: 5 November, 1964

The Problem

The central problem of this study is to evaluate the effects of selected treatment and classification factors and indicated interactions on the preparation of high school students for initial entry into agricultural occupations other than farming, as measured by dependent variables. The central problem is elaborated into the following parts:

A. To compare three "Pilot" programs for preparing high school students for initial entry into agricultural occupations other than farming with a "Control" group, with all four groups to be incorporated into an experimental design, with an internal source of experimental error.

B. To determine the optimum number of years of instruction in Vocational Agriculture appropriate for high school students who desire to prepare for initial entry into agricultural occupations other than farming.

C. To examine the relative effectiveness of two patterns of curriculum organization in Vocational Agriculture courses.

D. To investigate the effects of classification factors pertaining to high school students on the dependent variables, and to study the interactions of classification factors by treatment factors.

The Objectives of the Study

The principal objective of the study is to obtain answers to the three questions posed by the theoretical construct of the study:

A. Is instruction in Vocational Agriculture essential to initial entry into agricultural occupations other than farming?

B. Is a practical, on-the-job, institution directed work experience program essential to initial entry into agricultural occupations other than farming?

C. Is a course in Related Instruction essential to initial entry into agricultural occupations other than farming?

Memorandum of Agreement

To bring out more information on the project, I am hereby including a Memorandum of Agreement which was sent to all schools who had indicated an interest and then were drawn at random to participate.

Department of Agricultural Education
Agricultural Experiment Station
College of Agriculture and Home Economics
University of Nebraska
Lincoln, Nebraska

MEMORANDUM OF AGREEMENT

This Memorandum of Agreement is entered into between the

(local school)

which hereinafter shall be designated as the Party of the First Part; and the Department of Agricultural Education, Agricultural Experiment Station, College of Agriculture and Home Economics, University of Nebraska, Lincoln, Nebraska, which hereinafter shall be designated as the Party of the Second Part.

THE PARTY OF THE SECOND PART hereby agrees to provide to the Party of the First Part the following services, materials and reimbursements:

1. To provide not less than thirty (30) days of training to the Vocational Agriculture teacher designated by the Party of the First Part, during the summer of 1965, with twenty days to start on or about 14 June 1965 and end on or about July 1965, and with an additional ten days of training to be arranged with the cooperating teachers, to be offered subsequent to 9 July 1965, said training to be offered by the Department of Agricultural Education, College of Agriculture and Home Economics, University of Nebraska, Lincoln, Nebraska.

2. To provide reimbursement to teachers for subsistence while in training and while attending workshops called by the Project Directors at a rate not to exceed $8.75 per day, and to provide reimbursement for travel from the school city to Lincoln, Nebraska for not more than six round trips while in training in the summer of 1965, and for travel for workshops at a standard rate of seven (7) cents per mile. (It is stipulated that teachers may receive graduate credit for training, provided that the teacher pays the cost of tuition at the standard rate of $11.00 per semester hour. Teachers may register for six hours of credit during the summer of 1965, and for two additional semester hours at their convenience as a problems course, for a possible total of eight semester hours of credit.)

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(Memorandum of Agreement Continued)

3. To provide instructional materials for the Related Instruction Course and for the Directed On-the-Job Work Experience Course.

4. To provide the necessary standardized tests and instruments constructed as part of the project for the conduct of the measurements and evaluation phases of the program and to provide results of tests to the school.

5. To provide in-service instruction and assistance for the operation of the project, regardless of the instructional program assigned randomly to the school.

6. To direct and supervise the follow-up phase of the study and to provide results to the school.

7. To reimburse the teacher for professional services rendered to the project, specifically for keeping records and conducting follow-up studies at an honorarium rate of $5.00 per hour, and to reimburse the teacher for subsistence and travel incurred in fulfillment of the project.

8. To provide a copy of all progress reports and the final report to the school.

9. To continue the research and instructional program for three complete school years, and to continue the total program, including follow-up, for four years, until 30 June 1969, providing that the contract between the Office of Education, U. S. Department of Health, Education and Welfare and the Board of Regents of the University of Nebraska continues until completion of the proposal submitted by the Agricultural Experiment Station of the University of Nebraska, and approved by the U. S. Commissioner of Education remains in force. A copy of the proposal and amendment is attached to the original copy of the Memorandum.

THE PARTY OF THE FIRST PART hereby agrees:

1. That the teacher of Vocational Agriculture designated by the Party of the First Part will pursue the thirty day training program during the summer of 1965 as outlined by the Project Directors.

2. To accept and put into force any one of the following four treatments which is to be assigned randomly to the school at the termination of the first twenty days of training, the assignment to be made on or about 9 July 1965:

(Memorandum of Agreement Continued)

I. Instruction in Vocational Agriculture only (six schools).

II. Instruction in Vocational Agriculture plus the Related Instruction Course to be offered to Seniors. The Related Instruction Course is to consist of approximately 90 hours of General Related Instruction, and approximately 90 hours of Special Related Instruction (six schools).

III. Instruction in Vocational Agriculture plus one year of Directed On-the-Job Work Experience in an agricultural occupation at a station to be designated by the School, to be offered during the Senior year (six schools).

IV. Instruction in Vocational Agriculture plus the Related Instruction Course plus the Directed On-the-Job Work Experience Program to be offered during the Senior year.

3. To follow one of the two plans of curriculum emphasis as follows:

A. All new Vocational Agriculture programs, and eight existing vocational programs selected randomly will organize curriculum content around biological, chemical, physical, economic, and mechanical principles underlying agriculture. (Instruction in principles will be offered to all teachers during the summer of 1965.)

B. Eight existing schools, selected randomly, will organize curricula content around the problems of agricultural workers.

4. To participate in the measurement and evaluation program.

5. That the teacher shall participate in the follow-up studies of program graduates.

6. To continue the instructional program for three school years (1965 to 1968) and the follow-up program until 1969.

It is understood that the plan of reimbursement for instructional costs and for equipment will be entered as a matter of contract and/or agreement between the school corporation and the State Board for Vocational Education.

In witness thereto, the representatives of the Party of the First Part and the Party of the Second Part have accepted the provision of this Memorandum of Agreement, and have thereupon indicated acceptance by their signatures:

FOR THE PARTY OF THE FIRST PART:

Date

(President) (Secretary) Board of Education

Date

Superintendent of Schools

Date

Principal of High School

FOR THE PARTY OF THE SECOND PART:

Date

Director, Agricultural Experiment Station College of Agriculture and Home Economics, University of Nebraska

Date

Chairman, Department of Agricultural Education, University of Nebraska

Date

Project Director

APPROVED Date

Director of Agricultural Education
State Board for Vocational Education
State of Nebraska

Reimbursement

To help induce the needed eight new departments in the pilot, the State Board of Vocational Education has agreed to the following reimbursement for three years:

A. 50% of instructor's vocational salary.

B. 50% of local travel for supervision.

C. 50% for equipment.

D. 50% for textbooks, reference books, and agricultural bulletins.

E. 50% for maintenance and repair of all equipment costing $100 or more in which the U. S. Government has 50% interest.

In contacting these schools, Dr. Coster and one member of the Supervisory Staff cooperatively worked together as a very effective team in making personal visits.

Factors for Success

In analyzing the success to date in this project, it would appear some of the following have been important contributing factors:

A. Cooperation

Much credit has to be given to Dr. Coster for the excellent manner in which he has involved both the teacher training staff, the State Supervisory Staff, and the Assistant Commissioner of Education in charge of Vocational Education. At every step, he has kept everyone mentioned above completely informed, even though the project is being funded through 4(c) funds. In so doing, all of us have been enthusiastic and have talked the project at every opportunity. This enthusiasm has carried over to the schools and instructors. Perhaps partially as a result of this, many more schools applied for participation than the project was set up to handle.

B. One man, Dr. Coster, was given the major responsibility to proceed, and with it the understanding of having time to do the job and the assured cooperation of schools, instructors and the State Staffs.

C. Everyone assisted in helping out where possible, but again, without question, the success of the project primarily has been due to the capability of Dr. Coster and the leadership which he has exerted.

Project No. 2 Approved

One of the most pertinent and pressing problems confronting the State Board for Vocational Education in Nebraska is that of collecting, analyzing, synthesizing, interpreting, and translating into programs of Vocational and Technical Education and occupational preparation of less than college grade, the necessary data and information, from which plans may be made and programs developed at state and local levels, for developing programs of Vocational and Technical Education in the schools of Nebraska. Requests for assistance from local schools in program planning and curriculum development, with emphasis on translating occupational trends, projected needs for initial entry into the labor force, and the projected composition of the labor force into programs of Vocational and Technical Education and occupational preparation, are accelerating at a rapid pace.

Further, seminars and meetings of school administrators held during the past year in Nebraska to discuss Vocational and Technical Education in general, and the provisions and potentialities of the Vocational Education Act of 1963 in particular, have generated and evidenced widespread interest in developing and expanding programs of Vocational and Technical Education in the public schools of Nebraska. A breakthrough to provide more adequate programs of Vocational and Technical Education among the schools of Nebraska, especially in the rural areas, is imminent. It is imperative that the generated interest in and concern for these programs be accompanied--or, better still, preceded--by a program of research coordination, information processing, and interpretation, which will impact upon and relate to decision-making processes by which programs of Vocational and Technical Education and occupational preparation are developed at the State and local levels.

Faced with the above problem a project entitled, "The Establishment and Development of a Research and Coordination Unit in the Area of Occupational Needs, Research and Coordination in Nebraska," is under way.

Fortunately, it was possible to acquire a young man with former experience in school administration and the Manpower Training Program, and who has recently completed his doctor's dissertation entitled, "A Program to Determine Educational Needs in the Field of Vocational Education in Local School Districts," to be coordinator of this project.

The project is again being funded under 4(c) at a cost of $99,830.

In Conclusion:

We do feel pilot programs are necessary for testing a new idea in a realistic field situation.

We do anticipate developing pilot programs in program areas other than off-farm agricultural occupations where the problem and need is recognized. At the present time, we do have a much less sophisticated pilot program in progress entitled, "Establishing Local Young Farmer Opportunity Committees."

We do envision pilot programs as a continuing part of a State program, and not necessarily an occasional activity.

Most of our present pilot programs are now funded under 4(c), but the less comprehensive and less sophisticated ones have been funded under regular Vocational funds or by Ak-sar-ben, which is an Agriculture Society in Omaha.

We have experienced considerable beneficial side effects, I believe in all cases, when pilot programs have been launched...side effects such as outside interest in the program, revived interest and enthusiasm within the program and considerable educational growth in carrying out the projects.

Finally, and possibly the most important area again is the employment of well educated research personnel who have interest in operative research as well as basic research, and who have a free hand to proceed with assured cooperation and the possibility of sufficient funds.

EVALUATION OF PILOT PROGRAMS

by
G. L. O'Kelley, Jr.
Professor of Agricultural Education
University of Georgia

During the past few years the number of so-called pilot programs in the field of vocational education has been increasing by leaps and bounds. One does not have to qualify as a seer to predict a continuation--in fact, even rapid acceleration of this trend during the next few years. The cause for the apparent popularity of such programs may be attributed to two factors. They are:

1. In order to keep pace with a constantly changing technology, vocational education program planners have increasingly been forced to project new ways (or programs) of meeting emerging demands. The desirability, wherever possible, of trying out these program innovations via pilot installations rather than in area-wide adoptions is obvious and requires no justification. On the contrary, educators who conduct them deserve our commendation for their professional concern and integrity.

2. The provisions of the 1963 Vocational Education Act places even greater emphasis than ever before on pilot-type programs. In addition, it makes financial support available at the state level by removing certain budgetary restrictions and at the national level through the medium of direct grants. Inevitably the prospect of federal grants always excites the interest of school administrators, and I predict a rash of pilot programs to break out in the field of vocational education in the coming months.

Pilot programs undoubtedly have a role to play in our scheme of things and the findings of such programs, if properly authenticated and presented in readable form, have a contribution to make to our professional storehouse of knowledge. Pilot programs serve a useful function in the field of vocational education at both local and national levels. The value locally of a pilot program is immediately one of utility--it brings to bear via the elements of action research a collective intelligence on the solution of an existing problem. Far outweighing this return, however, is the contribution which may be made to the state, region or national levels if it is possible to generalize from the pilot situation to a much broader theater of operation. One good pilot program could make it possible to avoid scores of failures elsewhere or result in scores of people saving a year or more of valuable time duplicating the same procedure to learn the same thing.

Whether such generalizations are possible rests entirely with those who decide how the pilot program shall be conducted and evaluated and how the findings of same shall be reported.

Pilot programs improperly conducted and carelessly or erroneously reported can do irreparable harm to the profession as well as to the public. Just because a particular program is outstandingly successful in one situation is no guarantee it will, or will not, succeed in another situation (or even in the same situation if repeated) if the original success was due to the brilliance and persistance of a great teacher and not to any peculiar features of the program itself. Such a teacher might well have come up with equally outstanding results using a totally different approach. The teacher and not the procedure made the reported difference, but if the project report failed to bring this variable into focus, you and I could be sadly disappointed in our own attempts to obtain equally satisfactory results with a similar procedure.

Pilot programs which are less than spectacularly successful in terms of the intended outcome may yet be of inestimable service to the profession if the project is properly evaluated and reported. When the conditions under which the program was operated are carefully reported and the degree of success or failure reported by specific areas in understandable terms, a careful reader may quickly identify promising alternatives and thereby avoid unnecessary mistakes in his own project. For instance, a report may show that students failed to reach the established objective during the instructional period, but that they nevertheless made continuous progress from beginning to end. A thoughtful reader will begin immediately to ponder the merits of a longer instructional period in his own project.

This leads us to the inevitable question--what constitutes a true pilot program? Most of us have our own answer to this, but even so, I wish to comment on my own point of view, as any further observations which I shall make will be predicated upon this point of departure. Actually, it may be simpler to spell out what is not a component of a worthwhile pilot program and then examine what remains.

No matter how helpful such a designation may have for a particular situation just to so entitle any innovation which a teacher or administrator may consider feasible in order to circumvent some existing policy or standard does not make that effort into a pilot program. This type of practice remains an expedient move no matter what it is called, and even though justifiable to those immediately concerned, it should be accepted at its face value and, in most instances, promptly forgotten for purposes of program improvement.

Neither is an elaborate experiment in which the performance of X group compared with the performance of Y group with certain treatment carefully administered and certain variables rigidly controlled to be considered as a pilot program. This is a research project and it undoubtedly, if properly designed and conducted, will contribute much

to the cause of education. It may even lay the groundwork for a subsequent pilot program, but within itself it is not a pilot program. It is an experimental research project.

Then what is a pilot program? A true pilot program is a procedure which is carefully and painstakingly projected in keeping with solid research findings or else predicated on thorough philosophical reflection. Through either channel a new, and hopefully, better way of conducting a program is projected for trial under realistic conditions. Educators who are convinced the innovation is superior--either overall or in some of its features--but being unwilling to commit an entire system to the resulting change without first ruling out every obvious chance of failure will resort to a carefully conducted and observed pilot program to validate the proposal. A pilot program then supplies the equivalent of the "tested through action" step of the reflective thought process. Theoretically, all evidence available supports the proposal, but until the empirical evidence is in hand the proposal lacks that final endorsement. Armed with the empirical evidence the educator is willing to generalize to greater and more costly ventures.

The purpose of a true pilot program, then, is to validate under normal conditions a proposed program innovation. To the extent the conditions surrounding the pilot are normal and the evaluation complete and comprehensive other educators will feel free to construct programs along similar lines when they have studied and interpreted the reported findings.

Why evaluate a pilot program? In the light of the previous discussion, the need for stringent evaluation of any pilot program is twofold: (1) to determine the merits of the procedure in terms of the local situation together with implication for same, and (2) to provide a basis whereby other educators may profit from the same tryout without duplicating the costly expenditure of money and time. The ultimate purpose of all action research is program improvement and, of course, this is equally true of all evaluative effort. If we had time, I think we would be forced to conclude that evaluation and action research are very, very closely related. We in agricultural education have still another restraint affecting us as we discuss the need for evaluating pilot programs. We are operating under an injunction of the AVA that no funds be approved for pilot programs without prior approval of plans for the careful evaluation of the program and its outcomes. There seems to be no basis for doubting the intent of U. S. O. E. to lend their support to such restraint.

Evaluation, then, should and apparently will have serious meaning to all of us who are interested in pilot programs during the next few years. Educators seem to enjoy discussions involving semantics, and, as a result, educational terminology has different shades of meaning for different individuals and even for entire groups. In my own institution we "evaluate" student applications, student progress, programs in the department, college or university. We even "evaluate" facilities, books, ideas, ourselves and unfortunately our associates.

Webster defines to evaluate as "to set down or express the mathematical value of; to express numerically" or "to examine and judge concerning the worth, quality, significance, amount, degree or condition of." Obviously the terms mathematical value, numerical expression, amount, degree, etc., imply some degree of exactness or at least understandable terms of measurement.

Educators assign various shades of meaning to the term ranging from an exact value to a vague summation. In 1950 Harold Shane reported a study involving 200 educators which revealed no less than five clear-cut concepts with regard to the meaning of the term evaluation. They are listed as:

1. Application of a value to a problem (textbook ratings)
2. Synonym of measurement (test scores)
3. Label for a process (rating teacher competency)
4. Appraisal of curricular practices and resources
5. Study of change--(pupil behavior)

Apparently these range along a scale or are continuous all the way from casual opinion to scientific measurement. The "application of values" concept appears to characterize the more elementary approaches while the "study of change" concept has many of the elements of meaning associated with the more sophisticated approaches to evaluation as we know it.

Tyler defines evaluation as "a process by which the values of an enterprise are ascertained." Certainly I cannot afford to disagree with such an authority, but for purposes of discussion I question whether "values are ascertained" or just "agreed upon," if ascertain means "to find out with certainty" as Webster defines it. My old friend and teacher, J. E. Greene, defines it as "process of securing value judgments concerning a condition or process." I like the identification of the action word "process" and especially the terminology "securing value judgments." I also used to like to hear him emphasize his belief that value judgments were based on a consideration of the best "evidences" available--whatever they might be. Some may be scientifically exact and some rather inexact but expressive.

It appears that in many efforts which are labeled as evaluation there seems to be considerable difficulty encountered in arriving at a systematic measurement of the characteristic studied. Many times a respected and experienced judge can assign a value which for all practical purposes has meaning and usefulness in affecting judgment. After all, improvement of the condition is the ultimate goal of all evaluation. For this and other reasons I like the definition, "the process of securing value judgments concerning a condition or process" even though I can claim no authorship rights. I do insist that such

judgments are based on the best evidences, and this evidence may vary from an opinion to exact scientific measures. Evaluation when considered as a process and not as a fixed point or value permits one to concentrate on procedure rather than becoming bogged down in the minutia of specific measurement. Vocational education leaders have always been too concerned with action to become concerned with laboratory detail--at times regretfully so. So I offer no apology for my wish now to discuss evaluation in terms of procedure.

Many, many so-called principles of evaluation have been advanced and debated over the years. Many have merit, but I shall not belabor you with the merits of more than the three which to me seem germane to this discussion. These are:

1. Effective evaluations are continuous and not of a specific moment only.

2. Effective evaluations are made in terms of specific goals or objectives.

3. Effective (complete) evaluations must involve the actual participation of the person(s) or organization(s) concerned in the process.

I should like to discuss these three briefly as I see them affecting our pilot program discussion.

Effective evaluations are continuous.

This is just another way of saying the evaluation process is concerned with measuring or making judgments regarding the change which has occurred from one point in time to another and not in identifying a static point. To know that at a given moment a youngster's weight is 122 pounds and his vision 20/40 is highly interesting, useful and usable information. We need more such exact measurement; but unless these measures can be associated with some process on condition they will remain just that--measures to serve as a basis for comparison with some norm, etc. Now, to know that six months ago before a diet and corrective lenses were prescribed, the youth weighed 98 pounds and his vision was 20/200 is to be in position to place a value judgment on the treatment he has undergone. To know that in 1960 the mean verbal CEEB score for an institution's entering freshman class was 425 while in 1965 it was 465 is to be in position to place a value judgment on the admissions program of that institution. Whether the change was the result of changes in the admissions program or in high school study programs or because of some other factor, is a suitable topic for careful research. But the process of determining that the change did occur is illustrative of the evaluative process while to determine course relationships is a research function.

If we hope to make worthwhile results available regarding pilot programs, we are going to have to establish bench marks at the beginning of the program against which to measure changes occurring during

operation of the program. With a beginning point and a terminal point established and sometimes with interval measures along the way, we can make judgments regarding the effectiveness of the program. Furthermore, if I use some sort of standardized measures, or at least clearly understood terms and procedures in my program and the report I write up on it, you can evaluate the same program in terms of your own situation. But if I tell you the average score on a certain aptitude test of a group of students' competency in my pilot program in welding instruction is 98 and fail to tell you that the average initial score at the beginning of the instructional period was 97, I probably have succeeded in completely misleading you regarding the effectiveness of the instruction. Knowing the initial and terminal scores and other factors being equal, you will merely dismiss the matter from further consideration.

My only reason for this emphasis of such a simple point stems from the number of requests I have heard from others for assistance in the evaluation of a program that is in its final stages of completion or worse--already completed. Plans for evaluation of a pilot program should begin when the program is being proposed and not when it is already under way and certainly not after it has been completed. Unfortunately, the preoccupation of vocational agriculture leaders with action quite often causes them to overlook the need for much spade-work with pilot programs long before the kickoff time.

Effective evaluation must be made in terms of specific goals or objectives.

It is always interesting to learn of serendipitous outcomes of any educational program, but if the outcome is entirely outside the projected area of service of the planned program, one who is interested only in the anticipated outcome does not assign a high judgment value to the program being evaluated on the basis of that particular measure. In other words, if a school spends thousands of dollars establishing a program to train typists, then responsible teachers want to know how well the graduates perform as typists. The fact the graduates are better telegraph operators than those lacking such experience is interesting information but sheds no light on the merits of the program in terms of its stated objective--to train typists.

This principle also is simple in terms of its face value. In reality, however, educators in general and vocational educators in particular, are often accused of extreme laxity when it comes to projecting clearly defined and realistically attainable goals or objectives. We like to deal in vague ambiguities such as training for "leadership" or "cultural appreciation," etc. Stating clearly that the program proposes to prepare students who can type 55 words a minute with no "strike-overs" sounds mercenary to some. But to the everlasting credit of the plodders among us who view educational objectives in such concrete terms, we must admit it is relatively simple for such educators to determine when they have accomplished what they set out to do. Even though they agree with their more vocal colleagues regarding the virtues of "love of God, mother and country," they are able to conceptualize the job before them in terms of specific goals to be sought and achieved. Like the

true politician they hopefully visualize an ideal, but they realistically seek the attainable.

In these pilot programs even before plans take preliminary shape we must agree upon the specific goals we seek, and if humanly possible, spell them out in terms which are subject to some type of measurement.

One side observation, at this point, could be that we in vocational education could well afford to solicit the counsel and assistance of our colleagues from other disciplines in establishing objectives for our pilot programs. Although we will probably insist on retaining a position of prominence for the attainment of competencies which have labor market value, they might lead us to see other reasonably attainable goals which would make our students even more productive and adaptable individuals in a complex society. Unquestionably some of our friends in the fields of tests and measurement or in programmed instruction could help us sharpen our own objectives in terms of suitability for measurement, etc., for evaluative purposes. If we persist in projecting vague generalities in lieu of clearly defined objectives, no one will be able to evaluate progress made toward their attainment. Unfortunately the old vocational agriculture objective of training farmers and prospective farmers for proficiency in farming came back to haunt many teachers who really were trying to train for non-farm agricultural occupations.

<u>Complete evaluation must involve the actual participation of the person or institution concerned in the process</u>.

Not all of us take kindly to this idea, either conscientiously or otherwise. Of course a completely disinterested third party can make value judgments regarding the attainment of some goals, but, on the other hand, if the student or teacher involved wishes to prejudice the observer's judgment one way or the other, he will usually be able to do so.

More important than this is the importance of those desirable changes which occur "inside" the student and which may not be readily discernable or objectively measurable. Such things as confidence in one's ability to perform at the level at which he has been taught, pride of accomplishment, feelings of resentment, regret or antagonism are important outcomes but evidence regarding them are not subject to quick and ready measurement. Evaluation is not a process of obscuring or glossing over outcomes but of collecting, identifying and measuring all sorts of evidence which will depict the attainment or lack of attainment of an objective.

Extreme caution should be exercised in collecting subjective evidences of progress from persons who are themselves involved in a pilot program, but such evidences are indeed important. After all, much useful evidence is inexact, but if it helps to fill out a true picture, it is needed. In the final analysis, the person who analyzes the evidence and makes the final interpretation of the worth of the pilot program

must assign relative weights or values to the various piece of evidence. It should be unnecessary to point out that the person who makes the final interpretation regarding the true meaning of all the evidence collected may be the person in charge of the pilot program, or it may be you or me, hundreds of miles away but trying to find leads to project a similar program with a reasonable chance for success.

With this background understanding as a frame of reference, perhaps we can proceed to the crux of the problem as it confronts most of this group as practitioners in the field. That crux is the procedure utilized in effective evaluation. Procedures utilized will determine the worth of the evaluative effort. Faulty procedures can only result in faulty evaluations. Assuming a good pilot program has been planned, the three major procedual steps in planning for the evaluation of that program must be:

1. Spelling out program goals or objectives

2. Collecting evidence concerning the process

3. Interpreting the evidences in terms of the objectives sought

If these steps are adequately taken, it should be possible to place a value on the process--in this instance the pilot program. I should like to discuss the steps in some detail.

Spelling out program goals or objectives.

I suspect the most difficult, if not the most critical, of the three steps will be the establishment of program objectives. I doubt if many of us have ever done this realistically with regard to the overall program of vocational education in agriculture. Some program innovations I have known about have merely been done for the sake of convenience, or to humor personal eccentricities. No one ever really took the time and the trouble to spell out just exactly what was proposed to be accomplished from an educational point of view. A few years ago I heard a teacher boast of the number of shipyard welders which he had turned out in his vocational agriculture mechanics program. He actually seemed offended when someone asked if the objective of his programs was to train shipyard welders. Although there is nothing whatsoever wrong in a boy's deciding to become a welder, the success of a program, which at that time was supposed to train farmers but which wound up training shipyard welders, must be questioned with regard to its effectiveness.

As important as the establishment of attainable objectives may be, the matter of stating these goals in terms which permit reasonable measures of accomplishment is equally important. To state that one's objective is to turn out students of "high moral standards" is to doom to failure from the beginning any effort to evaluate with any reasonable degree of objectivity the effectiveness of the program in terms of the accomplishment of stated objectives. To state that one is planning to

graduate skilled welders is a bit better. To state that one is planning to graduate skilled arc welders is somewhat more specific, but to plan to graduate skilled arc welders capable of performing at the minimum level acceptable for the apprentice program of the local trade association is not only to have a clearly defined objective but also an objective, the attainment of which may be readily measured.

I propose that if we are going to set up pilot programs in vocational agriculture to train off-farm agricultural workers we need to study much and confer long with employers and others with regard to the specific objectives (training competencies) which we are striving to accomplish. If the boy will be required to calculate feeding rations on his job we will want to state a clear cut objective: "the ability to calculate balanced feed ration for hogs, cattle and poultry." Even the student will know when this objective is reached. But if we want to make evaluation impossible let's set up the objectives to read, "advanced knowledge of livestock and poultry feeding practices." Let's strive for more clear cut specificity and less of the impressive double talk when we plan the objectives of our pilot programs.

While we are on this subject, I wish to call your attention to the repeated usage in the 1963 Vocational Education Act of the term, "training for gainful employment." I propose for your consideration the suggestion that most of the objectives of our pilot program should reflect those attainable levels of competency or degrees of mastery associated with entry level employment for a given occupation. We will do well to concern ourselves with the identification of those competencies which a prospective agri-business employee must possess if we are trying to plan a program to train such candidates for employment. Further, when we write up those objectives we should try to state them in terms and levels subject to measurement if we expect to be able to evaluate the outcome of the undertaking.

Securing evidence regarding the condition or process being studied.

This step is the most time demanding of all. Having established clear cut, measurable objectives, we must find or construct instruments or techniques for gathering evidence which depicts the degree at which the goal has been achieved. If the swimming coach sets as his objective that every student will be able to swim 50 yards backstroke in 35 seconds, then he must provide a 50-yard course, starters, and a timing device, along with a test schedule which will permit all students to measure their progress. At the end of the course, if 20 out of the 20 students reach the standard his objective has been achieved; if two fail his objective has not been achieved, but if only 10 reach the standard, his program has been even less successful with regard to that particular objective. Please note the qualification--with regard to that particular objective. He may have had other and more important goals which were reached but we would want measures or evidences regarding the progress toward the attainment of each specific objective. But in either instance he must have at his

disposal devices and procedures whereby evidence necessary to measure accomplishments or progress toward the achievement of the established goal may be gathered.

The type of evidence required or desired in a given situation will be dependent upon both the situation and the stated objective. It is needless to say that the effective application of evidence-gathering devices used is also dependent upon the competency of the evaluator or those assisting him. Sophisticated measuring devices in the hands of unskilled persons may not only be wasteful but actually potentially dangerous. Some types of evidence suitable for evaluative procedures are:

1. Observational data
2. Interview data
3. Anecdotal records, etc.
4. Data of quantity, quality
5. Objective test scores
6. Indexes of traits, characteristics, etc.
7. Rating scales
8. Historical records
9. Case studies
10. Progress charts

It will be necessary to report here that techniques appropriate to the kind of evidence sought will vary with the skill of the evaluator, the objective being measured and the total environment.

The matter of kinds of evidence to seek and the kinds of devices to utilize constitutes a very expansive and formidable area in which most of us in vocational agriculture would do well to try to obtain all the help available from our colleagues who are specializing in these fields of endeavor. The evaluation might be greatly improved if these people can be induced to help us, and in the end program improvement would be much more quickly realized.

Objective data or evidence has many advantages, but let us not dismiss too quickly the value of certain subjective evidence in evaluation programs. After all, subjective judgments are just as good as the person making the judgment. In some instances this is not only as good as you can obtain under the circumstances, but it may be just as good as you could use. The judgment of competent panels of juries can be used very, very effectively in evaluating pilot programs. This is especially true when the subjective judgments are interlaced with and corroborated by objective measurements. When subjective judgments are

considered to be desirable, every effort should be made to obtain unbiased judgments.

With regard to the use of questionnaires, interviews, rating scales, much has been written in the way of suggestions regarding procedures. While we are engaged in writing up budgets for the pilot program, we shouldn't overlook the possibility of adding a few dollars here and there for consultative services in order to get the assistance of trained assistants in these specialized areas.

Making a final judgment in light of all the evidence studied in an effort to determine the degree to which the objectives sought have been attained.

Of course this judgment is the finished product which the evaluator set out to find in the beginning--an answer to the initial question as to whether the program accomplished what it was designed to accomplish. This step involves analysis, interpretation, weighing of values and long and ardorous reflection. Statistical analysis to give meaning to the data may be necessary. The skillful evaluator will do everything necessary including the utilization of any assistance he can get in the critical task of relating the evidence found to the goals originally established. If the two previous steps in the procedure have been well done, the picture should begin to emerge--maybe not the picture hoped for, but nevertheless one which makes it possible for educators to accept or reject the pilot program as a directive of a new and better program.

May I review the principles discussed? They are:

1. Effective evaluations are continuous and not of the specific moment.

2. Effective evaluations are made in terms of specific goals or objectives.

3. Effective (complete) evaluations must involve the actual participation of the person or organization concerned in the process.

And the three procedural steps discussed are:

1. Spelling out program goals in objectives.

2. Collecting evidence concerning the process.

3. Interpreting the evidences in terms of the objectives sought.

And now just a word about the report of the evaluation. A report there must be if the evaluation effort is to contribute to the original aim--the improvement of the program itself. Pilot program leaders owe it to themselves, their associates, and the profession to record for future study the details of the program as planned and operated as well

as the findings of the evaluation effort. Whether the program proves to be highly successful or a dismal failure, a clear and unbiased account should be reported. It is the report which will assist other curriculum leaders who are struggling to improve programs of their own.

In reporting on pilot programs, educators are obligated to report as completely and accurately as possible all details of the program related to the setting and the established goals or objectives. The outcomes or evidences gathered by the evaluator should be reported in detail with any needed interpretations. It is not necessary for the report to deal with generalizations regarding the probability of similar outcomes being encountered in other situations. If the facts are clearly and succinctly reported, the task of relating them to other situations should and rightfully will fall on other shoulders. As someone has written, "so long as a doctor or a mechanic or a teacher deals with the diagnosis and treatment of a single case, they are acting as specialists, but when they begin to generalize with reference to the likelihood of obtaining similar responses in other situations they have projected themselves into the role of the researcher." I suspect most evaluators are more concerned with doing a good job at hand than in telling others what the solution is to their problems. On the other hand, if they leave a clear account of their labors and accomplishments, others may make valuable usage of them.

It occurs to me that I may have passed lightly over the obligations of a conscientious evaluator. He is obligated to at least form groups. They are:

1. The students involved in the program.

2. The local school and community.

3. The institution (state, region or nation) sponsoring the project.

4. The profession.

Perhaps I have dealt sufficiently with the latter two, but the first two merit consideration also. The immediate concern of the local school is to conduct the best program possible for its patrons. The major concern of the students enrolled in the program is to obtain an education. Let us hope none of us ever become so absorbed in the details of our evaluation assignment as to interfere with or detract in any way from the ongoing educational effort. After all, the welfare of the students is of primary concern to us all!

FACILITATING THE CHANGE PROCESS IN AGRICULTURAL EDUCATION

by
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It is perhaps ironical that at a time when social, economic and technological change is occurring at an unprecedented rate that so many groups, organizations, institutions, and agencies are concerned with facilitating change. However, the irony diminishes when we consider that change is itself a principal cause of change.(19, 22, 26, 29)*

Technological change in agriculture has resulted in substituting capital in the form of technology for labor. The result has been that many people have had to make adaptive changes by shifting from agriculture to employment in other sectors of the economy. These individual adaptive changes have resulted in outmigration from rural areas which in turn has caused schools, churches, businessmen and other rural community institutions to make adaptive changes. In each case the farm family, the school, and the community were making changes in response to other changes they had not initiated or were not responsible for. The change to which they responded had been initiated outside the community.

In the field of education Ross identifies 3 general kinds of forces (or changes) for change in educational institutions. These are: (1) changes in the social setting or environment in which the educational system functions, (2) the growing body of knowledge in most fields, and (3) the growing body of educational inventions.[1] In each case these are factors which are beyond the control of any individual school yet influence the decisions made in each school. Changes made in response to these forces are adaptive changes.

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*The numbers, as used here, refer to the works listed in the Bibliography at the end of the paper.

[1]Donald Ross, "Administration for Adaptability," Metropolitan School Study Council, (New York: Columbia University Teacher's College, 1958), pp. 7,8.

Adaptive change of the kind illustrated will be the principal focus of this paper since it is assumed that one of the reasons why leaders in agriculture education desire to facilitate change is to develop viable programs which take into account the changing social setting and the growing body of knowledge and educational inventions to effectively meet the changing needs of the agriculture education clientele. It will be the purpose of the paper to draw from diffusion research in Rural Sociology and from research on organizational change in Sociology and Education to develop some generalizations regarding implementation and facilitation of adaptive change in education. Before proceeding with an analysis of change in education, a few minutes will be devoted to outlining the adoption process which has been developed by Rural Sociologists. The purpose is to provide a framework for the discussion of educational change.

The observation that people differ in their rate of acceptance and adoption of new ideas and practices has been the subject of major research emphasis in Rural Sociology and related fields during the past two decades. (20, 32, 33, 38, 39) Most of this research has focused on farming practices beginning when the individual becomes aware of a new technique and terminating with his decision to either adopt or not adopt the practice. This process has been envisioned as involving five stages.(33, 38, 39) The process for the individual begins when he becomes <u>aware</u> of a new method, product or idea. Diffusion research has typically found that farmers become aware of new ideas or practices from mass media sources such as farm magazines or radio and TV shows.(7, 20, 23, 33, 38, 39) At this stage he is only aware of the innovation and lacks information and detail about it. If the innovation has some appeal to the individual, he may be sufficiently interested to seek further information about it. At this <u>interest</u> stage mass media are still important sources of information but the farmer may also seek information from agriculture agency personnel, from his friends or neighbors or from commercial sources such as dealers, salesmen, etc.(33, 39) If after obtaining some additional information the individual is still interested in the possible application of the innovation he will seek further information to <u>evaluate</u> the idea or practice in terms of his own situation. In this <u>evaluation</u> stage personal sources of information such as friends and neighbors who have had some experience with the practice or government agencies such as Extension or Vocational Agriculture who have research information concerning application are most frequently sought for information. (7, 20, 33, 39)

If on the basis of the information obtained in the first 3 stages the individual feels that the innovation is applicable and would be of some value to him, he may proceed to try the idea. The <u>trial</u> stage is characterized by small scale experimental use of the idea or practice. If the results of the trial are satisfactory to him he may then <u>adopt</u> the practice and use it on a continuing basis. Although there may actually be a greater or lesser number of stages involved in the individual adoption process it has been found that adopters or practices can

distinguish one of the above stages from another and can designate points in time when they went through each of the above stages.(33, 39)

Depending on the individual and the type of practice the above process may take as little as a few hours or as much as several years. In the case of such practices as hybrid seed corn and 2, 4-D the adoption period (from time of awareness to adoption) took as much as 10-15 years for some individuals.(32, 33) Ross (36) points out that the adoption period for some educational innovations may be as long as 50 years. This is a point to which we will return later in the paper.

The difference between individuals in terms of their time of adoption of certain practices has been used to categorize individuals into adopter categories. It has been found that the adoption pattern for most practices tends to follow a normal curve, with relatively few people adopting the practice initially but with the rate of adoption increasing at an accelerating rate until at least 50 per cent have adopted the practice.(20, 33, 39) This normal curve of adoption has been used as the basis for establishing adopter categories. The first 3 per cent (2 standard deviations above the mean) have been referred to as innovators; the next 13 per cent (from 1 to 2 standard deviations above the mean) as early adopters; the next 34 per cent (from 0 to 1 standard deviation above the mean) as early majority; the next 34 per cent (from 0 to 1 standard deviation below the mean) as late majority; and the last 16 per cent (more than 1 standard deviation below the mean) as laggards.(20, 32, 33, 39) This same kind of pattern has been observed among doctors in the adoption of new drugs (6) among schools and school administrators and teachers (25, 27, 28, 36), and for a wide variety of farm practices.(32, 33, 39)

The relative time required for a particular practice to go from inception to virtually complete adoption depends on several characteristics of the innovation. Generally those practices which are low in initial cost and are high in marginal returns will be adopted at a much faster rate than practices or innovations characterized by either high initial costs or relatively low marginal returns.(17, 33, 35, 39) Thus the relative economic advantage is a major factor affecting the rate and universality of adoption.

A second factor affecting rate of adoption is the relative complexity of the idea or innovation. Those ideas which are relatively easy to understand are adopted at a faster rate than those kinds of ideas or practices which are difficult to understand and/or involve a major change of enterprise. Kivlin (17) found complexity to be second only to relative economic advantage as a factor affecting rate of adoption of a large number of farm practices.

Another factor affecting rate of adoption is the visibility of results. Those practices for which the results may be easily observed (such as chemical weed spray) are adopted at a faster rate than practices where the results are less visible.(33)

The rate of adoption of a particular practice is also affected by the extent to which it is divisible. A product or idea which may be tried on a small scale, experimental basis before proceeding to full scale use is generally adopted faster.(33) A chemical weed spray can be used on a small scale basis whereas a bulk milk tank cannot.

The final factor to be considered is compatibility or congruence. That is the extent to which the idea or practice is consistent with, or related to, previously adopted practices. For example, Brandner and Kearl (3) found that adoption of hybrid sorghum proceeded at a much faster rate in a corn growing area of Kansas than in a non-corn growing area even though sorghum was more economically important in the non-corn area. Their conclusion was that the experience of corn growers with hybrid corn lead them to adopt other hybrids faster than those who had had no previous experience with hybrids.

In summary of their research, Brandner and Kearl raise an interesting question which seems to be apropos to the discussion of adoption of educational practices to be presented later in the paper. They question: "Would some of the rapid changes in agriculture in the recent years be explained by a hypothesis that 'willingness to accept innovations' has been evaluated and adopted? Is the general innovator perhaps the farmer who has considered and accepted the idea of using innovations and therefore accepts a wide variety of innovations as congruent with his general appraisal of innovation without feeling a need to study each one as skeptically as he otherwise might?"[2] To draw a comparison, the question may be raised at this point regarding the extent to which schools and educators have adopted a "willingness to accept innovations"?

As mentioned above, the rate of adoption of practices is affected not only by the characteristics of the practice but also by the characteristics of the individual and the social system into which the practice is introduced. Innovators have different characteristics than laggards.

As a generalization from all previous adoption, research innovators are younger, more highly educated, farm larger and more specialized operations, have more favorable attitudes toward science and the acceptance of risk, read more, travel more, attend more meetings and obtain information from more specialized sources than those who are later adopters.(20, 33, 38, 39) It has been found in several studies that innovators often obtain information about new practices directly from research personnel and specialists.(20, 33, 38, 39)

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[2]Lowell Brandner and Bryant Kearl, "Evaluation for Congruence as a Factor in Adoption Rate of Innovations," Rural Sociology, Vol. XXIX, 1964, p. 303.

Although innovators are characterized by high socioeconomic status, it has been found in several studies that innovators are not usually adoption or opinion leaders on new practices.(20, 23, 33) Rather is the early adopters (who are perceived as following more closely the norms of the locality) which are looked to most often by others as a source of information and legitimation on new practices.(16, 20, 33) For this reason once a particular practice has been adopted by early adopters there usually follows a rapid period of adoption by the early and late majority. Thus from the standpoint of change agents (persons promoting adoption of certain practices) effort expended with adoption leaders is one means of accelerating the rate of adoption for a particular practice or idea. In this way the change agent is able to indirectly affect others who look to adoption leaders for information and legitimation.

Regarding the effect of information in the adoption process some other generalizations from diffusion research which are relevant to this discussion include:

1. Impersonal sources of information are more important than personal sources for relatively earlier adopters of innovations than for later adopters.

2. Earlier adopters utilize information sources that are in closer contact with the origin of the idea than later adopters.

3. Personal influence from peers is more important for relatively later adopters.[3]

To reiterate the point made above, diffusion research indicates clearly that change agents are not only more accepted by adoption leaders but also can have a greater affect on adoption rate by concentrating their efforts on opinion leaders.

The primary purpose of the discussion thus far has been to set forth the framework which has been used to study the diffusion process of ideas and practices. With this framework as a background the following discussion will be focused on the change process in education and factors which retard and facilitate change. Additional research findings from diffusion studies will be presented where applicable to facilitating change in education.

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[3]Everett Rogers, Diffusion of Innovations, (New York: Free Press of Glencoe, 1962), pp. 313, 314.

A major difference between the adoption of new ideas in education and in farming is that in education the idea is adopted and applied in a formal organization where the practice affects not only the adopter, but also others in the organization as well as those served by the organization. Thus, the potential adopters of an educational innovation whether a teacher or administrator must take into account not only his own preferences but also the preferences and attitudes of other teachers, the students, the public and organizations which are ancillary to the educational structure.

Thus the decision to adopt or not adopt is not one which can be made by the individual without legitimation from all parts of the system in which he functions.

In American society great emphasis is placed on local control of schools. This means that the public through expression of opinion and through delegation of authority to members of the school board are in a position to influence and to loosely control the local school. This creates the circular process whereby the public controls the school but at the same time the school through education is attempting to change the public. The importance of the community as an influencing factor on schools has been emphasized in research by Mort and Cornell (28) and by Duncan and Kreitlow.(9) Mort and Cornell found that attitude of the community toward education was second only to expenditure per pupil as a factor related to quality of education and implementation of changes in education. Duncan and Kreitlow found that the attitude of heterogeneous communities was more receptive to educational change than the attitudes of homogeneous communities. Thus, the interaction between school and community is a structural element which affects change in education. This is a factor which can be ignored by the individual adopter but is difficult for the educational system to ignore. It is probable that the vocational agriculture teacher is especially sensitive to the feelings and attitudes of the public since he perhaps works more directly with a segment of the public than other teachers. This relationship is particularly important since he may be subjected to cross pressures from those who argue that vocational agriculture should be deemphasized and young people discouraged from farming as opposed to those who argue that the need is greater than ever.

Sloan Wayland (40) points out that the formal educational system represents only part of the educational structure. In addition there are ancillary structures which have an influence on the educational system. Included are such systems as PTA, NEA, FFA, and textbook publishers. Each of these groups and organizations although having a general interest in education also have some vested interest which may cause them to resist changes in education. Thus, these systems are also a part of the social setting in which educational systems function and thus may be enhancing or impeding factors in educational change.

A further comparison between adoption of a new idea or practice by a farm operator and adoption of an innovation in education reveals a lack of a formalized research and diffusion function for educational innovations. In education there is no direct equivalent to the Agriculture Experiment Station and Extension system to generate and recommend new educational practices. Most research on adoption of farm practices has been concerned with those practices which have been recommended (and thereby legitimized) by the Agriculture Experiment Stations. Although research in educational innovations is carried on, there is no comparable system for recommending and disseminating the research to potential adopters.(21)

Thus, the fact that schools are institutions which are interdependent with a community social system and which have no formalized structures for generating and communicating research on innovations has many implications for facilitating change. The remainder of the discussion will be devoted to these implications.

In discussing these implications some additional propositions about change may aid in guiding the analysis.

1. Innovation in education as in any system involves changes in the social organization of the system. Every system has norms to guide behavior in situations. A change in the system usually results in a change of these norms. Following from this proposition,

2. Innovation is deviation. By virtue of the fact that an innovation is a new way of performing some purpose it is different from existing methods and norms governing their application.

3. Adoption of a practice is a means to achieve some other end. Generally the innovation is considered by those who develop and recommend it to be a more efficient means of achieving the ends or objectives of the system. However, without a clear definition of the end or goal it is not possible to evaluate the relative effectiveness of means to be employed.

Thus an innovation in education may be considered as a deviation from existing methods which will have some effect on the social organization of the school system and which, if applied, will enable the system to more effectively accomplish it's objectives.

It is generally accepted that technological change has been beneficial to society. It has resulted in a higher standard of living, more leisure time, improved health, and increased life expectancy. Although many theories have been proposed to account for technological change it is generally agreed that for technology to be developed and adopted there must be some system of providing rewards to the innovator and adopter.(1) In our society these rewards are usually in the form of increased status, greater income, and more leisure time.

In farming, for example, the individual who adopts an innovation may expect to increase his profit or make a difficult job easier to perform. Regardless of the nature of the advantage the adopter bears the risk (of possible failure) but also receives the benefit. This advantage may be considered as a major incentive to adopt new practices. (35)

However, despite the advantages which accrue to the developer and adopter of new technology there are certain factors which cause resistance to change. As pointed out by La Piere: "Since the beginning of the industrial revolution those in almost every occupation - law and politics have been major exceptions - have experienced a more or less constant devaluation of their skills and knowledge as a consequence of technological change, of organizational changes within the occupation, or both."[4]

How do these factors encouraging innovation compare with those resisting the innovation function in education? In the educational system there are few, if any, rewards provided by the system to serve as an incentive to innovate.(22, 25) In fact the reward system in education may have the opposite effect since most salary scales are based on a combination of experience and amount of formal education. This procedure is not necessarily dysfunctional since it has been found that both these factors are positively related to quality of education in a school system.(28) However, going back to La Piere's comment concerning devaluation of skills and knowledge as a result of change in methods and technique, it can be observed that educational innovations tend to discount the value of experience and <u>previously</u> acquired knowledge. The hypothesis could be generated then that persons in education who have experience could be expected to resist changes which discount the value of experience. There is no question that craftsmen resist mass production and automation.

While there are few positive rewards for innovation in education neither are there many negative sanctions for failure to utilize new methods. In farming the individuals who have not adopted new techniques and practices have not remained in farming. It is doubtful if there is (or should be) any equivalent penalty for the laggard or non-adopter in education. However, this factor does have implications for the acceptance or rejection of innovations.

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[4]Richard T. La Piere, <u>Social Change</u> (New York: McGraw-Hill Book Co., 1965), p. 194.

In addition to sanctions (positive and negative) provided directly by the educational system the ancillary structures and the community also play a part in establishing the norms of teacher role performance. As cited previously research has indicated that the attitudes and characteristics of the community are significant factors in educational change and innovation.(9, 25, 28, 36) In their study of Pennsylvania schools Mort and Cornell (28) asked teachers their opinions concerning the rules for success of a teacher in their community. In order of the number of times mentioned the responses were: (1) good teaching (2) understanding of students (3) active in community affairs (4) cooperativeness (5) character and personality and (6) morality. All these factors indicate a consciousness of community norms as a factor in the success of the teacher. Among the factors mentioned least often by the teachers were factors related to innovation such as initiative, personal adaptability, energy and vision.

The important consideration from the standpoint of change is that the teacher's and the school administrator's perception of the community's possible reaction to change may cause reluctance to innovate. The term perception is used because there is generally a lack of formalized mechanisms to objectively evaluate public reaction prior to making a change. Lacking this information a school administrator or teacher may be reluctant to make changes because they feel the community would react negatively. Whether the reaction would be negative or not is somewhat irrelevant if the teacher or administrator believes it would be. As stated by I. I. Thomas: "If men define situations as real, they are real in their consequences."[5]

In diffusion research one of the factors which has been found to affect the rate of adoption of new ideas and innovations is communication with, and influence of peers. As mentioned previously, once adoption leaders have adopted a new idea the rate of adoption tends to increase at an accelerating rate. Farmers are in close association with each other and are in a position to observe the practices being followed by other farmers. However, especially in vocational agriculture the teacher is specialized with no direct equivalents at the local level. Thus the lack of opportunity for day to day interaction with peers eliminates an important means of communication about innovations. Mort (27) suggests that lack of communication, either with change agents or peers, is an important factor retarding the adoption of innovations in education.

In addition to merely conveying information about innovations personal communication is also effective in reinforcing the decision of an individual. It has been found in social-psychological and diffusion research that personal influence is more important in uncertain situations (such as uncertainty about reaction of administration or public) than in clear-cut situations.(33) As suggested by Lionberger, "..reinforcement

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[5]Robert Merton, Social Theory and Social Structure (Glencoe, Illinois: The Free Press, 1959), p. 421.

of an adoption decision may be necessary for continued use of an idea or practice particularly if local support of colleagues and important reference groups is not forthcoming. In a highly change-oriented society this may not constitute a problem because peer group support is readily accorded as for successful use of innovations in farming. This may be less true in educational innovation than in agricultural development."[6]

The sources utilized by teachers for information on new ideas in education were reported in the results of a study by Mort and Cornell.[7] In order of the number of times mentioned by the teachers the sources of information were: (1) professional literature (2) teaching experience (3) observation of other schools in the system (4) college or university (5) study of pupil needs and interests (6) contact with other teachers in system (7) summer school (8) general literature (9) conventions, conferences, etc., and (10) original ideas. As may be noted peer group influence (6) apparently is much less important among teachers than has been found among farmers.

As discussed in relation to the adoption of farm practices the characteristics of the practice also affect the communicability and rate of adoption of a practice. Many of the innovations in agriculture have been material innovations which can be purchased and thus readily adopted. It has been found in diffusion research that material changes are adopted at a more rapid rate than non-material.(33) The idea that material change occurs more rapidly than non-material is a basic proposition of Ogburn's well-known theory of cultural lag.(29) It is Ogburn's thesis that adoption of technological change "causes" or forces adaptive change in social institutions.

In education many or most of the innovations involve non-material changes. Such changes are not only more difficult to communicate but also require a change in behavior of the adopter. In addition the results of application of non-material changes are usually less visible and consequently more difficult to evaluate. Adoption of a chemical weed spray,for example,is a relatively simple adoption process which can be easily evaluated. This type of practice can be compared with adoption of overhead projectors for classroom use. In both cases they are simply an easier, more effective way of doing the same job. Their use involves no basic change in behavior.

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[6]Herbert F. Lionberger, "The Diffusion of Innovations with Applications from Agricultural Research to Implemented Change in School Systems." Paper presented at the Association for Supervision and Curriculum Development Seminar on Strategy for Curriculum Change at New Orleans, Louisiana. January, 1965, p. 25.

[7]Paul Mort and Francis G. Cornell, American Schools in Transition. (New York: Bureau of Publications, Teacher's College, Columbia, 194. , p. 264.

However, most educational innovations are more complex which adds to the difficulty of diffusing, understanding and properly utilizing the innovation. It was mentioned earlier that Kivlin found that the relative complexity of the practice was second only to relative economic advantage as a factor determining rate of adoption of practices.(17)

Thus the fact that educational innovations are more complex and are primarily ideas rather than objects is a factor which undoubtedly retards the rate of adoption.

In addition to diffusion research, studies of organizational change have identified many factors which may cause resistance to change.(5, 41) These studies have been primarily of employee reaction to changes adopted by the employer. In summary of the findings it can be generalized that there is least resistance to organizational change when the persons affected have been involved in making the change.(5, 41)

In both Zander's study and in a similar one by Coch and French it was found that when the reason for the change, the purpose to be accomplished and how the change was to be implemented were discussed with employees prior to initiation that the changes were accepted with little or no resistance. By involving the employees in this fashion they had the feeling that they had had a voice in making the change decisions. As pointed out by Zander, "Resistance can be expected if the nature of the change is not made clear to the people who will be influenced."[8]

This raises the question about the process of legitimation for educational changes. As indicated earlier the nature of the relationship between public and school means that certain segments of the public are also influenced by educational changes. Based on the above generalization of Zander this suggests that in education certain relevant sectors of the public may need to be consulted and informed prior to making a change. This would reduce the possibility of public resistance to it. Of course the need for such public legitimation would depend on the magnitude of the change.

Zander also concludes that "Resistance can be expected when those influenced are caught in a jam between strong forces pushing them to make change and strong forces deterring them against making change."[9] This generalization seems to be particularly applicable to agriculture education. As suggested earlier there may be cross pressures on the vocational agriculture teacher as a result of the changes taking place in agriculture. As a result, rather than stimulating change these cross-pressures may result in a resistance to change.

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[8]Alvin Zander, "Resistance to Change: Its Analysis and Prevention." (Advanced Management, Vols, XV, XVI, January, 1950), p. 11.

[9]Ibid.

A previous proposition stated in the paper was that adoption of an innovation is a means to achieve an objective. From the standpoint of facilitating adoption of innovations it is important to first define the problem or the objective to be accomplished.(36) With agreement on the objective, agreement on the means to be employed and the function of innovations can be facilitated. Resistance to a change may result simply from a difference in understanding of the objectives to be accomplished.

To this point major emphasis in the paper has been devoted to a discussion of factors which may retard acceptance of change in education. The logic for this approach is that facilitating change must begin by first identifying factors causing resistance and then subsequently overcoming these resistances.

Therefore following from the preceding discussion several generalizations can be derived which pertain to implementing or facilitating change in education.

In discussing the framework employed in research on diffusion of farm practices it was pointed out that the rate of adoption of farm practices tends to follow a normal curve and that the rate of adoption increases at an increasing rate after the practice has been adopted by adoption or opinion leaders. To the change agent this finding would seem to suggest a number of important considerations:

1. In the adoption process greatest effort by the change agent is required initially. Once the adoption process has begun the two-step flow of information helps to perpetuate the process <u>if</u> potential adopters are in communication.

2. The rate of adoption may be facilitated if initial effort by the change agent is concentrated on adoption or opinion leaders. Not only do adoption leaders influence others to adopt but they are more easily reached by change agents.

3. Who are opinion leaders within the system? It is obvious that the change agent cannot focus his efforts on opinion leaders unless he knows who they are.

The nature of the educational system however modifies these considerations to a degree. Opinion leadership and the influence of opinion leaders is dependent upon interpersonal communication. As emphasized earlier, teachers do not have the opportunity to communicate with teachers in other systems as farmers communicate with their neighbors. This implies that before interpersonal communication can be relied on as a means of disseminating information about educational innovations that some enabling mechanism may need to be provided.

Interpersonal communication is important not only as a means of disseminating information but also in reinforcing adoption decisions. Initial adoption of an innovation by an innovator may be deviant behavior, however, adoption of the practice by adoption leaders serves to legitimize the innovation and make it normative. Thus for others who follow in the adoption process, adoption is not considered a deviation but as following an accepted practice.

These considerations lead to the specific suggestion that the adoption of innovations in education could be facilitated by providing opportunities for interpersonal communication (other than annual conferences) between teachers from different systems and even within the same system oriented toward the discussing of new ideas and practices and their application in achieving system goals.

Such meetings would also provide the opportunity to teach a consensus on the objectives of a particular program such as vocational agriculture and thereby emphasize the need for adaptive change to accomplish these objectives.

Some changes in education can be adopted by a teacher on his own whereas other changes may require the decision of the administrator or school board or a higher authority. Although the implication is obvious, the change agent should determine initially who has the authority to make the adoption decision. In this regard, Wayland makes the point that, "Successful innovations are more likely to be achieved when initiated by administrative officials, not only because of the power of their office, but also because they are in a position to handle the system problems inevitably associated with innovation in an ongoing system."[10] Miles also suggests that "...successful innovation at the local school level is likely to require work with the entire organization as such rather than solely with individual teachers."[11]

The need for legitimation of educational innovations in order to facilitate their adoption touches on many of the factors discussed in the paper. It was pointed out that in agriculture the Agricultural Experiment Stations not only generate innovations in farming but also perform a legitimation function by recommending the practice. To illustrate this legitimation function of the Ag. Experiment Stations nearly 50 per cent of a sample of Iowa farmers agreed with the following statement, "I feel the research information put out by agricultural colleges is just as good to go on as if I had tried it on my own farm." (14) It was emphasized earlier that even though research on educational innovations is being performed there is no system comparable to the

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[10] Sloan Wayland, "Structural Features of American Education as Basic Factors in Innovation." Matthew Miles, Editor. (New York: Columbia University Teacher's College, 1964), p. 612.

[11] Matthew B. Miles, Innovation in Education. (New York: Bureau of Publications, Teachers College, Columbia University, 1964), p. 647.

Ag. Experiment Stations and Extension to recommend, legitimize and disseminate the information. Since such legitimation from knowledgeable sources has been found to positively affect the rate of adoption of farm practices (33) it suggests that a similar function could positively influence the adoption of educational practices.

Since education is a public institution, the public also becomes an important consideration in the legitimation of educational changes. It was pointed out previously that public reaction to an educational change is probably an uncertainty to the teacher or administrator contemplating change. This uncertainty probably stems from the fact that there are few formalized mechanisms for gauging reactions prior to making a change unless, of course, the change is one which involves the public directly such as a bond issue, or school reorganization.

Since the possibility of negative public reaction may be a factor causing reluctance to change, it is suggested that vocational agriculture teachers could be encouraged to legitimize contemplated changes in their programs with key agricultural leaders in the community. By utilizing key leaders in this way the teacher could gain their support and add to his confidence in making a change. Such legitimation, of course, would be necessary or important only for major changes in the program.

In addition to legitimation with the vocational agriculture clientele it goes without saying that legitimation with administrators and fellow teachers is also important to insure their support of the proposed change.

There are several other implications of adoption research in agriculture and education which suggest considerations for educational change agents.

Just as in farming not all innovations apply to all school systems. The type of enterprise, the size of the operation and the ability of the farm operator are some of the factors which determine whether or not a particular practice is applicable for a particular farm or not. Knowing this, the effective agricultural change agent concentrates his efforts on those who are potential adopters. In education the size of the school, the type of physical facilities, the education and background of the teacher and the type of community are all factors which determine whether an innovation is applicable. The educational change agent in developing a strategy for change would need to determine the potential adopters of the innovation and concentrate his efforts on these.

Adoption research has also found that different kinds of information sources performing different functions are employed at varying stages of the adoption process. To the change agent this finding suggests the need to develop a plan for change which incorporates a number of means of communication, each planned to provide the type of information required at each state of the adoption process. These means of communication should also be selected on the basis of access to the individual or group who makes the adoption decision.

The communication strategy developed to facilitate the adoption of innovations needs also to take into account the characteristics of the practice. It was pointed out previously that many educational innovations are complex and require major changes in the behavior of the adopter and in the system in which it is adopted. This suggests the importance of intensive and personal communication as a part of the strategy for change. The potential adopter not only needs to be influenced to try the practice but may require training to effectively use the innovation. If the idea is accepted but implementation is unsuccessful this can retard the adoption of the practice by other systems. Thus the strategy for change may need to incorporate plans for training on application of the innovation to ensure its successful adoption.

The final consideration to be mentioned concerns the overall change orientation of both change agents and target systems. A previous quote included in this paper raised the question: "Would some of the rapid changes in agriculture in recent years be explained by a hypothesis that 'willingness to accept innovations' has been evaluated and adopted? Is the general innovator perhaps the farmer who has considered and accepted the idea of using innovations and therefore accepts a wide variety of innovations as congruent with his general appraisal of innovation without feeling a need to study each one as skeptically as he otherwise might."[12] The implication of this question is emphasized by Rogers who suggests that, "change agents should be more concerned with improving clients competence in evaluating new ideas and less with simply promoting innovations per se."[13] As suggested above not all innovations are applicable to all educational systems. However, educational systems do have in common the need for adaptive changes to keep pace with societal and community changes. Thus the consideration is offered that change agents may be more effective in the long run by developing on the part of the target system a recognition not only of the importance of a particular change but of the need for continual evaluation and change to keep abreast of societal changes.

In conclusion the key points emphasized in this paper lead to the generalization that change in educational systems can be expedited by first identifying the probable sources of resistance to change. Once these have been identified a strategy can be directed toward overcoming these resistances. The factors discussed in the paper as considerations for the educational change agent can perhaps be summarized by the suggestion that education rather than promotion per se may be the most effective means of facilitating change in educational systems.

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[12] Brandner, loc. cit.

[13] Rogers, op. cit., p. 280.

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FACTORS AFFECTING THE ADOPTION OF EDUCATIONAL INNOVATIONS BY TEACHERS OF VOCATIONAL AGRICULTURE WITH ATTENDANT IMPLICATIONS FOR FACILITATING CHANGE

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Dr. Hobbs has focused our attention in this seminar on ways in which the change process in agricultural education may be speeded up. He has succinctly summarized the results of research efforts in other disciplines, has drawn together, and has tied them to research completed in education. He has raised questions about "legitimatizing" educational changes, about the different problems encountered in facilitating changes involving institutions and those involving individuals, and has pointed out that most attention in education has been directed to creating changes in the school system rather than to the individual within that system.

For the next few minutes, let us focus attention on factors affecting the adoption of educational innovations by individual teachers of vocational agriculture as revealed by one study conducted in Ohio. Then, too, it would be appropriate to highlight some of the implications arising from this study for programs of supervision and teacher-education in agricultural education. This particular study was conducted to determine the relative influence exerted by different sources affecting the adoption of specific educational innovations among experienced teachers of vocational agriculture in Ohio who had been identified as being members of specific innovation-adopter categories. It involved 101 teachers representing 39 per cent of the vo-ag teachers in Ohio who had taught at least three years. Persons who had taught at least three years were selected to ensure that those studied would have had an opportunity to be influenced by and to utilize sources of educational innovations other than those inherent primarily in the pre-service program of teacher education. These teachers had taught 15.7 years on the average and were teaching in districts representative of agricultural, educational, and socioeconomic conditions within the state. Five practices were studied in detail based on the following criteria:

1. The practice was one which could be conducted by the teacher rather than by the institution.

2. The practice was one which could be adopted or rejected without having to consider administrative approval, major budgetary limitations, community sanction, class schedule or work schedule changes, or school board policy.

3. The teacher was free to adopt or reject the practice himself.

The practices selected pertained to the professional aspects of the teacher's work involving educational innovations. They did not apply to agricultural or subject-matter innovations.

Teacher-innovativeness was measured by means of an adoption scale made up of individual innovativeness scores derived from twenty-seven innovations involving two factors, namely, the length of time it took a teacher to adopt an innovation and the number of innovations adopted that could have been adopted. The total rankings of the individuals on the basis of their innovativeness scores were then arrayed and classified into the five commonly accepted adopter categories of innovator, early adopter, early majority, late majority, and laggard on the basis of the two parameters of the normal distribution, namely, the mean and the standard deviation as explained by Dr. Hobbs earlier today. The method used to determine innovativeness avoided the inadvertent interjection of subjection bias that might have arisen if outside judges had ranked teachers on the degree of innovativeness that they possessed.

As another phase of the study, a two-way, forced-choice comparison-of-pairs instrument was used to determine whether or not supervisors in each supervisory district could identify innovativeness among teachers of vocational agriculture. Teacher were also asked sociometric questions to determine if different degrees of innovativeness were perceived among teachers by their peers.

Before examining those factors affecting the adoption of educational innovations by these Ohio teachers, let us examine some of the general characteristics of teachers in each of the adopter categories enumerated by Dr. Hobbs. In other words, let us dissect this teacher-specimen in-so-far as innovativeness is concerned.

1. The more innovative the experienced teacher was, the greater the amount of education he was likely to have obtained in a formal credit program since his initial certification. Innovators had earned 44.7 quarter hours of credit whereas laggards had earned 18.3 quarter hours. The other three categories decreased progressively in terms of credit earned, being less than the innovators and more than the laggards. The innovators also had earned 3.7 times more quarter hours of college credit than had the laggards for each year of teaching experience accumulated.

2. The more innovative the experienced teacher was, the greater the amount of money he was likely to have invested in professional growth.

3. The more innovative the experience teacher was, the greater the number of professional visits to departments of instruction other than vocational agriculture he was likely to make on his own initiative.

4. It was also true that the more innovative the experienced teacher was, the greater the number of purposeful visits to other departments of vocational agriculture he was likely to make on his own initiative.

5. The more innovative the experienced teacher was, the greater the number of non-local professional meetings he was likely to attend. This was true both for meetings attended within the state outside the country

in which the teacher taught and for meetings attended outside the state. The innovators, of all the adopter categories, were the most cosmopolite in meetings attended.

6. The more innovative the experienced teacher was, the greater the degree of opinion leadership which he was likely to hold. This was true both for elective offices held by teachers within the three years prior to the collection of the data and nominations made by fellow teachers as to whom they would go for advice before using a new educational practice and from whom they would be willing to "borrow" a new teaching practice on the strength of the fact that they had observed a teacher using the practice. It was also found that all of the early adopters in the study were named by fellow teachers as being persons from whom they would "borrow" a new practice being used or to whom they would go for advice concerning new educational practices. This was not true of the other categories and bears out previous research that the early adopters are the greatest opinion leaders.

7. The more innovative the experience teacher was, the fewer the number of years of total teaching experience and the fewer the numbers of years of teaching experience in the present school system the teacher was likely to possess. These findings were found to progress directly from the most innovative to the least innovative, but the differences among the different adopter categories were not significant at the .05 level. Innovators had taught 12 years on the average, those in the majority 15.5 years, and laggards 18.4 years. Innovators had taught 8.7 years in the present school system, those in the majority about 10.6 years, and laggards 14.8 years.

8. The more innovative the experienced teacher was, the younger he was likely to be. The mean age of each of the adopter categories increased progressively from the innovator through laggard categories. However, significant differences among the five adopter categories did not exist. The range for all categories was only 5.0 years.

9. Laggards difinitely read fewer professional publications regularly than did the other adopter categories. However, the differences among the other four categories were minor and statistically significant differences among all five categories did not exist. Only 38 per cent of the teacher in the population sampled read their professional journal, The Agricultural Education Magazine, regularly.

10. The more innovative the experienced teacher was, the more likely he was to adopt a complex innovation, such as color dynamics, which had not been actively promoted by state staff personnel. Along this same line, the most commonly cited reason for adopting the five practices investigated was that it was implied by state staff

personnel that this was the thing to do. The second most common reason was that the teacher had observed it being done somewhere else and thought that it was worth doing. Significant differences among adopter categories did not exist at the .05 level when the Chi-square test was applied to the reasons given for adopting the practices investigated. Not being convinced of the value of a practice was the most common reason given for not adopting a particular practice. Again, differences did not exist among categories in this respect.

11. Significant differences among adopter categories did not exist in respect to the length of time from awareness to adoption of the five practices studied. It was true, however, that the more innovative the individual was, the shorter was the period of time lag between awareness and adoption generally speaking.

12. As would be expected, the mean number of innovations adopted by teachers decreased progressively from the most innovative to the least innovative adopter category. However, the differences among the adopter categories in this regard were not statistically significant at the .05 level. The innovators, on the one hand, adopted 23.0 innovations; the laggards had a mean adoption rate of only 10.7 innovations.

13. The more innovative the experienced teacher, the more likely he was to have classes for out-of-school youth and adults in operation. This finding was statistically significant at the .05 level.

14. The more innovative the experienced teacher was, the greater the use he was likely to make of impersonal sources of information.

15. The more innovative the experienced teacher was, the greater the use he was likely to make of sources outside of agricultural education.

16. Significant differences among adopter categories did not exist in regard to the use of non-local sources of information.

17. The more innovative the experienced teacher was, the greater the use he was likely to make of sources of information requiring large personal investments in time and money. The exception, though, was the innovator. He tended to be a "tightwad" in terms of spending his own money to make use of available sources of information.

18. Members of the early majority category spent more personal money on materials for their own instructional programs than did members of the other categories. The laggards spent the least, followed by the innovators, late majority, and early adopters in that order.

19. The level of instruction expenditure per pupil in a school district did not furnish a clue as to where one could expect to find the more innovative or less innovative individuals. No appreciable differences among adopter categories existed.

20. Teachers in all adopter categories possessed little occupational experience outside the teaching field. Differences among adopter categories did not exist which were significant. The mean number of years of experience outside the teaching field for all categories was 1.6 years.

Let us now examine some of the forces and factors affecting the adoption of educational innovations by teachers. For example, it was found that:

1. The different sources providing information influencing the adoption of the five educational innovations studied varied according to the adopter categories to which the teachers belonged but did not reach the .05 level of significance. In analyzing the use of the different sources, a definite progression in frequency of use by adopter categories was revealed in eleven of the twenty-eight sources used. They were as follows:

   a. The more innovative the experienced teacher was, the more likely he was to use university staff members in agricultural education as sources of information.

   b. The more innovative the experienced teacher was, the more likely he was to use university staff members, other than those in agricultural education or education, as sources of information.

   c. The more innovative the experienced teacher was, the less likely he was to use state staff supervisors in agricultural education as sources of information.

   d. The more innovative the experienced teacher was, the more likely he was to use original ideas.

   e. The more innovative the experienced teacher was, the more likely he was to use graduate level courses as sources of information. Not a single laggard reported that a graduate level course furnished information for any stage of adoption of any of the five practices investigated. However, it was not determined if the laggards had been enrolled in courses that would have provided information about the five practices studied.

   f. The more innovative the experienced teacher was, the more likely he was to use publications in professional education as sources of information.

g. The more innovative the experienced teacher was, the more likely he was to use local research as a source of information.

h. The more innovative the experienced teacher was, the more likely he was to use teachers in the local school system, other than teachers of vocational agriculture, as sources of information. The only exception was that of the innovators; none of them reported using this source.

i. The more innovative the experienced teacher was, the less likely he was to use the annual conference for teachers of vocational agriculture as a source of information.

j. The more innovative the experienced teacher was, the more likely he was to use cooperating teachers he had known or with whom he had worked as sources of information. The more innovative 50 per cent of the teachers used this source four times more often than did the least innovative 50 per cent.

k. The more innovative the experienced teacher was, the more likely he was to use local farmers as sources of information.

Other findings concerning the use of different sources which influenced the adoption of innovations revealed that:

a. Popular publications such as magazines and newspapers were used by members of the late majority as sources of information than by any other category.

b. With the exception of the laggard, the less innovative the teacher was, the more likely he was to use non-credit workshops, including district meetings, as sources of information. Members of the late majority used such sources 2.6 times more frequently than did the laggards.

c. With the exception of the innovator, the more innovative the teacher was, the less likely he was to use other teachers of vocational agriculture as sources of information. The innovator, though, used teachers other than vo-ag teachers twice as often as did the early adopters.

d. Experienced teachers in the two majority categories used administrators or supervisors in the local school system as sources of information twice as much as did the other three categories.

e. Teachers in the early majority used in-service workshops or clinics in the local school system as sources of information more than did the two adjacent categories. Neither innovators nor laggards reported using this source.

2. Experienced teachers of vocational agriculture are influenced by different sources at the awareness stage, the interest stage, and the adoption stage in the innovation-adoption process. Sources of information which were more important in making teachers aware of new practices than in providing additional information or influencing teachers to adopt the practices were:

   a. Teachers in the local school system, other than vocational-agriculture teachers

   b. Cooperating teachers known by the teacher

   c. Local sales, business, and service people

   d. Visits to other departments of vocational agriculture

   e. Popular publications such as magazines and newspapers

   f. Graduate level courses

   g. Annual conference of teachers of vocational agriculture

   h. University staff members in agricultural education

   i. University staff members other than in education or agricultural education

   j. Undergraduate courses

   k. Childhood teachers

   Those sources which were of most importance in providing additional information or interest in a given practice were administrators or supervisors in the local school system, local farmers, published results of educational research, commercial publications and advertisements, non-credit workshops for teachers of vocational agriculture, including district meetings, other teachers of vocational agriculture, and state staff supervisors in agricultural education.

   Those sources of information which were most influential in causing teachers to adopt educational innovations were local research, publications in professional education, and in-service workshops or clinics in the local school system.

3. Eight of the nine most frequently used sources of information as reported by teachers were directly associated with the field of agricultural education. These sources made up 76.5 per cent of all sources of information used. In descending order of frequency of use, the

sources were state staff supervisors in agricultural education, department of agricultural education staff members, annual vocational agricultural teachers' conference, other teachers of vocational agriculture, non-credit workshops for vocational agricultural teachers including district meetings, visits to other vocational agricultural departments, graduate level courses, and cooperating teachers. The one source of information not directly associated with agricultural education, but ranked fifth in importance, was that of administrators or supervisors in the local school system.

All nine of these sources just mentioned were used by members of all adopter categories. In addition, four other sources of information were used by members of all adopter categories. They were commercial publications and advertisements, university staff members other than those in education or agricultural education, local farmers, and local research. It was interesting to note that commercial publications and advertisements were used almost twice as often as publications in professional education for sources of information.

4. Something else was found when considering age and opinion leadership among the teachers investigated. Two structures were found to exist. A small group of thirteen younger teachers in the total sample of 101 existed who did not consider as opinion leaders those persons so considered by the majority of the teachers. Instead, those persons were considered more cautious or conservative and these thirteen "young Turks" with an average age of 30 years went to peers their own age for advice.

5. Another factor affecting the adoption of educational innovations by teachers was that those who entered the teaching profession after a practice was no longer being actively promoted and made highly visible by several different sources of information or influences simultaneously were less likely to adopt that particular practice.

6. Then, too, it was found that the more innovative the teachers were, the more likely they were to recognize that they were more innovative than their peers. Coupled with this, it was interesting to note that 2.3 times more early adopters than the next highest categories perceived themselves as actively attempting to convince others about new practices in agricultural education. In running this self-perception role down, it was found that 72 per cent of the early adopters told other teachers about a new practice. The question is thus raised, is a person's self-perception of his role a factor which affects the adoption of innovations?

From the material which has been presented thus far, what implications exist for programs of teacher-education and supervision? In the speaker's judgment, the following implications are worthy of consideration.

1. If experienced teachers are influenced by different sources at the awareness stage, the interest stage, and the adoption stage in the innovation-adoption process, state staff personnel cannot afford the luxury of

depending on one or two sources to lead to the adoption of desirable innovations. By identifying all important sources, state staff members can utilize those sources extensively at the time and in the order in which their use will result in the greatest effectiveness and provide the greatest impact in influencing teachers to use new educational innovations. Also, an implication exists that systematic planning needs to be carried out to use these sources most efficiently. Then too, the implication exists that securing change must be considered a continual process involving multiple sources of information and influence.

2. Since the more innovative teachers are likely to use impersonal sources of information, the development of more bulletins, instructional aids, teaching hints, and similar sources of information will be of value in speeding up the adoption process involving the more innovative individuals. A converse implication is that personal contacts cannot be forsaken when working with the less innovative individuals in the late majority and laggard categories.

3. Since the more innovative teacher is likely to make greater use of sources outside of agricultural eduation, persons in the position to do so--school administrators, supervisors, teacher-educators--should provide an opportunity for the more innovative teachers, especially those in the early adopter category, to use and take advantage of such sources. Making it easy for teachers to use such outside sources would facilitate learning about new practices which possibly might be applicable to the school or classroom setting. Since the majority of teachers do not use outside sources, it is important that this means of injecting and diffusing new ideas obtained from outside the profession through the more innovative teachers be kept open. Those in the majority and laggard categories will follow the lead and actions of the more innovative teachers.

   However, because most teachers tend to use overwhelmingly large sources of information within their own field, such sources can serve as the vehicle of change in the change process. Another implication present is that personnel of the joint state staff can concentrate their efforts on purposive change within the framework of agricultural education.

4. The question is not answered whether a person is more innovative because he has more postgraduate education or seeks more education because he is more innovative. But the implication exists that since a correlation exists between the two, a permissive climate should be fostered by school administrators and state staff personnel which encourages teachers to continue their education without placing hurdles in their path. An example of such a hurdle might be a requirement that teachers on twelve month contracts could absent themselves from their job only once in three years for purposes of securing additional education.

Another implication exists that finding out how much education teachers have obtained in a formal, postgraduate program of education will provide some hint as to how the more innovative individuals or the less innovative individuals may be identified. Thus the amount of postgraduate education possessed can serve as a general characteristic of innovativeness.

5. It will be remembered that the more innovative teacher is likely to visit more vocational agriculture departments, other departments of instruction, and attend a greater number of non-local professional meetings than the less innovative teacher. It is readily apparent that the more innovative person does actively expose himself to or seek out those sources of information which are removed from the realm of the day-to-day aspects of his job. Consequently, he is likely to make his teaching more lively and vital. Therefore, an implication exists that it would be wise for school boards and school administrators to establish policies permitting and encouraging short-term professional improvement activities. As an example, school policies might permit such an activity as providing a paid substitute to free a person for a day to observe how a teacher in another school is conducting a specific program.

6. If it can be substantiated by further research that the more innovative teacher is likely to be a younger teacher, the implication is present that if state staff personnel wish to seek out new ways of doing things that are being used in the field, they could consider finding out what the "better" younger teachers are doing.

7. If it can be substantiated by further research that the more innovative teacher is likely to be one with fewer years of total teaching experience than the average, an implication exists that state staff personnel need to give more responsibilities and opportunities for roles in leadership development to the younger teachers, especially those in the early adopter category. For example, some of these teachers could be involved as "demonstrators" at conferences and in the field. Another implication which is present is that, if substantiated by further research, increasing teachers' salaries solely according to length of tenure may not most equitable. Then too, years of teaching experience might be another characteristic which may be useful in identifying innovativeness.

8. It will be recalled that the various sources which provide information that influences the adoption of educational innovations used by teachers tended to vary according to the adopter categories to which those teachers belonged even though the .05 level of significance was not attained. If substantiated by further research, an implication exists that state staff personnel need to determine purposefully the degree of innovativeness held by teachers. This needs to be done in order for state staff members to utilize those sources which can be most effective in bringing about change on the part of teachers in in various adopter categories.

9. It was shown that district supervisors can distinguish the relative degree of innovativeness possessed by teachers provided that they thoroughly understand the concept of innovativeness and its part in the change process and that they are well acquainted with the activities of the teachers within their respective districts. Since this is so, district supervisors could consciously and deliberately use persons in the different adopter categories according to the role they play and the position they hold among their peers to bring about desired, purposeful changes in agricultural education. For example, concentrated efforts could be made to utilize early adopters as cooperating teachers because of the high opinion-leadership role they play. Besides the early adopters, efforts could be made to include key members of the late majority in pilot programs since the latter individuals apparently exert a large degree of influence among their categorical peers as they maintain a larger number of face-to-face contacts within the category than they do with members of the more innovative categories.

10. The more innovative teacher is likely to be influenced by the cooperating teacher under whom he received his experience as a student teacher. Because these more innovative teachers tend to be the opinion leaders within the state, an implication exists that those persons selected as cooperating teachers should be the "pace-setters" for the profession in terms of new practices. In other words, their deeds are likely to be multiplied and to exert influence beyond the face-to-face contacts they have with student teachers working directly with them.

11. It was concluded that opinion-leadership is applicable to a specific age span and does not encompass the complete range of ages of individuals within the professional group. Since younger teachers hold lesser opinions of respect about teachers accepted as opinion leaders by the majority of teachersthan they do of individuals within their own age categories, an implication exists that state staff members should identify these emerging opinion leaders among this younger group of teachers and involve them on committees, in programs of pilot centers, and in other positions or activities where the influence they exert with their own peers can be used to lighten the efforts of the state staff in bringing about change.

12. Experienced teachers in the less innovative categories are influenced by their peers to a greater extent than are more innovative individuals. The implication exists that in attempting to wholesale efforts to create change on focusing attention on and working through opinion leaders in the early adopter categories, state staff personnel should not forget to include key members of the less innovative categories in the framework by which persons are made aware of, given additional information on, and influenced to adopt specific innovations. These less innovative persons need to be involved because of the direct personal influence they exert on peers within their respective adopter categories.

16. It was also concluded that the less innovative the experienced teacher is, the less likely he is to adopt a given practice if he perceives that more training in the use of the practice is needed. One implication present is that for innovations perceived as requiring additional training to be widely adopted, in-service training programs stressing help in the use of such practices need to be implemented, especially for the less innovative teacher. Another implication existing is that state staff personnel should not be too critical of the failure of teachers to adopt certain practices until they have had an opportunity to become familiar with and proficient in the use of that practice.

17. Since, it cannot be assumed that as new teachers enter the field they automatically are likely to adopt an already "established" practice which is considered desirable by state staff personnel, state staff personnel may periodically need to re-emphasize desirable practices by the use of a wide variety of sources of information and influence in order to maintain continual acceptance.

18. It was mentioned earlier that a given practice is most likely to be adopted by experienced teachers because it is implied by state staff personnel that this is the thing to do. Consequently, an implication exists that state staff personnel could be more positive in their recommendations and exert greater leadership in actively attempting to bring about specific change within a state's program of agricultural education. An additional implication exists that "innovational packaging" by state staff personnel could bring about faster rates of adoption. It would seem that through demonstration, preparation of guidelines, concerted effort by both teacher-educators and state supervisors, and other means of visibility that teachers could be made aware of and convinced of the value of a given practice.

19. We have seen that experienced teachers who are opinion leaders among the earlier adopters actively and knowingly attempt to influence other teachers. It would seem, therefore, that state staff personnel could benefit by actively encouraging these teachers to use a given practice. They could be involved in establishing demonstration centers. The actions of these opinion leaders in attempting to convince others could help the attempts of state staff personnel to bring about change through the trickle-down process. Monetary incentives could be provided by state staff personnel to school districts for use in departments of vocational agriculture to encourage teachers to use a given practice.

20. It was found that administrators and supervisors within the local school system exert relatively great influence on the adoption or non-adoption of educational innovations. An implication exists that state staff personnel and local school administrators or supervisors need to understand each other's objectives as well as work together in bringing about desirable practices in a local system if increased effectiveness is to result through the change process. Apparently, this is especially true of the "average" teacher in the majority categories.

21. The annual conference exerts relatively great influence at the awareness stage of the adoption process having been used 1.7 times more often at the awareness stage than at the adoption stage for those practices actually adopted by teachers. Could an implication exist that the real purpose of the annual conference for teachers of vocational agriculture sponsored by the state's supervisory staff may be to make teachers aware of new developments, methods, techniques, and concepts rather than to "train" or "up-grade" them in specific methods or techniques?

22. And lastly, it should be pointed out that the more innovative the experienced teacher is, the more likely he is to use non-mandatory sources of information. For example, because the more innovative teacher tends to use university staff members in agricultural education as sources of information and the less innovative teacher tends to use state supervisors as sources of information more frequently, an implication exists that both groups of personnel should work on promoting or upgrading the use of educational innovations within the state. Because of the visibility that promotion by more than one change agency provides, another implication exists that both groups should work out a planned program for "packaging" the adoption of innovations through simultaneous upgrading, promotion, or in-service education.

In conclusion, it is hoped that these insights into the adoption of educational innovations by teachers of vocational agriculture in one state may provide some food for thought as you work with the teachers in your respective states.

A STRATEGY FOR CHANGE

by
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Research should have as one of its primary objectives, the pointing of directions for change, and revealing facts and data which document the need for new directions. It would seem fitting, therefore, in the final stages of a seminar devoted to research and development that we turn our attention to ways and means of implementing the changes indicated by our research.

The time relationship between problem-oriented research and the emergence of problems requiring research is an interesting subject in itself, but one which we shall treat only in passing. A short time ago federal legislation suddenly cut off the supply of bracero labor from Mexico which had furnished the crews for harvesting California's huge tomato crop. Almost at once work was begun on developing machines which would take over the harvesting job, and to one of my friends was given the task of designing an entirely new type of tomato that would lend itself to machine harvesting. All he was asked to do was to develop a tomato which had all of the desirable characteristics of the present canning tomato, but also the additional ones which would make possible their being harvested by machine, such as an entirely different shape, a tough skin, and a variety which would all ripen at about the same time. By working night and day, growing two experimental crops of tomatoes a year--one in California in the summer and one in Mexico in the winter--he is finally getting close to his objective. Significant to me, however, is his statement based upon his experience in a situation in which the need for change was evident and accepted before the needed research was done. This was his conclusion--"When you have a situation needing research, it is already too late to research it"! You may not agree with his assessment of the time relationship between research and the need for change, but perhaps most of you would agree that you'd prefer to have the opportunity to do research thoroughly and without pressure rather than in a crisis or crash situation, and to have the pertinent facts and data before initiating change.

With the exception of this one detour, I propose to limit my discussion strictly to the assigned subject--"A Strategy for Change"--and to treat it from the point of view of you who, as leaders, shoulder the responsibility for initiating proposed changes and following them through to fruition and acceptance. In so doing, we shall take a look at the factors which mitigate against change, the feelings and attitudes of people which tend to obstruct change; our clientele--those whom we must persuade to accept change--and, finally, attempt to pull these items together into a procedure for initiating and gaining acceptance of proposals involving change.

My specific assignment for this paper is, and I quote, "From your accumulated experience and wisdom (sic) what suggestions do you have for state staffs in accelerating the speed of needed changes?" Therefore, from this accumulated experience, this alleged but highly questionable wisdom, generously supplemented by gleanings from research reported and conducted by Rogers[1] on diffusion of innovations and Abelson[2] on "Persuasion," I'll proceed with this assignment.

First let us look at obstructions to change, the factors which mitigate against change, the attitudes and feelings which often prevent acceptance of change, and try to relate them to our task of speeding up adjustments in agricultural and vocational education.

A major obstruction to acceptance of change is fear--fear of the unknown, fear of the consequences of change, fear that the changes may affect one adversely. Even a professional person, a district supervisor, a teacher often feels more comfortable in the stable situation he has dealt with and with which he has become familiar and becomes alarmed at the propsect of a new situation and fearful of his ability to cope with it.

Closely related to fear is our dislike of an ambiguous situation--one which is not clearly defined, and one which we do not clearly understand. In contrast to the proponent of the proposed change, the junior staff members, teachers, local administrators to whom he must present his plan will likely have had little opportunity to study intensely or think through his proposal, and perhaps no opportunity to do so. As a result they probably fail to understand it fully, nor do they sense or understand their role in it. Is it any wonder that under these conditions they may not immediately accept it?

A third block is distrust--distrust of the motives back of the proposal and especially distrust of the motives of the one making the proposal--the change agent. People tend to identify the change with the person who is proposing it. If they believe and trust him they are likely to accept; if they distrust and fear him or his motives they tend to transfer this attitude to the proposal with which he is identified.

A fourth inhibitor, of course, is tradition, inertia, an instinctive hesitancy on the part of most people (and educational institutions) to embark on a course which is radically different from that followed by their colleagues. For years the agriculture curricula of most of the land-grant colleges across the country resembled each other so closely that it was almost laughable. Course

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[1]Everett M. Rogers, Diffusion of Innovations, (New York: Free Press of Glencoe, 1962).

[2]Herbert I. Abelson, Persuasion. (New York: Springer Publishing Company, 1959).

titles, sequence, prerequisites, even units of credit differed little whether listed in catalogues from the Universities of Minnesota, Texas, California, or Pennsylvania. Now a few intrepid deans are breaking away from the pattern and introducing new curriculum patterns, but those of you who have been involved in such tasks will surely testify to the strength of tradition. We in vocational education are probably not entirely immune to this virus, either.

To these four blocks of resistance, Rogers, as a result of his own research findings and those of others studying innovation, adds another block which must be considered. This is the apparent fact that where there is a wide difference in status between the change agent and his clientele both communication and acceptance are impeded. The implications here, of course, are obvious--that the path of communication and acceptance should follow the so-called chain of command, both down and up; that a state director, for example, rather than going directly to teachers, should work instead with his immediate staff to gain their acceptance and with his immediate superior to gain his.

In addition to these inhibitors, which undoubtedly do not comprise a complete list, there are other pertient facts to be considered and which have a bearing on acceptance of new ideas. For example, it has been stated that educated persons tend to be more receptive to change than those less well educated; that the educated person is likely to change as a result of reason and facts rather than to be swayed by emotion; that we tend to accept milder changes more readily than radical ones, and gradual changes more easily than abrupt ones.

Building on this groundwork, then, what should be our own strategy for change? How can we, when research has identified and documented the need for change, initiate and gain acceptance of proposals to bring this change into being?

There are at least three ways of effecting change: (1) the autocratic, authoritarian; (2) the completely democratic approach; and (3) a middle of the road procedure which combines some of the elements of both the autocratic and the democratic.

The first method consists merely of an executive order that on such and such a date certain specified rules, regulations, and procedures will go into effect and will be followed--period. While most of us dislike this method when applied to us, it has its place, especially when the change is required as a result of new state or federal legislation or policy.

In theory, the democratic approach, in which all of those affected by the change have an opportunity right from the start to think through, discuss, plan, and implement the change together, should be the most effective for it brings into play somewhat equal involvement of the group who are directly concerned. The plan, then, becomes their own

instead of yours. In practice, it has obvious limitations and frustrations. The democratic procedure, excellent as it is, is notoriously slow and laborious, and often frustrating.

Since group planning is such a difficult process the middle of the road procedure often is a good compromise. In this process the planning of the proposal is done either by an individual or a very small group. It is planned as completely as possible, documented by facts, objectives clearly established, arguments pro and con listed, and then presented to the rest of those affected, not necessarily for acceptance or rejection, but for reactions and suggestions. It is important in this procedure that it be made entirely clear that the plan presented is not presented as a finished product, will not necessarily be put into effect in its present form, nor is any time table presented. Rather one must emphasize that the suggestions, additions, deletions agreed upon as a result of these reaction-discussions will be incorporated into the plan before it is put into effect. It should be obvious that this promise must be adhered to strictly and to the letter. A dean emeritus of the College of Agriculture where I labored said in presenting proposals he always made it a point to leave a few "i's" undotted and a few "t's" uncrossed because from his experience people had to find something to criticize, so he gave them a target on purpose and one that wouldn't cause much damage. Finally, when the plan is presented for reactions, suggestions, and criticisms do not defend it. To do so is fatal at this juncture. Simply make sure that there is agreement concerning the suggestions and record them for consideration, and probably incorporation in the plan.

While this should not be construed to be a recommendation of this middle of the road plan of action over the purely democratic or the purely authoritarian, it certainly merits consideration. As Rogers concluded, we as change agents should be more concerned with improving the ability of our client to evaluate new ideas and less with out and out promoting and drum-beating. Furthermore,this method may be used equally well with the four groups with which we must be concerned in a strategy of change; our superiors who have the decision and veto power, our immediate staff of assistant supervisors or teacher educators, local teachers, and local administrators.

Now as to the proposal itself and its essential elements. Whether a plan is presented for immediate concurrence or for evaluation and criticism, the hoped-for outcome, of course, is eventual acceptance. To obtain this acceptance careful consideration must be given to removing or nullifying the roadblocks and inhibitors discussed earlier in this paper. Therefore it should include these elements:

1. The objectives, the outcomes, the hoped-for accomplishments of the change must not only be spelled out clearly, but also must be such as to win the immediate and unquestioned approval of those affected. (Unless your staff and your teachers accept the purpose--the goal, you may be sure they will not accept the change.) If this

step is omitted or not done well, your plan is doomed for failure regardless of how well the rest of it is done. These outcomes should be expressed in terms of accomplishments which will benefit your clients--teachers and assistants--which they value, and for which they can sense the need. Done in this way, it should serve to dispel any distrust of you or your motives and their natural fear of the consequences of the change. Again, this may well be the single most important step in your strategy for change.

2. State and describe the proposed change clearly, present all pertinent facts and data upon which it is based. Use all possible aids to enable your clients to visualize it and to understand it. This should serve in a measure to remove some of the ambiguity implicit to change and enable them to see just exactly what is involved.

3. Present evidence, facts, and arguments, both for and against the proposed change. Really analyze it. This is especially important if you anticipate severe opposition or criticism. Doing so may serve to allay their fears that you and your planning committee may not have considered all aspects and consequences of the proposed change. If critical opposition is not anticipated, arguments against the change may be omitted, but it seems safer to include them, since they should aid your hearers in making a fairer evaluation.

At this stage, if you can show that other states or agencies have already successfully adopted this pattern you may be able to remove still another roadblock.

4. Gear the wording of your proposal to your clientele and their known characteristics, attitudes, opinions, and values. Use their language--not yours.

5. Close with a brief recap of the most important points supporting the need for this change and the most important arguments in its favor. Appeal for their careful evaluation and sympathetic consideration of the proposal, and reiterate your pledge that any changes upon which they agree will be incorporated in it.

Perhaps the most common and the most fatal error in trying to gain acceptance of change is to move too rapidly--so rapidly that one's clients just can't follow and keep up. The planner--the change agent--tends to forget that in his planning, he has had, of necessity, to think through in detail and at length all aspects of his proposal; that he understands it so well and is so strong a proponent himself, that he simply cannot see why others do not understand it and support it equally well. He thus becomes impatient with their apparent stupidity and contrariness and tries harder and harder to push his ideas through. Instead he should remember that time will doubtless work in his favor and that one can rarely force acceptance. So in the words of an old-time popular song, "take it slow and easy." Stuart Chase in writing on the strategy of change summed it up by

saying, "To overcome resistance, don't use a club, use a fly rod!" Those of you who know my avocation will appreciate my use of this illustration, I know.

Another strategy described by Chase might be worth a trial sometime. He suggests that if you have a change to propose to your superior-your boss-that you try a little reverse psychology on him. Suppose you feel that a change in your reimbursement system would be advisable, but don't know quite how he might react. So in some relaxed moment, perhaps at lunch, you just make a supposedly casual remark such as, "You know, I believe we should come up with a better reimbursement system than the one we have and one that is more equitable." Then, says Chase, just drop the subject. According to the author it is surprising how often, perhaps a week or a month later, your boss will come to you and suggest, "You know, I believe we could come up with a better reimbursement system. Why don't you have a try at it!" With that kind of an entree, who could miss? You just plant the idea, let it grow and he often comes to believe it was his. As to whether I have ever used this technique, I have no comment.

As a final strategy, be prepared with alternatives if it appears probable that there is too much opposition to your complete proposal, either because it represents too great a change, too radical a departure, or any of a number of reasons. Among the alternatives one could reasonably suggest is that it be tried on a pilot basis, that preliminary steps be started now, with the rest delayed for further study, or that it be approved "in principle" with the details to be given further consideration and thought before final approval is given.

I have not related the strategy for change in this presentation specifically to your tasks as leaders in agricultural education, and I have taken this stance advisedly as I have full confidence in your capabilities as professionals to make these applications yourselves. May these hints prove of value to you in implementing the changes for which your research reveals a need, and may you avoid the trap described by a colleague of mine who said that his office was the greatest repository of unpublished and unused research in existence. While the task of the innovator, the change agent, is often a frustrating and discouraging one, it also can be and often is a most rewarding one. Let's use our findings to trigger more and greater advances in vocational education in agriculture.

Other Center Publications

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agricultural Education, "Program Development and Research."

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

VT 001 099

VT 001 099 ED 011 037

Report of a National Seminar, "Evaluation and Program Planning in Agricultural Education," July 27-30, 1966.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

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EDRS Price MF-$0.18 HC-$5.00 125p.

*VOCATIONAL AGRICULTURE, *SEMINARS, OFF FARM AGRICULTURAL OCCUPATIONS, PROGRAM PLANNING, *EDUCATIONAL OBJECTIVES, EVALUATION METHODS, EVALUATION TECHNIQUES, *PROGRAM EVALUATION, TECHNICAL EDUCATION, AGRICULTURAL EDUCATION, VOCATIONAL EDUCATION, FEDERAL LEGISLATION, GUIDELINES,

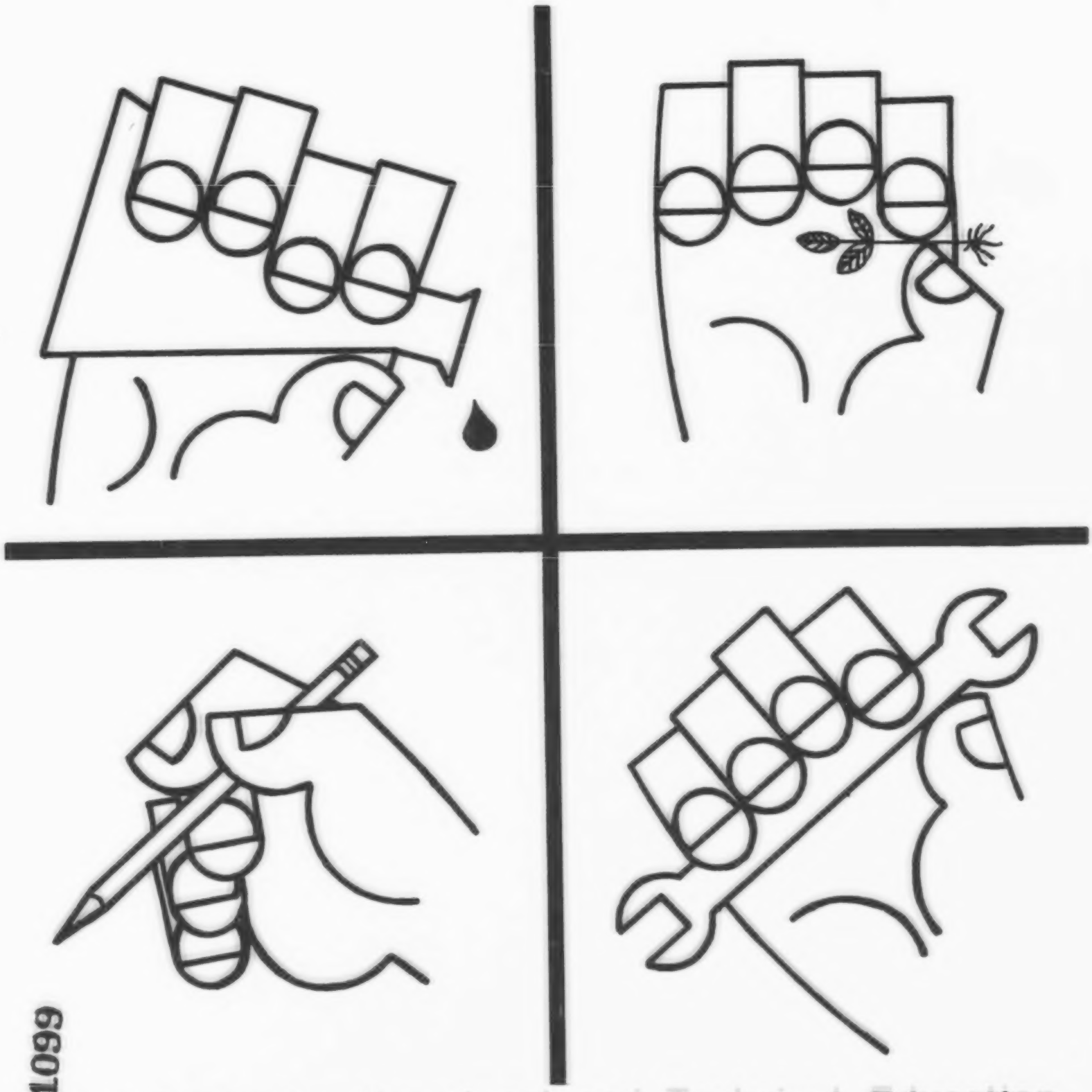
Providing 72 leaders from 36 states an opportunity to pool resources and plan for evaluation, the seminar was directed toward consideration of state staff leadership roles in evaluating pilot programs, appraising teaching models, planning continuing evaluation, developing evaluation techniques in conjunction with program planning, and formulating dissemination procedures. Individual presentations include -- (1) "Purposes of the Seminar" by J. W. Hensel, (2) "Objectives and Evaluation in Vocational Agriculture" by S. S. Sutherland, (3) "The Center Project in Off-Farm Agricultural Occupations" by G. L. Luster, (4) "Federal Responsibilities in Evaluation of Vocational and Technical Education" by B. Michael, (5) "The Role of The Center in National Evaluation" by V. E. Christensen, (6) "Guidelines for the Development of Instruments for Evaluation in Vocational Agriculture" by R. J. Woodin, (7) "A Progress Report on Interstate Cooperation" by W. H. Annis, (8) "Evaluation Through Research" by F. Pearce, (9) "National Evaluation in Vocational Agriculture" by H. N. Hunsicker, (10) "Alternatives in Program Planning" by V. R. Cardozier, and (11) "Evaluation and Program Planning" by W. H. Martin. (JM)

Evaluation and Program Planning in Agricultural Education

ED015348

A Report of a National Seminar

June 27-30, 1966



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The Center for Vocational and Technical Education
The Ohio State University · 980 Kinnear Rd · Columbus Ohio 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REPORT

OF

A NATIONAL SEMINAR

"EVALUATION AND PROGRAM PLANNING IN AGRICULTURAL EDUCATION"

The Center For Research and Leadership Development

in Vocational and Technical Education

July 27 - 30, 1966

The Ohio State University

Columbus, Ohio

A C K N O W L E D G E M E N T

The National Center gratefully acknowledges a grant from The Sears-Roebuck Foundation to underwrite the expenses of this Seminar.

PREFACE

Seventy-two state and national leaders in agricultural education, representing thirty-six states, the District of Columbia, and Puerto Rico met on the Ohio State University campus, June 27 - 30, 1966, to consider the problems surrounding evaluation in agricultural education.

The major purpose of the Seminar was to provide an opportunity for state leaders in vocational agriculture and representatives of other vocational services to pool their resources and plan for effective measurement and evaluation in agricultural education.

Key questions under consideration during the Seminar evolved around the leadership role of state staffs in:

Evaluating pilot programs in off-farm agricultural occupations;

Appraising and refining course outlines and teaching models developed by The Center Staff;

Planning for comprehensive and continuing programs of effective measurement and evaluation;

Developing effective evaluation techniques at the high school and post-high school level in conjunction with program planning procedures;

Formulating dissemination procedures for off-farm agricultural programs.

The material in this publication has been edited and most speeches contain only the major portions of the presentation given at the Seminar. The material should also be read with an understanding of the context under which they were given.

The agricultural education profession and The Center for Vocational and Technical Education acknowledge their gratitude to the Sears-Roebuck Foundation for underwriting the expense of this Seminar.

We sincerely hope that the Seminar provided the spark, and to some extent the direction, for evaluation in agricultural education over the coming months. The Seminar participants recognized the crucial timing of the topic and worked long, hard hours during the week to think through the various aspects of evaluation. We hope the Seminar provided the means by which leaders in agricultural education can effectively organize the task of evaluation.

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PROGRAM

Monday, June 27, 1966

8:30 - 9:00	Registration
9:00 - 9:30	Introductions Conference Procedures Welcome to OSU - R. H. Bohning, Associate Dean, Agricultural Administration, Ohio State University
9:30 - 10:00	Purposes of conference James W. Hensel - Conference Chairman
10:00 - 10:30	Break
10:30 - 11:30	Objectives and Evaluation in Vocational Agriculture Sid Sutherland, Prof. Emer., University of California
11:30 - 11:45	Questions from audience Announcements
11:45 - 1:00	Noon Break

Objectives in Vocational and Technical Education in Agriculture

1:00 - 1:30	(1) G. R. Cochran, Supervisor, Minnesota
1:30 - 2:00	(2) William L. Hull, Oklahoma State University
2:00 - 2:30	(3) David Shontz, University of Rhode Island
2:30 - 3:00	Break
3:00 - 3:30	(4) Jerry J. Halterman, Chico State College, California
3:30 - 4:00	(5) C. Oscar Loreen, Washington State University
4:00 - 4:30	(6) T. L. Faulkner, Supervisor, Alabama
4:30 - 5:00	Summary, Questions, Announcements

Tuesday, June 28, 1966

8:30 - 9:00	The Center Project in Off-Farm Agricultural Occupations, George Luster, Kentucky
9:00 - 10:15	Symposium - Pilot programs utilizing Center materials for instruction in off-farm agricultural occupations Bill Becker, Ag Supply, Janesville, Wisconsin Jim Utzinger, Horticulture, Grove City, Ohio Al Kahler, Ag Machinery, University of Nebraska H. Anderson, Experience Programs, State Staff, Colorado
10:15 - 10:30	Break
10:30 - 12:15	Small group discussions of Center materials Authors of modules lead discussions
12:15 - 2:15	Noon Luncheon - Ohio Union - Franklin Room Bernard Michael, U. S. Office of Education - The National Evaluation in Vocational Education Bob Mullen - Sears Foundation

2:15 - 2:45	The Role of The Center in the National Evaluation Project V. E. Christensen, Center Staff
2:45 - 3:30	Guidelines for the development of criteria for evaluation in vocational agriculture - Ralph Woodin, Ohio
3:30 - 3:45	Instructions for the small group sessions
3:45 - 4:00	Break
4:00 - 5:00	Small work group sessions to develop evaluative criteria in vocational agriculture as we look toward the National evaluation 1. High School Youth - Ray Agan, Kansas 2. Youth With Special Needs - John Adams, Kentucky 3. Post High School Educational Programs - Dale Aebischer, Wisconsin 4. Working Youth and Adults - George Ekstrom, Missouri 5. Services and Facilities - Leonard Kunzman, Oregon

Wednesday, June 29, 1966

8:15 - 8:30	Recapitulation
8:30 - 9:15	Interstate Project in Evaluating secondary programs in vocational ornamental horticulture - William Annis, New Hampshire
9:15 - 10:00	Evaluation of a Multi-Occupational MDTA Project - Frank Pearce, Modesto, California
10:00 - 10:15	Break
10:15 - 12:00	Small group session #2 - Developing evaluative criteria
12:00 - 1:30	Noon Break
1:30 - 2:15	The National Evaluation in Vocational Agriculture - Neville Hunsicker, Chief, Agricultural Education, U. S. Office of Education, Washington, D. C.
2:15 - 2:45	Reaction Panel and Discussion - Paul Sweany, Michigan, Chr.
2:45 - 3:00	Break
3:00 - 5:00	Small group session #3 - Developing evaluative criteria

Thursday, June 30, 1966

8:30 - 9:00	Alternatives in Program Planning - Ray Cardozier, Maryland
9:00 - 9:30	Evaluation and Program Planning - W. Howard Martin, Connecticut
9:30 - 10:00	Conference Summary
10:00 - 10:30	Break
10:30 - 11:30	Program Planning and Vocational Education - Robert Taylor, Director, The Center for Vocational and Technical Education, Ohio
12:00 - 1:00	Noon Break
1:00	Conference closes

P A R T I C I P A N T S

State	Name	Position
Alabama	R. A. Baker	Teacher Education, Auburn University
	T. L. Faulkner	State Supervisor, Vocational Agriculture Education
California	Jerry J. Halterman	Dean of Agriculture, Chico State College
	Frank Pearce	Director of Research, Modesto Junior College
	Sid S. Sutherland	Professor Emeritus, University of California
Colorado	Harold Anderson	Assistant State Supervisor, Agricultural Education
Connecticut	W. Howard Martin	Associate Professor of Education, University of Connecticut
Washington, D. C.	John C. Foltz	Information Specialist, Future Farmers of America
	Neville Hunsicker	Chief, Agricultural Education, Division of Vocational and Technical Education, Office of Education
	Bernard Michael	Program Evaluation Specialist, Division of Vocational and Technical Education
Florida	Tom L. Barrineau	Area State Supervisor, Agricultural Education
	Travis Loften	Head, Teacher Education, Agricultural Education, University of Florida
Illinois	Homer E. Edwards	Regional Representative, U.S.O.E., Agricultural Education
	Paul Sims	Interstate Printers and Publishers
Indiana	Don Pennington	Supervisor, Agricultural Education
	L. R. Hilterbrand	Assistant Professor, Agricultural Education, Purdue University
Iowa	Duane L. Blake	Assistant Professor, Iowa State University
Kansas	Ray Agan	Professor of Education, Kansas State University
Kentucky	John M. Adams, Jr.	Supervisor, Agricultural Education
	George Luster	Teacher Trainer, Department of Agricultural Education, University of Kentucky
	W. C. Montgomery	Assistant Director of Agricultural Education
Maryland	Ray Cardozier	Professor and Head, Department of Agriculture and Extension Education

State	Name	Position
Michigan	Clifford Haslick	Consultant, Agricultural Education
	Paul Sweany	Professor, Agricultural Education, Michigan State University
Minnesota	Harry W. Kitts	Agricultural Education, University of Minnesota
	G. R. Cochran	State Supervisor, Agricultural Education
Mississippi	O. L. Snowden	Professor and Head, Department of Agricultural Education, Mississippi State University
	W. T. Taylor	District Supervisor, Vocational Agriculture
Missouri	George Ekstrom	Professor, Agricultural Education, University of Missouri
Montana	Max Amberson	State Supervisor, Agricultural Education
Nebraska	Alan Kahler	Assistant Professor, Agricultural Education, University of Nebraska
	M. G. McCreight	Teacher Educator, Agricultural Education, University of Nebraska
Nevada	Howard Christensen	Assistant Professor, University of Nevada
New Hampshire	W. H. Annis	Teacher Educator, University of New Hampshire
New Jersey	George Lange	State Supervisor, Agricultural Education
New Mexico	L. C. Dalton	State Supervisor, Vocational Agricultural Education
	Ramsey Groves	Director, Technical Institute for Agriculture, New Mexico State University
New York	Charles W. Hill	Teacher Educator, Agricultural Education, Cornell University
North Carolina	V. B. Hairr	State Supervisor, Agricultural Education
Ohio	Ralph Bender	Professor and Chairman, Department of Agricultural Education, Ohio State University
	V. E. Christensen	Research Consultant, Center for Vocational and Technical Education
	John Crunkilton	Graduate Student, Ohio State University
	James W. Hensel	Specialist in Agricultural Education, Center for Vocational and Technical Education

State	Name	Position
Ohio (Continued)	Robert Kerwood	Research Associate, Center for Vocational and Technical Education
	Urban Oen	Research Assistant, Center for Vocational and Technical Education
	Tom Stitt	Research Assistant, Center for Vocational and Technical Education
	Robert E. Taylor	Director, Center for Vocational and Technical Education
	James Utzinger	Horticulture Teacher, Pleasant View High School
	Warren G. Weiler	Head State Supervisor, Agricultural Education
	Ralph Woodin	Professor, Department of Agricultural Education, Ohio State University
Oklahoma	Donald D. Brown	District Supervisor, Agricultural Education
	William L. Hull	Assistant Professor, Department of Agricultural Education, Oklahoma State University
	Robert R. Price	Head, Department of Agricultural Education, Oklahoma State University
	Jack Pritchard	Vocational Agriculture Teacher and Graduate Student
Oregon	Leonard Kunzman	State Supervisor, Agricultural Education
Pennsylvania	Howard I. Downer	Graduate Assistant, College of Agriculture, The Pennsylvania State University
	William Williams	Vocational Agriculture Teacher and Graduate Student
Puerto Rico	Jose Lema Moya	Assistant Director, Agricultural Education
	Juan Robles	Professor and Head, Department of Agricultural Education, University of Puerto Rico
Rhode Island	Raymond C. Northup	State Supervisor, Agricultural Education
	David F. Shontz	Head, Department of Agricultural Education, University of Rhode Island
South Carolina	F. E. Kirkley	Associate Professor, Agricultural Education, Clemson University
	L. L. Lewis	State Supervisor, Agricultural Education

State	Name	Position
Tennessee	H. E. Gibson	High School Vocational Agriculture Teacher, Concord
Vermont	Garry R. Bice	Assistant Professor, Agricultural Education, University of Vermont
Virginia	W. C. Dudley	Area Supervisor, Vocational Agriculture
	James D. Oliver	Teacher Educator, Farm Management, Virginia Polytechnic Institute
Washington	C. Oscar Loreen	Teacher Educator and Supervisor, Washington State University
West Virginia	R. L. Taubert	Program Specialist, Vocational Agriculture
Wisconsin	Dale C. Aebischer	Chief, Agricultural Education, Rural Division
	William J. Becker	Vocational Agriculture Instructor and Graduate Student
Wyoming	James Durkee	President NVATA, Teacher Educator, University of Wyoming

PART I

PRESENTATIONS

PURPOSES OF THE SEMINAR

by

James W. Hensel
Conference Chairman
The Center for Vocational and Technical Education
The Ohio State University

The Seminar on Evaluation and Program Planning in Agricultural Education provides a timely theme and has been designed to meet one of the most crucial problems that you will encounter in the next few months. The future of vocational agriculture will depend to a large measure upon sound program planning based on effective evaluation of existing educational opportunities.

Evaluation is a high priority topic for everyone involved in vocational education. However, if evaluation is to be fruitful, it must be accompanied by sound program planning.

High quality educational programs in agriculture must be provided for all students at the high school, post high school and adult level. New occupational opportunities are emerging in the field of agriculture which call for innovative planning and leadership on your part. It is essential that education in agriculture keep pace with the advancing technology which affects the lives of our clientele.

Each of us recognize that evaluation is a continuous process--not something we can turn on or turn off at will. However, particular national interest and attention will be focused upon this aspect of educational practice during the coming months as the result of requirements set forth in the Vocational Education Act of 1963.

Vocational education in agriculture has changed significantly in the past several years, but in order to give direction to future programs, it is imperative that leaders take time to examine the new objectives and establish criteria for an effective evaluation.

The Seminar has been planned to provide a sequence of activities which will give us a new insight concerning the evaluation process. The major purpose of the National Seminar is to provide an opportunity for each of you, representing about thirty-six states, to cooperatively examine objectives, evaluate pilot efforts, gain a perspective of the national evaluation plans, share state plans, develop meaningful criteria, and to begin planning future programs in vocational agriculture.

My purpose is to set the stage for the Seminar, and for this reason I would like to be sure you are ready for a vigorous week. I would like to suggest a pre-test to check a very important characteristic. Before you begin any game, it is best to learn the general rules. As the game progresses, you will need to know some of the more specific rules or the finer points of the game. The first rule of the game this week involves eligibility. To be allowed to continue in the Seminar, we must all score high on an evaluation attitude scale. The scale reads from positive to negative. Only those with a high positive reading on the evaluation attitude scale will be able to profit from the discussions to come.

The key to effective evaluation is an open and positive attitude of the evaluation. Evaluation must be viewed as a means to improve the program--a technique for finding the best possible route.

We have the opportunity, the challenge, and the responsibility to initiate some of the most dynamic programs of vocational agriculture since the Smith-Hughes Act came into being. We cannot afford to be traveling with a negative attitude.

There are those among us who say, "Why change? After all, the program has been a success for nearly fifty years. The number of students enrolled this year is perhaps the highest in our history, so we must be maintaining local interest."

Some say "Vocational Educators and Supervisors are running 'scared.' They are afraid to evaluate. The national evaluation has them in a state of panic. Some all-powerful force is conspiring to wipe out agricultural education and evaluation is to be the major weapon of destruction." If we base our future program planning on this kind of thinking, then we are indeed in trouble. Fortunately, this is not the case. Vocational Agriculture is strong and will remain strong, just as long as the leadership remains dynamic.

The function of vocational education is to serve the objectives of the society of which it is a part. Tremendous technological changes are taking place, and agriculture is one of the leaders. This very attitude of change--dissatisfaction with the old--is a part of society. People buy new cars because they want to change to the new, not because the old one is worn out. Their values are affected by the restless attitude of change which permeates our economy. Some feel this is bad. I suggest that it provides for healthy growth and is one of the reasons why we are the most advanced nation in the world.

But change must take form and direction. In order to give intelligent direction, we must examine our present course--analyze the current market and make some educated guesses as to the future. In short, we must evaluate on the basis of established criteria and plan inspired future programs utilizing the facts as we see them. Failure to read the signs of the times means certain disaster. The Ford Motor Company misread the "straws in the wind" and gambled on the dismal Edsel. They re-read the data and produced the popular Mustang.

Some organizations are bogged down in politics and tradition, or are too slow to meet the needs of the people. The firemen on the railroads are prime examples of a tenacious grasp on tradition and the "good old days."

We say we are different, our program is alive and current with the times. Perhaps this is true, but have we developed the attitude that enables us to courageously and fearlessly examine our own professional activities?

To develop the proper evaluation attitude for this Seminar, it might be enlightening to examine the barriers to sound evaluation.

The barriers as I see them are:

(1) Educators are super-sensitive to criticism. We have a critical clientele, we know we are responsible to public opinion, and we are often upset by individuals who question the worth of our program. We seem to be on the defensive and spend a great deal of time justifying our existence and worrying about the opinions of others.

(2) Tradition plays a large role in the way many educators operate. It is easier to provide certain educational opportunities on a recurring basis and keep the same programs because they have worked in the past. Why take a chance on a pilot program when the traditional approach still seems to be operative?

(3) There are few positive rewards for change in the educational system. A farmer may use a new chemical for weed control because he feels reasonably sure that it will increase his net income. What are the incentives which encourage a teacher to try something new? In reality, the teacher who is always trying out a new idea is looked upon as an odd-ball or some sort of nut. He is often considered a trouble maker and a teacher who does not carry on a "sound" program.

(4) Security is threatened if the program is examined. Educators will draw the curtain of academic freedom, Supervisors will quote the state plan, and teachers will point to the suggested state course of study to avoid exposure through evaluation. Some feel that an evaluation might make them look bad, expose them to unfavorable criticism and perhaps even jeopordize their position. We somehow feel that our professional competence is being challenged if someone suggests evaluation. We tend to look at evaluation from a negative viewpoint.

(5) Uncertainty as to how to go about a legitimate evaluation. There is no easy access to an instrument which will do the job and no one is sure just how to go about it. How do I develop criteria? What are the objectives that can be measured? Who does the work, and, how do I evaluate a program as vast as vocational agriculture?

The five barriers are, in summary:

(1) Super Sensitivity
(2) Tradition
(3) Few Rewards
(4) Threatened Security
(5) Uncertainty

Education evaluation also has its formal and informal sides. Informally, it is characterized by casual observation, implicit goals, intuitive norms, and subjective judgment. Perhaps because these are also characteristic of our day-to-day living, informal evaluation results in perspectives which are seldom questioned by the perceiver. Careful study, however, may reveal informal evaluation to be of variable quality--sometimes penetrating and sometimes superficial and distorted.

In education the formal methods of evaluation have been characterized by check lists, structured visitation by peers, faculty self-studies, and standardized testing of students. Some of such techniques have demonstrable reliability. Unfortunately, when faced with evaluating a program, the inclination is to evaluate informally, to ask the professor or principal, to consider the logic of the program. Seldom is there a methodical search for relevant research reports and to gather behavioral data pertinent to the ultimate curricular decisions. Traditionally, most attention in formal evaluation has been given to certain outcomes. These outcomes might be the competencies or occupational placement and achievement of students following an educational experience.

Evaluation is a broad term. Before you discuss the subject, you need to orient your thinking in terms of the level of evaluation. As the Seminar is structured, we will be discussing each of the three major levels:

(1) National
(2) State
(3) Local

There are also two major viewpoints concerning evaluation. It may be viewed in terms of the:

(1) Process or
(2) Product

Both must be considered and criteria must be developed recognizing each viewpoint.

One of the factors which triggered this Seminar was the fact that there is to be a National Evaluation of all vocational programs as specified in the 1963 Vocational Education Act. The advantages which might come to vocational agriculture through a National Evaluation are many.

First, the worth of an educational program may well be described by an evaluation program. One of the main reasons why vocational agriculture was the first subject area to receive federal funds at the secondary level was because it seemed practical to the legislators. I believe this point could and should be expanded through our required national evaluations. We might consider putting a dollar and cents value on our programs and the value returned to the national economy by our graduates. Although that is difficult and cannot be done with complete accuracy, I believe that we are in a much better position to do so than most subject areas in education. The legislators at both state and national levels are clamoring for this type of evaluative data.

Second, the voters of the nation are becoming aware of the great need for vocational education. We must be ready to provide data which will illustrate the value of vocational agriculture. Evaluation will not provide a means to justify a program but it will give visibility to the expanded objectives which we have set.

Third, the process of evaluation acts as a stimulus to improve programs. We must not only ask ourselves to evaluate the road we are traveling, but we must also determine whether there might be a better road. Through evaluation we should not only be able to determine what our programs are, but also to locate the gaps between what we are doing and what we could be doing.

Evaluation should be a positive act. It must be viewed in a professional light, with the attitude that we cannot improve unless we can identify the strong as well as the weak spots in our program.

We should welcome evaluation as it gives us the opportunity to carefully examine what we are doing, how well we have progressed, how far we have traveled in light of our objectives.

Our Evaluation Attitude must be positive. If we approach evaluation with the emphasis on the positive, we will be in a better position to determine when or how changes are to come about. I hope you are prepared for a challenging Seminar.

OBJECTIVES AND EVALUATION IN VOCATIONAL AGRICULTURE

by
Sid. S. Sutherland
Professor Emeritus
University of California
Davis, California

There are several possible approaches to a discussion of this subject. It could, for example, be discussed from a national viewpoint in light of the mandatory nation-wide evaluation scheduled for 1966-68. On the other hand, we could limit ourselves exclusively to the problems and procedures of statewide evaluations, or go a step further and place emphasis on appraising local programs. However, since participation in this seminar is made up of state level people, it would seem logical to place emphasis today on the problems of those who are charged with the responsibility of administering state programs and give only passing reference to national and local evaluation.

Since the National Vocational Education Act of 1963 provides for assessments and appraisals at five-year intervals, it may be anticipated that evaluation of state and local programs may become a continuous process not only to meet mandatory provisions of the law, but also as a means of quality control of ongoing programs.

The importance of continuous assessment and appraisal to maintaining effective programs of vocational education in agriculture hardly needs documentation. Paraphrasing a statement made by Dr. Grant Venn, "Evaluation must be a continuous process, not a vaccination to make a program immune to the need for subsequent change." There is need, then, for state leadership to develop criteria, standards, procedures, and instruments to be used in making these evaluations, and this, of course, is the primary purpose and thrust of this Seminar.

Now, how do we evaluate a state program of vocational education in agriculture? Do the same principles apply to appraising a state-wide effort as to the evaluation of a single pilot project? Just what is the relationship, if any, between purposes and objectives of a program and the criteria used in evaluating it? Should state leadership be concerned with national objectives or primarily with state objectives? Who should make these evaluations? What use, if any, should be made of lay persons in these appraisals? Should evaluations of educational programs such as ours be made primarily in terms of the outcomes, the results, the products, or primarily with the educational process itself? Should evaluation be a continuous process or done only when necessary to meet legal requirements for financial support? In evaluating our programs, should we be concerned with the economics of these programs, their cost to the taxpayer, to input-output relationships, or can this be ignored or passed over lightly? Should we be concerned with our costs compared with the costs of alternative occupational training programs? MDTA, EOA, Job Corps, private industry, etc.? Should our appraisals be made entirely in terms of what has been done--our accomplishments, or should we also take a look at the total picture of what ought to be done, what needs to be done? Should evaluation be a paper and pencil process consisting of the gathering and analyzing of statistics, or should these be supplemented, or indeed even replaced, by visitations to randomly selected departments to make on-site observations? Finally, why evaluate at all? What is the real purpose of evaluations?

These are at least some, but probably not all of the problems with which you may be concerned in this Seminar and which will form the core of this presentation.

Let me introduce a discussion of these questions by describing an actual training program and how it was evaluated. Somewhat less than a year ago, in August, 1965, the Secretary of Labor requested that a pilot program be inugurated immediately under MDTA in my home town. The Secretary had denied the request of tomato growers in this area that Mexican workers be brought in to harvest the tomato crop and to fill the gap caused by the demise of the bracero program and to supplement an inadequate supply of domestic labor. The purpose of the training program (and this, of course, is important) was to determine if unemployed domestic laborers could be recruited from the larger cities, trained to pick tomatoes, and if these workers would work in the fields after they were trained. The project was supported by a budget of some $38,000. It involved the cooperation of the State Department of Employment, the Division of Vocational Education, the Bureau of Agricultural Education, the Departments of

Agricultural Education and Physical Education of the University of California at Davis, the Davis High School District, the County Health Department, and a number of tomato growers. A disinterested person was employed to observe, gather data, publicize, and evaluate this project, and it is from his report and my own personal observations that the facts concerning it were obtained.

The plan called for 500 unemployed men between the ages of 18 and 50 to be recruited from metropolitan areas, brought to a central location, housed and fed in modern labor housing units, and enrolled in a two-week training program which included physical conditioning, recreation, lectures, demonstrations and field practice in picking tomatoes. Trainees were to receive $45-75 per week during the training period, $5.00 daily subsistence, plus $1.00 per day "walk around" or pocket money. The course was planned by members of the department of Agricultural Education at the University of California, Davis, with the cooperation of tomato growers and picking supervisors. Instructors from the Physical Education Department of the University planned and conducted the physical conditioning program. The County Health Department checked the health of the trainees and the sanitary conditions of housing. Local vo-ag and physical education teachers, aided by tomato growers and picking foremen, acted as instructors. Overall administration was in the hands of the principal of the local high school, and a member of the staff of the Department of Agricultural Education supervised the instructional program.

Now as to what happened. The Department of Employment failed to recruit 500 trainees, but did entice about 250 to enroll. There were the usual number of minor foul-ups. The trainees arrived a day later than scheduled, so in one camp 100 meals went uneaten. It was found that there was no legal way to pay the $1.00 per day pocket money to the trainees; all the trainees were not between the ages of 18 and 50; but everyone agreed the training program itself was excellent, the administration was efficient, and there was good cooperation between most of the agencies concerned in the undertaking. The students generally were interested and enjoyed the experience.

Of the approximately 250 who were recruited, 36 dropped out during the program, 14 were expelled for various reasons, 75 were graduated before the close of the program to pick tomatoes, and 117 stuck out the whole two weeks and were graduated at that time. Two weeks after graduation, a follow-up was made to determine how many of the approximately 190 graduates were working in the tomato fields. This was a difficult determination, but the number finally agreed upon by the evaluator and others was 15--15 out of an original 250 entrants and 190 graduates. In the words of the official evaluator, "If we assume that the goal of this program was to determine whether or not unemployed domestic workers could be physically and mentally conditioned to become effective agricultural workers in the tomato harvest, then it must be termed an overwhelming success. If we assume that the goal was to put qualified workers in the tomato fields, it was a dismal failure."

How would you evaluate this program? Success or failure? On what would you base your judgment? How would the success or failure be evaluated by the Secretary of Labor, by the tomato growers, by the administrators, supervisors, and instructors, by the trainees? Measured in terms of input-output economics, it cost $38,000 to train and place 15 workers or about $2,500 per worker. Is that good or bad?

Let us turn now to some of the principles of evaluation, some of the generalizations concerning this process which are generally accepted as basic. In doing so perhaps we can refer back to the illustration just given from time to time and put them in their proper perspective by applying them to this and other specific cases.

The first generalization is this: <u>That evaluation, and particularly evaluations of educational programs, should be made in terms of the objectives (the purposes) of these programs.</u> If the tomato picking program just described was evaluated in terms of its real objective, it was a success; if in terms of other objectives, it was a failure.

In evaluating state-wide programs of vocational education we have several sets of objectives with which we may be concerned. Some of these are stated in the vocational education acts themselves. For example, the overriding purpose of PL 88-210, the Vocational Education Act of 1963, is to train not only for employment, but for gainful employment--"to maintain, extend and improve existing programs, to develop new programs...so that all

persons of all ages in all communities of the state...will have ready access to vocational training or retraining which is of high quality, realistic in the light of actual or anticipated opportunities for gainful employment and which is suited to their needs, interests, and ability to benefit from such training."

Another set of objectives, national in scope, has been developed for agricultural education by a joint Office of Education - AVA Committee. These are directed specifically to agriculture, involve six major purposes, and paint with a broad brush the desired outcomes of vocational and technical education in our field. These, too, concern us in state evaluations.

To these may be added state objectives, more specific in nature and statement, involved in connection with annual and long-time programs of work. If state evaluations are made primarily for the purpose of adjusting and improving, then these certainly are of direct and immediate concern to state leadership.

There is a growing interest in the so-called taxonomy of objectives. Dr. Robert Taylor, Director of this Center, pointed out as a member of the Joint Committee on Objectives for Agricultural Education, that we may have "program" objectives as distinguished from "educational" objectives; that is, objectives dealing with "maintaining, improving, and extending" programs, as contrasted with those stated in terms of changes to be made in students.

Educational objectives have been further categorized as either cognitive, affective, or psychomotor by Bloom, Krathwohl and others in their "Taxonomy of Educational Objectives." It would seem that vocational education in agriculture, in common with other segments of education, concerns itself with objectives in all three of these so-called domains.

As the work of this Seminar progresses, you are certain to give repeated attention to both national and state program objectives of vocational education in agriculture. In so doing, however, we must not lose sight of the fact that the primary function of education is bringing about changes in people.

The second principle: Evaluations should include assessments and appraisals of both product and process.

Stated in another way and relating this principle to our field, we should measure and weigh both the outcomes of our programs and the manner in which they are conducted and administered. This would seem to be almost self-evident, but it will come as no surprise to those of you who have participated in accreditation of educational programs in colleges and universities that such appraisals are made primarily of process with product almost completely ignored.

My own bias would be just the reverse of this. It would seem that if we accept the first principle that evaluations are made in terms of objectives, then our first and most vital concern should be with produce, with outcomes, since it is in these terms that objectives are stated.

This bias of mine goes even farther. I am frankly skeptical of the validity of an evaluation of a local department based upon a mass of data concerning the qualifications of teachers, the number of volumes in the library, the annual budget, the excellent facilities, buildings and equipment, class schedules, the methods employed by teachers, and so on ad infinitum, but which gives only passing recognition to the results these teachers are getting.

The third principle: Evaluation should be a continuous process, not just a "point-in-time" judgment. The point has already been made, but will bear repetition that we should be making evaluations of our programs in each state of this nation, not primarily because VEA 1963 makes it mandatory, but more importantly, because periodic evaluations provide us with a basis for adjusting our programs to meet the occupational and manpower needs of the states and because they provide our best means of quality control of these programs. Stated in the vernacular, "How can we tell how far we've gone until we know where we started from, and how can we tell how good we are doin' until we know how bad we were once?"

Therefore, the evaluations in each state should be planned not just to tell us where we are today, but to provide a bench mark for measuring future progress. One weakness of a point-in-time assessment is clearly evident in the example given earlier of the program for training tomato pickers. While two weeks after the close of this program there were 15 workers on the job, three weeks later there may well have been none or 30. A point-in-time evaluation is just like a snapshot. When it is taken it may find you looking good or bad.

Our fourth principle: Evaluations should be made by teams comprised of both professional and lay personnel. A good case could be made, it seems to me, for the statement that supervisors and teachers of vocational agriculture in a given state are incapable of evaluating their own state program objectively without outside assistance. Perhaps it is true that the closer we are to a given program and the more we know about it, the more likely we are to find ourselves unable to see the forest for the trees.

The lay public is going to evaluate our programs anyway, and generally on the basis of misinformation or lack of information. Teachers and supervisors who have undertaken systematically to find out just how much the general public knows about their programs have been appalled and concerned at how little they really know and how much they think they know that simply isn't true. As one person put it, "Parents furnish the kids, and the people furnish the money for our programs, why shouldn't they be concerned about how good they are?"

It seems logical, therefore, that our evaluations should be a team effort, with professional personnel undertaking the task of determining the data needed, gathering it and compiling it into a meaningful form, with lay personnel assisting and taking a major part in evaluating and appraising on the basis of these facts.

Referring once again to our tomato picking project, the primary evaluator was not a vocational educator, not an educator at all, certainly not an agriculturist in any sense of the word. It is doubtful if he could distinguish a tomato from a potato vine. He was an editor, printer and publisher. Yet his evaluation was a masterpiece of insight, clarity, and validity.

Principle number five: Evaluation of publicly supported programs should include economic factors and concern itself with input-output relationships. In most states, the support for education is the largest single item in the state budget, and vocational education in agriculture is certainly not the least expensive form of education. Therefore, we should increasingly be concerned not only with the excellence of our product, but with its excellence in relation to its cost. Indeed, the national evaluation of vocational education may well make economics the primary focus in their appraisals and turn the spotlight on "what did we get from the dollars we spent?"

Furthermore, vocational education, as supported by the National Vocational Education Acts and carried on by the public schools, is no longer the only federally supported program of vocational education, nor is the public school system the only agency providing vocational education. As you well know, this is a primary thrust of MDTA, Economic Opportunity programs, the Job Corps, and perhaps others, some of which are being conducted by private industry. If the cost of preparing or retraining a worker and placing him in a gainful occupation in agriculture should prove to be greater per unit than that of competing parallel programs, we may be called to account for this, and rightly so. More importantly, it might result in some adjustments in the financial support we receive.

Number six: Evaluations and appraisals should be made not only on the basis of what has been done, but also on what should have been done. As this presentation was being prepared a circular came to my desk from the U. S. Office of Education entitled "The Youth We Haven't Served." Its subtitle is "A Challenge to Vocational Education." It doesn't seem necessary to belabor this point, for it is surely evident to you as well as to me, that we have left many things undone, and even perhaps done some things that were of lesser importance. Just one example. What has vocational agriculture done in your state as compared to what needs to be done to serve disadvantaged youth, to retrain adults for employment? Enough said.

Number seven: The major purposes of evaluation should be to provide quality control and a basis for intelligent change. The relationship between evaluation and quality control of ongoing programs should be an obvious one. Supervisors are continually making informal evaluations of local programs and using these observations for maintaining the quality of these programs.

All of us, however, recognize the difficulty of inaugurating major changes and are familiar with the resistance such moves may engender. Formal evaluations should provide the facts needed not only as a basis for determining if a change is necessary, but also the direction that the change should take.

Just as many of us fear change, however, many also fear evaluations. From a practical point of view, one of your major tasks as state leaders may be to remove or minimize both of these fears as you move into this process on a state-wide front. The problem of just how to do this may well deserve your attention during this Seminar.

Number eight: (and my last principle) An evaluation should concern itself primarily if not exclusively with the key indicators of success or failure. It has long been a personal bias of mine that many evaluations and evaluative instruments were so detailed and included such a mass of minutiae that they simply collapsed of their own weight. It has always seemed to me that we as professionals should be able to identify a few factors which are highly significant and which alone, if studied in depth, would give us a clear picture of how well a program is functioning. There was before me recently an instrument for evaluating local departments of vocational agriculture which analyzed 30 major aspects of local programs, and each major section contained an average of 10 indicators. Should it be necessary to gather data on 300 indicators of success or failure?

Any number of supervisors and teacher educators have said to me that given five minutes in a school and a vo-ag classroom with a class in session, they could appraise pretty accurately just how well that teacher and that department were doing. Do you agree? Then why all this mass of data? Why not use more on-site observations in place of so much paper work or at least to supplement it?

Until recently it was my feeling that few people agreed with my theory of key indicators, but in discussing this with a highly competent and highly trained research specialist the other day, it was learned that researchers are coming to this same conclusion. They call it the identification of "potent variables." In analyzing research data the modern trend apparently is to locate these potent variables, analyze and study these in depth, and give only passing attention if any to those which while they may be interesting, are not really significant. This makes sense to me.

It is my feeling, gentlemen, that this eighth principle may be the most significant contribution that this presentation may make to your Seminar.

I have based my presentation on eight generalizations concerning evaluation in vocational education in agriculture:

(1) That evaluations of educational programs should be made in terms of the objectives of these programs.

(2) That evaluations should include assessments and appraisals of both product and process.

(3) Evaluation should be a continuous process, not just a "point-in-time" judgment.

(4) Evaluations should be made by teams composed of both professional and lay personnel.

(5) Evaluations of publicly supported programs should include economic factors and be concerned with input-output relationships.

(6) Evaluations and appraisals should be made not only on the basis of what has been done, but also on what has not been done.

(7) The major purposes of evaluation should be to provide quality control and a basis for intelligent change.

(8) Evaluations should be concerned primarily, if not exclusively, with the key indicators of success or failure.

These are principles which apply equally to local, state, and national programs.

It is my hope that as you proceed with the work of this Seminar, you may find some small measure of significance in what has been said during the past hour and some small measure of value in the thoughts expressed.

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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OBJECTIVE 1: To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture

For me it is a pleasure to have the opportunity of discussing briefly the subject of Production Agriculture as an Objective of Vocational and Technical Education in Agriculture. In discussing this we will refer to procedures and objectives that have been a part of vocational agriculture since its inception in 1917. However, with the broadening of vocational agriculture objectives under the Vocational Education Act of 1963, and with the mandate for periodic review and evaluation of all phases of vocational education a part of that same law, it certainly is appropriate, yes imperative, that we examine our purposes--our objectives.

As points of reference I am listing three items which I feel are fundamental to our consideration of evaluating production agriculture as an objective of vocational education in agriculture. I might well call these "This I Believe."

(1) Farming as America's largest and most basic industry offers opportunities for youth.

(2) Education for production agriculture is a continuing program.

(3) Comprehensive farming programs are an essential part of education for production agriculture.

Now to discuss each of these items.

One important criteria for establishment, continuation, or evaluation of a vocational education program is the opportunity for gainful employment of students. What is the situation regarding production agriculture, which includes farming, ranching, horticulture --all a part of production agriculture? For simplification, I shall refer to these areas as farming.

I am sure that each of you are familiar, as I am, with the data showing that farming --producing food and fiber for our population--is the country's biggest industry, so I won't go into detail on that. But what I am interested in--as an agricultural educator--is the fact that many people do not know what the situation is regarding opportunities in farming. How many of the students we now have enrolled in high school vocational agriculture will have an opportunity to farm? one in ten? --one in twenty? How often have you heard this--or seen this in print--that only one in ten farm boys, or one in twenty, will have a chance to farm? How many of us know what the actual situation is in our communities if we are teachers, or in our state, if we have state-wide responsibilities in administration or teacher education? If we are to be in a position to plan programs, to advise and counsel students, we must have this information. Let me review briefly with you what we found in one state, that is, in Minnesota, regarding the opportunities for farming for vocational agriculture graduates. Minnesota is predominately an agricultural state. We needed the answer to the question, "Have we been, or are we training far more students than will ever find the opportunity to farm?" If we have been, then certainly we should eliminate some of our programs or we must change our objectives.

In 1964 in order to get up-to-date information and to find out what the actual situation was, more than 20 percent of the vocational agriculture teachers in the state, in cooperation with their students, made detailed surveys of their local communities. The summary of this study showed that each department served a community with an average

number of 322 farms. That year these departments averaged ten vocational agriculture graduates. That same year, there was an average of more than eight farms available in each of the communities taking part in the study. With approximately 50 percent of these graduates eventually going into farming, based upon past experience, there were farming opportunities for all boys who planned to enter farming as their vocation. Thus, there were far more opportunities than most people realize. In our state, it has been estimated that only one-half of beginning farmers each year are vocational agriculture graduates. The study substantiates these estimates. This does not take into account the opportunities for full-time hired workers. This is an opportunity I feel we often overlook. Actually, in Minnesota, we are a long way from meeting the need for educated and trained replacements in production agriculture. We, as agriculture educators, do have the responsibility for knowing what the opportunities are for those who elect to take our programs. If we don't have facts we may make the mistake of accepting the misinformation that is peddled to the public--and we ourselves shall be at fault. We should have facts, we should have information we can make available in counseling our students and informing the public. If we don't, we are not meeting our objective as vocational educators and any evaluation of our program should be critical of our procedures. I have seen, during the past two years, numerous studies on opportunities in agriculture occupations but how many on opportunities in production agriculture--the basic industry? Very few.

The next point of "This I Believe," is that education for production agriculture is a continuing program.

In far too many instances vocational agriculture is thought of as the high school FFA program. This thinking is true sometimes of school administrators, editors, the public, and maybe even of some in agriculture education. For those whose objective is production agriculture, the high school FFA vocational agriculture program is important in developing an understanding of the opportunities in farming, in acquiring and understanding skills, techniques and procedures necessary for production agriculture. It also provides opportunity for development of leadership ability and the ability to work together with others in committees and larger groups. With farming programs as an integral part of instruction the student has the opportunity to take that important first step toward establishment in farming--the accumulation of capital investment in the form of livestock, machinery and equipment, crops and other forms of capital.

However, all of this is but the first step in meeting the vocational education needs of our students. For those who remain in the community and continue their progress toward eventual establishment in farming, the young farmer, or as we now term it, the beginning farmer program is designed to meet the needs of this specific group. Further instruction in the understanding and mastery of skills and techniques is a necessary part of beginning farmers' programs. Also, instruction dealing more specifically with sources and use of credit, methods of land acquisition, counseling on use of resources and establishment of long-time plans and goals are more pertinent to beginning farmer education than to the other phases of vocational agriculture education. True, this is in many instances but a continuation of high school instruction. But it is taught in more depth and at a time when it has more direct meaning than in our high school classes. Programs to meet the needs of this group may be conducted by high schools, area vocational-technical schools, or junior colleges.

The adult education program, designed to meet the educational needs of farmers who want to advance, to improve their business and their income can have immediate results. One reason is because the student, in this case the farmer, is in a better situation to make immediate application of the principles, methods or techniques studied. The organization of comprehensive adult farmer programs for the teaching of farm organization and management is a significant recent development in vocational agriculture. A recent study showed that investment in this one phase of agriculture education; teaching adult farmer classes on the basis of farm management, made an immediate return of $30,000 a year to the community over and above the cost of the instructor. There are other returns to the community also, but the monetary is probably the most immediate and striking.

Farming is a complex, rapidly changing industry. New methods, new chemicals, research findings, improved machinery, all require constant study and evaluation. A continuing

education program for high school, post high school, beginning and adult farmers are all a necessary part of a comprehensive agriculture education program. Any evaluation of a vocational agriculture program must consider how well we are meeting the educational needs of all the groups we are to serve.

The third item of "This I Believe" has reference to the place of comprehensive farming programs as an essential part of education for production agriculture.

Have we too often given lip service to the place of farming programs in vocational agriculture? Do we say that farming programs are essential and then develop curriculums that are subject matter orientated, with development of a farming program an afterthought? Or worse yet, do our students "study vocational agriculture" and carry a project to meet a qualification? Review the contributory objectives under the major objective of "development agriculture competencies needed by individuals engaged in or preparing to engage in production agriculture" in the new Objectives Bulletin. You will note that there are ten. They are specific--I think they are good. Eight of the ten contributory objectives can only be met through the use of farming programs as a teaching device, through actual application of classroom, laboratory or farm shop study and learning. They are:

(1) Begin and advance in production agriculture
(2) Produce agricultural products efficiently
(3) Market advantageously
(4) Finance successfully
(5) Provide efficient mechanization
(6) Use proper and accurate records
(7) Conserve natural resources
(8) Make effective use of resources

At least three steps are essential in the development of real comprehensive farming programs. They are:

(1) Planning
(2) Operation or implementation of plans
(3) Evaluation

Each of these steps are appropriate and essential whether the farming program be for the high school student or the adult farmer student.

It may be that too often we think of a farming program with the objective of production of a calf, a litter of pigs, or an acre of corn. The teaching value can well be lost with that limited objective. There is tremendous teaching value in providing time and opportunity and direction for careful and detailed planning, step by step, and budgeting before the second step of execution of plans is implemented . Some time ago a vocational agriculture teacher and I were visiting a member of an adult farmer class. Just as we were leaving I heard the farmer remark to the teacher, "I followed your plan and spent the last two evenings figuring out the cost of the new combine. I can't see where it would pay me to buy it. I want to go over this with you when you have time." To me, that was an excellent example of planning, making a decision on the basis of plans and evaluation.

The second step, that of implementing plans, is of special value to the high school and post high school student. This is where the student learns to make decisions, to accept responsibility for these decisions. And don't underrate the value of this learning. Those who can't learn to make decisions and accept responsibility will have to be content that someone else will be doing this for them. And what a handicap this is.

Implementation of plans by high school or post high school students should result in the accumulation of capital--as I have mentioned. We should not overlook the fact that this--the accumulation of livestock, machinery, money, is a condition of employment--which is eventual establishment in a farming business.

Carrying out of the first two steps, planning and implementation of plans, must be followed by evaluation. This may well be followed by more planning and further implementation.

At the high school level in organizing our work, do we plan participation in activities that motivate comprehensive farming programs? Livestock market schools, county or state fair livestock and grain shows, field days, individual fertilizer or variety trials on students' farms, establishment of conservation practices, are but some of the many ways of motivating and making meaningful the farming program the student has as an integral part of his vocational agriculture program. In an evaluation of our work, I feel that consideration must be given to how effectively we teach development of farming programs if the contributory objectives I mentioned earlier are to be met.

In evaluating production agriculture as an objective of vocational agriculture, I would summarize with these points:

(1) Farming or production agriculture does offer opportunity for youth. We have the responsibility for having up-to-date information so that we may effectively counsel our students and inform the public. As vocational educators, we have responsibility for helping in placement for those who want to enter production agriculture.

(2) Vocational agriculture education is not a terminal program. With a complex and rapidly changing industry, we have the responsibility for providing educational programs for high school students, post high school, beginning and adult farmers.

(3) The objectives for production agriculture can only be met by development of comprehensive farming programs as an integral part of all vocational agriculture instruction. This will include the three phases of planning, implementation of plans, and evaluation.

We in agricultural education have been concerned, and rightly so, with the evaluation of vocational education as a result of the 1963 Act. But, let us never forget that we are being constantly evaluated, day by day--year by year, by our public on the basis of the young men who go into production agriculture and remain in the community, and by those who are in production agriculture--the operating farmers.

I hope that in planning and implementing our programs, we never lose sight of this. Also, let's remember that a state program is really the sum total of all local programs in that state.

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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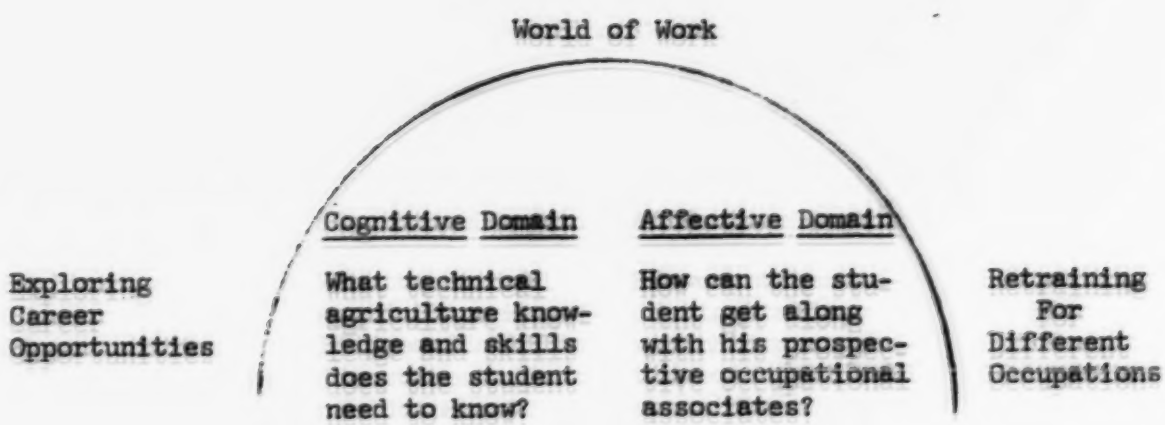
OBJECTIVE 2: To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture

The most general objective of education is that it cultivates excellence. Translated by Bruner,[1] this means the teaching of structure rather than simple mastery of facts and techniques.

Viewing the objectives for vocational and technical education in agriculture from a prospective student's point of view, Figure 1 illustrates the logical sequence of contact with each objective, with the exception of objectives one, two, five, and six. These interact with each other during study of an occupation or family of occupations. The two questions asked in Figure 1 are prerequisites for individual or group actions in any society.

According to Krathwohl and others[2] the affective domain includes educational objectives emphasizing a feeling tone, an emotion, or a degree of acceptance or rejection. This domain relates to the personal aspects of work. More than any of the other objectives, numbers five and six belong to this domain.

Figure 1. ORDERING EDUCATIONAL OBJECTIVES IN AGRICULTURE



Proposed Objective Order

3. Career Opportunities
1. Production Agriculture
2. "Other" Agricultural Occupations
5. Human Relations
6. Leadership Development
4. Adult Education

[1]Bruner, J. S. The Process of Education. Cambridge, Mass.: Harvard University Press, 1963.

[2]Krathwohl, D. R., D. S. Bloom, B. B. Masia. Taxonomy of Educational Objectives Handbook II: Affective Domain. New York: David McKay Company, Inc., 1964.

The cognitive domain includes the remembering or reproducing of information which has been learned. Clearly, objectives one and two belong to this domain. The following guiding principles developed for the taxonomy, apply equally to all educational objectives:[3]

1. The taxonomy (of educational objectives) should be used in regard to existing educational units and programs.

2. The taxonomy should be logically developed and internally consistent.

3. The taxonomy should be consistent with our present understanding of psychological phenomena.

4. The classification should be a purely descriptive scheme in which every type of educational goal can be represented.

Bloom[4] further divides educational objectives in the cognitive domain into six major classes: knowledge, comprehension, application, analysis, synthesis, and evaluation. Much of the content in both handbooks focuses on curriculum construction and program development rather than educational objectives for the individual learner.

This paper addresses itself to a discussion of objective two in the Objectives for Vocational and Technical Education in Agriculture[5] as it relates to the development of criteria for evaluation. The objective is:

> To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.

Perhaps the purposes of this conference can best be served by a straight-forward delineation of a particular position on the educational preparation for agricultural occupations. This position paper represents only one of several approaches which could be taken on the subject. However, the author shall attempt to logically and systematically put forth four propositions.

The following assumptions generally relate to the content of this paper and specifically to the propositions:

1. Knowledge and skills in technical agriculture exist, can be identified, and can be translated into educational objectives.

2. The selection of specific appropriate objectives contributes to a quality vocational education program in agriculture.

3. Teachers who are best qualified in a subject matter area should select the educational objectives for that area.

Before criterial objectives can be written for programs in agricultural occupations, technical knowledge of skills involving plant and animal growth principles must be identified. This position is delineated by the following propositions.

1. Before appropriate educational objectives can be identified for agricultural occupations, defining attributes must be assigned to the category.

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[3]Bloom, B. S. (ed), M. D. Englehart, B. J. Furst, Walker H. Hill, and D. R. Krathwohl. Taxonomy of Educational Objectives, Handbook I: Cognitive Domain. New York: David McKay Company, Inc., 1956.

[4]Ibid.

[5]Office of Education, OE 82011, Objectives for Vocational and Technical Education in Agriculture. 12 pp. Washington: Government Printing Office, 1965.

2. The extent of technical agricultural knowledge of plant and animal growth principles best defines the nature of the agricultural occupation.

3. Essentially no difference exists in the nature of the technical agriculture resource units taught to develop competency in agricultural occupations either on or off the farm.

4. Teachers of vocational agriculture are best qualified to teach principles of plant and animal growth.

An important notation to the third proposition is the extent of application of this knowledge in the occupation. The extent of application has important implications for educational objectives. Presumably, an agribusiness employee finds himself in an environment which requires more specific knowledge of particular segments of technical information than most farm managers. For example, a farm supply store employee may need to know extensive information about the limited number of products available for sale by the store. A farm manager needs less extensive knowledge of more products.

This paper shall attempt to establish the need for an affirmative dimension describing both on and off-farm agricultural occupations. The second proposition remains as an assertion throughout the paper. But a construct is proposed, projecting production agriculture effects throughout the agricultural industry.

Principle knowledge of plant and animal growth phenomena provides the best background for most agricultural occupations. The nature or content of this knowledge is the same in all situations. However, the extent to which this knowledge applies depends on the demands of the situation and the particular environment of the agribusiness employee.

Identifying Agricultural Attributes in Occupations

Bruner and others[6] define an attribute as a discriminable feature of a concept. For example one feature of a table is that it has legs. This feature or attribute may vary from item to item. Some tables have long legs, some tables have short legs. Other legs are round and some are square. But the attribute of having legs identifies a table. According to Bruner, when a discriminable feature is used to infer identity of something, it is a criterial attribute. The legs on a table may be so short that the table is almost resting on the ground. One could say it is much less of a table; but, if one accepts the identifying attribute of a table as having legs, the non-functional legs qualify the object as a table. Criterial attributes are sorely needed to identify agricultural occupations.

Webster[7] defines agriculture as the science or art of cultivating the soil, harvesting crops, and raising livestock. If one includes the knowledge and practices of cultivating the soil for crop production under the category "plant growth," then plant growth and animal growth represent two features describing agriculture. Any specific occupation requires particular kinds and amounts of agricultural knowledge for an optimum level of operation. Criterial attributes identifying agricultural occupations along dimensions of animal science and plant science need to be identified. When these are identified, behavioral objectives may be written for the prospective employee to attain criterian performance.

Relating Agricultural Occupations

An examination of objective two reveals the phrase "other than production agriculture." Presumably, the agricultural occupations mentioned in the objective are defined by telling what they are not! The terminology of off-farm, non-farm, related, or associated occupations, conveys very little positive descriptive information.

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[6]Bruner, J. S., J. J. Goodnow, and G. A. Austin. A Study of Thinking. New York: Appleton-Century-Crofts, Inc., 1960.

[7]Webster's Third New International Dictionary. Unabridged. Springfield, Mass.: G. and C. Merriam Company, 1961.

The 1963 Vocational Education Act[8] infers a positive continuum between on-farm and off-farm agricultural occupations:

> . . . amounts allotted . . . for agriculture may be used for vocational education in any occupation involving knowledge and skills in agricultural subjects . . .

This continuum relates to the nature and extent of plant and animal growth principles useful to persons engaged in agricultural occupations. In essence, these individuals extend the effect of raising livestock and producing crops into the industrial segment of the economy. This fact is stated by Webster[9] in his definition of agribusiness:

> "A combination of the producing operations of a farm, the manufacture and distribution of farm equipment and supplies, and the processing, storage, and distribution of farm commodities."

Yet, many generally accepted references such as the Dictionary of Occupational Titles,[10] and the Standard Industrial Classification Manual[11] classify agriculture strictly as a production function. When identifying jobs related to agriculture, the DOT[12] enumerates primarily businesses which supply commodities to farms. Agricultural supply businesses and dairy products plants add value to the raw materials and properly can be considered an extension of the production function.

An effort aimed at structuring man's knowledge in vocational education articulated by Ray[13] places agriculture with mining in the extraction phase of material production. This approach strongly suggests that agriculture is primarily a source for raw materials.

Although not recognized by the above sources, the agricultural industry as a production function in the economy extends beyond the limits of the commercial farm. Figures 2 and 3 represent preliminary advances toward a construct identifying the role of production agriculture in the economy.

The schematic diagram in Figure 3 represents agriculture as a unique industry in the economy, one which fulfills an important consumption as well as a production function. In effect, many agricultural goods and services act as raw materials for farm production units. Entry level occupations in agricultural supply businesses often require a comprehensive knowledge of plant and animal growth processes particularly in the areas of genetics and nutrition. These suppliers of inputs into the farm business represent a different level of concern for agricultural educators than the production agriculture level.

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[8] Public Law 88-210. 1963 Vocational Education Act. 88th Congress, H. R. 4955, December 18, 1963.

[9] Webster's Third New International Dictionary. Unabridged. Springfield, Mass.: G. and C. Merriam Company, 1961.

[10] U. S. Department of Labor, W. Willard Wirtz, Secretary, Manpower Administration, Dictionary of Occupational Titles, 1965, Volume II, Occupational Classification, 3rd ed.

[11] Executive Office of the President, Bureau of the Budget. Standard Industrial Classification Manual, 1957.

[12] U. S. Department of Labor, W. Willard Wirtz, Secretary, Manpower Administration, Dictionary of Occupational Titles, 1965, Volume II, Occupational Classification, 3rd ed.

[13] Ray, W. E. "Structuring the Knowledge of Man's Practices." 28 pp. Symposium Paper presented at the American Educational Research Association Annual Meeting, Chicago, Illinois, February 17-19, 1966. (Mimeograph.)

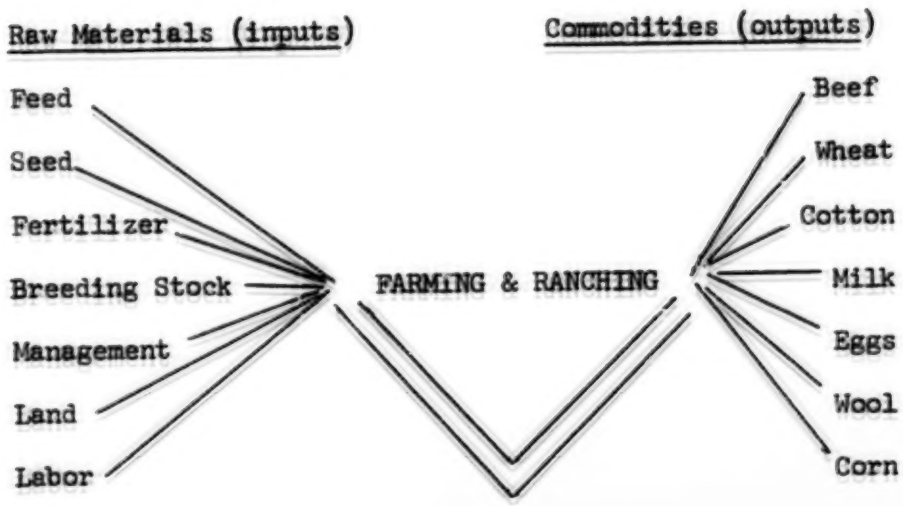
Actually, Figure 3 identifies three levels of concern for the specification of educational objectives relating to agricultural occupations. The first is farming and ranching--production agriculture. Second, the occupations supporting the agricultural industry by supplying inputs to the farm business represent a realistic need for technical agriculture knowledge and skills. Third, the group of commodities destined for the consumer must be

Figure 2. PRIMARY AND SECONDARY FUNCTIONS IN THE ECONOMY

Primary:	Production	Distribution	Consumption
Secondary:	Processing	Servicing	

processed and distributed. Agricultural educators have a concern for accurate and informative product knowledge reaching the consumer. For example, the housewife will find useful technical agricultural knowledge concerning the color and marbling of beef to assist her in purchasing the freshest quality cuts. The degree of concern for agricultural instruction in the three areas mentioned is directly related to the nature and extent of technical agricultural knowledge required by the persons in occupations representing these areas. Kennedy[14] identified 786 occupations associated with farming and agriculture, but he immediately suggested that these occupations may be ordered on a continuum in terms of the knowledge of farming required or desirable for these occupations.

Figure 3. THE AGRICULTURAL INDUSTRY



Principles of Plant and Animal Growth

A taxonomy of agricultural occupations ordered by their need for technical agricultural knowledge must be devised before realistic substantive educational objectives for agricultural occupations can be written. The components necessary for ordering agricultural occupations are available. Competency factor groups[15] have already been designated for many types of agricultural businesses. Table 1 gives the relative competency ratings which agricultural business managers in Oklahoma placed on four areas of agriculture.[16] The Oklahoma Vocational

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[14] Kennedy, W. H. "A Clarification of Relationships Between Farming and Certain Other Agricultural Occupations with Implications for Guidance and Curriculum Development." East Lansing, Michigan: Department of Teacher Education, Michigan State University, 1959. (Mimeograph.)

[15] Summary of Research Findings in Off-Farm Agricultural Occupations. 84 pp. The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1965.

[16] Ibid.

Research Coordinating Unit[17] recently published competency profiles for thirty-three agricultural job titles. The next step is the development of attainable occupational objectives which incorporate agricultural knowledge for families of occupations. The notion of supporting education advanced by Stevens[18] clearly relates to the educational preparation of individuals for occupations requiring skills in several areas of vocational education. Vocational agriculture should view itself as a supportive element for many distributive occupations requiring technical agriculture product knowledge. On the other hand, for those occupations which supply and service production agriculture, vocational education in agriculture should assume primary responsibility.

TABLE 1. TECHNICAL AGRICULTURAL KNOWLEDGE AND SKILLS

REQUIRED FOR EMPLOYEE PROFICIENCY IN FOUR

TYPES OF AGRICULTURAL BUSINESSES[1]

Type of Business	Agricultural Business Management	Plant and Soil Science	Animal Science	Agricultural Machinery and Power
Agricultural Supplies:				
Management and Sales	high	high	high	low
Service	some	high	low	high
Agricultural Machinery:				
Management and Sales	high	high	some	high
Service	low	high	some	high
Ornamental Horticulture:				
Management and Sales	high	high	low	some
Service	low	high	low	high
Meat, Milk, and Eggs:				
Management and Sales	high	low	high	low
Service	low	low	high	some

[1]Source: Summary of Research Findings in Off-Farm Agricultural Occupations. 84 pp. The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1965.

Incorporating Content Objectives with Learner Experience

The task of any educator, indeed the charge to this Seminar, is the development of evaluation techniques which accurately measure a student's progress toward objectives. The preceding information attempted to develop a rationale, an approach for systematically ordering instructional content relative to specific agricultural occupations. Principles of plant

[17]Job Title Profiles in Off-Farm Agricultural Occupations. 66 pp. Vocational Research Coordinating Unit, Oklahoma State University, 1966.

[18]Stevens, Glenn Z. "Supporting Education Among Vocational Programs," The Agricultural Education Magazine, 38: 256-257, May, 1966.

and animal growth pervade all agricultural occupations. Bloom[19] suggests, "Integrative threads based on major topics, ideas, and theories in a subject field tend to yield the organization of the phenomena which seems most sensible to the teacher."

The reader will recall the notation with proposition three suggesting that extent of application has a great deal to do with learning agricultural information. The context in which knowledge is acquired forms the attitudes and feelings surrounding this knowledge. Dewey[20] recognized the inter-relationship between method and subject matter. He preferred to speak of interaction between an organism and the environment as a single event. Method and goal can not be separated!

Student reactions to classroom instruction depend on past experiences. A student may be considering the occupational objective he listed at the beginning of the year while he is acting the part of an agricultural chemical salesman in a role-playing situation in class.

Consequently, Tyler[21] suggests that education is a process of changing the behavior patterns of people. This is using behavior in the broad sense to include thinking and feeling as well as overt action. Without separating content objectives from attitudinal objectives, behavioral objectives can be written to identify criterion student performance. As illustrated in Figure 4, objectives can be stated in operational terms. A statement of the objective should include both the kind of behavior to be developed in the student and the substantive area in which this behavior is to operate.[22] Behavioral statements of objectives, with implications for both the cognitive and affective domain, become the evaluative criteria for units of instruction or agricultural programs.

The Center report[23] lists the occupational titles needing the greatest number of new employees during the next five years:

Agricultural Machinery Mechanic	Greenhouse Grower
Agricultural Machinery Mechanic Helper	Greenhouse Worker
Agricultural Machinery Set-up Man	Nursery Worker
Agricultural Machinery Salesman	Greenkeeper
Agricultural Machinery Partsman	Groundskeeper
Agricultural Supplies Salesman	Food Products Processman
Agricultural Supplies Serviceman	Food Products Salesman
Agricultural Supplies Deliveryman	Food Products Department Manager

The behavioral objectives for these occupational titles remain to be specified. The Illinois study of off-farm agricultural occupations came very close to this approach when it asked employers what their employees needed to know to perform certain activities in the business.

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[19] Bloom, B. S. "Ideas, Problems, and Methods of Inquire," The Integration of Educational Experiences, pp. 84-104. Fifty-seventh Yearbook of the National Society for the Study of Education, Part III. Chicago: The University of Chicago Press, 1958.

[20] Dewey, John. "In Defense of the Theory of Inquire," (1949) in John Dewey on Experience, Nature, and Freedom. Richard Bernstein (ed.) 1960. New York: The Liberal Press.

[21] Tyler, R. W. Basic Principles of Curriculum and Instruction. 83 pp. Syllabus for Education 305, Chicago: The University of Chicago Press, 1950.

[22] Ibid.

[23] Summary of Research Findings in Off-Farm Agricultural Occupations. 84 pp. The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, 1965.

Figure 4. EDUCATIONAL OBJECTIVE SPECIFICATION FORMAT

FOR AGRICULTURAL OCCUPATIONS

Statements of Objectives (Examples)

Occupational Needs	Operationally Defined	Cognitive Domain	Affective Domain
Agricultural Mechanization	to explain the merits of a diesel tractor	What efficiencies are gained with a diesel tractor on large tracts of land?	The student must appreciate the qualities and limits of a diesel tractor.
Horticulture	to identify a Pfitzer Juniper	The student must know the descriptive characteristics of a Pfitzer Juniper	The student must believe it is important to identify this plant and be able to communicate its usefulness in a landscape design.
Feed Supply Store	to mix the correct amounts of antibiotics in a pig starter ration	The student must either know the correct amounts or be able to use a manual to determine the correct amounts.	The student ought to enjoy being precise and exact with measurements.

If objectives are stated in operational terms, they become evaluation criteria!

The evaluation of program planning for agricultural occupations becomes more comprehensive and correspondingly more difficult than individual student evaluation. The manner in which the teacher instructs the class affects the attitudes as well as the knowledge of the students. The sequence of events used to teach a concept must be an efficient one. The interaction between the student and the internal conditions in the environment should be planned to achieve the stated educational objective. Tyler[24] suggests some general principles for selecting learning experiences:

1. The student should have an opportunity to practice the kind of behavior implied by the objective.

2. The student should obtain satisfactions from carrying on the kind of behavior implied by the objective.

[24]Tyler, R. W. Basic Principles of Curriculum and Instruction. 83 pp. Syllabus for Education 305, Chicago: The University of Chicago Press, 1950.

3. The reactions desired in the experience should be within the range of possibility for the students involved.

4. Many particular experiences can be used to attain the same educational objective.

5. The same learning experience will usually bring about several educational outcomes.

Educators must always be aware of the individual needs of students when planning group instruction. All students do not start at the same place when learning additional information. Definite stages in the learning process exist. Although Krathwohl[25] relates the following comment to the affective domain, many of the same student learning processes occur in the concept attainment of new knowledge:

> . . . the clearer it became that a continuum might be derived by appropriately ordering them. Thus the continuum progressed from a level at which the individual is merely aware of a phenomenon, being able to perceive it. At a next level he is willing to attend to phenomena. At the next level he responds to the phenomena with a positive feeling. Eventually he may feel strongly enough to go out of his way to respond. At some point in the process he conceptualizes his behavior and feelings and organizes these conceptualizations into a structure. This structure grows in complexity as it becomes his life outlook.

This paper has attempted to develop a rationale for unifying agricultural occupations along a continuum of plant and animal growth principles. This continuum can be expanded into attributes identifying agricultural occupations.

The second purpose of this position paper has been the delineation of guidelines for educational objective construction leading to statements of substantive objectives specified in behavioral outcomes. Occupational needs of the agricultural industry ought to be merged with the development of agribusiness abilities within vocational agriculture students. Methods of instruction and the consequent statement of behavior objectives will always vary with the ability levels of the students and the particular conditions of the environment. Writing criterial objectives for agricultural occupations continues to require astute observation of industry phenomena and measurement techniques to assess the student's progress toward the substantive goal.

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[25] Krathwohl, D. R., D. S. Bloom, B. B. Masia. Taxonomy of Educational Objectives Handbook II: Affective Domain. New York: David McKay Company, Inc., 1964.

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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OBJECTIVE 3: To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations

Vocational and Technical Education in Agriculture has reached a stage of development when the achievements of the past are not entirely adequate guides for identifying the opportunities of the future or for indicating how they might be realized. This is a time of transition, in which one of the basic problems is to implement the currently accepted objectives for the future; at the same time, it is essential to maintain that degree of flexibility required in order to adjust to more derisable objectives that are certain to appear in the future.

Dr. Grant Venn, recently appointed Assistant Commissioner, Bureau of Adult and Vocational Education, U. S. Office of Education, certainly had change in mind when he stated:

> I think we have to have a new concept of occupational education. The nature of work has changed so much that we can no longer think of vocational, or technical, or occupational education, as the teaching of a set of basic skills which the individual learns and then is prepared for a place in the work world. This is simply not going to be true because the average person is likely to change jobs during his work life four or five times . . . .

Along with training for these different skills,

> . . . it seems to me that we must be teaching civic understanding and personal understanding and how to get along with one another.[1]

During the past few years much has been written concerning the impact of automation upon employment in our society. Unfortunately, there are no current lucid estimates of the rate at which automation may eliminate jobs in the future. Some predications like those of Ralph Bellman, a computer expert for the Rand Corporation, indicate that:

> Two percent of the population--by implication the two percent at the upper administrative and executive levels--will in the discernible future be able to produce all the goods and services needed to feed, clothe, and run our society with the aid of machines.[2]

At the present time, there is no way of determining if Mr. Bellman's predictions are entirely correct or, if so, how rapidly they may occur.

However, on the basis of what is already known about the scientific and technological revolution it is apparent that there will be numerous employment adjustment problems in the years ahead. Education will have to become much more deeply concerned with the resolution of many of these problems. Somewhat more than two years ago, the late Adlai Stevenson recognized the central role of education in a world of automation when he stated:

> . . . It is the educator, not the engineer, not the businessman, not the union official, not the bureaucrat, who must tell us how to keep our youngsters in school to prepare them for a productive life.[2]

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[1]Venn, G. Needed: A New Relationship Between Education and Work. Speech presented at Kent State University. 1964.

[2]Childs, G. B. Is the Work Ethic Realistic in an Age of Automation? Phi Delta Kappan, Vol. XLVI, No. 8. April, 1965.

Despite the fact that not all the best Agricultural Education objectives or alternatives for the years ahead may be currently known, our task is to examine the present agreed-upon major objectives, each of which has somewhat distinctive, though related, characteristics and several contributory goals.

It has been frequently stated that our present objectives are projected into a future in which change will inevitably occur. Because of this fact, we should be appreciative that today there are creative and innovative elements at work in the field of Agricultural Education. This is an indication that we are dealing with a growing organism that has vigorous, deeply penetrating roots. I trust that this is also an indication that we have already passed the stage of just trying to avoid obsolescence, and that we are ready to explore and evaluate the essential choices for the most fruitful development of the entire program.

As we concern ourselves with the most effective ways in which Vocational Education in Agriculture can make the best contribution to the youth and adults of our nation and to the societies in which they live, no doubt many additional suggestions will emerge from the group that can help to determine methods of measuring the feasible rates of growth, along the directional paths indicated by the major objectives.

These objectives and their implications all cluster around a central point. That focal point or idea indicates that any measure of success of the Agricultural Education Program must be in terms of its enhancement of human capacities. It is the individual who is being educated. The suggestion has been made, therefore, that we should ask ourselves the following questions: Are we educating and/or re-educating the individual for participation in a changing world of work? Are we striving to produce the informed citizen in a free society? Are we attempting to aid individual growth and fulfillment? In real terms, the test of the success of any educational program will be the quality and the development of its participants and graduates and the contributions they can make to society.

The present objectives may not entirely satisfy everyone concerned, but I believe they do reflect a sound philosophy of Vocational and Technical Education in Agriculture and its relationship to secondary, post-high school and adult education. It will now be up to the personnel engaged in Agricultural Education to select and organize learning activities to develop the objectives, utilizing appropriate principles of learning. As we approach our task, we must not lose sight of the fact that we have an obligation to start serving our clientele at the stage where they <u>now</u> are and not at the place where we <u>wish</u> them to be.

In order to determine how effective educators have been in fulfilling the objectives of a program, it is obvious that the objectives must be clearly understood. One suggestion that may be of value is to think of objectives in terms which identify the people concerned, the kind of behavior or action to be accomplished, and the content or problem area in which this behavior or action is to operate. In examining the contributory goals under major objective number three, it becomes evident that career understandings, appreciations and implications are very important considerations for all students.

<u>Contributory Objective #1</u>

> "Understand and appreciate the importance of agriculture to the Nation's economy and its impact upon the daily lives of all citizens."

The agricultural industry in America today is certainly of a complex, diversified and changing nature. If we are going to assist youth and adults to develop an understanding of, and appreciation for career opportunities in agriculture it would appear pertinent that we must aid them in comprehending important concepts and salient information about agriculture including: meaning of basic terms; interrelatedness and complexity; importance of agriculture and its effect upon the entire American economy; recognition that education is an investment and that both general and vocational education are essential if individuals are to become competent in the agricultural field; student awareness that educational programs are designed to meet the changing needs of individuals and of the agricultural industry; students' knowledge of the reasons for the efficiency of modern agriculture; and that agriculture is a growth industry.

Contributory Objective #2

"Determine the types and numbers of occupational opportunities in agriculture."

High school students and many adults often have numerous misconceptions and quite generally a lack of information concerning agricultural occupations. This is understandable because in many communities, these individuals have had little, if any, exposure to information concerning opportunities in non-professional or professional off-farm agricultural occupations. Consequently, these people need to be given the opportunity to understand and appreciate: both on-farm and off-farm agricultural occupations; occupational families and specific occupations or how and why agricultural occupations are classified; types and number of jobs available in each of the major fields annually; characteristics of the jobs; abilities or competencies required; beginning salaries; entry and advancement opportunities; prospects of satisfaction; and the importance of education and training.

Fortunately, many states have now completed partial or statewide surveys which furnish essential information about the available employment opportunities in the off-farm agricultural occupations. This information should certainly be of value in occupational guidance work.

Despite the recent emphasis upon guidance in many of our schools, most youth have actually received little occupational or vocational guidance. In the Journal of Educational Research, Powell and Bloom emphasized:

> Youth are frustrated in the intelligent selection of a vocation because they do not have adequate vocational information; --adolescents have had little vocational counseling; and they are inhibited in establishing long-range vocational objectives because they have not had sufficient professional help.[3]

These comments certainly point to a definite need for more vocational orientation for youth.

Contributory Objective #3

"Evaluate information concerning agricultural occupations."

Youth and adults need aid in developing an understanding of the information dealing with various agricultural vocations and their possibilities as well as in securing placement for occupational experience. Schools have a responsibility which they must meet.

High school students and adults want and need additional information concerning the basic education required, entry and advancement, job opportunities, age-range preferred, pay scales, sources of information and professional organizations involved. Rauner, in discussing occupational information and occupational choice, concluded:

> In guiding young people towards wise vocational choices, one of the important things to be determined is how much the individual knows about his chosen occupation, because lack of knowledge implies lack of a realistic approach to this most important act of choice.[4]

Youth and adults must be made aware of the importance of "thinking through" many questions such as the following in connection with career exploration: Who is going to decide what is important to me? (my parents, friends, society, or myself?) What criteria should I use in determining what is important for me? (social status, service to my fellow man, personal satisfaction, spiritual growth, creative opportunities?) What moral or ethical considerations will enter into the determination of my sense of values? (honesty,

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[3] Powell, M. & Bloom, V. Development Of and Reasons For Vocational Choices of Adolescents Through The High School Years. Journal of Educational Research, Vol. 56. No. 3. November, 1962.

[4] Rauner, R. M. Occupational Information and Occupational Choice. Personnel & Guidance Journal 41:4-7. December, 1962.

integrity, courage, perseverance, initiative?) What rewards am I interested in? (money, happiness, excitement, a sense of self-fulfillment?) How can I become a useful, productive, happy citizen?[5]

In appraising information concerning agricultural occupations the youth and adults with whom we work would do well to ask themselves at least the following five questions: When? Where? Who? Why? How?

When was the information published? This is important because of the rapid rate of change in the agricultural field. Where was the research conducted or the information prepared, and is it applicable to my situation? Who was in charge of the research or the information collected? The investigator should be well qualified. Why was the material written? For guidance purposes, entertainment, advertising, or public relations? How were the facts collected, and how were they presented?[6]

These items will aid youth and adults in evaluating information and in studying the agricultural world of work for the purpose of learning what to look for in various occupational areas.

Contributory Objective #4

"Study pertinent occupational information in relation to personal characteristics, aptitudes, and interests."

For instruction to be effective, students must be able to discern the relationship between what they are studying and their occupational goals. They must understand how vocational education in agriculture can help in making career choices and in becoming established in those careers. This should lead each student to assess his individual characteristics and to discover his interests and abilities and relate them to the agricultural industry. The emphasis should be on the students' looking at themselves to determine their interests, abilities, likes and dislikes, and to determine whether they have "anything in common" with the agricultural industry.[7] An individual's thinking should be guided towards matching his personal qualities with the qualitied needed in various occupations.

The teacher of agriculture has the responsibility of bringing his students to view their educational and vocational decisions as a means-to-an-end chain; that which is an end now, may become a means for a later goal. Perhaps then occupational information will become more meaningful to the student and his behavior may become more purposeful.

In order for teachers of agriculture to do an effective job with youth and adults a considerable amount of background preparation is required. Pre-service and in-service education must stress understandings and appreciations of occupational guidance information. Prospective and employed teachers should become acquainted with research findings in the field and make use of information such as indicated in the next few paragraphs.

Many investigations reported in the literature have been concerned with the relationships between early student experiences, and attitudes, abilities, interests, and other personality factors which affect the ultimate vocational selection of the individual. Most of these studies agree that meeting a student's basic needs must be a first consideration. Maslow's theory states that higher order needs cannot appear until lower order needs are at least relatively well satisfied. These basic needs include physiological needs, safety needs, need for belongingness and love, importance, respect, self-esteem, independence, information, understanding, beauty, and self-actualization.[8]

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[5]Stern, B. H. What Happens to Rejected College Applicants? Journal of Higher Education 33:7. October, 1962.

[6]Hoppock, R. Occupational Information. New York: McGraw-Hill Book Co., Inc., 1963.

[7]Weyant, J. T., Hoover, N. K., and McClay, D. R. An Introduction to Agricultural Business and Industry. Danville, Illinois: The Interstate. 1965.

[8]Roe, A. Early Determinants of Vocational Choice. Journal of Counseling Psychology. Vol. 4, No. 3.

Tiedeman's article in the Personnel and Guidance Journal suggests:

> Vocational development is self-development viewed in relation with choice, entry, and progress in educational and vocational pursuits. It is a process occurring over time to man who is capable of anticipation, experience, evaluation, and memory. . .vocational development ordinarily occurs within the context of several decisions.[9]

In a discussion in the Journal of Counseling Psychology, Holland proposes:

> . . . at the time of vocational choice the person is the product of the interaction of his particular heredity with a variety of cultural and personal forces including peers, parents, and significant adults, his social class, American culture, and the physical environment. Out of this experience the person develops a hierarchy of preferred methods for dealing with environmental tasks. . .the person making a vocational choice in a sense "searches" for situations which satisfy his hierarchy of adjustment orientations.[10]

In the current issue of the Occupational Outlook Handbook, Dr. Francis Keppel, until recently Assistant Secretary of Health, Education and Welfare, states:

> The individual realizes his highest occupational potential when he develops a career suitable for him and useful to society. He must be cognizant of his abilities, aptitudes, interests, and personality traits and he must also learn about a world of work characterized by changes. Accurate knowledge of both sets of facts greatly increases the probability that an individual will be able to find and maintain his proper place in this vast and evolving occupational complex.[11]

To guard against oversimplification of a complicated procedure, let us help students to think of occupational choice as an extended developmental process resulting from a series of interrelated decisions rather than as a single choice.

Contributory Objective #5

"Obtain exploratory work experiences in selected occupations under proper supervision."

Since the inception of the vocational education program on a national basis, some form of occupational experience has been considered essential for all students. As has already been pointed out, agriculture is undergoing a complex scientific and technological revolution which is creating a need for more highly trained workers. New opportunities in agricultural occupations are being found in various fields including marketing and processing of food and fiber, in supplying machinery and equipment, and in providing technical and professional agricultural services.

Youth and adults often know little about either non-farm agricultural occupations or the vast world of work. They must be made aware of the types and values of occupational experiences in agricultural businesses and industries, as well as on farms and in school laboratories, in order to assist them to locate and develop broad areas of agricultural interests.

Exploratory occupational experiences, under proper supervision, should enhance each student's background of occupational information and understanding of the important factors influencing occupations, thus enabling him to develop desirable and satisfying plans for the future. Supervision of these students will aid the teacher in realizing the many ways in which occupations are changing and will emphasize the need for flexibility in student career planning.

Among the guiding principles to follow in the organization and operation of an educational program for agricultural occupations, Fuller suggests that agricultural experience programs:

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[9] Tiedeman, D. V. Decision and Vocational Development. Personnel and Guidance Journal. Vol. 40. September, 1961.

[10] Holland, J. L. A Theory of Vocational Choice. Journal of Counseling Psychology, Vol. 6. No. 1.

[11] U. S. Department of Labor. Occupational Outlook Handbook. Bul. 1450,1966-67 edition. Washington, D. C.: Superintendent of Documents.

1. May include situations that provide learning through (a) employment, (b) observation, and (c) supplementary experience in agriculturally oriented firms.

2. Should emphasize education rather than the "work for pay" motive.

3. Should include a basic core of experiences which relate to units of instruction in the course outline.

4. Should be planned cooperatively by the teacher, pupil, employer, and parents.

5. Should be supervised by a teacher of agriculture.[12]

Exploratory occupational experiences can serve as one means of attempting to overcome at least some of the waste of human resources within our economy. This will involve more flexible educational programs and more meaningful individual counseling. Lester of Georgia suggests:

> Intensification of the development of human resources must be forthcoming by providing unlimited opportunities for youth and adults to gain the education, skills, and experience necessary to become full participants in our society and stable citizens in the years to come.[13]

Contributory Objective #6

"Appreciate the need for pursuing a program of continuing education to keep abreast of and advance in the occupation."

Ross, the U. S. Commissioner of Labor Statistics recently stated:

> . . . In the face of the current revolution in science and technology as well as in economic and social patterns, the occupational needs of our Nation are changing rapidly. The rate of change seems to accelerate with each new scientific and social development until occupational guidance in career planning and training has become critical.[14]

For several years, it has been increasingly clear that the average worker will change jobs several times during his productive life. Mason and Haines in their recent publication state:

> Although jobs may change, a worker who has mastered the skills of a trade or occupation and who has kept himself abreast of new techniques and developments can reasonably expect to continue in his trade throughout his working life.[15]

Education must be considered a life-long process. We need to provide youth and adults with a solid foundation of occupational experiences and make them aware of their responsibilities for their own self-development if they are to continue to be well-informed about occupations. If our Nation is to cope with occupational change, continuing guidance and continuing educational opportunities must be provided.

Adults, like youth, have areas of need which should be considered in relation to the following statement by Havighurst:

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[12] Fuller, G. R. Education for Agricultural Occupations. Danville, Illinois: The Interstate Printers & Publishers, 1965.

[13] Lester, H. T., Jr. A Guide to Occupational Areas. College of Education, University of Georgia and Division of Vocational Education, State Department of Education, Atlanta, Georgia. 1965.

[14] U. S. Department of Labor. Occupational Outlook Handbook. Bul. 1450, 1966-67 edition. Washington, D. C.: Superintendent of Documents.

[15] Mason, R. E. and Haines, P. G. Cooperative Occupational Education and Work Experience in the Curriculum. Danville, Illinois: The Interstate Printers & Publishers, 1965.

> The most profound educational change of this century is a change of attitude which no longer regards education as essentially preparatory but regards education as essentially a way of meeting the demands and aspirations of the present period of one's life.[16]

Agricultural Education programs must therefore not only provide training in broad areas but also for a sequence of employment opportunities during one's lifetime.

As we examine the stated objectives for Vocational and Technical Education in Agriculture, it is only natural that questions will arise concerning items that need clarification or that have been omitted. The following questions indicate some areas that may merit further consideration:

1. Are the current objectives suitable for programs for the disadvantaged?

2. Should the present objectives be broadened or liberalized?

3. Should we encourage vocational exploration in the elementary school?

4. Are the current objectives based upon the needs expressed by youth and adults?

The program in Vocational and Technical Education in Agriculture must expand and change just as education and agriculture will develop and change. Perhaps the one thing that must remain unchanged is the personal commitment of those engaged in Agricultural Education to provide the educational leadership each generation needs in order to cope with its own problems and opportunities.

Many years ago Evan Pugh, a pioneer educator, made the following statement:

> We too must have a vision, a recognition of opportunity--an acceptance of responsibility--a realization of need--and a sure sense of direction for the future.[17]

It seems to me that this statement has much significance for Agricultural Educators today.

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[16] Havighurst, R. J. Changing Status and Roles During Adult Life: Significance for Adult Education. Sociological Backgrounds of Adult Education. Center for the Study of Liberal Education, Chicago, 1964.

[17] A Vision of Greatness. (Pugh, Evan--a pioneer educator) Pennsylvania State University, University Park, Pennsylvania.

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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OBJECTIVE 4: To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education

Objective number four as stated in the new publication Objectives for Vocational and Technical Education in Agriculture is "to develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education." Listed as being foremost among contributory objectives are the abilities to:

(1) Utilize the services of appropriate agencies and organizations in locating and securing satisfactory employment

(2) Analyze opportunities for self-employment

(3) Analyze job opportunities and requirements, and assess personal abilities and interests in terms of these requirements

(4) Apply for employment and participate in employment interviews

(5) Plan and pursue a program of continuing education appropriate to the requirements of the vocation

(6) Make satisfactory progress and advancement in an occupation

Considered in their fullest context, these objectives are concerned with the extent which candidates of vocational and technical education programs are able to make a contribution to the world of work for which they are prepared. Any review of these goals requires that we focus our attention upon the nature of the enterprise we are engaged in. Hopefully, our examination of these objectives here today will serve as the basis for the development of "criteria for evaluation" of this and related topics by Seminar participants during the next few days. An effort will be made to highlight implications derived from these statements which seem to be pertinent to the process of evaluation.

Main Objective of Vocational and Technical Education

The culmination of all educational efforts in vocational and technical education is the satisfactory placement and subsequent successful tenure and advancement of students in occupations for which they are qualified. As educators, we ought to remind ourselves that the main objective intent of students of vocational and technical education is successful entry and advancement in an agricultural occupation. Admittedly, other important goals are reached as a result of experiences gained in a program of vocational and technical education, but such programs usually succeed or fail in proportion to the accomplishment realized in preparation for the world of work. In keeping with the theme of the Seminar, it may not be too redundant to observe that ours (vocational and technical educators) is the responsibility to really measure how well we have done in conducting programs of vocational and technical education.

The satisfactory placement and subsequent advancement in an occupational position in agriculture implies at least two things. (1) The qualifications of the student and the requirements of an occupational position are very much in congruence; and (2) the level of performance by the employee is acceptable to employer. In short, perhaps more than anything

else, successful entry means qualification by preparation and advancement means qualification by performance.

Implications for Evaluation--Although all aspects which surround the educational enterprise have a bearing upon the successful realization of this goal, such an objective, considered in its broadest terms, can be evaluated best in terms of overall results and outcomes. Follow-up records of those who terminate their enrollment in the training program, regardless of the reason, seem requisite to such a measurement. Follow-up studies of former students conducted every two to five years and interviews with employers are other ways to secure information useful in making this evaluation.

Evaluation of Objective 4

To accomplish the task which is before us, if we accept the responsibility that is ours to really measure how well we have done in conducting programs of vocational education, presumes we know what we are supposed to be doing both in terms of conducting educational programs and also in evaluating our efforts and accomplishments.

As we look at the process of evaluation, we are concerned not only with the overall program of vocational and technical education in agriculture as it has been structured for each local state or school--including ways and means--but also in what happens to students in terms of outcomes and results which have been attained. The need for acceptable standards of performance required for effective measurement can be noted here. At the beginning of program planning, expected outcomes need to be carefully analyzed to determine the type of evidence which would indicate objectives are being realized. Methods can be developed for securing evidence which reveals the degree to which the outcomes are attained.

Implications for Evaluation--Objective four deals with the deployment and success of the product of vocational and technical education--i.e., students prepared for the world of work. Evidences are needed which will reflect information in sufficient detail in order that efficiency measurements can be made of various phases of the entire program. Not only is it necessary to measure student achievement but the teaching process, the organizational structure of the program, the role of the supportive services and organizations, and the involvement of the administrative core in the agricultural education program must be evaluated.

Occupational Opportunities

If we, as educators, accept that the controlling purpose of vocational and technical education is to fit persons for gainful employment and that it is incumbent upon us to provide training and retraining for youths and adults which is realistic in light of actual or anticipated opportunities for employment, then it follows that it is necessary for us to be knowledgeable concerning occupational opportunities in agriculture and the requirements of the agricultural manpower force.

Brief mention of a few trends and some of the dynamics of the present situation will serve to point up the challenge before us.

(1) Increased research activity on the part of private and public agencies has resulted in a veritable technological explosion in agriculture. Technical and scientific knowledge is being accumulated at such a rate that it is impossible for practitioners to make use of such information at any early time.

(2) Increased applications of science to agriculture and the recognition of the biophysical scientific base of agriculture technology has broadened all fields of agricultural endeavor--production, processing, transporting, and marketing.

(3) Greater sophistication and increased complexity of occupations at all levels has resulted in demands on education not heretofore experienced. Shortages of manpower in various categories has been critical. The shift to "know why" as well as "know how" is most pronounced.

(4) Increased urbanization has resulted in and contributed to the movement off the farm of many of the traditional agricultural activities. New agricultural occupations have emerged in the distribution, processing, and service areas.

(5) The rate of technological change in agricultural occupations makes it necessary to continue occupational training throughout the worker's career.

Implications for Evaluation--The instructors are primarily responsible for developing the program in agricultural education at the local level. Valid information regarding occupational opportunities and job requirements is essential to the development of sound vocational and technical education programs. The continual and far-reaching changes which take place in agriculture and the attendant modification in the occupational opportunities in the work force which serves agriculture impose a number of requirements upon the educational enterprise. Instructors, guidance counselors, and professional placement personnel can fulfill their responsibilities in making the student aware of opportunities to the extent that valid occupational information which reflects these requirements is available.

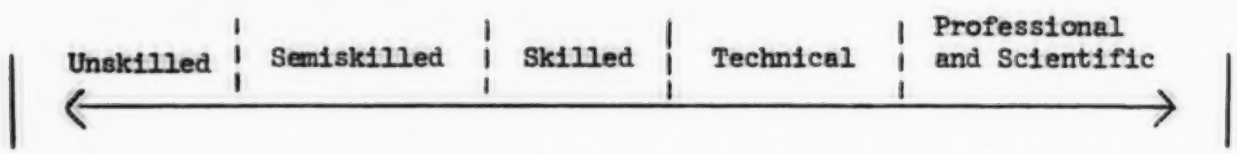
Level-of-Occupational Preparation

The agricultural manpower force of the nation is dynamic, changeable, and fluid-reacting to forces occasioned by technological advances and exerted throughout all segments of agriculture. Historically, the emphasis has been to increase efficiency of production through adoption of technological innovation. The labor spotlight was first upon the unskilled worker who transformed the vast untapped resources of a new nation into a level of production potential sufficient to anchor the nation well for its future role. Next, the artisans, craftsmen, and skilled workers who adapted and prepared themselves for the mechanical age in agriculture were men of the hour. In recent years, the impact of the atomic and space age has required that attention be focused upon a worker oriented toward technological techniques and processes typically used in automation and remote control systems. Dean and McCorkle predict this high specialization of services will continue in the metamorphosis of the nation's manpower force "use by management of specialists and technicians is widespread in agriculture and will continue to increase . . ., the impact of integration has stimulated the specialization of services in production, processing and marketing."[1]

Almost taken for granted is the role of the scientist and professional worker whose research and investigation into the frontiers of new knowledge make possible the technological advancement.

Persons needed in the agricultural work force can be identified according to their specialized training, distinctive abilities, and level of occupational competence. A continuum of level-of-occupational preparation is suggested.

Level-of-Occupational Preparation Continuum



Placement of workers on this scale is accomplished by means of the following classification guide:

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[1]Gerald W. Dean and Chester O. McCorkle, Jr., Projections Relating to California Agriculture in 1975, Bulletin 778, California Agricultural Experiment Station (Berkeley: University of California, 1961), p. 45.

Professional Level

That preparation and/or experience for occupations requiring a high degree of mental activity. This generally requires an academic background of several years of formal education in organized courses concerned with theoretical and practical aspects of complex fields of human endeavor, culminating in a baccalaureate or higher degree. A license, registration, or certification is normally needed. Examples include agricultural engineers, soil chemists, plant pathologists, and animal nutritionists.

Technical Level

That preparation and/or experience for occupations requiring both cognitive (know why) and manipulative (know how) abilities, theoretical and practical understandings, and a high level of job competence; technical preparation normally acquired in specialized post-high school training programs; generally considered as semi-professional preparation to prepare persons to bridge the gap between skilled workers and professional personnel. Examples include surveyor aids, draftsmen, engineering technicians, and sales technicians.

Skilled Level

That preparation and/or experience for occupations requiring crafts and manual skills, a comprehensive knowledge of work processes, and a high degree of manual dexterity learned to a great extent through work experience and apprenticeship periods. Examples include agricultural mechanics, and plant propagators.

Semi-Skilled Level

That preparation and/or experience for occupations requiring the exercise of manipulative ability of a fairly high order, but limited to a fairly well defined work routine; typically an operative type activity with the major work reliance upon vigilance and alertness, in situations in which lapses in performances would cause extensive damage to product or equipment. Examples include operators of field crops cultivators, orchard sprayers, harvesting equipment, and pruners.

Unskilled Level

No formal training or experience required. Work performed is predominantly manual, requiring performance of simple duties that may be learned within a short period of time and which require the exercise of little or no independent judgment. Examples include fruit and vegetable pickers, truck loaders, parts washers, and farm hands.

It should be pointed out that it is not uncommon for tasks once performed by workers qualified at a particular level-of-occupational preparation to be performed at another time by a person qualified at a higher level. This mobility of tasks is primarily in an upward direction with the result being more and higher qualified workers are needed.

The National Committee which rewrote monograph No. 21, revised, has suggested under objective 4 that an increasing number of agricultural occupations require technical or professional education. Further the Committee states that "for students who desire placement at these levels, courses in high school designed to develop vocational competence, supported by other selected subjects, make up a desirable pre-technical or pre-professional program of instruction. Such preparation develops attitudes and abilities which enable the student to complete technical and professional programs successfully."

This position is entirely defensible and justifiable. One of the most interesting aspects accorded to the so-called "Richmond Plan" by Nathan Miller in PTA, April, 1966, was the unique departures from conventional teaching. Author Miller cites two noteworthy approaches in this California plan for vocational education: (1) The courses are pre-technical in title and in nature. A mid-road preparation on the American educational scene is intended--preparation for further training in the vast and expanding field of technology

and even perhaps transfer to a four-year college. Alleged is that students have in mind to be something all through the schooling experience, that they can see what the aim of the program is merely by reading want ads; and (2) an interdisciplinary approach is used and lessons in various subject matter areas are taught over the entire range of class experience. This approach gives the student a reason that he can understand for studying, and then the approach arranges his curriculum so that this reason runs through all his courses.

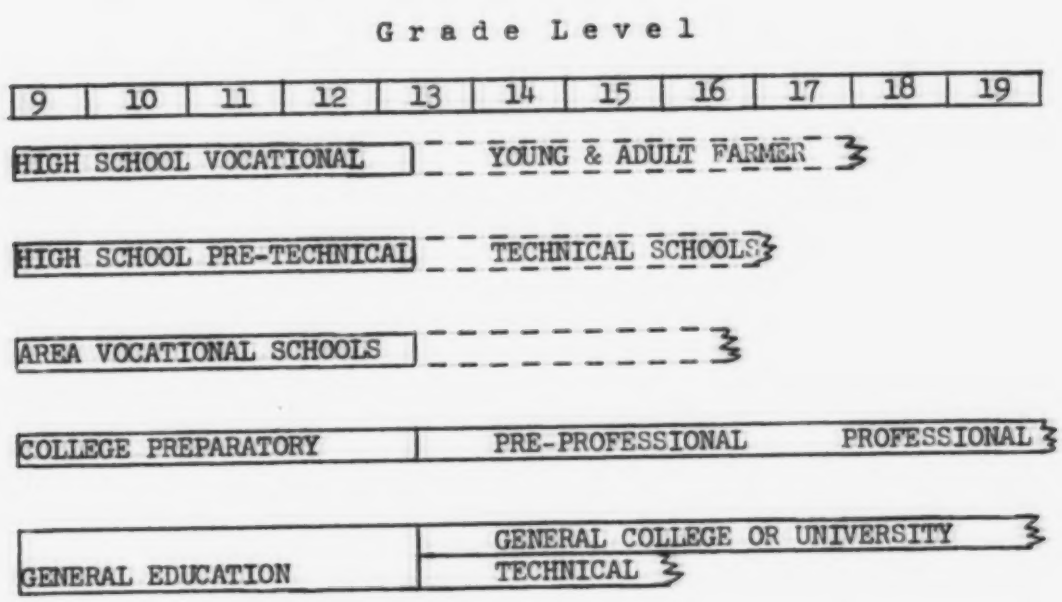
I thought to myself as I read this account--an excellent report of some of the agricultural programs which have been in operation for a number of years.

However, on the other hand, let us examine whether or not we are guilty of some of the allegations directed against vocational education. Edward T. Chase, a leading expert on automation and youth employment, says "that if you visit any vocational school you will find its program incredibly irrelevant to the facts of work in the 1960's. The biggest failure of American education is the way it is turning millions of young people into unemployables." Grant Venn, in his Man, Education and Work, points out (1) that vocational education students are often dropouts of the academic curriculum, and (2) too often vocational education courses do not teach the skills that modern industry wants. Of course these are serious allegations and I suspect they are more valid for some programs in vocational and technical education in agriculture than we are willing to admit. Hopefully, evaluation will reveal weaknesses in regards to these matters if the criteria can be developed which will properly reflect our performance.

Implication for Evaluation--The dynamic nature of agricultural occupations requires that close attention be given to the nature of the work force and that educational programs be adjusted to satisfy these needs. Evaluation procedures should be used to ascertain the level of accomplishment in this regard. Two approaches can be used: (1) the use of a classification guide regarding level-of-occupational preparation; and (2) the use of occupational guides and job descriptions (job analysis).

VOCATIONAL AND TECHNICAL INSTITUTIONS

A review of the classification guide for level-of-occupational preparation suggests in part at least, the roles of the several educational institutions which serve agriculture education. For many occupations, vocational education in full-time high school classes, followed by part-time enrollment in post-high school classes is sufficient for satisfactory placement and advancement. Students who desire placement in occupations requiring technical or professional education may enroll in high school courses designed to develop vocational competence. A number of patterns for vocational and technical education have evolved. In view of the dynamic nature of agriculture and of our society, diversity, flexibility, and adaptability are needed in all these patterns.



Implication for Evaluation--No single pattern of education can adequately fulfill all of the purposes of vocational and technical education. Evaluation should provide information necessary to adjust, modify, or extend current programs to meet the needs and demands of current technological developments and new social and economic conditions.

Continuing Education

The ability to advance in an agricultural occupation through a program of continuing education suggests that we recognize that agricultural occupations are exceedingly dynamic, that no educational program should be considered as terminal, and that it is important for students to understand that continuous education will be a normal pattern for agricultural workers at all levels.

Daniel Bell, eminent Columbia University sociologist, in his paper, The Post-Industrial Society discusses the matter of occupational preparation and competence of workers and of the sociological implications this phase of education will have on our society in the future. He observes that as technical competence becomes the criteria for status and affluence, groups of "dispossessed" will be created among those who have lost out in the race-- regardless of educational preparation and that educational opportunities for some groups are not likely to keep pace with technological change.

Those of us in Agriculture Education can well afford to ask ourselves--are we likely to be numbered among those groups Dr. Bell mentions? Indeed the challenge is ours, the task of combating occupational obsolescence is one which we must accomplish. Not only is the problem one of maintaining competence but also one of preparing persons for the acceptance of broader responsibilities--including those of leadership and management.

Implication for Evaluation--Educational opportunities should be available for employed persons to be able to reinforce and extend their occupational qualifications. Educational institutions at all levels can help accomplish this through offering intensive short courses, seminars, special problems, conferences, symposiums, post-graduate courses, part-time faculty experiences, and extension courses.

Contributory Objectives

Considered rather specifically, Objective 4 and the six foremost contributory objectives suggested in support of the major objective, have to do with finding answers to questions which a young man, engaged in securing a vocational education, might ask at an early point in his schooling. The following points of inquiry seem to be pertinent:

(1) What is the job to which I aspire really like? What are the elements which surround the job and of which it is composed? What are the occupational requirements of the job--spelled out specifically in terms of physical and managerial skills and abilities?

(2) How well do I qualify for the job I would like to have--at the beginning of the training period; at subsequent intervals during the time of preparation? What is my level of competence in regards to the various skills and abilities identified as necessary for occupational entry and advancement?

(3) How do I go about securing and nailing down the job for which I am or will be qualified and in which I will find the greatest satisfaction?

(4) How can I be sure that I will continue to be occupationally competent regardless of the changes which are sure to occur in a dynamic occupation?

Implications for Evaluation--Vocational and technical education should provide for experiences which will assist students to secure the answers to the foregoing questions. Implied are the following matters for consideration by the teacher.

(1) Resources -- What resources are available for use in helping students locate and secure satisfactory placement? How can these and other resources be developed? How can they be used most effectively? What is now being attempted?

(2) Self employment -- Is there provision made for instruction regarding the analysis of opportunities for self employment? Is the student being provided with every incentive to help perpetuate the great American tradition of freedom of entry in and withdrawal from a personal business venture?

(3) Job opportunities -- Is an effort being made to provide valid occupational information to the student during his entire schooling experience by which he can analyze job opportunities and requirements? Is the student being asked to assess his personal abilities and interests in terms of those required for occupational competence? Are these matters being attended to at an early time in order that adequate preparation can be made? Do we sense that, above all, satisfactory preparation is requisite to satisfactory placement and preparation requires extensive planning.

(4) Application for employment -- Has the student become thoroughly familiarized with the mechanics incident to securing a job? Is the student confident that he knows how to properly conduct himself when seeking a position?

(5) Continuing education -- At least two accomplishments should be realized: (1) the student should understand the importance of planning a program and the benefits which derive therefrom, and (2) he should recognize the need to update and retain occupational competency through a program of continuing education.

(6) Progress and advancement -- To progress and advance in an occupation not only fulfills the expectation of the employer but it results in greater self esteem, dignity and human worth to the individual. Improved personal service, of benefit to all, results from commitment and dedication prompted by recognition of worth and need.

Summary

Gentlemen, the proper evaluation of Objective 4 can result in information which will be exceedingly meaningful to us as we attempt to serve the interests of vocational and technical education in agriculture.

It seems appropriate to conclude this Seminar activity with the remarks of President Johnson upon signing the National Vocational Education Act of 1963:

> "Education is the key to our social and economic and technological and moral progress . . . Modern demands upon labor and industry require new skills and an upgrading of old skills, require more education and greater knowledge . . . Education is the cornerstone of our freedom."

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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OBJECTIVE 5: To develop those abilities in human relations which are essential in agricultural occupations

I have been asked to discuss objective Number 5 as a part of our review of all of the objectives as we embark on the development of a program of evaluation. This is Objective 5: To develop those abilities in human relations that are essential in agricultural occupations.

"Human relations" is a new term in vocational agriculture circles. Formerly when vocational agriculture was training for farming, there was less need for attention to human relations. As our society becomes more complex and as we move into the development of training programs for off-farm agricultural occupations, it becomes important to include the concern for human relations in these training programs. The off-farm agricultural occupations are often a part of an industrial type of pattern. These often involve large numbers of employees and a management structure. Here an understanding of human relations becomes a most essential part of management and is, of course, important to employees, too.

Human relations, or interpersonal relations, have not long been of concern to industry. It has only been in recent years that the term has come to prominence. Many circumstances have caused management to assess their obligations and responsibilities to society. Human relations now receive widespread study, attention, and application throughout industry.

A statement made by Robert Wood Johnson, who was chairman of the board of Johnson and Johnson, perhaps represents the general attitude of industry toward its responsibilities:

> The world today is divided by antagonistic philosophies. In great areas the state is supreme and absolute, imposing its rule upon its subjects without their consent. We believe that free men can achieve more than slaves can. But, to implement this ideal, we must accept the responsibilities which go with freedom. We must work together as a team to meet common problems. Cooperation, not antagonism, is the key to achievement. The world is looking to us for an example of what free men can achieve. We cannot fail. The destiny of generations to come is in our hands. We are making history. This is our challenge--and our opportunity.[1]

As we prepare students for the world of work, it is fitting that we place sufficient attention on human relations that they will be able to not only secure employment, but that they may advance in their chosen occupations.

The Importance of Human Relations

Over the years the understanding of human relations has been of tremendous importance to the individual and to society. With the increased complexity of our society, the understanding of human relations rose in importance. Nearly every person, from the time he arises in the morning until he retires at night, interacts with the people in the family, in business, in school.

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[1] Edward C. Bursk, Human Relations for Management (New York: Harper Brothers, 1956), p. 29, quoting Robert Wood Johnson.

Harold M. Byram, in Guidance in Agricultural Education, stated that, "The success of the student throughout the secondary school period and out of school is dependent to a large extent on how well he gets along with the other people."[2]

What do we mean by "human relations?" One definition is: "Human relations is the field of applied sociology which seeks to reduce tensions and antagonisms that might already exist or that might arise among various groups and categories of people in a community."[3]

I also found that human relations is sometimes confined to a consideration of face-to-face interactions between individual men and women in their social environment.

It seems that another term has come into common usage and is closely akin to, if not the same as, human relations. This is "interpersonal relations." It is defined as follows: "Interpersonal relations refers to everything that 'goes on' between one person and another (or others) by way of perception, evaluation, understanding, and mode of reaction."[4]

Human relations seeks to find the best way of achieving desired goals with a minimum of needless conflicts. Basic is the respect for the individual and human dignity. Human relations assumes that each individual has certain needs, but that people differ widely in what they consider important.

Abilities in Human Relations--Communications

It is probably fair to say that schools expend as much effort in an attempt to encourage good communication as to any other single area of study. A youngster is concerned with communication as to any other single area of study. A youngster is concerned with communications from the time he learns to speak until he dies. There are many ways of communicating, but we, as educators, dwell largely upon the written and spoken word. Through communications, we make ourselves understood and are understood by others. When we teach penmanship, spelling, grammar, and organization of themes in the grade school, we are developing tools for good communications. We continue this development through our high schools and colleges with a great deal of opportunity for application and practice. It seems quite obvious that the mechanics of communication can and are being taught.

Let us now take a look at some aspects of communication.

William Albig has observed that:

> Underlying all social processes and all societal forms is the transfer of meaning between individuals. Social life can exist only when meanful symbols are transferred from individual to individual. Group activities of any sort are impossible without a means of sharing experiences. In the terminology of the social studies, the process of transmitting meaningful symbols between individuals is designated as 'communication.'[5]

Wilbur Schram points out that:

> . . . even the simplest one-way type of communication always involves at least a source transmitting a message to a destination.
> A source may be an individual (speaking, writing, drawing, gesturing) or a communication organization (like a newspaper, publishing house, television

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[2]Harold M. Byram, Guidance in Agricultural Education (Danville, Illinois: Interstate Press, 1959), p. 115.

[3]John T. Zadronzy, Dictionary of Social Science (Washington, D. C.: Public Affairs Press).

[4]Edmund H. Volkart, A Dictionary of the Social Sciences (UNESCO: The Free Press of Glencoe).

[5]William Albig, Modern Public Opinion (New York: McGraw Hill, 1956) as quoted in Gordon McCloskey, Education and Public Understanding (New York: Harper and Brothers, 1959) p. 59.

station, or motion picture studio.) The message may be in the form of ink on paper, sound waves in the air, impulses in an electric current, a wave of the hand, a flag in the air, or any other signal capable of being interpreted meaningfully. The destination may be an individual listening, watching, or reading; or a member of a group, such as a discussion group, a lecture audience, a football crowd, or a mob; or an individual member of the particular group we call the mass audience, such as the reader of a newspaper or a viewer of television.[6]

Let us examine some common barriers to the transmission or receiving of communications.

The student may not have a clear idea of the information to be transmitted. He may lack precise words or pictures for conveying the intended meaning. The receiver of the communication may not be giving proper attention, and, thus, misunderstand the message; or having heard, he may not interpret it correctly because of previous experiences, prejudices, or worries.

Leving and Murphy report an experiment in which they studied two groups of college students; one group of five pro-communists, the other a group of five anti-communists. Both groups read two paragraphs twice. Fifteen minutes later, they were asked to reproduce the paragraph from memory. One of the paragraphs was mildly pro-communist in content; the other was rather bitterly anti-communist.[7]

The investigators were trying to determine whether the attitude of the subjects had any effect on how much and how fast they learned and forgot material which either agreed or disagreed with their attitudinal biases.[8]

The results of this study show that the attitude of the subject does have an effect on learning and forgetting.[9]

This study as well as more indirect evidence and the indications of the same kind of results in several other studies suggests:

(1) People learn and remember more items in a communication which agrees rather than disagrees with their attitude toward the content.

(2) Over a period of time, the learning of agreeable items increases faster than the learning of disagreeable items; and the forgetting of disagreeable items increases faster than the forgetting of agreeable items.

(3) People tend to perceive a communication and its communicator as favoring their point of view, whatever their point of view might be--at least when they don't know the communicator's viewpoint and when the communication gives equal amounts of favorable and unfavorable information on a particular topic.

The findings discussed present a rather discouraging picture to a person who wants to communicate "his side of the story" to others who may already have the "other side." How can he give people information and have them learn both sides of the story equally well? The studies reviewed say that the speaker won't be successful if he simply asks such people to learn the material, for they will learn more on their own side than on the other.[10]

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[6]Wilbur Schram, The Process and Effects of Mass Communication (Urbana: University of Illinois Press, 1955) as quoted by McCloskey, p. 61.

[7]Michigan State University, National Project in Agricultural Communication, Search, IV, No. 4 (April, 1958).

[8]Ibid.

[9]Ibid.

[10]Ibid.

Face-to-face conversations comprise a large part of the messages transmitted and received by most people. This is true, too, in the world of work where most decisions are based on face-to-face discussions and most instructions and agreements are verbal.

"Actions speak louder than words." While actions are sometimes overlooked as messages, we must recognize their value in conveying impressions and influencing feelings. Acts are real and their results are tangible.

This brief discussion of the communications process should serve to underscore its importance.

Turning now from the more general discussion of human relations, I want to discuss some specifics that I believe are closely associated with or are a part of human relations.

Attitudes

Attitudes and attitude development are important considerations of vocational educators. Employers are nearly unanimous in their feeling that the attitude of the worker is a most important factor in his success. Teachers, administrators, and curriculum builders are becoming increasingly aware that educational procedures and curriculum content can and do change attitudes.

We might recall that many have paid tribute to the American public school for its job of Americanizing immigrant children from dozens of nations. Certainly, many attitude changes took place in the process.

Attitudes are a vital concern of vocational educators because they affect a student's fitness for various occupational goals. Attitudes may determine whether the individual will like the actual work of an occupation, whether he will find himself among congenial associates, and whether alternative fields of occupations may be identified.

Attitudes also determine a student's fitness for effective and desirable participation in a democratic social order. Attitudes toward social groups, policies, institutions, practices, freedom of speech are all attitudes in which society and schools have a deep concern. Perhaps of greatest importance of all is a student's acceptance of social responsibility.

Definition of Attitudes

Attitudes may be defined as feelings for or against something. Attitudes are closely associated with emotions. Pleasant and unpleasant associations--fear, rage, love, and all the variations and complications in these emotions brought about by learning play a part in attitudes. Attitudes are not merely mental images, but take on a definite meaning when they are considered in relation to some object, situation, or stimulus. Another characteristic of attitudes is that they have an effect on behavior that may be so great that knowing the attitude enables the prediction of behavior. In other cases social and other attitudinal forces may cause behavior that does not follow the expressed attitude. One example is the pupil who expressed opposition to cheating, but proceeded to cheat on an examination. Attitudes may be learned.

A more specific definition of an attitude is that it is an emotionalized tendency, organized through experience, to react positively or negatively toward a psychological object.

It is important here to recognize certain concepts allied to attitudes. These are interests, motives, values, appreciation, tastes, mores, morality, moral ideals, and character. It is often said that attitudes and interests are for practical purposes identical. One definition of interest is that it is a tendency to become absorbed in an experience and to continue it. The similarity to attitude, I believe, is obvious.

Motives are related to attitudes in that the latter, with their directionality and feeling tone, constitute an important aspect of motives.

It has been said that attitudes precede and endure beyond motives. Motives are, thus, more specific and temporary. When goals have been attained, motives are satisfied; but the attitude, or the tendency to have the motive, persists from one occasion to the next.

There can be little doubt that attitudes and human relations are closely related. It seems obvious that vocational educators must be fully aware of attitudes, their development, and their measurement.

Appreciation

How does one develop appreciations in people for various things, concepts, and ideas? Probably the most common effective means are through the development of understanding and through experience. A contributory objective of vocational education in agriculture is the ability to appreciate the dignity of work. To appreciate the dignity of work one needs to understand what work is and how it contributes to the welfare of the individual and to society. Appreciation for this activity through supervised activities is one of the basics that has served vocational education well over the decades.

Henry Borow and C. Gilbert Wrenn state:

> Work is the social act around which each of us organizes much of his daily waking experience and, hopefully, establishes a meaningful and rewarding life routine. One has but to witness the lives of men without work, or of men who lack edifying work--alienated, thwarted, and cut off from the fulfillment of the most human of sentiments, a sense of usefulness and purpose--to recognize the validity of the commonly voiced doctrine that work is, indeed, a way of life.[11]

Work as a virtue has been accepted over the years in America. As our modern production economy has increased, however, there has understandably been less opportunity for an individual to realize ego satisfaction from work. If one is to be honest in discussing work in our society and in providing experiences, he must caution about the situation as it exists in many segments of industry.

Harvey Swados speaks of the "meaningless and degrading nature of work in which a large percentage of our working force is engaged." He worked on an assembly line and found that "the one unifying force among all the men on the line was hatred of their work, contempt for what they did, and shame at their inability to earn their living in a more satisfactory and meaningful way."[12] One must realize that for many, the dignity of work has little meaning.

In spite of the many unfortunate situations in the world of work, a large segment of workers find their work rewarding--there is indeed for many the opportunity for dignity of labor and pride of accomplishment.

Surely work, as we have known it, will change, but jobs and the opportunity to work will be with us in the foreseeable future.

We shall continue to use work as a valuable experience in our education programs. Mason and Haines, in their book Cooperative Occupational Education, have done an excellent job in directing attention to methods of organizing and operating high school level cooperative educational programs. The table following is reproduced to illustrate the many purposes of work experience programs.

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[11]Henry Borow, Man in A World At Work, (Boston: Houghton Mifflin Co., 1964), p. xi.

[12]Harvey Swados, "Work as a Public Issue," Saturday Review, December 12, 1959, pp. 13-15.

CONTROLLING PURPOSES OF WORK EXPERIENCE PROGRAMS[1]

A. REDUCE DROP-OUT PURPOSES

1. Earn Money

to continue in school
to keep social standing

2. Cure Maladjustments

failure elsewhere
low I. Q.
behavior problems

3. Control Employment

control placement
control hours
control working conditions

B. SOCIAL DEVELOPMENT PURPOSES

4. Provide Social Experiences

appreciate dignity of labor
appreciate economic order
understand adults

5. Develop Emotional Stability

independence from parents
build self-confidence
sense of "belonging"
develop personality and character

6. Aid in Selecting Vocation

try-out of interests
self-analysis
discover talents

C. VOCATIONAL PURPOSES

7. Provide General Occupational Training

form work habits and attitudes
understand employer and co-workers
train for an area

8. Provide Specific Occupational Training

in skills, knowledges, judgments, understandings, and attitudes

[1]Ralph E. Mason and Peter G. Haines, Cooperative Occupational Education and Work Experience in the Curriculum (Interstate Printers and Publishers, 1965), p. 61.

While Section A and C may have some human relations implications, I want especially to call your attention to Section B, the Social Development Purposes. Here you will note are listed "appreciate the dignity of labor" and "appreciate economic order." These appear to me to be very basic concepts that a worker new to industry will need for rapid adjustment. The next item, to "understand adults" is indeed a worthy purpose and if work experience can make some contribution here, its importance cannot be denied. In spite of the recent strong emphasis on young people, it is still the adults who exert the greatest influence on economics, politics, religion, and society in general. Further, the teenage student is in the complicated process of becoming an adult.

The listings under Item 5, to "Develop Emotional Stability," are also closely related to human relations. While on the one hand there is "independence from parents," there is

probably developing a closer association with other adults and an area of adjustment that needs recognition. To "build self-confidence" and to "develop a sense of belonging" are important psychological traits and can contribute much to the well-being of the young employee. The importance of the "development of the personality and character" probably need little further comment.

Item 6, to "Aid in Selecting a Vocation," has, of course, guidance implications. This topic has to do with "trying out interests," "self analysis," and "discovery of one's aptitudes and talents." Such processes, of course, are basic to establishing a sense of direction and for at least a tentative choice of vocation. Note, too, that attitudes and interests receive mention.

I expect that if one were to list the benefits of a work experience program for an individual, it would have a pattern similar to that of the purposes. It seems quite evident to me that the work experience program can and will make important contributions to the human relations aspect of vocational education.

Other Traits Desired

Here are comments of three different personnel directors of large firms that employ a great number of people each year. The directors are enumerating the qualities that they like to see in their employees.

> . . . Obviously we are interested in the kind of education that develops such attitudes as thoroughness, which is characterized by the habits of checking one's own work; following up carefully on matters that take time to get results; initiative; ability to take criticism; tact and courtesy, ability to work closely with a group without jealousy or desire to seek individual credit; a definite attitude of public service; loyalty to one's company and employer; and all the other attributes of good citizenship.
>
> It is important to point out that most people lose their jobs in business not because of not knowing, but because of some social attitudes or temperament factor that interferes with either their happiness or the smooth working of the group of which they are members.[13]
>
> . . . The vocational traits most desired, in order of importance, as indicated by the replies, are as follows:

1. Accuracy	6. Personal pleasantness	11. Industriousness
2. Responsibility	7. Interest in work	12. Loyalty
3. Dependability	7. Speed	13. Alertness
3. Intelligence	8. Adaptability	14. Ambition
4. Courtesy	8. Neatness	14. Foresignt
4. Initiative	9. Memory	14. Thoughtfulness
4. Judgment	10. Poise	15. Thoroughness [14]
5. Tact	11. Honesty	

> . . . However, the basic requirements that we seek to discover--in addition to the fundamental characteristics of honesty, industry, and loyalty--surround such matters as these:
>
> Is he or she prompt?
> Does he understand instructions and retain them?
> Is he accurate and dependable?
> Does he require constant supervision?
> Does he set a good example in conduct, appearance, and attitude?

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[13]Robert D. Falk, Your High School Record, Does It Count? (South Dakota Press, 1958), p. 6.

[14]Ibid., p. 13.

Does he recognize what is beyond his scope?
Does he refrain from assuming too much authority?[15]

As illustrated in the above quotations, employers have quite a definite idea of the traits that they like to see in their employees. Many of these are closely associated with human relations and need to be the concern of the vocational educator. Many of these traits fall within the area of attitude development, communications, and work habits. Others, such as poise, judgment, honesty, and ambition are less tangible.

Traits Discussed in the Human Relations Module

Many of the traits that are important in vocational education are discussed in this module.[16] I quote briefly from this excellent material under each of several headings.

Loyalty:

Loyalty implies support of a cause, ideal, practice, or custom. It includes an element of faithfulness to a person or organization.

Loyalty takes time to mature and grow. It is the product of continued contact with a person or business over a length of time. New employees should not expect to receive it before proving themselves worthy of their supervisor's faith and confidence. Likewise, business firms must earn loyalty from their employees. The good will and loyalty which develop between a supervisor and employees or among employees are valuable commodities which are not to be treated lightly.

Respect for Authority:

Authority in agricultural business usually rests in administrative positions which are responsible for production processes. Authority is the power or right to give commands, take actions, or make final decisions.

In some businesses these lines of authority may be closely drawn, with each person carefully guarding his own domain. Large-scale organizations controlling many sub-parts sometimes become bureaucratic. Much valuable company time and effort may be lost by fearful employees, petty jealousies, and status hungry co-workers. Most agricultural businesses are relatively small and uncomplicated. Yet, the concept of respecting your superior is an important one, even in a small business.

Willingness to Learn:

One of the few certainties of life is the likelihood of change. Everywhere we see new products and new techniques taking the places of old ones. Business firms spend a great deal of money on research to find new and better products.

Since "things" change more easily than people, employers usually investigate a prospective employee's willingness to learn new ideas. A person who accepts inevitable changes that occur during the process of living will not spend as much time worrying about them as the individual who does not. Previously held assumptions need constant re-evaluation. Much energy is expended by frustrated, dissatisfied employees. A willingness to change and learn new ways of doing things is a characteristic which we should all cultivate.

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[15] Ibid., p. 69.

[16] One of the twelve modules in the course preparing for entry in agricultural supply, sales, and services occupations listed by The Center for the Study of Vocational and Technical Education, Ohio State University, Columbus, Ohio, is discussed under the heading of Human Relations in Agricultural Occupations.

Cooperation:

Whenever one human being finds himself in contact with another, either on the job, at school, or in the home, personal relations become a factor between the two personalities. Feelings and attitudes between persons affect the goals of the social group. In many cases, the goals of the social group--the church, the family, or the business--can be attained only with the help of individual members. Agricultural businesses operate to make a profit for their stockholders and provide services to customers. Employees should accept these goals and work toward their accomplishment. Whenever you engage in a cooperative enterprise with others, you expect to lose a certain amount of individual freedom in order to benefit the group.

Cooperation means joint action with others in pursuit of common well being.

Cooperation doesn't just happen; it has to be encouraged. An employee who feels rejected by his employer or believes the business is taking advantage of him, is not likely to give up many personal privileges to contribute to company goals or policy. Fortunately, most people desire to belong to groups and want to get along with their fellow employees. Some of the most satisfying employment experiences come from the warm personal friendships which develop between customers and employees, between the employee and the employer, or among employees. These feelings can be so strong that employees dislike being transferred from one location to another, even within the same company.

Honesty:

Honesty is straightforwardness of conduct; it requires a sincere effort from each of us to maintain integrity, fairness, and truthfulness in all situations.

Since we do not always know other person's past experiences and beliefs, we have to be tolerant of their actions. A person may commit a dishonest act unknowingly and be sorry for it later. American people have emerged from the peoples of many nations. Consequently, our society contains persons with vastly different values and ideals.

Responsibility:

Like "honesty" and "loyalty" the term "responsibility" defies any kind of comprehensive and precise description. The actions of a "responsible" person vary with different situations. Many factors influence the "total" personality; a person's previous experience, his attitude toward his supervisor, and so forth. It is difficult to predict responsible behavior because it varies with the motives and aspirations of persons.

A responsible person determines his own acts by carefully considering the consequences of his decisions.

A responsible person is one who is capable of determining his own actions. Responsibility implies an ability to foresee the consequences of actions.

Leadership:

Leadership is exhibited by a person who directs, commands, or guides a group or activity. A leader often exerts influence by persuasion rather than by force.

An important quality of leadership is accuracy. Few groups of individuals will follow a person with false ideas. If you desire to influence others, concentrate on facts and make definite statements only when you are certain you are right. A leader must accept responsibility for influencing other people. If a leader directs a group to take certain action, he is more responsible for the consequences of that action than are other members of that group. Many persons do not like to accept responsibility and shrink from tasks of leadership.

Morale:

Morale is the prevailing mood and spirit which permits dependable performance and steady self-control. Someone has paraphrased it as "how I feel about my job at any given time."

Morale is a state of mind of employees, growing out of their work conditions. It includes employee feelings toward supervisors, the company, and other employees.

Each employee can contribute to the morale of the group by paying attention to good human relations principles. Fair and honest treatment of persons as individuals promotes trust and confidence in a group. If you inform people of decisions affecting them, it will dispel doubts and fear of the unknown. Abrupt treatment of groups of people creates suspicion and disregards individual differences.

Summary

In the foregoing pages I have attempted to show that it is important for Agricultural Education to emphasize training that concerns the human relations aspects of vocations. We need to recognize the role of attitude development and the development of appreciation. We have examined the human relations implications that can be developed through work-experience programs. Many other important factors can determine the degree of success of the employee. Among these traits are loyalty, respect for authority, willingness to learn, cooperation, honesty, responsibility, leadership, and morale.

With respect to how these traits are to be taught, I can only add that a great deal depends on the teacher in the classroom and how well he carries out his full responsibility in developing the whole person for his role in the world of work. I would further suggest that the capable teacher, through his actions and examples he sets, can do much to develop the human relations skills which we desire in our graduates in agriculture. I would caution that we must avoid so overburdening our teachers with numbers of students and with extraneous tasks that they are unable to do what they could do if given the opportunity.

I would conclude this discussion by hoping that we might continue to improve the development of human relations abilities in our students. We can be proud of our progress in teaching technology. To better prepare young people for an increasingly complex society, suggests that we take a greater part in teaching human skills as well.

As for the evaluation of our efforts in teaching human relations, I would observe that this task is very complex. Great care must be observed in developing meaningful evaluative criteria for teaching human relations in vocational education.

OBJECTIVES FOR
VOCATIONAL AND TECHNICAL EDUCATION IN AGRICULTURE

by
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OBJECTIVE 6: To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities

As stated . . .

"In a democracy, every occupational area functions in a complex social setting. There is need for developing constructive, effective leadership abilities in all persons. Modern agriculture demands individuals who can provide leadership in developing programs and policies that will create and maintain an optimum climate for agriculture consistent with the general welfare. Participation in intracurricular activities of the vocational agriculture student organization (Future Farmers of America) develops individual leadership and stimulates students to set and achieve worthwhile vocational goals. A national organization with state and local units provides a practical laboratory for developing democratic leadership, cooperation, and good citizenship."

We are familiar with the common expression "Leaders are born, not made." The philosophy inferred in Objective 6 is the reverse of this. Objective 6 is to develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities.

In reviewing this objective, in evaluating it and in carrying it out in practice, let's examine the meaning of leadership. What is leadership?

Leadership might be defined as that which causes a group of people to work toward some goal or purpose. The quality of this leadership in turn is influenced by three variables: the personality of the leader, the nature of the group; and the problems facing the group. Such leadership, we believe, is not necessarily inherent in an individual but can be developed. We hold the belief in vocational agriculture that leadership, like reading and writing, can be developed through study, practice, and participation. Leadership and teaching may be termed in a direct relationship. The good leader is a good teacher. A good teacher is a good leader Teachers help their students through experiences which bring changed minds and motives. A good teacher is never a boss, instead he is a guide helping to motivate a student's interest in accomplishing a particular goal. This is no less true of the good leader. One concept of leadership then, is the act of helping people achieve their goals and purposes.

Now then, with this as a working definition of leadership, let's see how this ability may be developed in students. Again, leadership can be developed in much the same ways that reading and writing are taught, through study, practice and participation. And, like reading and writing, a developer of leaders must know his subjects, and be able to demonstrate leadership himself.

There are two recognized forms of leadership: autocratic and democratic. Practitioners of the autocratic form believe that the end justifies the means; that expediency is the most important thing, not principle; that the individual is not important compared with the "system." Practitioners of the democratic form believe that the individual is of infinite value; that principles are more important than efficiency. People in the United States are generally committed to the democratic form of leadership. We believe that the democratic leader is more likely to achieve quality results both in process and in results.

The quality of leadership is also influenced by the nature of the group. Two kinds of groups involved are the immature and the mature groups. High school students are immature because they have not had the experiences in identifying problems, developing plans of action,

and foreseeing consequences accurately. The professional educators or teachers have had more experiences, and are likely to have developed value systems missing in the immature groups. The mature teachers must work with the immature students to develop the leadership necessary for the continuation of America's democracy. If this is not done, all groups may tend to become immature, and all leadership may become coercive and dictatorial.

Therefore, the development of leadership abilities can be motivated through the students in group processes of decision making and cooperative methods. The quality of the leadership developed in students will be influenced by the ability of the teacher to affect mature judgments in relation to decisions through cooperative planning. The quality of the leadership under development is also influenced by the problems which the group considers in Objective 6. In this objective, we have the stipulation that vocational agriculture develops the ability to "exercise and follow effective leadership." We believe in vocational agriculture that the ability to lead, and the ability to follow, can be developed together at the same time through the same types of processes and methods in relation to realistic agriculture students.

Aside from the leadership and group-participation experiences the students get in their classrooms, the FFA chapter, which functions as a distinct part of each vocational agriculture program, provides excellent opportunities for the practice of the American democratic notion of cooperative activities. The problems associated with the operation of an FFA chapter contribute to leadership development. These problems, such as the nomination and election of chapter officers; the incentive awards program; the use of parliamentary procedure; participation in "chapter projects"; and the development of public speaking abilities contribute to the process of building mature groups, and developing leadership abilities.

It has been recognized for many years that the FFA chapter is the mainstay of the leadership training program in vocational agriculture. Therefore, the responsibility for carrying through the stipulations of Objective 6 rests strongly upon the FFA chapter to develop mature leaders.

The six contributory objectives listed as pertinent to Objective 6 are in reality areas of opportunity for the FFA to make its major contributions to the vocational agriculture leadership training program.

#1 ...Associate with and become a functioning member of an organization.

Clearly, the organization mentioned is the FFA chapter operated within the vocational agriculture department at the local high school. Recruitment is an important segment of each chapter's activity program. The incentive awards and the merit citations and degrees are all designed as inducements to join the FFA chapter and function successfully in it. The success of these inducements is illustrated in the ratio of FFA members to total vocational agriculture enrollment figures.

#2 ...Identify and participate in desirable activities for developing and improving agricultural leadership.

This is very nearly one of the stated purposes of the FFA organization: the development of leadership and citizenship abilities. The leadership and citizenship can be felt through the agricultural complex, on the farms, in the rural communities, and in the businesses and industries that have agricultural orientations.

The identification for this objective is done by the FFA group itself, in the effort it puts forth on its chapter activities program. The participation is begun by the group when it assigns individual and committee responsibilities. And, it is completed by the desire and determination on the part of individuals and committee members to succeed because of the faith their chapter had in them when their responsibility was assigned. This is the single most important step an individual can make in developing his leadership and citizenship abilities. Even when he becomes an adult, and much later in his life, he will face his responsibilities with the same sense of duty, obligation, and pride that he developed during his FFA membership. In fact, without this sense, he cannot function as a desirable or satisfactory leader or citizen in the United States.

The developing and improving is done by the FFA's use of the mechanics of leadership: parliamentary procedure, committee assignments, officer nominations and elections, orderly debate, intelligent inquiry, public speaking, and many others. The continued practice of these things, with direction and self-evaluation by the FFA group, is the backbone of leadership training.

#3 ...Initiate activities that improve agriculture and the community.

This is one of the basic purposes of the FFA: to design, develop, and carry through cooperative improvement activities and projects. Wherever the efforts of the FFA are directed--in beautification programs, pest control projects, mailbox posts, school ground and equipment projects, and others--the effect has been to "improve agriculture and the community." The effect has also been to improve most favorably the so-called image of agriculture within the local area, and throughout the entire nation. And, incidentally, but none the less certainly, by doing good works the individuals themselves become better citizens.

#4 ...Cooperate for the common good in agricultural and civic activities.

In complying with this objective, the vocational agriculture-FFA program is doing essentially the same thing it is required to do in the previous objective: designing, developing, and carrying through worthwhile improvement projects. It is true, however, that there is something additional in the words "common good" that sets this objective slightly apart. The "common good" can also mean the benefit of the FFA chapter itself, and if it does, then this is the second most important step a group of individuals can make toward becoming mature and able citizens and leaders. This implies using order, and intelligence, among one's own group to solve group problems. No matter how severe or important the crisis may appear, the successful FFA chapter should observe procedure, order, and intelligence in reaching a workable and acceptable solution. It is precisely this quality of which there is an alarming scarcity in the world today.

#5 ...Develop and maintain desirable relationships between rural and urban groups.

Successfully completed and worthwhile chapter activities achieve just exactly this end, and they do it much better than if a public relations program had been started for that specific purpose. Successful FFA chapters are known by their good works; there is nothing better that can be done to build good relationships between "town" and "country" than the continuation of successful activity programs.

#6 ...Participate in the development of local, state, national, and international policies and programs affecting agriculture.

It seems hard, at first, to imagine just how a vocational agriculture-FFA organization in a local high school could do anything to affect national or international agricultural policy making, or even state-level agricultural policy, for that matter. But, with a second look, the reason behind this objective becomes clearer. Policies are made by people, either to enhance people's interests, or to protect people's welfare. Everybody in the world, nation, and state is affected by agriculture and the policies that affect agriculture. They have a vital interest in the production, availability, distribution, and cost of agricultural products. It is, therefore, a distinct part of the vocational agriculture program to make each student-member aware of the various types of agricultural policies, of the intent and purpose of each, of the groups sponsoring and supporting each policy, and of the effects each policy has on the different segments of the agricultural complex.

Policies that have been enacted into law should be examined as critically as possible as to the function and design of the law, and in the group discussion process, each one should be surveyed for possible weaknesses, and improvements should be suggested. There are others, but this single area is approaching critical importance with the increased urbanization of the United States and its law-making establishments. These are the days of what have been popularly called "third generation Americans," meaning that the pioneer spirit, the rural orientation, the agricultural bias, the independent and non-centralized attitude used to build this

country will be missing somewhat in leaders of the not-too-distant future. Educators involved with vocational agriculture programs can render a great service to the United States, and the world, if they will assist in developing in the American population a knowledge and an evaluation of agricultural policies, a critical sense of judgment of agricultural law, and an ability and aptitude for agricultural leadership.

"Is the FFA actually training for rural and agricultural leadership? To answer this question one has only to observe and review the records of outstanding members, and other members who are making good as young farmer-leaders in their home communities. Thousands, also, have passed on into the ranks of the Grange, Farm Bureau, and Farmers Union, as well as other agricultural and civic organizations, there to accept and fill creditable places of trust and responsibility while still in their youth. Go into local communities where FFA chapters are located. Observe the interest and achievement of FFA members in improving the community in which they reside."

This quote is from a book on leadership by a man sold on the FFA's ability to develop agricultural leaders. And, what he says is true. He could have said much more, such as former FFA members are now serving our country as Governor, Congressman, Agriculture Commissioner, etc. However, what he did not mention is that what apparently happens in the leadership development process takes place more by accident than by design. It is a fact that vocational agriculture-FFA produces leaders beyond any practical ratio, but it is a fact that most of the leadership training takes place magically, and almost without design. The process of leadership development in vocational agriculture-FFA is an "occurrence," a "phenomenon" that has not yet been explained, rather than a process that can be verbalized and plotted through its course. It does what it does, that much is known, but <u>how</u> it does what it does is not a planned-in function of vocational agriculture-FFA programs, nor has there yet been a definite guide for, or course of study in, something called "Leadership Development." If, as one writer on leadership maintains, it is more important that people learn to use cooperative, intelligent control of their own affairs than it is for them to acquire knowledge, it would seem that a definite plan for leadership development in vocational agriculture is a <u>must</u> if we are to be favorably evaluated.

THE CENTER PROJECT IN OFF-FARM AGRICULTURAL OCCUPATIONS

by
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I am happy to meet with you this morning and to give you some background information about the work that was done at The Center last year in developing courses in off-farm agricultural occupations. I realize that some of you have attended various meetings where this project was discussed, so I hope what I say today will be somewhat different and will not be too dull or too repetitious. I will go into the various meetings a bit later as I explain the development of the project.

Let me begin by pointing out a few things about agriculture, and more particularly farming, in the United States. I am going to refrain from using a lot of facts. And I will vouch for the accuracy of these facts only in that I drew them from various sources. If you have doubts as to their accuracy, you may check them for yourself. If I arouse your curiosity, and if you check the facts, then to a certain extent I have succeeded in what I propose to do.

About 1950, agriculture, especially farming, really began to change. We know that during World War II our total farm production was increased. And most of us know how much effort was devoted to securing this increase in production. But it was after this war, about 1950, when farm machinery really began to develop, new improved varieties of crops came into being, and new chemicals were developed. Then farming really began to change. The total number of farms and the number of farm workers began to decline rather rapidly. Farms began to get larger. Processing of farm products began to increase. And practically all of this processing was done off the farm. With the decline in the number of farms, our population continued to increase and the number of people employed in businesses other than farming increased. Some people began to say that farming was on its way out. This was in the late fifties or early sixties. You no doubt heard these things. With this decreased emphasis on agriculture, particularly farming, we began to hear the term "agri-business." I believe as early as 1954 or 1955 some of the writers in popular farm magazines were using this term. And some people, I think, began to jump on the bandwagon for off-farm agricultural occupations, with the idea that farming was on its way out. This was a counter-move. This, in itself, was a misconception, because as you realize, the off-farm agricultural occupations have their being in a healthy farming industry. Without a healthy production agriculture (farming), we will have no need for training in off-farm agricultural occupations. The need for training in off-farm agricultural occupations is based upon farming.

We do have a rather healthy farming situation now, despite what some say. Agriculture is still our largest single industry, by far. Agriculture provides employment for more people than does the automobile and steel industries combined, and you may add all transportation and public utilities. More people in farming than in the automobile and steel industries combined, plus transportation and public utilities!

At present, the total agricultural assets in our country are estimated at more than 230 billion dollars. This is two thirds of all the assets of all corporations in the United States. Farmers spend 30 billion dollars each year for production supplies. They use annually 28 billion kilowatts of electricity. Now, this is more electricity than is used by all of these cities combined: Baltimore, Chicago, Boston, Detroit, Houston, and Washington, D. C. So you see, farming is no small industry. In addition to this, farmers use 5 million tons of steel in farm machinery each year.

Farming is an efficient industry. The output per farm worker has increased at about $7\frac{1}{2}$ percent per year since 1950. This is almost three times the increase in output per worker from industry for the same period.

One farmer in the United States produces enough to feed himself and about thirty-seven others -- thirty-two Americans plus five people abroad. Some of the arguments that agriculture is declining in importance are not valid. Let's compare farmers with doctors.

If one doctor serves 500 people, and another serves 5,000 people, which doctor is more important? All of you will say the one who serves 5,000 people. Some years ago, a farmer produced enough food for himself and eight to ten others (it depends upon how far you go back). Now, each farmer feeds himself and thirty-seven others. Is this a sign of a declining industry?

We hear much about the reduction in the number of persons engaged in farming; and this is true. And we hear much about the decline in the number of farms; and this is true. But, if you analyze the decline in the number of farms, you get a different picture. When you divide farms into four types, you will find that from 1947 until the present, two of these groups have actually increased in number, one has changed but little, and the other has declined. Let me explain these four types of farms.

The first type is the non-commercial residential or part-time farm. These farms have changed very little in number since 1947. The giant or corporation farms have increased in number since 1947. Likewise, the family farms with gross sales of over $5,000 per year have increased in number. (These are, for the most part, the commercial family-sized farms that produce most of our farm products.) The big decline in number of farms since 1947 has been in the sub-standard farm, with sales of less than $5,000 per year. So you see this change in farm numbers is in itself a sign of a healthy industry.

No one would say that food distribution is less important today than it was ten years ago. And yet, we all know that the number of retail stores involved in food distribution has been declining in number. With this decline retail food stores have become larger. Now a few large chain stores do the bulk of our food distribution at the retail level. Then the argument that farming is becoming unimportant because the number of farms and the number of farmers have been declining is not at all valid.

I am not going to tell you men that farmers have an easy job or that all farmers are prosperous. You know this is not true. To remain in business today, a farmer must be efficient in production. But as the population increases, the demand for farm products also increases. And despite our production potential, I think farming is in a healthy condition and will remain this way. I believe the outlook for farming is bright. If this is true, then the need for off-farm agricultural occupations in the future will increase, and the prospects for work in this area are also bright. If farming is not important, then off-farm agricultural occupations will not be important either. When we say that we should provide training programs in off-farm agricultural occupations in areas where farming is not important, we are just kidding ourselves.

Let me use some Kentucky figures, because I am somewhat familiar with them, to illustrate the healthy condition of farming. In the past ten years, cash sales from farming in Kentucky have increased from 589 million dollars to 744 million dollars. This is an increase of 155 million dollars, or 26 percent. Someone will say, "Well and good, but this is due to inflation." And there has been some inflation in the past ten years. In 1954, the index of production commodities purchased by farmers was 255. In 1964, this index was 270. This is an increase of 15 in the index, or 6 percent. Whereas farm marketings increased 26 percent, purchased production items for the same period increased 6 percent. And this picture is perhaps even better when we look at the decline in the number of farm workers during this period -- one of the so-called measures of the decline in farming according to some people. In 1954 there were about 250 thousand production workers in farming in Kentucky. In 1964, this number showed some decline, but it was not striking. Farm workers in 1964 numbered 230 thousand -- a decline of 20,000 farmers in ten years. Thus from the efforts of 8 percent fewer people, the cash farm marketings in ten years increased 26 percent, with only a 6 percent increase in purchased production items. Does this seem to be a sign of a declining industry? I feel that many business corporations would be glad to have a report like this. So much for the importance of farming and agriculture.

How about the national project to prepare courses in off-farm agricultural business? In 1963 and 1964, two meetings were held here at the National Center for professional persons in agricultural education from some twenty-three states. These people looked at the status of farming, and the agricultural work that was being done off the farms. It was decided that the different states would conduct studies to try to discover the status of off-farm agricultural occupations to make projections for future needs for employment. They sought to

determine training needs in each occupation to determine the extent to which agricultural competencies were needed in off-farm agricultural occupations.

The Center proposed to stimulate the states to do research, to coordinate their efforts, to produce materials to assist with needed programs on a pilot basis, and to serve as a clearing house for this work. In 1965, after some studies had been made in several states, The Center began work to combine and analyze these studies. Dr. Stevens from Pennsylvania State University was employed to take the lead in this work; and I believe he began working at The Center early in 1965. Despite what Dr. Hensel said about my work with the project in his introduction, my work was really quite limited. It actually involved fewer weeks than most of the people worked who will be on the panel later. I worked with the project about six weeks in all, over a period of about two and a half months. Some of the people worked considerably longer than this.

Dr. Stevens, after combining and analyzing the studies, made several recommendations. I wish to emphasize three of these which are listed in the publication which he prepared. First, about half the people engaged in off-farm agricultural businesses needed training in agriculture. Sometimes you hear this point carried to the extreme. I heard a man in Louisville, not too long ago, discuss this topic and he suggested that the girl who worked at the dairy freeze needed some knowledge of agriculture because she dipped ice cream. I think this is going a bit too far, but it is reasonable to believe that many people in off-farm agricultural occupations do need competencies in agriculture to perform their work. Dr. Stevens found that employers generally expected about a 20 percent increase in the number of workers needing agricultural competencies in the next five years. The third observation to which I will refer is that the areas of greatest need for workers in off-farm agricultural occupations seemed to be in agricultural sales and service, agricultural machinery, and horticulture. There were also needs in food processing.

A staff was assembled in 1965 to develop courses in the three most needed areas to be used by anyone, anywhere in the United States, who would develop a pilot program. (A course in a fourth area -- agricultural chemicals -- was to be developed later.) In the area of horticulture, James Utzinger, from Ohio, developed the course. In agricultural sales and service, the work began with Howard Nowels, a teacher of vocational agriculture in Ohio, but unfortunately Howard had some health problems and had to give up the work. Then Bill Becker from Wisconsin came to develop this course in agricultural sales and service. Later, Dr. Lintner, from Ohio, also helped with the course. So, three people worked on this course with Mr. Becker and Dr. Lintner making major contributions. In agricultural machinery and power, Alan Kahler, then from Iowa but now in Nebraska, developed the course.

One of the big problems in developing these courses was to determine the format or form that the courses should take. It was in this area that I did most of my work. However, I certainly did not come up with the format all by myself; all the staff helped. We tried to develop a course format that would be educationally sound and that would be simple to follow. I am not going to explain the course format again, because most of you have been in meetings where it was discussed.

However, I would like to take a few minutes to mention the term "module." It was not my term, but it did come out of this meeting, and some writers in the Agricultural Education Magazine did make some issue of the term. I can define the term, if you like, at least as we understood it. If the term "module" bothers you, use the term "unit." Perhaps there is no difference between the terms -- as Dr. Scarborough wrote in the Agricultural Education Magazine. I believe there is a small difference in the terms, but it is not great. The term "unit" has become very vague in its meaning. It means anything and everything to different people. We have Research Coordinating Units, and here we use the term to designate a group of people or an organization to do a specific work. Writers of books combine different chapters and say their book is composed of units. We use "units" over and over, both in and out of education. I think it is the vagueness of the term that caused us to use "module." Module is the same as unit with perhaps two exceptions. It is new in education and has no preconceived meanings. It comes from the electronics world or the building trade. To pinpoint the difference between unit and module, a module is more self-contained. It is better able to stand alone. However, a module, like a unit, has its being as a part of a course, to attain a major teaching objective. But a module is

more completely self-contained than are most units. A module can easily be taken from one course and used in another course, or even by itself if needed. I think you could use the module anywhere, if its major teaching objectives were what you desired to attain with your students. With this attempt to explain the difference in the terms, I "rest the case." I would not like to debate the issue with Dr. Scarborough or anyone else. Use unit if the term "module" bothers you.

Dr. Halterman from California developed the course in agricultural chemicals. This course was developed at the technical level. The other courses were developed at lower competency levels, and all were developed for different groups. This caused some misunderstanding at one of our meetings with the people from industry. The horticulture course was developed for teaching the disadvantaged. That is, persons who are disadvantaged academically, economically, socially, or otherwise. The biggest difference this caused was that Mr. Utzinger developed the horticulture course at a rather elementary level and used many practical, easy-to-follow illustrations. With modifications, however, this course could be used with high school students or even with the post high-school group. But it was developed with the disadvantaged in mind.

At a meeting in March, 1964, with persons from business and industry, some of the people in horticulture became quite disturbed until they understood all the facts. At least they voiced their objectives, because they thought we were implying that all horticulture work was for the disadvantaged. When they understood what we were trying to do, and realized that we felt that there was need for horticulture courses at all competency levels and for all kinds of students, the matter was concluded.

The course in agricultural sales and service was developed at the high school level. It, too, could be adapted and used at other levels. The agricultural mechanics course was developed for the post high-school group; aimed at people who could study full time. The agricultural chemicals course was developed at the technical level for use in junior or community colleges.

In addition to the people who prepared the courses, Ramsey Groves and Jim Christiansen, graduate assistants, had a major part in developing the courses. Dr. Hamlin worked primarily on policies and procedures in getting sound pilot programs in off-farm agricultural occupations started. Harold Anderson worked on getting occupational experience to be a vital part of pilot programs in off-farm agricultural occupations. This task force which prepared materials really did an amazing job, I feel, in a short period of only a few months.

All of these materials are of a developmental nature. They were developed at the national level, and we know that no course or publication can be developed at the national level which will fit all local communities. Neither can a course be developed at the state level which will fit all communities in the state. The materials must be adopted to local conditions. Although the courses were a first attempt and were developmental in nature, I am not apologizing for them. I think these men did an excellent job. I believe the courses are good, but they will have to be adapted by each teacher to meet the needs of his class. We recognize this as much as anyone else, perhaps even more so.

After the courses were largely completed, we had a National Conference here at The Center from May 4 to 7, last year. Some of you may have attended. This conference was devoted to looking at the course materials and discussing the possibilities for their use. Five area meetings followed this National Conference. The primary purpose of the area meetings was to get superintendents, administrators, and teachers to attend, more than professional staff members in the different vocational services. Perhaps more professional staff members than administrators and teachers attended these area meetings. I haven't seen an analysis of the attendance. Many superintendents and teachers did attend, however. The area meetings were held in 1965, last summer, beginning in New York in May, and ending in Atlanta in June. These were held at five different locations in the United States, and the total attendance at these meetings was quite satisfactory.

It was a real privilege for me to work on this program. I really enjoyed the association with all the people at The Center, and especially with these men who did such good, but difficult, work on the courses.

The men who developed the courses visited the programs that they could locate where programs in off-farm agricultural occupations in their course areas were being conducted. They traveled quite widely. We had frequent advisory meetings with professional vocational educators and group meetings with people from industry. We were in contact with representatives from business and industry throughout the development of the courses. I feel that you will agree that in just a few months, these men really accomplished much in getting the courses prepared. If you look at the volume of material and technical information in these courses, I believe you will be quite impressed.

These courses have a lot of technical material or content. I feel that if materials are to be useful to vocational teachers, this is necessary. We conducted a survey last summer to evaluate teaching units in agriculture in Kentucky. The teachers of agriculture indicated that the most valuable parts of the units which we had developed dealt with subject matter (technical information) and suggested references. We included suggested teaching-learning activities in the units, but teachers valued content material higher. I feel sure that these courses in off-farm agricultural occupations will be rated high on their technical information.

FEDERAL RESPONSIBILITIES IN EVALUATION OF VOCATIONAL AND TECHNICAL EDUCATION*

by
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With the enactment of the Vocational Education Act of 1963, Congress authorized Federal grants to states to assist them in strengthening and improving the quality of vocational education in the Nation. As most of you know, the Act also specifies periodic review of vocational education programs and laws. During 1966, the Secretary of Health, Education, and Welfare is required to appoint an Advisory Council on Vocational Education for the purpose of reviewing and making recommendations concerning the status of vocational education programs, the administration of these programs, and the Acts under which funds are appropriated.

Provision was made, when the Division of Vocational and Technical Education in the U. S. Office of Education was reorganized to administer the new legislation, for a small program evaluation staff to work directly with the Assistant Commissioner responsible for these programs and to serve as liaison with the Advisory Council when it is appointed by the Secretary. I want to describe to you today our plans for the functioning of this operation -- our objectives, the procedures we plan to follow, our approach to the problem of evaluation at the National level.

Stated as simply as possible, our objectives are: to develop a comprehensive and responsive system for determining the effectiveness of vocational-technical education programs in terms of the purposes of the Acts as administered by the Division of Vocational and Technical Education; to organize the system so that it will meet both the short and long term needs of the U. S. Office for program planning and decision making; and to anticipate the requirements of the Advisory Council on Vocational Education soon to be appointed by the Secretary. How to accomplish these objectives, is a demanding matter. The problem of evaluating progress in all aspects of vocational-technical education in fifty-four states and territories for more than four and one-half million students in thousands of schools is almost overwhelming. The sheer size of the problem precludes any "eyeball-to-eyeball" approach of teams evaluating institutions in a particular school district. Evaluation at the Federal level must be largely through an analytical approach based on an extensive and comprehensive information system supplemented by selected on-site reviews.

Although time will not permit a detailed presentation, I should like at least to outline for you our plans for a systematic approach to a national "pulse-taking." These plans will also serve as a framework within which each state can evaluate its own stock-taking efforts in vocational education.

The need to define goals or objectives is basic to any evaluation process. This is an essential first step since it is against the goals or objectives that progress will be assessed. Step two is the identification of those items whose measurement will indicate progress toward or problems encountered in moving toward the established goals. Identifying items is usually simpler than measuring them, but devising a system for measuring the items (and I am speaking of qualitative as well as quantitative measures) is an obviously essential step; it must preceed any analysis of accomplishments achieved in relation to goals.

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*Paper from which Bernard Michael drew material for an informal luncheon presentation to the participants of the National Seminar on Evaluation and Program Planning in Agricultural Education, June 28, 1966, The Ohio State University, Columbus, Ohio.

What are these goals to which I refer? They can be derived readily from the Vocational Education Act of 1963 and the responsibilities of the U. S. Office of Education in administering this Act and other related legislation. I am sure that they are familiar to all of you in one form or another, and I will take only a few minutes to summarize them for you as the first step in outlining an evaluation system:

I. Provide access to realistic, high quality occupational education and training for all who need or desire it (ranging from the least able and the disadvantaged to individuals with a high level of technical ability), including:

   A. Young people attending high school
   B. Persons who have dropped out or completed high school
   C. Those who are at work and need training or retraining to hold their jobs or advance in employment
   D. Those who struggle with academic or socio-economic handicaps

II. Encourage the establishment of occupational programs appropriate to the needs of a given area in all types of schools or educational institutions including:

   A. Comprehensive high schools
   B. Specialized vocational-technical high schools
   C. Technical high schools
   D. Junior and community colleges
   E. Area vocational and technical schools of different types, both secondary and post-secondary
   F. Four-year colleges and universities, both public and private
   G. Private schools under contract with the state board or local educational agency

III. Offer programs covering the entire occupational spectrum (excluding only those occupations which the Commissioner of Education determines to be generally considered professional or which require a bachelor's or higher degree).

   Foster flexibility in the improvement of existing programs and in the development of new and varied programs responsive to present and future occupational requirements and opportunity.

IV. Gear vocational and technical education programs to current and projected labor market needs (including local, state, regional, and national as appropriate).

   A. Establish cooperative agreements between vocational education agencies and public employment service agencies:

      1. To assure consideration of available labor market data
      2. To assure effective coordination of counseling placement and other services offered by schools and employment services

   B. Establish advisory councils to State Boards for vocational education. (Include on the councils representatives of employers, labor unions, and other persons familiar with training needs of employers and with those of the individual.)

V. Stimulate improved planning by State agencies with responsibility for administering programs.

VI. Stimulate periodic program review to assess progress of programs toward goals and to provide bases for further planning to remedy shortcomings.

VII. Encourage and provide some of the means for research and experimentation aimed at improvement of all aspects of vocational education.

It is apparent that in enacting the Vocational Education Act of 1963, Congress had in mind broad and comprehensive goals. Explicit in the Act are concern for needs of the individual as well as for needs of the economy. Considerable stress is placed on the need

to create a flexible vocational education system available to all Americans of all ages and conditions and in all communities.

What are the major items which can help to indicate program status? Logically they fall into three major groups: (1) The population to be served. (2) The functioning of the education system: the administration organization, and existing power structure; the physical capacity of the system (facilities and equipment); the teachers, administrators, and counselors and other personnel; the curricula; the services (guidance placement, research, data collection, etc.), and (3) the servicing of needs of employers and concerns of society, including current and future market demand and fulfillment of citizenship and other non-economic concerns of society.

Sources of information already available include the annual reports from each state and territory, from which it will be possible to describe trends in enrollments and completions by level (secondary, adult, etc.), by program (trade and industry agriculture, etc.), and within programs by occupational commitment. Considerable data on expenditures by program and by purpose will also be available, and perhaps some general follow-up information on initial placement of graduates. In addition to the data, annual descriptive reports, statements of projected program activities also furnished by each state, will aid us in assessing progress throughout the nation. To supplement the analytical approach to program evaluation made possible through the new reporting system, we hope to accomplish state visits and some on-site review by program specialists of our headquarters staff and by the regional staffs, which are now being expanded. To further supplement these efforts, we hope we shall have the results of numerous research projects funded under section 4-c of the Vocational Education Act of 1963 or through other government or non-government funds. Such projects, many of which are already underway, will include a variety of follow-up studies, cost and benefits analyses, curricula evaluations, labor market demand studies and a host of others which can be used in our evaluation system. At least two major evaluation efforts for developing techniques useful at State and local levels are in the planning stage at the vocational research centers at Ohio State University and North Carolina State University.

To summarize, then, measurements which will assist us in evaluating progress toward achieving goals include:

1. Trends in numbers and characteristics of persons enrolled in and those completing programs, compared with the estimated proportion of the population needing or desiring training (the population not served)

2. Success in terms of pre-employment information, such as educational achievements; demonstrations of basic knowledge or skills needed to earn a living; knowledge of world of work -- occupations, entry and progression requirements, salaries, etc.; work habits; attitudes; methods of self appraisal; and knowledge of how to obtain a job

3. Effectiveness in terms of the ability of state administrations to plan and organize; to attract and hold students; to provide sufficient numbers of well-trained teachers, facilities and equipment, instructional materials; to provide needed services such as guidance, placement and research; to anticipate new areas and adjust program offerings to reflect current and projected job openings; and to provide effective articulation between levels and types of schools assuring maximum flexibility for individuals seeking training

4. Effectiveness in achieving objectives in terms of follow-up information (placement, job satisfaction, advancement, mobility, employer satisfaction, contribution to the community and other aspects of citizenship)

5. Assessment in terms of cost effectiveness and other analyses of expenditures such as shifts among existing programs, allocation of funds to new programs, approaches to balanced program offerings and other evidences of effective and flexible funding

As part of the evaluation process, questions will be raised as to funds and other resources needed to achieve optimums, considering population to be served, available capital and human resources, and estimated current and projected labor market needs. We hope the evaluation system we are developing will enable us to make recommendations for improving administration at all levels, for necessary research, and possibly for new legislation or amendments to existing laws to facilitate their administration. After all, even the most comprehensive evaluation system is useful only in the planning and decision-making process. We are trying to develop our system so that it will accurately and continuously reflect progress and identify problems in vocational and technical education.

THE ROLE OF THE CENTER IN NATIONAL EVALUATION

by
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It is indeed a pleasure for me to be on this program where the topic is evaluation and particularly where agricultural education is the focus of attention.

Although the major part of my work for the past few years has been research-oriented, I have been able to maintain a continuous membership in a department or division of agricultural education at all times.

My assignment today is that of discussing the role of The Center in national evaluation. The printed program says "National Evaluation Project" which is a little misleading -- there is not, to my knowledge, a national evaluation project. There is a national evaluation effort called for in the Act and we will all be a part of it, but the word "project" as used here is a misnomer.

The word evaluation is certainly no misnomer, and if anything it has taken on a new air of importance today. Anyone writing a research proposal knows very well that the section labeled "Evaluation" is a mighty important section. People have risen to quick fame through evaluation efforts, and I need only to remind you of the young man named Nader who made a very recent study of automobile safety and authored the publication (about a certain General Motors product) called, Unsafe At Any Speed. That little attempt at evaluation was so important that it sent shivers and shudders up the back of Wall Street.

In my humble opinion--the forthcoming evaluation which will take place in national vocational education--may send a few shivers up many of our backs. We just have to show that we are doing something besides going through the motions.

There is the story about the guy who bumped into another car in front of a bunch of people. He gets out of his car, takes a note pad or piece of paper out, goes over to look at the damage, appears to be writing down his own license number, puts the piece of paper on the windshield of the damaged car and then drives off. One of the spectators goes over to look at the note and on it, it says, "These people watching me think that I am writing down my license number and leaving my name and address -- I'm not."

Many of our vocational education activities are not what they seem to be either. The problem today is that schools have a whole new army of critics. They don't stand around and guess what you're doing, but get right in behind and look over your shoulder. To top it off this isn't such a bad position if they don't like what you're doing.

We in vocational education have been given some 177½ million dollars for this fiscal year - 225 million for next year. Congress is going to ask, "WHAT DID YOU DO WITH THE MONEY WE GAVE YOU DURING THIS FIRST APPROPRIATION PERIOD? WHAT WOULD YOU DO IF WE WERE TO GIVE YOU SOME MORE? WHAT CAN YOU TELL US ABOUT THE CHANGES FOR IMPROVEMENT YOU HAVE MADE?"

You have undoubtedly heard the story about the farmer who inherited a half-million dollars. After they got him settled down from jumping over fences and dancing around the water pump, they asked him, "What are you going to do with all that money?" He thought for a while, then said, "Well, I guess I'll just farm, and farm, and farm until it's all gone."

Let's make sure that we in Agricultural Education don't just keep going through the same old motions over, and over, and over again until our money is all gone and we still haven't moved ahead.

At The Center we see our role in evaluation as having both a long-range and a short-range aspect.

(1) Short range - We see a need for assisting states in meeting their responsibilities in the forthcoming national evaluation.

(2) Long range - We see a need to assist states in a continuous evaluation program - an evaluation program which, when properly conducted, can serve as a basis for program changes, additions, deletions and improvements - an evaluation system that becomes a part of all on-going programs and something more than a one-shot effort. This evaluation system will be the development of a model that can be used for evaluating a state's total effort in vocational education.

More specifically:

(1) We plan to develop a set of guidelines complete with data gathering instruments, general procedural outlines, plus techniques for synthesis and analysis of the information.

(2) To carry out regional training workshops assisting state staff members in becoming acquainted with the evaluation program package that is developed.

How we plan to proceed:

(1) Employ three full-time persons who have the sole responsibility to think, eat, and sleep evaluation of vocational education.

(2) Seek the cooperation of three states who will volunteer to serve as pilot states for trying out any evaluation guidelines developed. (New Jersey, Colorado, and Kentucky will be the pilot states.)

(3) Bring into The Center one person from each of these three pilot states to assist in the development and testing of the guidelines. (These people will work part-time at The Center and part-time in their home states).

(4) Bring in special consultants as needed.

(5) Collect from all known sources the best instruments and techniques that are now available. We will use parts, rewrite parts and develop completely new materials.

(6) Try the materials out in the pilot states.

(7) Revise the guidelines as needed.

(8) Hold regional workshops for purposes of acquainting all states with the guidelines.

(9) Keep a permanent staff member at The Center who has these responsibilities:

a. provide consultant assistance to the profession in the area of evaluation.
b. continually evaluate and improve the evaluation techniques and instruments used in vocational education.

There is the story about the group of people who were being taken on a tour of a large manufacturing plant. From the cat-walks high above the main floor, they were watching the big machines clanging and banging--puffing and steaming. Above the noise of the machines, one of the tourists shouted to the guide, "What do you manufacture with all those machines?"

The guide answered, "We make grease." The tourist responded, "Boy, you must have a big gross sales with all that machinery available."

"Heck, no," said the guide, "it takes all the grease we can manufacture just to keep the machines going."

You can rest assured that what we come out with will hopefully be something that is simple enough to get the job done without keeping the entire staff busy just evaluating.

What is our time schedule?

Optimistically:

September, October, November

- get staff on board
- establish criteria, key indicators, potent variables
- review, revise, write materials for data gathering
- outline the macroscopic approach and field test
- develop some microscopic materials

December

- report to profession on progress (AVA meeting)
- possibly a state directors meeting on evaluation

January, February, March

- pilot trials using the guidelines
- revise materials as needed
- print guidelines

April, May, June

- conduct regional workshops

Some general comments on the approach to state evaluation:

(1) One of the real benefits from any evaluation is involvement--involvement of people. The states will carry out their own evaluations--no one group will be coming in from The Center or Washington to do it. Our approach stresses self-evaluation.

(2) Everything developed and set forth as guidelines will be used on a voluntary basis.

(3) The materials developed will be flexible - a state will be able to use parts, modify and even omit parts if appropriate.

(4) We hope The Center's efforts will eliminate a duplication of efforts across the nation.

(5) Above all--the materials are intended for the individual state's own use in program evaluation within a state and not for between states comparisons. Flexibility will be built in to allow for differences in the various programs from state to state. We know programs are going to vary by size and hope to be able to make the guideline material flexible enough for all states to use.

(6) In the future, we see the evaluation procedures and instruments being fed into the Educational Retrieval system and anyone in the profession will be able to obtain copies of instruments on microfilm by return mail.

What can you do to help us in our efforts?

We will need your:

- Ideas on how much is needed and how little is appropriate
- Information on sources of data
- Instruments for data gathering
- Individuals who can serve as consultants

George Bernard Shaw once said, "Some people see things as they are and ask why. I see things as they never were and ask, why not?"

Our state evaluation efforts must not stop at a point where we merely look at what is and ask why, but we all must be looking for those programs that aren't there now and ask WHY NOT?

GUIDELINES FOR THE DEVELOPMENT OF INSTRUMENTS
FOR EVALUATION IN VOCATIONAL
AGRICULTURE

by
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Many necessary and important points of view regarding the evaluation of vocational agriculture have already been made during this conference. We have a new set of objectives to guide us. We have discussed the kind of evaluation which needs to be made because of the imminence of the national evaluation and what this evaluation should accomplish.

Before we can go further, however, we must develop the means for conducting evaluations which in most cases will require an instrument or instruments to accomplish the task.

Immediately following this presentation each of you will assemble in committees to help develop instruments which can be used in the evaluation of programs of vocational agriculture in your own states. I hope that these suggestions which I am about to make on the development of evaluation instruments will help you in this effort to the end that you may leave this conference with a clear understanding of how to carry on the same process with your own personnel in your home state.

First of all, let us think of an evaluation instrument as a means of taking us some place where we wish to go. We are somewhat in the position of the makers of the old Conestoga wagons, which carried our pioneer forefathers across this state to the new land of the west. People came to these wagon makers with plans for taking their families great distances. They knew that they would be crossing deserts, fording rivers. They knew that their trip might take many months; they knew something of the total weight of the belongings and food which their wagons would carry. In order to get from where they were to where they wanted to go, they needed a particular kind of wagon which would do this job.

This is the purpose of the instruments which we need for evaluation. We have a pretty good idea of where we want to go, what we want to accomplish through evaluation. So, now let us turn our attention to the kind of evaluation instrument which we need to do the job.

Leaders in vocational agriculture have given considerable attention to evaluation during the past forty years. The fact that we are discussing the subject this week is evidence that we have not solved all the problems. In fact, had evaluation been carried in an ideal manner, there would have been no need for Congress to specify that an evaluation should be made at this time. The fact would have been in, and we would have had the results of our evaluation effort complete, accurate and continuous.

As we have tried to evaluate programs of vocational agriculture during these past forty years, we have had difficulties which we must avail in the future.

We have sometimes placed an uneven emphasis on certain aspects of the program. We have probably over-evaluated the FFA and the Young Farmer Program for example, while giving little attention to such important aspects of the program as classroom teaching and placement of our students in jobs.

Evaluation has come from the top down in too many cases. In this type of evaluation, criteria have been imposed upon local programs by outsiders which were considered by the recipients un-appropriate and unfair.

Voluminous and complicated instruments have been used all too often in evaluating programs in the past. This has led to time-consuming procedures in evaluation. Evaluations which require weeks of preparation on the part of the teacher may be ideal, but they certainly are not practical in today's schools. As a result of this kind of evaluation, all too often the participants have been worn out by the evaluation process to the extent that they have made limited use of the results in improving programs.

Another difficulty has been that we have made sporadic attempts at evaluation rather than continuing evaluation extending over a period of years.

One of our difficulties in the past is that we have tried to evaluate on the basis of out-worn and out-of-date objectives to guide our efforts at this time.

Dr. Michaels raises a challenging question when he challenges us in our national evaluation to arrive at measures of the cost of our educational programs and of the returns which we secure from them. This presents a difficult problem. Let me illustrate:

> A community which has had a vocational agriculture program for the past thirty years would have spent funds for teacher's salaries, for facilities, for light, heat and upkeep of equipment to the extent that they might well have an investment of a third of a million dollars in a single community.
>
> A third of a million dollars will build a fine church or a library or might even provide a small park. School administrators from the board of education have to be able to tell to their constituents that this one third of a million dollars which was spent on vocational agriculture was better spent here than on some of these other alternatives.

These board members and school administrators in most communities across the nation would say their vocational agriculture program has been a good investment and they could justify it in terms like these. "Farming is more efficient and profitable in our community as a result of a program." "Some of our best farmers took vocational agriculture in high school." "Many of our farm boys find a real interest in school through vocational agriculture programs." "These boys have become leaders in our community." "This program started a number of our boys in the College of Agriculture." When these statements can be made--even if they happen to only two or three boys a year--it is easy to justify spending a third of a million dollars over a thirty-year period. If they don't happen, the funds may well be spent for other educational programs.

These are some answers which we need as we evaluate programs of vocational agriculture, but they are difficult ones to obtain. It takes a carefully constructed instrument to provide for the evaluation of outcomes such as the ones we have discussed above, as compared to one which assesses only ways and means.

As we consider the development of instruments for evaluation, certain basic assumptions must be made as to how the evaluation is to be made. The following are seven assumptions which give direction to the types of instrument needed.

These assumptions are as follows:

(1) Local programs are the basic units to be evaluated. State and national evaluation can then be based upon cumulative information obtained from many local evaluations.

(2) A combination of "self" and "outside" evaluation is most effective. When we evaluate ourselves we accept our own judgments, but we often need the judgment of others to reinforce our own convictions.

(3) Evaluation will be made on a continuing basis. We are assuming that certain evaluations will be made of selected aspects of the program each year, but that at least every three to five years a thorough and complete evaluation will be made.

(4) Those affected by the program will share in its evaluation. This means that we will call upon farmers and businessmen, school administrators and parents to assist us.

(5) The evaluation instruments will be comprehensive without being voluminous.

(6) The initiative for requesting the evaluation will rest with those responsible for local programs.

(7) The supervisory and teacher education staffs will assist in carrying out the evaluation.

GUIDELINES FOR EVALUATION INSTRUMENTS

The following represents some guidelines for developing evaluation instruments in the kind of situation which we have described above and are based upon some of the assumptions which we have established.

SOME ESSENTIAL CHARACTERISTICS OF INSTRUMENTS FOR THE EVALUATION OF LOCAL PROGRAMS OF AGRICULTURAL EDUCATION

(1) Based upon educational objectives, which are generally accepted by those involved in the program.

(2) Inclusive enough to cover all important aspects of the program.

(3) Capable of being used on separate areas of the program at various times.

(4) Adaptable to both self evaluation and group evaluation.

(5) Understandable to both professional and lay persons.

(6) Requires a minimum of records, reports, and preparatory paperwork.

(7) Includes selected guidance in the form of objective data.

(8) Includes opportunity for subjective judgment of educational outcomes.

(9) Provides for comparison with established standards, norms and summaries.

(10) Provides opportunity for longitudinal evaluation extending into the future.

(11) Provides for a brief meaningful summary at the close of the evaluation.

(12) Concludes with implications for further development and improvement of the program.

A first step is certainly that of reviewing general objectives for the program.

The publication, "Objectives for Vocational and Technical Education in Agriculture," certainly provides us with a valuable starting point. These objectives, however, need to be restated and revised in terms of the unique needs and problems of each local community.

The next step to which we need to address ourselves is that of making an analysis of the local program in terms of its major components, or if you like, teacher tasks. An example of program components or teacher tasks necessary to a successful program of agriculture for youth of special needs might be as follows:

1.1 Relationship with the school
1.2 Curriculum
1.3 Teaching methods
1.4 Occupational experience
1.5 Guidance and counseling
1.6 Facilities
1.7 Community relations
1.8 Placement

The second step becomes one of developing appropriate guidelines which are in a sense objectives for each of the program areas which have been identified. These statements serve as a starting point for the evaluation as well as a guide for the final evaluation of this area. Here is an example of a guideline for the areas of occupational experience. "Appropriate programs of supervised practice should be planned for each student. The nature and extent of this experience should be adjusted to the abilities of the individual student and should provide for realistic occupational experience and expiration. Such programs will be closely related to the agricultural curriculum pursued by these students." The development of such guidelines is important not only as a basis for evaluating areas of the program, but also as a means of helping those assisting in the evaluation to think together about various aspects of the program.

At the risk of being too specific, I am going to suggest that each section of the evaluation instrument for each aspect of the program should contain the following items:

(1) Guidelines as described above.

(2) Facts and figures regarding this aspect of the program for the current year. These facts and figures must be objective and should consist of only a few key indicators rather than all the information which might be compiled.

(3) Selected trends for the past three to five years should be recorded. Trends provide a further look at what has been happening in the program and may be used in the forecast of what may happen in the future.

(4) Judgments of results or outcomes of this aspect of the program should be secured. If we limit the evaluation to ways and means as we do when we examine figures and trends, we fail to include the outcomes that people are willing to pay for in an educational program.

(5) We need a simple and understandable rating scale for evaluating the area.

(6) We need to provide for recommendations for further improvement.

Now let us try out a single section of our new instrument. Here is an example of a single section of an evaluation instrument. This section is designed to be used in evaluating the Young Farmer Program. This page is one of ten pages which we use in an instrument for evaluating vocational agriculture programs in Ohio. It is a self-contained page and it includes the features which we have discussed. This instrument has been completed during an evaluation meeting held in an Ohio community. The facts have been recorded. Trends have been plotted and local people have given their judgment as to the outcomes of the program. All that remains is for us to arrive at a final evaluation for this area of the program. Let's see what use we might make of it. First of all, looking at some facts and figures, we see some desirable features of this Young Farmer program as well as some undesirable features. Section 2, "Selective Trends," indicates that this program is encountering difficulties. Enrollment is dropping. Attendance at meetings is decreasing. The number of teacher visits per student has been lowering each year. In Section 3, "Outcomes and Results," it is assumed that a local advisory committee has made these judgments, and they say in summary that the instructional meetings are not as interesting as they should be, and that the members really are not making many changes in their farming operations as a result of the course.

Now coming to the final evaluation, most of you have agreed that this program would receive a rating of only fair or "two." Here is a simple demonstration that gives the key facts and judgments for a conservative evaluation. If you can come up with an instrument of a similar nature which has the characteristics which we have described during your committee sessions, such an instrument should aid greatly in evaluating programs of agriculture in your state. One final word. The process of developing your evaluation instrument may be as important as the product. Instruments of evaluation have maximum meaning for those who hammer them out and put them together. In developing instruments for our individual states, each of us have the responsibility of involving in their development those who will use them.

YOUNG FARMER PROGRAM [1]

Guiding Statement: Every vocational agriculture department should provide programs of education in agriculture for young farmers which will encourage them to further their education by participating in existing agricultural education programs at the local, county, or state level. The instruction should be based upon the needs of the enrollees, and should contribute to their efficiency in agriculture and provide a better understanding and appreciation of rural life.

1. Some Facts and Figures

	This Year
List significant farming changes made by students resulting from organized instruction _____	____
_____	____
_____	____
Number of former high school vocational agriculture students now enrolled in the Young Farmer Program	____
Number of field trips	____
Number of meetings of Young Farmer planning committee	____
Number of sessions devoted to farm business planning and analysis	____
Number of sessions in which resource persons were used	____
Number of years of affiliation with Ohio Young Farmer Association	____

2. Selected Trends

	2 Years Ago	Last Year	This Year
Number of instructional meetings held	____	____	____
Average attendance at instructional meetings	____	____	____
Total enrollment	____	____	____
Number of teacher visits per student per year	____	____	____
Number of teacher visits made to prospective members per year	____	____	____

3. Outcomes or Results

Use local interviews, observations, and discussions as a basis for your appraisal of results. Evaluation Scale: 5-Excellent; 4-Good; 3-Average; 2-Fair; 1-Poor.

5 4 3 2 1

. . . . . 1. The instructional meetings are interesting and useful to those enrolled.

. . . . . 2. The members are making desirable changes in their farming operations as a result of the course.

. . . . . 3. The members are developing further competency in social, recreational, civic, and leadership responsibilities.

. . . . . 4. The members are becoming successfully established in farming.

4. Evaluation of Area

To what extent does the vocational agriculture department provide programs of education in agriculture for young farmers which are based upon their needs and which contribute to their efficiency in agriculture and to a better understanding and appreciation of rural life?

--Use back of page for other major accomplishments in this area and suggested improvements--

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[1] A sample page from "Appraising the Vocational Agriculture Program." Issued by The Department of Agricultural Education, The Ohio State University, and The Vocational Agriculture Service, The Ohio Department of Education.

A PROGRESS REPORT ON INTERSTATE COOPERATION

by
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EVALUATION:

To fix a value of; estimate the force of; to appraise. One must conclude from the above definition that evaluation may be a process or a point in time. One must assess his present position; establish goals and objectives; and rechart his course for the attainment of these objectives and still call the entire process evaluation.

The process of evaluation in education may be defined differently by the various disciplines involved. Our colleagues involved with general education in the high school are primarily concerned with the accumulation of knowledge to the extent that the pupil may enter college. Only in recent years have they been concerned with the children with special needs. Only since Federal funds have become available have programs become available for the disadvantaged.

This area, however, is another chapter -- My problem here today is to explain the project of interstate cooperation in developing evaluative criteria.

The history of the cooperative venture dates from the 1964 North Atlantic Research Conference held at the University of Maryland. It was at this conference, in discussing Vocational Ornamental Horticulture, that it was realized that there were no adequate published criteria upon which to base or to evaluate a program. Of the four states polled, there was no commonality as to recommend bench space per pupil; kinds of crops to grow; size of greenhouse, plastic or glass; automatic equipment necessary; etc.

Dr. Alan Robertson and Frank Wolff of New York and Dr. Annis of New Hampshire, decided to work together and invite other states to participate in developing evaluative criteria for this area.

Since that time, three meetings have been held with representatives of New York, New Hampshire, Massachusetts, Pensylvania, and Connecticut. These meetings have been attended by State Department of Education Personnel, Researchers, Teacher Educators, Teachers of post-secondary programs, and teachers of secondary programs.

The objectives of this project were:

(1) To develop evaluative criteria for the planning stages of Vocational Ornamental Horticulture programs.

(2) To develop evaluative criteria for an on-going program of Vocational Ornamental Horticulture.

(3) To develop evaluative criteria to determine
   a. Program outcomes
   b. Emerging goals and objectives

At the first meeting it was decided that the resultant publication be usable by teachers, administrators, supervisors, or the local boards of education for evaluating the program at a particular school. This publication will be forthcoming later this year.

Phase I consisted of an assessment of "Where we are" in Vocational Ornamental Horticulture and the development of criteria which would assist the above mentioned recipients of this publication in the planning stages.

To assist in the planning and development of goals and objectives several criteria were developed. These criteria were based on both the needs of industry and the goals, objectives, abilities in the development of human dignity on the part of the individual.

You will note the two distinct approaches to the problem. On one hand, the needs of indu were considered but the individuals with their various needs, attitudes, and aspirations in th field were not forgotten.

After the criteria for establishing goals and objectives were developed, several supporting areas were identified. These supporting areas included: student identification and selection; facilities; materials of instruction; coordination with other subjects; planned work-experience programs and the use of community resources. Criteria for evaluating were developed under each of these headings.

Phase II of the project involves the evaluating of an on-going program. Utilizing the basic design established under Phase I efforts were made to measure how well the plan is working in practice.

Although evaluation of teacher effectiveness is related to all phases of an instruction program, only a part of the phase of the project dealt with the evaluation of instruction per se. While some might criticize this as a weakness in the evaluative criteria, it was felt that if teachers were to make an objective evaluation the criteria must be made as impersonal as possible.

Many things totally unrelated to the on-going program may affect the placement of students. For example, an "outside factor" could be the economic prosperity of an area--(1) a labor strike (2) social climate in terms of employer attitudes toward hiring different groups (3) changes in job opportunity within and without the field of Vo-Hort. These "outside" factors must be considered.

In phase III of the project, the participants were concerned with

a. The comparison of achievements of the program in relation to previously stated objectives and

b. An appraisal of emerging goals through which the program may be adjusted and extended.

The participants were as concerned about adjusting the program as about maintaining it. In Northern New England teachers seem to always be trying to add more to their programs without deleting anything from the teaching calendar.

The people working on this interstate project realize there are many factors operating in a given community which bear upon the degree of success other than those controlled by the instructional program. This has been stressed throughout the publication.

Evaluative Criteria must be based on objectives which are obtainable for a local situation.

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EVALUATION THROUGH RESEARCH

by
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I have been asked to present a somewhat broader picture of the evaluative process than you have been considering at this Seminar. I shall attempt to do this by drawing my examples from two Federal programs with which you may or may not be familiar: The Manpower Development Act and the Job Corps. I am a practitioner of evaluation in both of these programs, so my remarks will be based on experience. If my comments seem too pragmatic at times, I ask for your patience, because when you spend all of your time doing something you can get very enthusiastic about it. In this instance, I refer to your phrase "learning by doing."

In order that you may more clearly understand my remarks, I would like to take a few minutes to explain a little about the MDTA program and the Job Corps.

We have been operating an MDTA project since November of 1964. Our trainees are adults, between the ages of 18 and 60, who are undereducated and unemployed. One-fourth of our trainees are functionally illiterate. That is, they read at less than the fourth grade level. Over 90 percent have completed less than twelve years of schooling, and they function academically at a level several years below the level where they left school. That is, the individual who has completed the tenth grade often functions at the sixth or seventh grade level.

Seldom do we find anyone who has worked full time for as long as one year and yet our trainee's average age is thirty-three. What have they been doing all this time? The answer is simple, trying to exist! When they do get work, it is part-time or seasonal. They are unskilled and the wages are poor, even though they make more working in agriculture in California than they make in almost any other occupation. At the same time, the work is seasonal and they can't live all year on what they make in agriculture. Many turn to jobs in the restaurants, hospitals, transportation, etc. Others turn to public assistance, such as welfare or unemployment. But when it is all put together, they earn less than $3,000 per year. It is not enough for <u>you and me</u>, and it is not enough for them.

I think that a poem by Edward Markham entitled "The Man With the Hoe" helps us to put this picture in focus. He said,

> "Bowed by the weight of centuries
> He leans upon his hoe and gazes on the ground,
> The emptiness of ages in his face,
> And on his back the burden of the world.
> Who made him dead to <u>rapture</u> and <u>despair</u>,
> A thing that grieves not and that never hopes, . . ."

There is more, but envision if you can, a human being who has always failed, who really doesn't know what it means to hope! It's a dismal picture, but if you can see it, you can see our trainee.

The people I have described represent the challenge that MDTA projects have accepted. Some have met the challenge and some have not, but we shall go into that at a later time. Our MDTA project has three parts: basic education, vocational education, and work experience. The basic education component consists of the three R's, as you would expect. It also contains something we call motivation, or the modification of attitudes, which is essential. I don't care how well you can read or how skilled you are, it won't fill your belly unless you go to work. In other words, you can train people to do nearly anything, but what point is there if they don't use the training! Thus, we have motivation classes.

Our MDTA vocational programs are in agriculture, business, trade and industry. In agriculture we offer training for milkers, tractor operators and farm mechanics, groundsman-gardener, tree and vine pruners, poultry and all-around farm hands. Business vocations include clerk-typist, bank teller, bookkeeper, sales personnel and cashier. Trade and industry offers training in the culinary family, nurse aide-orderly, L.V.N., custodian, dry cleaner, repair occupations, dental technician, and so on. We offer training in some thirty vocations.

Work experience is considered an integral part of each vocational program and as you might expect, many trainees go to work where they were placed for work experience. In fact, it is sort of planned that way.

The urban Job Corps is very similar to the MDTA program in many ways except their trainee is a younger version of the MDTA trainee and costs more. The components of the Job Corps program are basic education, including personal development, vocational training and counseling since their trainees live at the site and group dynamics becomes an integral part of their total program.

The vocational program in the Job Corps includes electronics, where the occupations vary from harness assembly to TV repair; office occupations, such as sales, operation of accounting machines, bookkeeper, etc.; culinary arts, from chef to kitchen helper; office machine repair; and auto mechanics, where they receive training in diesel, welding, and body work as well as automobile repairs. They also train in the building maintenance occupations of custodian and groundsman-gardener.

Since Job Corps students come from and return to all parts of the United States, their work experience is right on the base, where they have excellent facilities. They can stay for as long as two years so they do learn the necessary skills if they remain long enough, but they do not actually have an opportunity to work for a given employer.

If you read between the lines of what I have said so far, you can see where evaluation has been operating. Therefore, let's turn to the process of evaluation itself. I remember the first time I was ever asked to define evaluation. I managed to find a few appropriate words, weave them together and came up with something that wasn't too bad, but as I look back, it wasn't too good, either. Therefore, I shall try once more and simply say it is a systematic procedure to find out if a given program has accomplished what it set out to do.

There are a number of ways that one can go about an evaluation or perhaps I should say that there are many approaches to making an evaluation. However, each method begins at a common point, the objectives, the goals or as the systems analyst would say, "the outputs." In any case, one has to start with what it is that the program is trying to accomplish, what sorts of outcomes do they expect, what will be the nature of their product after it has been through the program? You cannot evaluate a program on the basis of what you want it to accomplish unless you are planning on running it yourself. I'm sure that each of you are aware of the multitude of problems created by those who would place exclusive reliance on evaluative criteria developed by a group of experts. True, they are an excellent point of beginning, but they cannot do the job by themselves. Moreover, evaluation is not a once a year thing, but an on-going process. A program must constantly ask why are we doing this and then find out if they are! I am not suggesting that external evaluations are inappropriate--on the contrary, they are a necessity. I simply mean the program defines the objectives and then the evaluator steps into the picture.

I would submit that the rule on forming objectives should never be broken, at the same time the temptation to break this rule is very great. Because typically programs generally know what they want, but they have not set down and spelled it out specifically. Thus, the evaluator is tempted to do it for them. I urge you to resist, although it will take more effort to get them to write down their objectives in some relatively succinct manner than it would to do it yourself. I have spent many frustrating weeks with MDTA and Job Corps getting the objectives clearly spelled out, and I honestly believe it was the wisest investment of time I have ever made. As I shall point out later, once you know what it is that the program wants to accomplish, the task of evaluating is really very simple.

Let's be more specific for a moment. MDTA and the Job Corps have made it clear that what they want is to make people employable. In a word, it is spelled WORK. Sounds clear and simple. Therefore, you say "your primary objective is to prepare people so they can get a job?" (Thinking to yourself, all I have to do is a job analysis and note discrepancies, if any, between skills trained for and skills needed.) However, the answer is, "No, that is not enough," because if they don't actually go to work and remain at work, their preparation is not adequate.

This then raises the point of how one writes the necessary objectives so that they are mutually exclusive without having to prepare a book. To begin with one can't put them all down, but if you will state the overall goal, decide what functions will have to be fulfilled in order to reach that goal, and then define the role of each staff member in relation to the functions, one can isolate the more significant objectives.

For example, the goal is work. The functions the program must prepare the individual to fill in order that he can get work include, among others, being able to read, write and do math at some level, filling out an application, keeping himself clean, working with other people, getting to work on time, and so on. Then what kinds of roles are needed by staff members to fulfill the functions? The roles could include instructor, vocational counselor, curriculum development, placement, record keeping, supervisors, etc. From this skeletal outline, you can develop clear objectives, because you know where you are going and how you plan to get there. In effect, you have a roadmap that shows where you are going (GOAL), how you intend to get there (FUNCTION), and who shall be responsible for completing which functions (ROLE). Your primary objectives can be clearly identified and stated by following this procedure.

It should be clear by now that evaluation does not carry any connotation of good or bad. That is a decision that the program being evaluated will have to make, because they will carry out modifications depending upon how they perceive the evaluator's findings. Thus, evaluation has to be as objective as possible and stick to the facts. A program may not like what you say, but if you have a factual basis, they will accept it and, in most cases, do something about it.

Another reason for the evaluator seeking and then citing empirical evidence for his findings is that the program needs a basis upon which it can affect modifications. This means it is incumbent upon me as an evaluator to build a chain of logic, saying -- "Here is what you wanted to do, here is the evidence of what you have done and it is my considered opinion on the basis of this evidence why you have or have not achieved your objective. Under the circumstances, I would recommend that you consider . . . " At this time, I also try to cite specific research that supports my recommendation. For example, the Employment Service was using the G.A.T.B., in the MDTA program to indicate a trainee's ability to profit from a specific type of vocational training. It was found that many trainees were so low in reading ability that the test provided an inaccurate picture and trainees were being screened from vocations where they could have performed effectively. This finding was later supported by Pallone's study on the G.A.T.B. A program is now being considered that will admit trainees without testing using the skill center approach used in Los Angeles and East Oakland.

The point here is that a given program will not implement the evaluator's findings unless they understand the basis of the findings and they perceive the findings to have specific meaning for their program. After all, the purpose of evaluation is to provide a basis for modifying a program and if they don't act on the findings, why bother doing the evaluation?

I would like to change the pace at this point and spend a few minutes talking about some of the tools of evaluation that I have found useful.

Perhaps the most informative of all is use of a single word, why? One must exercise care when using this term, because many people will think that you are implying some sort of criticism. Therefore, I usually take a simple-minded approach, declare my ignorance, frown and

say, "I don't understand, why do you have to do that?" This gives the respondent a chance to get in a little ego involvement and he will usually lay the situation here. For example, suppose you wish to find out if the skills being taught are those currently used in a given industry. I might ask, "why does the corpsman have to learn to repair so many different brands of typewriters?" Patiently, I am told that very few companies are large enough to have a specialist for each typewriter and although they are similar, each has some rather unique characteristics. In fact, we have a manual that lists each make and the corpsman simply identifies the problem, and the manual tells him what parts are probably causing the trouble and on and on. From this, I know that the vocational skills are probably current, they are using manuals that are currently being used in the trade, that they have to be able to use an index, read, etc. My next step is to verify my findings with the student. He and I go into some corner, and I ask him the same question and give him a chance to show me how the manual works and how he would approach the job and the machines, etc. From one simple question, I gather all sorts of information on a variety of topics.

This brings up the problem of remembering key points. I have usually found that a few words on a pad will provide a rather complete set of notes after you leave the respondents. In fact, they seem to like to have you take notes as many consider this an indication of how valuable their comments are to you. Generally, I would not use a tape recorder because they make people too self-soncious and you can almost hear them say to themselves, "I had better not say that because I don't think the supervisor would like it." Most people are not anxious to stick out their necks and a tape recorder acts as a constant reminder that they have.

Perhaps you can tell that I am a great believer in the indirect method of gaining information. That is to say, what I seek is not always that which the respondent thinks I am after. For example, let's say that we are interested in finding out if vocational instructors are working closely with basic education instructors stressing the value of knowing how to read. I may say to the vocational instructor, "It seems like the corpsmen spend an awful lot of time in basic education." This will usually elicit the information I want. However, before I can draw any conclusion, I ask several instructors at random. In fact, I pick the people I want to talk to rather than having someone suggest names for me. This takes the pressure off of all concerned in the sense that the supervisor doesn't have to worry about whom to choose, the teacher doesn't wonder why he was selected, and I feel that I will be closer to the actual facts.

In all of this, I don't mean to imply that the program being evaluated will practice deceit. I refer instead to the normal human reaction to evaluation. If a program wants to hide something, they can do it. In fact, if this is the case, they probably won't consider your recommendations anyway and you might as well go home.

This brings up the topic of rapport. May I say that it is of crucial importance, as you will only scratch the surface without rapport. There are many techniques for doing this, but all are dependent upon unconditional acceptance of the other guy. It is not something that just happens, you have to work at it.

Another fruitful tool in evaluation is the projective technique. This is where you have an individual describe someone else when in reality he is talking about himself. For example, suppose you wanted to know if a given teacher had rapport with his students. Ask him to describe his students and you will learn a great deal about that teacher.

One of the more traditional, yet effective, tools in any evaluation process is the follow-up. It is time consuming if carried out properly, since it should be a longitudinal study. However, findings from a follow-up provides the evaluator with some of his best data. There is no better way to find out if any given program provides its students with the kind of education they need which is why an educational program exists. For example, from the very little I have told you about the MDTA program, how would you regard this program knowing that:

(1) Over 70% enter employment after training
(2) Three-fourths enter training-related jobs

(3) Over one-half have been continuously employed since they completed training.
(4) Three-fourths of those who were unemployed were either ill or experiencing family problems when they were contacted, but over one-half of these persons indicated a specific job they expected to take when they were well, or family problems were not as severe.
(5) 75 percent were employed full time at an average wage of $1.65 per hour.
(6) 80 percent of the trainees stated that their training helped them to obtain their present position.
(7) 70 percent of the employers gave specific reasons where the training was of value.
(8) The greatest problems of the trainee on the job were being on time, coming to work every day, and completing tasks with a minimum of supervision.

These findings supported the value of work experience and suggested that the basic and vocational training was directed toward the increasing skills. However, it was apparent that additional emphasis on work habits and modifications of attitudes would be appropriate. This recommendation is currently being implemented.

Motivation or personal development of acceptable work habits and social skills represents the most severe problems faced in MDTA programs and the Job Corps. Changes in this area are the most dramatic, yet the most difficult to measure. Instruments contribute to a partial evaluation in this area, but they are not sufficient in themselves. One must also consider overt behavioral changes as:

(1) Job performance such as work habits
(2) Community participation
(3) Reduction in public assistance
(4) Reduction in incarceration rates
(5) Effect on their children's performance in school

The key to attitude modification lies within the concept of involvement. That is, the individual who becomes actively involved with his peers and members of the total community in seeking the solution to a problem begins to perceive society and his own potential in a much different manner. For example, it was found that MDTA trainees exhibited the following kinds of progress after motivation classes:

(1) Responsibility in trying to help others
(2) Increased attendance at night school
(3) Participation in community affairs
(4) Increased awareness of the need for education
(5) Fewer legal problems
(6) Improved physical being and dress
(7) Acceptance of authority figures

Another tool that can be quite effective in the evaluation of a specific area is the written instrument. Let me make it clear that I do not refer to the mailed questionnaire. To me, such a step represents desperation and should be considered only in dire emergencies; and I have never encountered such an emergency yet. I would submit that a written instrument is of the greatest value in what Krathwahl and Bloom call the affective domain. I refer in this sense to attitudes and values. For example, in the MDTA program I wanted to find out if the trainee's attitude toward work was any different after he finished training than when he started. I consulted the literature, reviewed the University of Michigan scale, operationalized my terms, broke each to its component parts, and I had a scale to be pilot tested. Basically, the preparation of such scales is time consuming, but not overly difficult. One can establish the reliability statistically. Fact and content validity can also be established while other types of validity as concurrent validity are somewhat more difficult to establish.

We are currently involved in conducting evaluative research in several areas as:

Motivation
Student and teacher characteristics
Longitudinal follow-ups with greater employer emphasis
Validation of non-verbal aptitude tests
Development of norm populations

Drop out and attendance rates
Curriculum analysis
Cost analysis and return on public funds
Several studies on methods and materials
Administrative organization

Let me close by saying that there are other tools we could consider and principles we could discuss. However, there is not enough time just now and I would like to leave you with one thought. The purpose of evaluation is to implement meaningful change. The real test of any evaluator comes when he has finished. Has he helped this program to move ahead? If nothing happens, if the status quo is maintained, the evaluation has been a waste of everyone's time. Evaluation is really a tool, and like any other tool, if you know how to use it properly, the results can be outstanding.

NATIONAL EVALUATION IN VOCATIONAL AGRICULTURE

by
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U. S. Office of Education
Washington, D. C.

"Evaluation begins with planning and ends with replanning," stated H. N. Hunsicker, Chief, Agricultural Education Service, in response to questions raised by a panel during the recent National Conference on Evaluation at The National Center for Study and Research in Vocational Education, Columbus, Ohio.

It is important that we recognize that evaluation is not an end in itself. It is only an instrument of judgment for determining the effectiveness of accomplishments. Evaluation must begin with a planned, projected program of activities. Such a plan must be applicable locally, as well as at the State and National levels.

Agricultural education has been the leader in all of education in the matter of evaluation. Vocational agriculture teachers, supervisors, and teacher educators developed evaluative criteria and have used it since the inception of the Smith-Hughes Act. A nationally recognized program of evaluation was started among vocational agriculture departments in 1939.

Today we have new and impelling reasons for making evaluations. Some of these are: (a) To meet implied mandatory provisions in the Vocational Education Act of 1963, (b) To assure "quality control," (c) To meet an implied prerequisite for funding, (d) To motivate program leaders, (e) To assure that programs of instruction are geared to employment opportunities in the State and Nation and to peoples of all ages, (f) To determine whether the instruction is appropriate to the occupation, (g) To determine employability of students, (h) To maintain, extend and improve existing programs, (i) To develop new programs.

In addition, evaluation enables us to identify our current practices and to obtain the information that will enable us to replan our projected program of activities for ensuing years and provide encouragement to the accomplishments of the objectives as listed in our Objectives Bulletin on Vocational Education in Agriculture. In the future, State and National staffs in Agricultural Education will give far greater attention to obtaining accurate and essential data about the agricultural education program, not only for public consumption, but for fulfilling our legal responsibilities.

On a National level we are rapidly approaching an era of evaluation by reports. Increasing attention is being focused on the information collected by State and National staffs. So, I would like to emphasize the importance of insuring that this information truly represents the accomplishments at the local, as well as the State and National levels. If the data provided is inaccurate, then the whole agricultural education profession loses status. We will need to obtain an appreciation and general acceptance among teachers for the need of accurate information and especially information that will substantiate the accomplishments of their projected program of activities. In the future we will need facts on items which we have not previously obtained. For example, we are extending vocational agriculture instruction to city schools, we will need to know precisely what cities and how many students there are of these types, as well as the number of students in rural schools. We will also need facts about the types of courses which are offered and the training objectives of the students. Report forms for this purpose will soon be made available and it is hoped that they will be looked upon with the utmost importance since the result may have a direct bearing on agricultural education.

Let us therefore obtain and develop long range plans. Obtain the information as to the accomplishments of these plans and use the data in replanning. Let us take the initiative in evaluation, at least not make the evaluation complicated or involved. Let us do self-evaluation, as well as formal evaluation involving the team approach. By using formal evaluation, let us keep in mind that evaluation is a catalyst for change and is not to be feared unless change is feared. Evaluation encourages a progressive attitude. It is our job to encourage and promote evaluation of programs at all levels. I am sure we will rise to this challenge.

ALTERNATIVES IN PROGRAM PLANNING

by
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For more than a decade before the passage of the 1963 Vocational Education Act, a number of leaders in agricultural education "champed at the bit" and rumbled aloud in protest to being tied to the "training for farming" concept in vocational agriculture. Through writings, conferences and private conversations, a lot of people worked for liberalization of the Smith-Hughes Act to permit training for off-farm agricultural occupations.

When the 1963 Vocational Education Act was passed and rules and regulations for its administration were issued by the U. S. Office of Education, some found that we had gotten even more freedom than we had hoped for. Now that we have virtually all the freedom to plan programs that we need, a good many people are perplexed about what to do.

A year ago this past May, I attended a conference at Ohio State sponsored by The Center, which dealt with off-farm agricultural occupations. After three days of discussions of alternatives to the traditional vo-ag program, it became increasingly apparent that our discussions were limited largely to vo-ag departments with two or more teachers.

It also became apparent that many of those attending were frustrated because they were thinking of that large majority of one-teacher departments back home for which the discussions were not germane. At that time, I estimated that 89 percent of the vo-ag departments in the United States were one-teacher departments. I would guess that well in excess of 80 percent are today one-teacher departments.

After the May meeting a year ago, I set about trying to see if some of the alternatives discussed could be adapted to single-teacher departments. I talked and corresponded with several teachers, teacher trainers, supervisors, and U. S. Office of Education staff members. Out of those discussions grew several patterns for a single-teacher department, which were drawn up and made available.

Since that time, these have been further refined and some have been added. I will discuss each of them with you, with the hope that they will provide a basis for discussion, consideration, and hopefully, some state staff assistance to the man in a single-teacher department who is asking: "What curriculum changes should I make?"

It seems to me that some good thinking has been done concerning alternative programs that may be conducted in multiple-teacher departments in secondary schools and in area vocational schools. I will not attempt to discuss programs that are appropriate for multiple teacher departments or post-high school programs. Before moving on, perhaps I should mention a couple which seem to me to merit special attention. A publication from the University of Kentucky, which I will refer to later, sets forth very clearly and in a challenging way some alternatives for a multiple-teacher department. Another very excellent proposal appears in the Empire State Vo-Ag Teacher, October, 1964 issue; it was written by Dr. Harold Noakes of the State Education Department in New York. If you would like a copy, I am sure that Dr. Harold Cushman at Cornell will be glad to send you a reprint.

In my discussion, I will set forth alternative plans for preparing students for occupations in agricultural business, in addition to production agriculture. I have not included in these plans alternatives dealing with preparation for ornamental horticulture, specialized agricultural mechanics, or other occupational areas. However, in several cases, these could be substituted quite easily for the agricultural business instruction proposed--especially in the case of ornamental horticulture.

What, you may ask, does a paper on alternatives in program development have in a seminar where the focus is on evaluation? I cannot say what the program committee had in mind, but it seems to me that program planning and evaluation must go hand in hand. The evaluation must be in terms of the program or programs. Conversely, programs must reflect standards and criteria that will appear in the evaluation--assuming that these are valid.

My point is that evaluation should be based on the assumption that in any given state there may well be a dozen variations in programs, and that planning for evaluation must take this into account. If one were oriented toward the evaluation task only, he would find it much easier to develop a single pattern of program within a state. This would be administratively expedient but it would not likely be best for the students in that state and further would likely help lead us again to the problems that we encountered when we were oriented toward production agriculture only.

Plan #1 probably varies as little from our traditional programs as any. If you have a teacher in your state who does not want to make radical changes, yet is receptive to the idea that in a one-man department he can train boys for something besides farming, or in addition to farming, then here is a plan it seems to me, that has a good deal of promise. The main difference is in the 11th and 12th grades, in which, in addition to what is normally taught, the teacher begins to include instruction in such things as how to get a job; human relations; personality; and the other things that a boy must learn if he is going into agricultural business. In this plan, preparation for agricultural business per se, other than the instruction I just mentioned, would come largely from the work experience program.

PLAN 1

This plan is favored by those who feel that substantive skills should be acquired in post-high school training, for those students who are able to perform at a skilled level. There will be some students in every school who do not have the ability to perform acceptably at the post-high school level; there is little chance for them to succeed in a technical training program. For them, specific trade training in high school may be justified. There are students who will likely become unskilled or semi-skilled workers.

For students who have the ability to succeed in post-high school vocational and technical programs, the high school program should be preparatory and general, leaving most specific skills acquisition until later. Many leaders in agricultural business say that the best preparation for students in high school who plan to enter the agricultural machinery business or sales of agricultural supplies and services is good grounding in production agriculture. This must include not only formal instruction but should emphasize farm experiences and experience in agricultural mechanics. They point out that agricultural businesses can provide the specific skills the individual needs after he is employed, but they cannot provide him the basic knowledge and appreciations of agriculture and farming that he needs in order to become an effective worker in their business.

9th Grade (single period)	Exploration of agriculture, career information, introduction to agricultural science, leadership training, start gaining experiences, (emphasis on home visits by teacher)
10th Grade (double period)	Continuation of grade 9 studies; continued study of agricultural science; begin study of soils, feeds, plant food, career exploration continued; agricultural mechanics; experience program developed
11th and 12th Grades combined (double period)	Alternate subject matter yearly. Production agriculture; continued agricultural science; agricultural mechanics training; for boys going into agricultural occupations special emphasis on personality, appearance, getting along with people,

etc.; as agriculture units are taught, their value to boys going into different occupations is pointed out; continued experience programs. Some of those going into agricultural business will include off-farm occupational experience. College bound students will normally take only one period per day.

*Based on suggestions by H. N. Hunsicker, U. S. Office of Education

Plan #2 may appear, at first, a bit complex. In grade 11, students who are oriented toward farming, take a double period of production agriculture. College oriented students take one period; the other period is used for a college preparation course. The agricultural business oriented students would enroll in one of the two periods, and the spare period would be either in distributive education, depending on how the program was set up, or in work experience programs. In the 12th grade, a single period of instruction is offered. In the Ag-Ed Magazine, you will see a great deal about independent study during the late thirties. In the Dalton Plan, initiated in Massachusetts, the teacher and the student have a contract. The student outlines to the teacher a plan for X weeks of study dealing with a certain topic, and they sign a contract. I'm not sure that kind of formality is used much now, but independent study, where students are working on what they are interested in, with the teacher serving as a consultant or stimulator, can be highly useful. I think that in a very small school where the students are going in at least three directions, it is one alternative worth considering.

PLAN 2

9th Grade -- All students, single period. Introduction to agriculture, leadership, careers in agriculture, limited work in basic shop skills, introduction to agricultural science and production agriculture. Begin planning experience programs.

10th Grade -- All students, single period. Production agriculture, including agricultural mechanics, leadership, with continued career explorations by some. Experience programs underway on home farm, farm placement, or school land laboratory. Those interested in agricultural business would begin observation and exploratory experience in several businesses.

11th Grade -- Double period. Production agriculture, including agricultural mechanics. Emphasis on management begun.

Farming oriented students would enroll in both periods. They would also conduct experience program on home farm, farm placement or school land laboratory.

College oriented students would enroll in one of the two periods, using the spare period to enroll in a college prep course. Experience program appropriate for his educational and occupational aspirations.

Agricultural business oriented students would enroll in one of the two periods. Spare period in distributive education, or in experience program. Experience program either in a selected local agricultural business, or a continuation of the 10th grade experience in exploring possibilities through observation and limited experience.

12th Grade -- Single period. Instruction largely through independent and small group study under the guidance of the teacher.

Farm oriented students would continue study of farm management and farm mechanics, with emphasis on management decisions. Experience programs would be continued and strengthened.

College oriented students would concentrate more on the science of agriculture. Experience might be in farming or with a professional worker in the type of agricultural occupation for which he expected to prepare in college--as an aid to a teacher of agriculture, with a county agent, soil conservationist, and the like.

Agricultural business oriented students would concentrate study on units preparing them for that field. Would include a planned experience program in a local agricultural business. Spare period devoted to distributive education or work experience.

In Plan #3, the programs in the 9th and 10th grades, again, are very much as in Plan #2. I believe that this is very similar to at least one of the plans that is being considered in Alabama. The 11th and 12th grades are divided into two groups. Group A has a double period in agricultural production--preparation for farming. Parenthetically, we should note that this is not only for those boys who are going into production agriculture, or farming, but is also for those students who are preparing for a future or an occupation in which such training will be most useful. I think we need to remind ourselves occasionally that there are some jobs off the farm in which farm training may be the best kind of preparation we can provide.

Group B would be agricultural business consisting of a single period. You will note that specialized training in agricultural merchandising is offered during the student's senior year. This plan could also be combined very simply in grades 10 and 11, with separation into Group A and Group B at the 12th grade only.

PLAN 3

This plan is designed for a school whose graduates are most likely to be interested in entering production agriculture or agricultural business. The agricultural business aspect is largely agricultural merchandising and related work.

9th Grade (single period)	All students; same content as Plan 2
10th Grade (single period)	All students; content similar to Plan 2
Group A - AGRICULTURAL PRODUCTION	
11th and 12th Grades (double period)	All students interested in agricultural production and those who plan further education for jobs for which training in production agriculture would be useful. Instruction in agricultural science and agricultural mechanics. Agricultural production experience would play a major role. College bound students would likely take only one period of instruction during one or both years.
Group B - AGRICULTURAL BUSINESS	
11th and 12th Grades (single period)	All students who wished to enter agricultural business, especially agricultural merchandising. Experience in agricultural merchandising would be stressed. Those lacking adequate understanding of farming (if they needed it) would gain further farming experience.

In the event it seemed wise to delay specialized training in agricultural merchandising until the student's senior year, this plan could be varied simply by combining grades 10 and 11; separation into Group A and Group B would be in the 12th grade only.

Plan #4 is a variation, a very slight variation, in fact, of a plan developed in Colorado. Again, Vo-Ag I and Vo-Ag II, the 9th and 10th grades, are essentially what we have been talking about all along. Grades 11 and 12, you will note, are combined. Group A consists of seniors who are preparing for farming and all Juniors, in the same class. The subject matter is alternated annually. This needs two periods per day.

PLAN 4*

VOCATIONAL AGRICULTURE I - (Freshmen) One period daily, farm and non-farm agricultural occupations students together. Instruction in agricultural sciences, farm mechanics, and FFA . . . with supervised occupational experience on home farm, farm placement, school land laboratory, or in an agricultural business.

VOCATIONAL AGRICULTURE II - (Sophomores) One period daily, farm and non-farm agricultural occupations students together. Instruction in agricultural science, farm mechanics, and FFA . . . with supervised occupational experience on home farm, farm placement, school land laboratory or in an agricultural business.

Second semester would include a six weeks unit on "Careers in Agricultural Occupations."

VOCATIONAL AGRICULTURE III & IV

Group A - Seniors preparing for farming and all juniors combined in the same class, subject matter alternated yearly. Two periods per day.** Instruction in farm and home planning, farm management, machinery management, livestock and crop production, farm mechanics, and the FFA, for two periods daily for 30 weeks and one period daily during the last six weeks.

During the last six weeks the second period devoted to a separate class for juniors in "Orientation to Agricultural Occupations." This would prepare juniors to secure summer employment in agricultural occupations.

During the second period of the last six weeks, seniors would work independently in farm mechanics or pursue independent study on questions related to their farming programs.

Both juniors and seniors would continue their experience programs on home farm, farm placement, school land laboratory or in an agricultural business.

Should the total number of students in the department enrolled in agricultural business experience programs reach 10, the first period of this class should be omitted, reducing it to a single period course, to permit the instructor sufficient time for supervision (since more time is required for adequate supervision of students in non-farm agricultural occupation experience programs than in farming.)

Group B - Special Class in Agricultural Occupations for seniors who elect it and post-high school students. One period per day of class instruction in agricultural business plus occupational experience in agricultural business. Assuming that all enrolled were engaged in experience programs year-round, the class instruction might be reduced later in the year to two or three days per week to allow the students and instructor more time for occupational experience and supervision, respectively.

*Adapted from a plan supplied by Dr. R. W. Canada, Department of Vocational Education, Colorado State University.
**The Colorado plan calls for 385 minutes minimum per week, presumably to meet State Plan requirements.

During the last six weeks, the second period is devoted to a separate class for Juniors in which they receive orientation to agricultural occupations. This is to aid Juniors in securing summer employment in agricultural occupations. This is probably where they are launched into agricultural occupations. During the second period of the last six weeks, seniors work independently on farm mechanics or pursue independent studies on subjects related to their supervised farming programs or supervised occupational experience. The plan reads, "Should the total number of students in the department enrolled in agricultural business experience programs reach 10, the first period of this class should be omitted, reducing it to a single period course, to permit the instructor sufficient time for supervision." That is an arbitrary figure, not one from Colorado, that I picked up along the eastern seaboard. In some discussions in our state concerning how many students a teacher can properly supervise in experience programs in agricultural business, one teacher suggested a maximum of five, and we have some who are estimating as many as twelve or thirteen. My guess now, and I make it tentative because we don't have enough experience with it to be more specific, is probably ten.

Plan #5 is a very slight variation of the one set forth by Harold Binkley in Kentucky. In this publication, Binkley raised a most important question, at least for 80 percent plus schools where agriculture is taught in this country, "Can teachers in single departments do anything about training in non-farm agricultural occupations, at the same time they are preparing some boys for farming?"

He looked at grade 12 from the standpoint of finding common elements. He identified ten different units which are important both to students preparing for agricultural business and to students preparing for farming. In the 12th grade all the students would be together for some ten units. Then, there would be three units taught only to students oriented toward farming, and three units taught only to agricultural business students. Dr. Binkley pointed out that if all Senior boys scheduling agriculture in the fourth period were in study hall or the library the fifth period, or some similar arrangement, a split class could be handled. The plan presents certain problems, of course, but it is possible under some certain circumstances.

PLAN 5

This plan is an alternative suggested by Dr. Harold Binkley of the University of Kentucky in his publication* setting forth philosophy and guidelines for developing non-farm agricultural occupations programs. Dr. Binkley sets forth plans for providing several options at the 11th and 12th grade levels--forestry, agricultural business, horticulture, agricultural mechanization, production agriculture. All of these presume more than one teacher. He then raises a most important question. Can teachers in a single-teacher department do anything about training in non-farm agricultural occupations at the same time they are preparing some boys for farming? Assuming that enrollment in the 12th grade is too small to justify dividing the class into two groups, Dr. Binkley suggests the following.

Grades 9, 10, 11 -- the regular offerings in vocational agriculture

Grade 12 -- Instruction largely in units which should be useful to individuals whether they are preparing for farming or for agricultural-supply business--sales and service. Students oriented toward farming would be taught three units separately and those preparing for agricultural business would be taught three other units separately.

Units to be taught to the combined class of farming and agricultural business students:

Opportunities in agriculture	Small engines and equipment
Agricultural mathematics	Seeds and seeding
Human relations and personality traits	Fertilizers and their use
	Business procedures
Advanced leadership training	Agricultural chemicals
Advanced feeds	

*Harold Binkley, "Initiating Program in Non-Farm Agricultural Occupations," Department of Agricultural Education, University of Kentucky, Lexington, October, 1965.

Units to be taught to farming oriented students only:
Planning farming programs
Farm management (evaluating selected factors)
Farm management (correcting selected factors)

Units to be taught to agricultural business students only:
Orientation to the program
Store skills
Salesmanship

Dr. Binkley points out that "with all senior boys scheduling agriculture the 4th period and study hall or library the 5th period (or any such arrangement), the split class could be handled."

The first two years of Plan #6 are not greatly different from the others. Grades 11 and 12, Vo-Ag III and IV, constitute a single period with subject matter alternating annually, as we have been doing for a half century in some situations with instruction in production agriculture. Another class is called Advanced Agricultural Science V, 11th and 12th grades, single period. This is designed for students who will very likely enter college or technical institutes to study agricultural or biological sciences. Prerequisites of one year of biology and one year of algebra are required to enroll in it. Vocational agriculture I and II are desirable, but not required for students who, by the beginning of the 11th grade, have decided that they might study agriculture or biological sciences.

PLAN 6*

This plan is designed to provide preparation for agricultural business, special pre-college preparation in agriculture, as well as preparation in production agriculture. Agriculture I, II, III, and IV represent the typical program of instruction for students whose education is expected to terminate with high school and who will enter farming or occupations in which farm training will be useful.

VOCATIONAL AGRICULTURE I (9th grade) single period - Instruction in production agriculture, including farm mechanics, especially basic shop skills, leadership, exploration in agriculture, and career choice. Begin supervised farming or farm placement programs.

VOCATIONAL AGRICULTURE II (10th grade) single period - Instruction in production agriculture, farm mechanics, leadership. Increased emphasis on experience programs in farming or farm placement.

VOCATIONAL AGRICULTURE III & IV (11th & 12th grades) single period - Subject matter is alternated yearly. Instruction in production agriculture including farm mechanics, but with special emphasis on the management aspects of the subjects studied . . . evaluation of production practices in terms of economic consequences. Experience programs continued.

ADVANCED AGRICULTURAL SCIENCE V (11th or 12th grade) single period - Designed for students who will likely enter college or technical institutes to study agriculture or biological sciences. Prerequisites, one year of biology and one year of algebra; vocational agriculture I & II desirable but not required. Instruction in plant and animal nutrition, plant and animal breeding, plant and animal physiology, soil structure, and other agricultural science of a basic nature. Introduction to experimentation and the scientific study of agriculture. Experience programs to consist of experimentation and demonstrations, largely in a school land laboratory or greenhouse. Course should qualify to meet science requirement.

*An adaptation of a plan developed by H. P. Addison, Purdue University.

AGRICULTURAL BUSINESS VI (11th or 12th grade) single period - Elective for students who have completed vocational agriculture I & II and who wish to prepare for an occupation in agricultural business. Study of agricultural business, including most of the units in Plan VI. Experience programs in local agricultural businesses would be required of students. Agricultural Business VI could well be coordinated with Distributive Education so that during his junior and senior year a student could take one year of each.

If it were desirable that Vocational Farm Management III & IV be of two-period duration, then Advanced Agricultural Science V and Agricultural Business VI could be alternated, with each being offered every other year.

Plans 7 and 8 are not limited to agricultural business. Preparation for agricultural business is a part of these two plans, but the major concern is a problem of a different nature. In the 9th and 10th grades, in Plan #7, the approach would be about the same as we have discussed in Plan #2, but in grades 11 and 12 the groups are divided according to ability. Group A we will call agricultural science; Group B, agricultural technology. Agricultural science is a single period course; this would make it possible for those students in agricultural science who plan to go to college to take one extra college prep course. The agricultural science course goes into agricultural mechanics to a minimum degree. The experience program is continued. But in the agricultural technology course, the emphasis is on agricultural mechanics. One of the first thoughts that may come to your mind is that the agricultural technology course will become known as the "dumping ground." In some schools, this is true. If your schools are like the schools in our state, there are a good many vo-ag departments that are known as dumping grounds entirely. This plan has the advantage that the agricultural science course will not likely be known as the dumping ground, although the agricultural technology course probably would be known as the dumping ground. This is a disadvantage in this particular plan.

PLAN 7

This plan is based, to a considerable extent, on the same premises as Plan 2, in that it recognizes ability differences. However, it considers Group A as those who are capable of entering college, of eventually becoming farm owners, of becoming owners of agricultural businesses, or of succeeding in technical agricultural programs at the post-high school level. Most of these students are capable of succeeding in the academic curriculum if they choose to do so.

Group B consists of students who very likely could not do college work; however, many of them can and should enroll in post-high school vocational programs. Most of them will likely never occupy high managerial positions.

It is recognized that in this Plan, GROUP B: AGRICULTURAL TECHNOLOGY, may become identified as a "dumping ground." If this happens, it is likely that GROUP A: AGRICULTURAL SCIENCE, will become highly regarded in the school and will attract students of better ability. This plan will likely be especially favored in those schools in which vocational agriculture has had a poor image and better able students tended not to enroll in it.

9th Grade (single period)	(same as Plan 2) all students in same class
10th Grade (single period)	(essentially same as Plan 2) all students in same class
11th and 12th Grades (double period)	GROUP A: AGRICULTURAL SCIENCE Emphasis on the science of agriculture, with limited training in agricultural mechanics; experience programs in production agriculture and/or agricultural occupations; most preparation for agricultural occupations through experience, independent study, and special emphasis in class.

11th and 12th Grades (double period)	GROUP B: AGRICULTURAL TECHNOLOGY Emphasis on agricultural mechanics, with less attention to agricultural science. Strong emphasis on experience programs, either production agriculture or off-farm agricultural occupations.

In Plan #8, the 9th grade program is a variation of Plan #7. In grades 10 and 11, Group A is agricultural science students of average or above average abilities, using the whole class approach to instruction. Group A of the 12th grade is a single period and combines students in preparation for college or for agricultural business. Most of the instruction would be through independent or small group work under the direction of the teacher.

Group B, agricultural technology, provides ungraded instruction for students with less than average abilities and others wanting instruction in agricultural mechanics. Strong emphasis is placed on practical experience programs, including experience in production agriculture, even though many of the students would be preparing for non-farm agricultural occupations. Again, the criticism may be directed at Plan 8 in that the agricultural technology course might soon become known as a dumping ground for students. It might not, but I think it is being realistic to expect it. On the other hand, chances are grades 10, 11 and 12 of Group A would attract some high caliber students.

PLAN 8

This plan is a variation of Plan 7 in that ability grouping plays a major role.

9th Grade (single period)	All students in same class--content same as Plan 2

GROUP A - AGRICULTURAL SCIENCE - students of average or above abilities.

10th and 11th Grades (single period)	Emphasis on the science of agriculture with limited training in agricultural mechanics; experience programs in production agriculture and/or agricultural occupations. Method of instruction: whole class approach.
12th Grade (single period)	Students specialize in preparation for college, for farming, for agricultural business. Most instruction through independent or small group study under direction of teacher. Well-developed experience programs.

GROUP B - AGRICULTURAL TECHNOLOGY - students of less than average ability and others who wish to prepare for work in agricultural mechanics.

10th, 11th and 12th Grades (double period)	Ungraded instruction, predominantly in agricultural mechanics; strong emphasis on practical experience programs, including experience in production agriculture, even though many of the students would be preparing for non-farm agricultural occupations.

In this approach, the teacher would need to be competent to teach Group B completely and grades 10 and 11 of Group A. However, he might be less than completely competent in all aspects of study which students in Group A might undertake in Grade 12, yet he would be able to guide them in learning experiences through the use of resource materials and first-hand inquiry.

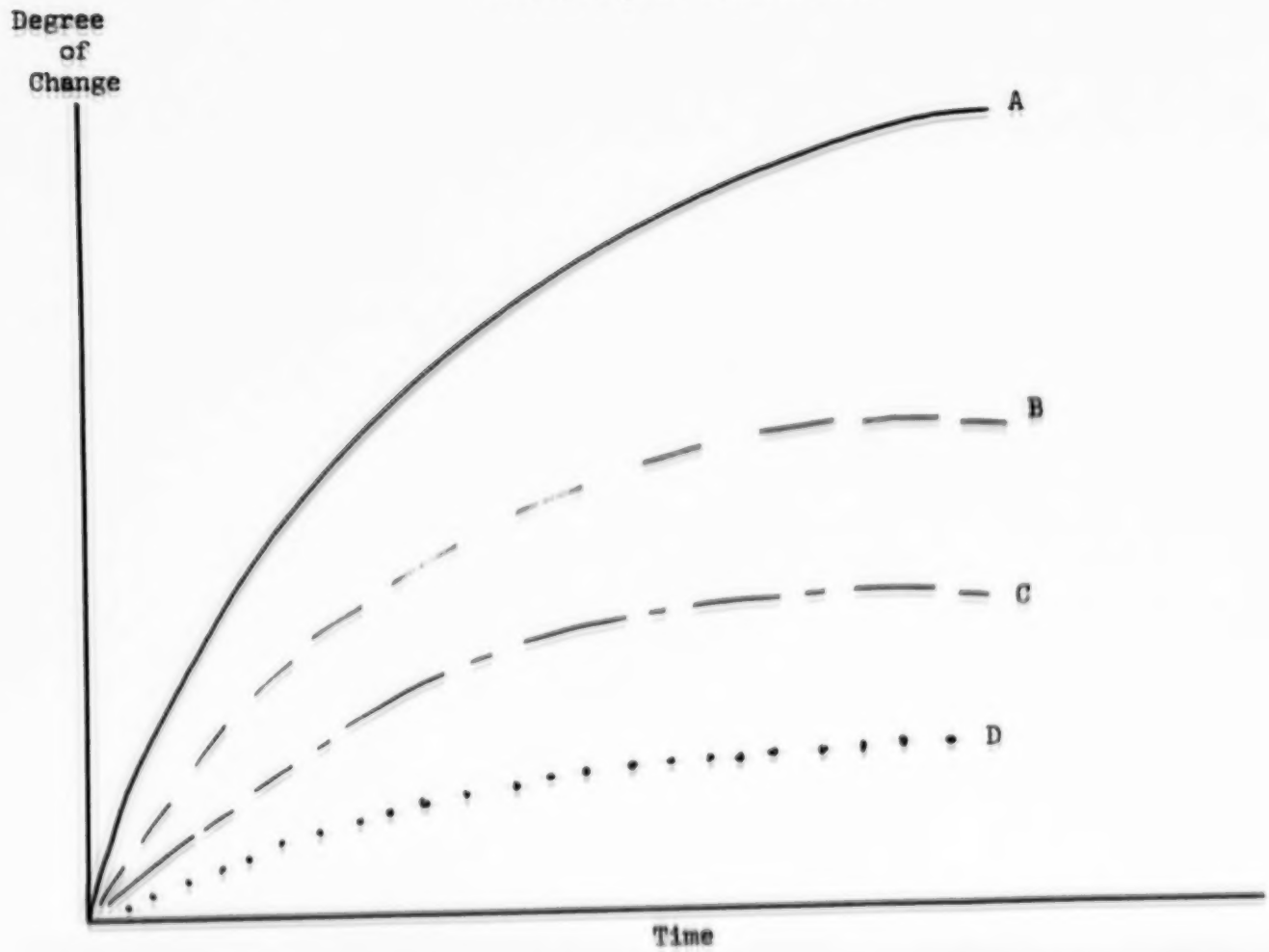
This ends the list of plans we have developed to date. I think we will continue to develop other alternatives, I am sure many of you are using and are considering alternatives that are not presented here.

I want to emphasize a point which I consider to be of the highest importance. LET US MAKE A CONCERTED EFFORT THROUGHOUT THE COUNTRY TO AVOID IN ANY STATE ONE PATTERN OF VOCATIONAL AGRICULTURE. For more than forty years, one could visit vo-ag departments all over the country and he would find that their courses of study, except for crops and livestock emphasized, all looked much alike. Instead of seeking sameness, let us encourage innovation, originality, and diversity in curricula among vo-ag teachers. This will take concerted effort for it will be tempting for us as state leaders to establish, with a few exceptions, a single pattern of program and extent it to all departments in the state.

Let us work toward more variety. Let us look toward some schools with specialized agricultural business curriculums only; some with varying combinations of these; and some with production agriculture only. But, very important, let us not forget that the main market for vo-ag graduates is for boys with farm experience and training in production agriculture. To repeat, let's not think singlemindedly. We know that single patterned programs are easier to administer, easier to design FFA contests for, easier to train teachers for, and easier in many other ways. But will they best serve our students?

EVALUATION AND PROGRAM PLANNING

by
W. Howard Martin
Teacher Educator
University of Connecticut



What approach to evaluation of agricultural education is required if we assume a rate of change nearer to "A" than "D"?

EVALUATION
Focused on Program Development

How do you, as a state leader, see evaluation of vocational agriculture? Do you have a clear image of the task and its purpose? Or, perhaps, is the image unclear and the purpose uncertain? Are the next steps clear? No?

A certain amount of turbulence is a healthy sign. At least one is not seeing evaluation as a simple terminal process for which all of the answers are known.

Evaluation in agricultural education may focus on many aspects of the program. Also, there are various levels from which the program is viewed. As leaders in the state you are involved at all levels. However, it is important to establish a unique focus on evaluation for state leadership. This paper seeks to describe and defend such a focus for state leaders in their current evaluative efforts.

As you may suspect, it is addressed primarily to supervisors and teacher educators.

Leadership and Decisions[1]

[1]James M. Lipman. "Administration and the Educational Program." Champaign, Illinois: Paper presented at National Evaluation Seminar, 1966. 22 p. (Report available from the author after August 1, 1966) Madison: University of Wisconsin.

Leaders in education make decisions and influence the decisions of others. Also, leaders have a major part in arranging for the decision-making process to operate.

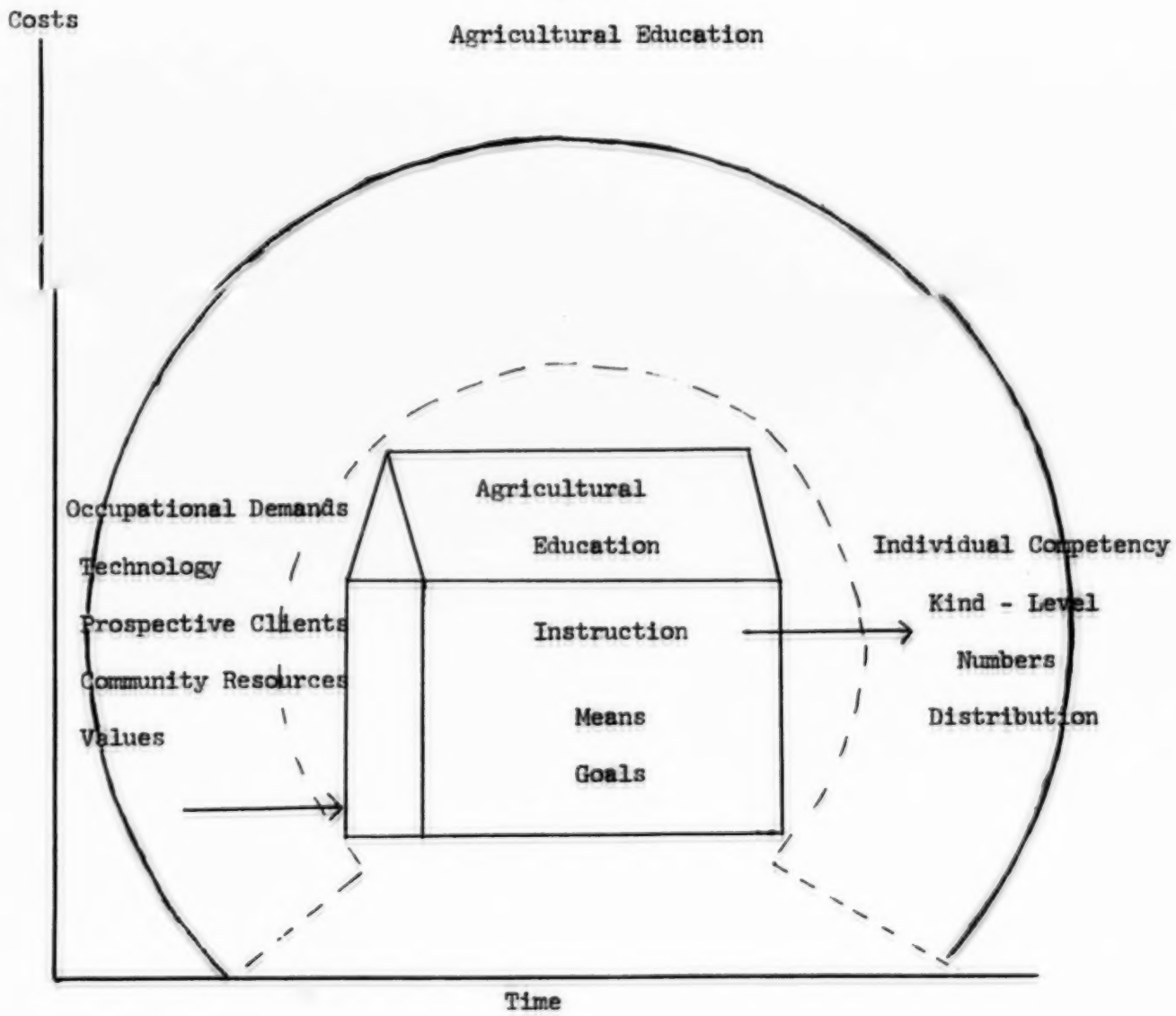
One area of decision making involves choices of goals and means. These are decisions which show where the action is to be. They are decisions which project the patterns of progress in programs. What is the place of evaluation in decision making? Let's see if it can not be given a special focus--a focus based on needs of leadership in decision making. You are concerned with agricultural education in particular. How do you see it on the big screen? Where are the key decision points?

Decision Points[2]

Agricultural education may be viewed in terms of (1) intended mission; (2) its operation; (3) its achievement; or, (4) the inter-relationship of these data. For the most part it functions as semi-closed system. Major connections to other systems in the environment are (1) at the time of decision on goals or mission, and (2) through clients who leave. With this model there are: (1) In-puts, screened and purified within the system, which are used in determining (goals - means) or in defining the mission; (2) Operations or processing in which goals are set and instruction is designed and conducted to accomplish the mission; and, (3) Out-puts, which in this case are former clients having various kinds and levels of competency.

Figure 1

Agricultural Education



[2]Benjamin Kleinmuntz, Editor. Problem Solving: Research Methods and Theory. New York: John Wiley and Sons, Inc., 1966. pp. 225-257.

This view of agricultural education in simplified form is diagrammed in Figure 1. Time is included as a variable representing the difference between mission determination and accomplishment. Costs would constitute a second variable.

Granting that evaluation is concerned with a totality is not the same as saying that teachers, supervisors, evaluating teams and others are or should be equally committed. Each is concerned with a unique focus perceived as relevant to certain aspirations and obligations.

State leaders, it is believed, need a unique focus which involves evaluation of the goals and means sector as related to planning programs. They need a second generation model for evaluation, one which involves evaluation of futures.

Table 1 presents a schematic representation of evaluation at state, local, and Federal levels. I am certain this diagram greatly oversimplifies the problem. For example, state, local and Federal agencies are concerned with all uses of evaluation. But the relative importance of the use varies.

Evaluation "Models"

At this time it may be well to take a look at evaluation as it is perhaps more generally seen. This is shown in diagram form in Figure II. Aren't the main questions along these lines?

1. How well did actual outcomes compare with intended outcomes? (Describe and Judge)

2. How does actual instruction compare with intended instruction? And is instruction congruent with intended outcomes?

3. What changes do we need to make in instruction?

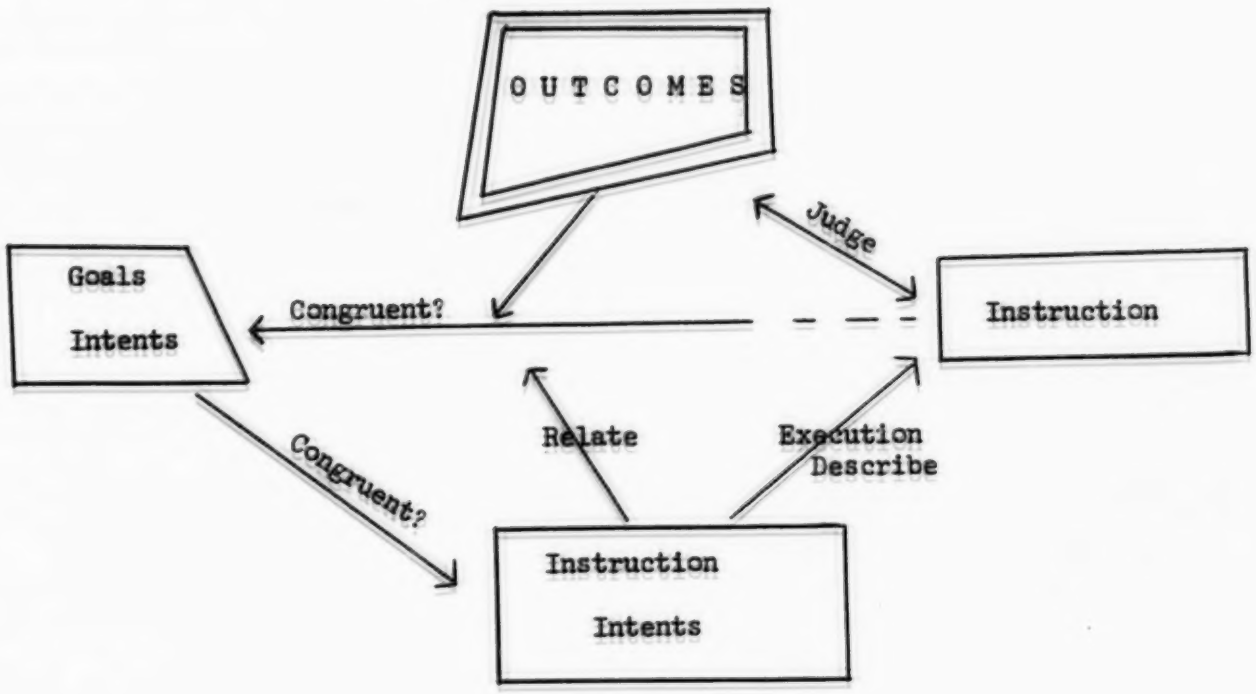
TABLE 1

Schematic Representation of Evaluation at Different Levels

Evaluation Characteristics	Levels		
	State	Local	Federal
Primary Use	Development Planning	Improvement	Reporting
Central Focus	Goals and Means	Instruction	Gross "Product"
Primary Orientation	Future	Present	Past
Units	State and Areas	Individual Students and Classes	Region and Nation

Figure 2

Evaluation: M^1
(Focus on Outcomes)



A significant weakness of this scheme is the neglect or tacit acceptance of goals or intended outcomes. Unfortunately, these earlier goals may have become outmoded even if well conceived at the time of their establishment. Teachers and others are often placed in the position of defending something they no longer believe. Our future in agricultural education is characterized by (a) more alternatives; and, (b) more rapid rate of change than was the case in early years. Evaluation is needed which helps teachers, administrators and citizens to make better decisions. These decisions concern the goals--the priorities of clients--types and levels of instruction and the means to achieve them. They often involve more than minor incremental improvements which all too often have reflected on the instructor.

Can we evaluate with a focus on the goals and means? Usually we settle for the results or output but actually what is their value in terms of the future? Or, perhaps, we focus on the instructional process. Here again, there is little evidence that this is fruitful. Isn't it about time to recognize the teachers and local administrators as professional persons?

To help us think of evaluation focused on charting tomorrow's program let us look beyond our field.[3]

1. One of our satellites uses two cameras. The first scans a broad field in limited detail. The other is directed by findings of the first to examine a narrow range in detail.

2. The budget process in farm management involves estimates of cost and returns from a number of alternatives.

3. In political areas decisions usually include a mix of "mutual partisan influence" and central coordination.

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[3]Amitai Etzioni. "On the Process of Making Decisions." Science, Vol. 152. May 6, 1966. pp. 746-47.

In all of these examples full use is made available data. It is assumed that considerable data are available for the program, and that these data are used in the proposed focus on evaluation.

In Figure III a model for evaluation is presented which focuses on goals. It follows from, or is built on to, prior evaluation at local or state levels. It is designed to answer the question, "Where do we go from here?". It employs a number of stages and perhaps as many groups of persons.

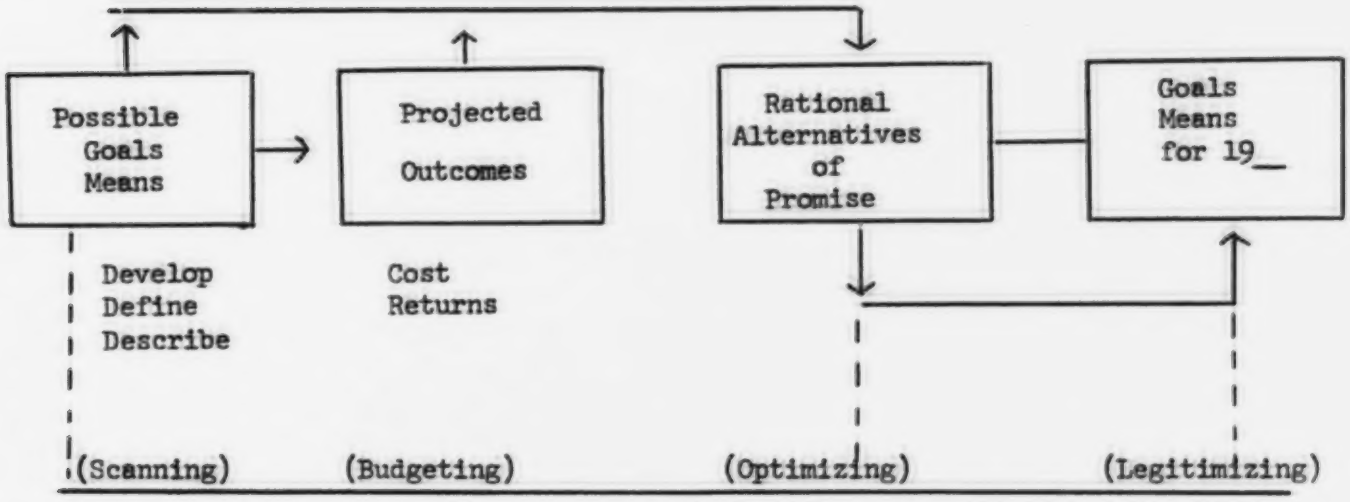
In stage one efforts are made to identify and describe possible goals. At this stage every effort is made to "scan broadly" for possible goals--for problems or contingencies likely to influence goals. Hopefully those involved will improve their ability to communicate in "goal-language."

The second stage is a rational budgeting-out of these alternatives. All recognized data are utilized. On this basis a number of possible goals can be eliminated. Those which remain are tentative.

Figure 3

Evaluation: M^2

(Focus on Goals)



In the third stage provision is made for identification of promising alternative combinations. These alternatives are then presented for criticism in stage four. i.e., How do various interest groups feel about them? What kind of support can be expected? This presumably leads to some reduction of goals or new combinations. It involves a summary of the revised goals which have passed rational and social tests. These new goals--means decisions constitute the chief outcome of evaluation.

Now let us contrast the "key evaluations" question presented earlier with those which can be inferred from Evaluation: M^2

1. How well did actual outcomes compare with intended outcomes? (Describe and Judge)	What new goals or changes can we consider? How do they compare with the present?
2. How does actual instruction compare with intended instruction? And is instruction congruent with intended outcomes?	What combinations of goals are promising according to rational tests? What most likely to win support?

3. What changes do we need to make in instruction? What, if any, additional steps are required to legitimize these goals?

It may be helpful to suggest other sample questions relative to (1) evaluation of goals; or (2) an evaluation of the processes used in setting the goals. Examples of such questions follow:

Where

In general it is assumed that the State Boards of Education exercise influence in (a) initiating new programs and (b) approving and funding programs. Whether one is to concede that all innovations in program arise here is doubtful. It would seem more appropriate to recognize that innovations must be adopted at the school level and that they may be initiated there. At least these constitute two decision points. Evaluation should be concerned with both.

What

To what extent have alternatives in terms of program goals and service been developed? elaborated? disseminated? encouraged?

To what extent have alternatives been projected relative to numbers and types of clients? and costs?

To what extent has, or is, each local program developed on the basis of a consideration of the promising alternatives?

To what extent were "partisan" influences permitted a hearing on projected alternatives?

Who

Who were directly involved in efforts to develop alternatives?

Who studied the broad horizon? Who did the screening of raw data?

Who participated in "budgeting out" the alternatives?

Who was responsible for the final decision as to the program to be offered?

How

To what extent were evaluative data related to other phases of the program utilized?

To what extent were "projected" data utilized in scanning for best alternatives?

To what extent were data utilized in comparing alternatives?

Were programs--goals and means--compared with prior years in regard to direction and extent of change?

Possible Advantages

It cannot be claimed that the proposed focus of evaluation on goals has been researched and tested. It has worked in the case of some teachers enrolled in a program-planning course. Hence, advantages are largely postulated on the basis of ideas in other disciplines. This is a dangerous business to be sure.

1. It contributes to more clearly perceived and precisely defined goals. A first essential to organization of program or planning for teaching. Also, an essential consideration if one is to make evaluation of outcomes especially significant.

2. It is supportive of change in agricultural education "geared directly to the larger social framework." Furthermore, this continued assessment of alternatives and climate of change is likely to be a motivating factor for teachers.[4]

3. It is an approach which leads to early large-scale change as opposed to "fragmented incremental" change which usually results from evaluating outcomes only.[5]

4. It minimizes teachers' anxiety and usually elicits a responsive interest on the part of teachers and others.

5. It seeks to go outside of the institutional patterns and program--to create a more open and responsive system of agricultural education.

Limitations

(You will be able to see many. Let me point out some.)

1. Different kinds of goals must be considered. These involve kinds and numbers of clients, as well as behavioral or learning outcomes. It is difficult, and perhaps dangerous, to separate goals from means. Thus, a listing of possible goals-means is no simple task.

2. Simplification of Model II is needed.

3. We do not have computer programs to handle rational data relative to determining optimum goal combinations. Hence, one easily may get discouraged. At present, the solution is to limit arbitrarily the number of alternatives or combinations considered.

4. After all data are collected and summarized the evaluator(s) may not feel that they should do more. In some instances there is no need for further action. Usually, however, their presentation is an important step to having major changes in goals legitimized.

Summary

In summary, this paper defines and defends a unique role for state leaders in the evaluation of agricultural education. Decision-making is perceived as a central factor favoring a focus of evaluation on goals rather than outcomes. This focus, it is contended, makes evaluation a means to probe and plan for the future at a critical point. Further, in states or communities undergoing rapid change, the focus on goals is seen as more dynamic than one which centers on outcomes.

A multi-stage model of evaluation with a focus on goals is proposed as an approach to improving planning. Much more development of this model is recognized as necessary prior to general use. But early efforts on a trial basis are recommended along lines suggested in supplementary materials.

PART II

COMMITTEE REPORTS

Committee Task: To Develop Criteria for Evaluation in Vocational Agriculture

Committees:

(1) High School Youth
Chairman, Ray Agan, Kansas

(2) Youth With Special Needs
Chairman, John Adams, Kentucky

(3) Post High School Educational Programs
Chairman, Dale Aebischer, Wisconsin

(4) Working Youth and Adults
Chairman, George Ekstrom, Missouri

(5) Services and Facilities
Chairman, Leonard Kunzman, Oregon

HIGH SCHOOL YOUTH

Committee Members

Name	State	Name	State
Ray Agan, Chairman	Kansas	Robert R. Price	Oklahoma
Garry R. Bice	Vermont	Jose Lema	Puerto Rico
Harry W. Kitts	Minnesota	Clifford Haslick	Michigan
C. Oscar Loreen	Washington	Donald D. Brown	Oklahoma

I. Relative evaluative components for programs for high school youth are:

1.1 High School and Community Relationships
1.2 High School Curriculum
1.3 Teaching Methods
1.4 Occupational Experience
1.5 High School Guidance
1.6 High School Placement
1.7 Follow-up

1.1 High School and Community Relationships

Guiding Statement:

Teachers of vocational agriculture should effectively participate as members of their faculties in developing local school programs which offer maximum educational opportunities for all youth and adults served. Facilities, approximating those which individuals utilize at the time of gainful employment, should be appropriate for the program. Public understanding and desirable attitudes toward the total program of vocational agriculture should be achieved.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results:

Use local interviews, observations and discussions as a basis for appraisal of results. Evaluation scale: 5=excellent; 4=good, 3=average, 2=fair; 1=poor.

5 4 3 2 1 (1) Students, parents, faculty and the public satisfactorily understand and are developing a favorable attitude toward the vocational agriculture program

5 4 3 2 1 (2) Facilities are adequate in size, suitably arranged and properly maintained to provide a desirable learning environment

5 4 3 2 1 (3) Financial support is adequate to provide instructional materials and supplies

5 4 3 2 1 (4) Vocational agriculture is recognized and supported as an integral part of the total school program

D. Evaluation of Area

E. Recommendations for Further Improvement

1.2 High School Curriculum

Guiding Statement:

The appropriate Vocational Agricultural curriculum should be so designed that when a student has completed his course of study in this field, he will be ready to take his

place as a responsible citizen in his community, either as a production farmer, or as a highly skilled, well-oriented, confident worker ready for gainful employment in a closely related field of agricultural endeavor.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

Use local interviews, observations and discussion as a basis for appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) Curriculum was planned, based upon the present and future employment needs in agricultural occupations

5 4 3 2 1 (2) A practical, working long term plan is used for implementing, improving and up-dating the curriculum

5 4 3 2 1 (3) School and community representatives are used in a continuing evaluation of the curriculum

D. Evaluation of Area

E. Recommendations for Further Improvement

1.3 Teaching Methods

Guiding Statement:

Teaching efforts should be directed toward providing a maximum of problem solving and decision making experiences for students. Wide use of appropriate techniques is mandatory in order to achieve effective and economical student attainment of needed and desirable skills, knowledge and attitudes. Implementation of planned learning experiences should be objectively oriented, goal centered, and directly related to presently provided occupational experiences for the learner.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

Use local interviews, observations and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) Appropriate and adequate amount of teaching time is allocated to the more important job oriented units of instruction

5 4 3 2 1 (2) Students are challenged by problem solving decision-making methods of instruction

5 4 3 2 1 (3) Students are making desirable changes in their individual supervised occupational experience programs as a result of instruction received

5 4 3 2 1 (4) Appropriate joint efforts, such as team teaching, are engaged in by the several vocational services in the school

D. Evaluation of Area

E. Recommendations for Further Improvement

1.4 Occupational Experience

Guiding Statement:

High school youth enrolled in Vocational Agricultural courses will receive practical experiences through supervised farming programs, farm placement, land laboratories or

through employment in non-farm agricultural businesses, industries and services. Such experiences shall lead to the development of skills, abilities, attitudes and competencies necessary for entrance into chosen agricultural occupations or closely related cluster of agricultural occupations. The number of hours per week and the duration of the experience program will be of sufficient length to prepare students for job entry.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

Use local interviews, observations and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) The supervised occupational experience programs result in sound student business relationships with parents and prospective employers

5 4 3 2 1 (2) Meaningful supervised occupational experience programs are provided for those students with limited opportunities through placement for experience and/or employment

5 4 3 2 1 (3) Supervised occupational experience programs are planned to provide a maximum of scope and quality to insure adequate learning experience for a job placement

D. Evaluation of Area

E. Recommendations for Further Improvement

1.5 High School Guidance

Guiding Statement:

Guidance is a function of vocational education in agriculture. Appropriate guidance should be an integral part of the high school vocational agriculture student's instructional material. The ultimate objective is to make the student more knowledgeable about occupations and how to measure and evaluate his resources, including aptitudes, interests, and aspirations. Such guidance comes early in the Vocational Agriculture course of study and should be continuous.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

Use local interviews, observations and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) Individual student conferences are held

5 4 3 2 1 (2) Appropriate tests are given each student to access his aptitude, interest, etc.

5 4 3 2 1 (3) Qualified guidance personnel interpret the results of these tests and relay it on to the student

5 4 3 2 1 (4) Test information is interpreted in terms of occupational suitability to the student

5 4 3 2 1 (5) Students have easy access to current occupational information

5 4 3 2 1 (6) Students are exposed to a variety of agricultural occupations at various employment levels in the community

D. Evaluation of Area

E. Recommendations for Further Improvement

1.6 Placement

Guiding Statement:
Upon the successful completion of a vocational agriculture program leading to occupational entry in a specific occupation, each student should expect from his occupational advisor, placement in that occupation as a beginning employee. Occupational placement should be initiated by the instructor and carried out cooperatively by the instructor, student, and employer. The selection of the job and business of employment should be made after careful alignment of the student's interests, abilities, and instruction with the work requirements of the job opportunity.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results
Use local interviews, observations, and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) Surveys are conducted to determine employment opportunities and businesses in the community

5 4 3 2 1 (2) The employment security or other agencies and/or groups are involved in placing students

5 4 3 2 1 (3) Definite procedures are set up and followed in placing students

D. Evaluation of Area

E. Recommendations for Further Improvement

1.7 Follow-up

Guiding Statement:
A planned and organized system of "following-up" students upon completion of the agricultural educational program should be practiced. Information concerning the occupational achievement of each student, plus reactions to the value of the program, should be gathere on a periodic basis and used in the evaluation of the educational program, in order to keep it attuned to the needs of students and demands of the labor market.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results
Use local interviews, observations, and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) Adequate and appropriate procedures are utilized to follow-up students upon completion of the vocational program to obtain the needed information such as:
number of students gainfully employed upon graduation, number unemployed, number of students who were employed full-time, number of students employed part-time, number of graduates who entered the armed forces, number of students employed in occupations for which they were trained, and number in related occupations

5 4 3 2 1 (2) The information gained from the student follow-up procedures is utilized to make needed adjustments in the vocational program

D. Evaluation of Area

E. Recommendations for Further Improvement

YOUTH WITH SPECIAL NEEDS

Committee Members

Name	State
John M. Adams, Jr. Chairman	Kentucky
W. H. Annis	New Hampshire
Duane L. Blake	Iowa
Howard I. Downer	Pennsylvania
John C. Foltz	Washington, D. C.
Charles W. Hill	New York
William L. Hull	Oklahoma
F. E. Kirkley	South Carolina
Howard W. Martin	Connecticut
Raymond C. Northup	Rhode Island
Jack Pritchard	Oklahoma
Sid Sutherland	California
Richard Wilson	Ohio

I. The major components for evaluating programs for youth with special needs might be:

1.1 Curriculum
1.2 Relationships With the School
1.3 Teaching Methods
1.4 Occupational Experience
1.5 Guidance and Counseling
1.6 Facilities
1.7 Community Relations
1.8 Placement

1.1 Curriculum

Guiding Statement:

A vocational agriculture department should provide the opportunity for instruction to individuals or groups of individuals who struggle with academic or socio-economic handicaps. The instruction should be based on the needs of this special group.

A. Some Facts and Figures

1. Number enrolled in vocational agriculture that have been identified as youth with special needs. _____

2. What instruments and procedures are used to identify school and community youth with special needs in agriculture? _____
_____
_____

3. Number of hours of instruction time per week for:
   a. The special group _____.
   b. The total vocational agriculture program _____.

4. Number of identified youth engaged in a bona fide pre-employment occupational experience program. _____

5. Number of teacher-directed family contacts. _____

6. Number of youth participating in the Future Farmers of America organization. _____

7. Number of students employed in occupations related to the training program. _____

8. Percent of identified youth who continue in school. _____

9. Number of special resource people used to plan and carry out the educational program for these identified youth. _____

10. Number of vocational agriculture students enrolled in vocational work study program. _____

11. Number of youth enrolled in MDTA courses in agriculture. _____

12. Number of youth enrolled in work-training projects under title 1-B of EOA that are related to agriculture. _____

B. Selected Trends

1. What proportion of the identified youth in the community are enrolled in the vocational agriculture department this year? _____, last year? _____, two years ago? _____.

C. Outcomes or Results

Use local interviews, observations, and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) Students are being trained for special tasks which qualifies them for employment for which they are capable

5 4 3 2 1 (2) Teacher has been allocated time for additional help to provide this service

5 4 3 2 1 (3) The instruction is interesting and useful to the students

5 4 3 2 1 (4) Youth with special needs have been served by the vocational program

5 4 3 2 1 (5) The instruments used to identify youth are effective

5 4 3 2 1 (6) Students have progressed toward their goal relative to their ability

5 4 3 2 1 (7) The outlook of the students toward themselves and their environment has become more realistic

D. Evaluation of Area

E. Recommendations for Further Improvement

1. Summer instruction in agriculture for youth with special needs. Examples might be: a) horticulture, b) agricultural mechanics

2. Employment experience during the school day with related instruction during the evening

3. Alternate two groups for employment experience and class instruction using some training centers

4. Use students for work study under section 13 of the Vocational Education Act of 1963

5. Teachers could contract custom work with high achieving students as supervisors during out-of-school time

6. Programmed instruction for specific individual agriculture interests could be provided

POST HIGH SCHOOL

Committee Members

Name	State	Name	State
Dale C. Aebischer, Chairman	Wisconsin	L. R. Hilterbrand	Indiana
W. C. Dudley	Virginia	James Oliver	Virginia
T. L. Faulkner	Alabama	Juan Robles	Puerto Rico
Jerry Halterman	California	R. L. Taubert	West Virginia

I. Relative evaluative components of the post high school program:

1.1 Curriculum Content
1.2 Teaching Methods
1.3 Occupational Experience
1.4 Facilities - Human, Physical, and Natural Resources, etc.
1.5 Guidance and Counseling - projected employment needs, placement, follow-up and retention, recruitment and selection of students
1.6 Public Relations - School and Community Relationships
1.7 Qualified Personnel

1.1 Curriculum Content

Guiding Statement:

Appropriate courses of study should be planned to fulfill the interests, needs and capacities of the students and the national demands for the training courses should be supported by a sound program of basic scientific knowledge in the fields of mathematics, biology, physics, and chemistry with added emphasis in any one of them to fill a need, interest, or special capacity. Applied courses should provide for adequate experimental and/or laboratory participatory experiences.

Pertinent Generalizations and Definitions

a. A major field is determined by the successful completion of a minimum of ____ credit hours in any one field.
b. Applied courses may be defined as courses in any one of the following fields: Animal Science, Business Management, Horticulture, Field Crops, Agricultural Mechanics, Agricultural Education and Agricultural Extension.
c. A post high school degree may be earned upon the successful completion of a minimum of credit hours established by the institution.
d. Elective courses may be earned in any of the major fields and may include military or physical education courses.

A. Facts and Figures

Suggested curricula for post high school program

Communications	_____
Natural Sciences	_____
Mathematics	_____
Social Sciences	_____
Applied Courses	_____
Electives	_____

B. Selected Trends

	Two Years Ago	Last Year	This Year
Enrollment by curricula	___	___	___
Percent of students completing course by curricula	___	___	___
Percent of students placed in occupation for which trained	___	___	___
Number of meetings of advisory groups	___	___	___

C. Outcomes or Results

Use local interviews with administrators, employers and students. Observe performance of students and check on proficiency of their work. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) Curriculum designed to teach the skills and competencies necessary for specific occupations

5 4 3 2 1 (2) Are the students learning the desired skills necessary for specific occupations?

5 4 3 2 1 (3) The students are developing competency in social, recreational, civic, and leadership responsibilities.

5 4 3 2 1 (4) The students are becoming successfully established in the occupation.

5 4 3 2 1 (5) The curriculum showed provides the basis for continuing education.

D. Evaluation of Area

5 4 3 2 1 To what extent does the school provide post high school education in agriculture for students which is based upon their needs and which contribute to their successful employment in an agricultural occupation.

E. Recommendations for Further Improvement

WORKING YOUTH AND ADULTS

Committee Members

Name	State	Name	State
G. F. Ekstrom, Chairman	Missouri	George Lange	New Jersey
M. G. McCreight	Nebraska	V. B. Hairr	North Carolina
W. T. Taylor	Mississippi	Jim Durkee	Wyoming
David F. Shontz	Rhode Island	T. L. Barrineau	Florida

I. Relative evaluative components for programs for working youth and adults:

1.1 Philosophy - Policy
1.2 Relationships with the School
1.3 Curriculum
1.4 Teaching Methods
1.5 Upgrading Occupational Experience
1.6 Vocational Guidance and Counseling
1.7 Community Relations
1.8 Placement and Advancement

1.1 Philosophy - Policy

Guiding Statement:
Vocational and technical education in agriculture provides the training and education needed by working persons of all ages in all communities who may benefit from instruction in agriculture. The instruction is based on the individual and occupational needs and contributes to their efficiency and success in an agricultural occupation; desire for continuing education; and provides a better understanding and appreciation of their place in society.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

1.2 Relationships With the School

Guiding Statement:
All public school personnel concerned (teachers, boards of education, administrative personnel, etc.) recognize their responsibilities for providing a continuous educational program to satisfy the needs of working youth and adults to become up-dated in skills, abilities and understandings in their specific occupations and personal growth.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

1.3 Curriculum

Guiding Statement:
An appropriate course of study planned in line with the educational and occupational goals of the students. It is of such depth and breadth as needed to provide instruction sufficient to develop the needed and desired competencies of those enrolled.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

1.4 Teaching Methods

Guiding Statement:
Methods of instruction are appropriate to the subject matter being taught, suitable for the age, ability, and goal of the students and sufficiently varied to challenge their interest.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

1.5 Upgrading Occupational Experience

Guiding Statement:
Working youth and adults established in business have gained and are gaining occupational experiences. The efforts with this group is to provide opportunities for advancement in abilities and judgments as well as improved attitudes.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

1.6 Vocational Guidance and Counseling

Guiding Statement:
Adequate vocational guidance and counseling service is provided for the working youth and adult students. This includes those entering training for upgrading, and retraining for change in occupations. Appropriate techniques of guidance will be used to determine highest potentials of attainment and follow-up records will show the progress of the student (employment history, change in attitudes, attainments, etc.).

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

1.7 Community Relations

Guiding Statement:
Appropriate use is made of community resources in planning and implementing instructional programs. The public is kept informed regarding developments.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

1.8 Placement and Advancement

Guiding Statement:
Appropriate Agricultural Education programs are provided to meet the needs of working youth and adults in a changing society. Training programs are designed to upgrade the workers. Adequate follow-up information is provided.

A. Some Facts and Figures

B. Selected Trends

C. Outcomes or Results

D. Evaluation of Area

E. Recommendations for Further Improvement

SERVICES AND FACILITIES

Committee Members

Name	State
Leonard Kunzman, Chairman	Oregon
R. A. Baker	Alabama
Bill Becker	Wisconsin
Homer Edwards	Illinois
L. L. Lewis	South Carolina
W. C. Montgomery	Kentucky
Don Pennington	Indiana
Paul Sims	Illinois
Warren Weiler	Ohio
Bill Williams	Pennsylvania
L. C. Dalton	New Mexico

I. The major components for evaluating program services and facilities are as follows:

1.1 Services in Agriculture
1. Guidance and Counseling
2. Supervision
3. Consulting Committees
4. Instructional Materials
5. Clerical and Janitorial
6. Innovative Programs
7. Information and Communication
8. Placement and Follow-up

1.2 Facilities and Equipment for Agricultural Education
1. Classroom
2. Agricultural Mechanics
3. Laboratories
   a. Classroom
   b. Field
4. Special Equipment
5. Office

1.1 Services in Agriculture

Guiding Statement:
Services should be provided which allow for an effective instructional program in the area served.

A. and B.
Facts and Trends

	Three Years Ago	Last Year	This Year
Guidance and counseling program:			
School	___	___	___
Teacher	___	___	___
Did school provide supervision			
Supt.	___	___	___
Prin.	___	___	___
Director	___	___	___
Use of consulting committee	___	___	___
Number of meetings held	___	___	___
Did school provide in-service education?	___	___	___
Did teacher participate in professional improvement?	___	___	___
Number of meetings attended	___	___	___
Number of publications read	___	___	___

	Three Years Ago	Last Year	This Year
Did the school provide teacher aides?	___	___	___
Did the school provide secretarial assistance?	___	___	___
Did school provide janitorial services to the department?	___	___	___
Did the school encourage and participate in innovative programs?	___	___	___
Did the school provide information to the school service area?	___	___	___
Did the school keep records of placement of former students leaving school?	___	___	___
Did the school follow-up graduates?	___	___	___

C. Outcomes or Results

Use local interviews, observations, and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) The guidance and counseling service is adequate

5 4 3 2 1 (2) Supervision of instruction is adequate

5 4 3 2 1 (3) Use of the consulting committee is effective

5 4 3 2 1 (4) The variety of instructional materials is adequate

5 4 3 2 1 (5) The quality of instructional materials is adequate

D. Evaluation of Area

E. Recommendations for Further Improvement

1.2 Facilities and Equipment for Agricultural Education

Guiding Statement:

Provide facilities and equipment for programs in instructional areas needed for students to reach their objectives.

A. Facts and Figures

	This Year
Number of sq. ft. in classroom	_____
Number of sq. ft. in shop	_____
Number of sq. ft. in storage	_____
Size of classroom lab.	_____
Size of field lab.	_____
Equipment available	_____

B. Selected Trends

	Two Years Ago	Last Year	This Year
Number of students utilizing facilities			
Classroom	___	___	___
Shop	___	___	___

C. Outcomes or Results

Use local interviews, observations, and discussion as a basis for your appraisal of results. Evaluation scale: 5=excellent; 4=good; 3=average; 2=fair; 1=poor.

5 4 3 2 1 (1) How adequate is the size of the classroom and laboratory area in terms of instructional needs?

5 4 3 2 1 (2) How adequate is the size of the agricultural-mechanics shop in terms of instructional needs?

5 4 3 2 1 (3) How adequate is the amount of classroom-laboratory equipment?

5 4 3 2 1 (4) How adequate is the quality of classroom-laboratory equipment?

5 4 3 2 1 (5) How adequate is the amount of agricultural-mechanics equipment and tools?

5 4 3 2 1 (6) How adequate is the quality of agricultural-mechanics equipment and tools?

5 4 3 2 1 (7) How adequate are the provisions for safety?

D. Evaluation of Area

E. Recommendations for Further Improvement

Other Center Publications

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agricultural Education, "Program Development and Research."

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

VT 001 107

VT 001 107 ED

The Process and Product of T and I High School Level Vocational Education in the United States, The Product.

Eninger, Max U.

Amer Inst for Res, Pittsburgh. Inst for Perf Tech.

Sep65

EDRS Price MF-$0.63 HC-$17.80 445p.

*TRADE AND INDUSTRIAL EDUCATION, *HIGH SCHOOL GRADUATES, OPINIONS, VOCATIONAL HIGH SCHOOLS, COMPREHENSIVE HIGH SCHOOLS, NATIONAL SURVEYS, *GRADUATE SURVEYS, RACIAL CHARACTERISTICS, PILOT PROJECTS, *STUDENT ENROLLMENT, EMPLOYMENT, QUESTIONNAIRES, WAGES, GEOGRAPHIC REGIONS, *COMPARATIVE ANALYSIS, COUNSELORS, OCCUPATIONAL INFORMATION, JOB PLACEMENT, EDUCATIONAL EQUIPMENT, MALES, CITIZEN PARTICIPATION, POSTSECONDARY EDUCATION, RECREATIONAL ACTIVITIES,

ENROLLMENT INFLUENCES, OCCUPATIONAL MOBILITY, JOB SKILLS,

The objectives were -- (1) To describe the occupational, educational, and related experiences of trade and industrial graduates of 1953, 1958, and 1962, and (2) To compare the experiences for vocational and academic graduates of the same classes and schools. Data were collected by questionnaires from 5,327 vocational graduates and 1,780 academic graduates who attended 100 high schools in 8 geographic regions of the United States. The data were analyzed and presented in terms of -- (1) general vs. vocational education, (2) vocational vs. comprehensive schools, and (3) small vs. large schools. A 5 percent corrective sample was selected for intensive followup of non-respondents, and a similar sample with unknown addresses was pursued. Derived measure intercorrelations for 45 occupational measures, 28 non-occupational measures, and 80 occupational-non-occupational measures were obtained by the Pearson Product-Moment Correlation Method. Reasons for not getting jobs were not significantly different for vocational and comprehensive graduates. Help in finding the first job was obtained from a friend or relative 38 percent of the time and from a counselor 5 percent of the time. Graduates of medium sized schools felt less need for additional training in basic skills. There was no significant difference in the number of full time jobs held by academic and vocational graduates or in their job satisfaction. (EM)

ED015348

THE PROCESS AND PRODUCT OF T&I HIGH SCHOOL LEVEL VOCATIONAL EDUCATION IN THE UNITED STATES

THE PRODUCT

September 1965

Institute for Performance Technology
AMERICAN INSTITUTES FOR RESEARCH

VT 011107

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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THE PROCESS AND PRODUCT OF T&I HIGH SCHOOL LEVEL VOCATIONAL EDUCATION IN THE UNITED STATES

THE PRODUCT

Prepared By:

MAX U. ENINGER
Project Director

SEPTEMBER 1965

AMERICAN INSTITUTES FOR RESEARCH
Pittsburgh, Pennsylvania

FOREWORD

" . . . . . and the acid test of the quality of the vocational program is placement of graduates in the occupations for which they received instruction."

President's Panel of Consultants
Vocational Education, United States
Department of Health, Education and
Welfare

There have been many excellent studies of the placement of vocational graduates over the years. None have provided a nationwide picture. The present study aims to do so. Its primary purpose is to describe the essential occupational, educational and other dimensions of post-graduation experiences.

It is the intent of this report to bring the facts to the community of education with a minimum intrusion of researcher opinions, beliefs and attitudes. If some of the facts are provocative, the task will have been worthwhile.

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For making the study possible, and for giving the project freedom to determine and pursue its objectives, THE FORD FOUNDATION is warmly acknowledged.

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1 GENERAL DESIGN OF CAREER FOLLOW-UP STUDY

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CHAPTER 1 SUMMARY

Objectives and Issues

1. Objectives. The primary objectives are to (1) describe the products of vocational education; i.e., the occupational, educational, and other experiences of vocational graduates; (2) describe the process of vocational education; i.e., relevant characteristics of schools offering vocational programs; and (3) establish the relationships between process and product variables. This volume is concerned with the first objective only.

2. Issues. Data will be organized in relation to three major issues: (1) general versus vocational education, (2) vocational versus comprehensive schools, and (3) small versus large enrollment schools. Each issue generates an independent variable in terms of which product variables are analyzed.

Selection of School and Graduates

3. Selection of schools. One hundred high schools offering three or more T&I courses were selected as a stratified random sample to represent the country as a whole. The sample was stratified by region, school enrollment, and type of school.

4. Selection of graduates. About 10,000 male graduates were randomly selected from the graduating classes of 1953, 1958, and 1962 for follow-up study. Consult the text for a detailed description of the sampling procedure and the sample.

The Survey Questionnaires

5. Survey questionnaires. A four-page follow-up questionnaire was developed for T&I vocational graduates, and also for academic-course graduates. Consult the text for exhibits.

The Survey Procedures

6. Questionnaire mailing schedule. A relatively massed seven-contact mailing schedule was adopted. Contacts included letters and postcards signed by school personnel. Consult the text for exhibits.

OBJECTIVES AND ISSUES

Introduction

After high school, then what? No less than 20 follow-up studies of vocational course graduates have sought to answer this question in the past fifteen years. For the most part, the studies have been well conceived, and the data provided has been useful. However, all are characterized by a major limitation. They are based upon samples which do not permit generalizations about vocational education in the United States as a whole. Most were limited to graduates from specific schools or school districts. Some can claim to be state-wide surveys. One, the North Atlantic Region Survey, covered graduates from a thirteen state area, including some of the most heavily industrialized states in the country.

The narrowness of the samples upon which previous follow-up studies have been based provided a major part of the motivation behind the present study. It is the first attempt at a nationwide survey of trade and industry (T & I) vocational course graduates based upon a representative sample of high schools offering three or more of such courses.

This report provides the results of that study. It describes the salient post-high school occupational and educational experiences of 5,500 graduates of high school level trade and industry vocational courses. It also compares their experiences with those of 1,800 academic course graduates who attended the same comprehensive high schools attended by half of the vocational course graduates.

Objectives

The basic objectives of the follow-up study herein reported were as follows:

1. To describe the essential dimensions of occupational, educational and other relevant experiences of a nationwide sample of T & I vocational course graduates from the classes of 1953, 1958, and 1962.

2. To compare vocational and academic course graduates from the same schools and graduating classes in terms of post-high school occupational, educational, and other relevant experiences.

In addition, the study provides data for three other objectives:

3. To determine the relationships between (1) school characteristics of curriculum, instructional methods, facilities, teacher personnel, student services and other relevant factors and (2) measures reflecting the post-high school occupational and educational experiences of vocational course graduates.

4. To determine the relationships between (1) the characteristics of vocational course graduates as revealed by school records and (2) measures reflecting post-high school occupational and educational achievement.

5. To determine the relationships between (1) measures of employment opportunity that characterize the region served by the school and (2) measures reflecting the post-high school occupational and educational achievement of vocational course graduates.

The present report is concerned with the first two objectives only. The findings relative to the other objectives will be discussed in a separate report.

Relevant Issues

When confronted with presenting research findings that have a bearing on important and controversial issues, the researcher has a choice. He can organize and present his findings so they are directly tied to the major issues. Or, he can pursue a more cautious route by presenting his findings in such a way that the reader is challenged to see the relationships between findings and issues. For the sake of stimulating both discussion and further research, this report takes the less cautious route. What were regarded as major issues in vocational education are met head-on in the data analyses.

There are strong temptations to the researcher who must write a report such as this to interject personal beliefs and opinions, particularly those that imply or call for remedial action to improve the quality of vocational education. Such temptations have been categorically rejected. The primary purpose of this report is to present the data and data-supported generalizations from the nationwide follow-up study of T & I graduates. It is essential that the findings be presented to the reader in as neutral and as objective a manner as possible. It is left to the reader to draw whatever implications for action there are in the data.

The data are analyzed and presented in terms of three major issues:

1. General vs. vocational education. We live in a world of rapidly changing technology. Occupations are born, grow to maturity, and become obsolescent within single generations, particularly at the semi-skilled level. If anything, the future promises even more rapid change. One reaction to this state of affairs has been a more vigorous insistence on advantages of a general as opposed to a vocational education. This viewpoint maintains that a general education provides a broad multi-directional base for whole families of occupations whereas vocational education ties individuals to occupational skills that are increasingly likely to become obsolescent.

   The opposing viewpoint maintains that what is needed is more, not less, vocational education at the high school and post-high school level. It is pointed out that the majority of those who complete a general education still do not go to college. And, of those that do, a substantial percentage do not complete their college education. The end result, it is claimed, is that hundreds of thousands graduate from high schools ill-equipped to face the problem of finding jobs. Vocational education would be more realistic.

   Again, the many specific pros and cons that stud the general versus vocational education issue are not here the concern.

The concern is with the implied but rarely stated question, "Does the type of high school education completed, i.e. general or vocational, make for significant differences in post-high school occupational or educational experiences, and in characteristics of the 'whole' individual?" The present study seeks to provide an answer in terms of major potential points of difference. It is unlikely that the issue will be resolved by the findings of this study. At the best, some long overdue data may move the issue off dead center.

2. Vocational vs. comprehensive type school. There is one viewpoint that maintains the "straight" vocational school is too narrow in its concept of high school education, that the direction of educational progress should be away from such schools toward the comprehensive high school in which presumably the student can obtain a broader academic base at the same time that he learns vocational skills. Many specific advantages are claimed for the comprehensive high school, e.g. more adequate preparation for post-high school education, superior instruction in non-vocational subjects, greater opportunity for extracurricular activities, and even less likelihood of discrimination in employment.

The opposing viewpoint maintains that the "straight" vocational school has all the advantages of a single-minded dedication to vocational education, that vocational education does not take a back seat to the college preparatory program that comprises the major emphasis of the comprehensive high school. Again, many specific advantages are claimed, e.g. closer ties with community employers, higher standards of what constitutes adequate vocational education, counseling geared to vocational education rather than college preparatory programs, and avoidance of instilling a sense of inferiority in the vocational program student that occurs when he is one of a small minority in a comprehensive school.

The merits of the specific advantages claimed and disadvantages denied are not here the concern. Behind the many viewpoints pro and

con either type of school, there is the implied but never stated question, "Does the type of high school, i.e. comprehensive or vocational, make for significant differences in post-high school occupational and educational experiences, and in the characteristics of the 'whole' individual?" The present study examines some of the major potential points of difference for the purpose of injecting some broadly-based data into the issue. Undoubtedly, the issue will continue to be a lively one in the vocational education community.

3. Small vs. large enrollment schools. The size of educational institutions is increasingly a controversial issue. True, the issue is at the present more visibly focused on the college and university level, but the theme is played at all levels of the educational ladder. The small school viewpoint stresses what is lost when "bigness" takes over, e.g. loss of close contact between student and teacher, dwindling of teacher-inspired motivation, deterioration of the quality of instruction and administration that loses "contact" with the student as an individual.

   The large school viewpoint stresses the greater economies, the superior facilities, the wider choice of curriculum, the improved student services such as counseling and remedial education, and other advantages claimed for large enrollment schools.

   Again, the concern here is not with the many-time repeated claims for and against small and large enrollment schools. The concern is with the basic question underlying the issue, "Does high school enrollment size make for significant differences in post-high school occupational and educational experiences, and in the characteristics of the 'whole' individual?" The present study examines major potential points of difference in terms of the enrollment variable.

In addition to the independent variables implied by the three issues cited above, the study explores selectively the effect upon post-high school occupational and educational experience of such variables as race, region, post-graduation mobility, and year of graduation.

It should be pointed out that the primary objective of the study is <u>not</u> to provide data on controversial issues. The primary objective remains a factual description of the essential dimensions of occupational, educational and other relevant experiences of a nationwide sample of T & I vocational course graduates. The analyses of the data in terms of issue-related variables is a part of the descriptive task rather than a special endeavor to be provocative.

SCHOOL AND GRADUATE SELECTION

Selection of Schools

The vocational course graduates were selected from 50 comprehensive high schools and 50 vocational and/or technical high schools located in 38 states. The schools were selected as follows: The population of comprehensive and vocational high schools in the United States that offered three or more T & I vocational courses was identified by means of the U. S. Office of Education 1961-62 directory, Preparatory Trade and Industrial Training Programs in Public Schools. The directory was updated by asking state directors of vocational education to provide more recent information about high school vocational course offerings in their states. The survey indicated that there were 667 public high schools in the United States offering three or more high school level T & I vocational courses. The number and percent of such schools in each of eight geographical regions is shown in Table 1.

From the population of 667 schools offering three or more T & I vocational courses, a stratified random sample of 100 schools was selected. The strata were geographical regions, total school enrollment, and type of school, i.e., comprehensive, vocational, technical, and vocational-technical.

Table 1 shows the regional distribution of both the population and the 100 school sample. Each region is represented in the sample in approximate proportion to its contribution to the United States total.

Table 1. DISTRIBUTION OF THE STUDY'S POPULATION AND SAMPLE OF SCHOOLS BY GEOGRAPHICAL REGION. (U. S. Office of Education Regions)

Geographical Regions	Population		Sample	
	Number	Percent	Number	Percent
1. New England	72	10.8	11	11
2. Mideast	162	24.3	24	24
3. Great Lakes	100	15.0	15	15
4. Plains	48	7.2	7	7
5. Southeast	196	29.4	29	29
6. Southwest	54	8.1	8	8
7. Rocky Mountain	8	.2	1	1
8. Far West & Pacific	27	4.5	5	5
UNITED STATES	667	99.5	100	100

Table 2 shows the distribution of population and sample schools in the three total enrollment categories. Again, each enrollment category is represented in the sample in approximate proportion to its representation in the population.

Table 2. DISTRIBUTION OF THE POPULATION AND SAMPLE SCHOOLS BY TOTAL ENROLLMENT

Enrollment	Population		Sample	
	Number	Percent	Number	Percent
1-499	177	26.5	30	30
500-1499	284	42.5	40	40
1500 and above	206	30.9	30	30
UNITED STATES	667	99.9	100	100

Table 3 shows the distribution of population and sample schools in type of school categories. Each type of school is represented in the sample in approximate proportion to its representation in the population. Half of the sample consisted of comprehensive schools; the other half consisted of vocational schools, all types.

Table 3. DISTRIBUTION OF THE POPULATION AND SAMPLE SCHOOLS BY TYPE OF SCHOOL

Type of School	Population		Sample	
	Number	Percent	Number	Percent
Vocational	162	24.3	27	27
Technical	55	8.2	9	9
Vocational-technical	79	11.8	14	14
Comprehensive	371	55.6	50	50
UNITED STATES	667	99.9	100	100

The schools were randomly selected within each stratification category.[1] Figure 1 shows the geographical distribution of the schools. The titles and city locations of the schools are listed in the Appendix.

The 100 schools were visited in the Spring and Fall of 1964 by two-man data-collecting teams. During these visits, graduates from the classes of 1953, 1958, and 1962 were selected for follow-up study.

Selection of Graduates

Two restrictions were applied to the selection of graduates. The first restriction was to select only male graduates. This was done because males, unlike females, were more likely to be either gainfully employed or seeking such employment as long as ten years after graduation from high school. The decision was in no way regarded as a reflection on the worthwhileness of a follow-up study of female graduates.

The second restriction was to limit the follow-up study and report to graduates of T & I vocational courses. It was recognized that the primary criterion for the selection of the schools, i.e., a curriculum of three or more T & I vocational courses, would result in a non-representative sample of schools from the standpoint of other types of vocational programs such as agriculture, distributive education and commercial programs. Graduates of the latter type of programs were selected for exploratory purposes only, as a preliminary to possible future study based upon a representative sampling.

Table 4 shows the maximum number of graduates that were to be selected from each school, assuming the school offered such programs. It was not expected that each school would generate the maximums indicated in the table.

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[1]The principle of randomness was violated in the case of six schools which were replacements for schools initially selected. Factors beyond the control of investigators influenced the selection of these schools.

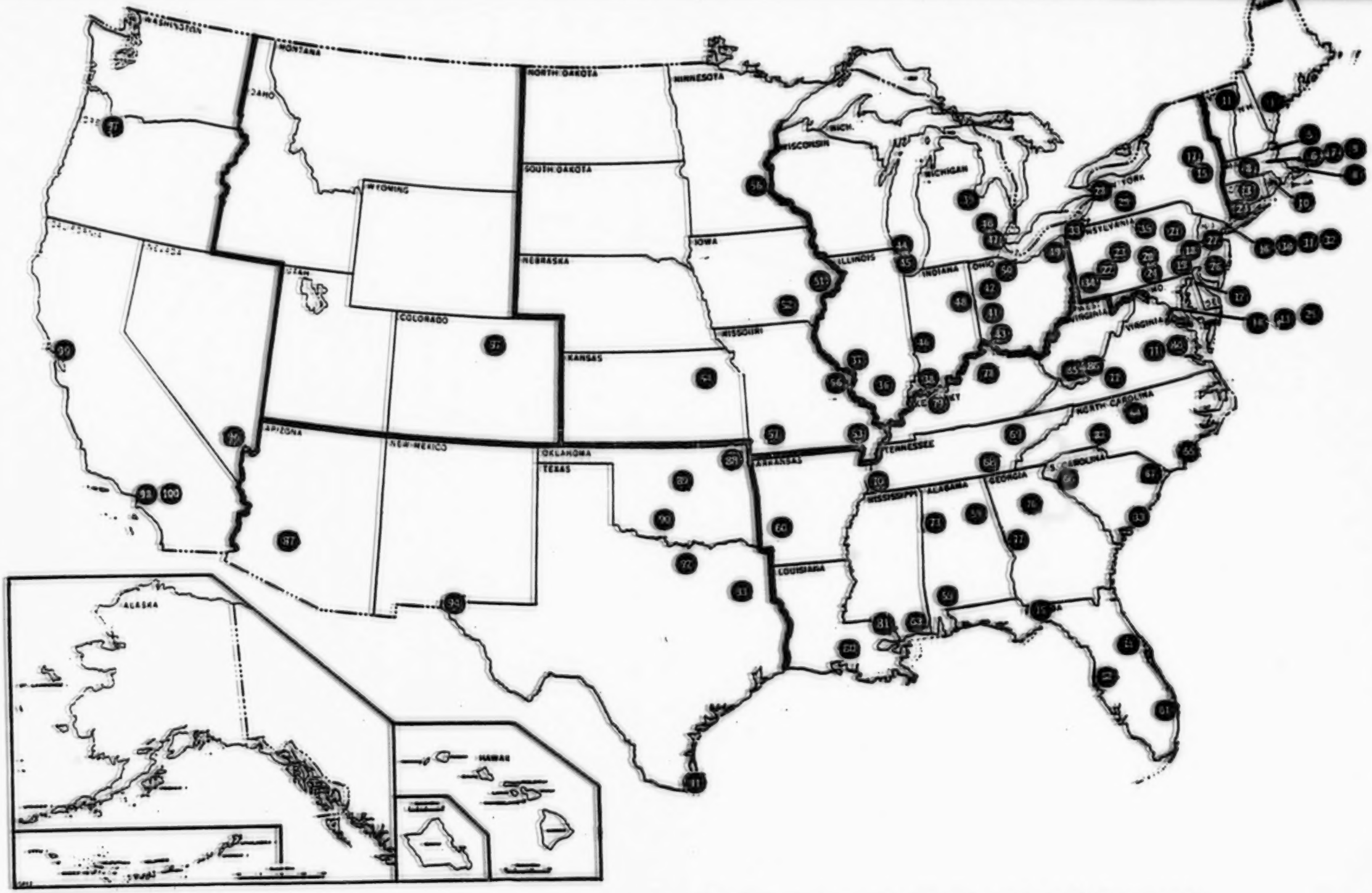

Figure 1. GEOGRAPHICAL DISTRIBUTION OF HIGH SCHOOLS. The number of schools selected from each region was proportional to the region's contribution of qualified schools to the United States total of such schools. (See text for details.)

Table 4. MAXIMUM NUMBERS OF GRADUATES SELECTED FROM EACH AVAILABLE PROGRAM AT EACH COMPREHENSIVE AND VOCATIONAL SCHOOL

Type of Program	Graduating Classes		
	1953	1958	1962
Trade and industry	50	50	50
Diversified cooperative	25	25	25
Distributive education	25	25	25
Vocational agriculture	25	25	25
Commercial/business	25	25	25
Academic (non-vocational)	25	25	25
SCHOOL MAXIMUM	175	175	175

The procedure for the selection of graduates was as follows:

1. The schools were contacted and asked to have alphabetized rosters of graduates ready for the visiting A·I·R team. A special roster form was provided to insure that graduates would be alphabetized by type of course and class year. A specimen form is shown in the Appendix section.

2. At the school, A·I·R personnel made the selection of names from the rosters of graduates. If the number of graduates for each available program was less than the maximums indicated in Table 4. all graduates were selected. If the number of graduates was more than the maximums to be selected, the procedure was to select every Nth graduate so as to get the desired number.

   The procedure varied slightly for T & I courses. The maximum was obtained by taking approximately an equal number of graduates from each T & I course offered. In practice, it was not always possible to draw an equal number of graduates from each T & I course because of wide variation in the number of graduates from each course.

3. Once the names were selected, home addresses from school records were recorded on the roster forms. School personnel were asked to provide a more recent address if they knew of one. Addresses of parents, relatives or employers were accepted where the original school record address was in doubt or known to be incorrect. Graduates known to be deceased or institutionalized were replaced with other names.

   The schools varied widely in their ability to provide updated addresses. Very few made an effort to maintain contact with graduates. It was more often the case that an individual instructor made such an effort on his own initiative.

4. A final screening of graduate names took place after the schools were visited. Incomplete addresses were removed. A small number of female graduates that escaped prior attention were also removed. Telephone directories were checked for more recent addresses for 1953 graduates when the school was unable to provide a more recent address.

Description of Sample Selected

A distinction is made between the sample of graduates initially selected for follow-up study and the actual sample as determined by questionnaire returns. The latter sample is described in Chapter 2. The initial sample selected is described in this section in terms of T & I graduates only.

Table 5 shows the distribution of T & I graduates by type of school and class year. The number of graduates selected from vocational schools was greater than comprehensive school graduates because of the smaller graduating classes among the latter schools.

Table 5. DISTRIBUTION OF T & I GRADUATES SELECTED FOR FOLLOW-UP STUDY BY CLASS YEAR AND TYPE OF SCHOOL

Type of School	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Vocational	1779	60.4	2002	54.7	2379	56.7	6160	57.0
Comprehensive	1166	39.6	1659	45.3	1820	43.3	4645	43.0

Table 6 shows the distribution of T & I graduates by school enrollment category and class year. The percentages of all graduates by enrollment category is a reflection of the 30-40-30 distribution of schools by enrollment category.

Table 6. DISTRIBUTION OF T & I GRADUATES SELECTED FOR FOLLOW-UP STUDY BY CLASS YEAR AND SCHOOL ENROLLMENT *

School Enrollment	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Less than 500	1021	34.7	1146	31.3	1370	32.6	3537	32.7
500 - 1500	1119	38.0	1432	39.1	1553	37.0	4104	38.0
More than 1500	805	27.3	1083	29.6	1276	30.4	3164	29.3

* As of October, 1963.

Table 7 shows the distribution of T & I graduates by geographic region and class year. The percentages of all graduates for the geographic regions corresponds remarkably with the percentage distribution of schools by geographic region. The Southeast, for example, contributed 29 percent of the total school sample and 27.5 percent of the total T & I graduate sample selected for follow-up. The correspondence was entirely the product of applying the selection principles described in the previous section.

Table 7. DISTRIBUTION OF T & I GRADUATES SELECTED FOR FOLLOW-UP STUDY BY CLASS YEAR AND GEOGRAPHIC REGION

Geographic Region	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Northeast	345	11.7	426	11.6	500	11.9	1271	11.8
Mideast	809	27.5	971	26.5	1042	24.8	2822	26.1
Great Lakes	384	13.0	556	15.2	683	16.3	1623	15.0
Plains	301	10.2	283	7.7	371	8.8	955	8.8
Southeast	803	27.3	1038	28.4	1133	27.0	2974	27.5
Southwest	128	4.3	215	5.9	255	6.1	598	5.5
Rocky Mountains . . .	21	0.7	31	0.8	36	0.8	88	0.8
Pacific	154	5.2	141	3.8	179	4.3	474	4.4

Table 8 shows the distribution of T & I graduates by trade and class year. In rank order, the five most frequently drawn upon trades were automobile mechanics (15.2%), machinist (14.9%), electrician (10.9%), drafting (7.1%), and printing (7.0%). The percentages reflect indirectly the relative frequency with which courses were offered in the one hundred school sample.

Table 8. DISTRIBUTION OF T & I GRADUATES SELECTED FOR FOLLOW-UP STUDY BY CLASS YEAR AND TRADE *

Trade and Industry Trades	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Automotive mechanics	412	14.0	565	15.4	668	15.9	1645	15.2
Auto body repair	42	1.4	58	1.6	84	2.0	184	1.7
Airplane power mechanics	37	1.2	49	1.3	40	1.0	126	1.2
Air conditioning and heating	0	0.0	10	0.3	23	0.5	33	0.3
Building trades (mixed)	62	2.1	102	2.8	104	2.5	268	2.5
Carpentry	144	4.9	167	4.6	146	3.5	457	4.2
Commercial art	51	1.7	67	1.8	78	1.8	196	1.8
Drafting (all types)	209	7.1	305	8.3	256	6.1	770	7.1
Electrician	337	11.4	403	11.0	436	10.4	1176	10.9
Electronic technician	42	1.4	94	2.6	171	4.1	307	2.8
Food trades	11	0.4	37	1.0	52	1.2	100	0.9
Foundry	11	0.4	12	0.3	15	0.3	38	0.4
Machinist	462	15.7	569	5.5	580	13.8	1611	14.9
Masonry	26	0.9	88	2.4	69	1.6	183	1.7
Mill and cabinetry	213	7.2	197	5.4	191	4.5	601	5.6
Metal trades	66	2.2	39	1.1	57	1.4	162	1.5
Painting and decorating	9	0.3	13	0.4	14	0.3	36	0.3
Plumbing	43	1.5	37	1.0	38	0.9	118	1.1
Printing	213	7.2	235	6.4	305	7.3	753	7.0
Radio and TV repair	94	3.2	92	2.5	126	3.0	312	2.9
Sheet metal fabrication	77	2.6	105	2.9	109	2.6	291	2.7
Shoe repair	8	0.3	24	0.6	17	0.4	49	0.4
Tailoring	11	0.4	33	0.9	39	0.9	83	0.8
Upholstery	13	0.4	15	0.4	16	0.4	44	0.4
Welding	147	5.0	123	3.4	190	4.5	460	4.2
Other than above	205	7.0	222	6.1	375	8.9	802	7.4

* Actual course titles do not in all cases correspond with the trade titles listed above. Efforts were made to give each vocational course an equal representation within a school.

Table 9 shows the distribution of T & I graduates by school and class year. Two points may be observed: (1) The number of graduates selected for follow-up in some schools was considerably less than the maximum to be selected. This was because of relatively small numbers of graduates. (2) A few schools were over-represented, i.e. the number of names of graduates exceeded the maximum of 50 for a given class year. Some of the school visitation teams enthusiastically took all graduate names even when the number exceeded the desired maximum of fifty.

Table 9. NUMBER OF T & I GRADUATES SELECTED FROM EACH SCHOOL FOR THE CLASSES OF 1953, 1958, and 1962, WITH REGIONAL SUBTOTALS. (C = Comprehensive, V = Vocational)

School	Class Years		
	1953	1958	1962
C 1	17	16	18
V 2	43	50	50
V 3	20	44	52
V 4	50	53	61
V 5	47	48	46
V 6	36	40	48
V 7	46	53	50
V 8	16	24	18
V 9	17	27	69
V 10	33	48	61
V 11	20	23	27
NORTHEAST	345	426	500
C 12	13	18	27
C 13	37	49	53
C 14	0	40	26
C 15	5	11	28
C 16	56	40	52
C 17	27	39	41
C 18	24	34	37
C 19	42	28	26
C 20	0	38	40
C 21	30	33	34
C 22	31	38	54
C 23	29	27	28
C 24	71	71	73
V 25	19	40	43
V 26	51	40	45

School	Class Years		
	1953	1958	1962
V 27	37	57	58
V 28	48	52	51
V 29	46	48	48
V 30	61	65	53
V 31	30	55	70
C 32	38	22	28
V 33	39	50	53
V 34	41	39	40
V 35	34	37	34
MIDEAST	809	971	1042
C 36	40	43	36
C 37	15	24	28
C 38	0	49	63
C 39	16	11	21
C 40	20	37	44
V 41	21	41	39
C 42	0	36	45
C 43	20	37	35
V 44	35	47	53
V 45	41	54	55
C 46	34	35	36
V 47	44	49	30
C 48	43	26	30
V 49	5	15	123
V 50	50	[illegible]	45
GREAT LAKES	384	556	683
C 51	7	33	49

School	Class Years		
	1953	1958	1962
V 52	50	50	49
C 53	32	31	28
V 54	46	47	99
V 55	45	43	43
V 56	56	55	56
V 57	65	24	47
PLAINS	301	283	371
C 58	16	14	9
C 59	21	68	47
C 60	19	19	17
C 61	7	44	42
C 62	3	19	59
C 63	12	36	35
C 64	7	27	22
C 65	23	15	22
C 66	30	44	45
C 67	18	37	19
C 68	27	52	53
C 69	37	40	43
V 70	25	26	35
C 71	18	45	30
C 72	42	44	63
V 73	39	66	66
V 74	16	28	22
V 75	5	7	12
V 76	1	25	37
V 77	49	42	59

School	Class Years		
	1953	1958	1962
V 78	107	90	94
V 79	27	31	41
V 80	30	45	41
V 81	115	41	52
V 82	6	10	28
V 83	20	33	36
V 84	44	25	31
V 85	11	21	36
V 86	28	44	37
SOUTHEAST	803	1038	1133
C 87	27	19	28
C 88	7	14	14
C 89	17	51	50
C 90	21	58	40
C 91	1	17	13
C 92	14	18	14
C 93	35	24	29
V 94	6	14	67
SOUTHWEST	128	215	255
C 95	21	31	36
ROCKY MTS.	21	31	36
C 96	37	18	32
V 97	41	42	47
C 98	48	11	19
V 99	17	42	22
C100	11	28	59
PACIFIC	154	141	179

THE SURVEY QUESTIONNAIRES

Questionnaire Development

Two questionnaires were developed, one for vocational course graduates and the other for academic course graduates.

The initial drafts of the questionnaires were developed by the project staff, and submitted for initial review and comments to a number of vocational education specialists. Suggestions for revision were considered, and when deemed an improvement, incorporated into a first revision.

The first revision was tested in two ways: (1) A number of local high school graduates were asked to complete the questionnaire. They were then interviewed on the contents of the questionnaire to check their understanding of the items. A record was kept of items that appeared to be subject to misunderstanding. (2) A number of vocational educators were asked to review the first revision. The questionnaires then underwent additional revision for the purposes of two pilot studies designed to establish the survey procedures. The pilot studies are described below.

Pilot Study No. 1

The purpose of this pilot study was to determine (1) whether the length of the questionnaire would seriously influence the rate of return, (2) whether an incentive inducement to return the questionnaire would substantially increase the rate of return, and (3) whether the rate of return would be differentially effected by number of years since graduation, thereby calling for different approaches to the three graduating classes.

The 1953, 1958, and 1962 vocational course graduates of a nearby comprehensive and a vocational school were selected for the study. A total of 240 graduates were assigned equally to four experimental conditions: (1) long questionnaire, material incentive, (2) short questionnaire, material incentive, (3) long questionnaire, no material incentive, and (4) short

questionnaire, no material incentive. The different trades and graduating classes were equated among the experimental conditions. A maximum of seven mail contacts was made to non-respondents.

The results indicated (1) no significant difference in percentage of return between incentive and non-incentive groups, (2) no significant difference in percentage of return between long and short questionnaire group, and (3) significant differences in percentage of return, of those contacted, between the classes of 1953, 1958, and 1962.[1]

The conclusions were to (1) offer no material incentives to graduates to return questionnaires, (2) be guided by judgment in adopting a short questionnaire form, and (3) use the same approach to the three classes of graduates, because of uncertainty about differential treatments.

Pilot Study No. 2

The purpose of the second pilot study was to determine (1) whether more complete knowledge of the study by the graduates contacted would influence the percentage of questionnaires returned, (2) whether the spacing of successive mail contacts would influence returns, and (3) whether a standard letterhead would be as effective as an actual school letterhead.

The 1953, 1958, and 1962 graduates of two vocational schools located in the same state were selected for the study. A total of 276 graduates were assigned randomly and in equal numbers to one of four experimental conditions: (1) massed contacts, standard letterhead, (2) spaced contacts, standard letterhead, (3) massed contacts, actual school letterhead, and (4) spaced contacts, actual school letterhead. The different trades and graduating classes were equated among the experimental conditions. A maximum of seven mail contacts was made to non-respondents.

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[1] Based upon graduates successfully contacted by mail, the percentages of returns for 1953, 1958, and 1962 graduates were 66, 72, and 77 percent respectively, indicating greater cooperation from recent graduates.

On the basis of an overall 69 percent return, (84 percent of those who could be located), the results indicated (1) a closely massed mailing schedule for successive contacts was more effective than a widely spaced schedule and (2) a distinctively designed standard letterhead, indicating Ford Foundation sponsorship and A·I·R direction of the study, was slightly more effective in percentage of questionnaire returns than the actual school letterhead.

The conclusions reached on the basis of these results were to (1) employ a closely spaced schedule of successive contacts with non-respondents in the main follow-up effort, and (2) use the standardized letterhead for the initial contact.

Final Version of Questionnaires

The questionnaire returns from the two pilot studies were analyzed for items likely to generate missing, questionable, or unusable data. Only minor changes were made to the questionnaires as a result of the last pilot study experience.

The final version of the vocational graduate questionnaire is shown on pages 22 through 25. The final version of the academic graduate questionnaire is shown on pages 26 through 29.

A comment is appropriate on the physical layout of the questionnaire. Normally, ease of data processing is a major concern in questionnaire design. The questionnaires would have been several pages longer, however, if designed with that purpose in mind. It was felt that a short, four-page, compact design would give a greater percentage of returns than a longer questionnaire designed to facilitate coding of the questionnaire data. Therefore, the decision was made in favor of a shorter questionnaire.

It would be comfortable to report that data coding was no problem with the questionnaires adopted. Unhappily, that was not the case. The short version of the questionnaires proved to be costly in both time and money for data processing. Solace was derived from the fact that the percentage of returns achieved was far greater than predicted by school personnel in sample schools that had attempted follow-up studies of their own.

VOCATIONAL EDUCATION IN UNITED STATES

An AMERICAN INSTITUTE FOR RESEARCH Survey

INSTRUCTIONS

Most items on this questionnaire require only a check mark (√) to give your answer. Please answer all items ACCURATELY. The information will be STRICTLY CONFIDENTIAL.

Please return the questionnaire in the postage-paid, pre-addressed envelope provided.

THANKS FOR YOUR HELP ON THIS IMPORTANT STUDY

1. Your Name _____ 2. Your High School's Name _____

3. Year Graduated from High School: Mo _____ Yr _____ 4. High School Course Studied _____

5. Below are ways students are influenced to select a vocational course. Mark those that influenced you to choose the course you took in high school. CIRCLE THE NUMBER OF THE MOST IMPORTANT INFLUENCE

- ☐ 1. Books and magazines
- ☐ 2. Parents
- ☐ 3. Brother or sister
- ☐ 4. Relative
- ☐ 5. Neighbor (adult)
- ☐ 6. Friend your age
- ☐ 7. Job opportunities
- ☐ 8. Part-time job
- ☐ 9. School teacher
- ☐ 10. School counselor
- ☐ 11. School principal
- ☐ 12. Course graduate
- ☐ 13. Other, specify below.

_____
_____
_____

6. Did your school offer the vocational course you really wanted to take?

- ☐ 1. Yes → If Yes, did you get to take it? → ☐ 6-1.1 Yes, I took the course I wanted.
- ☐ 2. No → If No, what course did you want to take that was not offered? _____
  - ☐ 6-1.2 No, I could not take the course I wanted → because _____

7. How long after leaving high school did it take you to get your first full-time job? _____ months

8. How did you get your first full-time job after leaving high school? (Mark all that apply.)

- ☐ 1. By answering a want-ad
- ☐ 2. Private employment agency
- ☐ 3. State employment agency
- ☐ 4. Help of school teacher
- ☐ 5. Help of school counselor
- ☐ 6. Help of school principal
- ☐ 7. Help of school placement service
- ☐ 8. Help of friend or relative
- ☐ 9. Through school coop program
- ☐ 10. Other than above

If you never had a full-time job, mark here – ☐ SKIP TO ITEM 12

9. Was your first full-time job in the trade or field for which you were trained in high school?

If Yes: Indicate how well your vocational course prepared you for your first full-time job.

- ☐ 1. Exceptionally well-prepared; training covered all essentials required by first job
- ☐ 2. Well-prepared on the whole; but there were some important gaps in training
- ☐ 3. Poorly prepared; much that I needed to know was not covered in vocational course

If No: Mark reason below.

- ☐ 1. No job available in area of training
- ☐ 2. Learned new job by continuing school
- ☐ 3. Learned new job in military service
- ☐ 4. Decided I liked other work better
- ☐ 5. Not accepted as apprentice in trade
- ☐ 6. Other (specify) _____

10. How did the: (1) tools and equipment, (2) work methods, and (3) work materials used on your first full-time job compare with those used in your vocational shop courses? If a sub-item is not applicable, mark the box NA to the right. Otherwise, mark your answer.

TOOLS & EQUIPMENT ☐ NA	WORK METHODS ☐ NA	WORK MATERIALS ☐ NA
☐ 1. Identical or almost so	☐ 1. Identical or almost so	☐ 1. Identical or almost so
☐ 2. Little real difference	☐ 2. Little real difference	☐ 2. Little real difference
☐ 3. Very much different	☐ 3. Very much different	☐ 3. Very much different
If you marked 3 above (Very much different), did it take long to learn what was new?		
☐ 1. Only about a few weeks	☐ 1. Only about a few weeks	☐ 1. Only about a few weeks
☐ 2. Less than three months	☐ 2. Less than three months	☐ 2. Less than three months
☐ 3. About three-six months	☐ 3. About three-six months	☐ 3. About three-six months
☐ 4. About six months-a year	☐ 4. About six months-a year	☐ 4. About six months-a year
☐ 5. More than a year	☐ 5. More than a year	☐ 5. More than a year

11.

For each of the skill areas listed below, answer the four questions at the right. Indicate your answers by marking appropriate boxes.	1 How important is this skill for your present job?				2 How much of this skill was learned in high school?				3 Where did you learn the most about this skill?					4 Do you feel the need for more instruction or training in this area? (Mark either Yes or No)
	1 Of No Real Importance	2 Slightly Important	3 Considerably Important	4 Of Critical Importance	1 Almost Nothing	2 Some, But Not Much	3 Large Amount	4 Almost All	1 High School Coop Program	2 High School Shop or Class	3 Apprentice Program	4 On Regular Job	5 Elsewhere	
1 MANUAL JOB SKILLS. Refers to skill at using or operating tools, equipment, materials, machines, etc., in your work.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
2 JOB PRACTICAL KNOWLEDGE. Refers to practical everyday knowledge of work processes, methods, procedures, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
3 JOB THEORETICAL KNOWLEDGE. Refers to knowledge of basic principles and concepts underlying the practical trade work.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
4 MATHEMATICAL SKILLS. Refers to ability to use arithmetic or higher mathematics to solve work problems.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
5 COMMUNICATION SKILLS. Refers to skill at speaking, writing, drafting, sketching, etc., to communicate ideas.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
6 READING AND INTERPRETIVE SKILLS. Refers to skill at reading printed matter, blueprints, tables, diagrams, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
7 CLERICAL SKILLS. Refers to skill at keeping records, making out reports, and other types of routine paper work.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
8 PERSONAL RELATIONS SKILLS. Refers to skill at dealing with people, such as customers, co-workers, other trades, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
9 SUPERVISORY SKILLS. Refers to skill at supervising others, e.g., instructing, directing, evaluating, planning, organizing, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
10 OTHER SKILLS. Add what you feel applies to your job and is not covered by the above. _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No

12. Please give your frank opinion about the following items concerning your high school education. (Mark one answer for each item.)

	ON THE WHOLE: 1. Poor	2. Satisfactory	3. Good	4. Excellent
1. Quality of instruction from shop instructors	☐	☐	☐	☐
2. Quality of instruction from academic teachers	☐	☐	☐	☐
3. Condition of shop facilities and equipment	☐	☐	☐	☐
4. General physical condition of school	☐	☐	☐	☐
5. Vocational counseling given to students	☐	☐	☐	☐
6. Help given students to find jobs	☐	☐	☐	☐
7. Opportunity for extra-curricular activities	☐	☐	☐	☐
8. Interest shown by teachers in student problems	☐	☐	☐	☐
9. Reputation of the school in community	☐	☐	☐	☐
10. Strictness of school in maintaining discipline	☐	☐	☐	☐

13. Please mark all kinds of education obtained since leaving high school, and provide the information requested about each. Put an asterisk (*) behind those you are presently attending. If you have not had any additional education since high school, mark here ☐
Estimate your average hours per week over the total period attended.

Mark Here	Type of Education	Major Subject or Course(s)	Dates Attended (Give Month & Year)	Leave Blank	Avg. Hrs. Per Wk. in School	Leave Blank
☐ 0	Two-year or junior college		Fr: To:			
☐ 1	Four-year college/university		Fr: To:			
☐ 2	Post-college graduate school		Fr: To:			
☐ 3	Private trade/technical school		Fr: To:			
☐ 4	Public trade/technical school		Fr: To:			
☐ 5	Business-commercial school		Fr: To:			
☐ 6	Adult continuation school		Fr: To:			
☐ 7	Military specialist school		Fr: To:			
☐ 8	Company course or school		Fr: To:			
☐ 9	Correspondence courses		Fr: To:			
☐ 10	Other (specify)		Fr: To:			

14. **JOB HISTORY SINCE HIGH SCHOOL.** Start with your **FIRST** job after leaving high school. List **ALL** full-time jobs. List **ONLY** part-time jobs held six months or more, except if your present job is a part-time job. List the jobs in the order that you held them, up to and including your **PRESENT JOB.** (If self-employed, give **NET EARNINGS**, not **GROSS INCOME** of your business.)

	1	2	3	4	5	6	7	8	9	10
EXAMPLE	Starting Date Mo. 7 Yr. 53 Leaving Date Mo. 10 Yr. 54	What type of work did you do? MACHINIST APPRENTICE	Did job require move to new city? 1. ☐ No 2. ☒ Yes How many miles? 20	Full Time 1. ☐ Yes 2. ☒ No If part-time, how many hours per week, on average? 15	Self Employed 1. ☐ Yes 2. ☒ No	Was the work related to vocational course you took? 1. ☒ Same trade studied. 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☒ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $ 1.25 per HR Earnings at Leaving Give $ per hr., wk., or mo. $ 1.50 per HR	Reason For Leaving Job NO WORK	Were you unemployed after leaving job? 1. ☒ Yes 2. ☐ No If Yes, how long? 5 MONTHS
1st JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
2nd JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very Dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
3rd JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
4th JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
5th JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
6th JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly unrelated 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?

ATTENTION: If you held more than six full and part-time jobs, please continue on the page enclosed. Be sure to include your present full-time and/or part-time job. Thank you.

15. **YOUR PRESENT JOB.** (Please give this additional information.)

1. Present Earnings? Give $ per hour, week, or month. $ _____ per _____
2. Your Employer: _____
   Street Address: _____
   City-State: _____

16. Did you have any military service? ☐ 1. No ☐ 2. Yes ⟶ How many months? _____ Nature of work? _____

17. Were you unemployed for reason of health or hospitalization? ☐ 1. No ☐ 2. Yes ⟶ How many months? _____

> Part of our study concerns the interests, activities, and associations of high school graduates. We hope you will not regard this information too personal to give us. All is confidential. Please weigh your answers carefully.

18. How frequently do you talk about the following topics when you get together socially with others?

	ALMOST NEVER 1	INFREQUENTLY 2	FREQUENTLY 3	ALMOST ALWAYS 4
1. Your work	☐	☐	☐	☐
2. Religion	☐	☐	☐	☐
3. Politics	☐	☐	☐	☐
4. Business conditions	☐	☐	☐	☐
5. World affairs	☐	☐	☐	☐
6. National affairs	☐	☐	☐	☐
7. State affairs	☐	☐	☐	☐
8. Community problems	☐	☐	☐	☐
9. Your hobbies	☐	☐	☐	☐
10. Sports and athletics	☐	☐	☐	☐
11. Music, art, literature, etc.	☐	☐	☐	☐
12. Government matters	☐	☐	☐	☐
13. Labor union matters	☐	☐	☐	☐
14. Your family	☐	☐	☐	☐
15. Other (specify) _____	☐	☐	☐	☐

19. How frequently do you engage in the following types of leisure-time activities?

	ALMOST NEVER 1	INFREQUENTLY 2	FREQUENTLY 3	ALMOST DAILY 4
1. Reading newspapers	☐	☐	☐	☐
2. Engaging in craft hobbies (model building, jewelry making, etc.)	☐	☐	☐	☐
3. Reading professional or trade books and periodicals	☐	☐	☐	☐
4. Attending athletic events as a spectator	☐	☐	☐	☐
5. Attending plays, concerts, ballets, etc.	☐	☐	☐	☐
6. Watching television programs	☐	☐	☐	☐
7. Gardening (raising flowers, fruit trees, vegetables, etc.)	☐	☐	☐	☐
8. Reading general magazines (LIFE, LOOK, READERS' DIGEST, etc.)	☐	☐	☐	☐
9. Working at home shop activities (woodworking, metalworking, etc.)	☐	☐	☐	☐
10. Attending educational courses for self-improvement	☐	☐	☐	☐
11. Engaging in team sports (softball, football, etc.)	☐	☐	☐	☐
12. Engaging in performing arts (acting, singing, instruments, etc.)	☐	☐	☐	☐
13. Visiting or entertaining friends	☐	☐	☐	☐
14. Reading non-fiction books (biography, history, travel, etc.)	☐	☐	☐	☐
15. Collecting stamps, coins, rocks, or other items	☐	☐	☐	☐
16. Attending educational lectures and discussion groups	☐	☐	☐	☐
17. Engaging in individual sports (swimming, hunting, fishing, etc.)	☐	☐	☐	☐
18. Listening to music at home for pleasure	☐	☐	☐	☐
19. Going to the movies	☐	☐	☐	☐
20. Other (please write in) _____	☐	☐	☐	☐

20. Below is a list of different type organizations and associations. Mark the space which best describes your membership status in each type of organization, association, or club.

	NOT A MEMBER 1	INACTIVE MEMBER 2	ACTIVE MEMBER 3	PRESENTLY AN OFFICER 4
1. A church or a religious organization	☐	☐	☐	☐
2. Political organization	☐	☐	☐	☐
3. Service organization (Rotary, Lions, Kiwanis, etc.)	☐	☐	☐	☐
4. Sports club or athletic organization	☐	☐	☐	☐
5. Labor union	☐	☐	☐	☐
6. Fraternal organization (Elks, Masons, K. of C., etc.)	☐	☐	☐	☐
7. Veterans' organization	☐	☐	☐	☐
8. Business or trade association	☐	☐	☐	☐
9. Music or other cultural association	☐	☐	☐	☐
10. Local civic association	☐	☐	☐	☐
11. Youth organization (Scouts, Y.M.C.A., etc.)	☐	☐	☐	☐
12. Professional association	☐	☐	☐	☐
13. Other (specify) _____	☐	☐	☐	☐

21. Marital Status
- ☐ 1. Single
- ☐ 2. Married
- ☐ 3. Other

22. Race
- ☐ 1. White
- ☐ 2. Negro
- ☐ 3. Other

23. Religion
- ☐ 1. Protestant
- ☐ 2. Catholic
- ☐ 3. Jewish
- ☐ 4. Other
- ☐ 5. None

24. Do you have any disability or health condition that limits your employability?
☐ 1. Yes ☐ 2. No

THANK YOU FOR YOUR TIME AND EFFORT

VOCATIONAL EDUCATION IN UNITED STATES

An AMERICAN INSTITUTE FOR RESEARCH Survey

(G)

INSTRUCTIONS

Most items on this questionnaire require only a check mark (√) to give your answer. Please answer all items ACCURATELY. The information will be STRICTLY CONFIDENTIAL.

Please return the questionnaire in the postage-paid, pre-addressed envelope provided.

THANKS FOR YOUR HELP ON THIS IMPORTANT STUDY

1. Your Name _____ 2. Your High School's Name _____

Your Address _____ City _____ State _____

3. Year Graduated from High School: Mo _____ Yr _____ 4. High School Course Studied _____

5. Below are ways students are influenced to select a high school course. Mark those that influenced you to choose the course you took in high school. CIRCLE THE NUMBER OF THE MOST IMPORTANT INFLUENCE.

- ☐ 1. Books and magazines
- ☐ 2. Parents
- ☐ 3. Brother or sister
- ☐ 4. Relative
- ☐ 5. Neighbor (adult)
- ☐ 6. Friend your age
- ☐ 7. Job opportunities
- ☐ 8. Part-time job
- ☐ 9. School teacher
- ☐ 10. School counselor
- ☐ 11. School principal
- ☐ 12. Course graduate
- ☐ 13. Other, specify below. _____

6. Did your school offer the course of studies you really wanted to take?

- ☐ 1. Yes → If Yes, did you get to take it? → ☐ 6-1.1 Yes, I took the course I wanted.
- ☐ 2. No → If No, what course did you want to take that was not offered? _____
  - ☐ 6-1.2 No, I could not take the course I wanted → because _____

7. What did you do after high school graduation?

- ☐ 1. Looked for a full-time job
- ☐ 2. Looked for a part-time job
- ☐ 3. Went to a college or university
- ☐ 4. Went to a public vocational-technical school
- ☐ 5. Went to a private trade-technical school
- ☐ 6. Went into military service
- ☐ 7. Other (please specify) _____

8. If you looked for a full-time job after graduating, did you find one?

- ☐ 1. Yes
- ☐ 2. No

→ If Yes, how many months did it take you to find the job? _____ months

→ If Yes, what type of job was it? _____

→ If Yes, how did you get the job?

- ☐ 1. By answering a want-ad
- ☐ 2. Private employment agency
- ☐ 3. State employment agency
- ☐ 4. Help of school teacher
- ☐ 5. Help of school counselor
- ☐ 6. Help of school principal
- ☐ 7. Help of school placement service
- ☐ 8. Help of friend or relative
- ☐ 9. Through school coop program
- ☐ 10. Other than above

9. What are you doing now? (Mark all that apply.)

- ☐ 1. Employed full-time
- ☐ 2. Employed part-time
- ☐ 3. Attending college
- ☐ 4. Attending public trade/technical school
- ☐ 5. Attending private trade/technical school
- ☐ 6. Attending business-commercial school
- ☐ 7. In military service
- ☐ 8. Unemployed
- ☐ 9. Other (please specify) _____

10. Do you think you would have done better if you had taken vocational or technical training in high school?

☐ 1. Yes ☐ 2. No ☐ 3. Don't know

11. **ANSWER ONLY IF YOU HAVE A FULL-TIME JOB**

For each of the skill areas listed below, answer the four questions at the right. Indicate your answers by marking appropriate boxes.

	1 How important is this skill for your present job?				2 How much of this skill was learned in high school?				3 Where did you learn the most about this skill?					4 Do you feel the need for more instruction or training in this area? (Mark either Yes or No)
	1 Of No Real Importance	2 Slightly Important	3 Considerably Important	4 Of Critical Importance	1 Almost Nothing	2 Some, But Not Much	3 Large Amount	4 Almost All	1 High School Coop Program	2 High School Shop or Class	3 Apprentice Program	4 On Regular Job	5 Elsewhere	
1 MANUAL JOB SKILLS. Refers to skill at using or operating tools, equipment, materials, machines, etc., in your work.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
2 JOB PRACTICAL KNOWLEDGE. Refers to practical everyday knowledge of work processes, methods, procedures, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
3 JOB THEORETICAL KNOWLEDGE. Refers to knowledge of basic principles and concepts underlying the practical trade work.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
4 MATHEMATICAL SKILLS. Refers to ability to use arithmetic or higher mathematics to solve work problems.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
5 COMMUNICATION SKILLS. Refers to skill at speaking, writing, drafting, sketching, etc., to communicate ideas.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
6 READING AND INTERPRETIVE SKILLS. Refers to skill at reading printed matter, blueprints, tables, diagrams, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
7 CLERICAL SKILLS. Refers to skill at keeping records, making out reports, and other types of routine paper work.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
8 PERSONAL RELATIONS SKILLS. Refers to skill at dealing with people, such as customers, co-workers, other trades, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
9 SUPERVISORY SKILLS. Refers to skill at supervising others, e.g., instructing, directing, evaluating, planning, organizing, etc.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No
10 OTHER SKILLS. Add what you feel applies to your job and is not covered by the above. _____	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐ 1. Yes ☐ 2. No

12. Please give your frank opinion about the following items concerning your high school education. (Mark).

	ON THE WHOLE: 1. Poor	2. Satisfactory	3. Good	4. Excellent
1. Quality of school library facilities	☐	☐	☐	☐
2. Quality of instruction from academic teachers	☐	☐	☐	☐
3. Condition of shop furnishings and equipment	☐	☐	☐	☐
4. General physical condition of school	☐	☐	☐	☐
5. Guidance and counseling given to students	☐	☐	☐	☐
6. Help given students to find jobs	☐	☐	☐	☐
7. Opportunity for extra-curricular activities	☐	☐	☐	☐
8. Interest shown by teachers in student problems	☐	☐	☐	☐
9. Reputation of the school in community	☐	☐	☐	☐
10. Strictness of school in maintaining discipline	☐	☐	☐	☐

13. Please mark all kinds of education obtained since leaving high school, and provide the information requested about each. Put an asterisk (*) behind those you are presently attending. If you have not had any additional education since high school, mark here ☐
Estimate your average hours per week over the total period attended.

Mark Here	Type of Education	Major Subject or Course(s)	Dates Attended (Give Month & Year)	Leave Blank	Avg. Hrs. Per Wk. in School	Leave Blank
☐ 0	Two-year or junior college		Fr: To:			
☐ 1	Four-year college/university		Fr: To:			
☐ 2	Post-college graduate school		Fr: To:			
☐ 3	Private trade/technical school		Fr: To:			
☐ 4	Public trade/technical school		Fr: To:			
☐ 5	Business-commercial school		Fr: To:			
☐ 6	Adult continuation school		Fr: To:			
☐ 7	Military specialist school		Fr: To:			
☐ 8	Company course or school		Fr: To:			
☐ 9	Correspondence courses		Fr: To:			
☐ 10	Other (specify)		Fr: To:			

14. **JOB HISTORY SINCE HIGH SCHOOL.** Start with your **FIRST** job after leaving high school. List **ALL** full-time jobs. List **ONLY** part-time jobs held six months or more, except if your present job is a part-time job. List the jobs in the order that you held them, up to and including your **PRESENT JOB.** (If self-employed, give **NET EARNINGS**, not **GROSS INCOME** of your business.)

	1	2	3	4	5	6	7	8	9	10
EXAMPLE	Starting Date Mo. 7 Yr. 53 Leaving Date Mo. 10 Yr. 54	What type of work did you do? MACHINIST APPRENTICE	Did job require move to new city? 1. ☐ No 2. ☒ Yes How many miles? 20	Full Time 1. ☐ Yes 2. ☒ No If part-time, how many hours per week, on average? 15	Self Employed 1. ☐ Yes 2. ☒ No	Was the work related to vocational course you took? 1. ☒ Same trade studied. 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☒ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $ 1.25 per HR Earnings at Leaving Give $ per hr., wk., or mo. $ 1.50 per HR	Reason For Leaving Job NO WORK	Were you unemployed after leaving job? 1. ☒ Yes 2. ☐ No If Yes, how long? 5 MONTHS
1st JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
2nd JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very Dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
3rd JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
4th JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
5th JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average?	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?
6th JOB	Starting Date Mo.__ Yr.__ Leaving Date Mo.__ Yr.__	What type of work did you do?	Did job require move to new city? 1. ☐ No 2. ☐ Yes How many miles?	Full Time 1. ☐ Yes 2. ☐ No If part-time, how many hours per week, on average	Self Employed 1. ☐ Yes 2. ☐ No	Was the work related to vocational course you took? 1. ☐ Same trade studied 2. ☐ Highly related 3. ☐ Slightly related 4. ☐ Completely unrelated	On the whole, were you satisfied with the work? 1. ☐ Very satisfied 2. ☐ Satisfied 3. ☐ Dissatisfied 4. ☐ Very dissatisfied	Earnings at Starting Give $ per hr., wk., or mo. $__ per__ Earnings at Leaving Give $ per hr., wk., or mo. $__ per__	Reason For Leaving Job	Were you unemployed after leaving job? 1. ☐ Yes 2. ☐ No If Yes, how long?

ATTENTION: If you held more than six full and part-time jobs, please continue on the page enclosed. Be sure to include your present full-time and/or part-time job. Thank you.

15. **YOUR PRESENT JOB.** (Please give this additional information.)

1. Present Earnings? Give $ per hour, week, or month. $_____ per _____.
2. Your Employer: _____
   Street Address: _____
   City-State: _____

16. Did you have any military service? ☐ 1. No ☐ 2. Yes ⟶ How many months? _____ Nature of work? _____

17. Were you unemployed for reason of health or hospitalization? ☐ 1. No ☐ 2. Yes ⟶ How many months? _____

> Part of our study concerns the interests, activities, and associations of high school graduates. We hope you will not regard this information too personal to give us. All is confidential. Please weigh your answers carefully.

18. How frequently do you talk about the following topics when you get together socially with others?

	ALMOST NEVER 1	INFREQUENTLY 2	FREQUENTLY 3	ALMOST ALWAYS 4
1. Your work	☐	☐	☐	☐
2. Religion	☐	☐	☐	☐
3. Politics	☐	☐	☐	☐
4. Business conditions	☐	☐	☐	☐
5. World affairs	☐	☐	☐	☐
6. National affairs	☐	☐	☐	☐
7. State affairs	☐	☐	☐	☐
8. Community problems	☐	☐	☐	☐
9. Your hobbies	☐	☐	☐	☐
10. Sports and athletics	☐	☐	☐	☐
11. Music, art, literature, etc.	☐	☐	☐	☐
12. Government matters	☐	☐	☐	☐
13. Labor union matters	☐	☐	☐	☐
14. Your family	☐	☐	☐	☐
15. Other (specify) _____	☐	☐	☐	☐

19. How frequently do you engage in the following types of leisure-time activities?

	ALMOST NEVER 1	INFREQUENTLY 2	FREQUENTLY 3	ALMOST DAILY 4
1. Reading newspapers	☐	☐	☐	☐
2. Engaging in craft hobbies (model building, jewelry making, etc.)	☐	☐	☐	☐
3. Reading professional or trade books and periodicals	☐	☐	☐	☐
4. Attending athletic events as a spectator	☐	☐	☐	☐
5. Attending plays, concerts, ballets, etc.	☐	☐	☐	☐
6. Watching television programs	☐	☐	☐	☐
7. Gardening (raising flowers, fruit trees, vegetables, etc.)	☐	☐	☐	☐
8. Reading general magazines (LIFE, LOOK, READERS' DIGEST, etc.)	☐	☐	☐	☐
9. Working at home shop activities (woodworking, metalworking, etc.)	☐	☐	☐	☐
10. Attending educational courses for self-improvement	☐	☐	☐	☐
11. Engaging in team sports (softball, football, etc.)	☐	☐	☐	☐
12. Engaging in performing arts (acting, singing, instruments, etc.)	☐	☐	☐	☐
13. Visiting or entertaining friends	☐	☐	☐	☐
14. Reading non-fiction books (biography, history, travel, etc.)	☐	☐	☐	☐
15. Collecting stamps, coins, rocks, or other items	☐	☐	☐	☐
16. Attending educational lectures and discussion groups	☐	☐	☐	☐
17. Engaging in individual sports (swimming, hunting, fishing, etc.)	☐	☐	☐	☐
18. Listening to music at home for pleasure	☐	☐	☐	☐
19. Going to the movies	☐	☐	☐	☐
20. Other (please write in) _____	☐	☐	☐	☐

20. Below is a list of different type organizations and associations. Mark the space which best describes your membership status in each type of organization, association, or club.

	NOT A MEMBER 1	INACTIVE MEMBER 2	ACTIVE MEMBER 3	PRESENTLY AN OFFICER 4
1. A church or a religious organization	☐	☐	☐	☐
2. Political organization	☐	☐	☐	☐
3. Service organization (Rotary, Lions, Kiwanis, etc.)	☐	☐	☐	☐
4. Sports club or athletic organization	☐	☐	☐	☐
5. Labor union	☐	☐	☐	☐
6. Fraternal organization (Elks, Masons, K. of C., etc.)	☐	☐	☐	☐
7. Veterans' organization	☐	☐	☐	☐
8. Business or trade association	☐	☐	☐	☐
9. Music or other cultural association	☐	☐	☐	☐
10. Local civic association	☐	☐	☐	☐
11. Youth organization (Scouts, Y.M.C.A., etc.)	☐	☐	☐	☐
12. Professional association	☐	☐	☐	☐
13. Other (specify) _____	☐	☐	☐	☐

21. Marital Status
- ☐ 1. Single
- ☐ 2. Married
- ☐ 3. Other

22. Race
- ☐ 1. White
- ☐ 2. Negro
- ☐ 3. Other

23. Religion
- ☐ 1. Protestant
- ☐ 2. Catholic
- ☐ 3. Jewish
- ☐ 4. Other
- ☐ 5. None

24. Do you have any disability or health condition that limits your employability?
☐ 1. Yes ☐ 2. No

THANK YOU FOR YOUR TIME AND EFFORT

THE SURVEY PROCEDURES

Description of Mailing Schedule

A maximum of seven mail contacts was planned to encourage graduates to return the questionnaire. A returned questionnaire terminated any further contacts.

The first contact consisted of (1) a letter signed by the graduate's former instructor and/or principal, (2) the questionnaire, and (3) a pre-addressed postage-paid airmail envelope for returning the questionnaire. A sample of the letter is shown opposite page 36.

The second contact consisted of a postcard, designed to thank the graduate if he had already returned his questionnaire and to remind him to do so if he had not as yet mailed the questionnaire. An exhibit of the postcard is shown opposite page 38.

The third contact consisted of a second postcard, having the signature name of the school principal. In effect, it reminded the graduate that his questionnaire had not yet been received, and urged him to mail in the completed questionnaire. An exhibit of this postcard is shown opposite page 38.

The fourth contact consisted of (1) a letter from Dr. John C. Flanagan, president of A·I·R, (2) a questionnaire on the possibility that the first one mailed had been misplaced or thrown away, (3) a brochure describing the study, and (4) a pre-addressed, postage-paid airmail return envelope. A sample of the letter is shown opposite page 40.

The fifth contact was a letter from the school principal, on regular school stationary. It reminded the graduate that his questionnaire had not yet been received, and stressed the need to learn from his experiences since graduating. He was urged to complete and return the questionnaire promptly. An exhibit of the letter is shown opposite page 42.

The sixth contact was another postcard, reminding the student to return the questionnaire. A specimen is shown opposite page 44.

The seventh and last contact was a letter from the graduate's former instructor (or the school principal, if the former instructor was no longer at the school). The letter made a personal appeal for cooperation. A specimen is shown opposite page 46.

The seven-contact strategy resulted from information obtained from the pilot studies, which indicated that a multiple contact procedure is essential for a high percentage of returns.

Description of Survey Materials

The results of the pilot studies suggested that returns would be greater if the time interval between successive mail contacts were kept short, i.e., several days rather than several weeks. However, because of return mail transit time, a very short between-contact interval would have meant asking graduates to complete the questionnaire a second time and possibly a third time after they had already mailed in their questionnaire. To avoid the confusion which might result from such circumstances, a between-contact schedule was adopted to minimize unnecessary requests. The schedule for the first of three series of mailings is shown in Table 10.

Table 10. SCHEDULE OF MAIL CONTACTS. (All contacts but the fourth were mailed from local post offices.)

Contact Number	Ordinal Day	Nature of Contact	Day Mailed	Date Mailed	Contact Interval
1	1	School letter plus questionnaire	Tues.	Sep. 15	—
2	4	Reminder/thank you postcard	Fri.	Sep. 18	3
3	10	Second reminder postcard	Thurs.	Sep. 24	6
4	24	A·I·R letter plus questionnaire	Thurs.	Oct. 8	14
5	38	Third reminder postcard	Thurs.	Oct. 22	14
6	52	Principal's letter plus questionnaire	Thurs.	Nov. 5	14
7	60	Final principal/instructor letter	Fri.	Nov. 13	8

The first series of mailings covered the graduates of 88 of the 100 schools. It was necessary to initiate a second and third series of mailings because all schools had not yet been visited at the time that the first series was initiated. The schedule of mailings of the second series was modified slightly to accommodate the Christmas holidays. The last series, involving the graduates of two schools that could not be visited as planned because of school problems, was mailed under a considerably accelerated schedule. The seven contacts were completed within a 36 day period. As anticipated, some duplicate questionnaires were received.

The Successive Contact Procedure

Before the first mailing was initiated, the high schools formerly attended by the graduates were oriented by mail on the procedure and mailing schedule that would be followed. A specimen set of the seven mail contacts was provided. School principals were requested to urge graduates who might check with the school to complete and return the questionnaire. The principals were also warned that there would undoubtedly be a trivial percentage of those contacted who would write or phone the school to protest the persistence of reminders to complete the questionnaire. They were urged to do whatever their judgment dictated to influence callers to return a completed questionnaire.

Prior to the first mailing, a procedure for addressing and mailing successive contacts was established. The key to this procedure was a standard data processing card which functioned as an envelope addressing master in an addressing machine. It also was used to record information about the graduate on his return, e.g., "address unknown", "military service overseas", "deceased", "date of questionnaire return", and similar control information. The card was designed to facilitate control of successive contacts to nonrespondents and processing returns for the status of mailing results. A specimen master card is shown in Figure 2.

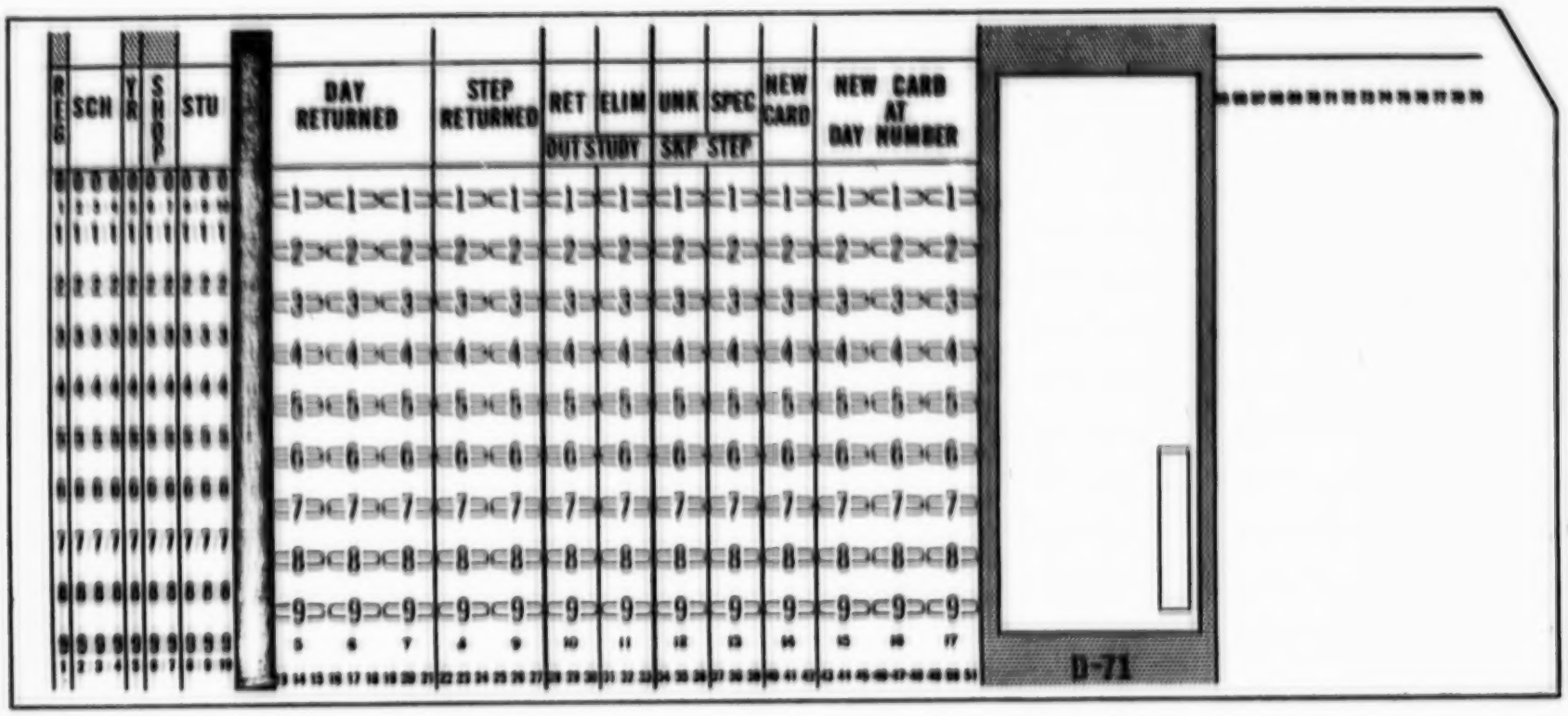

Figure 2. MAILING CONTROL CARD

Each master card contained a number which identified the graduate, the school he graduated from, the course he took, and the year he graduated. The cards were sequenced by school and by identification number with school groupings to form a master control deck.

When the material mailed to a graduate was returned "address unknown" by postal authorities, the graduate's card was removed from the master deck and placed into an "address unknown" file for additional processing later. Similarly, if information was received that the graduate was deceased or institutionalized, his master card was withdrawn and placed into an "eliminated" file.

When a questionnaire was received from a graduate, the date of receipt was noted on his master card, and the card was withdrawn from the addressing file and placed into a returned file, organized by school and graduate identification number.

This procedure made it a simple matter to address the next mailing with the balance of the master cards in the addressing file. The procedure was followed after each mailing, with the result that the non-respondent addressing deck was gradually reduced as cards were withdrawn for reasons described previously.

INITIAL CONTACT LETTER

The same contact letter and letterhead style was used for all schools. The signatures were simulated, with the permission of the instructors and principals.

The letters were mailed from the cities in which the schools were located to assure a local postmark, a tactic which lent authenticity to the letter.

WALTHAM VOCATIONAL HIGH SCHOOL / Waltham, Massachusetts

September 15, 1964

Mr. Keith Adams
914 Providence Avenue
Lima, Ohio

Dear Keith:

Our school is taking part in a nation study of vocational education. Our vocational courses, our shops and teachers have all been studied by a research team from the American Institute for Research. Now they plan to study the careers of one-hundred of our graduates - you have been selected to represent your school and graduating class.

You are the most important source of the information needed to help improve the vocational courses offered by the schools in this area. The things that only you can tell us about your vocational education and job experience will help other men seeking vocational training.

Please complete the questionnaire and use the pre-addressed, postage-paid envelope to return it as soon as possible. The information and opinions you give to the American Institute for Research will be treated as confidential. The Institute will give us a summary and analysis that will not be identified with you in any way. Your cooperation is important and will be appreciated by us all.

Thank you for your help.

Sincerely,

Lloyd F Van Ausdale
Principal

George A Stanley
Instructor

SECOND CONTACT POSTCARD

The purpose of the postcard was to thank those who had already returned their questionnaires, and to remind those who had not returned the questionnaire to do so. The signature of the principal was simulated with his permission. The cards were mailed from the cities in which the schools were located.

THIRD CONTACT POSTCARD

The purpose of the postcard was to again remind and urge the graduate to return his questionnaire. The card intended to convey that the principal would be kept informed of those who had not as yet returned their questionnaires. The signatures were simulated. The cards were mailed from the cities in which the schools were located.

September 18, 1965

Thank you for completing the questionnaire mailed to you a few days ago. Your responses have a direct bearing on the improvement of vocational courses, teacher training, and shops. No one else can give us the insights and experience which you have - and which we need.

If your questionnaire is already in the mail, thank you for your help. If not, please do it today.

Lloyd F Van Ausdale
Principal

September 24, 1964

The American Institute for Research has informed me that your questionnaire has not been received.

I wish to urge you again to complete and return the questionnaire. This study is of national importance, and promises to do much to help vocational education in the United States. It is in keeping with the new emphasis given to vocational education by recent congressional legislation.

If your questionnaire has been mailed, thank you for your cooperation. If not, please complete and mail the questionnaire today.

Lloyd F Van Ausdale
Principal

FOURTH CONTACT LETTER

For a change of pace, the fourth contact was a letter from A·I·R's President, John C. Flanagan. It was felt that this letter would stress the nationwide aspects of the study, and show the importance attached to the study by the head of the research organization. The letter continued the theme that the graduate was selected and that he had an opportunity to make a contribution for the improvement of vocational education. The letter was mailed from Pittsburgh, together with another questionnaire and a brochure describing the study.

October 1, 1964

Mr. Keith Adams
914 Providence Avenue
Lima, Ohio

Dear Keith:

You were selected as one of the graduates to represent your high school in our nationwide educational study. We need your answers to our questions. They will help in improving the programs in all our schools. This is your opportunity to make a direct and constructive contribution to the improvement of our schools.

In the event you have misplaced the questionnaire we sent to you earlier, we are enclosing another copy. Please return it as soon as possible. Thank you for your time and effort.

Yours sincerely,

John C. Flanagan

John C. Flanagan, President
American Institute for Research

P. S. All information reported to the American Institute for Research will be treated as confidential. The summary and analysis given to participating schools will not identify graduates.

FIFTH CONTACT LETTER

The fifth contact used the regular school letterhead with the hope that it would add realism to the letter. The tone of the letter was friendly, although with an increased sense of urgency. The undertone was one that suggested failure to return the questionnaire would be letting the school down. The signature was simulated. The letters were mailed from the city in which the school was located.

WALTHAM PUBLIC SCHOOLS

VOCATIONAL HIGH SCHOOL

100 Summer Street
WALTHAM 54, MASSACHUSETTS

Telephone TWinbrook 3-8050

JAMES FITZGERALD
Superintendent

LLOYD F. VAN ARSDALE
Director

October 8, 1964

Mr. Keith Adams
914 Providence Avenue
Lima, Ohio

Dear Keith:

The American Institute for Research reports that you still have not completed and returned the questionnaire which was sent to you a short time ago. I want to personally request that you do so since it is very important to our school.

We look to our graduates to help us learn from their training and work experience. There is much that you can tell us that will influence future decisions about vocational courses. Please complete and return your questionnaire today.

Sincerely,

Lloyd F Van Arsdale
Principal

P. S. All information reported to the American Institute for Research will be treated as confidential. The summary and analysis given to participating schools will not identify graduates.

SIXTH CONTACT POSTCARD

The postcard was a reminder follow-up on the school principals' fifth contact letter. Its purpose was to activate those who mentally agreed to complete the questionnaire after receiving the letter from the principal, but had yet failed to do so. The signature was simulated. The cards were mailed from the cities in which the schools were located.

October 15, 1964

I want to personally remind you to complete and return the questionnaire we sent to you two weeks ago.

Your responses can be significantly meaningful and helpful to our school and the vocational training programs in our area. Do no underestimate the importance of the contribution you can make. Your school and job experience can help frame future decisions as to the course and contents of vocational education. Please complete and return your questionnaire today.

Lloyd F. VanOrsdale
Principal

FINAL CONTACT LETTER

The seventh and last contact with the non-respondent graduate was a letter from the graduate's instructor. The principal's signature was used if the graduate's former instructor was no longer at the school. The letter was a personal plea for cooperation. Signatures were simulated and the letters were mailed from the cities in which the schools were located.

WALTHAM VOCATIONAL HIGH SCHOOL / Waltham, Massachusetts

October 23, 1964

Mr. Keith Adams
914 Providence Avenue
Lima, Ohio

Dear Keith:

As I wrote to you several weeks ago, our school has taken part in a national study of vocational education. You were selected as one of the graduates to represent our school. All that you have to do is quickly check-off the items that - as you see it - best answer the questions in the attached form.

It will mean a great deal to the school, and to me personally. Please complete the enclosed questionnaire and use the pre-addressed, postage-paid envelope to return it as soon as possible. The American Institute for Research guarantees the fact that anything you report to them will remain confidential. Please help - for old times sake, and for better times and better vocational training in the future.

Thank you for your time and effort.

Sincerely,

Lloyd F. Van Cleadale
Principal

George A. Stanley
Instructor

P. S. Mail the questionnaire tonight! Drop in for a visit when you are around - meanwhile, good luck.

2 QUESTIONNAIRE RETURNS AND SAMPLE CORRECTION

- Returns on Mailings to Graduates 1
- The Nature of the Graduate Sample 13
- Procedure for Sample Correction 21

CHAPTER 2 SUMMARY

Results of Mailings to Graduates

1. Questionnaire returns by year. The returns for 1953, 1958, and 1962 vocational graduates were 40.2, 46.4, and 60.8 per cent respectively, for a combined return of 50.5 per cent. A substantial percentage of the non-returns were "address unknown" cases.

2. Questionnaire returns by school. There were striking differences in the returns by school. The school returns ranged from less than 10 per cent to more than 90 per cent.

3. Other factors influencing returns. Returns from vocational schools were higher than from comprehensive schools. School enrollment was unrelated to rate of return. Type of program taken; i.e., vocational or academic, was unrelated to rate of return. There were definite regional differences in rate of return.

Nature of Graduate Sample

4. Representation by year. The usable returns for 1953, 1958, and 1962 graduates were 21, 30, and 44 per cent respectively of the total sample, which included some intermediate-year graduates.

5. Representation by type of school. The percentages of usable vocational-graduate returns from vocational and comprehensive schools were 59 and 41 per cent respectively of the total sample. The comparable school ratio was 50-50.

6. Representation by school enrollment. The percentages of usable vocational-graduate returns from schools with enrollment less than 500, between 500 and 1,500, and more than 1,500 were 33, 38, and 29 per cent respectively of the total sample. The comparable school ratio was 32-38-30.

7. Representation by region. The percentages of usable vocational-graduate returns from the eight geographic regions corresponded closely with the school representation among the eight regions.

8. Representation by race. The percentages of usable vocational-graduate returns from white and Negro graduates were 93 and 7 per cent respectively. A high address-unknown problem among Negro graduates contributed to the relatively low Negro representation.

9. Representation by trade. More than 25 T&I trades were represented among the usable returns. Five trades accounted for 57 per cent of the total sample (machinist, automobile mechanic, electrician, drafting, and printing).

(Continued in Appendix B)

RESULTS OF MAILINGS TO GRADUATES

Introduction

The total returns from the questionnaire mailings to graduates have an important methodological bearing on the treatment of survey data. Mail surveys of the type used in this study do not yield a 100 percent return. Where the return is substantially less than 100 percent, as is almost invariably the case, there is always the question of how "different" are the non-respondents from the respondents, and what would the findings have been had the non-respondents answered. For example, if a survey which yields a 30 percent return reports that all vocational course graduates were gainfully employed in the trades for which they were trained within two months after graduation, the reader must wonder what would the finding be if the other 70 percent had returned their questionnaires.

In this section, the returns of the questionnaire mailings are presented as a background for the discussion of the procedure used to correct the sample for "address unknown" cases and "non-respondent" cases.

Questionnaire Returns by Year

The returns of the questionnaire mail-out can be categorized as follows:

1. Address unknowns: Mailings returned by authorities for reasons of "insufficient address," "no such address," or "not located at address."

2. Returns based on initial mailings: Returns expressed as a percentage of the number of graduates to which questionnaires were mailed.

3. Returns based on cases contacted: Returns expressed as a percentage of the number of graduates who did not have an "address unknown" outcome.

4. Non-respondents: The percentage obtained by subtracting the percentage of returns based upon cases contacted from 100 percent.

The returns for vocational course graduates are shown in Table 11.

Table 11. VOCATIONAL COURSE GRADUATE RETURNS

Types of Contacts and Returns	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Initial mailing to graduates	2945	—	3654	—	4199	—	10758	—
Cases returned "address unknown"	959	32.6	1052	28.8	621	14.8	2632	24.5
Cases contacted by mailings	1986	67.4	2602	71.2	3578	85.2	8166	75.5
Returns (based on initial mailing)	1185	40.2	1694	46.4	2555	60.8	5434	50.5
Returns (based on cases contacted)	1185	59.7	1694	65.1	2555	71.4	5434	66.6

As was expected, percentages of address unknown cases increased as a function of years out of school: 14.8 percent for 1962 graduates, 28.8 percent for 1958 graduates, and 32.6 for 1953 graduates. The longer the graduate had been out of school, the less satisfactory were the addresses obtained from school personnel.

The above trend also influenced the percentages of returns based upon initial mailings. These percentages were 60.9 for 1962 graduates, 46.4 for 1958 graduates, and only 40.8 for 1953 graduates. These are the figures that make it desirable that the questionnaire returns be corrected for address unknown and non-respondent cases.

The percentages of returns based upon cases assumed to have been contacted were substantially greater: 71.4 percent for 1962 graduates, 65.1 percent for 1958 graduates, and 59.7 percent for 1953 graduates, for an overall return of 66.6 percent based upon cases contacted. The latter percentages clearly indicate

that recent graduates were more cooperative in returning questionnaires, thereby confirming the results of the pilot study.

How did the returns from academic course graduates compare with those from the vocational graduates? The data are shown in Table 12.

Table 12. ACADEMIC COURSE GRADUATE RETURNS

Types of Contacts and Returns	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Initial mailing to graduates	1096	—	1184	—	1215	—	3494	—
Cases returned "address unknown"	441	40.2	356	30.1	166	13.7	963	27.6
Cases contacted by mailings	655	59.8	828	69.9	1049	86.3	2531	72.4
Returns (based on initial mailing)	431	39.3	569	48.1	798	65.7	1798	51.5
Returns (based on cases contacted)	431	65.8	569	68.7	798	76.1	1798	71.1

The trends reported for vocational graduate returns are confirmed by the academic graduate returns: (1) The greater the number of years since graduation, the greater the percentage of address unknown cases. Whereas, only 13.7 percent of the 1962 graduates were address unknown cases, 40.2 percent of the 1953 academic course graduates were address unknown cases. This indicates one of the major problems of doing surveys of this kind with graduates of many years past. (2) Based upon cases assumed to have been contacted, the percentage of returns decrease as the number of years since graduation increase. The recent graduate is more cooperative in returning the questionnaire. This may be a reflection of the dwindling influence of the school on the graduate as the years go by. Appeals based upon school loyalty apparently diminish in effectiveness as the years since graduation increase.

Questionnaire Returns by School

Are there significant differences between schools in terms of percentage of address unknown cases and percentage of respondents based upon numbers assumed to have been contacted? The answer is of value because it describes variation in school representation in the total sample. Chapter I made clear that the 100 schools differed widely in terms of number of graduates selected for follow-up study. The two problems of address unknown cases and non-respondent cases also contributed to unequal sample representation of the schools in the total sample.

Table 13 shows a frequency distribution of the schools in terms of percentage of address unknown cases. The individual school differences are readily apparent. Even for the most recent graduating class of the study, the class of 1962, three schools had between 41 and 50 percent of their graduates in the address unknown category. At the other extreme, 14 schools had 10 percent or fewer of their class of 1953 graduates in the address unknown category. What accounts for the school differences? Certainly one answer is that some schools make a vigorous effort to maintain contact with vocational course graduates, whereas most do not. Mobility in terms of address changes is obviously the basic answer. The reasons for differences in percentages of address changes from one school community to another can not be convincingly established by the data available.

Table 14 shows a frequency distribution of the schools in terms of percentage of returns based upon total number of school graduates to whom questionnaires were mailed. The differences between schools are the product of differences in numbers of address unknown and non-respondent cases. Notice the wide range of differences for each of the three class years. The differences emphasize the need for correcting the sample on the basis of individual schools as well as year of graduation.

The frequency distribution of the schools in terms of percentage returns based upon the numbers assumed to have been contacted is shown in Table 15. The range of differences between schools is striking. The percentages of returns

Table 13. FREQUENCY DISTRIBUTION OF SCHOOLS IN TERMS OF PERCENTAGE OF ADDRESS UNKNOWN CASES BY YEAR OF GRADUATION

Percentage Class Intervals	Year of Graduation			
	1953	1958	1962	Combined
91 - 100	2	0	0	0
81 - 90	0	0	0	0
71 - 80	2	1	0	0
61 - 70	8	1	0	0
51 - 60	9	6	0	3
41 - 50	17	8	3	6
31 - 40	12	25	8	19
21 - 30	23	27	8	28
11 - 20	13	21	44	34
0 - 10	14	11	37	10
Total Address Unknowns	959	1052	621	2632
Percent Address Unknowns	32.9	28.8	14.8	24.5

Table 14. FREQUENCY DISTRIBUTION OF SCHOOLS IN TERMS OF PERCENTAGE RETURNS (BASED ON INITIAL MAILING) BY YEAR OF GRADUATION

Percentage Class Intervals	Year of Graduation			
	1953	1958	1962	Combined
91 - 100	1	1	1	0
81 - 90	2	2	6	0
71 - 80	4	7	20	10
61 - 70	9	13	24	15
51 - 60	8	16	19	22
41 - 50	18	17	13	26
31 - 40	20	24	10	16
21 - 30	15	14	6	9
11 - 20	10	6	1	2
0 - 10	13	0	0	0
Total Respondents	1185	1694	2555	5434
Percent Respondents	40.2	46.4	60.4	50.5

for 1953 graduates who were not in the address unknown category ranged from less than 10 percent for ten schools to more than 90 percent for five schools. The school differences are undoubtedly, in part, a reflection of differences in feelings of loyalty toward schools by their graduates. The mail contacts relied heavily upon the theme of helping the school and vocational education by returning the questionnaire. The use of principal and instructor signatures, and school letterheads gave added reality to the appeal. The fact that the graduates of schools responded differentially over such a wide range of return rates suggests the influence of strong attitudes toward schools. This interpretation is supported by the notes and letters that often accompanied questionnaires, and sometimes came without questionnaires. Many of the respondents wrote, in effect, that they completed the questionnaire in return for help given to them when they were in school or in need of a job. A non-respondent wrote to say, among other things, he would not complete the questionnaire because the school had never done him much good.

Table 15. FREQUENCY DISTRIBUTION OF SCHOOLS IN TERMS OF RESPONDENTS (BASED ON CASES CONTACTED) BY YEAR OF GRADUATION

Percentage Class Intervals	Year of Graduation			
	1953	1958	1962	Combined
91 - 100	5	5	7	0
81 - 90	8	12	20	12
71 - 80	23	17	22	30
61 - 70	16	26	26	20
51 - 60	14	14	10	20
41 - 50	10	13	8	10
31 - 40	6	8	6	8
21 - 30	5	5	1	0
11 - 20	3	0	0	0
0 - 10	10	0	0	0
Total Respondents	1185	1694	2555	5434
Percent Respondents	59.7	65.1	71.4	66.6

Other Factors Influencing Returns

To what extent are differences in rates of returns attributable to such variables as geographic region, type of school attended, enrollment of school attended, and type of graduate? The answers may be of methodological value to those researchers who may undertake to do similar surveys.

Table 16 compares the returns from vocational course graduates from comprehensive schools with those from vocational schools.

Table 16. VOCATIONAL GRADUATE RETURNS BY TYPE OF SCHOOL ATTENDED

Types of Contacts and Returns	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Initial mailing to graduates	6,160	—	4,645	—
Returned "address unknown"	1,446	23.5	1,168	25.1
Contacted by mailings	4,714	76.5	3,477	74.9
Returns (based on initial mailings) . .	3,224	52.3	2,210	47.6
Returns (based on cases contacted) . . .	3,224	68.4	2,210	63.6

Based upon number of cases contacted, the returns are greater for graduates from vocational schools (68.4 percent) than for comprehensive school graduates (63.6 percent). Perhaps the school "loyalty" factor mentioned earlier is greater among vocational school graduates.

Table 17 shows the relation between returns and school enrollment. The percentage of address unknown cases increases as a function of school enrollment. No doubt this is so because the large enrollment schools are located in metropolitan areas where address changes are more likely to occur than in small communities. Returns, however, were in the opposite direction. Based upon cases contacted, the returns were greatest from the above 1500 enrollment schools and least from the below 500 enrollment schools. No plausible explanation can be offered to account for the trend.

Table 17. VOCATIONAL GRADUATE RETURNS BY ENROLLMENT OF SCHOOLS

Types of Contacts and Returns	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Initial mailing to graduates	3,537	—	4,104	—	3,164	—
Returned "address unknown"	718	20.3	1,032	25.1	864	27.3
Contacted by mailings	2,819	79.7	3,072	74.9	2,300	72.7
Returns (based on initial mailings) . .	1,833	51.8	2,034	49.6	1,567	49.5
Returns (based on cases contacted) . . .	1,833	65.0	2,034	66.2	1,567	68.1

Table 18 shows a comparison in the returns of vocational and academic course graduates. A higher percentage of the latter turned up as address unknown cases (27.6 percent vs. 24.2 percent for vocational course graduates), but their returns based upon cases contacted are significantly greater (71.1 percent vs. 66.3 percent for vocational graduates). Perhaps the questionnaire appeared less formidable to the academic course graduates, many of whom had some college education when contacted.

Table 18. VOCATIONAL GRADUATE RETURNS COMPARED WITH ACADEMIC GRADUATE RETURNS

Types of Contacts and Returns	TYPE OF GRADUATE			
	Vocational		Academic	
	N	%	N	%
Initial mailing to graduates	10,805	—	3,494	—
Returned "address unknown"	2,614	24.2	963	27.6
Contacted by mailings	8,191	75.8	2,531	72.4
Returns (based on initial mailings) . . .	5,434	50.3	1,798	51.5
Returns (based on cases contacted)	5,434	66.3	1,798	71.1

The regional returns for vocational graduates are shown in Table 19. There are sizable regional differences in the percentage of address unknown cases. The lowest regional percentage of address unknown cases was in the Northeast (11.9 percent); the highest percentage was in the Southeast (30.5 percent). The data suggest that the mobility of vocational course graduates varies widely among the geographic regions. Undoubtedly, differences in local employment opportunity are partly responsible. A more complete discussion of the mobility of vocational course graduates is reserved for Chapter 12.

Table 19 also shows substantial regional differences in the percentages of returns based upon the number assumed to have been contacted. The range is from a low of 59.7 percent (Southeast) to a high of 79.6 percent (Rocky Mountains). Why there should be such pronounced rate of return differences among the regions remains unanalyzed. The differences are interesting from the standpoint of questionnaire follow-up methodology, and make a problem worthy of research.

The regional differences in percentages of address unknowns and respondents based upon non-address unknowns point out the weakness of generalizing from regional surveys of this kind to the country as a whole.

A comparison of returns from Negro and white graduates is shown in Table 20. Lack of information on the race of graduates selected for follow-up make it impossible to analyze return data by race in the usual manner. The Negro graduates represented in Table 20 came from nine all-Negro enrollment schools. The white graduates analyzed in the table came from the nearest comparable type school, e.g. comprehensive or vocational with an all-white enrollment. A greater number of address unknown cases came from the Negro graduates (40.5 percent vs. 29.3 percent for the white graduates). Moreover, the rate of return based upon cases assumed to have been contacted was substantially smaller for the Negro graduates (54.1 percent vs. 69.1 percent for the white graduates). Clearly, race is a variable influencing rate of return.

Table 19. VOCATIONAL GRADUATE RETURNS BY GEOGRAPHIC REGION

Geographic Regions		Initial Mailing to Graduates	Returned Address Unknown	Contacted By Mail	Returns Based on No. Mailed	Returns Based on N. Contacted
Northeast	N	1271	151	1120	869	869
	%	–	11.9	88.1	68.4	77.6
Mideast	N	2822	575	2247	1561	753
	%	–	20.4	79.6	55.3	69.5
Great Lakes	N	1623	437	1186	753	753
	%	–	26.9	73.1	46.4	63.5
Plains	N	955	264	691	457	457
	%	–	27.6	72.4	47.9	66.1
Southeast	N	2967	906	2061	1230	1230
	%	–	30.5	69.5	41.5	59.7
Southwest	N	598	140	458	277	277
	%	–	23.4	76.6	46.3	60.5
Rocky Mountains	N	88	19	69	55	55
	%	–	21.6	78.4	62.5	79.7
Pacific	N	474	140	334	232	232
	%	–	29.5	70.5	48.9	69.5

No satisfactory explanations can be offered for the greater percentage of address unknown cases among the Negro graduates, and their lower rate of return. Undoubtedly, there are a number of contributing factors. A discussion of possible reasons would be unnecessary speculation and beyond the purposes of the report.

Table 20. VOCATIONAL GRADUATE RETURNS BY RACE OF GRADUATE * (SEE TEXT.)

Types of Contacts and Returns	Race of Graduate			
	Negro		White	
	N	%	N	%
Initial mailing to graduates	770	—	1064	—
Cases returned "address unknown"	312	40.5	312	29.3
Cases contacted by mailings	458	59.5	752	70.7
Returns (based on initial mailing) . . .	248	32.2	520	48.9
Returns (based on cases contacted) . . .	248	54.1	520	69.1

* Nine all-Negro enrollment schools were compared with the nine nearest all-white enrollment schools.

THE NATURE OF THE GRADUATE SAMPLE

The usable questionnaire returns from vocational and academic course graduates have been analyzed in terms of such independent variables as year of graduation, type of school attended, enrollment of school attended, type of course taken, race of graduate, and geographic region. Therefore, a description of the graduate sample in terms of the aforementioned variables is desirable.

Representation by Year

The total sample of usable vocational and academic course graduate returns is distributed among the three years of graduation as shown in Table 21. The larger number of 1962 graduates in the sample is a reflection of: (1) a larger number of 1962 graduates in the initial sample of graduates to whom questionnaires were mailed (Chapter 1, Table 5, p.13), and (2) fewer address unknown cases and a higher rate of return from the 1962 graduates (Chapter 2, Table 11, p. 2). The initially larger number of 1962 graduates reflects the trend of increasing size of graduating classes over the past fifteen years.

Table 21. DISTRIBUTION OF VOCATIONAL AND ACADEMIC GRADUATES BY YEAR OF GRADUATION (USABLE RETURNS)*

Types of Graduates	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Vocational graduates	1163	20.7	1658	29.5	2486	44.2	5327	100
Academic graduates	423	23.8	563	31.6	784	44.1	1780	100

* Approximately 20 vocational graduates fell into years adjacent to the three years indicated above.

The unequal representation of the three graduating class years in the total sample should be kept in mind where data are presented in terms of the total sample. In all such presentations, the data will also be presented separately for the three years of graduation.

Representation by Type of School

Table 22 shows the distribution of T & I graduates by type of school and year of graduation. For each of the three years of graduation, the number of vocational school graduates exceeds the number of T & I comprehensive school graduates. This is a reflection of the larger graduating classes found among the vocational schools, and the slightly higher rate of returns from the graduates of such schools. Thus, 58.6 percent of the graduates came from the 50 vocational schools and 41.4 percent came from the 50 comprehensive schools.

Table 22. DISTRIBUTION OF T & I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY TYPE OF SCHOOL AND YEAR OF GRADUATION

Type of School	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Vocational *	715	61.5	939	56.6	1,453	58.4	3,122	58.6
Comprehensive	448	38.5	720	43.4	1,033	41.6	2,205	41.4

* Includes vocational, technical, and vocational-technical schools.

Representation by School Enrollment

The classification of schools into enrollment categories of less than 500, 500 and 1500, and more than 1500 was based upon enrollment figures for the 1963-64 school year. The latter figures were not the enrollment figures for the schools in 1953, 1958, and 1962. However, because of the broad enrollment categories, it was assumed that the actual enrollment figures for 1953, 1958 and 1962 would not have substantially altered the distribution of schools in the three enrollment categories. Table 23 shows the distribution of graduates according to school enrollment category.

Table 23. DISTRIBUTION OF T & I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY SCHOOL ENROLLMENT AND YEAR OF GRADUATION *

School Enrollment	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Less than 500	419	36.0	545	32.8	786	31.6	1755	32.9
500 - 1500	438	37.7	650	39.2	918	36.9	2017	37.9
More than 1500 . . .	306	26.3	464	28.0	782	31.5	1555	29.2

* As of October, 1963.

The correspondence between the percentage distribution of schools in the three enrollment categories and the percentage distribution of all T & I graduates is shown in Table 24. The correspondence is nothing less than amazing since the graduate representation figures do not necessarily follow from the school representation figures.

Table 24. CORRESPONDENCE BETWEEN SCHOOL AND GRADUATE REPRESENTATION IN SCHOOL ENROLLMENT CATEGORIES

Total School Enrollment	School Representation		Graduate Representation	
	N	%	N	%
Less than 500	32	32.0	1755	32.9
500 to 1500	38	38.0	2017	37.9
More than 1500	30	30.0	1555	29.2

Representation by Region

The distribution of graduates among the eight geographical regions in the sample of usable returns is shown in Table 25. It will be seen that the regions are not equally represented in the final sample. This is as should be because the regions do not contribute equally to the total number of schools in the United States offering T & I vocational programs. The Table indicates that 50.7 percent of the graduates came from two regions, the Mideast and the Southeast.

Table 25. DISTRIBUTION OF T & I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY REGION AND YEAR OF GRADUATION

Geographic Region	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Northeast	222	19.1	274	16.5	365	14.7	863	16.2
Mideast	375	32.2	495	29.8	674	27.1	1549	29.1
Great Lakes	121	10.4	233	14.0	390	15.7	749	14.1
Plains	107	9.2	121	7.3	226	9.1	454	8.5
Southeast	231	19.9	372	22.4	543	21.8	1153	21.6
Southwest	46	4.0	96	5.8	133	5.3	275	5.2
Rocky Mountains	12	1.0	20	1.2	23	0.9	55	1.0
Pacific	49	4.2	48	2.9	132	5.3	229	4.3

The correspondence between the percentage distribution of schools among the eight regions and the percentage distribution of T & I graduates in the final sample is shown in Table 26. On the overall, the correspondence is close.

Table 26. CORRESPONDENCE BETWEEN SCHOOL AND GRADUATE REPRESENTATION AMONG THE EIGHT GEOGRAPHIC REGIONS

Geographic Region	School Representation		Graduate Representation	
	N	%	N	%
Northeast	11	11.0	869	16.0
Mideast	24	24.0	1561	28.7
Great Lakes	15	15.0	753	13.9
Plains	7	7.0	457	8.4
Southeast	29	29.0	1230	22.6
Southwest	8	8.0	277	5.1
Rocky Mountains . . .	1	1.0	55	1.0
Pacific	5	5.0	232	4.3
UNITED STATES	100	100.0	5435	100.0

Representation by Race

No effort was made to achieve a given ratio of the races in the final sample. Schools were selected without consideration for the racial composition of students. Within stratification of region, size of enrollment, and type of school, chance factors alone governed the selection of schools, with the exception of six schools previously mentioned. The ratio of races represented in the sample of usable returns is shown in Table 27. The data is based upon information received from the questionnaire returns. Race was not specified on 116 of the returns.

Table 27. DISTRIBUTION OF T & I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY RACE AND YEAR OF GRADUATION

Race of Graduate	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
White	1106	95.9	1501	92.8	2222	91.8	4847	93.0
Negro	44	3.8	111	6.9	188	7.8	344	6.6
Other	3	0.3	6	0.4	10	0.4	19	0.4

The Negro graduates constitute only 6.6 percent of the total sample, much less than what should be expected on the basis of chance, given the ratio of white to Negroes in the total population. A partial explanation is the higher number of address unknown cases among the Negro graduates, and the lower rate of return from those who were contacted. The low percentage of Negro representation in the total sample is unfortunate from the standpoint of exploring racial differences in post-high school occupational and educational experiences. The comparisons have been made. They would have been on firmer ground had the Negro representation been greater.

Representation by Trade

The representation of the different T & I trades among the graduates is shown by year of graduation in Table 28. The top five trades are machinists (16.6 percent), automobile mechanics (15.3 percent), electrician (11.0 percent), drafting all types (7.8 percent), and printing (6.9 percent). Thus, 57.4 percent of the total graduate sample is represented by five trades. The percentages may be interpreted as approximations of the percentages of graduates generated by the different T & I vocational courses based upon the total number of T & I graduates. Clearly, some trades have a very small representation in the total sample. Eight trades, for example, have less than a one

Table 28. DISTRIBUTION OF T & I GRADUATES WHO RETURNED USABLE QUESTIONNAIRES BY CLASS YEAR AND TRADE *

Trade and Industry Trades	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Automotive mechanics	162	13.99	245	14.8	398	16.0	813	15.3
Auto body repair	14	1.2	23	1.4	46	1.8	84	1.6
Airplane power mechanics	15	1.3	19	1.1	28	1.1	62	1.2
Air conditioning and heating	0	0.0	5	0.3	12	0.5	17	0.3
Building trades (mixed)	22	1.9	44	2.6	46	1.8	112	2.1
Carpentry	58	5.0	73	4.4	79	3.2	210	3.9
Commercial art	16	1.4	25	1.5	41	1.7	82	1.5
Drafting (all types)	74	6.4	129	7.8	213	8.6	417	7.8
Electrician	128	11.0	196	11.8	262	10.5	587	11.0
Electronic technician	18	1.5	46	2.8	152	6.1	216	4.1
Food trades	4	0.3	12	0.7	28	1.1	45	0.8
Foundry	3	0.3	4	0.2	9	0.4	16	0.3
Machinist	200	17.2	301	18.2	381	15.3	886	16.6
Masonry	8	0.7	14	0.8	27	1.1	49	0.9
Mill and cabinetry	108	9.3	100	6.0	126	5.1	337	6.3
Metal trades	22	1.9	13	0.8	27	1.1	62	1.2
Painting and decorating	3	0.3	8	0.5	8	0.3	19	0.4
Plumbing	23	2.0	23	1.4	22	0.9	68	1.3
Printing	84	7.2	108	6.5	175	7.0	367	6.9
Radio and TV repair	31	2.7	35	2.1	63	2.5	129	2.4
Sheet metal fabrication	36	3.1	55	3.3	66	2.7	157	2.9
Shoe repair	1	0.1	3	0.2	6	0.2	10	0.2
Tailoring	2	0.2	9	0.5	17	0.7	28	0.5
Upholstery	6	0.5	7	0.4	4	0.2	17	0.3
Welding	42	3.6	48	2.9	104	4.2	194	3.6
Other than above	83	7.1	114	6.9	146	5.9	343	6.4

* Actual course titles do not in all cases correspond with the trade titles listed above.

percent representation. Sixteen of the twenty-five trades have less than a three percent representation.

Occupational and educational history data will not be presented in terms of the individual T & I trades, for the reason that many of the trades are represented by a relatively few number of graduates. The data for such analyses will be made available to researchers who wish to go a step beyond the present study.

PROCEDURE FOR SAMPLE CORRECTION

Logic of Sample Correction

When questionnaire returns are substantially less than 100 percent, the failure to apply a sample correction for non-returns can and often does lead to false conclusions. For that reason, it was deemed essential to attempt to correct the returns for address unknown cases and for non-respondent cases.

The logic of the correction is simple. A N percent random sample of the address unknown cases is subjected to an intensified effort to locate their whereabouts. Once located, an effort is made to get a questionnaire return of 90 percent or better from the sample of address unknown cases. The questionnaires so obtained are considered to be an estimate of what the returns would have been like had questionnaires been obtained from all address unknown cases. On that assumption, the small correction sample is replicated 100/N times to give a total corrective sample equal to the total number of address unknown cases. The resulting correction sample is then added to the original questionnaire returns. The same basic procedure is applied to the non-respondents, i.e. those who received but did not return a questionnaire.

The logic of the sample correction procedure has a source of potentially serious error that should be understood. The validity of the sample correction is very much dependent upon how accurately the N percent correction sample estimates the population which it seeks to gauge. Any error is multiplied 100/N times, and fed into the uncorrected returns. Thus, the corrected returns can be badly distorted with a sizable error in the correction sample. Since the probable error is a function of the size of the correction sample, the size of the latter should be sufficiently large to insure confidence in the estimate. A five percent correction sample was considered the minimum necessary for an adequate sample. However, even with a five percent correction sample, the possibility of serious error remains, and should be recognized.

The correction procedure has another source of potential error. The uncorrected sample was obtained by having the respondent answer the questionnaire without the presence of an A.I.R. representative. A substantial percentage of the correction sample was obtained mainly through an interview procedure conducted by representatives of a nationwide organization specializing in personnel search and interview. There is the possiblity that the two different techniques for getting the questionnaire data may differentially influence the data obtained. For example, the respondent may be inclined to hold back information in an interview situation that he might give in a non face-to-face situation. Or, the presence of the interviewer may influence the expression of information differently from what would be the case in a non-interview situation. Thus, the possibility of a systematic bias must be recognized when dealing with the type of sample correction procedure described earlier. Unfortunately, there exists no feasible alternative procedure.

The actual correction procedure used was somewhat more refined than described. It is described separately for non-respondent and address unknown cases below.

Sample Correction for Non-Respondence

The following steps were applied to correct the sample for non-respondence:

1. Determination of sample size. The total number of vocational non-respondents was 2732; the total number of academic non-respondents was 733. Five percent of these numbers gave a corrective sample of 136 for the vocational graduates and 37 for the academic graduates.

2. Determination of school contributions. Each school's percentage contribution to the total number of vocational non-respondents was determined. As nearly as could be approximated, the

number of graduates to be sampled from each school's population of non-respondents was determined so that each school's percentage contribution to the corrective sample for vocational non-respondents was the same as its percentage contribution to the population of vocational non-respondents.

3. Determination of class year contribution. Each graduating class year's percentage contribution to the total number of non-respondents was determined. The values were 40.3, 34.9, and 28.6 percent respectively for the classes of 1953, 1958, and 1962. On the basis of steps 2 and 3, a table was established specifying the number of non-respondents to be sampled by class year and school. Table 29 shows how a selected 11 of the 100 schools appeared in the table. The ratio of cases allotted to the three class years approximates the ratio of non-respondents from the three graduating class years.

Table 29. SEGMENT OF TABLE USED TO SELECT 5 PERCENT SAMPLE OF VOCATIONAL NON-RESPONDENTS

School	Number Selected			
	1962	1958	1953	Total
1	0	0	0	0
2	0	1	0	1
3	1	1	0	2
4	0	1	0	1
5	0	0	1	1
6	0	1	0	1
7	0	1	1	2
8	1	0	0	1
9	1	0	0	1
10	1	0	0	1
≈	≈	≈	≈	≈
100	1	0	0	1
Number	40	45	51	136
Percentage	29.4	33.1	37.5	100

4. Selection of corrective sample. The non-respondent addressing masters were organized by school and class year, and sequenced by identification number within class year. Random sampling was assured by selecting every Nth card when it was necessary to draw more than one case from a given class year for a given school. Where it was necessary to draw only one card, it was alternately the first and last card in the appropriate deck for successive schools.

5. Solicitation of non-respondents by schools. The five percent corrective sample drawn was such that no school had more than 6 non-respondents. The small number of cases per school resulted in a decision to ask the schools to make an all-out effort to persuade their corrective sample non-respondents to return a questionnaire.

   Figure 3 shows the front and back of a card sent to the schools for each non-respondent case. Additional questionnaires were provided. The accompanying letter explained the importance of getting all corrective sample non-respondents to return a questionnaire.

   As a result of the efforts by school personnel, 27.9 percent of the vocational non-respondents and 35.1 percent of the general non-respondents returned questionnaires.

6. Interviews by credit agency personnel. It was assumed that many of the remaining non-respondents simply would not take the trouble to complete the questionnaires. The services of a credit agency were used to obtain the questionnaire information by personal interview. Such interviews brought the non-respondent corrective sample returns to 66.2 percent for vocational graduates and 64.9 percent for general graduates. The hard-core non-respondents were persons who could not be contacted for interview or who flatly refused to be interviewed.

(FRONT SIDE)

The name and address of the NON-RESPONDENT is given at the right. The records indicate that he:
graduated in (✓) 1953 ( ) 1958 ( ) 1962
took the course Auto Mechanics
instructed by P. R. Davis

Seven mail contacts have been made to the above address. All letters were accepted so we assume that the graduate received the letters. This may not be the case. PLEASE FIND OUT IF THE GRADUATE IS LOCATED AT THE ABOVE ADDRESS.

Try to influence or obtain a completed questionnaire return from the graduate by one of the methods suggested at the right. A.I.R. will reimburse you for expenses involved. In addition, you will receive $5.00 for each completed "non-respondent" questionnaire.

Mailing Address

025027

Dale Edwards
410 Kingston Road
Albany, New York

SUGGESTED METHODS FOR OBTAINING QUESTIONNAIRE RETURN
(Check method used)

( ) 1. Mail contact
(✓) 2. Telephone contact
( ) 3. Personal interview

SEE REVERSE SIDE

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(BACK SIDE)

1. Mail contact. Write a personal letter to the non-respondent urging him again to complete the questionnaire. Offer to help him complete the questionnaire if he will drop by the school.

2. Telephone contact. Mail another copy of the questionnaire to him after you have explained the need for his return on the telephone. A personal telephone explanation persuades about 25% of non-respondents to respond.

3. Interview contact. Visit the non-respondent. Explain to him personally the importance of completing the questionnaire. Help him complete the questionnaire at the time of the interview. Mail the questionnaire to us.

RETURN CARD ON OR BEFORE FEBRUARY 15

Figure 3. FRONT AND BACK OF NON-RESPONDENT CARD MAILED TO SCHOOL TO GUIDE SCHOOL EFFORTS TO OBTAIN OR INFLUENCE A QUESTIONNAIRE RETURN.

A summary of the returns for the non-respondent corrective sample is given in Tables 30 and 31.

7. Replication of questionnaire returns. The questionnaire data were coded and transferred to data-processing cards. The corrective sample data were stored on a separate data-processing tape to facilitate processing of corrected and uncorrected returns. The called-for replication of the five percent correction sample was achieved by computer programming.

SAMPLE CORRECTION FOR ADDRESS UNKNOWNS

The following steps were applied to correct the graduate sample for address unknown cases:

1. Determination of corrective sample size. The total number of vocational address unknowns was 2632; the total number of academic address unknowns was 963. Five percent of these numbers gave a corrective sample of 132 for the vocational graduates and 48 for the academic graduates.

2. Determination of school contributions. Each school's percentage contribution to the total number of vocational address unknowns was determined. Then, the number of address unknown graduates to be sampled from each school's total of address unknown cases was determined so that the school's percentage contribution to the corrective sample was the same as its percentage contribution to the all school population of address unknown cases.

3. Determination of class year contribution. The percentage contribution of each of the years of graduation to the total number of address unknowns was determined. The values were 32.6, 28.8, and 14.8 percent respectively for the classes of 1953, 1958, and 1962. A table similar to Table 29 was constructed to distribute the number of address unknown cases to be included from each

Table 30. OVERALL RETURNS FROM 5 PERCENT CORRECTIVE SAMPLE OF VOCATIONAL GRADUATE NON-RESPONDENTS

Vocational Non-Respondents Corrective Sample Results	1953		1958		1962		Total	
	N	%	N	%	N	%	N	%
Size of 5% corrective sample	40	-	45	-	51	-	136	-
Returns from school effort	8	20.0	10	22.2	20	39.2	38	27.9
Returns from credit agency	11	27.5	27	60.0	14	27.4	52	38.2
TOTAL RETURNS	19	47.5	37	82.2	34	66.7	90	66.2
Refused to be interviewed	5	12.5	5	11.1	6	11.8	16	11.8
Could not be located	7	17.5	3	6.7	8	15.7	18	13.2
Dead, institutionalized, unreported	9	22.5	0	0.0	3	5.9	12	8.8

Table 31. OVERALL RETURNS FROM 5 PERCENT CORRECTIVE SAMPLE OF ACADEMIC GRADUATE NON-RESPONDENTS

Academic Non-Respondents Corrective Sample Results	1953		1958		1962		Total	
	N	%	N	%	N	%	N	%
Size of 5% corrective sample	11	-	13	-	13	-	37	-
Returns from school effort	6	54.5	2	15.4	5	38.5	13	35.1
Returns from credit agency	4	36.4	5	38.5	2	15.4	11	29.7
TOTAL RETURNS	10	90.9	7	53.8	7	53.8	24	64.9
Refused to be interviewed	0	0.0	3	23.1	1	7.7	4	10.8
Could not be located	1	9.1	1	7.7	3	23.1	5	13.5
Dead, institutionalized, unreported	0	0.0	2	15.4	2	15.4	4	10.8

school so that the total cases in the corrective sample would be distributed among the graduating class years in approximately the ratio as the total of address unknown cases was distributed among the class years.

4. Selection of names for corrective sample. The address unknowns' master addressing cards were organized by school and class year, and ordered by identification number within class year. Random sampling was assured by selecting every Nth card when it was necessary to draw more than case per class year from a given school. Where only one case was drawn it was alternately the first and last card for successive schools.

5. Search for address unknown cases by schools. School personnel were requested to make an intensified effort to locate the whereabouts of the corrective sample address unknown cases. The number of such cases per school ranged from 1 to 7. The burden of an additional search was therefore not considered excessive.

Figure 4 shows the front and back of the type of card sent to the schools for each selected address unknown case. An accompanying letter explained the importance of locating the address unknown cases. The schools were requested to return all cards by a given date, with or without updated addresses.

The schools were able to locate 47.7 percent of the vocational address unknowns and 42.5 percent of the academic address unknowns.

6. Scheduled contacts with address unknowns with a new address. The cases for which a new address was obtained were subjected to the same seven contact procedure described in Chapter 1 of this report. Second-time address unknown cases were turned over to a credit agency for further search and interview if located, along with the cases which the schools could not locate. The same organization handled interviews with non-respondents to maximize the corrective sample returns.

(FRONT SIDE)

The name and address at the right were obtained from your school records. The records indicated that he:
graduated in ( ) 1953 (✓) 1958 ( ) 1962
took the course Machine Shop
instructed by P. J. Roberts

All mail to the above address has been returned by the post office. IT IS ESSENTIAL THAT WE LOCATE THE ABOVE-NAMED GRADUATE. Please help us to locate him. At the right is a list of methods that can be used to locate him. Check whatever methods have been used to locate him, even if they were unsuccessful.

On the reverse side, record better contact addresses. Record even a partial address if you cannot determine the exact address. RETURN THE CARD TO US IN THE SPECIAL ENVELOPE PROVIDED.

Thank you for your time and effort.

Record Address

028056

Mr. Keith Adams
914 Providence Avenue
Lima, Ohio

SUGGESTED METHODS FOR LOCATING GRADUATE
(Mark (✓) methods used)

( ) 1. Check local telephone directory
( ) 2. Check city inhabitant directory
( ) 3. Inquire among school instructors
( ) 4. Check with parents or relatives
( ) 5. Check with known past employers
( ) 6. Check with guidance counselor
( ) 7. Check with former neighbors
( ) 8. Ask teachers to ask their students
( ) 9. Check at church formerly attended
( )10. Check with persons who graduated from same course in same year

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(BACK SIDE)

1. GRADUATE'S PRESENT ADDRESS

Name
Number Street
City State

2. PARENTS' PRESENT ADDRESS

Name
Number Street
City State

3. PRESENT EMPLOYER'S ADDRESS

Name
Number Street
City State

4. PAST EMPLOYER'S ADDRESS

Name
Number Street
City State

5. CLOSE FRIEND'S ADDRESS

Name
Number Street
City State

6. RELATIVE'S ADDRESS

Name
Number Street
City State

Figure 4. FRONT AND BACK OF ADDRESS UNKNOWN CARD MAILED TO SCHOOL TO GUIDE SCHOOL EFFORTS TO LOCATE ADDRESS UNKNOWN CASES.

A summary of the returns for the address unknown corrective sample is given in Tables 32 and 33.

7. Replication of questionnaire returns. The same procedure was followed for the five percent correction sample of address unknowns as was described for the non-respondent correction sample.

USE OF CORRECTED SAMPLE DATA

The data presented in the body of this report is uncorrected data, i.e. data obtained from the seven mail contacts made with the graduates. The corrected sample data is presented selectively in the Appendix wherever: (1) the nature of a particular analysis makes it desirable that the results be known in terms of both corrected and uncorrected data, and (2) the conclusions drawn from the uncorrected sample for a given analysis differ in substance from those drawn from the corresponding corrected sample data.

An explanation is appropriate of why corrected data was not used exclusively. Earlier, two potential sources of error in the sample correction procedure were pointed out. The extent to which those errors influenced the corrected sample data is indeterminate. Under the circumstances, it seemed advisable to present the study findings in terms of uncorrected data in the body of the report, particularly in view of the importance of the data for research and action guidelines.

Table 32. OVERALL RESULTS OF THE 5 PERCENT CORRECTION SAMPLE OF VOCATIONAL ADDRESS UNKNOWN CASES

Vocational Address Unknown Correction Sample Results	1953		1958		1962		Total	
	N	%	N	%	N	%	N	%
Size of 5% correction sample	48	-	53	-	31	-	132	-
Revised addresses from schools	19	39.6	30	56.6	14	45.2	63	47.7
Returns from A.I.R. mailings	15	31.2	16	30.2	7	22.6	38	28.8
Returns from credit agency	11	22.9	13	24.5	6	19.4	30	22.7
TOTAL RETURNS	26	54.2	29	54.7	13	41.9	68	51.5
Could not be located in U.S.	18	37.5	18	34.0	11	35.5	47	35.6
Refused to be interviewed	3	6.2	6	11.3	1	3.2	10	7.6
Dead, institutionalized, unreported	1	2.1	0	0.0	6	19.4	7	5.3

Table 33. OVERALL RESULTS OF THE 5 PERCENT CORRECTION SAMPLE OF ACADEMIC ADDRESS UNKNOWN CASES

Academic Address Unknown Correction Sample Results	1953		1958		1962		Total	
	N	%	N	%	N	%	N	%
Size of 5% correction sample	22	-	18	-	8	-	48	-
Revised addresses from schools	6	27.3	9	50.0	2	25.0	17	35.4
Returns from A.I.R. mailings	5	22.7	4	22.2	2	25.0	11	22.9
Returns from credit agency	6	27.3	3	16.7	2	25.0	11	22.9
TOTAL RETURNS	11	50.0	7	38.9	4	50.0	22	45.8
Could not be located in U.S.	10	45.4	10	55.6	2	25.0	22	45.8
Refused to be interviewed	1	4.5	0	0.0	0	0.0	1	2.1
Dead, institutionalized, unreported	0	0.0	1	5.6	2	25.0	3	6.2

3 DERIVED MEASURES AND THEIR CHARACTERISTICS

- The Basic Dimensions of Description 1
- Occupational History Measures 7
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- Derived Measure Reliability and Stability 23
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CHAPTER 3 SUMMARY

Dimensions of Description

1. The post-high school experiences of the vocational and academic graduates are described in terms of relevant occupational and non-occupational dimensions.

2. The occupational dimensions selected for description included general job placement time, related job placement time, employment security, employment stability, job satisfaction, job relatedness to training, first job starting earnings, present job earnings, and earnings progression.

3. The non-occupational dimensions selected for description included mobility, college education, non-college education, conversational interests, leisure activities, organization affiliations, attitude toward former school, amount of trade, and learning attributed to former school.

Occupational and Non-Occupational Measures

4. Derived measures. For each dimension of description not covered by raw data, a derived measure was developed. Consult the text for the equations that define the measures.

Derived Measure Reliability and Stability

5. Occupational measure reliability. Split-half reliability estimates reported indicate that all occupational measures are significantly reliable with the exception of earnings progression.

6. Occupational measure stability. Between-year stability estimates indicate that all occupational measures are significantly stable over the years with the exception of employment security, job mobility, and job stability.

7. Non-occupational measure reliability. Split-half reliability estimates reported indicate that all non-occupational measures are significantly reliable.

8. Non-occupational measure stability. Between-year stability estimates indicate that all non-occupational measures are significantly stable except the non-college education index.

(Continued in Appendix B)

THE BASIC DIMENSIONS OF DESCRIPTION

Two Methods of Description

There are two basic ways of describing the post-high school occupational, educational and other experiences of the vocational course graduate. The first method is a point-in-time description of where he stands at a specified time. For example, does he have a job three months after graduation? The second method is a longitudinal summary of his experiences since leaving high school. For example, what percentage of his employable time was spent in full-time employment since leaving high school?

A good example of the point-in-time type of description is the follow-up studies reported for the North Atlantic Region by the United States Office of Education. The basic procedure is to contact the graduate a few months after graduation and ask him to report his employment status. Excluding those who can not be accounted for, responses are reported under two broad headings: (1) available for employment and (2) unavailable for employment. The latter are reported in terms of (1) percentage in military service, (2) percentage in full-time school, (3) percentage unavailable for employment for reasons other than military service or school. The former are reported in terms of (1) percentage working in jobs related to training, (2) percentage working in jobs unrelated to training, and (3) percentage unemployed.

The point-in-time description has the strong advantage of simplicity. The graduate answers a few simple questions about his status at the time. It also has a serious weakness. It provides a static picture of the graduate at one point in time, and nothing more. For example, if he is in military service, it does not tell us what happened to him when he returned to civilian life? Did he go to school? If not, how long did it take him to get a job? Or, if he was unemployed when surveyed, how long did his unemployment last? What kind of a job did he eventually get?

The point-in-time description can be misleading. For example, when the North Atlantic follow-up study for the 1958 graduates reports 17.4 percent in military service, 9.8 percent continuing in full time school, and 7.1 percent unemployed, is the unemployment picture a half-story? How many went into service because they could find no job? How many returned to full-time school because jobs were not available?

The alternative method is the longitudinal or through-time description. It describes the graduate's experiences since leaving high school by summarizing those experiences, preferably in quantitative ways. For example, how long did it take him to get his first job? How many jobs has he held? How much unemployment has he experienced? How have his jobs been related to the trade he studied in high school? Answers to such questions are historical summaries rather than point-in-time descriptions.

The longitudinal method of description, while not without disadvantages, is more capable of providing a complete picture of the graduate's post-high school career. For that reason, it is the basic method used in this study.

Derived Measures and Their Meaning

The raw data obtained from questionnaire returns does not usually lend itself directly to longitudinal description. It must be converted into derived measures that, in effect, integrate individual events of post-high school experience. Thus, for example, the months of employment spent on each of several jobs may be integrated into a measure which expresses the total time (months) employed since leaving high school as a percentage of total employable time in months. For convenience of dimension, such measures are given a name. The measure cited, for example, has been designated "employment security."

To adequately describe the salient features of the graduate's post-high school career, it was necessary to develop a number of derived measures. These measures introduce concepts not normally found in the literature of vocational education, e.g. employment security, job relatedness, earnings progression, job stability, and others. Whenever new concepts are introduced that

are tagged with names that suggest meanings, there is a hazard that people will attach meanings to the concepts beyond what is intended. The only meaning of the concepts introduced by the derived measures is the meaning given to them by the operations of converting raw data into derived measures. In other words, the meanings of the derived measures are not given to them by their names or by the connotations of their names, but by the equations which describe how they are derived. Much reader misunderstanding will be avoided if this is kept in mind.

Major Areas of Description

The initial problem that confronts any attempt to describe the post-high school careers of vocational course graduates is that of deciding the dimensions to be described. Even when the problem is narrowed down to selecting only dimensions which have a potential for evaluating the effectiveness of vocational education, there is still considerable choice. Limitations of budget, and of how much graduates will tolerate in the way of information-giving also have to be considered.

Three broad areas of description were decided upon. They were:

1. Occupational history since graduation.
2. Educational history since graduation.
3. Present interests, activities and affiliations.

It was felt that these areas had the greatest potential for dimensions that might be of use in the evaluation of vocational education. The dimensions associated with each of these areas, together with the question that prompted their inclusion in the study are identified in the sections that follow.

Occupational History Dimensions

The dimensions that describe the vocational graduate's occupational history are probably the most important from the standpoint of potential measures for evaluating vocational education. Of those identified, some were selected because of their undeniable face validity as evaluation tools. Others were selected because

of misgivings about their use as evaluation yardsticks. Still others were selected because they provided essential information, though not necessarily related to evaluation.

The ten dimensions selected are as follows:

1. General job placement. How quickly after graduation does it take the graduate to find full-time employment?
2. Related job placement. How quickly does it take him to find full-time employment in a field related to his vocational training?
3. Employment security. How much of his post-graduation employable time has he spent in full-time employment?
4. Earnings progression. How have his earnings increased over his total employment period?
5. Job relatedness. To what extent have the jobs he has held been related to his high school vocational training?
6. Job satisfaction. How satisfied has he been with the jobs held since graduation?
7. Job stability. How many different employers has he worked for during his employment period?
8. Job mobility. How often and how far has he moved to other communities to find employment or to improve his employment status?
9. Initial earnings. What were his initial earnings on his first full-time job?
10. Present earnings. What are his present earnings, N years after graduation?

The measures used to describe each of the ten dimensions are discussed fully in a later section.

Educational History Dimensions

The amount and kind of additional education obtained by the vocational course graduate is undoubtedly related to how well he fares in the rapidly changing cross-currents of manpower requirements. For that reason, two educational dimensions were included:

1. College education. How much college education has the graduate accumulated?

2. Non-college education. How much non-college education, e.g. private trade school, public trade school, adult continuation school, etc. has he accumulated since graduation from high school?

The measures used to describe these dimensions of education are discussed in a later section.

Interests, Activities and Attitudes

There has been much speculation in the past about the narrowness of vocational education from the standpoint of the total individual. Some have felt that there were serious omissions in the content of a vocational education that permanently influenced the personal interests and activities of the vocational course graduate as an adult. The general lack of data in this area prompted the inclusion of three additional dimensions for description:

1. Conversational interests. How broad is the vocational graduate's range of conversational interests?

2. Leisure-time activities. How broad is the range of the graduate's leisure-time activities?

3. Organization affiliation. To what extent does he affiliate with, and take an active part in, community and other organizations?

In addition to the foregoing dimensions, the following were included for special purposes:

4. Attitudes about high school. What are his attitudes about different elements of his high school education, looking back from the vantage point of N years?

5. Acknowledged high school learning. How much of the skills and knowledges that he regards essential to his present work does he acknowledge as a contribution of his high school education?

The measures used to describe the above dimensions of description are discussed in a later section.

OCCUPATIONAL HISTORY MEASURES

This section describes more precisely the measures used to define the concepts related to occupational history. Not all of the measures are derived measures.

General Job Placement

This measure indicates in months the time it took the graduate to obtain his first full-time job after graduation. It is not a derived measure. Questionnaire respondents gave the information directly.

A graduate was not scored on this measure if he went into military service or continued full time in school after graduation without having had a full-time job in the interim period. Thus, the graduate who continued in school full time for a year after graduation, and then got a job was not scored because doing so would have distorted the general picture of how long it takes graduates to get jobs.

Related Job Placement

This measure reflects two elements: (1) how long in months it took the graduate to get his first full-time job, and (2) how related his first full-time job was to his high school training. It was determined for vocational graduates only. The equation for calculation is:

$$RP = \frac{R \cdot 100}{D} \qquad (1)$$

Where R = the weight given to the graduate's self-rating of the relation of his first job to the trade studied in high school, the weights being as follows:

4 = same trade
3 = highly related trade
2 = slightly related trade
1 = completely unrelated trade

D = the value given to the reported time it took to get the job, the values being as follows:

4 = directly from school to work
6 = within two weeks
8 = between two and four weeks
8 + N = where N = number of months required to obtain full-time job

The measure has a range from 100 to an indefinite smaller number, depending upon how long it took the graduate to get a full-time job. A score of 100 means he went directly from school to work in the <u>same</u> trade studied in school The data source for the measure is Items 7 and 14 on the questionnaire.

Employment Security

This measure describes how much of the graduate's time since high school was spent fully employed. It was determined for both vocational and academic graduates. The equation is:

$$ES = \frac{M \cdot 100}{E} \qquad (2)$$

Where E = months of employable time = months between graduation date and June 1, 1964, minus (1) months in military service, (2) months of full-time school attendance, and (3) months of incapacity because of illness.

M = equivalent full-time months of employment. (Two months of 20 hours per week is equivalent to one full-time month)

The measure has a range from 0 to 100. It expresses total employed time as a percent of employable time. A score of 100 means the graduate was fully employed since leaving high school. The data source for the measure is Item 14 on the questionnaire.

Earnings Progression

This measure tells how much the graduate has increased his earnings per month per month of employed time. For example, if he worked ten months, and increased his earnings one hundred dollars per month in that period, his increase per month per month would be ten dollars. The equation for the measure is:

$$EP = \frac{(L - S) \cdot 176}{M} \qquad (3)$$

Where L = present hourly rate, or if unemployed, terminal hourly rate on last full-time job.

S = starting hourly rate on first full-time job.

176 = working hours in average month.

M = number of months of full-time work between graduation and June 1, 1964.

The measure describes the average dollar increase per month for the number of months of full-time employment. The data source for the measure is Item 14 on the questionnaire.

Job Relatedness

This measure describes the degree to which the graduate held jobs related to his trade training in high school. It is the mean of his ratings of how each full-time job held by him was related to his trade training. The equation is:

$$JR = \frac{\sum_{i=1}^{N} R_i}{N} \qquad (4)$$

Where R_i = value assigned to his rating of relatedness of his first job, the values being:

4 = same trade studied in school

3 = highly related trade

2 = slightly related trade

1 = completely unrelated work

N = number of full-time jobs rated

The measure ranged from 1 to 4. A score of 4 meant that the graduate held all jobs in the trade for which trained in high school. The data source for the measure is Item 14 on the questionnaire.

Job Satisfaction

This measure describes the degree to which the graduate claimed satisfaction with the jobs he held. The measure is based upon a self-rating of overall satisfaction with each job held. It is the mean of such ratings. The equation is:

$$JS = \frac{\sum_{i=1}^{N} S_i}{N} \qquad (5)$$

Where S_i = value assigned to his rating of satisfaction on first job, the values being:

4 = very satisfied
3 = satisfied
2 = dissatisfied
1 = very dissatisfied

N = number of full-time jobs rated

The measure ranged from 1 to 4. A score of 4 meant that the graduate was "very satisfied" with all jobs held. The data source for the measure is Item 14 on the questionnaire.

Job Stability

This measure describes the average employment in months with each employer. It reflects stability of the graduate-employer relationship. the equation is:

$$\overline{JS} = M \cdot N \tag{6}$$

Where M = number of months of full-time work between graduation and June 1, 1964

N = number of full-time jobs held

Because the employable time, and therefore the employed time, increases as a rule as a function of years out of high school, the range of the measure varies for the three class years. Graduates of 1953, 1958, and 1962, who were fully employed with a single employer since leaving high school could have maximum scores of 132, 72, and 24 respectively. The data source for the measure is Item 14.

Job Mobility

This measure reflects the interaction of two elements: (1) how often the graduate has moved to another city to find employment or improve his employment status, and (2) how far in miles he moved. The equation is:

$$JM = N \sum_{i=1}^{N} D_i \tag{7}$$

Where D_i = the value assigned to the distance moved to get first job, the values being:

2 = 50 miles
3 = 51 - 150 miles
4 = 151 - 300 miles
5 = 301 - 600 miles
6 = 601 - 1200 miles
7 = 1200 miles

N = number of new city moves

Two alternative job mobility measures were considered: (1) number of new city moves, and (2) sum of distance values of moves made. The selected measure correlated .83 with the first alternative and .92 with the second for the 1962 graduates. It was selected because it combined the elements of number of moves and distances moved while showing substantial correlations with both. The data source for the measure is Item 14 on the questionnaire.

First Full-Time Job Starting Earnings

This measure was directly given by the questionnaire return. All data was converted to a dollars per hour rate when not given in that form. Military pay rates and part-time pay rates were excluded. The data source is Item 14.

Present Full-Time Job Earnings

This measure was also given directly by the questionnaire return. All data was converted to a dollars per hour rate when not given in that form.

Where the graduate was unemployed at the time he returned the questionnaire, the terminal dollar per hour rate on his last full-time job was used instead. The substitution involved less than one percent of the cases. The data source is Item 14.

NON-OCCUPATIONAL HISTORY MEASURES

This section describes more exactly the measures used to define concepts related to post-high school education, to interests, activities and organization affiliation, and other matters unrelated to occupational history.

College Education

This measure gives the total hours of college level class attendance completed by the graduate up to June 1, 1964. The basic expression of college education in terms of completed class attendance hours avoids the lack of comparability that occurs when such education is expressed in terms of credits. Also, it was felt that the respondents could more readily communicate how much college education they had accumulated by indicating the average hours of class attendance per week and the number of months they attended college than to recall accurately number of credits accumulated. The measure includes undergraduate and post-graduate studies. The equation is:

$$CE = \sum_{i=1}^{3} 4H_i \cdot A_i \qquad (8)$$

Where H_i = average hours of class attendance per week at (1) two year college, (2) four year college or university, and (3) graduate school.

A = number of months college attendance

A score of 2160 hours is approximately equal to completion of thirty credits per year for four years, the number of credits normally required for an undergraduate degree. The data source for the measure is Item 13.

Non-College Education

This measure gives the total post-high school class hours accumulated during attendance of: (1) private trade/technical school, (2) public trade/technical school, (3) business or commercial school, (4) adult continuation school, (5) military specialist school, and (6) formal company training program. It is a raw quantitative expression of the amount of post-high school, non-college level education. The equation is:

$$NCE = \sum_{i=1}^{6} 4H_i \cdot A_i \qquad (9)$$

Where H_i = average hours of class attendance per week at one of six kinds of non-college education sources

A_i = number of months attendance at one of six kinds of non-college education sources

A comparable score can be calculated for each of the six sources of non-college level education. The combined score better served the purposes of the study. It gave an approximate measure of total non-college education obtained after high school. The data source for the measure is Item 13.

Conversational Interests

This measure describes the graduate's range of conversational interests. It is based upon his ratings of how frequently he talks about fourteen selected topics, e.g. his work, religion, politics, business conditions, world affairs, national affairs, and other topics often the subject of conversation. The measure is not concerned with any individual topic. It reflects breath of interest. The equation is:

$$CI = \sum_{i=1}^{14} F_i \,/\, 14 \qquad (10)$$

Where F_i = the value assigned to the graduate's frequency rating of engagement in a given conversation, i.e.

1 = almost never
2 = infrequently
3 = frequently
4 = almost always

14 = the number of conversational topics

The data source for the measure is Item 18 on the questionnaire.

Leisure Time Activities

This measure describes the graduates range of involvement in leisure time activities. It is based upon how frequently he engages in 19 selected leisure time activities. The nineteen leisure activities

fall into six categories: (1) reading, (2) self-education, (3) hobbies and crafts, (4) athletics, (5) fine arts, and (6) entertainments. The equation integrates all categories as follows:

$$LA = \sum_{i=1}^{19} F_i \,/\, 19 \qquad (11)$$

Where F_i = the value assigned to the graduate's frequency rating of engagement is a given leisure activity, i.e.

1 = almost never
2 = infrequently
3 = frequently
4 = almost daily

19 = the number of listed leisure activities

The measure is an average of the frequency rating values. The basic equation can also be applied separately to the six categories of activities. The data source for the measure is Item 19.

Organization Affiliation

This measure describes the degree to which the graduate is an active participant in community organizations. It is based upon his claimed participation in twelve types of organizations found in most communities.

The equation is as follows:

$$OA = \sum_{i=1}^{12} P_i \,/\, 12 \qquad (12)$$

Where P_i = the value assigned to the graduate's claimed participation, i.e.

1 = not a member

2 = inactive member

3 = active member

4 = incumbent officer

12 = the number of listed types of organizations

The measure is the average of the values assigned to the graduate's twelve organization affiliation ratings. The data source for the measure is Item 20.

Attitude Toward High School

This is a composite measure of general attitude toward the former high school based upon the graduate's poor, satisfactory, good or excellent rating of each of ten factors, e.g. quality of shop instruction, condition of shop facilities, opportunity for extra-curricular activities, and similar factors. The assumption is that the mean of the individual factor ratings is a suitable representation of the graduate's general attitude toward his former school.

The equation is as follows:

$$AS = \sum_{i=1}^{N} R_i / N \qquad (13)$$

Where R_i = the value assigned to his rating of a given item, i.e.

1 = poor

2 = satisfactory

3 = good

4 = excellent

N_i = the number of items rated

The data source for the measure is Item 12.

Acknowledged High School Learning

The measure applies only to graduates who were at the time of the survey employed in the trade for which trained or a highly related trade. The graduates rated the importance of nine basic skills to their present job, e.g. manual job skills, mathematical skills, communication skills, clerical skills, and other skills. They then indicated how much of each skill was learned in high school, e.g. almost nothing, some but not much, a large amount, or almost all. The measure is the average of the separate products of ratings of importance and the corresponding ratings of acknowledged high school learning.

The equation is as follows:

$$AL = \sum_{i=1}^{N} I_i \cdot H_i / N \qquad (14)$$

Where AL = acknowledged learning score

I_i = importance rating assigned given skill

H_i = learning rating assigned same skill

N = number of skills rated per instruction

The measure describes, in effect, how much of what is regarded as important or unimportant to the present job was learned in high school. The data source for the measure is Item 11 on the questionnaire.

Ordinal Day of Return

This measure indicates how many days after mailing the initial letter of request, it took to receive the graduate's questionnaire. The measure does not purport to describe any characteristic of the graduate such as responsiveness, cooperativeness, or similar trait characteristics. It was used primarily to determine whether any relationships existed between ordinal day of return and the previously described derived measures.

The absence of any such relationships could be interpreted as an indication that respondents to an eighth or ninth contact urging return of the questionnaire would not be significantly different in derived measure performance from the graduates who had responded to the standard seven or fewer contacts. The findings are discussed in a later section of this chapter.

DERIVED MEASURE
RELIABILITY AND STABILITY

Introduction

The occupational and non-occupational measures were developed with two purposes in mind. One was to describe what were considered major dimensions of occupational experiences and personal characteristics of vocational graduates. The other was to explore the interrelationships among the measures to assess their potential as criterion measures for evaluating vocational education systems.

The latter purpose requires a knowledge of their reliability. To be useful, a criterion (evaluative) measure must have some degree of reliability. If it does not, it cannot possibly be related to process variables, such as a school characteristics of one kind or another. Thus, school differences on a measure with zero order reliability are best attributable to chance factors rather than differences in school, student or community variables. Such a measure would be totally useless as an evaluative tool, no matter how much face validity it appeared to have.

The problem, then, is to estimate the reliability of the occupational and non-occupational measures. While a high degree of criterion measure reliability is desirable, it is not essential for the use of the measure. The necessary and sufficient condition is that there be a reliability estimate that is significantly different from zero. When it exists, low reliability will depress relationships between criterion measures or between process variables, such as school characteristics, and criterion measures. However, there are methods for estimating and correcting the influence of low reliability in a criterion measure. Hence, high reliability estimates are not essential.

This section provides both reliability and stability estimates for the occupational and non-occupational measures. Reliability estimates indicate the internal consistency of measures. Stability estimates indicate consistency over a period of time. It is desirable to know both characteristics of the measures to assess their potential as evaluative tools.

The Reliability Estimates

The reliability estimates were obtained as follows: For each year of graduation, the graduates of a given school who had a score on a particular derived measure were randomly assigned to two groups by assigning those that were in an odd ordinal number position on the data tapes to one group, and the even numbered cases to another group. A school mean was calculated for each group, thereby providing two mean scores for each measure for each school. Schools with less than ten cases for a given year were excluded from the reliability estimate on the reasoning that a split of less than ten cases would not provide an adequate estimate of the schools' performance on the measure. The reliability coefficients were obtained by correlating the pairs of school means for each measure.

The reliability coefficients are shown in Table 34. An asterisk indicates significance at the five percent or better level of confidence. The coefficients in parentheses are corrected for the split-half reliability procedure by use of the Spearman-Brown formula.

All but two of the occupational measures yielded statistically significant reliability coefficients, and thereby met a primary requirement for use as criterion measures. The two that did not are earnings progression and job stability. Their lack of reliability under the conditions that characterized the estimates does not preclude significant reliability estimates under more favorable conditions, such as a larger number of cases per school per year of graduation or a larger number of schools on which to base the estimates. They have been retained, therefore, for the analysis planned for all derived measures.

Two of the non-occupational measures, non-college education and acknowledged high school learning, failed to yield significant reliability coefficients for the 1953 graduates. Even these measures yielded significant, albeit not substantial, reliability coefficients for the graduates of 1958 and 1962.

The Stability Estimates

There are substantial differences between the schools on the derived measure means calculated for a given graduation class. For example, the highest

Table 34. SPLIT-HALF RELIABILITY COEFFICIENTS FOR OCCUPATIONAL AND NON-OCCUPATIONAL MEASURES (R = UNCORRECTED COEFFICIENTS, R-SB = SPEARMAN-BROWN CORRECTED COEFFICIENTS) *

Occupational Measures	YEAR OF GRADUATION								
	1953			1958			1962		
	N	R	R-SB	N	R	R-SB	N	R	S-B
General placement	40	.26	.41 *	54	.31 *	.47 *	76	.31 *	.47 *
Related placement	39	.70 *	.82 *	53	.34 *	.51 *	70	.55 *	.71 *
Employment security	46	.42 *	.59 *	67	.24 *	.39 *	76	.15	.26 *
Earnings progression	41	.23	.37 *	59	.10	.18	68	.08	.15
Job relatedness	48	.66 *	.80 *	65	.26 *	.41 *	77	.49 *	.66 *
Job satisfaction	48	.03	.06	65	.38 *	.55 *	77	.46 *	.63 *
Job stability	46	.25	.40 *	65	.03	.06	75	.13	.23 *
Job mobility	41	.23	.37 *	59	.45 *	.62 *	69	.56 *	.72 *
Initial earnings	46	.46 *	.63 *	65	.43 *	.60 *	74	.67 *	.80 *
Present earnings	46	.33 *	.50 *	68	.53 *	.69 *	77	.53 *	.69 *

Non-Occupational Measures	YEAR OF GRADUATION								
	1953			1958			1962		
	N	R	R-SB	N	R	R-SB	N	R	S-B
College education	50	.22	.36 *	72	.61 *	.76 *	86	.59 *	.74 *
Non-college education	46	.13	.23	66	.24 *	.39 *	86	.37 *	.54 *
Conversation interests	48	.30 *	.46 *	73	.32 *	.48 *	85	.41 *	.58 *
Leisure activities	48	.38 *	.55 *	70	.49 *	.66 *	86	.30 *	.46 *
Organization affiliation	49	.32 *	.48 *	71	.23 *	.37 *	86	.53 *	.69 *
Attitude toward H. S.	47	.49 *	.66 *	65	.55 *	.71 *	79	.56 *	.72 *
High school learning	43	.16	.28	60	.26 *	.41 *	68	.46 *	.63 *
Ordinal day return	51	.51 *	.68 *	74	.39 *	.56 *	86	.38 *	.55 *

* Significant at 5 percent or better level of confidence

school general placement mean was more than eighteen times greater than the lowest school mean on this measure. Table 35 shows a frequency distribution of the school means for the general placement measure calculated for the 1953 graduates. The school mean general placement is the average time required by the school's graduates to obtain their first full-time job.

Table 35. FREQUENCY, PERCENTAGE AND CUMULATIVE PERCENTAGE DISTRIBUTIONS OF GENERAL PLACEMENT SCHOOL MEANS

General Placement Class Intervals	School Distribution		
	N	%	C%
> 2.26	18	20.7	100.0
2.01-2.25	3	3.4	79.3
1.76-2.00	3	3.4	75.9
1.51-1.75	6	6.9	72.5
1.26-1.50	9	10.3	65.6
1.01-1.25	10	11.6	55.3
.76-1.00	11	12.6	43.7
.51- .75	15	17.3	31.1
.26- .50	5	5.8	13.8
0 - .25	7	8.0	8.0

The differences between schools on this measure are readily apparent. The other measures also show similar school differences. The differences raise an interesting question: Are the school differences in occupational and non-occupational measures relatively stable over a period of years? Are some schools, for example, consistently better than others in the time required to place graduates into full-time jobs?

The question of stable school differences is answered by obtaining stability estimates of the measures. Such estimates are obtained by intercorrelating the school means calculated for each measure from each year of gradu-

ation group. Table 36 shows the three stability coefficients obtained for each occupational and non-occupational measure.

Table 36. STABILITY ESTIMATING COEFFICIENTS FOR OCCUPATIONAL AND NON-OCCUPATIONAL MEASURES, OBTAINED BY INTERCORRELATING YEAR OF GRADUATION SCHOOL MEANS FOR THE LISTED MEASURES *

Occupational Measures	STABILITY ESTIMATES					
	1953-1958		1953-1962		1958-1962	
	R	N	R	N	R	N
General placement	.28*	34	.51*	36	.53*	48
Related placement	.54*	32	.66*	34	.56*	47
Employment security	.42*	40	.17	43	.18	77
Earnings progression	.40*	35	.22	31	.32*	47
Job relatedness	.60*	41	.49*	45	.55*	58
Job satisfaction	.13	41	.28*	45	.32*	58
Job stability	.13	41	.23	44	.05	58
Job mobility	-.06	35	-.05	35	.35*	56
Initial earnings	.46*	39	.60*	41	.50*	56
Present earnings	.52*	40	.70*	43	.65*	60
Non-Occupational Measures						
College education index	.60*	44	.56*	50	.65*	68
Non-college education index	-.12	40	.08	46	.33*	63
Conversational interests * * . . .	.28*	87	.20*	87	.41*	100
Leisure activities * *	.20*	87	.18	87	.32*	100
Organization affiliation	.35*	42	.41*	49	.37*	67
Attitude toward high school	.66*	40	.46*	45	.58*	59
Acknowledged high school learning .	.52*	38	.18	35	.31*	47
Ordinal day return	.54*	44	.49*	49	.44*	68

* Significant at 5 percent or better level of confidence

* * Based on all school means

Four of the occupational measures yielded significant stability coefficients for all three intercorrelations. They are related placement, job relatedness, initial earnings, and present earnings. Three others yielded significant stability for two of the three intercorrelations. They are general placement, earnings progression, and job satisfaction. The conclusion is that an appreciable degree of stability in school mean differences has been demonstrated for these measures. Two measures, employment security and job mobility, yielded only one significant stability coefficient, and one, job stability, yielded more.

Of the non-occupational measures, five yielded three significant stability coefficients (college education, conversational interests, organization affiliation, attitude toward former high school, and ordinal day of questionnaire return); two gave two significant stability coefficients (leisure activities and acknowledged high school learning); and one gave only one significant stability coefficient, (non-college education).

The stability coefficients in Table 36 indicate there is an appreciable degree of stability in the differences between schools for most measures over a five to ten year period. Some schools apparently do consistently better than others in terms of general placement, related placement and other measures for which significant stability coefficients were demonstrated. This leads to the question of why. What are the school, student, or community variables which are related to the occupational and non-occupational measures? A separate report will deal with this question. Later chapters in this report will be concerned with whether such basic variables as type of school, size of school enrollment, race of graduate, year of graduation and type of graduate are related to the derived measures. It should be expected that those measures for which no significant reliability estimates were established, i.e. job stability and earnings progression, will be unrelated to the aforementioned basic variables.

DERIVED MEASURE INTERCORRELATIONS

Introduction

Certain of the derived measures are readily interpreted in terms of what is desirable. There is little question, for example, about the desirability of maximum employment security. Similarly, measures like general placement, i.e. time required to obtain the first full-time job, and earnings progression, i.e. rate of increase in hourly earnings, have a face validity which also makes the interpretation of what is desirable a simple matter. Not all of the measures are so clear-cut. For example, vocational educators would generally agree that it is desirable to place graduates into the trade studied or a highly related trade. Would they agree as readily if it were shown that those who did not enter the trade or an allied trade had greater employment security, better earnings progression, and greater personal satisfaction with their work? The likelihood is that there would be considerable disagreement about the desirability of placement in the trade, taken from the standpoint of the graduate's good, if such relationships existed.

The assessment of the occupational and non-occupational measures as potential evaluative yardsticks requires a knowledge of their interrelationships. It is in the nature of their relationships with other measures that some measures will derive support for their use as evaluative tools. For that reason, derived measure intercorrelations were obtained.

Occupational Measure Intercorrelations

The method used for obtaining estimates of the occupational measure intercorrelations was as follows: For each school, a school mean was calculated for each measure for each year of graduation group. Thus, for each school there were three school means for each measure. In effect, the procedure scored schools in terms of how their graduates performed on the occupational measures. For

example, if a school's 1958 graduates took a mean of 4.5 months to obtain their first full-time job, the school's general placement performance score was 4.5. *

The intercorrelation estimates were obtained by the Pearson product-moment correlation method. Thus, for each potential relationship, there were three correlation coefficients, one for each year of graduation group.

The correlation coefficients obtained are shown in Table 37. Those that are significant at the five percent or better level of confidence are marked with an asterisk. The interpretation of the coefficients posed a problem. For a given potential relationship, how many coefficients would have to be statistically significant to warrant the conclusion that the two variables were related? The following arbitrary standard was applied: If none of the three coefficients were statistically significant, the conclusion was that the variables were unrelated. If only one of the three coefficients was significant, the conclusion was that a relationship was possible, but not convincingly established. The magnitude of the correlation was also considered. If two or all three of the coefficients were significant and of like sign, the conclusion was that a relationship had been established.

It should be pointed out that the above interpretation standard ignores the possibility of relationships that may shift from a positive sign for the 1953 graduates to a negative sign for the 1962 graduates, or the converse. It also ignores that possiblity that a relationship might exist between two variables for one year of graduation group, but not for another. Thus, it runs the risk of rejecting relationships. However, that is no problem for the researcher who reads this report. He can always draw his own conclusions from the data.

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* The initial method planned called for correlating within each year of graduation group the individual graduate scores on the measures. The computer program for obtaining such intercorrelations from taped data was inadvertantly destroyed by a computer technician. The computation center had neither a spare program nor a written record of the program. Efforts to reconstruct the program proved to be too slow, so the decision was made to use the intercorrelation analysis method described above.

Table 37. INTERCORRELATIONS OF OCCUPATIONAL MEASURE SCHOOL MEANS FOR EACH YEAR OF GRADUATION GROUP (VOCATIONAL GRADUATES ONLY)

Derived Measure Correlations Based On School Means	Year of Graduation	OCCUPATIONAL MEASURES									
		1	2	3	4	5	6	7	8	9	10
		General Placement	Related Placement	Employment Security	Earnings Progression	Job Relatedness	Job Satisfaction	Job Stability	Job Mobility	Initial Earnings	Present Earnings
1 General placement	1962	-	-.60*	-.70*	-.16	-.35*	-.24*	-.07	.01	-.17	-.39*
	1958	-	-.37*	-.63*	.00	.28*	.14	.06	-.02	-.11	-.18
	1953	-	-.56*	-.37*	.04	-.37*	.02	-.02	.33*	-.09	.22*
2 Related placement	1962	100	-	.56*	.17	.74*	.43*	.24*	-.01	.08	.30*
	1958	100	-	.45*	.05	.60*	.35*	.05	.22	.07	.37*
	1953	86	-	.30*	-.02	.80*	.28*	-.02	-.14	.03	.29*
3 Employment security	1962	100	100	-	-.05	.48*	.34*	.46*	-.11	.07	.28*
	1958	100	100	-	-.09	.01	.04	.05	.02	.00	.38*
	1953	87	86	-	-.02	.30*	.04	.23*	-.07	-.10	.25*
4 Earnings progression	1962	100	100	100	-	-.03	.02	-.32*	.25*	-.06	.38*
	1958	100	100	100	-	.10	.25*	-.17	.07	.05	.35*
	1953	85	84	89	-	.01	.10	-.06	.07	-.09	.22*
5 Job relatedness	1962	100	100	100	100	-	.62*	.45*	-.03	.16	.25*
	1958	100	100	100	100	-	.51*	.19*	.27*	.02	.33*
	1953	87	86	91	89	-	.33*	-.07	-.11	.00	.25*
6 Job satisfaction	1962	100	100	.00	100	100	-	.41*	.05	.29*	.29*
	1958	100	100	100	100	100	-	.16	.08	.18	.37*
	1953	87	86	91	89	91	-	.17	-.19	-.04	.07
7 Job stability	1962	100	100	100	100	100	100	-	.02	.17	.11
	1958	100	100	100	100	100	100	-	-.21*	.10	.14
	1953	87	86	91	89	91	91	-	-.14	-.06	.24
8 Job mobility	1962	100	100	100	100	100	100	100	-	-.12	-.05
	1958	100	100	100	100	100	100	100	-	-.14	.04
	1953	84	83	87	87	87	87	87	-	.01	.06
9 Initial earnings	1962	100	100	100	100	100	100	100	100	-	.74*
	1958	100	100	100	100	100	100	100	100	-	.53*
	1953	86	85	90	89	90	90	90	87	-	.32*
10 Present earnings	1962	100	100	100	100	100	100	100	100	100	-
	1958	100	100	100	100	100	100	100	100	100	-
	1953	86	85	90	89	90	90	90	87	90	-

Significant at 5 percent or better level of confidence

With that background, the sets of correlation coefficients are selectively commented upon below:

1. General placement - related placement (1-2). The correlations are -.60, -.37 and -.56 respectively for 1962, 1958 and 1953 graduates, indicating a substantial inverse relationship. The relationship is the result of the two measures having in common the element of time required to get the first full-time job, and the inverse relationship implied by the equations, i.e. a low score on general placement corresponds in the direction of what is desirable to a high score on the related placement measure.

2. General placement - employment security (1-3). The correlations are -.70, -.63 and -.37 for the 1962, 1958 and 1953 graduates respectively. The substantial inverse relationships are because time required to obtain the first job is also a contributor to the total unemployment time that is reflected by the security measure. The higher the general placement score, the lower necessarily is the employment security score. The influence of the former on the latter is greatest for the 1962 graduates and least for the 1953 graduates. Hence, the trend in the magnitude of the correlations.

3. General placement - job relatedness (1-5). The correlations are -.35, .28 and -.37 for the 1962, 1958 and 1953 graduates respectively. The conclusion is that an inverse relationship exists, i.e. schools that have lower mean general placement scores, meaning relatively more prompt placement of graduates, tend to have higher mean job relatedness scores, meaning their graduates spend relatively more of their total employed time in the trades for which trained. The contradicatory correlation for the 1958 graduates is attributable, perhaps, to the influence of a recession year. It was more difficult to get any job much less a job in the trade. The strongly trade-minded graduates simply looked longer until they found a job in the trade or a highly related trade. Unlike in normal years, those who got

jobs promptly tended not to get them in the trade for which trained or highly related trades.

4. Related placement - employment security (2-3). The correlations are .56, .45 and .30, all significant, for the 1962, 1958 and 1953 graduates respectively. A substantial positive relationship exists, i.e. schools that have higher mean related placement scores tend to have higher mean employment security scores. The interpretation for the graduate is, those who are placed promptly in the trade or a highly related trade tend to have a higher employment security. The relationship is attributable in part to the common element of time required to get the first job which enters both equations, and in part to the greater employment security experienced by those who go into the trade or highly related trades.

5. Related placement - job relatedness (2-5). The correlations are .74, .60 and .80 for the graduates of 1962, 1958 and 1953 respectively. The two variables are highly related, i.e. schools that have higher mean related placement scores tend to have higher mean job relatedness scores. Stated another way, graduates who are placed promptly into the trade or highly related trades tend to stay with the trade or highly related trades. Conversely, those who are placed in unrelated trades tend to stay in unrelated trades. Thus, the first job is a harbinger of things to come.

6. Related placement - job satisfaction (2-6). The correlations are .43, .35 and .28, all significant, for the graduates of 1962, 1958 and 1953 respectively. The two variables are moderately related, i.e. schools that have higher mean related placement scores tend to have higher mean job satisfaction scores. Stated in terms of the graduates, those who are placed promptly in the trade or highly related trade, report greater job satisfaction over all jobs held during their period of employable time. Since we already know that those who are placed in the trade or highly related trades

7. Related placement - present earnings (2-10). The correlations are .30, .37 and .29, all significant, for graduates of 1962, 1958 and 1953 respectively. Thus, the two variables are moderately related, i.e. schools that have higher mean related placement scores tend to have higher mean present earnings scores. Stated in terms of the graduates, those who are placed promptly in the trades or highly related trades tend to have at the end of two, six, or eleven years, depending upon the year of graduation, higher earnings. It is interesting to note that the measure is unrelated to initial earnings. Those entering the trade or a highly related trade do not earn more initially than those who enter unrelated trades, but as a group then end up with more.

8. Employment security - job relatedness (3-5). The correlations are .48, .01, and .30 for the graduates of 1962, 1958 and 1953 respectively. The first and third coefficient are significant, indicating the two variables are moderately related, i.e. schools that have higher mean job relatedness scores tend to have higher mean employment security scores. Thus, graduates who entered the trade studied or highly related trades tend to have greater employment security. The relationship was deduced from other correlations, and is directly confirmed. The lack of a significant relationship for the 1958 graduates is explainable. They graduated in a recession year. Those who found jobs in the trade did so by looking longer, thus accumulating considerable unemployment before, not after their first job. This reduced their employment security scores, and eliminated the relationship for the six year period covered by the correlation.

9. Employment security - job stability (3-7). The coefficients are .46, .05 and .23 for 1962, 1958 and 1953 graduates respectively. The first and third correlation coefficients are significant, indicating the two variables are related, i.e. schools having

higher mean job stability scores tend to have higher mean employment security scores. The relationship is simple to understand. The fewer employers the graduate has had over his period of employable time, the greater his employment security. Many graduates apparently have periods of unemployment between jobs. The recession year graduates of 1958 did not yield a significant coefficient, indicating the relationship does not hold for this group. It could be that these graduates, having had difficulty getting their first job, were less inclined to terminate a job before they had another job lined up.

10. Employment security - present earnings (3-10). The correlations are .28, .38 and .25, all significant, for the graduates of 1962, 1958 and 1953 respectively. Thus, the two variables are slightly related, i.e. schools having higher mean employment security scores tend to have higher mean present earnings scores. Thus, graduates who have had higher employment security over their employable time period tended to have higher earnings at the time of the survey. Since employer stability relates to employment security (3-7), the interpretation is that those who have higher employer stability have higher employment security and end up with higher earnings. Jumping from employer to employer does not augur well for either employment security or rate of earnings among vocational graduates.

11. Earnings progression - present earnings (4-10). The correlations are .38, .35, and .22, all significant, for the graduates of 1962, 1958 and 1953 respectively. The two variables are clearly related. However, the relationship is attributable to the inclusion of rate of present earnings into the calculation of earnings progression. No significance is attached to the relationship.

12. Job relatedness - job satisfaction (5-6). The correlations are .62, .51 and .33, all significant, for the 1962, 1958 and 1953 graduates respectively. The two variables are definitely related,

although the relationship decreases with years out of school. Schools having higher mean job relatedness scores tend to have higher mean job satisfaction scores. In terms of the graduate, the interpretation is that those with the greatest amount of employed time in the trade or a highly related trade tend to report the greatest amount of personal satisfaction with their work. The relationship was deduced from other correlations (2-5 and 2-6), and is here directly confirmed. Stated generally, it appears that those who do work highly related to the trade studied in high school experience greater job satisfaction over many years than those who work in unrelated trades or occupations.

13. Job relatedness - job stability (5-7). The correlations are .45, .19 and -.07 for 1962, 1958 and 1953 graduates respectively. The first two correlations are significant. The two variables appear to be related for a given period of years, after which the relationship disappears. Within the period for which the relationship holds, schools having higher mean job relatedness scores tend to have higher mean job stability scores. Thus, the graduates who have the greatest amount of their employed time in the trade or a highly related trade also tend to have the greatest amount of employment stability.

14. Job relatedness - present earnings (5-10). The correlations are .25, .33 and .25, all significant, for 1962, 1958 and 1953 respectively. The two variables are slightly related, i.e. schools having higher mean job relatedness scores tend to have higher mean present earnings scores. Thus, graduates who have spent the greatest amount of their employed time in the trade or a highly related trade tend to have higher earnings after two, six and eleven years, depending upon year of graduation, than those who have worked in completely unrelated trades.

15. Job satisfaction - present earnings (6-10). The correlations are .29, .37, and .07 for the 1962, 1958 and 1953 graduates respectively.

The first two are significant, indicating a low-level relationship does exist. Thus, graduates who reported higher present earnings, relative to others, also reported greater job satisfaction. It cannot be said that the former determines the latter; they do tend to go together.

16. Initial earnings - present earnings (9-10). The correlations are .74, .53 and .32, all significant, for the 1962, 1958 and 1953 graduates respectively. The relationship indicates that the higher the initial earnings on the first job after graduation, the higher will be the present earnings two, six and eleven years after graduation. The relationship reflects the differential starting and future earnings among the trades.

* * * * * * *

The lack of significant relationships among some measures also warrants comment. Earnings progression, for example, shows no convincing relationship with any other measure, with the exception of present earnings. Thus, rate of earnings increase is unrelated to placement in the trade, satisfaction with work, job mobility or job stability. Similarly, job mobility is unrelated to any other measure. Those who move to new cities to find jobs or better jobs have no better employment security, related placement, job relatedness, present earnings, or job satisfaction than those who make no such moves. That does not argue well for indiscriminate mobility among vocational graduates.

Non-occupational Measure Intercorrelations

The method used for obtaining intercorrelations among the non-occupational measures was the same as described for the occupational measures. Table 38 presents the intercorrelation coefficients in sets of three, one for each year of graduation group. Those significant at the five percent or better level of confidence are marked with an asterisk. The same standards of interpretation were applied as described for the occupational measures. Based on those standards, the following relationships were considered established:

Table 38. INTERCORRELATIONS OF NON-OCCUPATIONAL MEASURE SCHOOL MEANS FOR EACH YEAR OF GRADUATION GROUP (VOCATIONAL GRADUATES ONLY)

Derived Measure Correlations Based On School Means		Year of Graduation	NON-OCCUPATIONAL MEASURES							
			1	2	3	4	5	6	7	8
			College Education	Non-college Education	Conversation Interests	Leisure Activities	Organization Affiliation	High School Attitude	Claimed H. S. Learning	Ordinal Day of Return
1	College education	1962	–	-.05	.02	.13	.06	-.03	.14	.05
		1958	–	-.15	.10	.09	.26*	.09	.04	.14
		1953	–	-.12	.28*	.46*	.27*	.18	.03	.12
2	Non-college education	1962	100	–	-.04	-.03	.18	-.10	-.02	.08
		1958	100	–	.14	.22*	-.00	-.03	-.14	-.12
		1953	90	–	-.16	-.31*	.22*	.03	.15	.12
3	Conversation interests	1962	100	100	–	.64*	.54*	.01	.32*	-.03
		1958	100	100	–	.61*	.45*	.28*	.15	.13
		1953	90	89	–	.45*	.11	-.02	.06	.09
4	Leisure activities	1962	100	100	100	–	.52	.03	.16	-.03
		1958	100	100	100	–	.44*	.27*	.13	.17
		1953	91	90	90	–	.30*	.31*	.21*	.02
5	Organization affiliation	1962	100	100	100	100	–	-.06	.17	-.26
		1958	100	100	100	100	–	.24*	-.03	.02
		1953	91	90	90	91	–	.26*	.03	-.00
6	High school attitude	1962	100	100	100	100	100	–	.17	-.19
		1958	100	100	100	100	100	–	.20*	-.02
		1953	91	90	90	91	91	–	.19	.05
7	Claimed H. S. learning	1962	100	100	100	100	100	100	–	-.16
		1958	100	100	100	100	100	100	–	-.13
		1953	89	88	88	89	89	89	–	-.16
8	Ordinal day of return	1962	98	98	98	98	98	98	98	–
		1958	98	98	98	98	98	98	98	–
		1953	89	88	88	89	89	89	88	–

* Significant at 5 percent or better level of confidence

1. College education index - organization affiliation (1-5). The correlations are .06, .26 and .27 respectively for 1962, 1958 and 1953 graduates, the latter two coefficients being significant. The conclusion is that the two variables are related, i.e. schools that have greater mean college education index scores tend to have higher mean organization affiliation scores. The interpretation in terms of the graduate is, the more college education accumulated, the more he is likely to be a participant in community and other organizations. The correlations indicate a low-level relationship.

2. Conversational interests - leisure activities (3-4). The coefficients are .64, .61 and .45 for the graduates of 1962, 1958 and 1953 respectively. The two variables are significantly and substantially related, i.e. schools with higher mean conversational interest scores tend to have higher mean leisure activity scores. Apparently, the greater the graduate's active range of conversational interests, the greater his active range of leisure activities.

3. Conversational interests - organization affiliation (3-5). The coefficients are .54, .45 and .11 for 1962, 1958 and 1953 graduates respectively, the first two being significant. The two variables are related, i.e. schools with higher mean conversational interest scores tend to have higher mean organization affiliation scores. The interpretation in terms of the graduate is, the greater his active range of conversational topics, the greater his active involvement in community organizations.

4. Leisure activities - organization affiliation (4-5). The correlation coefficients are .52, .44 and .30, all significant, for the graduates of 1962, 1958 and 1953 respectively. The two variables are moderately related, i.e. schools with higher mean leisure activity scores tend to have higher mean organization affiliation scores. The interpretation in terms of the individual graduate is, the greater his active range of leisure activities, the

more active is he likely to be as a participant in community and other organizations.

5. Leisure activities - high school attitude (4-6). The coefficients are .03, .27 and .31 respectively for the graduates of 1962, 1958 and 1953. The last two correlations are significant at the five percent or better level of confidence. The conclusion is that the two variables are related, i.e. schools with higher mean leisure activity scores tend to have higher mean attitude-toward-former-school scores. Apparently, the greater the graduate's active range of leisure activities, the more favorable is his overall attitude toward his former high school.

6. Organization affiliation - high school attitude (5-6). The coefficients are .06, .24 and .26 respectively for the graduates of 1962, 1958 and 1953. The two variables are slightly but significantly related, i.e. schools with higher mean organization affiliation scores tend to have higher mean attitude-toward-former-school scores. Thus, graduates who report greater membership and active participation in community organizations also tend to have a more favorable overall attitude toward their former high school.

The above relationships do not imply a cause-effect relationship. They are the result of common factors, such as interests and motivations, which underlie the behaviors that are correlated.

The lack of relationships between some of the variables is also of interest. The non-college education index, for example, is unrelated to any other measure by the interpretation standard adopted. Similarly, acknowledged high school learning is unrelated to any other measure, including attitude-toward-former-high school. Most interesting is the lack of relationship between amount of college education and such measures as active range of conversational interests and leisure activities. The range restriction of the college education measure is undoubtedly a responsible factor. A very small minority of vocational graduates completes a college education.

Occupational and Non-occupational Measure Correlations

The method used for obtaining correlations between occupational and non-occupational measures was the same as that described earlier. Table 38-A presents the correlation coefficients in sets of three, one for each year of graduation group. Those significant at the five percent or better level of confidence are marked with an asterisk. The same standards for interpretation were applied as were described earlier in this section. Based upon those standards, the following relationships were considered established:

1. Related placement - acknowledged high school learning (1-7). The coefficients are .37, .30 and .29, all significant, for the graduates of 1962, 1958 and 1953 respectively. Thus, schools that have higher mean related placement scores also tend to have higher mean acknowledged high school learning scores. Apparently, graduates who have high related placement scores tend to acknowledge more learning of trade skills in high school.

2. Employment security - leisure activities (3-4). The correlations are -.24, -.24 and -.03 respectively for the graduates of 1962, 1958 and 1953. The first two coefficients are significant, thus, establishing an inverse relationship between the variables, i.e. schools with higher mean employment security scores tend to have lower mean leisure activity scores. Why this is so is not clear. Possibly those with more unemployment periods have been more active in the leisure activities listed on the questionnaire.

3. Employment security - ordinal day of return (3-8). The coefficients are -.23, -.23 and -.08 respectively for the graduates of 1962, 1958 and 1953. The first two coefficients are significant, thus, establishing an inverse relationship between the variables, i.e. schools with higher mean employment security scores tend to

Table 38-A. CORRELATIONS BETWEEN OCCUPATIONAL AND NON-OCCUPATIONAL MEASURE SCHOOL MEANS FOR EACH YEAR OF GRADUATION GROUP (VOCATIONAL GRADUATES ONLY)

	Occupational Measures \ Non-occupational Measures	Year of Graduation	1 College Education	2 Non-college Education	3 Conversation Interests	4 Leisure Activities	5 Organization Affiliation	6 High School Attitude	7 Claimed H. S. Learning	8 Ordinal Day of Return
1	General placement	1962	.10	.02	.09	.16	.19*	.06	-.49*	-.00
		1958	-.10	-.19*	-.20*	-.45*	-.26*	-.01	-.07	-.04
		1953	.31*	-.11	.06	.30	-.04	.06	-.05	-.05
2	Related placement	1962	-.16	-.06	-.27*	-.23*	-.04	.09	.37*	-.24*
		1958	.09	.06	-.05	-.04	-.02	.14	.30*	-.10
		1953	-.35*	.16	-.09	-.19	-.06	.00	.29*	-.20
3	Employment security	1962	-.19*	.01	-.13	-.24*	-.12	.04	.34*	-.23*
		1958	-.06	.04	.15	-.24*	.33*	.18	.14	-.23*
		1953	-.16	.06	-.25*	-.05	-.03	.06	.07	-.08
4	Earnings progression	1962	.22*	-.00	-.04	-.04*	.08	-.03	.09	.19*
		1958	.03	-.04	-.23*	-.38*	-.05	-.41*	-.22*	.17
		1953	.02*	.27*	-.07	-.25*	.00*	.14*	-.02	.13
5	Job relatedness	1962	-.21*	.07	-.08	-.11	.07	.14	.37*	-.35*
		1958	-.06	-.05	-.28*	-.37*	-.10	.03	.28*	-.20*
		1953	-.21*	.19	-.18	-.06	-.00	.10	.39*	-.25*
6	Job satisfaction	1962	-.16	.14	-.16	-.22*	.03	.28*	.25*	-.28*
		1958	-.07	-.07	-.23*	-.19*	-.00	-.07	.12	.00
		1953	.09	-.04	.12	.33*	.19	.36*	.30*	.06
7	Job stability	1962	-.26*	.08	-.06	-.18	-.01	.14	.02	-.22*
		1958	-.16	-.04	-.09	-.00	.04	.13	-.06	.25*
		1953	-.27*	-.09	.05	-.05	.17	.11	-.25*	-.18
8	Job mobility	1962	-.06	-.09	-.01	-.12	-.17	.15	.03	.27*
		1958	.15	-.08	.08	-.14	.03	.03	.24*	-.11
		1953	-.18	.06	-.08	.08	.14	.12	.07	.02
9	Initial earnings	1962	.09	.10	-.14	-.17	.07	.05	.02	-.13
		1958	.29*	.11	-.14	.07	.12	.02	-.16	.11
		1953	.29*	-.01	.30*	.31*	.05	-.12	.05	.27*
10	Present earnings	1962	.22*	.08	-.13	-.22*	.08	-.03	.16	-.07
		1958	.22*	.00	-.20*	-.14	.13	-.18	-.04	.07
		1953	-.10	.20	-.03	.02	.23*	.18	.09	.00

* Significant at 5 percent or better level of confidence

have lower mean ordinal day of questionnaire return scores. Apparently, graduates with relatively high employment security were quicker to return their questionnaire than those with low employment security scores. While the relationships are of low-level, they do suggest that those who did not return a questionnaire may as a group have less employment security than those who did.

4. Earnings progression - leisure activities (4-4). The coefficients are -.27, -.24 and -.02 respectively for the graduates of 1962, 1958 and 1953. The first two coefficients are significant, thereby, establishing an inverse relationship between the two variables, i.e. schools with higher mean leisure activity scores tend to have lower earnings progression scores. Graduates with high leisure activity scores tend to report lower earnings progression scores. The reason for the inverse relationship is not clear. Perhaps, in some way, a wide range of active leisure activities is incompatible with higher rates of earnings progression.

5. Job relatedness - college education index (5-1). The correlations are -.21, -.06 and -.21 for 1962, 1958 and 1953 graduates respectively. The first and last coefficients are significant, thereby, establishing an inverse relationship between the two variables, i.e. schools with higher mean college education scores tend to have lower mean job relatedness scores. The greater the amount of post-high school college education, the less likely is the graduate to work in the trade studied in high school. The relationship stands to reason. It would be higher undoubtedly if more of the graduates had attended and completed a college education.

6. Job relatedness - acknowledged high school learning (5-7). The correlations are .37, .28 and .39, all significant, for the graduates of 1962, 1958 and 1953 respectively. The two variables

are related, i.e. schools with higher mean job relatedness scores tend to have higher mean acknowledged high school learning scores. The interpretation in terms of the graduate is, the more his jobs have been related to the trade studied in high school, the more he credits his former school with providing him with the trade skills required by his present job.

7. Job relatedness - ordinal day of return (5-8). The coefficients are -.35, -.20 and -.25, all significant, for the graduates of 1962, 1958 and 1953 respectively, thereby, establishing an inverse relationship between the two variables. Schools having high mean scores tend to have lower mean ordinal day of return scores. The relationship suggests that those who did not return questionnaires may have a lower job relatedness score as a group than those who did. The correlations indicate it may be worthwhile to correct the study sample for non-respondence.

8. Job satisfaction - leisure activities (6-4). The coefficients are -.22, -.19 and .33, all significant, for the graduates of 1962, 1958 and 1953. The lack of consistency in the sign of the three coefficients makes an interpretation difficult. The two negative correlations mean that schools with higher mean job satisfaction scores tend to have lower mean leisure activity scores, i.e. the higher the graduate's job satisfaction, the lower his range of active leisure activities. The relationship is contradicted by the positive correlation for 1953 graduates. It is possible that the nature of the relationship could change with increased years out of school.

9. Job satisfaction - high school attitude (6-6). The correlations are .25, -.01, and .36 respectively for 1962, 1958 and 1953 graduates. The first and last coefficients are significant. The conclusion is that the two variables are related, i.e. schools with higher mean job satisfaction scores tend to have higher mean attitude-toward-former-school scores. Thus, the greater the graduate's

reported job satisfaction, the more favorable is his overall attitude toward his former high school.

10. Job satisfaction - acknowledged high school learning (6-7). The correlations are .25, .12 and .30 respectively for the graduates of 1962, 1958 and 1953. The first and last coefficients are significant, thereby, establishing the relationship between the two variables. Schools with higher mean job satisfaction scores tend to have higher mean acknowledged learning scores, i.e. the graduates with higher reported job satisfaction tended to give more credit to their high schools for their trade skill learning.

11. Job stability - college education index (7-1). The coefficients are -.26, -.16 and -.27 respectively for the graduates of 1962, 1958 and 1953. The first and last coefficients are significant, thereby, establishing an inverse relationship between the two variables. Schools with higher mean college education index scores tend to have lower mean job stability scores. The implication is that graduates with more college education have a smaller average time per employer than those with little or no college education. The relationship makes sense when one realizes that those who attend college often do so part-time, and change their jobs upon completion. They also are more inclined to change employers because of greater employment opportunity.

12. Initial earnings - college education index (9-1). The coefficients are .09, .29 and .29 respectively for the 1962, 1958 and 1953 graduates. The last two coefficients are significant, thereby, establishing the not-unexpected relationship between the two variables. Schools with higher mean college education index scores tend to have higher mean initial earnings scores. Stated another way, the more college education the vocational graduate has accumulated, the higher his first full-time job initial earnings. The low correlations are attributable to the many graduates who have had their first full-time job before they have started or completed college.

13. Present earnings - college education index (10-1). The correlation coefficients are .22, .22 and -.10 for 1962, 1958 and 1953 graduates respectively. The significance of the first two coefficients establishes the not-unexpected relationship between the two variables. Schools with higher mean college education index scores tend to have higher mean present earnings scores. Interpreted in terms of the graduates, the relationship indicates the greater the amount of college education, the higher present earnings.

Thus, of a possible eighty relationships between occupational and non-occupational measures, only thirteen relationships were established. Only eight of these have a bearing on the use of non-occupational measures as evaluative tools. And four of the latter are inverse relationships with occupational measures of clear-cut merit, i.e. employment security, earnings progression, job relatedness and job satisfaction. It is clear that the non-occupational measures, excluding ordinal day of questionnaire return which was never intended as a potential evaluative tool, will have to stand on their own merits as potential measures for evaluating vocational education. Some, such as post-high school college level education, are incompatible with occupational measures now established as useful for evaluation purposes, i.e. related placement performance and job relatedness. The incompatibility should not be overlooked by educators who are inclined to stress both occupational and educational objectives.

4 FACTORS RELATED TO VOCATIONAL COURSE SELECTION

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CHAPTER 4 SUMMARY

Factors Influencing Course Selections

1. Sources of influence. The rank order of sources reported by graduates to have influenced the vocational course selected in high school is: (1) job opportunity (43%), (2) parents (28%), (3) friend of same age (22%), (4) books and magazines (17%), (5) school teachers (15%), and (6) school counselor (12%).

2. Year of graduation. The rank order of the top six sources of influence on course selection was essentially the same for 1953, 1958, and 1962 graduates. The influence of parents, friends, and part-time jobs on course selection is decreasing; while the influence of job opportunities, teachers, books and magazines, and counselors is increasing.

3. Placement in trade. Graduates who were influenced to select the course taken in high school by friends were less likely to work in the trade studied than those influenced by parents, teachers, or counselors.

4. Type of school. Graduates of vocational and comprehensive schools differ in terms of the percentages that acknowledge different sources of influence over high school course selection. Comprehensive high school graduates were more frequently influenced by friends, counselors and teachers; and less frequently influenced by parents and books and magazines.

5. Enrollment of school. Books and magazines, school counselors, part-time jobs and course graduates increase in frequency of acknowledged sources of course selection influence with increased school enrollment. The influence of teachers, friends, and principals decreases with increased enrollment.

6. Race of graduate. Negro graduates acknowledge the influence of job opportunity, friends, books and magazines, teachers, and counselors more frequently than do white graduates. The latter acknowledge the influence of parents more than do Negro graduates. The latter seem to be less influenced by traditional family sources of influence; e.g., parents, relatives, siblings, and family friends.

7. Type of graduates. Academic graduates have a substantially different pattern of course selection influences than do vocational graduates. Parents and counselors seem to have been a much greater influence in those who selected an academic course than on those who selected a vocational course.

THE PROBLEM OF COURSE SELECTION

The problem of choosing a trade confronts all who elect the vocational program in high school. For many, the choice must be made quite early. Of the one hundred schools surveyed, nineteen had four-year vocational programs, forty-seven had three-year programs, and thirty-four had two year programs. Thus, most students must make their trade choice at the start or end of their first year in high school.

The problem of choosing a vocation is usually not an easy matter. For many, the choice is based upon a combination of little real knowledge of the chosen vocation, much misinformation and high hopes, and pressures from parents, relatives and others interested in influencing the choice. Understandably, the process of choosing a vocation can be a cause of conflict and concern to many students.

How well the student makes his trade choice may be the source of two problems that concern the vocational educator. One is the problem of the high school dropout, a problem no less severe among vocational course students than among academic students. The other is the problem of the large percentage of vocational course graduates who do not follow the trade studied in high school.

The student who comes to realize that the trade he has selected is not what he is suited for, whether for reasons of ability or interest, is under considerable pressure to continue in the course selected. Schools tend to discourage switching from one course to another. Many parents are inclined to do the same. Even where these pressures are not present, there may be a reluctance to change to another course because change means leaving old classmates, starting all over again, admitting defeat, or other deterrents. For many who realize they have made the wrong choice, there is no solution but to continue in the course chosen until they graduate. After that, they can always go into something else. So they may reason, and so many do. For others, the answer may be to drop out of school at the first opportunity. For them, it is too late to change and impossible to continue.

These possibilities point up the importance of the vocational course selection problem. Choices that are incompatible with interests, aptitudes and abilities may add to the school dropout problem or result in trade training that is never put to use. More needs to be known about how students are influenced to choose a trade in a vocational program.

The graduates surveyed were asked to consider a list of possible sources which may have influenced their choice of a specific vocational course, and mark all that did influence their choice. They were also asked to indicate the most important source of influence on their choice. This chapter is concerned with the analysis of their responses.

The data, it should be pointed out, are what graduates recall about how they were influenced to choose their vocational course. Recalled influences are not necessarily the real influences that operated at the time. Nevertheless, the correspondence between recalled and actual influences is probably substantial.

ANALYSIS BY GRADUATING CLASS

Rank Order of Influence Sources

The sources of influence on vocational course selection are shown ranked in Table 39 according to frequency of endorsement by the three graduating classes combined. The top six sources of influence are (1) job opportunity, (2) parents, (3) friends of the same age, (4) books and magazines, (5) school teachers, and (6) school counselors.

About 43 percent of the graduates checked job opportunity as a factor that influenced their course selection. This suggests considerable concern with getting a job after graduation. The job opportunity factor must be understood as the students perception of job opportunity, based on what information has come to him. It does not necessarily correspond to actual job opportunity. Nor does it correspond to what the job opportunity will be when he graduates. The dominance of this factor, however, does indicate a receptivity for trade career information, and a practical orientation.

Parents were the second most frequently acknowledged source of influence (28.6 percent). That parents would be a major source of influence is not unexpected. The percentage is significant also in what it tells about the absence of parental influence on so important a matter as career choice. More than 70 percent of the graduates, in effect, indicated their parents were <u>not</u> a source of influence.

Friends of the same age ranked third with 21.6 percent, only seven percent less frequently mentioned than parents. This points up once again the influence of peers on decisions by high school youth. Books and magazines were acknowledged as a source of influence by only 17.5 percent of the graduates. This may be because reading is not yet developed as a personal tool or because of lack of accessibility to relevant reading material.

The relatively small influence of school personnel is striking. Only 15.1 percent reported a school teacher as a source of influence. Counselors

were reported as course selection influence by 12.3 percent of the graduates. Principals were acknowledged by 2.6 percent. The lack of reported influence by school personnel cannot be explained by lack of opportunity to provide guidance. In eighty-one of the one hundred schools surveyed, students had at least one year of high school before they were required to make a choice. Why school personnel have such little influence is a question worth asking. This research does not provide the answers.

Graduates were also instructed to indicate which one factor, of whatever number were acknowledged as having had some influence on their trade choice, was the most important influence. The results are shown in Table 40.

Table 39. CLASS YEAR COMPARISON: SOURCES ACKNOWLEDGED BY GRADUATES TO HAVE INFLUENCED TYPE OF VOCATIONAL COURSE SELECTED *

Sources of Influence in Course Selection	YEAR OF GRADUATION								
	1953		1958		1962		Combined		
	N	%	N	%	N	%	N	%	
Job opportunities	417	36.3	697	42.5	1167	47.2	2290	43.4	▲
Parents	328	28.6	440	26.8	732	29.6	1504	28.5	
Friend your age	242	21.1	333	20.3	561	22.7	1139	21.6	
Books and magazines . . .	159	13.9	256	15.6	508	20.6	923	17.5	▲
School teacher	143	12.5	232	14.2	422	17.1	799	15.1	▲
School counselor	90	7.8	175	10.7	381	15.4	649	12.3	▲
Relative	111	9.7	162	9.9	287	11.6	561	10.6	
Part-time job	131	11.4	153	9.3	243	9.8	529	10.0	
Brother or sister	86	7.5	133	8.1	201	8.1	421	8.0	
Course graduate	47	4.1	93	5.7	182	7.4	323	6.1	▲
Neighbor (adult)	53	4.6	70	4.3	116	4.7	240	4.5	
School principal	27	2.4	30	1.8	76	3.1	135	2.6	
Other than above	224	19.6	292	17.8	476	19.3	995	18.9	

* The arrowhead indicates the direction of a consistent trend.

The rank order of the factors designated as most important is essentially the same as the rank order obtained previously. The top six factors were: (1) job opportunity (26.8 percent), (2) parents (14.4 percent), (3) friend of same age (9.8 percent), (4) school teacher (6.3 percent), (5) school counselor (5.7 percent), and (6) books and magazines (4.5 percent). Only 13 percent of the graduates acknowledged school personnel as the "most important influence." What is not clear is the possible indirect influence of school personnel, i.e. discussing job opportunities, suggesting literature to be read, advising parents about career opportunities, and so on.

Table 40. CLASS YEAR COMPARISON: MOST IMPORTANT SOURCE OF INFLUENCE ON TYPE OF VOCATIONAL COURSE SELECTED AS RECALLED BY GRADUATES *

Most Important Influence in Course Selection	YEAR OF GRADUATION								
	1953		1958		1962		Combined		
	N	%	N	%	N	%	N	%	
Job opportunities	168	19.9	339	28.9	466	29.1	973	26.8	▲
Parents	160	19.0	161	13.7	200	12.5	524	14.4	▼
Friend your age	93	11.0	116	9.9	146	9.1	357	9.8	▼
School teacher	43	5.1	80	6.8	104	6.5	227	6.3	
School counselor	34	4.0	61	5.2	110	6.9	205	5.7	▲
Books and magazines	31	3.7	44	3.7	88	5.5	163	4.5	
Brother or sister	40	4.7	46	3.9	75	4.7	161	4.4	
Relative	38	4.5	57	4.9	62	3.9	158	4.4	
Part-time job	52	6.2	54	4.6	48	3.0	154	4.2	▼
Course graduate	9	1.1	21	1.8	33	2.1	63	1.7	▲
Neighbor (adult)	15	1.8	14	1.2	22	1.4	51	1.4	
School principal	10	1.2	9	0.8	18	1.1	38	1.0	
Other than above	150	17.8	172	14.7	231	29.1	554	15.3	

* The arrowhead indicates the direction of a consistent trend.

What is clear is that relatively few graduates recall school personnel as having had a direct influence on their trade choice.

Tables 39 and 40 contain the category "other than above." Of the substantial percentage of graduates that checked this category, many wrote, in effect, that they regarded themselves as the main source of influence. Apparently, they interpreted the question as excluding the idea that they made the decision, and felt compelled to assert themselves. Others that checked this category mentioned such sources of influence as hobbies, ministers, friends of the family and childhood ambitions. The percentages were negligible for each of these kinds of miscellaneous influences.

Several interesting trends are revealed in Table 39. An arrow upward indicates a consistent increase in percentages reported from 1953 to 1962. An arrow downward indicates a consistent decrease in percentages reported. The influence of perceived job opportunity increased from 36.3 percent for the 1953 graduates to 42.5 percent for the 1958 graduates to 47.2 percent for the 1962 graduates, a total gain of 11 percent. This may be a reflection of an increasing awareness among high school youth of difficulty in finding jobs after high school. The increasing youth unemployment and underemployment has been well publicized in recent years. Schools have probably passed this information along to their students. The trend implies an increasing receptivity of students to information about job opportunity. It should be of interest to school personnel.

Another significant trend is the increasing influence of books and magazines, from 13.9 percent for 1953 graduates to 15.6 percent for 1958 graduates to 20.6 percent for 1962 graduates. The reasons for the increasing influence of reading matter would be interesting to establish. Perhaps the trend reflects a greater availability of guidance literature in the schools in recent years. Perhaps school personnel are more active in recommending reading material to aid career choice. Whatever the reasons, the trend should cause more importance to be attached to the kind of literature that is being read.

A third significant trend is the increasing influence of school personnel. The percentage acknowledging school teachers as a source of influence increased

from 12.5 percent for 1953 graduates to 14.5 percent for 1958 graduates to 17.1 percent for 1962 graduates, a slow but steady gain. Similarly, the percentage acknowledging school counselors increased for the same groups from 7.8 percent to 10.7 percent to 15.4 percent.

Lastly, the influence of course graduates shows a slight but consistent increase from 4.1 percent for 1953 graduates to 7.4 percent for 1962 graduates.

The percentages acknowledging different factors as the most important source of influence confirm some of the above-mentioned trends, and also reveal some new ones. The role of parents, as a "most important source of influence" is declining, as evidenced by a drop from 19.0 percent for 1953 graduates to 12.5 percent for the 1962 graduates. The influence of friend of the same age is also declining. The drop was from 11.0 percent for 1953 graduates to 9.1 percent for 1962 graduates; the drop is more suggestive than impressive.

The trends in both tables suggest an overall pattern of decreasing influence of the traditional close sources of influence, i.e. parents, relatives, friends and part-time jobs, and increasing influence of more "authoritative" sources of information, i.e. job opportunity, teachers, counselors, reading matter, and even recent graduates.

Are the trends in the right direction? On the surface, it would appear so. The answer, however, is not a matter for opinion. It remains to be established whether the more "authoritative" sources of influence are more effective than the traditional sources. Do they result in less switching of courses, fewer dropouts, and more placement of graduates in the trade studied? The present study does not have the data for an adequate assessment of the trends. A probe was made in that direction to illustrate one approach. The question was raised, how do graduates who claim the parents as the most important source of influence on trade choice compare in terms of (1) related placement and (2) job relatedness with those who claimed teachers, counselors, and friends as the most important influence? The results are shown in Table 41.

The graduates who claimed their parents as the most important influence did just as well in terms of placement in the trade or a highly related trade and just as well in overall job relatedness of work to trade studied as those whose choice was mainly influenced by teachers. Both of these groups did better in related placement and job relatedness than the group influenced mainly by friends of the same age. The last group showed the poorest performance on the criterion measures. The majority of those influenced mainly by their peers went into jobs unrelated or slightly related to the trade studied.

Table 41. RELATED PLACEMENT AND JOB RELATEDNESS MEASURES FOR GRADUATES WHO REPORTED PARENTS, TEACHER, COUNSELOR, OR FRIENDS AS THE MOST IMPORTANT INFLUENCE ON TYPE OF VOCATIONAL COURSE SELECTED

Acknowledged As Most Important Influences	Year of Graduation	Related Placement			Job Relatedness		
		N	M	S.D.	N	M	S.D.
Parents	1953	123	48.2	30.6	123	2.3	1.0
	1958	118	40.2	29.0	121	2.3	1.0
	1962	132	48.8	33.0	133	2.4	1.2
	Combined	376	45.7	31.2	380	2.3	1.1
Teacher	1953	36	44.0	33.4	36	2.2	1.0
	1958	55	44.5	36.8	56	2.4	1.2
	1962	67	46.6	32.4	67	2.6	1.1
	Combined	158	45.3	34.2	159	2.4	1.1
Counselor	1953	28	51.5	33.1	29	2.4	1.0
	1958	41	35.1	31.5	41	2.4	1.1
	1962	54	34.8	26.9	54	2.1	1.2
	Combined	123	38.7	30.8	124	2.3	1.1
Friend your age	1953	67	38.5	31.7	67	2.0	1.0
	1958	81	27.2	27.6	81	2.0	1.0
	1962	118	34.3	28.0	118	2.0	1.1
	Combined	267	33.2	29.2	267	2.0	1.0

ANALYSIS BY TYPE OF SCHOOL

Do the sources of influence on course selection acknowledged by vocational school graduates differ significantly from those acknowledged by the comprehensive school vocational course graduates? If so, what are the differences? The questions have a bearing on the vocational versus comprehensive school issue.

Table 42 shows the data for all acknowledged sources of influence. In terms of rank order of the top six factors, there is no significant difference between the two types of schools. However, there are significant differences between schools in the percentages acknowledging some of the factors.

Table 42. TYPE OF SCHOOL COMPARISON: SOURCES ACKNOWLEDGED BY GRADUATES TO HAVE INFLUENCED TYPE OF VOCATIONAL COURSE SELECTED

Sources of Influence in Course Selection	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Job opportunities	1328	42.8	962	44.2
Parents	956	30.8	548	25.2
Friend your age	626	20.2	513	23.6
Books and magazines . . .	560	18.1	363	16.7
School teacher	420	13.5	379	17.4
School counselor	344	11.1	305	14.0
Relative	357	11.5	204	9.4
Part-time job	244	7.9	285	13.1
Brother or sister	222	7.2	199	9.1
Course graduate	142	4.6	181	8.3
Neighbor (adult)	149	4.8	91	4.2
School principal	98	3.2	37	1.7
Other than above	605	19.6	390	18.0

Greater percentages of comprehensive than vocational school graduates reported being influenced by friends of same age (23.6 percent vs. 20.2 percent), school teachers (17.4 percent vs. 13.5 percent), school counselors (14.0 percent vs. 11.1 percent), part-time jobs (13.1 percent vs. 7.9 percent), and recent course graduates (8.3 percent vs. 4.6 percent). More vocational course graduates reported being influenced by parents (30.8 percent vs. 25.2 percent), books and magazines (18.1 percent vs. 16.7 percent), and relative (11.5 percent vs. 9.4 percent).

Table 43 compares the two types of schools in terms of factors acknowledged to be the most important influence in course selection.

Table 43. TYPE OF SCHOOL COMPARISON: SOURCES REPORTED AS THE MOST IMPORTANT INFLUENCE ON VOCATIONAL COURSE SELECTED

Most Important Influence in Course Selection	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Job opportunities	564	26.0	409	28.0
Parents	365	16.8	159	10.9
Friend your age	202	9.3	155	10.6
School teacher	135	6.2	92	6.3
School counselor	101	4.7	104	7.1
Books and magazines	105	4.8	58	4.0
Brother or sister	89	4.1	72	4.9
Relative	105	4.8	53	3.6
Part-time job	71	3.3	83	5.7
Course graduate	26	1.2	37	2.5
Neighbor (adult)	38	1.8	13	0.9
School principal	26	1.2	12	0.8
Other than above	341	15.7	213	14.6

In terms of factors acknowleged as the most important source of influence, job opportunity was mentioned more frequently by comprehensive school graduates (28.0 percent vs. 26.0 percent), as was the school counselor (7.1 percent vs. 4.7 percent). Graduates of vocational schools acknowledged parents more frequently as a major source of influence (16.8 percent vs. 10.9 percent).

Notwithstanding the significant differences, the differences are minor compared with the similarities. The top six sources of influence rank the same in both types of schools.

ANALYSIS BY SCHOOL ENROLLMENT

Do the sources of influence on vocational course selection vary significantly with school enrollment? For example, do teachers have a greater influence on the student's selection of a course in a small school than in a large school?

Table 44 shows how graduates of schools in three enrollment categories, i.e. less than 500, between 500 and 1500, and more than 1500, reported the sources that influenced their vocational course choice. With a minor exception, the rank order of the top six sources of influence is the same in all enrollment categories.

Table 44. ENROLLMENT COMPARISON: SOURCES ACKNOWLEDGED BY GRADUATES TO HAVE INFLUENCED TYPE OF VOCATIONAL COURSE SELECTED *

Sources of Influence in Course Selection	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Job opportunities	748	43.1	847	42.2	695	45.1
Parents	508	29.2	572	26.8	424	27.5
Friend your age	360	20.7	449	22.5	330	21.4
Books and magazines . . .	270	15.5	366	18.3	287	18.6 ▲
School teacher	228	13.1	333	16.7	238	15.4
School counselor	179	10.3	233	11.7	237	15.4 ▲
Relative	184	10.6	228	11.4	149	9.7
Part-time job	161	9.3	203	10.2	165	10.7 ▲
Brother or sister	140	8.1	157	7.9	124	8.0
Course graduate	87	5.0	130	6.5	106	6.9 ▲
Neighbor (adult)	84	4.8	98	4.9	58	3.8
School principal	67	3.9	48	2.4	20	1.3 ▼
Other than above	309	17.8	379	19.0	307	20.0

* The arrowhead indicates the direction of a consistent trend.

Arrows point out the direction of the few consistent trends that exist. Books and magazines, school counselors, and course graduates increase in frequency of acknowledgment as a source of influence as school enrollment increases. The influence of the school principal declines as enrollment increases. The small school does not seem to have any advantage from the standpoint of teacher or counselor influence. On the contrary, the influence of teachers and counselors on vocational course selection is least in the small schools.

Table 45 shows the effect of school enrollment in terms of factors reported as the most important source of influence on type of course selected. Only two significant trends are indicated. The influence of parents, as the most important source of influence, declines as enrollment increases.

Table 45. ENROLLMENT COMPARISON: SOURCES REPORTED AS THE MOST IMPORTANT COURSE SELECTION INFLUENCE *

Most Important Influence in Course Selection	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Job opportunities	331	27.4	347	25.4	295	28.1
Parents	201	16.6	201	14.7	122	11.6 ▼
Friend your age	120	9.9	135	9.9	102	9.7
School teacher	74	6.1	99	7.2	54	5.1 ▼
School counselor	52	4.3	69	5.0	84	8.0 ▲
Books and magazines	50	4.1	64	4.7	49	4.7
Brother or sister	48	4.0	68	5.0	45	4.3
Relative	49	4.1	68	5.0	41	3.9
Part-time job	54	4.5	55	4.0	45	4.3
Course graduate	15	1.2	25	1.8	23	2.2
Neighbor (adult)	23	1.9	18	1.3	10	1.0
School principal	17	1.4	16	1.2	5	0.5 ▼
Other than above	175	14.5	203	14.8	176	16.7

* The arrowhead indicates the direction of a consistent trend.

This may be because the very large enrollment schools are usually located in major metropolitan areas, and the influence of parents in such areas may be less than in smaller urban areas. The influence of school counselors, as the most important source of influence, increases as enrollment increases. The latter trend may be a reflection of more counseling capability in larger schools. The influence of teachers shows a slight decrease in schools with enrollments greater than 1500.

ANALYSIS BY TYPE OF GRADUATE

Do academic course graduates report the same pattern of course selection influences as do vocational course graduates? If not, how do they differ? The answers may provide further insight into the reason why so many students reject a vocational course in favor of the academic course, yet do not go on to college.

Table 46 compares the course selection influence factors reported by both types of graduates. The differences are impressive. The basic rank order of importance reported by academic graduates differs substantially from the rank order found among vocational graduates.

Table 46. TYPE OF GRADUATE COMPARISON: SOURCES ACKNOWLEDGED BY GRADUATES TO HAVE INFLUENCED TYPE OF COURSE SELECTED

Sources of Influence in Course Selection	TYPE OF GRADUATE			
	Vocational		Academic	
	N	%	N	%
Job opportunities . . .	2290	43.4	654	37.6
Parents	1504	28.5	751	43.2
Friend your age	1139	21.6	379	21.8
Books and magazines . .	923	17.5	259	14.9
School teacher	799	15.1	413	23.7
School counselor . . .	649	12.3	539	31.0
Relative	561	10.6	146	8.4
Part-time job	529	10.0	88	5.1
Brother or sister . . .	421	8.0	221	12.7
Course graduate	323	6.1	104	6.0
Neighbor (adult) . . .	240	4.5	62	3.6
School principal . . .	135	2.6	54	3.1
Other than above . . .	995	18.9	267	15.4

For the two types of graduates, the rank orders of the six most frequently reported sources of influence are listed below:

VOCATIONAL	ACADEMIC
1. Job opportunity	1. Parents
2. Parents	2. Job opportunity
3. Friend same age	3. School counselor
4. Books and magazines	4. School teacher
5. School teacher	5. Friend same age
6. School counselor	6. Books and magazines

Whereas, 43.4 percent of the vocational graduates acknowledged job opportunity as a source of influence on the selection of their course, only 37.6 percent of the academic graduates did so. Parents were reported as a source of course selection influence by 28.5 percent of the vocational graduates versus 43.2 percent of the academic graduates. The percentages reporting friends of the same age as an influence were about the same. The major difference was the influence of school personnel. Counselors were reported as an influence by 12.3 percent of the vocationals versus 31.0 percent of academics. School teachers were reported as an influence by 15.1 percent of the vocationals versus 23.7 percent of the academics. The two types of graduates also differed significantly on the reported influence of books and magazines. More of the vocational graduates reported their course selection was influenced by books and magazines than did the academic graduates.

Table 47 shows how the two types of graduates acknowledged the factors as the "most important source of influence." Parents (24.8 percent), job opportunities (17.7 percent) and school counselors (16.1 percent) are the dominant pattern of influence in course selection for academic graduates. Parents, as the most important influence, are twice the factor for academics than for vocationals.

What does it mean from the standpoint of vocational education? It means that counselors and teachers, combined with parents, are a strong force for

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influencing students to select the academic course in comprehensive high schools. In the same schools, however, school personnel are a much less frequent source of influence when it comes to guiding would-be vocational students in the selection of their trade. This may be a reflection of a strong academic orientation of counselors and teachers in comprehensive schools.

Table 47. TYPE OF GRADUATE COMPARISON: SOURCES REPORTED AS THE MOST IMPORTANT COURSE SELECTION INFLUENCE

Most Important Influence in Course Selection	TYPE OF GRADUATE			
	Vocational		Academic	
	N	%	N	%
Job opportunities	973	26.8	217	17.7
Parents	524	14.4	303	24.8
Friend your age	357	9.8	92	7.5
School teacher	227	6.3	88	7.2
School counselor	205	5.7	197	16.1
Books and magazines	163	4.5	41	3.3
Brother or sister	161	4.4	51	4.2
Relative	158	4.4	26	2.1
Part-time job	154	4.2	27	2.2
Course graduate	63	1.7	18	1.5
Neighbor (adult)	51	1.4	7	0.6
School principal	38	1.0	3	0.2
Other than above	554	15.3	154	12.6

Table 48 shows the results of a special analysis which compares vocational with academic graduates from comprehensive high schools only. The data do not change any of the generalizations made earlier. If anything, parents are less of an influence on the course selection of vocational graduates from comprehensive schools than of vocational graduates from vocational schools.

Table 48. TYPE OF GRADUATE COMPARISON: SOURCES ACKNOWLEDGED BY GRADUATES FROM COMPREHENSIVE SCHOOLS TO HAVE INFLUENCED TYPE OF COURSE SELECTED

Sources of Influence in Course Selection	TYPE OF GRADUATE			
	Vocational		Academic	
	N	%	N	%
Job opportunities	962	44.2	654	37.6
Parents	548	25.2	751	43.2
Friend your age	513	23.6	379	21.8
Books and magazines . . .	363	16.7	259	14.9
School teacher	379	17.4	413	23.7
School counselor	305	14.0	539	31.0
Relative	204	9.4	146	8.4
Part-time job	285	13.1	88	5.1
Brother or sister	199	9.1	221	12.7
Course graduate	181	8.3	104	6.0
Neighbor (adult)	91	4.2	62	3.6
School principal	37	1.7	54	3.1
Other than above	390	14.0	267	15.4

ANALYSIS BY RACE OF GRADUATE

Do Negroes differ significantly from whites in terms of the sources of influence on the type of vocational course selected? If so, what are the differences? Significant differences should be of interest to school counselors who have the problem of guiding students of both races.

Table 49 shows the percentages of white and Negro graduates who reported each of the listed factors as an influence on the type of vocational course selected.

Table 49. RACE COMPARISON: SOURCES ACKNOWLEDGED BY GRADUATES TO HAVE INFLUENCED TYPE OF VOCATIONAL COURSE SELECTED

Sources of Influence in Course Selection	RACE OF GRADUATE					
	White		Negro		Other	
	N	%	N	%	N	%
Job opportunities	2026	42.9	173	51.2	3	15.8
Parents	1391	28.9	77	22.8	3	15.8
Friend your age	1028	21.4	90	26.6	4	21.1
Books and magazines	815	17.0	93	27.5	1	5.3
School teacher	690	14.4	82	24.3	6	31.6
School counselor	576	12.0	55	16.3	3	15.8
Relative	520	10.8	25	7.4	2	10.5
Part-time job	486	10.1	35	10.4	1	5.3
Brother or sister	392	8.2	20	5.9	1	5.3
Course graduate	293	6.1	21	6.2	1	5.3
Neighbor (adult)	217	4.5	17	5.0	0	0.0
School principal	124	2.6	9	2.7	0	0.0
Other than above	921	19.2	45	13.4	5	26.4

There are both changes in the rank order of the top six factors and the percentages acknowledging each factor.

WHITE GRADUATES	NEGRO GRADUATES
1. Job opportunity (42.9%)	1. Job opportunity (51.2%)
2. Parents (28.9%)	2. Books and magazines (27.5%)
3. Friend your age (21.4%)	3. Friend your age (26.6%)
4. Books and magazines (17.0%)	4. School teacher (24.3%)
5. School teacher (14.4%)	5. Parents (22.8%)
6. School counselor (12.0%)	6. School counselor (16.3%)

The pattern differences are confirmed in Table 50 which shows how graduates of both races reported what were the most important influences on the type of vocational course selected.

These results suggest that the Negro is turning away from traditional family sources of influence, such as parents, relatives and siblings toward non-family sources of influence, such as teachers, counselors, books and magazines, friends, and above all, his interpretation of future job opportunity. Perhaps the Negro perceives non-family sources as more authoritative. In his strivings to improve his status in life, he may be unconsciously rejecting his family as a source of guidance in favor of more authoritative sources. That may be because the more highly motivated Negro is acutely aware of the discrepancy between what he wants to achieve and what his family has achieved. Consequently, he looks to non-family sources for guidance. Regardless of the interpretation of why, he does appear to be more readily influenced by non-family sources. This should be of interest to school teachers and counselors.

Table 50. RACE COMPARISON: SOURCES REPORTED BY GRADUATES AS THE MOST IMPORTANT INFLUENCE ON VOCATIONAL COURSE SELECTION

Most Important Influence in Course Selection	RACE OF GRADUATE					
	White		Negro		Other	
	N	%	N	%	N	%
Job opportunities	879	26.2	68	36.4	2	11.1
Parents	496	14.8	15	8.0	2	11.1
Friend your age	327	9.8	24	12.8	1	5.6
School teacher	202	6.0	15	8.0	5	27.8
School counselor	189	5.6	13	7.0	1	5.6
Books and magazines	150	4.5	11	5.9	0	0.0
Brother or sister	153	4.6	5	2.7	1	5.6
Relative	145	4.3	7	3.7	1	5.6
Part-time job	143	4.3	8	4.3	1	5.6
Course graduate	61	1.8	1	0.5	0	0.0
Neighbor (adult)	48	1.4	2	1.1	0	0.0
School principal	36	1.1	1	0.5	0	0.0
Other than above	520	15.5	17	9.1	4	22.2

5 THE FIRST FULL-TIME POST GRADUATION JOB

- ☐ The Significance of the First Job 1
- ☐ Time Required to Get First Job 3
- ☐ Relatedness of the First Job to Trade Studied 13
- ☐ Reasons For Not Getting First Job in Trade 25
- ☐ Graduates Opinion of Preparation For Trade 31
- ☐ Methods Used to Get First Job 35

CHAPTER 5 SUMMARY

Time Required to Get First Job

1. Year of graduation. The 1953, 1958, and 1962 graduates required respectively 1.3, 2.3, and 1.7 months to get their first job. Time required is related to general level of unemployment.

2. Type of school. Comprehensive school vocational graduates took slightly longer to get jobs than vocational school graduates.

3. Enrollment of school. Time to get first job is unrelated to enrollment of graduates' school.

4. Race of graduate. Negro graduates take about twice as long to get their first job as white graduates.

5. Type of program. Academic course graduates require on an average one month longer to find their first full-time job than vocational course graduates.

6. Regional differences. There are definite regional differences in time required to get the first job.

Relatedness of First Job to Trade Studied

7. Year of graduation. The percentage of graduates whose first job was in the same trade studied was 32.6, 27.6, and 29.6 per cent respectively for 1953, 1958, and 1962 graduates. The relatedness of first job to trade studied correlates inversely with the U.S. unemployment rate.

8. Type of school. Vocational schools have a consistently higher related job placement performance than comprehensive schools.

9. Enrollment of school. Related job placement performance is inversely related to school enrollment. Small enrollment schools do slightly better.

10. Race of graduate. Negro graduates are much less likely to find their first job in the trade for which trained or a highly related trade than white graduates.

11. Regional differences. There are definite regional differences in related job placement performance.

(Continued in Appendix B)

THE SIGNIFICANCE OF THE FIRST JOB

If the graduate's first job is not in the trade studied or a highly related trade, the chances are high that he will never enter the trade or a highly related trade. But, if his first job is in the trade or a highly related trade, the odds are great that he will stay with the trade or allied trade. Therein lies the significance of the first full-time job after graduation. The first job, as was pointed out in Chapter 3, is a harbinger of jobs to come.

The present chapter is concerned with the following basic questions about the first job:

1. How long does it take the graduate to get his first full-time job?
2. How is his first job related to the trade studied in high school?
3. To what extent do school and other sources help him find his first job?
4. If his first job is in the trade, what is his opinion of how well his trade education prepared him for the job?
5. If his first job is not in the trade studied, what reasons does he give?

These and related questions are explored in terms of basic variables, i.e. year of graduation, type of school, school enrollment, race of graduate, and where applicable, the type of graduate.

THE TIME REQUIRED TO GET THE FIRST JOB

Trend in General Placement

The general placement measure indicates the time in months required to get the first full-time job. It does not take into account the relatedness of the job to training.

Table 51 shows the number, percentage, and cumulative percentage of graduates who found their first full-time job in eleven categories ranging from immediately after graduation to nine months or longer.

Table 51. GENERAL PLACEMENT: FREQUENCY DISTRIBUTION FOR VOCATIONAL COURSE GRADUATES BY CLASS YEAR (BASED ON CASES THAT WENT DIRECTLY TO WORK)

General Placement	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
9.0 >	23	2.4	100.0	66	5.5	100.0	64	3.5	100.0	154	3.9	100.0
8.0	5	0.6	97.6	18	1.5	94.5	21	1.2	96.5	45	1.1	96.1
7.0	4	0.4	97.0	21	1.8	93.0	11	0.6	95.3	37	1.0	95.0
6.0	9	0.9	96.6	34	2.9	91.2	33	1.8	94.7	76	1.9	94.0
5.0	9	1.0	95.7	24	2.0	88.3	34	1.9	92.9	67	1.7	92.1
4.0	22	2.3	94.7	52	4.3	86.3	75	4.2	91.0	149	3.7	90.4
3.0	45	4.8	92.4	97	8.2	82.0	146	8.1	86.8	290	7.4	86.7
2.0	68	7.2	87.6	120	10.0	73.8	176	9.7	78.7	364	9.1	79.3
1.0	201	21.2	80.4	232	19.5	63.8	347	19.2	69.0	783	19.8	70.2
0.5	141	14.9	59.2	141	11.8	44.3	251	13.9	49.8	538	13.6	50.4
0.1	419	44.3	44.3	388	32.5	32.5	649	35.9	35.9	1457	36.8	36.8
Number	946			1,193			1,807			3,960		
Mean	1.3			2.3			1.7			1.8		
Median	0.5			1.0			1.0			0.5		
S.D.	2.6			4.0			2.8			3.2		

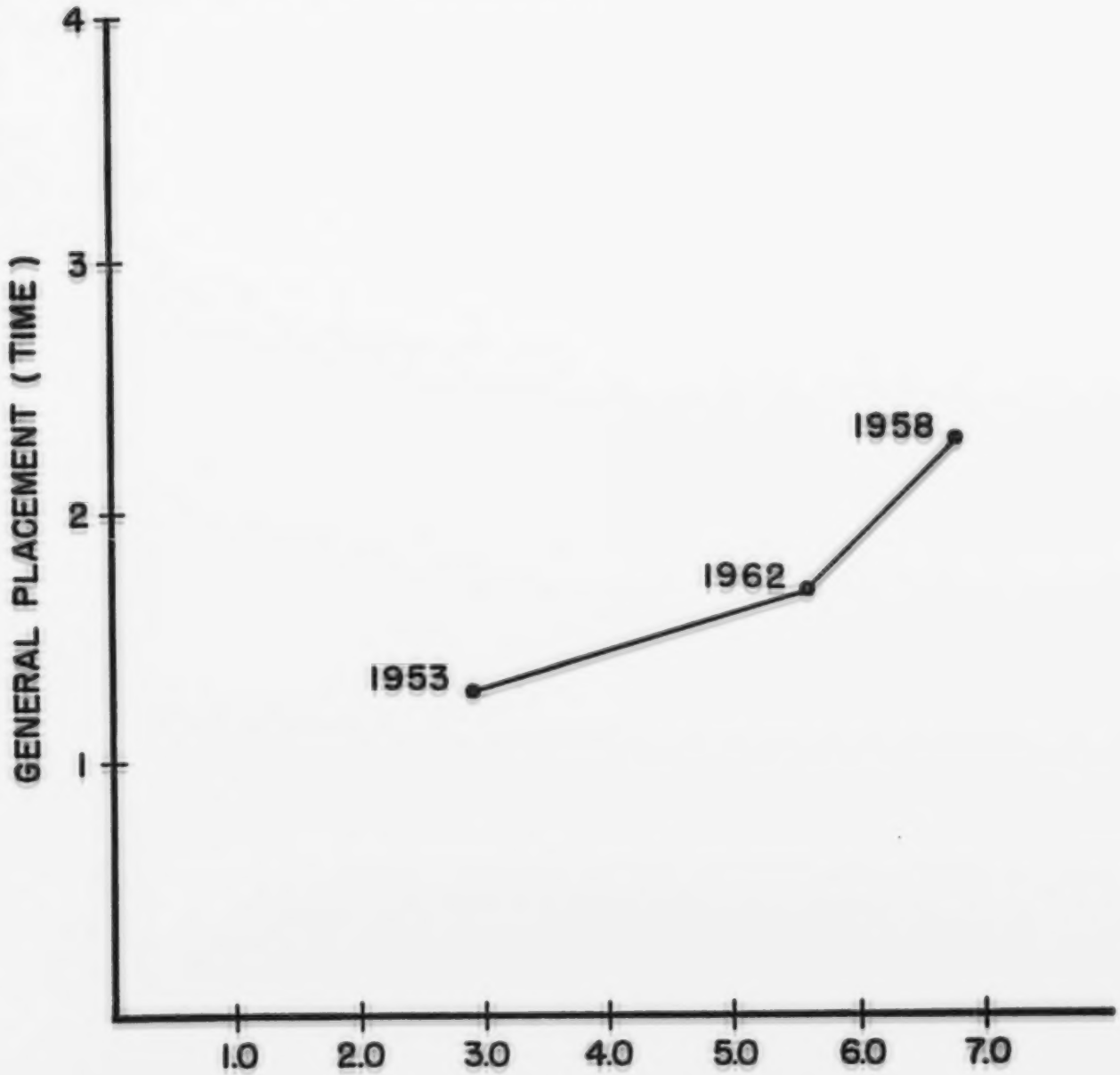
The results of combining the graduates of 1953, 1958, and 1962 indicate that 70.2 percent of the graduates found their first job within one month after graduation. The mean time for all graduates, excluding those who went into military service or continued full time in school, is 1.8 months; the median is .5 of a month. Apparently, most graduates are able to find full-time employment soon after graduation.

Does the time required to get the first job vary with the year of graduation? Are schools improving in their ability to reduce the time required to place graduates? The data in Table 51 suggests two answers. For one, the level of the economy at the time of graduation appears to be a factor influencing time required to obtain a job. The mean and median times required to get a job in 1953, a year the economy was in boom proportion, were 1.3 months and .5 of a month respectively. In contrast, the equivalent values for 1958, a recession year, were 2.3 months and 1.0 month. In 1962, with the economy out of the recession and heading toward the longest peace-time upward trend in history, the time to get a full-time job dropped to a mean of 1.7 months and a median of .5 of a month.

The relationship between the economy, measured in terms of unemployment rate, admittedly an imperfect measure because it does not describe precisely the employment opportunity for young people, and general placement is shown in Figure 5. It suggests, as one might expect, that a school's ability to place graduates promptly into full-time jobs is, in part, limited by the level of economy that prevails in the region served by the school.

The data also suggest that it is getting more difficult to place graduates, that more time is required to find jobs. Whereas 80 percent of the 1953 graduates who looked for jobs found them within one month after graduation, only 69 percent of the 1962 graduates found their job within one month. The point is not conclusive. The difference may be wholly attributable to the difference in the general economy level between 1953 and 1962.

Figure 5. RELATIONSHIP BETWEEN ANNUAL U.S. RATE OF UNEMPLOYMENT AND GENERAL PLACEMENT MEASURE FOR 1953, 1958, AND 1962 GRADUATES



(Source: Bureau of Labor Statistics)

General Placement by Type of School

How do the vocational course graduates from comprehensive schools compare with those from vocational schools in terms of general placement? The comparison data is shown in Table 52. Those who graduated from vocational schools

require slightly less time to find a job than those who graduate from comprehensive schools. The differences, however, are not substantial. Moreover, one cannot conclude that the differences between the two types of schools are the result of differences in degree of effort or methods used to place graduates. Other variables, unrelated to school placement efforts, such as characteristics of graduates or employment opportunity for trades offered, may be responsible The relationship between school placement efforts and general placement performance will be explored in a later study report.

Table 52. GENERAL PLACEMENT: COMPARISON OF COMPREHENSIVE AND VOCATIONAL SCHOOLS (BASED ON CASES THAT WENT DIRECTLY TO WORK)

Year of Graduation	Type of School	General Placement		
		N	M	S.D.
1953	Vocational	591	1.1	2.4
	Comprehensive	355	1.5	3.0
1958	Vocational	692	2.3	4.1
	Comprehensive	501	2.3	4.0
1962	Vocational	1,086	1.5	2.7
	Comprehensive	721	1.9	2.9
Combined	Vocational	2,381	1.7	3.1
	Comprehensive	1,579	2.0	3.3

General Placement by Enrollment

Is general placement related to school enrollment? Do large enrollment schools, for example, have a lower general placement time than medium or small enrollment schools?

Table 53 shows by graduating class the differences in general placement performance for three enrollment categories, i.e. less than 500, between 500 and 1500, and greater than 1500. The data suggest that the graduates from large enrollment schools require slightly less time in months to obtain a job than graduates from medium and small enrollment schools. There is also a suggestion that the small schools do slightly better than the medium enrollment schools. From a practical standpoint, the differences are negligible. The size of the school in terms of total enrollment does not appear to be a major factor in the placement of graduates into full-time jobs.

Table 53. GENERAL PLACEMENT: COMPARISON OF SCHOOL TOTAL ENROLLMENT CATEGORIES

Year of Graduation	School Enrollment	General Placement		
		N	M	S.D.
1953	< 500	349	1.2	2.3
	500-1500	340	1.4	3.1
	>1500	257	1.2	2.3
1958	< 500	398	2.4	4.2
	500-1500	475	2.3	4.1
	>1500	320	2.1	3.7
1962	< 500	606	1.6	2.8
	500-1500	654	1.9	3.1
	>1500	547	1.6	2.4
Combined	< 500	1,355	1.7	3.2
	500-1500	1,478	1.9	3.5
	>1500	1,127	1.6	2.8

General Placement by Type of Graduate

How do the vocational course graduates compare with academic course graduates in terms of time required to get a full-time job? Table 54 provides the comparison data for all vocational course graduates who went directly to work versus all academic course graduates who went directly to work, i.e. excluded

are those who continued full-time in school or who went into military service. It takes the academic graduate, for the combined groups, 3.1 months to find his first full-time job, compared with 1.8 months for the vocational graduate. Moreover, the difference is greatest in the recession year of 1958, indicating that the academic course graduate who looks for a job after high school is particularly at a disadvantage during a down turn in the economy.

Table 54. GENERAL PLACEMENT: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES (BASED ON CASES THAT WENT DIRECTLY TO WORK)

Year of Graduation	Type of Graduate	General Placement		
		N	M	S.D.
1953	Vocational	946	1.3	2.6
	Academic	175	2.6	4.8
1958	Vocational	1193	2.3	4.0
	Academic	207	4.0	5.7
1962	Vocational	1807	1.7	2.8
	Academic	256	2.8	4.3
Combined	Vocational	3960	1.8	3.2
	Academic	638	3.1	5.0

Table 55 presents a more equitable comparison, vocational versus academic course graduates from the <u>same comprehensive schools</u>. The general conclusion is unchanged. It takes academic course graduates a mean of 1 to 1.7 months longer than vocational course graduates to get the first full-time job, depending upon the economy level.

Table 55. GENERAL PLACEMENT: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES FROM THE SAME COMPREHENSIVE SCHOOLS

Year of Graduation	Type of Graduate	General Placement		
		N	M	S.D.
1953	Vocational	355	1.5	3.0
	Academic	175	2.6	4.8
1958	Vocational	501	2.3	4.0
	Academic	207	4.0	5.7
1962	Vocational	721	1.9	2.9
	Academic	256	2.8	4.3
Combined	Vocational	1579	2.0	3.3
	Academic	638	3.1	5.0

General Placement by Race

How does the Negro graduate compare with the white in terms of the general placement measure? Does it take him longer to find full-time employment?

The comparison data are shown in Table 56. For each graduating class, the Negro graduate requires longer to find a job than the white. Considering all graduates, it takes the Negro twice as long to find a job, the mean being 1.6 months for the white graduates and 3.0 months for Negro graduates.

When Negroes and whites who graduated from the same high schools are compared, the difference in time required to get a job is still there. It takes the Negro almost twice as long to get a job, even when he has graduated from the same school. Equality of education does not necessarily mean equality of employment opportunity.

Table 56. GENERAL PLACEMENT: COMPARISON OF RACE OF GRADUATES

Year of Graduation	Race of Graduate	General Placement		
		N	M	S.D.
1953	White	907	1.2	2.6
	Negro	28	1.6	2.2
	Other	3	0.7	0.2
1958	White	1,081	2.2	3.8
	Negro	83	3.4	4.8
	Other	5	7.0	9.3
1962	White	1,626	1.6	2.5
	Negro	132	3.1	4.5
	Other	5	3.5	6.3
Combined	White	3,627	1.7	3.0
	Negro	244	3.0	4.4
	Other	13	4.2	7.4

General Placement by Region

How do the geographic regions of the United States compare in terms of general placement performance? Are some regions consistently better than others from the standpoint of time required by graduates to get full-time jobs? Regional differences may reflect regional economy level differences. Should that be the case, the general placement performance of schools is better compared with regional standards than with a national standard.

The regional comparison data are shown in Table 57. Clearly, there are marked regional differences for each of the three graduating class years. For example, in 1953 the mean time required to get a job in New England was .8 of a month; in the Great Lakes area, it was 1.6 months; and in the Pacific area, it was 2.5 months. It cannot be concluded that these differences are solely the result of regional differences in economy level. However, there is indirect evidence that economy level differences do account for a degree

Table 57. GENERAL PLACEMENT: COMPARISON OF EIGHT GEOGRAPHIC REGIONS

Year of Graduation	Geographic Region	General Placement		
		N	M	S.D.
1953	New England	184	0.8	1.6
	Mideast	309	1.0	2.3
	Great Lakes	106	1.6	3.7
	Plains	88	1.2	2.3
	Southeast	179	1.7	2.7
	Southwest	30	1.5	2.3
	Rocky Mountains	12	1.4	2.4
	Pacific	38	2.5	4.6
1958	New England	209	1.6	2.5
	Mideast	360	2.4	3.8
	Great Lakes	156	2.7	4.5
	Plains	93	2.1	3.0
	Southeast	271	2.5	4.7
	Southwest	58	2.4	4.7
	Rocky Mountains	15	1.0	1.7
	Pacific	31	3.0	6.7
1962	New England	293	0.9	2.0
	Mideast	482	1.7	2.8
	Great Lakes	294	2.0	2.9
	Plains	164	2.0	3.1
	Southeast	396	2.0	2.9
	Southwest	88	1.9	3.0
	Rocky Mountains	19	1.1	1.6
	Pacific	71	1.4	1.5
Combined	New England	687	1.1	2.1
	Mideast	1155	1.7	3.1
	Great Lakes	560	2.1	3.6
	Plains	345	1.8	2.9
	Southeast	851	2.1	3.6
	Southwest	176	2.0	3.6
	Rocky Mountains	46	1.2	1.9
	Pacific	140	2.0	4.2

of the regional differences in general placement. With but one exception, the regional mean times required to get a full-time job increased substantially in 1958, a recession year. The exception, the Rocky Mountains area, can be attributed to the small number of cases that comprise the regional mean. In 1962, the regional mean times show a significant drop, a reflection of a higher economy level.

The regional differences suggest that graduate follow-up studies based upon regions or smaller units can be very misleading when generalized to the nation as a whole. It remains to be seen whether the other derived measures will show equally pronounced regional differences.

RELATEDNESS OF FIRST JOB TO TRADE STUDIED

Trend in Related Placement

The related placement measure combines the time required to get the first full-time job with how related the job is to the trade studied in high school. The equation is discussed in Chapter 3. To facilitate interpretation of the measure, Table 58 shows what the scores would be for each relatedness category for jobs obtained in four months or less. A graduate who gets a job in the same trade immediately upon graduation would have the maximal score of 100. If he got a job in a completely unrelated trade immediately upon graduation, he would have a score of 25.

Table 58. GUIDE FOR INTERPRETATION OF RELATED PLACEMENT MEASURE

		Relatedness of First Job to Trade			
		Same Trade	Highly Related	Slightly Related	Completely Unrelated
Months to Get First Job	0	100	75	50	25
	.5	67	50	33	17
	1	50	38	25	12
	2	40	30	20	10
	3	36	27	18	9
	4	33	25	17	8

With that background, Table 59 can be interpreted more readily. It shows the frequency, percentage, and cumulative percentage distribution of the related placement scores for the three graduating classes separately and combined. There is no consistent trend in the mean and median values by graduating class year. The measure appears to be related to the level of the economy. The median drops sharply from 40 in 1953, a boom economy year, to 25 in 1958, a recession year, and increases to 33 in 1962, when the economy was again at a fairly high level as measured by unemployment rate. The data establish that the graduate's likelihood of getting a job in the same trade studied or a highly related trade is influenced by the economy level.

Table 59. RELATED PLACEMENT: FREQUENCY DISTRIBUTION FOR VOCATIONAL COURSE GRADUATES BY CLASS YEAR (BASED ON CASES THAT WENT DIRECTLY TO WORK)

Related Placement	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
91-100	173	18.9	18.9	132	11.7	11.7	234	14.0	14.0	540	14.5	14.5
81- 90	0	0.0	18.9	0	0.0	11.7	0	0.0	14.0	0	0.0	14.5
71- 80	87	9.5	28.4	80	7.1	18.8	144	8.6	22.6	311	8.3	22.8
61- 70	47	5.2	33.6	43	3.8	22.6	71	4.3	26.9	161	4.4	27.2
51- 60	0	0.0	33.6	0	0.0	22.6	0	0.0	26.9	0	0.0	27.2
41- 50	144	15.7	49.3	112	10.0	32.6	228	13.6	40.5	488	13.1	40.3
31- 40	61	6.7	56.0	114	10.1	42.7	193	11.5	52.0	370	9.9	50.2
21- 30	150	16.3	72.3	216	19.2	61.9	266	15.9	67.9	633	17.0	67.2
11- 20	158	17.3	89.6	230	20.4	82.3	285	17.1	85.0	675	18.1	85.3
1- 10	95	10.4	100.0	199	17.7	100.0	251	15.0	100.0	547	14.7	100.0
Number	915			1,126			1,672			3,725		
Mean	47.4			37.8			42.2			42.1		
Median	40			25			33			31		
S.D.	32.3			29.8			30.7			31.0		

Figure 6 shows the relationship between the related placement means for the three graduating classes and the United States rate of unemployment in those years. The measure very clearly is effected by the general unemployment rate which is a reflection of the economy level.

Figure 6. RELATIONSHIP BETWEEN RELATED PLACEMENT MEASURE AND U.S. RATE OF UNEMPLOYMENT FOR THE YEARS 1953, 1958, AND 1962

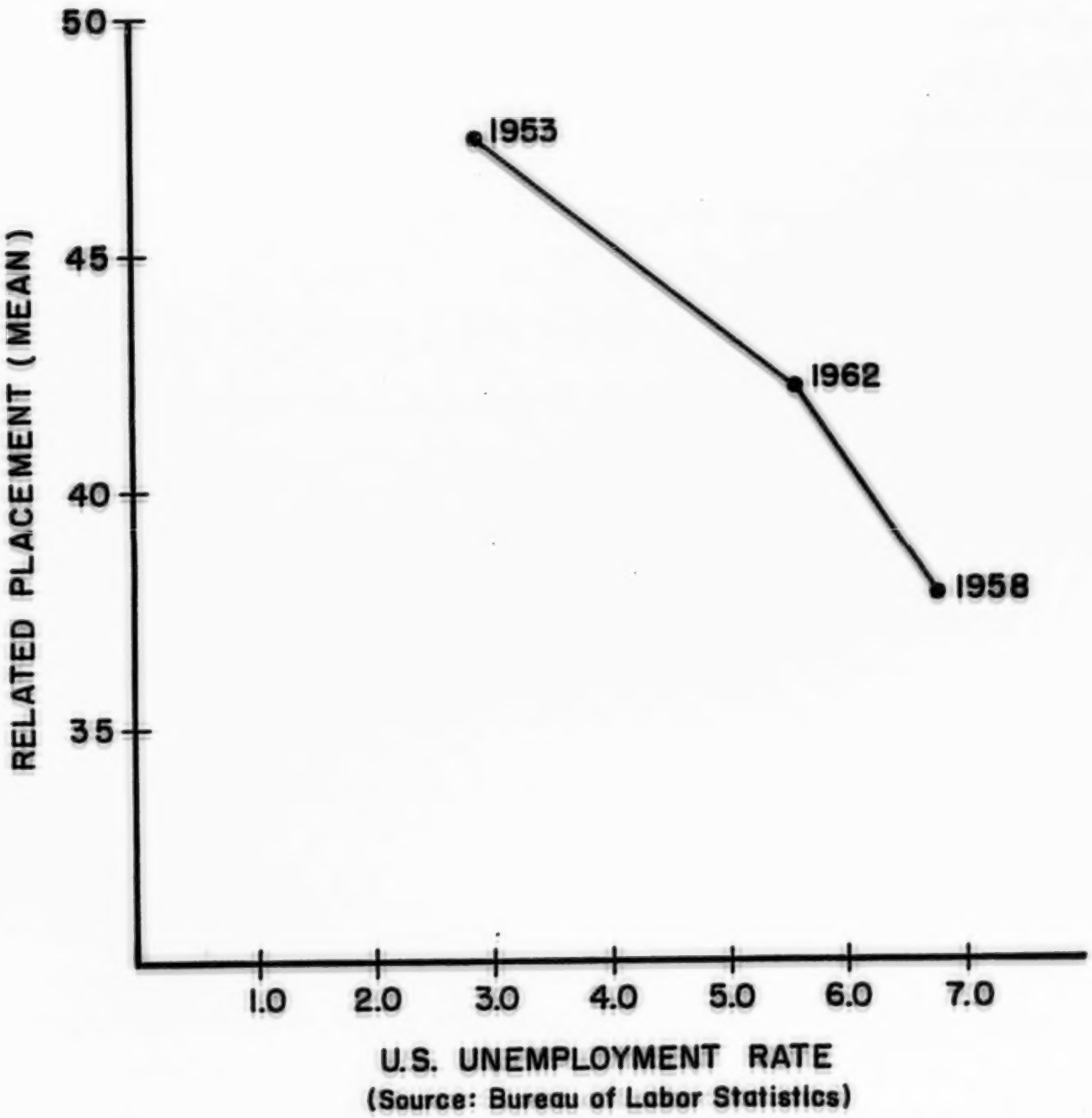


Table 60 shows the relatedness of the first job to the trade studied more directly in the form of the number and percent of graduates in each relatedness category. In 1953, 50.8 percent of the graduates went into the same or a highly related trade. In 1958, the recession year, the percentage dropped 44.2, and in 1962, with a substantially higher level of economy, the percentage increased to 49.4, almost back to the 1953 level. Even in the best year, less than one-third of the graduates go into the same trade studied in high school. In every year, a greater percentage go into a completely unrelated trade than go into the trade studied. In a later section, the reasons given by graduates for not going into the trade studied will be analyzed.

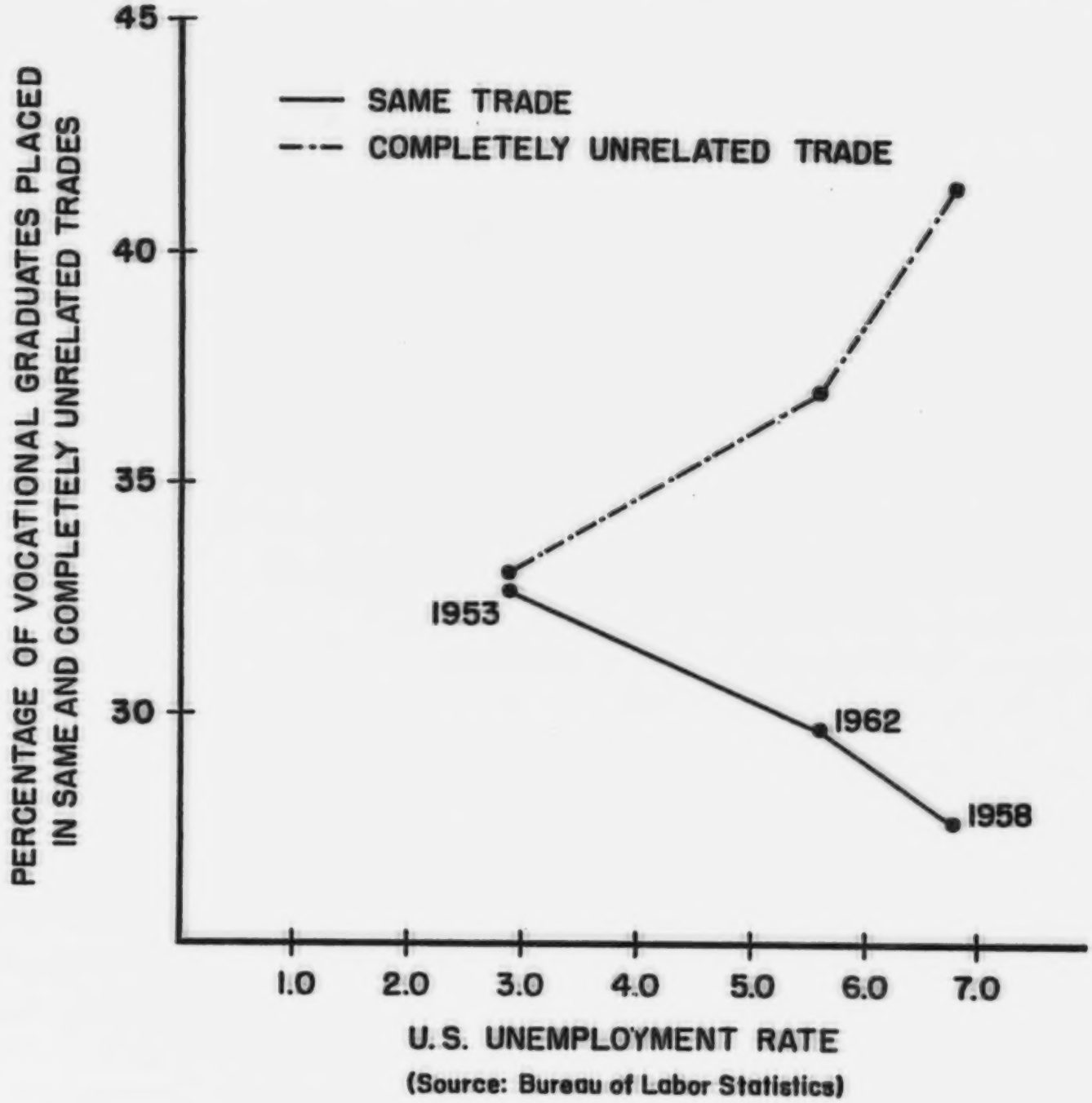
Table 60. TREND IN NUMBER AND PERCENTAGE OF VOCATIONAL GRADUATES PLACED IN FOUR CATEGORIES OF RELATIONSHIP BETWEEN TRADE STUDIED AND FIRST FULL-TIME JOB *

Relation of First Job to Trade Studied in High School	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Same trade	301	32.6	313	27.6	498	29.6	1118	29.8
Highly related trade	168	18.2	189	16.6	333	19.8	691	18.4
Slightly related trade	150	16.3	164	14.4	229	13.6	544	14.5
Completely unrelated trade	303	32.9	470	41.4	625	37.1	1402	37.3

* Based on usable data from questionnaire Item 14.

The relationship between the percentage of graduates who go into the trade studied and the United States rate of unemployment is shown in Figure 7. As the rate of unemployment increases, the percentage who go into the trade studied decreases. The broken line shows the percentage who went into a completely unrelated trade. It increases sharply as rate of unemployment increases, indicating that decreases in the level of economy divert substantial numbers of graduates from the trade studied to completely unrelated trades. Most of those so diverted never enter the trade. They tend to stay in work wholly unrelated to what they studied in high school.

Figure 7. RELATIONSHIP BETWEEN U.S. RATE OF UNEMPLOYMENT AND PERCENTAGE OF GRADUATES PLACED IN TRADE STUDIED AND IN COMPLETELY UNRELATED TRADES



It should be pointed out that the relatedness of the first job to the trade studied is reported by the graduate. It represents his judgment. However, an opportunity to check his judgment was available. He was asked to write the title of his position, occupation or trade on the questionnaire.

Titles were compared with ratings of relatedness. With few exceptions, those who claimed their first job was in the same trade studied in high school identified their job by a title in agreement with the title of the course taken. Also, those who claimed their first job was completely unrelated to the trade studied in high school listed titles that overwhelmingly confirmed their ratings of "completely unrelated." It was concluded that the graduates were capable of judging the relatedness between their first job and the trade studied, at least at the extreme anchor points.

Related Placement by Type of School

How do comprehensive high schools compare with vocational high schools in terms of related placement performance? Table 61 provides the data.

Table 61. RELATED PLACEMENT: COMPARISON OF COMPREHENSIVE AND VOCATIONAL SCHOOLS

Year of Graduation	Type of School	Related Placement		
		N	M	S.D.
1953	Vocational	575	51.6	32.4
	Comprehensive	340	40.3	30.9
1958	Vocational	656	40.1	30.8
	Comprehensive	470	34.5	28.1
1962	Vocational	1,010	45.6	30.8
	Comprehensive	622	37.2	29.6
Combined	Vocational	2,252	45.5	31.5
	Comprehensive	1,473	37.0	29.5

For each of the three graduating classes, the vocational schools out performed the comprehensive schools in related placement performance. The differences are both significant and substantial. The performance of both types of schools decreased in the recession year of 1958, and increased when the economy was at a higher level in 1962. The comprehensive schools decreased from 40.3 in 1953 to 34.5 in 1958, a drop of 5.8, whereas the vocational schools dropped from 51.6 in 1953 to 40.1 in 1958, a decrease of 11.1. The apparent greater resistance of the comprehensive school to economy effects has no significance. It is attributable to an initially lower placement performance.

The comparison of the two types of schools in terms of percentage of graduates placed into each relatedness category is shown in Table 62. Over all years, the vocational schools placed 33.6 percent of their graduates who went directly to work into the trade studied, whereas the comprehensive schools placed only 23.9 percent into the trade studied. The schools also differ at the other extreme. Of the vocational school graduates, 33.1 percent got their

Table 62. COMPARISON BY TYPE OF SCHOOL: NUMBER AND PERCENTAGE OF GRADUATES PLACED IN FOUR CATEGORIES OF RELATIONSHIP BETWEEN TRADE STUDIED AND FIRST FULL-TIME JOB

Relation of First Job to Trade Training	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Same trade	763	33.6	355	23.9
Highly related trade	447	19.7	244	16.5
Slightly related trade	311	13.7	233	15.7
Completely unrelated trade . . .	751	33.1	651	43.9

first job in a trade completely unrelated to the trade they studied in high school, whereas almost 44 percent of the comprehensive school graduates went into completely unrelated trades. Clearly, the vocational schools do a better

job of placing their graduates into the trade or highly related trades. A later analysis will shed more light on the reasons for the difference.

Related Placement by Enrollment

Does the size of the school's enrollment have any relationship with placement performance? Do small enrollment schools, for example, do a better job of placing their graduates into the trade than large enrollment schools? Table 63 provides the data. For the combined years, it appears that related placement performance is inversely related to total school enrollment. Schools with an enrollment less than 500 do better as a group than those in the larger enrollment categories. The differences, however, are not substantial.

Table 63. RELATED PLACEMENT: COMPARISON OF SCHOOL TOTAL ENROLLMENT CATEGORIES

Year of Graduation	School Enrollment	Related Placement		
		N	M	S.D.
1953	< 500	336	48.8	31.4
	500 - 1500	330	47.9	33.4
	> 1500	249	44.9	31.9
1958	< 500	368	38.1	29.9
	500 - 1500	454	38.4	30.6
	> 1500	304	36.3	28.4
1962	< 500	561	45.3	31.1
	500 - 1500	608	39.9	30.1
	> 1500	503	41.6	30.6
Combined	< 500	1,267	44.1	31.1
	500 - 1500	1,400	41.3	31.3
	> 1500	1,058	40.9	30.4

The influence of school enrollment upon the relatedness of first job to trade studied is further shown in Table 64. Schools with an enrollment less than 500 had a greater percentage of graduates enter the trade for which trained (34.5 percent) and a smaller percentage of graduates enter completely unrelated trades (34.3 percent) than did the higher enrollment schools. A later report will compare small, medium and large enrollment school in terms of what they do to place graduates. That analysis may help explain the differences in related placement performance.

Table 64. COMPARISON BY ENROLLMENT: NUMBER AND PERCENTAGE OF GRADUATES PLACED IN FOUR CATEGORIES OF RELATIONSHIP BETWEEN TRADE STUDIED AND FIRST FULL-TIME JOB

Relation of First Job To Trade Training	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Same trade	441	34.5	389	27.5	288	27.1
Highly related trade	230	18.0	271	19.2	190	17.9
Slightly related trade . . .	169	13.2	200	14.2	175	16.5
Completely unrelated trade .	439	34.3	553	39.1	410	38.6

Related Placement and Race

Is the race of the vocational graduate a factor in related placement? Are Negro graduates as likely to be placed in the trade as white graduates? Table 65 provides the data. For every graduating class, the related placement of Negroes is significantly and substantially lower than that of white graduates. The Negro is clearly at a disadvantage. The factor has tremendous importance for current efforts to elevate the status of the Negro through vocational education. If he is not placed in the trades for which he is trained or at least highly related trades, the incentive to improve his status by education is weakened.

Table 65. RELATED PLACEMENT: COMPARISON BY RACE OF VOCATIONAL GRADUATES

Year of Graduation	Race of Graduate	Related Placement		
		N	M	S.D.
1953	White	880	48.0	32.4
	Negro	25	30.4	25.4
	Other	3	28.0	15.6
1958	White	1031	38.6	30.2
	Negro	71	26.0	21.0
	Other	4	29.8	27.0
1962	White	1507	43.5	30.9
	Negro	123	27.6	23.7
	Other	4	58.2	42.2
Combined	White	3429	43.2	31.3
	Negro	220	27.4	23.1
	Other	11	39.6	34.3

The difference in related placement between Negro and white graduates is more dramatically shown in Table 66. Over all years, only 17.3 percent of the Negro graduates were placed in the trade studied. Almost 58 percent were placed in completely unrelated trades. Comparable figures for white graduates are 30.6 percent placed in the trade, and 36 percent placed in completely unrelated trades. There is no disputing the disadvantage of the Negro graduate. A small minority find work in the trade studied.

Table 66. COMPARISON BY RACE OF GRADUATE: NUMBER AND PERCENTAGE OF GRADUATES PLACED IN FOUR CATEGORIES OF RELATIONSHIP BETWEEN TRADE STUDIED AND FIRST FULL-TIME JOB

Relation of First Job to Trade Training	RACE OF GRADUATE					
	White		Negro		Other	
	N	%	N	%	N	%
Same trade	1058	30.6	39	17.3	3	27.3
Highly related trade	640	18.5	36	15.9	1	9.1
Slightly related trade	514	14.9	21	9.3	1	9.1
Completely unrelated trade . . .	1241	35.9	130	57.5	6	54.5

Related Placement by Region

An earlier section indicated significant regional differences in general placement, the time required to find a full-time job after graduation. That prompts a question about regional differences in related placement. Are some regions consistently better than others in terms of placing their graduates in the trades for which trained? Table 67 provides the data. There are consistent regional differences. Placement related to the trade studied is highest in the New England region and lowest in the Pacific region for the combined years. New England is consistently higher than the other regions.

Undoubtedly, the regional differences are partially attributable to differences in the level of economy that prevails. However, direct support for this assumption is lacking. Rate of employment figures are not available by region for the three years concerned.

The regional differences again point out the fallacy of projecting regional survey results to the country as a whole. The North Atlantic State follow-up studies have consistently reported a higher percentage of placement of graduates in the trade or related trade than has been reported in this study. Regional differences are a partial answer to the apparent discrepancy.

Table 67. RELATED PLACEMENT: COMPARISON OF EIGHT GEOGRAPHIC REGIONS

Year of Graduation	Geographic Region	Related Placement		
		N	M	S.D.
1953	New England	181	58.2	31.2
	Mideast	296	48.3	33.0
	Great Lakes	101	44.5	30.4
	Plains	86	46.6	30.9
	Southeast	171	39.3	30.3
	Southwest	30	46.1	35.1
	Rocky Mountains	12	45.3	33.7
	Pacific	38	37.5	31.0
1958	New England	202	44.8	31.4
	Mideast	340	38.4	30.6
	Great Lakes	148	34.5	29.5
	Plains	88	32.6	26.9
	Southeast	253	34.2	27.8
	Southwest	54	40.8	31.5
	Rocky Mountains	14	46.9	27.3
	Pacific	27	33.6	24.9
1962	New England	278	57.1	31.4
	Mideast	446	41.5	30.6
	Great Lakes	273	38.9	29.6
	Plains	141	36.4	28.6
	Southeast	369	37.7	28.8
	Southwest	80	40.7	30.5
	Rocky Mountains	18	46.8	33.5
	Pacific	67	36.4	26.4
Combined	New England	662	53.6	31.8
	Mideast	1,085	42.4	31.4
	Great Lakes	526	38.9	30.0
	Plains	315	38.1	29.3
	Southeast	797	36.8	28.8
	Southwest	164	41.7	31.8
	Rocky Mountains	44	46.4	31.7
	Pacific	132	36.1	27.6

REASONS FOR NOT GETTING FIRST JOB IN TRADE

The majority of vocational course graduates do not enter the trade for which trained in high school. For all years combined, 51.8 percent of the direct to work graduates went into a trade slightly related or completely unrelated to the trade studied. What were their reasons for not getting a job in the trade?

The graduates were asked to list reasons for not getting the first full-time job in the trade. Two of the listed reasons, i.e. learned new trade by continuing in school and learned new trade in military service, do not apply to the present analysis which deals only with those who went directly from school to full-time employment. These two answer categories have been eliminated from the tables presented in this section.

Analysis by Year of Graduation

What are the reasons given by graduates for not getting their first job in the trade? What is their relative weight in terms of percentages? Are there any significant trends in the reasons given? Table 68 presents the data.

For the combined graduates, 35.6 percent indicated they did not get a job in the trade because no job was available. This 35.6 percent is an estimated 18.4 percent of all vocational course graduates who went directly to work. (The estimate was arrived at by taking 35.6 percent of the total whose first job was in a slightly related or completely unrelated trade, and expressing the result as a percentage of the total who went directly to work. The procedure provides a correction for the approximately four hundred cases who failed to indicate a reason for not getting a job in the trade). What signifcance can be attached to the 18.4 percent value? It suggests that schools are sending a substantial number of graduates into communities that do not have jobs in the trades being taught in the schools. This may or may not be considered a problem by the vocational educator.

Table 68. REASONS FOR NON-PLACEMENT IN TRADE BY YEAR OF GRADUATION

Reason Given For Not Getting First Job in Trade Studied	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
No job available in trade	107	28.8	204	39.4	243	36.4	554	35.6
Decided I liked other work better	104	28.0	127	24.6	175	26.2	406	26.1
Not accepted as apprentice . . .	44	11.9	52	10.0	65	9.7	161	10.4
Insufficient pay	13	3.5	10	1.9	11	1.6	34	2.2
Other than above	103	27.7	124	24.1	173	25.9	400	25.8

Approximately 26 percent of the graduates whose first job was in slightly related or completely unrelated trades gave as the reason for not getting a job in the trade that they preferred other work. By the same procedure described previously, this 26 percent comes to 13.5 percent of all graduates who went direct to work. Are these graduates who happened to find an unrelated job in their search for work, and then decided that they preferred the unrelated work to work in the trade? Or, are they graduates who even before graduation had decided they did not want to work in the trade studied? The distinction is important. Unfortunately, the data is of no help in regard to the interpretation. More research needs to be done on this important point.

Approximately 10 percent gave as their reason for not getting a job in the trade that they were not accepted as an apprentice. This amounts to 5.4 percent of the total graduates that went directly to work. To what extent the percentage constitutes a problem is something the vocational educators must decide.

What are the trends in the reasons given? The percentage who indicated they did not get a job in the trade increased from 28.8 percent in 1953, a high employment year, to 39.4 percent in 1958, a recession year. This confirms independently the interpretation given earlier to the relationship between related placement and level of unemployment. What is disturbing is the continued high percentage of 1962 graduates in slightly related or completely unrelated

trades who said they did not get a job in the trade studied because there were no trade jobs available; 36.4 percent! The 1962 economy level was closer to the 1953 economy level than this percentage value would imply.

The percentage of graduates who prefer other work to trade work is fairly constant. The percentage of graduates who claim they were not accepted into apprenticeship programs shows a slight, almost negligible, decrease. The trend does not warrant the attachment of any significance.

Analysis by Type of School

How do graduates of vocational and comprehensive schools compare in terms of reasons given for not getting the first job in the trade? Table 69 presents the data.

Table 69. REASONS FOR NON-PLACEMENT IN TRADE BY TYPE OF SCHOOL

Reason Given for Not Getting First Job in Trade Studied	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
No job available in trade	298	35.7	257	35.4
Decided I liked other work better	215	25.8	191	26.3
Not accepted as apprentice . . .	91	10.9	70	9.7
Insufficient pay	21	2.5	13	1.8
Other than above	209	25.1	194	26.7

Clearly there are no significant differences in the reasons given by the graduates of both type of schools for not getting a job in the trade.

Analysis by School Enrollment

How do graduates from small, medium and large enrollment schools, as defined by this study, compare on terms of the reasons given for not getting their first job in the trade? Table 70 presents the data.

Table 70. REASONS FOR NON-PLACEMENT IN TRADE BY SCHOOL ENROLLMENT

Reason Given For Not Getting First Job in Trade Studied	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
No job available in trade	180	37.1	227	37.3	148	31.8
Decided I liked other work better	120	24.7	159	26.2	127	27.3
Not accepted as apprentice . . .	54	11.1	47	7.7	60	12.9
Insufficient pay	12	2.5	18	3.0	4	0.8
Other than above	119	24.6	157	25.8	127	27.2

Fewer of the graduates from schools with enrollments above 1500 gave the reason, no job available in the trade, for not getting a job in the trade. This may be because such schools are located in major metropolitan areas where trade job opportunities are greater. A later analysis will show that the percentage of graduates from large enrollment schools who acknowledge school assistance in getting a job was actually less than from medium and small enrollment schools. It would appear, then, that the large enrollment schools, because of their location, have an employment opportunity advantage.

The percentage of graduates who preferred to work in a trade other than the one studied increased from 24.7 percent for small enrollment schools to 26.2 percent for medium enrollment schools to 27.3 percent for large enrollment schools. The increase is small but consistant. Interpretation is difficult. It may be that more graduates are attracted to other trades because of the greater and more diverse employment opportunity in the major metropolitan

areas. It cannot be concluded that large schools turn out more graduates who have made up their minds in advance not to enter the trades.

Analysis by Race of Graduate

How do white and Negro graduates compare in terms of reasons given for not getting a job in the trade? Table 71 provides the data. Despite the relatively small number of Negro graduates, the analysis indicates important differences.

Table 71. REASONS FOR NON-PLACEMENT IN TRADE BY RACE OF GRADUATE

Reason Given For Not Getting First Job in Trade Studied	RACE OF GRADUATE					
	White		Negro		Other	
	N	%	N	%	N	%
No job available in trade	492	35.0	52	41.6	1	25.0
Decided I liked other work better	375	26.7	23	18.4	1	25.0
Not accepted as apprentice . . .	131	9.3	27	21.6	1	25.0
Insufficient pay	34	2.4	0	0.0	0	0.0
Other than above	372	26.5	23	18.4	1	25.0

A larger percentage of Negro graduates reported no job was available in the trade (41.6 percent versus 35 percent for white graduates). A smaller per cent of Negro graduates reported they liked other work better than the trade studied (18.4 percent versus 26.7 percent for white graduates). A substantially larger percentage of Negro than white graduates reported they obtained no job in the trade because they were not accepted as an apprentice (21.6 percent versus 9.3 percent for white graduates). These facts suggest, as was pointed out earlier, that the Negro graduate is at a decided disadvantage in terms of placement in the trade. His much less acceptance by local apprenticeship programs may change with time, but currently it is still an obstacle to his aspiration to work in the trade studied.

GRADUATES OPINION OF PREPARATION FOR TRADE

Graduates who went directly to work in the same trade studied or a highly related trade were asked to express their general opinion of how well their vocational course prepared them for their first job. A generally favorable reaction can be anticipated when opinions of this kind are requested.

Analysis by Year of Graduation

Do the graduates from the three years of graduation differ significantly in their opinions of how well their vocational course prepared them for their first job in the trade or a highly related trade? Is there a trend? Table 72 provides the data.

Table 72. GRADUATE'S OPINION OF HIS PREPARATION FOR TRADE BY YEAR OF GRADUATION

How Well Did Vocational Course Prepare You For Job in Trade?	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Exceptionally well prepared	236	52.9	222	48.9	383	49.7	841	50.4
Well prepared on the whole	191	42.8	211	46.5	365	47.4	767	45.9
Poorly prepared	19	4.3	21	4.6	22	2.9	62	3.7
Weighted Mean	2.49		2.44		2.47		2.47	

The combined graduates have a very favorable opinion of the vocational course they took. Over 50 percent indicated they were exceptionally well prepared and almost 46 percent claimed they were, on the whole, well prepared.

There are no substantial differences between the three graduating classes. The three categories were weighted 3, 2 and 1 respectively to obtain a weighted average of 2.5 for 1953 graduates, 2.4 for 1958 graduates and 2.5 for 1962 graduates. The values indicate the lack of a decreasing or increasing trend.

Analysis by Type of School

Do graduates from vocational and comprehensive schools differ in their opinion of how well their vocational course has prepared them for the trade? Table 73 presents the data.

Table 73. GRADUATES OPINION OF HIS PREPARATION FOR TRADE BY TYPE OF SCHOOL

How Well Did Vocational Course Prepare You For Job in Trade?	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Exceptionally well prepared	567	49.7	279	52.0
Well prepared on the whole	530	46.5	238	44.4
Poorly prepared	43	3.8	19	3.6
Weighted Mean	2.46		2.48	

The percentages suggest that graduates of comprehensive schools have about the same opinion of their former vocational course as graduates of vocational schools. The weighted average was 2.46 for comprehensive school graduates versus 2.48 for vocational school graduates, indicating no significant difference between the two types of schools.

Analysis by School Enrollment

Do graduates from small, medium and large enrollment schools, as defined by this study, differ significantly in their opinions of how well their vocational course prepared them for their first job in the trade or a highly related trade? The data is shown in Table 74.

Table 74. GRADUATE'S OPINION OF HIS PREPARATION FOR THE TRADE BY SCHOOL ENROLLMENT

How Well Did Vocational Course Prepare You For Job in Trade?	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Exceptionally well prepared	311	49.9	314	50.9	221	50.7
Well prepared on the whole	288	46.2	280	45.4	200	45.9
Poorly prepared	24	3.9	23	3.7	15	3.4
Weighted Mean	2.46		2.47		2.47	

School enrollment is not a factor related to the opinion of graduates on how well their vocational course prepared them for the trade. The weighted averages for the three enrollment categories are clearly not different.

Analysis by Race of Graduate

The relatively small number of Negro graduates that went directly to work in the trade studied or a highly related trade made this analysis inadvisable.

METHODS USED TO GET FIRST JOB

The survey questionnaire listed a number of common means graduates use to find their first full-time job. Those surveyed were asked to mark with a check all that they used to get their first job. The results are given in the following sections for the graduates who went directly to work after graduation from high school.

Trends in Methods Used

Table 75 indicates the number and percentage of graduates who checked each method used to help them get their first job. Many checked a combination of methods.

Table 75. METHODS USED TO GET FIRST FULL-TIME JOB BY YEAR OF GRADUATION *

Means Used to Get First Full-time Job After Graduation	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Answering want-ad	74	7.8	90	7.7	126	7.2	290	7.5
Private employment agency	6	0.6	26	2.2	37	2.1	69	1.8
State employment agency	28	3.0	59	5.0	115	6.5	203	5.2 ▲
Help of school teacher	162	17.2	181	15.5	352	20.0	696	17.9
Help of school counselor	44	4.7	44	3.8	118	6.7	206	5.3
Help of school principal	26	2.8	27	2.3	76	4.3	130	3.3
Help of school placement service .	121	12.8	87	7.4	161	9.2	371	9.6
Help of relative or friend	345	36.6	471	40.4	661	37.6	1485	38.2
Through school coop program	105	11.1	94	8.0	150	8.5	350	9.0
Other than above	206	21.9	302	25.9	347	19.7	857	22.1

* The arrowhead indicates the direction of a consistent trend.

For the combined years, the rank order of methods acknowledged was (1) friend or relative (38.2 percent), (2) school teacher (17.9 percent), (3) school placement service (9.6 percent), (4) school cooperative program (9.0 percent), (5) answering a want-ad (7.5 percent), (6) school counselor (5.3 percent), (7) state employment agency (5.2 percent), (8) school principal (3.3 percent), and (9) private employment agency (1.8 percent).

The endorsement of all sources of school help came to 45.1 percent for the combined years. Even though this is not a percentage of the graduates, it is an impressive acknowledgment of school assistance in finding employment.

The only consistent trend is the increased use of state employment services to find jobs. The increase is slight, from 3.0 percent in 1953 to 5.0 percent in 1958 to 6.5 percent in 1962. The lack of consistent trends is probably the result of the recession year of 1958. All of the school sources of help showed a drop in percentage acknowledged from 1953 to 1958, and rose again in 1962. Teachers, counselors and principals recieved acknowledgment from a greater percentage of 1962 graduates than from 1953 graduates. The increases, however, are not substantial. The individual vocational teacher stands out as the principle source of school assistance in finding jobs for graduates.

Methods Used by Type of School

How do vocational and comprehensive schools compare in terms of methods used by their graduates to obtain the first full-time job? Table 76 provides the data.

The percentage of vocational school graduates acknowledging school sources of employment assistance is greater for every source than the percentage of comprehensive graduates acknowledging such sources. Total acknowledgment of school sources is 52.6 percent for vocational school graduates versus 33.7 percent for comprehensive school graduates. The results indicate that vocational schools are more active on behelf of their graduates than comprehensive schools. That may be the reason why vocational schools have a superior

performance in terms of both the general and related placement measures. They place a greater percentage of their graduates in jobs related to the trades studied.

Table 76. METHODS USED TO GET FIRST FULL-TIME JOB BY TYPE OF SCHOOL

Means Used to Get First Full-time Job After Graduation	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Answering want-ad	185	7.9	105	6.8
Private employment agency	41	1.7	28	1.8
State employment agency	123	5.2	80	5.2
Help of school teacher	446	19.0	250	16.2
Help of school counselor	151	6.4	55	3.6
Help of school principal	110	4.7	20	1.3
Help of school placement service	293	12.5	78	5.1
Help or relative or friend	794	33.9	691	44.9
Through school coop program	235	10.0	115	7.5
Other than above	484	20.6	373	24.2

Therein lies a reasonable implication. If placement in the trade studied or a highly related trade is to be the goal, more vigorous activity upon the part of school sources to assist placement of graduates in the trade may be the best means.

Methods Used by Type of Graduate

A comparison of how academic and vocational course graduates get their first job after high school is shown in Table 77. There is a striking difference in the degree to which the two types of graduates acknowledge the

help of school sources. Academic graduates, if one accepts the correctness of their answers, receive virtually no assistance from school sources, such as teachers, counselors, placement services, and principals, in finding jobs.

Table 77. METHODS USED TO GET FIRST FULL-TIME JOB BY TYPE OF GRADUATE

Means Used to Get First Full-time Job After Graduation	TYPE OF GRADUATE			
	Vocational		Academic	
	N	%	N	%
Answering want-ad	290	7.5	27	5.6
Private employment agency	69	1.8	18	3.8
State employment agency	203	5.2	36	7.5
Help of school teacher	696	17.9	9	1.9
Help of school counselor	206	5.3	3	0.6
Help of school principal	130	3.3	4	0.8
Help of school placement service	371	9.6	6	1.2
Help of relative or friend	1485	38.2	251	52.5
Through school coop program	350	9.0	6	1.2
Other than above	857	22.1	133	27.8

Indeed, they receive less help than vocational graduates from the <u>same</u> schools acknowledged in Table 76. Perhaps this is because those close to vocational students have for many years felt a responsibility to assist graduates in finding jobs whereas those close to academic students have felt little or no such responsibility. The difference in assistance given to the two types of graduates probably accounts for the fact that it takes academic graduates who seek work after graduation twice as long on an average to find a full-time job as it does the vocational graduates. The lack of assistance at the end of four years is in striking contrast to the teacher and counselor influence on academic course selection at the start of the four years.

The academic graduate who seeks employment after graduation relies mainly on the help of friends and relatives. At least, 52.5 percent of those surveyed so report.

Methods Used by School Enrollment

Does the size of a school's enrollment have any influence on the methods used by its vocational graduates in finding their first full-time job? For example, do graduates from small enrollment schools get more help from school personnel in finding jobs than graduates of large enrollment schools? Table 78 provides the data.

Table 78. METHODS USED TO GET FIRST FULL-TIME JOB BY TOTAL SCHOOL ENROLLMENT

Means Used to Get First Full-time Job After Graduation	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Answering want-ad	110	8.3	110	7.5	70	6.4
Private employment agency	16	1.2	35	2.4	18	1.6
State employment agency	64	4.8	82	5.6	57	5.2
Help of school teacher	249	18.9	245	16.8	202	18.3
Help of school counselor	49	3.7	120	8.2	37	3.4
Help of school principal	80	6.1	34	2.3	16	1.4
Help of school placement service	129	9.8	154	10.5	88	8.0
Help of relative or friend	502	38.0	537	36.8	446	40.5
Through school coop program	97	7.3	167	11.4	86	7.8
Other than above	282	21.4	308	21.1	267	24.2

The schools with enrollments between 500 and 1500 were acknowledged more frequently as a source of job-finding help to their graduates; 49.2 percent for such schools, 45.8 percent for schools with enrollments less than 500, and 39.3 percent for schools with enrollments above 1500. The values were obtained by summing the percent acknowledging such school source of help. The school counselors and cooperative programs are more frequently reported as a source of help in 500 to 1500 enrollment schools.

Help from the school principal decreases as school enrollment increases. Also, reliance on want-ads decreases slightly as school enrollment increases. This may be because graduates from very large schools reported greater help from relatives and friends than graduates from smaller enrollment schools.

Overall, the differences between schools in the three enrollment category are less impressive than the similarities. In all categories, the most frequently acknowledged source of help was "friends or relatives"; next came school teachers, followed by school placement service and school cooperative programs in that order.

Methods Used by Race of Graduate

Is the race of the graduate a variable that influences the means used by graduates to get their first full-time job? Are school personnel, for example, acknowledged as a job-finding help as frequently by Negro graduates as by white graduates? Table 79 provides the data.

The rank order of the top six methods of getting a job for the Negro graduate is (1) friend or relative (50.2 percent), (2) school teacher (16.3 percent), (3) state employment agency (8.4 percent), (4) answering want-ads (6.7 percent), (5) private employment agency (5.8 percent), and (6) school counselor (5.8 per cent).

The rank order of the top six methods of getting a job for the white graduate is (1) friend or relative (37.4 percent), (2) school teacher (17.9 percent), (3) school placement service (9.9 percent), (4) school cooperative program (9.5

percent), (5) answering want-ads (7.6 percent), and (6) school counselor (5.2 percent).

Compared with the white graduate, the Negro graduate apparently makes greater use of state employment agencies and friends or relatives. The Negro graduate receives less help from all school sources combined than does the white graduate. The difference is greatest for school placement services and school cooperative programs. Since several schools from which Negroes graduated were all-Negro schools, it may be that placement services and cooperative programs were lacking in these schools. The alternative interpretation is that these potential sources of assistance were available but not effective for the Negro graduate.

Table 79. METHODS USED TO GET FIRST FULL-TIME JOB BY RACE OF GRADUATE

Means Used to Get First Full-time Job After Graduation	RACE OF GRADUATE					
	White		Negro		Other	
	N	%	N	%	N	%
Answering want-ad	269	7.6	16	6.7	1	7.7
Private employment agency	54	1.5	14	5.8	0	0.0
State employment agency	178	5.0	20	8.4	1	7.7
Help of school teacher	637	17.9	39	16.3	4	30.8
Help of school counselor	187	5.2	14	5.8	1	7.7
Help of school principal	124	3.5	5	2.1	0	0.0
Help of school placement service	352	9.9	10	4.2	1	7.7
Help of relative or friend	1332	37.4	120	50.2	5	38.5
Through school coop program	338	9.5	5	2.1	1	7.7
Other than above	793	22.3	42	17.6	2	15.4

6 EQUIPMENT, MATERIALS AND METHODS COMPARED

- ☐ The School-Industry Comparability Problem 1
- ☐ Comparability Analysis By Year 3
- ☐ Comparability Analysis By Type of School 7
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CHAPTER 6 SUMMARY

The Comparability Problem

1. School versus industry. How comparable are tools and equipment, job methods and materials used in vocational shops to those used in school? If not comparable, how much new learning or relearning is required?

Comparability Analysis by Year

2. Tools and equipment. Less than 10 per cent of graduates reported that tools and equipment used on their first jobs in the trade were very much different from those used in school. The majority that did so required less than three months to learn what was different.

3. Work methods. Fully one-third of the graduates reported that the work methods used on their first jobs in the trade were very much different than those used in school. Seventy-five per cent of those that did required less than three months to learn what was different.

4. Work materials. About 16 per cent reported that the job materials used on their first job in the trade were very much different from those used in school. Seventy-three per cent of these reported it required less than three months to learn what was different.

Comparability Analysis by School

5. Tools, equipment, methods, and materials. There is no difference between vocational and comprehensive schools in terms of comparability of tools and equipment, methods and materials used in the schools and those used on their first jobs in the trade. The time required to learn what is very much different is the same for both types of schools.

Comparability Analysis by Enrollment

6. Tools, equipment, methods, and materials. There is no difference between small, medium, and large enrollment schools in terms of comparability of tools, equipment, methods and materials used in the schools and those used by graduates on their first jobs in the trade. The time required to learn what was very much different essentially was the same for all enrollment categories.

(Continued in Appendix B)

THE SCHOOL-INDUSTRY COMPARABILITY PROBLEM

How comparable are the tools and equipment, the job methods, and the materials used in school vocational shops to those used in industry? There is no broad based answer to this question, based upon actual surveys. There is, however, much opinion. A substantial number of shop instructors interviewed during the course of the present survey expressed the opinion that their shop tools and equipment were obsolescent if not obsolete, that their shop materials were inexpensive substitutes for what was normally used in the trade, and that their work methods were in many instances necessarily different from the methods used in the trade. It was generally felt that the lack of comparability was a disadvantage for the graduate, who would have much to relearn if he entered the trade. Some went so far as to claim that the lack of acceptance of graduates by the trade was because graduates were inadequately prepared on antiquated equipment, job methods not employed in the trade, and makeshift or substitute work materials. *

There appear to be two issues in the comparability problem: (1) Are the tools and equipment, the work methods, and the materials used in the vocational shops substantially different from what are used in the trades? Some shops report substantial differences. Others regard the differences as minor. Still others feel their equipment, methods and materials are comparable in all essential respects to the best used in the trade. (2) Does the graduate who learns the trade on equipment, methods, and materials that are very much different from that used in the trade suffer a significant relearning handicap when he enters the trade? Again, there are differences of opinion among instructors. Some feel the relearning problem is considerable, and causes skepticism about the adequacy of vocational education. Others feel

* This phase of the survey will be covered in a separate report dealing with data derived from the schools.

the problem is there, but not seriously so. Still others feel the problem is more theoretical than real, that there will always be relearning and new learning no matter what equipment, methods, and materials are used in the vocational schools. The differences of opinion are undoubtedly, in part, because with different trades the comparability problem has different implications for retraining.

The graduates surveyed were asked to compare separately the (1) tools and equipment, (2) work methods, and (3) work materials used on their first full-time job with the equivalent used in their high school vocational course. The three answer categories were: "identical or almost so," "little real difference," and "very much different." Those who checked "very much different" were asked to indicate approximately how long it took them to learn or relearn what was so very much different. The six answer categories were: "only a few weeks," "less than three months," "about three to six months," "about six months to a year," and "more than a year." It was assumed that the graduates were capable of comparing school with job equipment, methods, and materials, and could estimate how much time was required to learn what was "very much different," where that was the case.

The data presented in this chapter are based upon only those whose first full-time job was in the <u>same</u> trade studied in high school.

COMPARABILITY ANALYSIS BY YEAR

Tools and Equipment

Table 80 indicates how graduates whose first job was in the same trade studied in high school compared tools and equipment on that job with what was used in high school.

Table 80 . TOOLS AND EQUIPMENT: COMPARABILITY ANALYSIS AND TIME REQUIRED TO LEARN WHAT WAS VERY MUCH DIFFERENT BY YEAR OF GRADUATION

Tools and Equipment: How Did They Compare with Those Used in School?	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Identical or almost so	155	49.8	182	52.8	265	56.7	604	53.5
Little real difference	122	39.2	132	38.3	161	34.5	418	37.0
Very much different	34	11.0	31	8.9	41	8.8	107	9.5
If Very Much Different, How Long Did It Take to Learn?								
Only about a few weeks	13	39.4	10	37.0	3	43.6	41	41.0
Less than three months	6	18.2	5	18.5	17	23.1	20	20.0
About three to six months	8	24.2	6	22.2	9	7.7	17	17.0
About six months to a year	0	0.0	3	11.1	3	12.8	8	8.0
More than a year	6	18.2	3	11.1	5	12.8	14	14.0

For the combined years, only 9.5 percent of the graduates reported very much difference in tools and equipment; 37.0 percent reported little real difference and 53.5 percent reported essentially no difference. The percentages

would no doubt vary among the trades. Nevertheless, if the graduates are acceptable as judges, the conclusion must be that there is no serious lack of comparability in terms of tools and equipment.

Of those who reported very much difference, 41.0 percent indicated that it took only a few weeks to learn what even was very much different. An additional 20 percent indicated that relearning or new learning required less than three months. Only 3.5 percent of all graduates whose first job was in the trade studied, required more than six months to learn what was very much different. Thus, even where there is a lack of comparability, the relearning or new learning problem from the standpoint of numbers appears to be negligible.

Not only is the tool and equipment comparability problem negligible, but the trend is toward even greater comparability. Almost 57 percent of the 1962 graduates reported tools and equipment the same or essentially the same against 50 percent of the 1953 graduates.

Work Methods

It can be expected that there will be considerable difference in work methods used in school with methods used in the trade. The competitive facts of life, with emphasis on productive output and quality, would necessarily make for differences. Table 81 indicates how the graduates compared the methods.

Fully one-third of the graduates reported there was very much difference in work methods in school and on the job; 49.1 percent reported little real difference, and 28.4 percent reported no difference. In work methods, then, there appears to be a substantial, albeit perhaps necessary, lack of comparability. How much of a problem does the lack of comparability represent?

Of those who reported very much difference in work methods, 43.1 percent reported it took them only a few weeks to learn whatever was very much different. An additional 26.6 percent claimed it took them less than three months, and 11.9 percent claimed it required from three to six months. Only 18.3 per cent claimed it required more than six months of relearning or new learning.

Table 81. WORK METHODS: COMPARABILITY ANALYSIS AND TIME REQUIRED TO LEARN WHAT WAS VERY MUCH DIFFERENT BY YEAR OF GRADUATION

Work Methods: How Did They Compare with Those Used in School?	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Identical or almost so	83	26.5	87	25.6	149	32.1	319	28.4
Little real difference	159	50.8	166	48.8	221	47.6	551	49.1
Very much different	71	22.7	87	25.6	94	20.3	253	22.5
If Very Much Different, How Long Did It Take to Learn?								
Only about a few weeks	29	43.3	27	36.5	37	48.7	94	43.1
Less than three months	14	20.9	24	32.4	20	26.3	58	26.6
About three to six months	9	13.4	7	9.5	10	13.2	26	11.9
About six months to a year	6	9.0	5	6.8	5	6.6	16	7.3
More than a year	9	13.4	11	14.9	4	5.3	24	11.0

That 18.3 percent represents 3.5 percent of the total number of graduates whose first job was in the trade studied. One can conclude that the lack of comparability in work methods reported by one-third of the graduates does not constitute a serious relearning problem. Apparently the basics have been learned well enough so as to permit method differences to be relatively quickly overcome.

Work Materials

Table 82 indicates how graduates compared the materials used on their first job in the trade with the materials used in school. For the combined years, only 16.1 percent claimed the materials used on the job were very much different from those used in school; 38.1 percent said there was little real difference, and

45.8 percent indicated there was no difference. As in the case of tools and equipment and work methods, the trend is toward even greater comparability. Over the three graduating class years, the percentage of graduates reporting no difference has increased consistently, and the percentage reporting very much difference has decreased. Thus, what appears a minor problem from a quantitative viewpoint is becoming even more so.

Of those who reported very much difference in work materials for the combined graduates, 51.3 percent indicated that it took only a few weeks to learn whatever was very much different. An additional 22.1 percent claimed it took less than three months. Less than 14 percent claimed the lack of comparability required more than six months of additional learning. That 14 percent represents less than 3 percent of those whose first job was in the trade studied.

Table 82. WORK MATERIALS: COMPARABILITY ANALYSIS AND TIME REQUIRED TO LEARN WHAT WAS VERY MUCH DIFFERENT BY YEAR OF GRADUATION

Work Materials: How Did They Compare with Those Used in School?	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Identical or almost so	130	42.5	152	45.0	227	49.1	509	45.8
Little real difference	124	40.5	128	37.9	168	36.4	424	38.1
Very much different	52	17.0	58	17.1	67	14.5	179	16.1
If Very Much Different, How Long Did It Take to Learn?								
Only about a few weeks	25	52.1	23	47.9	31	55.4	79	51.3
Less than three months	8	16.7	10	20.8	14	25.0	34	22.1
About three to six months	7	14.6	6	12.5	5	8.9	18	11.7
About six months to a year	3	6.3	2	4.2	1	1.8	6	3.9
More than a year	5	10.4	7	14.6	5	8.9	17	11.0

COMPARABILITY ANALYSIS BY TYPE OF SCHOOL

How do vocational schools compare with comprehensive schools in terms of (1) comparability of equipment, methods and materials used on the graduates' first job and those used in school, and (2) the time required by graduates to relearn where there is a lack of comparability?

To simplify the comparison, a weight average comparability score was calculated for each of the three items of comparison as follows: (1) A weight of 3,2 and 1 was assigned respectively to the categories of "identical or almost so," "little real difference," and "very much different." (2) The number of cases in each category was multiplied by the category weight. (3) The sum of the products was divided by the total number of cases. The same procedure was applied to the second portion of the data, the time required to learn whatever was very much different. Weights of 1 through 5 were assigned to the answer categories, the greater weight going to the "more than a year" category. Both percentage and weighted average data are presented.

Tools and Equipment

Table 83 presents the data for the two types of schools in terms of percentage responses for tools and equipment. There does not appear to be a significant difference in tool and equipment comparability for the two types of schools. The comparability score, described earlier, was 2.4 for vocational schools and 2.4 for comprehensive schools.

Of those who reported very much difference in tools and equipment used in the school and used on the first job, the percentages for time required to relearn suggest there is no difference between the two types of schools. The weighted average time required score was again 2.4 for vocational schools and 2.4 for comprehensive, indicating no difference.

Table 83. TOOLS AND EQUIPMENT: COMPARABILITY ANALYSIS AND TIME REQUIRED TO LEARN WHAT WAS VERY MUCH DIFFERENT BY TYPE OF SCHOOL

Tools and Equipment: How Did They Compare with Those Used in School?	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Identical or almost so	427	55.1	177	50.0
Little real difference	269	34.7	149	42.1
Very much different	79	10.2	28	7.9
Weighted Mean . . .	2.45		2.42	
If Very Much Different, How Long Did It Take to Learn?				
Only about a few weeks	31	40.8	10	41.7
Less than three months	16	21.1	4	16.7
About three to six months	12	15.8	5	20.8
About six months to a year	7	9.2	1	4.2
More than a year	10	13.2	4	16.7
Weighted Mean	2.36		2.38	

Work Methods

Table 84 presents the data for the two types of schools in terms of work methods. There does not appear to be any significant difference in work method comparability as reported by the graduates of the two types of schools. The work method comparability score for vocational schools was 2.1; for comprehensive schools, 2.1.

Of those who reported very much difference in work methods, the time required to learn what was different was the same for both types of schools. The weighted average time required score was 2.1 for vocational schools, and 2.1 for comprehensive schools.

Table 84. WORK METHODS: COMPARABILITY ANALYSIS AND TIME REQUIRED TO LEARN WHAT WAS VERY MUCH DIFFERENT BY TYPE OF SCHOOL

Work Methods: How Did They Compare with Those Used in School?	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Identical or almost so	218	28.4	101	28.5
Little real difference	368	47.9	183	51.5
Very much different	182	23.7	71	20.0
Weighted Mean . . .	2.05		2.08	
If Very Much Different, How Long Did It Take to Learn?				
Only about a few weeks	62	39.2	32	53.3
Less than three months	47	29.7	11	18.3
About three to six months	21	13.3	5	8.3
About six months to a year	11	7.0	5	8.3
More than a year	17	10.8	7	11.7
Weighted Mean . . .	2.09		2.07	

Work Materials

Table 85 presents the data for the two types of schools in terms of work materials. Again, there does not appear to be any significant difference in work material comparability as reported by the graduates of vocational and comprehensive schools. The comparability score for vocational schools was 2.3 versus 2.3 for comprehensive schools.

Of those who reported very much difference in work materials used in school and used on the first job, the percentages for time required to relearn, over all categories, suggest no difference between the two types of schools. The conclusion is confirmed by the weighted average time required

Table 85. WORK MATERIALS: COMPARABILITY ANALYSIS AND TIME REQUIRED TO LEARN WHAT WAS VERY MUCH DIFFERENT BY TYPE OF SCHOOL

Work Materials: How Did They Compare with Those Used in School?	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Identical or almost so	356	46.6	153	40.0
Little real difference	282	36.9	142	40.8
Very much different	126	16.5	53	19.2
Weighted Mean . . .	2.30		2.29	
If Very Much Different, How Long Did It Take to Learn?				
Only about a few weeks	51	47.7	28	59.6
Less than three months	27	25.2	7	14.9
About three to six months	11	10.3	7	14.9
About six months to a year	5	4.7	1	2.1
More than a year	13	12.1	4	8.5
Weighted Mean . . .	2.08		1.86	

to learn what was different. It was 2.0 for the vocational schools and 1.9 for the comprehensive schools.

Thus, the comparability of tools and equipment, work methods, and work materials reported by graduates of vocational schools is no different from that reported by graduates of comprehensive schools. Furthermore, where substantial lack of comparability is reported, the graduates of both types of schools take about the same time to learn whatever is very much different in equipment, methods and materials.

COMPARABILITY ANALYSIS BY ENROLLMENT

Does the size of the school enrollment make a difference in (1) comparability of equipment, methods and materials used on the graduate's first job and those used in school, and (2) the time required to relearn where there is a lack of comparability? To simplify the comparison of schools with enrollments less than 500, between 500 and 1500, and more than 1500, weighted average comparability scores and time required to relearn scores were calculated for each enrollment category for tools and equipment, work methods and work materials. The results are shown in Table 86.

Table 86. COMPARISON OF SCHOOL ENROLLMENT CATEGORIES IN TERMS OF WEIGHTED AVERAGE SCORES OF COMPARABILITY OF EQUIPMENT, METHODS AND MATERIALS AND OF TIME REQUIRED TO LEARN WHAT WAS VERY MUCH DIFFERENT

Comparability Between School Use and First Job Use	School Enrollment		
	< 500	500-1500	>1500
Tools and equipment	2.5	2.4	2.4
Work methods	2.1	2.1	2.0
Work materials	2.3	2.3	2.3
Time Required to Learn What Was Very Much Different			
Tools and equipment	2.5	2.2	2.3
Work methods	2.2	2.2	2.1
Work materials	2.2	1.9	1.9

There are no significant differences between graduates of large, medium, and small enrollment schools, as defined in this study, in terms of mean equipment, methods, and materials comparability scores, and mean time required to relearn what was "very much different." The conclusion is that school enrollment is not a variable influencing school-job comparability of equipment, methods, and materials, and time required to relearn what is found to be "very much different" by a small minority of graduates.

* * * * * * *

The comparability analysis by the race of graduates is not reported because too few Negro graduates obtained their first job in the same trade studied to warrant the analysis.

* * * * * * *

The data presented in this chapter suggest that differences between school and job equipment, methods, and materials are not looked upon as "very much different" by the vast majority of vocational school graduates, and the small minority that does report considerable differences required relatively little time to learn what is substantially different. These generalizations do not argue against the need in individual schools for more modern equipment, improvements in trade-oriented work methods, and greater use of the types of materials used in the trades. They do raise a question about a massive effort to re-equip vocational shops across the country on the grounds that graduates are inadequately prepared for the trades because of obsolescent equipment, antiquated work methods, and substitute materials. The facts are to the contrary.

7 ASSESSMENT OF SKILL ORIGINS AND REQUIREMENTS

- ☐ Introduction to the Assessment Problem 1
- ☐ The Importance of Basic Trade Skills 3
- ☐ Amount of Skill Learned in High School 11
- ☐ Analysis of Acknowledged Learning Measure 19
- ☐ Where Most Was Learned About Skills 25
- ☐ Need for More Training in Basic Skills 33

CHAPTER 7 SUMMARY

Introduction to the Assessment Problem

1. Alternative methods of assessment. Four alternatives for assessing how much trade skills vocational graduates have learned in high school are briefly discussed. They include test measurement of trade skills, opinions of shop instructors, opinions of employers, and opinions of graduates. The latter was the only practical alternative for the study.

Importance of Basic Trade Skills

2. Year of graduation. The importance attached to different basic trade skills changes with years of experience in the trade. In general, the importance rating of trade skills increases with trade experience. The three skills rated to be most important by all graduates are manual job skills, practical job knowledge, and theoretical job knowledge. Skills related to supervisory responsibilities increased in importance with trade experience.

3. Type of school. There is no significant difference in the importance ratings attached to basic trade skills between graduates of vocational and comprehensive schools.

4. School enrollment. In general, the importance attached to basic trade skills is unrelated to the enrollment of the schools from which the graduates came.

Amount of Skill Learned in High School

5. Year of graduation. The amount of basic trade skills acknowledged by graduates to have been learned in high school decreases with years out of school. Graduates of all years do acknowledge having learned a very substantial amount of trade skills in high school. The three skills learned most in high school are mathematical, manual, and theoretical job skills. The three skills learned least in high school are supervisory, clerical, and personal relations skills.

6. Type of school. There is no significant difference between vocational and comprehensive school graduates in terms of the amount of basic trade skills they claim they have learned in high school.

7. School enrollment. The larger the enrollment of the graduates' former high school, the less graduates acknowledge learning of basic trade skills in high school. Alternative interpretations are offered.

(Continued in Appendix B)

INTRODUCTION TO THE ASSESSMENT PROBLEM

A comprehensive assessment of the vocational education process would be incomplete if it by-passed the knotty problem of determining the degree to which the schools provide the knowledges and skills required by the trades taught. In principle, there are several approaches to the assessment problem. A brief discussion of the alternatives will set the stage for what follows.

Measurement of Trade Skills

Perhaps the ideal approach would be to have standardized instruments for measuring how much of required trade knowledges and skills were acquired by graduates by the end of their formal trade training. With appropriate norms, such trade examinations, whether of a paper and pencil type or a performance type or even a combination, would be used to compare the effectiveness of trade training among schools. Unfortunately, there were no such instruments. And even had there been some, their use would have been beyond the capability of the present survey.

Opinions of School Personnel

Shop instructors, because of their familiarity with trade knowledge and skill requirements and acquaintance with how much of these requirements they are able to impart to their students in the time available, could be the basis of evaluating how much students learn of what is required. Ratings of graduates in terms of the major dimensions of trade knowledge and skill requirements could be obtained from instructors. Such ratings would undoubtedly be useful for obtaining a generalized picture of acquired knowledges and skills. The principal disadvantage is that such ratings are to a large extent self-ratings. There might be an understandably strong leaning in the direction of claiming a satisfactory amount of acquired trade skill for one's own students.

Opinions of Employers

A third approach would be to solicit the opinions of employers or, better yet, supervisors of graduates who work in the trade. Supervisors should know at least generally the trade knowledge and skill requirements. Given an instrument for assessing the trade knowledge and skills demonstrated by recent graduates, supervisors could undoubtedly be a basis for obtaining a picture of how much the graduate has learned. The practical problems associated with contacting employers and obtaining assessments of recent graduates from supervisors made this approach unsuitable for the present survey.

Opinions of Graduates

A fourth approach to the problem of assessing how much vocational course graduates have learned of required trade skills and knowledges is to ask the graduates currently working in the trades studied or highly related trades. This approach too has some serious limitations. The graduate is asked to recall, in effect, the state of his trade skill acquisition at the time he left high school. In the present survey, recall means an assessment of trade knowledges and skills as far back as eleven years ago for the class of 1953.

Moreover, if graduates are asked to assess the vocational knowledges and skills they acquired in high school at the time of graduation, they must do so without the benefit of trade experience. This, too, is a disadvantage.

Practical considerations determined that the survey would solicit the opinions of graduates about vocational knowledges and skills acquired in high school despite the aforementioned disadvantages. The graduates were asked four questions with respect to nine basic skill areas: (1) How important is the skill for your present job? (2) How much of the skill was learned in high school? (3) Where did you learn most about the skill? (4) Do you feel the need for more training in this skill area?

* * * * * * *

The analyses which follow concern the answers to the above four questions as they are related to such basic variables as year of graduation, type of school attended, and enrollment of school attended.

THE IMPORTANCE OF BASIC TRADE SKILLS

Introduction

The graduates were asked to rate the importance of nine basic knowledges and skills for their present job. The nine skill categories were:

1. Manual job skills
2. Practical job knowlege
3. Theoretical job knowlege
4. Mathematical skills
5. Communication skills
6. Reading and interpretive skills
7. Clerical skills
8. Personal relations skills
9. Supervisory skills

The nine categories are defined on the questionnaire exhibits shown in Chapter 1. The rating categories were: (1) of no real importance, (2) of slight importance, (3) of considerable importance, and (4) of critical importance.

The ratings were intended to shed light on what was regarded as important in the different trades; whether judgments of importance varied with years of experience in the trades; whether graduates of vocational and comprehensive schools differed in importance ratings; and whether graduates of small, medium and large enrollment schools differed in such ratings. The analysis of the rated importance of the aforementioned skills by the individual trades has been omitted because of a decision to drop the trades as an independent variable for reason of insufficient budget. Additional funding may yet make analysis by trades possible.

Analysis by Year of Graduation

Do graduates with varying years of experience in the trades differ in the importance they attach to the basic skills? Which skills, if any, show the greatest differences? Which skills are relatively unaffected, in judged importance, by increased years of experience in the trades? Lastly, what is the relative importance of the skills for all graduates? Table 87 presents the data.

Table 87. IMPORTANCE OF BASIC SKILLS: MEAN RATINGS BY YEAR OF GRADUATION
(Based on graduates in the trade or in highly related trades)

Trade Knowledge or Skill Rated by Graduates *	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
	N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.
Manual job skills	357	3.4	.72	526	3.3	.80	703	3.3	.83	1592	3.4	.79
Practical job knowledge	350	3.4	.63	513	3.3	.72	674	3.3	.72	1543	3.3	.70
Theoretical job knowledge	346	3.4	.68	502	3.3	.75	650	3.3	.76	1503	3.3	.74
Mathematical skills	352	3.1	.90	507	3.0	.92	667	2.9	.99	1532	3.0	.95
Communication skills	352	3.0	.93	505	2.9	.99	666	2.8	1.01	1528	2.9	.99
Reading & interpretive skills	348	3.4	.84	511	3.3	.91	667	3.2	.96	1531	3.3	.92
Clerical skills	349	2.5	1.06	509	2.4	1.02	655	2.2	1.05	1519	2.4	1.05
Personal relations skills	347	3.1	.92	507	3.1	.92	669	2.9	.96	1529	3.0	.94
Supervisory skills	347	3.0	.98	504	2.8	1.01	654	2.5	1.02	1511	2.7	1.03
IMPORTANCE INDEX	9	3.14	-	9	3.04	-	9	2.93	-	9	3.03	-

* 4 = Of critical importance; 3 = Of considerable importance; 2 = Of slight importance
1 = Of no real importance

The importance index, which is simply the mean of the mean ratings given the individual skills, increases from 2.93 for 1962 graduates to 3.04 for 1958 graduates, and further to 3.14 for 1953 graduates. The trend establishes that, in general, the importance that vocational graduates attach to these basic skills increases with increased years of experience in the trade. The reason for the increased importance attached to the skills probably has to do with the greater responsibilitites that the older gradustes have on their jobs.

There is, for example, a substantial difference in the importance that 1953 and 1962 graduates attached to supervisory skills. This is probably because the former have greater need for such skills as a result of broader responsibilities. They have more likely reached positions where supervisory responsibilities are involved.

The changes in importance attached to individual skills with increased years of experience in the trade are of interest. Manual job skills, practical job knowledge and theoretical job knowledge show relatively little increase in rated importance. That is partly because the rated importance of these skills and knowledge areas are very high within two years after graduation. The two skills that show the greatest gain in rated importance are supervisory skills and clerical skills. Undoubtedly, this is a reflection of an increase in supervisory and clerical responsibilities with increased years in the trade. Communication skills, reading and interpretive skills, mathematical skills and personal relation skills also show a consistent increase in rated importance with increased years in the trade.

The relatively small differences in the rated importance of some of the skill areas between the 1953, 1958 and 1962 graduates should not be interpreted to mean that the differences would be small for all trades. For some trades, the need for mathematical skills does not necessarily increase with years of trade experience. Indeed, for some trades, there is relatively little need for mathematical skills. Commercial cooking and tailoring are examples. The trends reflected in Table 87 reflect to some extent the flattening effect when individual trade trends cancel out each other as a result of being combined. Of more practical significance to the educator, would be trends of importance ratings in terms of specific trades. The data are available, but unanalyzed on data tapes.

Independent of the experience factor, what is the relative importance of the basic skills, <u>for all trades combined</u>? The skills are listed below in rank order of mean rated importance for the combined year of graduation groups.

1. Manual job skills 3.4
2. Practical job knowledge 3.3
3. Theoretical job knowledge . . . 3.3

4. Reading-interpretive skills . . 3.3
5. Mathematical skills 3.0
6. Personal relations skills . . . 3.0
7. Communication skills 2.7
8. Supervisory skills 2.7
9. Clerical skills 2.4

Manual job skills were rated the most important. The 3.4 mean rating is almost midway between "of critical importance" and "of considerable importance." The range of the three mean ratings obtained for this skill from the three year of graduation groups was from 3.3 to 3.4. Clearly, manual job skills are rated of very high importance by graduates from two to eleven years in the trade studied or highly related trades. The same is true for practical job knowledge. These findings have a bearing on current thinking, already widespread, that manual job skills and specific trade-related practical knowledge should be de-emphasized in favor of more generalized training. In view of the importance attached to manual skills and practical job knowledge by those in the trades, should such skills be de-emphasized in basic vocational training? What problems will arise in employer acceptance of vocational graduates if practical job knowledge and manual skills are de-emphasized?

It is interesting to see that theoretical job knowledge has as high an importance rating as practical job knowledge. The graduate is already aware of the importance of basic trade principles and concepts. However, this too may be at variance with the thinking that persons should be trained generally, for a family of related trades rather than for specific trades. Will the graduate of such generalized training have sufficient theoretical job knowledge for a specific trade? If not, where is he expected to get such theoretical knowledge?

The importance of reading and interpretive skills, mathematical skills, and personal relations skills is acknowledged. All have a mean rating of 3.0 or more, indicating they are regarded as of considerable importance. A later section will indicate to what extent the schools are providing these skills, in the opinion of graduates.

Of least importance, relatively, are communication skills, supervisory skills and clerical skills. The latter two in particular grow in importance with increasing years in the trade. However, they do not reach the importance attached to manual job skills and practical job knowledge by the 1962, 1958 or 1953 graduates. This is wholly consistent with the relatively litte emphasis that schools put on these skill areas during the high school period.

Table 88 presents the number and percentage of graduates in each response category for the basic skills. The data is the basis for the mean ratings presented in Table 87.

The percentage values confirm the growth of the importance of the skills with experience. Whereas, 20.3 percent of 1962 graduates claimed supervisory skills were "of critical importance," 36 percent of the 1953 graduates so rated the skill, a gain of 16 percent. Comparable gains were 10 percent for personal relations skills, 8 percent for clerical skills, 8 percent for interpretive skills, and 7 percent for communication skills. There is no question but that as experience in the trades increase, the need for such skills increases.

Analysis by Type of School

How do graduates of vocational and comprehensive schools compare in terms of the importance ratings given to the basic skills? Table 89 presents the data.

There is no overall difference in the skill ratings of importance by the graduates of the two types of schools. Differences between individual items are not significant. Had there been substantial or significant differences, a plausible interpretation would be that the higher the rating of importance, the greater the felt need for greater skill. This would have reflected on the adequacy of the underlying training. No such interpretation is necessary.

Table 88. IMPORTANCE OF BASIC SKILLS: PERCENTAGE BY RESPONSE CATEGORY BY YEAR OF GRADUATION

(Based on graduates in the trade or in highly related trades)

Knowledge or Skill Rated By Graduates In Same or Highly Related Trade	Year of Graduation	IMPORTANCE OF SKILL RATING							
		Of No Real Importance		Of Slight Importance		Of Much Importance		Of Critical Importance	
		N	%	N	%	N	%	N	%
Manual job skills	1953	11	3.1	15	4.2	142	39.8	189	52.9
	1958	23	4.4	38	7.2	198	37.6	267	50.8
	1962	37	5.3	53	7.5	263	37.4	350	49.8
	Combined	71	4.5	107	6.7	604	37.9	810	50.9
Practical job knowledge	1953	4	1.1	15	4.3	160	45.7	171	48.9
	1958	10	1.9	46	9.0	216	42.1	241	47.0
	1962	16	2.4	53	7.9	310	46.0	295	43.8
	Combined	30	1.9	114	7.4	692	44.8	707	45.8
Theoretical job knowledge	1953	7	2.0	20	5.8	158	45.7	161	46.5
	1958	13	2.6	50	10.0	219	43.6	220	43.8
	1962	19	2.9	66	10.2	292	44.9	273	42.0
	Combined	39	2.6	137	9.1	673	44.8	654	43.5
Mathematical skills	1953	18	5.1	76	21.6	121	34.4	137	38.9
	1958	41	8.1	102	20.1	196	38.6	168	33.1
	1962	66	9.9	156	23.4	209	31.3	236	35.4
	Combined	126	8.2	335	21.9	529	34.5	542	35.4
Communication skills	1953	25	7.1	73	20.7	121	34.4	133	37.8
	1958	54	10.7	103	20.4	173	34.2	175	34.6
	1962	89	13.4	136	20.4	237	35.6	204	30.6
	Combined	170	11.1	312	20.4	534	34.9	512	33.5
Reading and interpretive skills	1953	18	5.2	28	8.0	95	27.3	207	59.5
	1958	37	7.2	43	8.4	146	28.6	285	55.8
	1962	54	8.1	93	13.9	179	26.8	341	51.1
	Combined	109	7.1	165	10.8	424	27.7	833	54.4
Clerical skills	1953	73	20.9	103	29.5	93	26.6	80	22.9
	1958	109	21.4	179	35.2	125	24.6	96	18.9
	1962	208	31.8	196	29.9	154	23.5	97	14.8
	Combined	391	25.7	478	31.5	377	24.8	273	18.0
Personal relations skills	1953	21	6.1	63	18.2	113	32.6	150	43.3
	1958	40	7.9	79	15.6	192	37.9	196	38.7
	1962	68	10.2	127	19.0	250	37.4	224	33.5
	Combined	129	8.4	270	17.7	557	36.4	573	37.5
Supervisory skills	1953	37	10.7	63	18.2	122	35.2	125	36.0
	1958	68	13.5	110	21.8	173	34.3	153	30.4
	1962	129	19.7	181	27.7	211	32.2	133	20.3
	Combined	234	15.5	355	23.5	510	33.8	412	27.3

Table 89. IMPORTANCE OF BASIC SKILLS: COMPARISON OF COMPREHENSIVE AND VOCATIONAL SCHOOLS IN TERMS OF MEAN RATINGS
(Based on graduates in the trade or in highly related trades)

Trade Knowledge or Skill Rated By Graduates *	TYPE OF SCHOOL					
	Vocational			Comprehensive		
	N	M	S.D.	N	M	S.D.
Manual job skills	1042	3.4	.78	550	3.3	.81
Practical job knowledge	1013	3.4	.70	530	3.3	.71
Theoretical job knowledge	988	3.3	.74	515	3.2	.74
Mathematical skills	1000	2.9	.96	532	3.0	.94
Communication skills	998	2.9	.97	530	2.8	1.02
Reading and interpretive skills .	1002	3.3	.91	529	3.2	.95
Clerical skills	996	2.3	1.05	523	2.4	1.04
Personal relations skills	999	3.0	.93	530	3.0	.96
Supervisory skills	985	2.7	1.02	526	2.7	1.03

* 4 = Of critical importance; 3 = Of considerable importance
2 = Of slight importance; 1 = Of no real importance

Analysis by School Enrollment

How do graduates of small, medium and large enrollment schools, as herein defined, compare in terms of the importance attached to the basic skills? The question was raised on the hypotheses that differences in importance ratings may reflect differences in felt need for additional skill, and thereby indirectly reflect upon the adequacy of past training. Table 90 provides the data.

There is only one consistent trend among the importance ratings of the basic skill areas. The graduates of large enrollment schools attach less importance to communication skills than do the graduates of medium and small enrollment schools. Application of the previously mentioned hypotheses would suggest that graduates of small enrollment school feel a greater need for communication skills (because they attach more importance to such skills), and therefore,

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Table 90. IMPORTANCE OF BASIC SKILLS: COMPARISON OF TOTAL SCHOOL ENROLLMENT CATEGORIES IN TERMS OF MEAN RATINGS

(Based on graduates in the trade or in highly related trades)

Trade Knowledge or Skill Rated By Graduates *	SCHOOL ENROLLMENT								
	< 500			500-1500			> 1500		
	N	M	S.D.	N	M	S.D.	N	M	S.D.
Manual job skills	600	3.4	.76	551	3.3	.84	441	3.4	.78
Practical job knowledge	582	3.4	.68	532	3.3	.70	429	3.3	.72
Theoretical job knowledge	567	3.4	.70	520	3.3	.76	416	3.3	.75
Mathematical skills	578	3.0	.94	524	3.0	.96	430	3.0	.95
Communication skills	577	3.0	.96	524	2.9	1.00	427	2.8	1.00
Reading & Interpretive skills	579	3.3	.90	524	3.3	.95	428	3.2	.92
Clerical skills	573	2.4	1.06	524	2.3	1.02	422	2.3	1.06
Personal relations skills	576	3.1	.92	526	3.0	.93	427	3.0	.98
Supervisory skills	567	2.8	1.01	519	2.7	1.05	425	2.7	1.02

* 4 = Of critical importance; 3 = Of considerable importance; 2 = Of slight importance; 1 = Of no real importance

received less adequate training in this skill area than did graduates from medium or large enrollment schools.

The importance ratings of other skill areas appear to be unrelated to school enrollment. The enrollment of the school attended has no influence on the rated importance of skills.

AMOUNT OF SKILL LEARNED IN HIGH SCHOOL

Introduction

The same nine basic knowledges and skills discussed earlier were rated by the graduates in terms of how much they learned about each in high school. The categories for the rating were: (1) almost nothing, (2) some but not much, (3) a large amount, and (4) almost all. For analysis purposes, the ratings were assigned values of 1, 2, 3, and 4 respectively to obtain mean ratings.

It should be pointed out once again that the graduates of 1962, 1958 and 1953 were asked to assess how much of each skill was learned in high school two, six and elven years respectively after graduation. Clearly, the method of assessing what has been learned in high school about these basic skills leaves much to be desired. There was no practical alternative.

Despite their admitted limitations, such ratings may suggest areas of training weakness, particularly if the findings corroborate in part what is already known or suspected to be the case.

Analysis by Year of Graduation

Do the graduates of 1953, 1958 and 1962 differ in terms of the overall amount of trade knowledges and skills that, in their opinion, they have learned in high school? Are there trends in the mean ratings of amount of skill learned in high school among the individual skills? Table 91 provides the data.

The amount learned index, which is simply a mean of the individual mean ratings, increases from 2.49 for the 1953 graduates to 2.55 for the 1958 graduates to 2.69 for 1962 graduates. The trend raises a problem of interpretation. One interpretation is that the 1962 graduates learned more of the basic skills than those of 1958 or 1953. A second interpretation is

Table 91. AMOUNT OF SKILL LEARNED IN HIGH SCHOOL: RATINGS BY YEAR OF GRADUATION

(Based on graduates in the trade or in highly related trades)

Trade Knowledge or Skill Rated As To The Amount Learned In High School *	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
	N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.
▲Manual job skills	357	2.8	.76	519	2.9	.72	695	3.0	.76	1577	2.9	.75
Practical job knowledge	351	2.6	.74	508	2.6	.74	670	2.8	.77	1535	2.7	.76
▲Theoretical job knowledge	346	2.8	.79	492	2.9	.79	646	3.0	.81	1489	2.9	.80
▲Mathematical skills	348	3.0	.86	499	3.1	.86	653	3.2	.86	1506	3.1	.86
Communication skills	349	2.8	.81	495	2.8	.84	650	2.8	.90	1499	2.8	.86
Reading & interpretive skills	347	2.8	.83	499	2.8	.88	656	2.9	.92	1507	2.8	.89
Clerical skills	344	1.9	.90	495	1.9	.86	643	2.2	.97	1488	2.0	.93
▲Personal relations skills	339	2.0	.87	496	2.2	.89	653	2.3	.92	1494	2.2	.91
▲Supervisory skills	338	1.7	.82	491	1.8	.82	635	2.0	.92	1470	1.9	.88
AMOUNT LEARNED INDEX	9	2.49	-	9	2.55	-	9	2.69	-	9	2.59	-

* 4 = Almost all; 3 = Large amount; 2 = Some but not much; 1 = Almost nothing

that the more recent graduates are more generous in the learning they attribute to their former high schools. A third interpretation is that the older graduates have learned more of these skills <u>since</u> leaving high school, and therefore, attribute less learning of the skills to their former high schools. No conclusive interpretation can be made.

The skills marked with upward pointing arrows are those which show a <u>consistent</u> trend of higher mean ratings for 1953, 1958 and 1962 respectively. They include manual job skills, theoretical job knowledge, mathematical skills, personal relations skills, and supervisory skills. All skills, with the exception of communication skills, have higher amount learned ratings from the 1962 graduates than from the 1953 graduates. A conclusive interpretation is not possible.

One point is conclusive. Graduates do feel that they have learned a fair amount of these skills in high school. The skills are listed below in rank order of the mean rating of amount learned in high school. The mean ratings are based upon the combined graduates.

1. Mathematical skills 3.1
2. Manual job skills 2.9

3. Theoretical job knowledge 2.9
4. Communication skills 2.8
5. Reading and interpretive skills 2.8
6. Practical job knowledge 2.7
7. Personal relations skills 2.2
8. Clerical skills 2.0
9. Supervisory skills 1.9

All but three of the basic skills have mean amount-learned-in-high school ratings of 2.7 or more. A rating of 3.0 is the equivalent of having learned, in the graduate's opinion, a "large amount" in high school. Mathematical skills, manual job skills and theoretical job knowledge head the list in that order. Personal relations skills, clerical skills, and supervisory skills were rated 2.2 and lower, indicating some but not much of these skills were learned in high school. This is understandable. Relative to the other basic skills, schools do not put much emphasis on the latter skills. It is interesting to note that practical job knowledge ranked fourth from the bottom with a mean rating of 2.7. This suggests a large amount of practical job knowledge is learned after graduation on the job.

The mean ratings of the amount of each skill learned in high school support the technique of using graduate opinions to assess how much of skills are learned in high school. The ratings are consistent, in a relative way, with what should be the case based upon what is known about what schools emphasize.

Table 92 presents the percentage of graduates by skill and response category. The differences between the graduating class years are most noticeable in the extreme categories, particularly the "almost all" category.

Some of the combined percentages are revealing. Seventy-nine percent of the 1962 graduates claimed they learned a "large amount" or "almost all" of their manual job skills in school. Comparable percentages for the other basic skills are:

1. Practical job knowledge 68.8
2. Theoretical job knowledge 75.4
3. Mathematical skills 78.6

Table 92. AMOUNT OF SKILL LEARNED IN HIGH SCHOOL: PERCENTAGE BY RESPONSE CATEGORY BY YEAR OF GRADUATION

(Based on graduates in the trade or in highly related trades)

Knowledge or Skill Rated By Graduates In Same or Highly Related Trade	Year of Graduation	AMOUNT OF SKILL LEARNED IN HIGH SCHOOL							
		Almost Nothing		Some, But Not Much		Large Amount		Almost All	
		N	%	N	%	N	%	N	%
Manual job skills	1953	20	5.6	90	25.2	191	54.9	51	14.3
	1958	20	3.8	114	22.0	299	57.6	86	16.6
	1962	31	4.5	114	16.4	386	55.5	164	23.6
	Combined	71	4.5	318	20.2	885	56.1	303	19.2
Practical job knowledge	1953	29	8.3	121	34.5	176	50.1	25	7.1
	1958	29	5.7	179	35.2	250	49.2	50	9.8
	1962	39	5.8	170	25.4	360	53.7	101	15.1
	Combined	97	6.3	470	30.6	791	51.5	177	11.5
Theoretical job knowledge	1953	21	6.1	75	21.7	186	53.8	64	18.5
	1958	22	4.5	121	24.6	242	49.2	107	21.7
	1962	29	4.5	130	20.1	308	47.7	179	27.7
	Combined	72	4.8	327	22.0	739	49.6	351	23.6
Mathematical skills	1953	16	4.6	75	21.6	137	39.4	120	34.5
	1958	19	3.8	101	20.2	179	35.9	200	40.1
	1962	29	4.4	111	17.0	246	37.7	267	40.9
	Combined	66	4.4	287	19.0	565	37.5	588	39.0
Communication skills	1953	19	5.4	100	28.6	162	46.4	68	19.5
	1958	34	6.9	146	29.5	218	44.0	97	19.6
	1962	54	8.3	156	24.0	274	42.2	166	25.5
	Combined	108	7.2	403	26.9	655	43.7	333	22.2
Reading and interpretive skills	1953	21	6.0	95	27.4	159	45.8	72	20.7
	1958	37	7.4	138	27.6	208	41.7	116	23.2
	1962	62	9.4	138	21.0	272	41.5	184	28.0
	Combined	120	8.0	372	24.7	640	42.5	375	24.9
Clerical skills	1953	130	37.8	138	40.1	51	14.8	25	7.3
	1958	172	34.7	222	44.8	70	14.1	31	6.3
	1962	190	20.5	225	35.0	160	24.9	68	10.6
	Combined	493	33.1	585	39.3	285	19.2	125	8.4
Personal relations skills	1953	111	32.7	126	37.2	87	25.7	15	4.4
	1958	127	25.6	190	38.3	144	29.0	35	7.1
	1962	150	23.0	233	35.7	208	31.9	62	9.5
	Combined	388	26.0	550	36.8	444	29.7	112	7.5
Supervisory skills	1953	177	52.4	109	32.2	40	11.8	12	3.6
	1958	204	41.5	190	38.7	81	16.5	16	3.3
	1962	211	33.2	230	36.2	148	23.3	46	7.2
	Combined	593	40.4	531	36.1	271	18.4	71	5.1

4. Communication skills 67.7
5. Reading-interpretive skills 69.9
6. Clerical skills 35.4
7. Personal relations skills 41.4
8. Supervisory skills 30.5

The above percentages are a reflection of how much of the skills present two years after graduation from high school are attributable to what was learned in high school.

Analysis by Type of School

How do the graduates of vocational and comprehensive schools compare in terms of the amount of the basic skills that they claim they learned in high school? Differences would presumably reflect school differences in effectiveness of training in the skills. Table 93 presents the data.

Table 93. AMOUNT OF SKILL LEARNED IN HIGH SCHOOL: COMPARISON OF COMPREHENSIVE AND VOCATIONAL SCHOOLS IN TERMS OF MEAN RATINGS
(Based on graduates in the trade or in highly related trades)

Trade Knowledge or Skill Rated As To Amount Learned In High School *	TYPE OF SCHOOL					
	Vocational			Comprehensive		
	N	M	S.D.	N	M	S.D.
Manual job skills	1033	2.9	.75	544	2.8	.74
Practical job knowledge	1005	2.7	.76	530	2.7	.75
Theoretical job knowledge	978	3.0	.80	511	2.8	.79
Mathematical skills	986	3.1	.86	520	3.1	.87
Communication skills	984	2.8	.85	515	2.8	.88
Reading and interpretive skills .	988	2.9	.90	519	2.8	.87
Clerical skills	979	2.0	.93	509	2.0	.92
Personal relations skills	976	2.2	.89	518	2.2	.94
Supervisory skills	960	1.8	.86	510	2.0	.91

* 4 = Almost all; 3 = Large amount; 2 = Some, but not much; 1 = Almost nothing

It does not appear that there is a significant overall difference in the amount of skills that vocational and comprehensive graduates claim they have learned in school. Of the individual skill differences, there is a suggestion that vocational school graduates learn more of theoretical job knowledge than comprehensive school graduates. The difference, however, is not impressive.

Analysis by School Enrollment

How do the graduates of small, medium and large enrollment schools, as defined in this study, compare in terms of the amount of the basic skills attributed to high school learning? Substantial differences would presumably reflect school differences in the effectiveness of training the trades. Table 94 presents the data.

Table 94. AMOUNT OF SKILL LEARNED IN HIGH SCHOOL: COMPARISON OF TOTAL SCHOOL ENROLLMENT CATEGORIES IN TERMS OF MEAN RATINGS (Based on graduates in the trade or in highly related trades)

Trade Knowledge or Skill Rated As To Amount Learned In High School *	SCHOOL ENROLLMENT								
	< 500			500-1500			> 1500		
	N	M	S.D.	N	M	S.D.	N	M	S.D.
Manual job skills	594	3.0	.77	546	2.9	.76	437	2.8	.71 ▼
Practical job knowledge	579	2.8	.76	529	2.7	.74	427	2.6	.77 ▼
Theoretical job knowledge	561	3.0	.80	518	2.9	.78	410	2.8	.82 ▼
Mathematical skills	568	3.2	.82	517	3.1	.86	421	3.0	.91 ▼
Communication skills	565	2.8	.84	516	2.9	.83	418	2.7	.92
Reading & interpretive skills	571	2.9	.88	515	2.8	.90	421	2.8	.88
Clerical skills	568	2.1	.94	508	2.0	.92	412	1.9	.91 ▼
Personal relations skills	562	2.2	.88	514	2.2	.90	418	2.1	.94
Supervisory skills	552	1.9	.89	503	1.9	.88	415	1.8	.88

* 4 = Almost all; 3 = Large amount; 2 = Some, but not much; 1 = Almost nothing

The downward pointing arrows at the right of the table indicate a consistent trend: the larger the school enrollment, the less graduates attribute learning of the skill to the school. Even where the trend is not consistent, the mean ratings for the small enrollment schools are without exception greater than those for the large enrollment schools.

The question is: Why? One interpretation is that the ratings suggest that students learn more about these skills in small enrollment schools than in large enrollment schools. There is also another interpretation. Students in small enrollment schools may have greater feelings of loyalty toward their schools than those from the very large schools because of their closer associations with school personnel, particularly instructors, and therefore, may be more generous in the learning they attribute to their schools. Chapter 8 provides data to rule out the latter interpretation. There is no significant difference in the overall attitude that graduates from small, medium and large schools have toward their former schools. If anything, there are indications that small school graduates have less favorable attitudes toward their former schools. Thus, the first interpretation seems more plausible, i.e. the larger the school enrollment, the less graduates have learned of the basic skills. It should be pointed out, however, that the differences are not substantial.

ANALYSIS OF
ACKNOWLEDGED LEARNING MEASURE

Introduction

The two preceding sections analyzed the variables, rated importance of skills and rated amount of skills learned in high school. In Chapter 3, a derived measure was introduced that is the product of these two variables. The measure is acknowledged high school learning.

The measure is the mean of the products obtained by multiplying the rated amount of each skill learned in high school with its rated importance for the graduate's present job in the trade or a highly related trade. The measure reflects how much of the basic skills were learned in high school, when each skill is weighted by its importance rating. As such, it is a refinement of the assessment of how much of basic skills are learned in high school that was presented in the preceding section.

The measure is such that a maximum score of 16 means a graduate rated each skill of critical importance (4) and claimed he learned almost all of each skill (4) in high school. A minimum score of 1 means a graduate rated each skill of no importance for his present job (1) and claimed he learned nothing (1) of each skill in high school. Obviously, neither extreme score is probable or credible.

Because the measure is the interaction product of two equally weighted variables, it can not be interpreted in terms of the original rating categories. The higher the score, the more of the basic skills were learned in high school and regarded important for the graduate's present job. Up to the point where an extremely high score may call into question the credibility of the ratings, the higher the score on this measure, the better it reflects on the graduate's high school vocational education.

Analysis by Year of Graduation

How do the graduates of 1953, 1958, and 1962 compare in terms of the measure? Is there a significant trend? If so, what is the interpretation thereof? Table 95 shows a frequency, percentage and cumulative percentage distribution of the measure, for graduating classes of 1953, 1958, and 1962 separately and for all classes combined, together with mean and median values.

Table 95. ACKNOWLEDGED HIGH SCHOOL LEARNING: FREQUENCY DISTRIBUTION FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

(Based on graduates in the trade or in highly related trades)

High School Learning	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	M	C%	N	M	C%	N	M	C%	N	M	C%
> 15.0	2	0.6	100.0	2	0.4	100.0	4	0.6	100.0	8	0.5	100.0
13.6-15.0	6	1.7	99.4	2	0.4	99.6	15	2.2	99.4	23	1.5	99.5
12.1-13.5	8	2.3	97.7	14	2.7	99.2	27	3.9	97.2	49	3.1	98.0
10.6-12.0	38	10.8	95.4	58	11.3	96.5	73	10.6	93.3	170	10.9	94.9
9.1-10.5	57	16.3	84.6	91	17.6	85.2	119	17.3	82.7	270	17.3	84.0
7.6- 9.0	88	25.1	68.3	137	26.6	67.6	191	27.8	65.4	417	26.8	66.7
6.1- 7.5	93	26.6	43.2	119	23.1	41.0	135	19.7	37.6	347	22.3	39.9
4.6- 6.0	40	11.4	16.6	72	14.0	17.9	84	12.2	17.9	197	12.6	17.6
3.1- 4.5	15	4.3	5.2	14	2.7	3.9	29	4.2	5.7	58	3.7	5.0
1.6- 3.0	3	0.9	0.9	6	1.2	1.2	6	0.9	1.5	15	1.0	1.3
1.0- 1.5	0	0.0	0.0	0	0.0	0.0	4	0.6	0.6	4	0.3	0.3
Number	350			515			687			1558		
Mean	8.2			8.1			8.3			8.2		
Median	8.0			8.1			8.2			8.1		
S.D.	2.29			2.2			2.5			2.36		

The mean values of the measure are 8.2, 8.1 and 8.3 respectively for 1953, 1958 and 1962 graduates. Thus, the measure shows no trend. This is explainable. The importance of skill ratings <u>increased</u> with years out of school.

The ratings of amount of skill learned in high school showed the opposite trend, i.e. claimed high school learning decreased with years out of school. The two trends cancelled each other out in the derived measure.

Proper application of the measure for trend analysis calls for deriving the measure from ratings from different year-of-graduation groups at the same time after graduation for each group. Thus, if the classes of 1953, 1958, and 1962 had provided their ratings two years after graduation, there would have been a basis for trend analysis uncomplicated by differential periods out of school. The study design made this type of analysis impossible.

Analysis by Type of School

How do comprehensive and vocational school graduates compare in terms of the acknowledged learning measure? Table 96 provides the comparison data for each year of graduation group.

Table 96. ACKNOWLEDGED HIGH SCHOOL LEARNING: COMPARISON OF COMPREHENSIVE AND VOCATIONAL SCHOOLS
(Based on graduates in the trade or in highly related trades)

Year of Graduation	Type of School	High School Learning		
		N	M	S.D.
1953	Vocational	232	8.3	2.4
	Comprehensive	118	7.9	2.1
1958	Vocational	327	8.1	2.2
	Comprehensive	188	8.1	2.1
1962	Vocational	452	8.4	2.4
	Comprehensive	235	8.2	2.6
Combined	Vocational	1017	8.3	2.4
	Comprehensive	541	8.1	2.4

The 1953 and 1962 vocational school graduates have slightly higher mean scores on the measure than the comprehensive school vocational graduates. For the 1958 graduates, there is no difference between the graduates of the two types of schools. The prudent conclusion is that there is no difference between the two types of schools in terms of the amount of basic skills reported by graduates to have been learned in high school, when the skills are weighted by importance for present jobs in the trade or highly related trades.

Analysis by School Enrollment

How do graduates from small, medium and large enrollment schools compare in terms of the acknowledged learning measure, which takes into account the rated importance of the skill attributed to high school learning? Table 97 provides the data.

Table 97. ACKNOWLEDGED HIGH SCHOOL LEARNING: COMPARISON OF TOTAL SCHOOL ENROLLMENT CATEGORIES

(Based on graduates in the trade or in highly related trades)

Year of Graduation	School Enrollment	High School Learning		
		N	M	S.D.
1953	< 500	138	8.6	2.2
	500 - 1500	119	8.2	2.2
	> 1500	93	7.5	2.3
1958	< 500	187	8.4	2.2
	500 - 1500	189	8.1	2.2
	> 1500	139	7.8	2.2
1962	< 500	261	8.4	2.5
	500 - 1500	226	8.4	2.5
	> 1500	200	8.0	2.5
Combined	< 500	588	8.4	2.3
	500 - 1500	537	8.3	2.3
	> 1500	433	7.9	2.4

For each of the year of graduation groups, the graduates from small enrollment schools have a higher mean score on the measure than the graduates of medium or large enrollment schools. While the differences are not substantial between the year of graduation groups, they do suggest a definite trend: the larger the enrollment of the school, the less the amount of basic skill learning acknowledged by graduates, when the amount of acknowledged skill learning has been weighted for importance to present job in the trade or highly related trades. A plausible interpretation is that more of basic trade skills are learned in small enrollment schools than medium and large enrollment schools. The differences, however, are not substantial, and do not warrant much of an issue.

WHERE MOST WAS LEARNED ABOUT SKILLS

Introduction

The analyses presented in the preceding two sections were essentially efforts to assess how much of the basic trade skills graduates learned in high school. The analyses presented in this section have the same objective. The difference is largely a matter of how the questions were put to the graduates. The earlier analyses were based upon the graduate's rating of how much of each basic skill was learned in high school. The analyses in this section are based upon asking the graduate where he learned most about each basic skill — in school, on-the-job, in an apprenticeship program, or in a school cooperative program? Since most schools surveyed did not have cooperative programs or formal relation with apprenticeship program, it can be expected that these two sources of trade learning will be acknowledged much less frequently. The issue is whether they learned most of a specific skill in school or on the job. The data should serve to confirm some of the earlier findings reported in this chapter.

Analysis by Year of Graduation

In terms of percentages, how do the graduates split in their acknowledgements of where they learned most about the basic skills? Are there significant differences between the year of graduation groups? Table 98 provides the data.

The percentages of graduates who reported that they learned the most in school cooperative programs and apprenticeship programs are relatively small for reasons explained earlier. The main comparison is between learning most in the high school trade course or on the job. Several general statements can be made on the basis of the data shown in Table 98.

1. The percentage of graduates who report that the job was the source of learning most about the skills increases with increased job experience. This is to be expected because of increased opportunity to learn more on the job. This is no reflection on the schools.

Table 98. WHERE MOST WAS LEARNED ABOUT SKILL: PERCENTAGES BY RESPONSE CATEGORY BY YEAR OF GRADUATION

(Based on graduates in the trade or in highly related trades)

Knowledge or Skill Rated By Graduates In Same or Highly Related Trade	Year of Graduation	WHERE MOST WAS LEARNED ABOUT SKILL									
		H. S. Co-op Program		H. S. Shop or Class		Apprentice Program		On Regular Job		Elsewhere	
		N	%	N	%	N	%	N	%	N	%
Manual job skills	1953	12	3.8	114	36.1	49	15.5	130	41.1	11	3.5
	1958	14	2.9	198	41.5	70	14.6	181	37.9	15	3.1
	1962	33	5.0	345	52.5	56	8.5	201	30.6	22	3.3
	Combined	59	4.1	659	54.3	175	12.0	514	35.3	48	3.3
Practical job knowledge	1953	8	2.5	71	22.0	41	12.7	189	58.7	13	4.0
	1958	22	4.5	121	25.0	60	12.4	262	54.1	19	3.9
	1962	33	5.2	253	40.1	47	7.4	286	45.3	12	1.9
	Combined	63	4.4	449	31.1	149	10.3	737	51.1	44	3.1
Theoretical job knowledge	1953	13	4.1	132	41.8	33	10.4	118	37.3	20	6.3
	1958	18	3.9	222	48.0	56	12.1	142	30.7	24	5.2
	1962	23	3.7	375	59.9	41	6.5	170	27.2	17	2.7
	Combined	54	3.8	732	52.0	130	9.2	431	30.6	61	4.3
Mathematical skills	1953	18	5.6	193	60.3	30	9.4	45	14.1	34	10.6
	1958	39	8.2	312	65.3	34	7.1	50	10.5	43	9.0
	1962	37	5.9	483	77.0	18	2.9	63	9.9	27	4.3
	Combined	94	6.6	992	69.4	83	5.8	157	11.0	104	7.3
Communication skills	1953	12	3.8	155	48.4	23	7.2	92	28.8	38	11.9
	1958	21	4.5	244	52.6	27	5.8	117	25.2	55	11.8
	1962	32	5.2	408	65.7	37	6.0	114	18.4	30	4.8
	Combined	65	4.6	811	57.5	87	6.2	324	23.0	123	8.7
Reading and interpretive skills	1953	14	4.6	138	45.1	29	9.5	104	34.0	21	6.9
	1958	25	5.3	219	46.8	45	9.6	145	31.0	34	3.3
	1962	27	4.4	388	62.9	37	6.0	143	23.2	22	3.6
	Combined	66	4.7	748	53.6	111	8.0	393	28.2	77	5.5
Clerical skills	1953	7	2.2	86	27.2	11	3.5	160	50.6	52	16.5
	1958	17	3.6	138	29.4	28	6.0	227	48.3	60	12.8
	1962	44	7.4	290	48.5	19	3.2	188	31.4	57	9.5
	Combined	68	4.9	517	37.3	58	4.2	575	41.5	169	12.2
Personal relations skills	1953	14	4.5	42	13.6	6	1.9	200	64.7	47	15.2
	1958	22	4.7	75	16.0	26	5.6	268	57.4	76	16.3
	1962	23	3.8	183	30.2	24	4.0	303	50.1	72	11.9
	Combined	60	4.3	302	21.8	57	4.1	771	55.7	195	14.1
Supervisory skills	1953	4	1.3	33	10.6	9	2.9	218	69.9	48	15.4
	1958	9	1.9	65	13.9	24	5.2	287	61.6	81	17.4
	1962	22	3.8	206	35.5	25	4.3	261	45.0	66	11.4
	Combined	36	2.6	306	22.5	58	4.3	768	56.3	195	14.3

2. Some skills are mostly acquired in school. They include manual job skills, theoretical job knowledge, mathematical skills, communication skills, and reading and interpretive skills.

3. Other skills are mostly acquired on the job. They include practical job knowledge, clerical skills, personal relations skills, and supervisory skills.

4. Mathematical skills, if not acquired in school, are not likely to be developed to any substantial degree on the job.

Analysis by Type of School

How do the graduates of comprehensive and vocational schools compare in terms of where they claim to have learned most about each basic skill? Table 99 presents the data.

The percentages show a consistent difference in all but two skill areas that favors the vocational schools. A greater percentage of vocational school graduates claimed they learned most about the following skills in school than did comprehensive graduates:

1. Manual job skills . . . . . (49.2 vs. 37.5 percent)
2. Practical job knowledge . . . . . (32.2 vs. 29.0 percent)
3. Theoretical job knowledge . . . . . (55.0 vs. 46.4 percent)
4. Mathematical skills . . . . . (73.7 vs. 60.9 percent)
5. Communication skills . . . . . (59.7 vs. 53.0 percent)
6. Interpretive skills . . . . . (56.7 vs. 47.7 percent)
7. Clerical skills . . . . . (38.8 vs. 33.9 percent)

The two skill areas that favored the comprehensive schools were:

8. Personal relations skills . . . . . .(24.0 vs. 20.6 percent)
9. Supervisory skills . . . . . .(23.0 vs. 22.1 percent)

Table 99. WHERE MOST WAS LEARNED ABOUT SKILL: COMPARISON OF COMPREHENSIVE AND VOCATIONAL SCHOOLS IN TERMS OF PERCENTAGES BY RESPONSE CATEGORY

(Based on graduates in the trade or in highly related trades)

Knowledge or Skill Rated By Graduates In Same or Highly Related Trade	Type of School	WHERE MOST WAS LEARNED ABOUT SKILL									
		H. S. Co-op Program		H. S. Shop or Class		Apprentice Program		On Regular Job		Elsewhere	
		N	%	N	%	N	%	N	%	N	%
Manual job skills	Vocational	36	3.7	475	49.2	89	9.2	338	35.0	27	2.8
	Comprehensive	23	4.7	183	37.5	86	17.6	175	35.9	21	4.3
Practical job knowledge	Vocational	35	3.7	305	32.2	86	9.1	492	52.0	29	3.1
	Comprehensive	28	5.7	143	29.0	63	12.8	244	49.5	15	3.0
Theoretical job knowledge	Vocational	29	3.1	509	55.0	74	8.0	273	29.5	40	4.3
	Comprehensive	25	5.2	223	46.4	56	11.6	156	32.4	21	4.4
Mathematical skills	Vocational	47	5.0	692	73.7	46	4.9	90	9.6	64	6.8
	Comprehensive	47	9.6	298	60.9	37	7.6	67	13.7	40	8.2
Communication skills	Vocational	39	4.2	556	59.7	43	4.6	206	22.1	87	9.3
	Comprehensive	26	5.5	253	53.0	44	9.2	118	24.7	36	7.5
Reading and interpretive skills	Vocational	36	3.9	518	56.7	62	6.8	247	27.1	50	5.5
	Comprehensive	30	6.2	229	47.7	49	10.2	145	30.2	27	5.6
Clerical skills	Vocational	39	4.2	357	38.8	29	3.2	384	41.8	110	12.0
	Comprehensive	29	6.2	158	33.9	29	6.2	191	41.0	59	12.7
Personal relations skills	Vocational	34	3.8	186	20.6	26	2.9	536	59.2	123	13.6
	Comprehensive	26	5.4	115	24.0	31	6.5	235	49.1	72	15.0
Supervisory skills	Vocational	20	2.2	197	22.1	29	3.2	523	58.6	123	13.8
	Comprehensive	16	3.4	108	23.0	29	6.2	245	52.1	72	15.3

The differences are small, compared with the differences that favored the vocational schools. Two interpretations can be made of these differences: (1) There is more learning of the basic skills in vocational than comprehensive high schools. (2) The differences reflect a difference in attitude toward former schools rather than differences in school learning of basic skills. Chapter 8 presents data to show that vocational school graduates do not have substantially more favorable attitudes toward their former schools than do comprehensive school graduates. Also, the nature of the differences for individual skills suggest considerable discrimination and response to the specific skill rather than a generalized response as would be the case if the differences were essentially a matter of attitude. The conclusion, therefore, is that vocational school graduates learn more of the basic skills in school than do comprehensive school graduates. The all-important question of why this might be so is not answered. A future report will be concerned with the problem.

Analysis by School Enrollment

How do graduates of small, medium and large schools compare in terms of where they claim to have learned most about each basic skill? Table 100 presents the data.

Of those who claimed to have learned most in school, the percentages favor the small enrollment school. From small (< 500) to large (> 1,500) enrollment schools, the percentage of graduates claiming they learned most in school decreases for the following skills:

1. Manual job skills . . . . . (49.8 to 38 percent)
2. Practical job knowledge . . . . . (34.4 to 28 percent)
3. Theoretical job knowledge . . . . . (55.2 to 47 percent)
4. Mathematical skills . . . . . (74.0 to 66.4 percent)
5. Communication skills . . . . . (59.2 to 54.2 percent)
6. Interpretive skills . . . . . (58.4 to 52.6 percent)
7. Clerical skills . . . . . (40.3 to 36.1 percent)

Table 100. WHERE MOST WAS LEARNED ABOUT SKILL: COMPARISON OF TOTAL SCHOOL ENROLLMENT CATEGORIES IN TERMS OF PERCENTAGES BY RESPONSE CATEGORY

(Based on graduates in the trade or in highly related trades)

Knowledge or Skill Rated By Graduates In Same or Highly Related Trade	School Enrollment	WHERE MOST WAS LEARNED ABOUT SKILL									
		H. S. CO-op Program		H. S. Shop or Class		Apprentice Program		On Regular Job		Elsewhere	
		N	%	N	%	N	%	N	%	N	%
Manual job skills	< 500	22	3.9	278	49.8	49	8.8	192	34.4	17	3.0
	500-1500	22	4.4	231	45.7	58	11.5	179	35.4	15	3.0
	> 1500	15	3.8	148	38.0	68	17.5	143	36.8	15	3.8
Practical job knowledge	< 500	23	4.2	187	34.4	40	7.4	275	50.6	19	3.5
	500-1500	23	4.7	147	29.8	59	12.0	250	50.7	14	2.8
	> 1500	17	4.2	112	27.9	50	12.4	212	52.7	11	2.7
Theoretical job knowledge	< 500	13	2.4	295	55.2	45	8.4	159	29.8	22	4.1
	500-1500	25	5.2	253	52.3	39	8.1	142	29.3	25	5.2
	> 1500	16	4.1	182	47.0	46	11.9	129	33.3	14	3.6
Mathematical skills	< 500	17	3.1	401	74.0	29	5.4	58	10.7	37	6.8
	500-1500	44	9.0	325	66.5	24	4.9	58	11.9	38	7.8
	> 1500	33	8.3	263	66.4	30	7.6	41	10.4	29	7.3
Communication skills	< 500	20	3.7	316	59.2	29	5.4	117	21.9	52	9.7
	500-1500	26	5.3	284	58.1	28	5.7	117	23.9	34	7.0
	> 1500	19	4.9	208	54.2	30	7.8	90	23.4	34	9.6
Reading and interpretive skills	< 500	18	3.4	310	58.4	38	7.1	129	24.3	36	6.8
	500-1500	27	5.7	232	48.8	40	8.4	152	32.0	24	5.1
	> 1500	21	5.4	203	52.6	33	8.5	112	29.0	17	4.4
Clerical skills	< 500	20	3.7	216	40.3	26	4.8	214	39.9	60	11.2
	500-1500	30	6.4	163	34.6	12	2.5	200	42.5	66	14.0
	> 1500	18	4.8	136	36.1	20	5.3	160	42.4	43	11.4
Personal relations skills	< 500	15	2.9	109	20.8	16	3.1	313	59.7	71	13.5
	500-1500	29	6.1	109	22.8	23	4.8	257	53.6	61	12.7
	> 1500	16	4.2	82	21.6	18	4.7	201	52.9	63	16.6
Supervisory skills	< 500	13	2.5	123	23.8	22	4.2	288	55.7	71	13.7
	500-1500	15	3.2	100	21.5	19	4.1	265	57.0	66	14.2
	> 1500	8	2.1	81	21.4	17	4.5	215	56.7	58	15.3

The question is: Why? One interpretation is that more of these skills are indeed being learned in small enrollment schools than in medium or in large enrollment schools. Another interpretation is that graduates from small enrollment schools are more generously inclined to their former schools than those from medium or large schools. But, if that is so, one would expect them to have a more favorable overall attitude toward their former schools. Chapter 8 presents data that shows graduates from small enrollment schools are more, not less, critical of their former schools than those from medium and large enrollment schools. The first interpretation seems, therefore, to be more reasonable. The conclusion is consistent with the findings reported in the two preceding sections.

NEED FOR MORE TRAINING IN BASIC SKILLS

Introduction

Vocational education has never claimed to turn out graduates at or even near the peak of their learning about the trade. The assumption has been that vocational education would provide the trade fundamentals, that is, the foundation of trade knowledge and skills upon which graduates would build via additional apprenticeship and/or on-the-job training. It would be interesting to know what percentage of the graduates feel the need for additional training and experience in the trade. The fact that a substantial percentage of graduates presently in the trade or a highly related trade feel the need for additional training is not necessarily a reflection on how well they were trained in high school. It is probably a better interpretation to conclude that the expressed need for additional training is a reflection of experience in the trade since leaving high school. In that sense, a substantial percentage of graduates who feel the need for further training is a healthy sign of awareness of the need for self-development in their chosen occupation.

Analysis by Year of Graduation

What percentage of graduates presently in the trade or a highly related trade feel the need for additional training in the basic skill and knowledge areas? Do some particular skills or knowledges stand out? Does the experience of the graduate in terms of years in the trade have any influence on felt needs for additional training? Table 101 provides the data.

Based on the combined graduates, the rank order of the skills in terms of felt need for additional training is as follows:

	Percent
1. Supervisory skills	66.6
2. Mathematical skills	64.2

3. Reading and interpretive skills 63.9
4. Practical job knowledge 61.3
5. Communication skills. 61.0
6. Manual job skills 59.8
7. Theoretical job knowledge 58.6
8. Personal relations skills 58.2
9. Clerical skills 48.9

For all but one of the basic skill areas, the majority of graduates report the need (or is it desire?) for additional training. The need for training in supervisory skills tops the list. This undoubtedly reflects increasing responsibility with years of experience in the trade. The need for further training in mathematical and reading-interpretive skills is also high on the list. We know from the preceding sections that these two skills are mainly developed in school. At the bottom of the list, and far removed from those above, is clerical skills. Only 49 percent of the graduates who responded felt the need for additional training in clerical skills.

Table 101. NEED FOR ADDITIONAL SKILL TRAINING: PERCENTAGES REPORTING SUCH NEED BY YEAR OF GRADUATION

(Based on graduates in the trade or in highly related trades)

Skill and Knowledge Areas For Which Graduates Reported Need For Additional Training	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Manual job skills	205	58.7	282	55.5	429	63.4	920	59.8
Practical job knowledge	205	61.2	284	57.7	411	64.0	903	61.3
Theoretical job knowledge	202	60.7	261	55.5	370	59.7	836	58.6
Mathematical skills	222	65.5	313	64.7	405	63.5	941	64.2 A
Communication skills	227	67.6	285	60.2	368	58.1	881	61.0 A
Reading and interpretive skills . .	210	63.1	301	62.7	412	65.1	926	63.9
Clerical skills	176	53.2	244	50.7	277	45.0	699	48.9 A
Personal relations skills	210	64.4	279	58.7	341	54.3	834	58.2 A
Supervisory skills	236	72.6	298	64.8	389	64.1	936	66.6 A

The basic skills which are marked with an upward pointing arrow are those that show a consistent trend of a greater percentage reporting the need for more training with increased years out of school. For example, the percentage who report a need for more personal relations skill training increases 54.3 percent of 1962 graduates to 58.7 for 1958 graduates to 64.4 for 1953 graduates. On the other hand, the need for training in some skill areas declines with increased years out of school. A greater percentage of 1962 graduates than 1958 or 1953 graduates report the need for more training to develop manual skills and practical job knowledge. This is as one might expect.

The large percentages of graduates in all year of graduation groups that feel the need or desire for more training, particularly in such areas as supervisory skills, personal relations skills and communications skills which are not emphasized by high schools, indicates a large, potential receptive audience for the right kind of post-high school adult education. Where such education is geared to fulfilling specific skill needs, rather than trade training, the response should be there among past graduates and others in similar trades.

Analysis by Type of School

How do graduates from vocational and academic schools compare in terms of percentages that feel the need for additional training in trade skills? Since it is improbable that the on-the-job experiences of such graduates would be essentially different, any differences in felt need for additional training may reflect variation in school training. Table 102 provides the data.

There are no significant differences between vocational and comprehensive school graduates in terms of expressed need for additional training in manual job skills, practical job knowledge, theoretical job knowledge, communication skills, personal relations skills, and supervisory skills.

A slightly greater percentage of comprehensive school graduates claim the need for more training in mathematical, reading, and clerical skills. It suggests, albeit not convincingly, that these are areas of training weakness in some comprehensive schools. Additional evidence would be desirable before much were made of this.

Table 102. NEED FOR ADDITIONAL SKILL TRAINING: COMPARISON OF COMPREHENSIVE AND VOCATIONAL SCHOOLS IN TERMS OF PERCENTAGES REPORTING TRAINING NEEDS

(Based on graduates in the trade or in highly related trades)

Skill and Knowledge Areas For Which Graduates Reported Need For Additional Training	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Manual job skills	600	59.4	320	60.7
Practical job knowledge	592	61.2	311	61.7
Theoretical job knowledge	544	58.1	291	59.5
Mathematical skills	609	63.4	331	65.9
Communication skills	584	61.7	296	59.7
Reading and interpretive skills	598	62.6	328	66.5
Clerical skills	437	46.6	261	53.0
Personal relations skills	538	57.5	296	59.8
Supervisory skills	613	66.6	322	66.5

Analysis by School Enrollment

How do graduates from small, medium and large enrollment schools compare in terms of acknowledged need for additional training in the basic skill and knowledge areas? Table 103 provides the data.

With but one exception, the response shows a smaller percentage of medium enrollment school graduates reporting a need for more training than graduates of small and large enrollment schools. While the differences for any one skill are not substantial, the consistency of the pattern suggests that graduates from small and large enrollment schools, over all skills, feel a greater need for additional training than those from medium enrollment schools. A plausible interpretation is lacking.

Table 103. NEED FOR ADDITIONAL SKILL TRAINING: COMPARISON OF TOTAL SCHOOL ENROLLMENT CATEGORIES IN TERMS OF PERCENTAGES REPORTING TRAINING NEEDS

(Based on graduates in the trade or in highly related trades)

Skill and Knowledge Areas For Which Graduates Reported Need For Additional Training	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Manual job skills	365	62.7	300	56.3	254	60.3
Practical job knowledge	346	62.4	302	58.5	254	63.5
Theoretical job knowledge	327	60.6	281	56.5	227	58.7
Mathematical skills	381	68.2	311	62.0	248	61.8
Communication skills	349	63.6	313	63.6	217	54.1
Reading and interpretive skills	366	66.1	315	63.4	244	61.6
Clerical skills	277	50.7	232	47.3	188	48.1
Personal relations skills	326	60.0	281	56.8	227	57.9
Supervisory skills	368	69.2	312	64.7	254	65.3

Analysis by Type of Trade

How do the graduates from the top ten vocational courses, in terms of graduate representation in the study, report their needs for additional training? The question was raised for exploratory purposes to establish the existence of differences by trade. Table 104 provides the number and percentages of graduates by trade who reported a need for additional training.

Definite trade differences exist in the need for additional training in the basic knowledge and skill areas. More than 75 percent of those in carpentry or a highly related trade, for example, reported a need for more training in practical job knowledge, mathematical skills, and reading and interpretive skills. Auto mechanics, in a service trade, report a greater need for personal relations skills than do the other trades. Almost 77 percent of the machinists report the need for additional training in mathematics. Eighty percent of those in welding trades report a need for more training in interpretive skills, such

as blueprint reading. Electronic technicians are high in the need for theoretical trade knowledge and supervisory skills.

The highlights are listed primarily to illustrate the fact of trade differences. What these data verify is the need to follow up graduates in the trades to establish more precisely the training needs generated by experience in the trade. A systematic playback of such information would help the vocational educator in curriculum development and planning.

Table 104. NEED FOR ADDITIONAL SKILL TRAINING: COMPARISON OF TOP TEN TRADES IN TERMS OF PERCENTAGES REPORTING TRAINING NEEDS
(Based on graduates in the trade or in highly related trades)

The Ten Trades With Greatest Number of Graduates In Survey Sample		NUMBER AND PERCENT CLAIMING NEED FOR ADDITIONAL TRAINING								
		Manual Job Skills	Practical Job Knowledge	Mathematical Skills	Communication Skills	Reading and Interpretive Skills	Clerical Skills	Personal Relation Skills	Supervisory Skills	Theoretical Job Knowledge
Auto mechanics	%	65.2	61.3	54.7	55.9	55.3	59.0	67.7	63.9	53.6
	N	135	119	104	104	105	108	126	117	97
Carpentry	%	64.7	76.6	75.0	72.3	83.7	51.1	66.7	68.1	63.0
	N	33	36	36	34	41	23	32	32	29
Drafting	%	41.1	52.5	69.4	60.3	47.9	51.2	66.7	63.8	51.7
	N	51	64	86	73	58	63	80	74	60
Electrician	%	62.3	61.4	61.0	64.9	72.9	48.4	57.5	71.2	66.7
	N	99	94	94	100	113	75	88	109	102
Machinist	%	63.9	66.6	76.7	63.0	65.6	38.5	50.7	65.4	62.5
	N	209	211	243	196	204	119	155	193	193
Mill and cabinetry	%	52.9	67.1	68.1	63.9	75.4	62.9	65.2	71.0	55.1
	N	37	47	49	46	52	44	45	49	38
Printing	%	67.1	64.7	45.0	55.1	57.4	48.0	58.9	63.7	52.3
	N	96	88	59	70	74	61	73	79	67
Sheet metal	%	65.5	63.5	61.5	69.2	74.0	46.9	49.0	67.3	64.0
	N	36	33	32	36	37	23	25	35	32
Welding	%	49.1	50.0	25.0	63.3	80.0	50.0	48.0	62.0	54.2
	N	27	29	31	31	40	16	24	31	26
Electronic Technician	%	52.2	46.7	68.9	43.2	43.5	35.6	65.9	73.9	71.1
	N	24	21	31	19	20	16	29	34	32

8 GRADUATE'S RATINGS OF SCHOOL CHARACTERISTICS

☐ Graduate Attitudes Toward Former Schools 1

CHAPTER 8 SUMMARY

Attitudes Toward Former Schools

1. Attitude measure. Graduates were asked to rate ten school factors either poor, satisfactory, good, or excellent as applied to their former high school. The mean of the ten ratings constitutes an attitude-toward-former-school index.

2. Use of measure. The obtained attitude index was used primarily to determine the relationship between attitude toward the former high schools and performance on occupational and non-occupational measures.

3. Year of graduation. As defined, the favorability of attitude toward former schools declines slightly with increased years out of school. However, even after 11 years out of school, graduates have a highly favorable general opinion of their former schools.

4. Individual factor ratings. The three factors rated most highly by former graduates were (1) quality of shop instruction, (2) community reputation of school, and (3) condition of shop facilities. The three factors rated least favorably were (1) school placement services, (2) quality of vocational counseling, and (3) teacher interest in student problems. No factor received a mean rating of less than "satisfactory."

5. Type of school. There is no significant difference between graduates of vocational and comprehensive schools in favorableness of attitude toward former schools. There are some differences in terms of individual rated factors; e.g., vocational school graduates rated school placement services higher than comprehensive school graduates.

6. School enrollment. Graduates of small, medium, and large enrollment schools have about the same over-all attitude (highly favorable) toward their former schools. Graduates from small enrollment schools rated their schools lower on condition of shop facilities, condition of school, extra-curricular activities, and community reputation; but higher on placement services than medium and large enrollment school graduates.

7. Race of graduates. There is no significant difference between Negro and white graduates in over-all attitude toward former schools. Negro graduates rated placement services lower than did white graduates.

8. Academic versus vocational graduates. There is no significant difference between academic and vocational graduates in over-all attitude toward former high schools.

9. Individual school differences. The mean attitude scores of schools, based upon ratings of graduates, fall within a fairly narrow range. Even so, some schools received consistently higher mean attitude scores from their graduating classes than did others.

GRADUATE ATTITUDES TOWARD FORMER SCHOOLS

Introduction

The graduates were asked to rate ten factors about their former high school in categories of poor, satisfactory, good, and excellent. The ten factors rated by vocational graduates were:

1. Quality of intruction from shop instructors
2. Quality of instruction from academic teachers
3. Condition of shop facilities and equipment
4. General physical condition of school
5. Vocational counseling given students
6. Help given to students in finding jobs
7. Opportunity for extracurricular activities
8. Interest shown by teachers in student problems
9. Reputation of the school in the community
10. Strictness of school in maintaining discipline

The ratings were obtained primarily to provide the basis for an over attitude-toward-former-school score for each graduate. The score was the mean of the individual ratings. It was assumed that a diverse array of school factors would provide the graduates an opportunity to express indirectly a generalized attitude toward their former high schools. In Chapter 3, it was shown that the measure had a significant, albeit low, correlation with only one of the occupational measures, job satisfaction, indicating that graduates with a higher degree of job satisfaction tended to have a more favorable opinion of their former school. No cause-effect relationship is applied. It was also shown that the measure correlated with range of active leisure activities and degree of community organization affiliation. Apparently, the measure reflects personal characteristics more than it does school characteristics, although significant differences in mean attitude scores do exist between schools.

The present chapter is concerned with whether the measure is related to such basic variables as year of graduation, type of school attended, enrollment of school attended, and race of the graduates. While the ten factors rated were primarily a means to an end, i.e., the basis of a general attitude measure, they are individually of interest in terms of how graduates rated each. Comment upon the individual factor ratings is made where appropriate.

Analysis by Year of Graduation

What are the overall attitudes toward their former schools, as defined by this study, of the graduates of 1953, 1958, and 1962? Table 105 presents the data.

Table 105. ATTITUDE TOWARD FORMER HIGH SCHOOL: FREQUENCY DISTRIBUTION FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Attitude Toward School	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
4	18	1.7	100.0	27	1.8	100.0	37	2.0	100.0	82	1.9	100.0
3.7-3.9	61	5.6	98.3	80	5.5	98.2	153	8.5	98.0	294	6.7	98.1
3.4-3.6	138	12.8	92.7	188	12.8	92.7	295	16.3	89.5	623	14.3	91.4
3.1-3.3	182	16.9	79.9	289	19.7	79.9	399	22.1	73.2	873	20.0	77.1
2.8-3.0	221	20.5	63.0	312	21.2	60.2	364	20.1	51.1	900	20.6	57.1
2.5-2.7	180	16.7	42.5	249	16.9	39.0	263	14.6	31.0	693	15.9	36.5
2.2-2.4	135	12.5	25.8	188	12.8	22.1	171	9.4	16.4	494	11.3	20.6
1.9-2.1	88	8.2	13.3	87	6.0	9.3	88	4.9	7.0	265	6.1	9.3
1.6-1.8	38	3.5	5.1	37	2.5	3.3	31	1.7	2.1	107	2.4	3.2
1.3-1.5	15	1.4	1.6	10	0.7	0.8	5	0.3	0.4	31	0.7	0.8
1.0-1.2	2	0.2	0.2	2	0.1	0.1	2	0.1	0.1	6	0.1	0.1
Number	1078			1469			1808			4368		
Mean	2.8			2.9			3.0			2.9		
Median	2.9			2.9			3.0			3.0		
S.D.	0.58			0.54			0.53			0.55		

In general, vocational course graduates seem to have a high regard for their former schools. The mean values are 2.8, 2.9, and 3.0 for the graduates of 1953, 1958, and 1962 respectively. Thus, the more recent graduates have a slightly more favorable attitude toward their former schools. Two interpretations are possible: (1) the more recent graduates rated their schools more generously because of an unknown factor, possibly school loyalty, which diminishes with years out of school, or (2) the schools have undergone changes which are reflected in more favorable ratings from the more recent graduates. The first interpretation is more prudent.

The differences between the year of graduation groups are slight in any case, and do not warrant special efforts to control for such differences in other analyses influenced by attitude toward former schools. Nevertheless, it should be kept in mind that recent graduates appear to be a little more generous in their ratings of school characteristics.

The mean ratings for each of the ten rated factors are given in Table 106 for the graduating classes separately and combined.

Table 106. ATTITUDE INDEXES AND MEAN RATINGS OF THE RELATED HIGH SCHOOL FACTORS BY YEAR OF GRADUATION

Factors of Former High Schools Rated By Graduates *	YEAR OF GRADUATION												
	1953			1958			1962			Combined			
	N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.	
Quality of shop instruction	1141	3.2	.82	1628	3.3	.80	2445	3.4	.76	5233	3.3	.79	▲
Quality of academic instruction	1120	2.9	.78	1594	2.9	.76	2379	3.0	.74	5111	3.0	.76	
Condition of shop facilities	1139	2.9	.92	1619	3.0	.90	2439	3.0	.89	5215	3.0	.91	
Condition of school	1138	2.8	.87	1612	2.9	.89	2440	3.0	.88	5208	2.9	.89	▲
Vocational counseling	1124	2.5	1.06	1607	2.6	1.01	2411	2.8	.98	5161	2.6	1.02	▲
Placement services	1059	2.5	1.12	1540	2.4	1.09	2332	2.7	1.07	4948	2.6	1.10	
Extracurricular activities	1114	2.7	.93	1576	2.8	.90	2390	2.9	.89	5098	2.8	.91	▲
Teacher's interest in students	1097	2.7	.90	1572	2.8	.90	2362	2.9	.90	5050	2.8	.91	▲
Reputation in community	1100	3.1	.87	1581	3.1	.89	2381	3.2	.85	5080	3.1	.87	
Strictness of discipline	1105	2.9	.86	1589	3.0	.85	2390	3.0	.83	5103	3.0	.85	
HIGH SCHOOL ATTITUDE INDEX	1078	2.8	.55	1469	2.9	.54	1808	3.0	.53	4368	3.0	.55	

* 4 = Excellent; 3 = Good; 2 = Satisfactory; and 1 = Poor

Based upon the mean ratings obtained from the combined graduates, the ten factors ranked as follows:

1.	Quality of shop instruction	3.3
2.	Reputation of school	3.1
3.	Quality of academic instruction	3.0
4.	Condition of shop facilities	3.0
5.	Strictness of school discipline	3.0
6.	General condition of school	2.9
7.	Opportunity for extracurricular activities	2.8
8.	Teacher interest in student problems	2.8
9.	Quality of vocational counseling	2.6
10.	Help given graduates to find jobs	2.6

None of the factors received a mean rating of less than "satisfactory." Quality of instruction, condition of facilities, strictness of school discipline, and reputation of school had mean ratings between "good" and "excellent." The quality of vocational counseling and help given graduates to find jobs received the least favorable ratings. It is interesting to note that the 1958 recession year graduates gave placement services a lower rating than both 1953 and 1962 graduates. The correspondence between mean ratings of placement services and placement performance suggests that differences between mean ratings do reflect differences in factors rated. One can conclude that the relatively low ratings given to vocational counseling, placement services, teacher interest in student problems, and opportunity for extracurricular activities do reflect a greater degree of dissatisfaction with these factors, and a greater need for improvement.

The upward-pointing arrows in Table 106 indicate a consistently higher mean rating with recency of graduation. Without exception, the mean ratings yielded by 1962 graduates are greater than those from 1953 graduates.

Without exception, each of the ten factors was rated higher by 1962 graduates than by 1953 graduates. The upward-pointing arrows in Table 106 indicate five factors with consistently higher mean ratings from more recent graduates. Unfortunately, as was pointed out earlier, the data cannot be interpreted unequivocally as reflecting changes in schools rather than changes in graduates.

Otherwise, one would be tempted to conclude that higher mean ratings from more recent graduates reflect improvements in the factors noted. Improvements have undoubtedly been made, but the methodology of obtaining the data does not permit such a conclusion.

Table 107. RESPONSE PERCENTAGES, BY YEAR OF GRADUATION, TO THE TEN SCHOOL FACTORS RATED BY VOCATIONAL GRADUATES

Factors of Former High Schools Rated By Graduates	Year of Graduation	RATING GIVEN TO ITEM							
		Poor		Satisfactory		Good		Excellent	
		N	%	N	%	N	%	N	%
Quality of instruction from shop instructors.	1953	42	3.7	160	14.0	451	39.5	488	42.8
	1958	52	3.2	210	12.9	611	37.5	755	46.4
	1962	65	2.7	231	9.4	843	34.5	1306	53.4
Quality of instruction from academic teachers.	1953	53	4.7	225	20.1	589	52.6	253	22.6
	1958	66	4.1	326	20.5	859	53.9	343	21.5
	1962	67	2.8	431	18.1	1292	54.3	589	24.8
Condition of shop facilities and equipment.	1953	94	8.3	256	22.5	453	39.8	336	29.5
	1958	119	7.4	319	19.7	649	40.1	532	32.9
	1962	160	6.6	411	16.9	959	39.3	909	37.3
General physical condition of school.	1953	108	9.5	279	24.5	529	46.5	222	19.5
	1958	130	8.1	308	19.1	713	44.2	461	28.6
	1962	168	6.9	405	16.6	1054	43.2	813	33.3
Vocational counseling given to students.	1953	267	23.8	292	26.0	344	30.6	221	19.7
	1958	289	18.0	421	26.2	567	35.3	330	20.5
	1962	317	13.1	556	23.1	898	37.2	640	26.5
Help given students to find jobs.	1953	277	26.2	259	24.5	265	25.9	258	24.4
	1958	404	26.2	392	25.5	419	27.2	325	21.1
	1962	438	18.8	547	23.5	698	29.9	649	27.8
Opportunity for extracurricular activities.	1953	131	11.8	304	27.3	446	40.0	233	20.9
	1958	156	9.9	389	24.7	687	43.6	344	21.8
	1962	172	7.2	509	21.3	1010	42.3	699	29.2
Teacher's interest in student problems.	1953	108	9.8	339	30.9	424	38.7	226	20.6
	1958	142	9.0	451	28.7	623	39.6	356	22.6
	1962	177	7.5	524	22.2	955	40.4	706	29.9
School's reputation in the community.	1953	67	6.1	168	15.3	449	40.8	416	37.8
	1958	102	6.5	241	15.2	601	38.0	637	40.3
	1962	115	4.8	350	14.7	941	39.5	975	40.9
School's strictness in maintaining discipline.	1953	82	7.4	234	21.2	515	46.6	274	24.8
	1958	97	6.1	315	19.8	719	45.2	458	28.8
	1962	114	4.8	423	17.7	1095	45.8	758	31.7

Table 107 provides the percentages by response category for each of the factors rated. In all but three factors, i.e. instruction by academic teachers, help given to students to find jobs, and reputation of the school in the community, the percentages of "excellent" responses increase with recency of graduation and the percentages of "poor" responses decreases. The sharp differences at the extremes are obliterated by the failure of the two middle categories, satisfactory and good, to differentiate by year of graduation. The trends in the extreme categories, however, confirm the interpretation that recency of graduation is a variable influencing ratings of school factors, and therefore the general attitude toward the school.

Analysis by Type of School

Do the graduates of vocational and comprehensive schools differ in terms of the attitude-toward-school measure? Do they differ in terms of the mean ratings given the individual items that comprise the attitude measure? Table 108 presents the data.

The high school attitude indexes are not significantly different for any of the graduating classes. This suggests that graduates of vocational and comprehensive schools are not different in terms of overall attitude toward former schools.

The graduates of the two types of schools differ in only two of the factors that comprise the attitude measure: placement services and reputation of the school in the community. Vocational school graduates rate the placement services of their schools higher than do comprehensive school graduates. This is consistent with the better placement performance of vocational schools discussed in Chapter 5. However, they rate the community reputation of their schools less than do the comprehensive school graduates. They are probably reflecting differences in community attitudes toward the two types of schools.

Table 109 provides the percentages by response category for the graduates of both types of schools. The factors which show the greatest differences in the extreme ratings are: (1) help given to students to find jobs, (2) opportunity for extracurricular activities, and (3) reputation of school in community.

Table 108. ATTITUDE INDEXES AND MEAN RATINGS OF THE RELATED HIGH SCHOOL FACTORS BY TYPE OF SCHOOL

Factors of Former High Schools Rated By Graduates *		TYPE OF SCHOOL					
		Vocational			Comprehensive		
		N	M	S.D.	N	M	S.D.
Quality of shop instruction		3073	3.3	.78	2160	3.3	.81
Quality of academic instruction		3011	3.0	.78	2100	3.0	.73
Condition of shop facilities		3067	3.0	.92	2148	3.0	.89
Condition of school		3058	2.9	.93	2150	3.0	.82
Vocational counseling		3036	2.6	1.01	2125	2.7	1.02
Placement services		2914	2.7	1.09	2034	2.4	1.08
Extracurricular activities		2993	2.8	.92	2105	2.9	.87
Teacher's interest in students		2969	2.9	.91	2081	2.8	.91
Reputation in the community		2980	3.0	.91	2100	3.3	.79
Strictness of discipline		2997	3.0	.87	2106	3.0	.82
HIGH SCHOOL ATTITUDE INDEX							
Year of Graduation	1953	663	2.82	.58	415	2.85	.57
	1958	843	2.84	.55	626	2.94	.52
	1962	1078	2.99	.54	730	2.96	.52
	Combined	2595	3.00	.56	1773	2.95	.55

* 4 = Excellent; 3 = Good; 2 = Satisfactory; and 1= Poor

Analysis by School Enrollment

Do the graduates of small, medium and large enrollment schools differ in terms of the attitude-toward-school measure? Do they differ in terms of the mean ratings given the individual items that comprise the attitude measure? Table 110 provides the data.

The high school attitude indexes for the three enrollment categories are not significantly different for any of the graduating classes, although the

Table 109. RESPONSE PERCENTAGES, BY TYPE OF SCHOOL, TO THE TEN SCHOOL FACTORS RATED BY VOCATIONAL GRADUATES

Factors of Former High Schools Rated By Graduates	Type of School	RATING GIVEN TO ITEM							
		Poor		Satisfactory		Good		Excellent	
		N	%	N	%	N	%	N	%
Quality of instruction from shop instructors.	Vocational	88	2.9	344	11.2	1142	37.2	1499	48.8
	Comprehensive	72	3.3	260	12.0	768	35.6	1060	49.1
Quality of instruction from academic teachers.	Vocational	120	4.0	608	20.2	1559	51.8	724	24.0
	Comprehensive	68	3.2	377	18.0	1190	56.7	465	22.1
Condition of shop facilities and equipment.	Vocational	239	7.8	593	19.3	1193	38.9	1042	34.0
	Comprehensive	140	6.5	394	18.3	872	40.6	742	34.5
General physical condition of school.	Vocational	302	9.9	632	20.7	1291	42.2	833	27.2
	Comprehensive	107	5.0	363	16.9	1011	47.0	669	31.1
Vocational counseling given to students.	Vocational	512	16.9	769	25.3	1065	35.1	690	22.7
	Comprehensive	364	17.1	501	23.6	755	35.5	505	23.8
Help given students to find jobs.	Vocational	573	19.7	664	22.8	834	28.6	843	28.9
	Comprehensive	551	27.1	537	26.4	551	27.1	395	19.4
Opportunity for extra-curricular activities.	Vocational	329	11.0	744	24.9	1255	41.9	665	22.2
	Comprehensive	133	6.3	463	22.0	897	42.6	612	29.1
Teacher's interest in student problems.	Vocational	236	7.9	757	25.5	1174	39.5	802	27.0
	Comprehensive	194	9.3	560	26.9	833	40.0	494	23.7
School's reputation in the community.	Vocational	220	7.4	511	17.1	1173	39.4	1076	36.1
	Comprehensive	66	3.1	252	12.0	823	39.2	959	45.7
School's strictness in maintaining discipline.	Vocational	194	6.5	579	19.3	1324	44.2	900	30.0
	Comprehensive	102	4.8	399	18.9	1010	48.0	595	28.3

measure is consistently lower for the small enrollment schools, suggesting a somewhat less favorable attitude by graduates from small enrollment schools. Nevertheless, the data suggest that size of school enrollment is not a variable influencing the general attitude graduates have toward their former schools.

Table 110. ATTITUDE INDEXES AND MEAN RATINGS OF THE RELATED HIGH SCHOOL FACTORS BY SIZE OF SCHOOL

Factors of Former High Schools Rated By Graduates *		SIZE OF SCHOOL ENROLLMENT								
		< 500			500-1500			> 1500		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Quality of shop instruction		1732	3.3	.81	1982	3.3	.79	1519	3.3	.78
Quality of academic instruction		1680	3.0	.76	1935	3.0	.75	1496	2.9	.75
Condition of shop facilities		1720	2.8	.93	1973	3.0	.88	1522	3.1	.89
Condition of school		1716	2.8	.90	1970	2.9	.91	1522	3.1	.80
Vocational counseling		1705	2.6	1.02	1950	2.7	1.02	1506	2.6	1.01
Placement services		1681	2.6	1.10	1796	2.6	1.10	1471	2.5	1.08
Extracurricular activities		1696	2.6	.93	1896	2.9	.88	1506	2.9	.87
Teacher's interest in students		1710	2.9	.92	1833	2.8	.90	1507	2.8	.90
Reputation in community		1716	3.0	.90	1841	3.2	.85	1523	3.2	.83
Strictness of discipline		1734	3.0	.88	1845	3.0	.83	1524	2.9	.83
HIGH SCHOOL ATTITUDE INDEX										
Year of Graduation	1953	390	2.76	.58	404	2.90	.58	284	2.82	.56
	1958	483	2.81	.59	580	2.92	.59	406	2.92	.58
	1962	610	2.92	.54	653	3.04	.53	545	3.02	.52
	Combined	1485	2.85	.57	1646	2.96	.54	1237	2.94	.53

* 4 = Excellent; 3 = Good; 2 = Satisfactory; and 1 = Poor

Some of the individual rated school factors do reflect enrollment differences. The mean ratings of shop facilities, general school condition, and opportunity for extracurricular activities increases with increased school enrollment,

Table III. RESPONSE PERCENTAGES, BY SCHOOL ENROLLMENT CATEGORIES, TO THE TEN SCHOOL FACTORS RATED BY VOCATIONAL GRADUATES

Factors of Former High Schools Rated By Graduates	School Enrollment	RATING GIVEN TO ITEM							
		Poor		Satisfactory		Good		Excellent	
		N	%	N	%	N	%	N	%
Quality of instruction from shop instructors.	< 500	57	3.3	220	12.7	645	37.2	810	46.8
	500-1500	62	3.1	207	10.4	709	35.8	1004	50.7
	>1500	41	2.7	177	11.7	556	36.6	745	49.0
Quality of instruction from academic teachers.	< 500	62	3.7	343	20.4	887	52.8	338	23.1
	500-1500	67	3.5	345	17.8	1045	54.0	478	24.7
	>1500	59	3.9	297	19.9	817	54.6	323	21.6
Condition of shop facilities and equipment.	< 500	161	9.4	410	23.8	686	39.9	463	26.9
	500-1500	119	6.0	355	18.0	800	40.5	699	35.4
	> 1500	99	6.5	222	14.6	579	38.0	622	40.9
General physical condition of school.	< 500	175	10.2	407	23.7	775	45.2	359	20.9
	500-1500	171	8.7	378	19.2	830	42.1	591	30.0
	>1500	63	4.1	210	13.8	697	45.8	552	36.3
Vocational counseling given to students.	< 500	297	17.4	430	25.2	596	35.0	382	22.4
	500-1500	330	16.9	459	23.5	688	35.3	473	24.3
	> 1500	249	16.5	381	25.3	536	35.6	340	22.6
Help given students to find jobs.	< 500	368	21.9	394	23.4	478	28.4	441	26.2
	500-1500	400	22.3	424	23.6	497	27.7	475	26.4
	> 1500	356	24.2	383	26.0	410	27.9	322	21.9
Opportunity for extracurricular activities.	< 500	229	13.5	475	28.0	687	40.5	305	18.0
	500-1500	138	7.3	408	21.5	814	42.9	536	28.3
	> 1500	95	6.3	324	21.5	651	43.2	436	29.0
Teacher's interest in student problems.	< 500	139	8.1	419	24.5	655	38.3	497	29.1
	500-1500	146	8.0	487	26.6	729	39.8	471	25.7
	>1500	145	9.6	411	27.3	623	41.3	328	21.8
School's reputation in the community.	< 500	130	7.6	316	18.4	702	40.9	568	33.1
	500-1500	86	4.7	249	13.5	682	37.0	824	44.8
	>1500	70	4.6	198	13.0	612	40.2	643	42.2
School's strictness in maintaining discipline.	< 500	113	6.5	340	19.6	744	42.9	537	31.0
	500-1500	98	5.3	315	17.1	861	46.7	571	30.9
	>1500	85	5.6	323	21.2	729	47.8	387	25.4

as did reputation of school in community.

Table 111 provides the percentages for each response category for each of the factors rated. When the percentages in the two extreme categories are considered, the factors rated higher with larger enrollment are: (1) condition of shop facilities and equipment, (2) physical conditon of school, and (3) opportunity for extracurricular activity. The factors that are rated higher with smaller enrollment are: (1) help given to students to find job, and (2) interest shown by teachers in students.

Analysis by Race of Graduate

Do Negro and white graduates differ in terms of the attitude-toward-school measure? Do they differ in terms of the mean ratings given the individual items that comprise the attitude measure? Table 112 provides the data.

Table 112. ATTITUDE INDEXES AND MEAN RATINGS OF THE RELATED HIGH SCHOOL FACTORS BY RACE OF GRADUATE

Factors of Former High Schools Rated By Graduates *		RACE OF GRADUATE								
		White			Negro			Other		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Quality of shop instruction		4777	3.3	.79	339	3.3	.82	19	3.1	.79
Quality of academic instruction		4685	3.0	.76	317	3.0	.73	19	2.9	.91
Condition of shop facilities		4769	3.0	.91	330	2.9	.88	19	3.2	.87
Condition of school		4760	2.9	.89	333	3.2	.84	19	3.1	..72
Vocational counseling		4721	2.6	1.02	329	2.8	.96	19	2.6	1.04
Placement services		4512	2.6	1.10	326	2.4	1.04	17	2.2	.98
Extracurricular activities		4657	2.8	.91	327	2.8	.94	17	2.8	.75
Teacher's interest in students		4608	2.8	.91	327	2.9	.91	19	2.8	.83
Reputation in the community		4634	3.1	.87	332	3.3	.86	19	2.9	1.07
Strictness of discipline		4654	3.0	.85	333	3.2	.80	19	2.8	.93
HIGH SCHOOL ATTITUDE INDEX										
Year of Graduation	1953	1030	2.83	.58	38	2.82	.65	3	3.00	.43
	1958	1348	2.87	.54	91	3.11	.47	4	2.42	.61
	1962	1635	3.00	.53	127	2.98	.54	4	3.18	.26
	Combined	4025	2.91	.55	257	3.00	.54	11	2.86	.56

* 4 = Excellent; 3 = Good; 2 = Satisfactory; and 1 = Poor

The differences between the high school attitude indexes for white and Negro graduates are not significant for any of the graduating classes. The conclusion is that white and Negro graduates do not differ significantly in overall attitude toward former high schools.

Negro graduates rated the following factors slightly higher than white graduates: general condition of school, vocational counseling, reputation of school in community, and strictness of discipline. They rated placement services lower than did the white graduates. The latter is understandable, in view of the greater difficulty in placing Negroes in the trades.

The comparison of white and Negro ratings does not take into account the possibility that ratings from Negroes who attended segregated schools may be different from those who attended non-segregated schools. It is therefore impossible to say to what extent white and Negro graduates rated the <u>same</u> schools or <u>different</u> schools. The total number of Negro graduates was considered too small to warrant a more refined analysis, particularly in view of the attitudinal nature of the data.

Table 113 provides the response category percentages for each factor rated by the two races. A comparison of the percentages in the extreme categories, i.e. "excellent" and "poor," indicates that Negroes rated the following factors higher than white graduates: general condition of school, counseling given to students, teacher interest in students, school reputation in community and strictness in maintaining discipline. They rated school placement services lower than did white graduates. These ratings are more understandable when one realizes that many of the Negro graduates came from all-Negro schools or predominantly Negro schools.

The results of the analysis by race of graduate are particularly interesting because they fail to reveal a substantially lower opinion of school factors by Negro graduates. On the contrary, with some exceptions, the tendency is toward more favorable ratings from Negro graduates.

Table 113. RESPONSE PERCENTAGES, BY RACE OF GRADUATE, TO THE TEN SCHOOL FACTORS RATED BY VOCATIONAL GRADUATES

Factors of Former High Schools Rated By Graduates	Race of Graduate	RATING GIVEN TO ITEM							
		Poor		Satisfactory		Good		Excellent	
		N	%	N	%	N	%	N	%
Quality of instruction from shop instructors	White	140	2.9	544	11.6	1743	36.5	2340	49.0
	Negro	14	4.1	37	10.9	122	36.0	166	49.0
	Other	0	0.0	5	26.3	7	36.8	7	36.8
Quality of instruction from academic teachers	White	173	3.7	918	19.6	2510	53.6	1084	23.1
	Negro	11	3.5	46	14.5	182	57.4	78	24.6
	Other	2	10.5	3	15.8	9	47.4	5	26.3
Condition of shop facilities and equipment	White	347	7.3	896	18.8	1881	39.4	1645	34.5
	Negro	24	7.3	67	20.3	143	43.3	96	29.1
	Other	1	5.3	3	15.8	7	36.8	8	42.1
General physical condition of school	White	382	8.0	947	19.9	2100	44.1	1331	28.0
	Negro	18	5.4	38	11.4	139	41.7	138	41.4
	Other	1	5.3	1	5.3	12	63.2	5	26.3
Vocational counseling given to students	White	815	17.3	1175	24.9	1641	34.8	1090	23.1
	Negro	41	12.5	73	22.2	131	39.8	84	25.5
	Other	4	21.1	4	21.1	7	36.8	4	21.1
Help given students to find jobs	White	1016	22.5	1078	23.9	1257	27.9	1161	25.7
	Negro	83	25.5	93	28.5	94	28.8	56	17.2
	Other	5	29.4	6	35.3	4	23.5	2	11.8
Opportunity for extracurricular activities	White	424	9.1	1092	23.4	1977	42.5	1164	25.0
	Negro	31	9.5	81	24.8	124	37.9	91	27.8
	Other	1	5.9	5	29.4	9	52.9	2	11.8
Teacher's interest in student problems	White	398	8.6	1214	26.3	1828	39.7	1168	25.3
	Negro	24	7.3	73	22.3	129	39.4	101	30.9
	Other	1	5.3	6	31.6	8	42.1	4	21.1
School's reputation in the community	White	260	5.6	711	15.3	1831	39.5	1832	39.5
	Negro	16	4.8	41	12.3	114	34.3	161	48.5
	Other	3	15.8	3	15.8	6	31.6	7	36.8
School's strictness in maintaining discipline	White	276	5.9	911	19.6	2135	45.9	1332	28.6
	Negro	13	3.9	43	12.9	147	44.1	130	39.0
	Other	2	10.5	4	21.1	8	42.1	5	26.3

Analysis by Type of Graduate

Do vocational and academic graduates differ in terms of the attitude-toward-school measure? Do they differ in terms of the mean ratings of those items in common that comprised the attitude measure. * Table 114 presents the data.

Table 114. ATTITUDE INDEXES AND MEAN RATINGS OF THE RELATED HIGH SCHOOL FACTORS BY TYPE OF GRADUATE

(Compares vocational and academic course graduates from comprehensive schools.)

Factors of Former High Schools Rated By Graduates *		Type of Graduate					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
Quality of academic instruction		2100	3.0	.73	1738	3.0	.75
Physical condition of school		2150	3.0	.82	1756	2.9	.93
Student counseling		2125	2.7	1.02	1740	2.5	1.02
Placement services		2034	2.4	1.08	1588	2.2	.99
Extracurricular activities		2105	2.9	.87	1746	3.2	.80
Teacher's interest in students		2081	2.8	.91	1739	2.6	.90
Reputation in community		2100	3.3	.79	1749	3.2	.81
Strictness of discipline		2106	3.0	.82	1756	2.9	.85
Quality of school library		–	–	–	–	–	–
Condition of facilities & equipment		–	–	–	–	–	–
HIGH SCHOOL ATTITUDE INDEX		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	415	2.85	.57	393	2.72	.55
	1958	626	2.94	.52	440	2.80	.54
	1962	730	2.96	.52	341	2.89	.56
	Combined	1773	2.95	.55	1174	2.80	.55

* 4 = Excellent; 3 = Good; 2 = Satisfactory; and 1 = Poor

* Two of the ten items differed for academic graduates. They are the last two items in Table 114. No comparison data are shown.

The high school attitude indexes are slightly but consistenly higher for the vocational course graduates. The individual differences, however, are not significant. The prudent conclusion is that the two types of graduates do not differ in terms of overall attitude toward their former schools. Both have a relatively high opinion of their former schools.

The mean ratings given the common school factors indicate that academic graduates rate opportunity for extracurricular activities higher. The shop load of the vocational course students makes this understandable. The vocational graduates, in turn, rate student counseling, placement services, and teacher interest in students higher. Both are reacting to the same schools; the analysis includes only the vocationals from the same comprehensive schools from which the academic graduates came.

Analysis by Individual School

To what extent are there school differences in the attitude-toward-school index? Table 115 shows frequency, percentage, and cumulative percentage distributions of the mean attitude scores for schools, based upon the attitude scores of graduates of 1953, 1958, and 1962.

The range of school mean attitude scores decreases with recency of graduation. For 1953 graduates, the school means range between 1.9 and 3.6, whereas for 1962 graduates, the means range from 2.5 to 3.6. For all years of graduation groups, most schools fall into a narrow range of 2.5 to 3.3.

In Chapter 3, it was shown that the differences between schools had an appreciable degree of stability. Some schools received consistently higher mean attitude scores, based upon ratings from their graduates, than other schools. The distribution of school means shown in Table 115 indicates that the school mean differences are not great. Nevertheless, the stable differences in school means on this measure raise the question of why.

The attitude measure correlates significantly with only one occupational measure, job satisfaction. It suggests that the differences in mean school attitude scores are more likely the result of differences between schools than

Table 115. ATTITUDE TOWARD FORMER HIGH SCHOOL: FREQUENCY DISTRIBUTION OF SCHOOL MEANS BY YEAR OF GRADUATION

Class Intervals For School Means of Attitude Index	YEAR OF GRADUATION								
	1953			1958			1962		
	N	%	C%	N	%	C%	N	%	C%
3.7-3.9	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0
3.4-3.6	3	3.3	100.0	2	1.1	100.0	4	4.0	100.0
3.1-3.3	21	23.1	96.7	26	26.0	98.0	35	35.0	96.0
2.8-3.0	38	41.7	73.6	46	46.0	72.0	47	47.0	61.0
2.5-2.7	23	25.3	31.9	22	22.0	26.0	13	13.0	14.0
2.2-2.4	3	3.3	6.6	3	3.0	4.0	1	1.0	1.0
1.9-2.1	3	3.3	3.3	0	0.0	1.0	0	0.0	0.0
1.6-1.8	0	0.0	0.0	1	1.0	1.0	0	0.0	0.0
1.3-1.5	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
1.0-1.2	0	0.0	0.0	0	0.0	0.0	0	0.0	0.0
Number of Schools	91			100			100		
TOTAL MEAN	2.8			2.9			3.0		

of the post-graduation experiences of the graduates. Most likely, the determinants of the measure are the very kinds of factors upon which the measure is based, e.g. adequacy of shop facilities, instruction, placement services, vocational guidance, and other factors rated.

The relationship between school variables and ratings by graduates will be reported in a subsequent volume.

9 THEIR POST HIGH SCHOOL OCCUPATIONAL HISTORY

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CHAPTER 9 SUMMARY

Analysis of Employment Security

1. Year of graduation. Employment security is expressed as the per cent of employable time in months that has been spent in full-time employment. For all graduates, the median per cent of employment security is 95, indicating a high degree of employment security among vocational graduates.

2. Type of school. There is no significant difference between graduates of vocational and comprehensive schools in terms of employment security.

3. School enrollment. There is no significant difference in employment security between the graduates of small, medium, and large enrollment schools.

4. Race of graduate. Negro vocational graduates have significantly less employment security than white vocational graduates.

5. Academic graduates. When equated for college education, the vocational graduates have significantly greater employment security than the academic graduates, within the period covered by the survey.

Analysis of Employment Stability

6. Year of graduation. Employment stability is expressed as the average duration in months of employment per job held. The average duration was 46.5, 26.1, and 12.6 months respectively for the graduates of 1953, 1958, and 1962.

7. Type of school. There is no significant difference in employment stability, as defined, between graduates of vocational and comprehensive schools.

8. School enrollment. There is no significant difference in employment stability between graduates of small, medium, and large enrollment schools.

9. Race of graduate. Negro graduates have slightly less employment stability, as defined, than white vocational graduates.

10. Academic graduates. Vocational graduates have significantly greater employment stability than academic graduates.

(Continued in Appendix B)

CHAPTER BACKGROUND INFORMATION

Chapter 3 introduced ten measures, each of which describes a salient aspect of the graduates' occupational history since leaving high school. The ten measures are:

1. General placement
2. Related placement
3. Employment security
4. Employment stability
5. Job relatedness
6. Job satisfaction
7. Employment mobility
8. Earnings progression
9. Initial hourly earnings
10. Present hourly earnings

Reliability and stability estimates were reported for each measure in Chapter 3. In addition, the intercorrelations among the measures were reported.

Two of the measures, general placement and related placement, were analyzed further in Chapter 5 in terms of such basic variables as year of graduation, type of school attended, enrollment of school attended, race of graduate, and where appropriate, the type of graduate, i.e. vocational or academic. The balance of the measures, with the exception of employment mobility, are analyzed in this chapter in terms of the same variables.

A clarification is in order about the data used in this chapter. The data reported in the tables are based upon graduates who had six months or more of employable time between graduation from high school and June, 1964, the cut-off point for the survey. Those with less than six months of employable time, about 217 cases, were eliminated because their performance on some of the occupational measures was markedly different from that of the bulk of the graduates. Their

inclusion into the data would have distorted mean values of the measures.

An example will illustrate the point. Among the 1962 graduates, a considerable number entered military service or full-time, post-high school education within a few months after graduation. Most of these made apparently little effort to find employment in the several month interval between high school and the service or continued full-time education. They were predominantly cases of zero employed time over the few months of employable time available to them. It would be a distortion of the employment security measure, for example, to include such cases. It is a reasonable conclusion to assume they were not looking for employment because they anticipated being in school or in the service within a few months after graduation. On the basis of this reasoning, the decision was made to include only those cases with six months or more of employable time in the analyses that comprise this chapter.

The above rule eliminated mainly some of the 1962 graduates, and a very few of the 1958 graduates who, because of a combination of military service and full-time school, did not have the minimum of six months of employable time as of June, 1964. No 1953 graduates were eliminated.

ANALYSIS OF EMPLOYMENT SECURITY

Introduction

To what extent are vocational graduates fully employed over their period of employable time? The measure of employment security was developed to describe that aspect of the graduate's employment history. The measure indicates what percentage of the graduate's total employable time since leaving high school was spent employed. Excluded from employable time are months of military service, full-time school attendance, and incapacitation because of hospitalization. Included in employed time are part-time jobs held during periods when no full-time jobs were held. The part-time job durations were equated to equivalent full-time months. For example, a part-time job of six months duration at twenty hours per week was transformed to three months of full-time employment. Thus, the employment security measure describes how much full-time employment or its equivalent a graduate has experienced since leaving high school, expressed as a percentage of total time in months available for employment.

Analysis by Year of Graduation

By year of graduation, what is the mean and median percentage of employment security for the graduates of 1953, 1958 and 1962? What is the frequency distribution? Table 116 provides the data.

The mean percentage of employment security is 92.7, 87.3 and 84.0 respectively for the graduates of 1953, 1958 and 1962. Comparable median values are 98, 95, and 92 respectively for 1953, 1958 and 1962 graduates. The skewed nature of the distribution of scores indicate the median values are a better measure of central tendency.

The data indicate that vocational graduates have a substantial degree of employment security. Eighty-one percent of the 1953 graduates enjoyed 91 percent or better employment security. Sixty-three percent of the 1958 graduates,

Table 116. EMPLOYMENT SECURITY: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

Employment Security	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
91-100	828	80.7	80.7	896	63.1	63.1	970	57.0	57.0	2703	64.1	64.1
81- 90	96	9.3	90.0	241	17.0	80.1	264	15.5	72.5	605	14.7	78.8
71- 80	43	4.2	94.2	124	8.7	88.8	165	9.7	82.2	332	7.7	86.5
61- 70	21	2.0	96.2	50	3.5	92.3	90	5.3	87.5	161	4.6	91.1
51- 60	11	1.1	97.3	23	1.6	93.9	51	3.0	90.5	85	2.2	93.3
41- 50	6	0.6	97.9	17	1.2	95.1	48	2.8	93.3	71	1.7	95.0
31- 40	3	0.3	98.2	16	1.1	96.2	25	1.5	94.8	44	1.1	96.1
21- 30	1	0.1	98.3	12	0.9	97.1	23	1.3	96.1	36	0.9	97.0
11- 20	0	0.0	98.3	9	0.6	97.7	10	0.6	96.7	19	0.5	97.5
1- 10	3	0.3	98.6	3	0.2	97.9	6	0.4	97.1	12	0.3	97.8
0	14	1.4	100.0	30	2.1	100.0	49	2.9	100.0	93	2.2	100.0
Number	1026			1421			1701			4161		
Mean	92.67			87.30			84.0			89.30		
Median	98			95			92			95		
S.D.	15.46			20.21			23.18			20.73		

who left school in a period of economic recession which lasted for much of their employable time period, had 91 percent or better employment security. Their median employment security was 95 percent. While there are no absolute benchmarks to indicate what is good, fair or poor employment security, it would seem that the data testify to a high degree of employment security among vocational graduates. The employment security mean and median values would undoubtedly be substantially greater if the unemployed period prior the first full-time job were eliminated from the measure.

The mean employment security values for 1953, 1958 and 1962 graduates incorrectly suggest that employment security is increasingly a problem. The

trend is an artifact attributable to the nature of the measure rather than a change in the basic economic conditions influencing employment security. The measure includes the period of unemployment that precedes the graduate's first full-time job. That period is, by the nature of the measure, increasingly a greater proportion of total employable time for 1953, 1958 and 1962 graduates. In other words, the measure penalizes the more recent graduates, and generates a meaningless trend. One cannot correctly compare the graduates of 1953, 1958 and 1962 on the measure as calculated. The comparison would be equitable only if employment security were calculated for, say, the first two years after graduation for the three groups.

Chapter 5 showed that general placement and related placement were influenced by the economy level at the time of graduation. More than likely, the employment security measure is similarly influenced. A modified use of the measure, as previously described, would be required to demonstrate the relationship. The problem will be pursued in a later report.

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of employment security? Table 117 provides the data for each graduating class and for all graduating classes combined.

The slight differences are in employment security between graduates of comprehensive and vocational schools are not significant. Employment security appears to be unrelated to the type of school, i.e. comprehensive or vocational, attended by the graduates. The slight difference in favor of the vocational schools may possibly be a reflection of their better performance in placing graduates into jobs. If the measure were corrected for pre-first job unemployment, those differences would undoubtedly disappear. It is interesting to see that for the recession year graduates of 1958, there was no difference in the placement performance of the two types of schools. There is also no difference in the employment security between the 1958 graduates of the two schools.

Table 117. EMPLOYMENT SECURITY: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	Employment Security		
		N	%	S.D.
1959	Vocational	622	93.6	12.9
	Comprehensive	404	91.2	18.6
1958	Vocational	808	87.2	19.5
	Comprehensive	619	87.5	21.1
1962	Vocational	1015	85.2	22.4
	Comprehensive	686	82.2	24.2
Combined	Vocational	2444	86.6	19.7
	Comprehensive	1709	86.4	20.1

Analysis by School Enrollment

Do vocational graduates of small, medium and large enrollment schools, as defined by this study, differ significantly in post-graduation employment security? Table 118 provides the data.

There is no consistent trend relating employment security to the enrollment of the former school. The conclusion is that school enrollment is unrelated to the employment security experienced by graduates within eleven years after graduation. Whatever the advantages of the small or large enrollment schools may be, they do not include greater employment security for graduates.

Table 119. EMPLOYMENT SECURITY: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	Employment Security		
		N	M	S.D.
1953	< 500	358	92.5	19.9
	500 - 1500	386	93.4	12.6
	> 1500	282	92.0	17.3
1958	< 500	457	86.0	21.2
	500 - 1500	561	88.0	18.8
	> 1500	409	87.8	20.8
1962	< 500	570	85.4	22.1
	500 - 1500	615	89.1	23.2
	> 1500	518	85.4	24.2
Combined	< 500	1385	87.6	20.7
	500 - 1500	1624	89.8	18.8
	> 1500	1203	88.8	21.8

Analysis by Race of Graduates

How do white and Negro vocational graduates compare in terms of employment security? Table 119 provides the data.

It is clear that the Negro vocational course graduate experiences substantially less employment security than the white graduate. This is so for each of the three graduating classes. For the combined graduates, white graduates were employed 88 percent of their employable time, whereas Negro graduates were employed only 78.8 percent of their employable time. Much of the difference is attributable to the longer time required by the Negro graduate to find his first full-time job. Data on the latter were presented in Chapter 5. Negro graduates required almost three times as long as white graduates to find their first full-time job. Even then, a relatively small percent found jobs in the trade studied or highly related trades.

Table 119. EMPLOYMENT SECURITY: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	Employment Security		
		N	%	S.D.
1953	White	981	93.0	15.2
	Negro	33	84.6	19.6
	Other	3	89.7	13.2
1958	White	1302	87.9	19.3
	Negro	36	81.7	26.3
	Other	4	82.0	21.9
1962	White	1535	84.9	22.4
	Negro	120	75.0	27.5
	Other	5	61.5	41.5
Combined	White	3850	88.0	20.0
	Negro	240	78.5	26.4
	Other	12	75.6	32.6

Analysis by Type of Graduate

How do vocational and academic course graduates compare in terms of employment security? Table 120 provides the data for the two types of graduates, without consideration for the amount of post-high school education obtained. It must be remembered that a majority of the academic graduates have some college education, and many have completed four years of college.

For each of the year of graduation groups, the vocational course graduates experience greater employment security than the academic course graduates. For the combined graduates, the vocational course graduates were employed 87.3 per cent of their employable time, whereas the academic graduates were employed 83.2 percent of their employable time. The difference is greatest for the 1962 graduates, and least for the 1953 graduates. This suggests that a substantial amount of the employment security difference is the result of the greater difficulty that academic graduates have in finding the first full-time job.

Table 120. EMPLOYMENT SECURITY: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES

Year of Graduation	Type of Graduate	Employment Security		
		N	M	S.D.
1953	Vocational	1026	92.7	15.5
	Academic	364	90.1	17.0
1958	Vocational	1421	87.3	20.2
	Academic	410	82.7	24.3
1962	Vocational	1701	84.0	23.2
	Academic	324	76.2	30.2
Combined	Vocational	4161	87.3	20.7
	Academic	1098	83.2	24.8

How do vocational and academic graduates who have had no college education compare in terms of employment security? Table 121 provides the data.

Vocational graduates without any college education experience significantly greater employment security than academic graduates without a college education. The difference in employment security is slightly greater than when the two types of graduates are compared without regard for post-high school education. For the combined year of graduation groups, the vocational course graduates were employed 88.0 percent of their employable time, whereas the non-college, academic graduates were employed 82.1 percent of their employable time.

While much of the difference is attributable to the greater difficulty that academic graduates have in finding a job after high school, it also reflects greater unemployment during the total employable time period. The

Table 121. EMPLOYMENT SECURITY: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES (Based on graduates with no college education who have $\geqq$ 6 months employable time.)

Year of Graduation	Type of Graduate	Employment Security		
		N	M	S.D.
1953	Vocational	819	93.5	14.4
	Academic	149	89.6	20.0
1958	Vocational	1188	88.0	19.5
	Academic	212	83.2	21.4
1962	Vocational	1528	85.0	22.1
	Academic	230	76.2	29.0
Combined	Vocational	3548	88.0	19.9
	Academic	591	82.1	24.9

average duration of jobs held by vocational graduates is significantly greater than the duration of jobs held by academic graduates. Since some amount of between job unemployment is a reasonable expectation, it can be concluded that the difference in employment security experienced by the two types of graduates is not wholly the result of differences in time required to find the first job. Academic graduates without a college education take longer than comparable vocational graduates to find their first full-time job, and have more between job unemployment, with the net result that they have less employment security. Whether this continues to be the case after the first eleven years of employment is undetermined.

ANALYSIS OF EMPLOYMENT STABILITY

Introduction

To what extent are vocational graduates stably employed in the sense of continued employment with relatively few, or even one, employer? The measure of employment stability developed to describe this aspect of the vocational graduate's employment history was the average duration in months of employment per full-time employer. The graduate's score on the measure is obtained by dividing his total months of full-time equivalent employment since graduation by the number of full-time jobs (employers) held during this period. The number of full-time jobs held is analyzed separately in the next section of this chapter.

The employment stability measure, as defined above, was shown in Chapter 3 to be significantly related to employment security, i.e. the greater the average duration per job, the greater employment security; and to job relatedness, i.e. the more the jobs held were related to the trade studied, the greater the duration of the jobs held. The measure proved to be unrelated to job satisfaction and earnings progression as defined in this study.

The reliability estimates reported for the measure in Chapter 3 were low but statistically significant at the five percent level of confidence. Stability estimates were not significant, indicating that differences in the measure between schools were not stable over the years covered by the survey. These findings forced the conclusion that the measure was of questionable value for evaluative purposes. The present section continues the analysis of the measure in terms of the basic study variables.

Analysis by Year of Graduation

By year of graduation, what is the mean and median duration per full-time job held by vocational graduates? Table 122 shows a frequency distribution of the number, percent and cumulative percent of graduates in class

Table 122. EMPLOYMENT STABILITY: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

Job Stability	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
136-150	3	0.3	0.3	0	0.0	0.0	0	0.0	0.0	3	0.1	0.1
121-135	78	7.5	7.8	1	0.1	0.1	0	0.0	0.0	79	1.9	2.0
106-120	49	4.7	12.5	0	0.0	0.1	0	0.0	0.0	50	1.2	3.2
91-105	22	2.1	14.6	0	0.0	0.1	0	0.0	0.0	24	0.6	3.8
76- 90	21	2.0	16.6	2	0.1	0.2	0	0.0	0.0	23	0.5	4.3
61- 75	91	8.8	25.4	144	10.2	10.4	0	0.0	0.0	235	5.7	10.0
46- 60	93	9.0	34.4	69	4.9	15.3	0	0.0	0.0	162	3.9	13.9
31- 45	235	22.6	57.0	220	15.5	30.8	9	0.5	0.5	469	11.3	25.2
16- 30	325	31.3	88.3	464	32.8	63.6	522	31.0	31.5	1315	31.6	56.8
0- 15	121	11.7	100.0	516	36.4	100.0	1154	68.5	100.0	1792	43.2	100.0
Number	1038			1416			1685			4152		
Mean	46.52			26.12			12.57			25.78		
Median	34			21			11			18		
S.D.	34.93			19.10			7.45			25.20		

intervals of fifteen month job durations. Mean and median job duration values are also given.

The small number of cases in each year of graduation group that appear to have a job duration in excess of what would be the maximum if only one job were held from immediately after graduation to the June, 1964 cut-off date are cases that for a period, held two jobs, the second job usually being a part-time job. The small number of such cases did not make it worthwhile to parcel out employed time accumulated by second jobs.

The average duration per full-time jobs was 12.8, 26.1 and 46.5 months respectively for 1962, 1958 and 1953 graduates. These values suggest that the 1953 graduates, with a possible 132 months of employable time, have held on an average only one job more than the 1962 graduates, with a possible 24

months of employable time. Apparently, vocational graduates do not change employers frequently. The changes tend to come in the early years after graduation.

Analysis by Type of School

Do vocational graduates of comprehensive and vocational schools differ significantly in employment stability? The question is raised because there may be something about either type of school that predisposes graduates to greater employment stability. Table 123 provides the data.

Table 123. EMPLOYMENT STABILITY: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	Job Stability		
		N	M	S.D.
1953	Vocational	632	44.4	32.8
	Comprehensive	406	49.9	37.8
1958	Vocational	810	26.2	19.8
	Comprehensive	607	25.9	18.0
1962	Vocational	1005	12.6	7.6
	Comprehensive	680	12.4	7.2
Combined	Vocational	2458	25.4	24.4
	Comprehensive	1695	26.3	26.3

For the three graduating classes, there is no consistent difference favoring one or the other type of schools. The differences are not significant. The conclusion is that the type of school attended is unrelated to future employment stability, as herein defined.

Analysis by School Enrollment

Do vocational graduates of small, medium and large enrollment schools, as defined in this study, differ in terms of employment stability? The existence of a relationship between school enrollment and employment stability would raise the further question of why. Table 124 provides the data.

Table 124. EMPLOYMENT STABILITY: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	Job Stability		
		N	M	S.D.
1953	< 500	360	43.5	33.6
	500 - 1500	398	46.2	33.1
	> 1500	280	50.9	38.5
1958	< 500	455	24.7	18.4
	500 - 1500	566	26.4	19.8
	> 1500	396	27.2	18.8
1962	< 500	565	13.2	7.8
	500 - 1500	609	12.0	7.1
	> 1500	511	12.5	7.4
Combined	< 500	1382	24.9	24.8
	500 - 1500	1582	26.0	25.0
	> 1500	1189	26.5	26.7

For the graduates of 1953 and 1958, mean employment stability increases with increased enrollment. The differences, however, are slight, and do not appear for the 1962 graduates. The prudent conclusion is that school enrollment is only slightly, if at all, related to employment stability of graduates. It may be that more of the small enrollment schools are located in areas of relative economic instability, causing graduates to change employers more frequently. The magnitude of the differences in employment stability hardly warrant further speculation as to why.

Analysis by Race of Graduate

How do white and Negro vocational graduates compare in terms of employment stability? It has been said that Negroes are the last to be hired and the first to be laid off in the ups and downs of the economic cycle. If that is so, it should be reflected in the employment stability comparison. Table 125 provides the data.

Table 125. EMPLOYMENT STABILITY: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	Job Stability		
		N	M	S.D.
1953	White	990	46.7	35.1
	Negro	36	39.2	27.9
	Other	3	59.7	51.2
1958	White	1301	26.2	19.2
	Negro	85	24.0	17.1
	Other	4	26.8	25.8
1962	White	1524	12.6	7.5
	Negro	118	11.2	6.6
	Other	5	19.0	12.0
Combined	White	3827	26.2	25.5
	Negro	240	20.0	18.5
	Other	12	31.8	34.8

In each of the three year of graduation groups, the mean employment stability for Negro graduates is less than for white graduates. For all years combined, the mean job duration of white graduates is 26.2 months versus 20.0 for Negro graduates. The conclusion is that Negro graduates enjoy less employment stabillity than white graduates. The differences, however, are not substantial. For example, for the 1962 graduates, the mean job duration for white graduates was

only 1.5 months greater than that for Negro graduates; and for 1958 graduates, the mean job duration was only 2.2 months greater for white graduates. Thus, the Negro has less employment stability, but not much less.

Analysis by Type of Graduate

How do vocational and academic course graduates compare in terms of average duration of full-time jobs? Table 126 provides the data for the two types of graduates. The two groups are not equated in terms of amount of post-high school college and non-college education.

Table 126. EMPLOYMENT STABILITY: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES

Year of Graduation	Type of Graduate	Job Stability		
		N	M	S.D.
1953	Vocational	1038	46.5	34.9
	Academic	374	37.0	28.7
1958	Vocational	1416	26.1	19.1
	Academic	400	20.3	15.4
1962	Vocational	1685	12.6	7.4
	Academic	301	11.2	6.9
Combined	Vocational	4153	25.8	25.2
	Academic	1075	23.6	22.3

For each year of graduation groups, the mean full-time job duration is greater for vocational than for academic graduates. As defined, vocational graduates experience greater employment stability. The difference in employment stability increases with number of years out of school, being 1.4, 5.3,

and 9.5 months respectively for 1962, 1958 and 1953 graduates.

How do the two types of graduates compare in employment stability when neither group has any college education? Table 127 provides the data.

Table 127. EMPLOYMENT STABILITY: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES (Based on graduates with no college education who have $\geqq$ 6 months employable time.)

Year of Graduation	Type of Graduate	Employment Stability		
		N	M	S.D.
1953	Vocational	826	49.2	35.8
	Academic	150	45.1	35.8
1958	Vocational	1189	27.2	19.7
	Academic	210	24.1	17.6
1962	Vocational	1524	12.9	7.5
	Academic	219	11.7	7.2
Combined	Vocational	3552	26.2	25.6
	Academic	579	24.8	25.2

Vocational graduates still have a greater mean job duration than academic graduates. However, the differences are less. They are 1.2, 3.1, and 4.1 months respectively for 1962, 1958 and 1953 graduates. This suggests that, within the period of years studied, average job duration is less for those with a college education than those with no college, whether they be vocational or academic graduates. A possible explanation is that those with a college education may be more inclined to "explore" different employers before settling down to a career advancement. Whatever the explanation, vocational graduates appear to stay longer with their employers than do academic graduates.

ANALYSIS OF NUMBER OF JOBS HELD

Introduction

The preceding section was concerned with employment stability defined in terms of average duration of job (employer). Employment stability may be alternatively defined as the number of jobs held, where a job is further defined as an association with an employer rather than with a position title held. Thus, a graduate who has had full-time employment with two employers since graduation has had, by this definition, two jobs.

Because it may be of general interest to know the number of full-time jobs vocational graduates have had in a maximum of two, six and eleven years of employable time, depending upon year of graduation, the variable has been subjected to the same analysis as the occupational derived measures. The two variables, average duration of jobs held and number of full-time jobs held, are as one would expect highly correlated. The findings of the analyses in this section should correspond with the analyses of the preceding section.

Analysis by Year of Graduation

By year of graduation groups, what are the mean and median number of full-time jobs held by vocational graduates? Table 128 shows a frequency distribution of the number, percentage and cumulative percentage of graduates in each number of jobs category. It also give the mean and median values.

The mean number of full-time jobs held by 1962, 1958 and 1953 graduates are respectively 1.96, 2.48 and 3.08. In eleven years, the average graduate has held only three full-time jobs. Indeed, 65.8 percent of the 1953 graduates have held three or fewer full-time jobs. On the whole, vocational graduates do not do much moving from employer to employer.

Table 128. NUMBER OF JOBS HELD: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

No. Full-Time Jobs	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
10	10	0.9	100.0	6	0.4	100.0	1	0.1	100.0	17	0.4	100.0
9	6	0.5	99.1	3	0.2	99.6	1	0.1	99.9	10	0.2	99.6
8	15	1.4	98.6	2	0.1	99.4	0	0.0	99.8	17	0.4	99.4
7	25	2.2	97.2	8	0.5	99.3	4	0.2	99.8	37	0.9	99.0
6	58	5.2	95.0	39	2.6	98.8	18	1.0	99.6	115	2.6	98.1
5	99	8.9	89.8	96	6.4	96.2	41	2.3	98.6	237	5.4	95.5
4	168	15.1	80.9	158	10.6	89.8	100	5.7	96.3	427	9.7	90.1
3	234	21.0	65.8	293	19.7	79.2	269	15.2	90.6	798	18.2	80.4
2	263	23.6	44.8	423	28.4	59.5	557	31.6	75.4	1245	28.4	62.2
1	236	21.2	21.2	463	31.1	31.1	773	43.8	43.8	1479	33.8	33.8
Number	1114			1491			1764			4382		
Mean	3.08			2.48			1.96			2.42		
Median	3			2			2			2		
S.D.	1.84			1.50			1.14			1.53		

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of the mean number of full-time jobs held since graduation? Table 129 provides the data.

There are no significant differences in the mean number of full-time jobs held by the graduates of the two types of schools. Whatever differences may characterize vocational education in the two types of schools, they are not reflected in the number of full-time jobs held by graduates from two to eleven years out of school.

Table 129. NUMBER OF JOBS HELD: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	No. of Full-Time Jobs		
		N	M	S.D.
1953	Vocational	689	3.2	1.8
	Comprehensive	425	3.0	1.9
1958	Vocational	858	2.4	1.4
	Comprehensive	634	2.6	1.6
1962	Vocational	1050	2.0	1.2
	Comprehensive	714	1.9	1.1
Combined	Vocational	2608	2.4	1.5
	Comprehensive	1775	2.4	1.6

Analysis by School Enrollment

Do vocational graduates of small, medium and large enrollment schools, as defined in this study, differ in terms of number of full-time jobs held over comparable time periods? Table 130 provides the data.

The differences in mean number of jobs held are not significant in any of the year of graduation groups. The conclusion is that size of school enrollment is unrelated to the number of jobs held by graduates within periods from two to eleven years after graduation.

Analysis by Race of Graduates

How do white and Negro graduates compare in terms of the mean number of full-time jobs held over comparable time periods? Table 131 provides the data.

Table 130. NUMBER OF JOBS HELD: COMPARISON OF SMALL, MEDIUM, AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	No. of Full-Time Jobs		
		N	M	S.D.
1953	< 500	401	3.2	1.8
	500 - 1500	419	2.9	1.7
	> 1500	294	3.1	2.0
1958	< 500	491	2.4	1.4
	500 - 1500	589	2.5	1.6
	> 1500	412	2.5	1.5
1962	< 500	594	2.0	1.2
	500 - 1500	637	2.2	1.2
	> 1500	533	1.9	1.1
Combined	< 500	1488	2.5	1.5
	500 - 1500	1654	2.4	1.5
	> 1500	1241	2.4	1.6

Table 131. NUMBER OF JOBS HELD: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	No. of Full-Time Jobs		
		N	M	S.D.
1953	White	1063	3.1	1.9
	Negro	39	2.5	1.3
	Other	3	2.7	1.7
1958	White	1364	2.5	1.5
	Negro	92	2.6	1.4
	Other	4	2.8	1.5
1962	White	1589	2.0	1.2
	Negro	129	2.0	1.1
	Other	5	1.4	.5
Combined	White	4028	2.4	1.6
	Negro	261	2.3	1.3
	Other	12	2.2	1.4

For all graduates combined, the mean number of jobs held by Negro and white graduates are 2.36 and 2.44 respectively. The difference is not statistically significant. Differences by year of graduation groups are similarly lacking in significance. The conclusion is that race of vocational graduates is unrelated to the number of full-time jobs held within a given period of years. The reason Negro graduates had a substantially smaller average duration per job held, as indicated in the preceding section on employment stability, is that he had a smaller amount of total employed time than the white graduate. It is clear that whether the Negro has more or less employment stability depends upon how the concept is defined. Defined as average duration per job, he has less employment stability. Defined as the number of jobs held, there is no difference in employment stability between the two races.

Analysis by Type of Graduate

How do vocational and academic course graduates compare in terms of number of full-time jobs held within periods of two to eleven years after graduation? Table 132 provides the data for graduates who have no college education.

Table 132. NUMBER OF JOBS HELD: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES WHO HAVE HAD NO COLLEGE EDUCATION

Year of Graduation	Type of Graduate	Number of Jobs		
		N	M	S.D.
1953	Vocational	889	3.1	1.9
	Academic	164	2.9	1.8
1958	Vocational	1260	2.5	1.5
	Academic	238	2.3	1.3
1962	Vocational	1596	2.0	1.2
	Academic	226	2.0	1.2
Combined	Vocational	3758	2.4	1.5
	Academic	628	2.3	1.4

The differences in mean number of jobs held are not significant in any of the year of graduation categories. Apparently, academic course graduates are no more inclined to move from employer to employer than are vocational graduates. The number of full-time jobs that a high school graduate holds in his first eleven years of work is unrelated to the type of school attended, the enrollment of the school attended, the race of the graduate, or even the type of program he took in school. It is probably related to personal characteristics of the graduate.

In the preceding section on employment stability, academic graduates were reported to have a smaller average duration per job held, and therefore, less employment stability than vocational graduates. This is not at variance with the finding that there is no difference in number of jobs held by the two types of graduates. The apparent contradiction results from the finding that academic graduates have less total employed time than vocational graduates. That would give them a smaller average duration per job, if there is no difference in the number of jobs held.

ANALYSIS OF JOB SATISFACTION

Introduction

To what extent are vocational graduates satisfied with the jobs they have held since leaving high school? The measure of job satisfaction used to describe the satisfaction dimension of the graduate's occupational history was derived as follows: For each job held, the graduate was asked to rate his general satisfaction with the job in terms of four categories, i.e. very satisfied, satisfied, dissatisfied or very dissatisfied. The categories were weighted 4, 3, 2 and 1 respectively. The graduate's job satisfaction score was the mean of the separate job satisfaction ratings. Thus, a score of 4 indicates the graduate reported himself to be "very satisfied" with all jobs held, whereas a score of 1 would indicate he was "very dissatisfied" with all jobs held.

In Chapter 3, the reliability and stability of the job satisfaction measure were established. It was also shown that the measure correlated significantly with job relatedness, i.e. the more the jobs held by a graduate were related to the trade studied, the greater the job satisfaction reported. The measure also correlated significantly with present earnings at the time of the survey, i.e. the greater the hourly earnings, the greater the job satisfaction reported. It proved to be unrelated to employment security, employment stability, earnings progression and job mobility.

The present section continues the analysis of the measure in terms of the basic study variables.

Analysis by Year of Graduation

How are the job satisfaction scores distributed within each year of graduation group? What is the mean and median job satisfaction score for each year of graduation group? Table 133 provides the data.

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Table 133. JOB SATISFACTION: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

Job Satis-faction	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
4.0	230	20.8	20.8	320	21.7	21.7	416	23.9	23.9	969	22.3	22.3
3.7-3.9	54	4.9	25.7	49	3.3	25.0	35	2.0	25.9	134	3.2	25.5
3.4-3.6	127	11.5	37.2	151	10.2	35.2	141	8.1	34.0	419	9.8	35.3
3.1-3.3	131	11.8	49.0	117	7.9	43.1	68	3.9	37.9	318	7.3	42.6
2.8-3.0	358	32.3	81.3	490	33.3	76.4	597	34.2	72.1	1449	33.4	76.0
2.5-2.7	105	9.5	90.8	152	10.3	86.7	191	11.0	83.1	448	10.3	86.3
2.2-2.4	32	2.9	93.7	51	3.5	90.2	55	3.1	86.2	139	3.2	89.5
1.9-2.1	49	4.4	98.1	112	7.6	97.8	160	9.2	95.4	322	7.4	96.9
1.6-1.8	5	0.4	98.5	5	0.3	98.1	10	0.6	96.0	20	0.5	97.4
1.3-1.5	4	0.4	98.9	7	0.5	98.6	23	1.3	97.3	34	0.8	98.2
1.0-1.2	12	1.1	100.0	19	1.3	100.0	47	2.7	100.0	79	1.8	100.0
Number	1107			1473			1743			4336		
Mean	3.19			3.13			3.06			3.12		
Median	3.0			3.0			3.0			2.9		
S.D.	.61			.66			.74			.68		

The mean job satisfaction scores for 1953, 1958 and 1962 graduates are 3.19, 3.13 and 3.06 respectively. The scores indicate widespread satisfaction with jobs held in each of the year of graduation groups. This is further indicated by the percentage of graduates with job satisfaction scores of 2.8 or higher. Those percentages are 81.3, 76.4 and 72.1 for the graduates of 1953, 1958 and 1962 respectively. It can be concluded that the great majority of vocational graduates report considerable satisfaction with the jobs they have held. This does not mean that a more analytic approach to the job satisfaction of vocational graduates would not reveal areas of dissatisfaction. It does indicate an overall satisfaction with jobs held.

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of reported job satisfaction? Table 134 provides the data.

Table 134. JOB SATISFACTION: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	Job Satisfaction		
		N	M	S.D.
1953	Vocational	684	3.19	.58
	Comprehensive	423	3.19	.65
1958	Vocational	847	3.16	.64
	Comprehensive	627	3.09	.68
1962	Vocational	1039	3.09	.73
	Comprehensive	704	3.02	.76
Combined	Vocational	2581	3.14	.66
	Comprehensive	1756	3.08	.71

For each of the year of graduation groups, the difference in reported job satisfaction between the graduates of the two types of schools is not significant. The conclusion is that the type of school attended, i.e. comprehensive or vocational has no bearing on job satisfaction experienced from two to eleven years after graduation.

Analysis by School Enrollment

Do graduates of small, medium and large enrollment schools, as defined by this study, differ significantly in reported job satisfaction? Table 135 provides the data.

Table 135. JOB SATISFACTION: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	Job Satisfaction		
		N	M	S.D.
1953	< 500	400	3.17	.55
	500 - 1500	415	3.18	.65
	> 1500	292	3.22	.62
1958	< 500	485	3.16	.63
	500 - 1500	583	3.11	.66
	> 1500	406	3.11	.68
1962	< 500	587	3.08	.77
	500 - 1500	630	3.00	.71
	> 1500	526	3.10	.73
Combined	< 500	1474	3.13	.67
	500 - 1500	1637	3.09	.68
	> 1500	1226	3.13	.69

Within each year of graduation group, the mean job satisfaction ratings for the three enrollment categories are not significantly different. The conclusion is that the enrollment of the school attended is unrelated to job satisfaction experienced from two to eleven years after graduation.

Analysis by Race of Graduate

How do white and Negro graduates compare in terms of reported job satisfaction? Table 136 provides the data.

For each year of graduation group, the mean job satisfaction reported by Negro graduates is less than that reported by white graduates. While the differences are not great, their consistency forces the conclusion that Negro vocational graduates tend to experience less job satisfaction than white graduates. The conclusion is internally consistent with the finding that job

Table 136. JOB SATISFACTION: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	Job Satisfaction		
		N	M	S.D.
1953	White	1056	3.20	.60
	Negro	39	2.95	.89
	Other	3	3.03	.68
1958	White	1351	3.15	.64
	Negro	90	2.84	.80
	Other	4	3.00	.44
1962	White	1570	3.09	.72
	Negro	128	2.69	.84
	Other	5	3.10	.49
Combined	White	3989	3.14	.67
	Negro	258	2.78	.84
	Other	12	3.05	.53

satisfaction correlates positively with job relatedness, and that a smaller percentage of Negroes than whites enter the trade for which trained. The satisfaction that comes from working in the trade studied is mainly denied to the Negro graduate.

Analysis by Type of Graduate

How do vocational and academic course graduates compare in terms of reported job satisfaction. Table 137 provides the data.

Within each of the year of graduation group, the difference in mean job satisfaction between vocational and academic graduates is not significant. The conclusion is that the type of program, i.e. vocational or academic, taken in high school is unrelated to job satisfaction up to eleven years after graduation.

Table 137. JOB SATISFACTION: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES

Year of Graduation	Type of Graduate	Job Satisfaction		
		N	M	S.D.
1953	Vocational	1107	3.19	.61
	Academic	385	3.19	.64
1958	Vocational	1473	3.13	.66
	Academic	421	3.07	.71
1962	Vocational	1743	3.06	.74
	Academic	301	2.92	.78
Combined	Vocational	4336	3.12	.68
	Academic	1107	3.07	.72

Table 138 shows a comparison of vocational and academic course graduates, who have not attended college, in terms of job satisfaction reported. Within each year of graduation group, vocational graduates have a higher, but not significantly higher mean job satisfaction rating. The consistency of the difference suggests vocational graduates experience slightly more job satisfaction than academic graduates who have had no college education. The differences are too small, however, to make much about them.

Table 138. JOB SATISFACTION: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES (Based on graduates with no college education who have $\geqq$ 6 months employable time.)

Year of Graduation	Type of Graduate	Job Satisfaction		
		N	M	S.D.
1953	Vocational	884	3.20	5.8
	Academic	160	3.00	6.7
1958	Vocational	1244	3.12	6.4
	Academic	232	3.03	6.9
1962	Vocational	1575	3.07	7.3
	Academic	223	2.92	7.6
Combined	Vocational	3716	3.12	6.7
	Academic	615	2.98	7.1

ANALYSIS OF JOB RELATEDNESS

Introduction

To what extent do vocational graduates hold jobs related to the trade studied within periods of two, six and eleven years after graduation? The measure of job relatedness that was developed to describe this dimension of the vocational graduate's occupational history was derived as follows: For each job reported, the graduate was asked to rate its relation to the trade studied, i.e. same trade, highly related trade, slightly related trade, or completely unrelated trade. The relatedness categories were weighted 4, 3, 2 and 1 respectively. The graduate's job relatedness score was the mean of such ratings. Thus, a score of 4 indicates that all jobs held by the graduate were in the trade studied, whereas a score of 1 indicates all jobs held were in a trade completely unrelated to the trade studied.

In Chapter 3, the reliability and stability of the measure were established. The measure was also shown to be significantly correlated with related placement, i.e. the more related the first job is to the trade studied, the more related all jobs held are to the trade studied; with employment security, i.e. the more related all jobs held are to the trade studied, the greater is employment security; with employment stability, i.e. the more related all jobs held are to the trade studied, the greater the average duration in months per job held; with job satisfaction, the more related all jobs held are to the trade studied, the greater the satisfaction reported for the jobs held; and with present earnings, i.e. the more related all jobs held are to the trade studied, the higher hourly earnings at the end of two, six and eleven years after graduation. It is these relationships that testify for the importance of the job relatedness concept.

The present section continues the analyses of the measure in terms of the basic study variables.

Analysis by Year of Graduation

Within each year of graduation group, how is the job relatedness measure distributed? What are the mean and median relatedness scores? Table 139 provides the data.

Table 139. JOB RELATEDNESS: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

Job Relatedness	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
4.0	148	13.4	13.4	212	14.4	14.4	343	19.8	19.8	707	16.3	16.3
3.7-3.9	14	1.3	14.7	15	1.0	15.4	11	0.6	20.4	40	0.9	17.2
3.4-3.6	33	3.0	17.7	28	1.9	17.3	35	2.0	22.4	97	2.2	19.4
3.1-3.3	28	2.5	20.2	32	2.2	19.5	14	0.8	23.2	74	1.7	21.1
2.8-3.0	139	12.5	32.7	202	13.7	33.2	270	15.6	38.8	612	14.2	35.3
2.5-2.7	93	8.4	41.1	97	6.6	39.8	115	6.6	45.4	305	7.0	42.3
2.2-2.4	56	5.1	46.2	47	3.2	43.0	48	2.8	48.2	151	3.5	45.8
1.9-2.1	168	15.2	61.4	225	15.3	58.3	245	14.1	62.3	639	14.8	60.6
1.6-1.8	82	7.4	68.8	76	5.2	63.5	65	3.7	66.0	224	7.9	65.8
1.3-1.5	94	8.5	77.3	132	8.9	72.4	115	6.6	72.6	342	7.9	73.7
1.0-1.2	251	22.7	100.0	407	27.6	100.0	475	27.4	100.0	1137	26.3	100.0
Number	1106			1473			1736			4328		
Mean	2.3			2.2			2.3			2.3		
Median	2.0			2.0			2.0			1.9		
S.D.	1.01			1.05			1.11			1.07		

The mean job relatedness is 2.3, 2.2 and 2.3 respectively for the graduates of 1953, 1958 and 1962. Thus, the average relationship between jobs held and trades studied in high school is only a little better than "slightly related." This is in agreement with the earlier finding that only about 30 percent of the graduates obtain their first job in the trade studied, and of those whose first job is not in the trade studied, very few ever enter the trade in later years.

The percentage distributions indicate that, for the 1953, 1958 and 1962 graduates respectively, only 13.4, 14.4 and 19.8 percent of the graduates have held all of their full-time jobs in the trade studied. The figures indicate that even those who start out in the trade studied in high school do not necessarily stay with the trade. On the other hand, about one-third of the 1953 graduates have relatedness scores that indicate all work has been in the same or highly related trade. The comparable proportions for 1958 and 1962 graduates are somewhat greater. That is because the latter graduates have had fewer years in which to move out of the trade studied or highly related trades.

The overall conclusion is that the great majority of vocational course graduates do not work in the trade studied. Moreover, the majority does not work in either the trade studied or highly related trades. Most jobs held are in slightly related or completely unrelated trades, where relatedness is judged by the graduates. The conclusion is in contradiction to the findings generally reported by graduate follow-up studies. Perhaps that is because so few follow-up studies have been concerned with jobs beyond the first job after graduation.

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of the job relatedness measure? Table 140 provides the data.

For the 1953, 1958 and 1962 graduates, those who attended vocational schools have a greater mean job relatedness score than those who attended comprehensive schools. While the differences are not substantial, they are consistent, and suggest that vocational school graduates are more likely to work in the trade studied or highly related trades than comprehensive school graduates. The conclusion is consistent with the finding, reported in Chapter 5, that vocational schools do a better job of placing their graduates in the same trade studied or highly related trades.

Table 140. JOB RELATEDNESS: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	Job Relatedness		
		N	M	S.D.
1953	Vocational	685	2.35	1.01
	Comprehensive	421	2.10	1.01
1958	Vocational	846	2.31	1.06
	Comprehensive	628	2.06	1.03
1962	Vocational	1035	2.45	1.12
	Comprehensive	701	2.14	1.07
Combined	Vocational	2577	2.38	1.07
	Comprehensive	1752	2.10	1.04

Analysis by School Enrollment

Do the graduates of small, medium and large enrollment schools differ significanly in terms of the relatedness of jobs held to trades studied in high school? Table 141 provides the data.

The three year of graduation groups show no consistent trend relating school enrollment to job relatedness, although the graduates from schools with enrollments less than 500 have slightly but consistently higher mean job relatedness scores. This may be a reflection of the possibility that small enrollment schools are located in communities where there is less diversity and growth of job opportunity to attract graduates away from the trades studied. Whatever the explanation, the data do not make a strong case for the interpretation that school enrollment has a bearing on the likelihood that graduates will enter the trades studied or highly related trades.

Table 141. JOB RELATEDNESS: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	Job Relatedness		
		N	M	S.D.
1953	< 500	401	2.28	.96
	500 - 1500	415	2.26	1.05
	> 1500	290	2.22	1.03
1958	< 500	483	2.29	1.08
	500 - 1500	584	2.16	1.03
	> 1500	407	2.16	1.04
1962	< 500	584	2.47	1.16
	500 - 1500	629	2.23	1.09
	> 1500	523	2.28	1.07
Combined	< 500	1470	2.36	1.08
	500 - 1500	1637	2.21	1.06
	> 1500	1222	2.23	1.05

Analysis by Race of Graduate

How do white and Negro graduates compare in terms of the relatedness of jobs held to trades studied? Table 142 provides the data.

Within each year of graduation group, the Negro graduates have a substantially lower mean job relatedness score than white graduates. Since both races study essentially the same trades and attend, with some exceptions, the same schools, it seems reasonable to conclude that being a Negro is sufficient condition to be disadvantaged from the standpoint of working in the trade studied or highly related trades. The finding does not augur well for efforts to upgrade the economic status of Negroes through trade training. Unless they are accepted more widely into the trades studied, such training is not likely to result in job upgrading for the Negro. Indeed, such training may even add to the resentment and unrest found among many Negroes. If

Table 142. JOB RELATEDNESS: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	Job Relatedness		
		N	M	S.D.
1953	White	1055	2.28	1.01
	Negro	39	1.77	.91
	Other	3	2.17	1.31
1958	White	1351	2.23	1.06
	Negro	90	1.81	.95
	Other	4	1.40	.69
1962	White	1564	2.36	1.11
	Negro	128	1.88	1.04
	Other	5	2.40	1.36
Combined	White	3982	2.29	1.07
	Negro	258	1.84	1.00
	Other	12	2.01	1.24

they find such training cannot be put to use, there may be an even more intense embitterment. There is little point in training people to step up, and then denying them the opportunity to do so.

Lest there be any misunderstandings, the reader is reminded that the Negro graduates included in this amd similar analyses herein, are not drawn exclusively from any one region of the country. The findings generalize to all regions of the country.

ANALYSIS OF INITIAL EARNINGS

Introduction

About what hourly earnings can the vocational course graduate expect when he starts his first full-time job after graduation? That would depend, of course, upon the trade he enters as well as other factors known to influence initial earnings. However, a general answer is provided by the starting hourly earnings on the vocational graduate's first full-time job without qualification as to trade studied, geographical region and other factors.

In Chapter 3, initial earnings were shown to be related to present earnings, i.e. those who started with relatively high hourly earnings also reported relatively high present earnings, two, six and eleven years after graduation. Initial earnings were unrelated to the other occupational measures, including related placement. The lack of relationship with the latter measure indicates those who enter trades unrelated to the trade studied start with about the same earnings as those who enter the trade studied or highly related trades.

The present chapter continues the analysis of the measure in terms of the basic study variables.

Analysis by Year of Graduation

Within each year of graduation group, what is the distribution of initial hourly earnings? What is the mean and median starting hourly wage of vocational graduates for each year of graduation group? Table 143 presents the data.

The earnings distributions are markedly skewed, as one might expect, toward the low end. For the graduates of 1953, 1958 and 1962 the mean hourly rates are 1.38, 1.50 and 1.47 respectively, whereas the median hourly rates are 1.20, 1.40 and 1.30 respectively.

Table 143. INITIAL EARNINGS: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

Initial Earnings	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
> 4.00	3	0.3	100.0	1	0.1	100.0	4	0.2	100.0	8	0.2	100.0
3.51-4.00	4	0.4	99.7	6	0.4	99.9	7	0.4	99.8	17	0.4	99.8
3.01-3.50	5	0.5	99.3	12	0.9	99.5	10	0.6	99.4	27	0.7	99.4
2.51-3.00	22	2.1	98.8	49	3.5	98.6	56	3.4	98.8	127	2.0	98.7
2.01-2.50	71	6.9	96.7	132	9.4	95.1	105	6.3	95.4	309	7.6	95.7
1.51-2.00	185	17.9	89.8	316	22.6	85.7	307	18.4	89.1	810	19.6	88.1
1.01-1.50	438	42.3	71.9	589	42.0	63.1	946	56.7	70.7	1980	48.1	68.5
.51-1.00	299	28.9	29.6	290	20.7	21.1	223	13.4	14.0	814	19.8	20.4
.11- .50	7	0.7	0.7	6	0.4	0.4	11	0.6	0.6	24	0.6	0.6
Number	1034			1401			1669			4116		
Mean	1.38			1.50			1.47			1.46		
Median	1.20			1.40			1.30			1.30		
S.D.	.54			.56			.55			.55		

In view of the trend of generally increasing wages since the end of World War II, it is surprising that the expected trend did not materialize. The 1962 graduates had a lower mean and median starting wage than the 1958 graduates, who left school in a recession year and who had much more difficulty finding a first job. A plausible explanation is lacking.

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of starting earnings per hour? Table 144 presents the data.

Within each of the year of graduation groups, the mean starting hourly wage of vocational school graduates is slightly higher than that of compre-

Table 144. INITIAL EARNINGS: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	Initial Earnings		
		N	M	S.D.
1953	Vocational	635	1.38	0.52
	Comprehensive	402	1.36	0.59
1958	Vocational	812	1.54	0.58
	Comprehensive	593	1.44	0.54
1962	Vocational	994	1.48	0.55
	Comprehensive	679	1.44	0.57
Combined	Vocational	2451	1.48	0.55
	Comprehensive	1676	1.42	0.57

hensive school graduates. While the differences are not significant, their consistency in favor of vocational school graduates suggests the latter start at slightly higher wages as a group. A plausible explanation is lacking.

Analysis by School Enrollment

Do the vocational graduates of small, medium and large enrollment schools, as defined by this study, differ significantly in starting hourly wages on their first full-time job? Table 145 provides the data.

The data indicate there is no relationship between school enrollment and first job starting hourly wages. Differences between mean values within each year of graduation group are not significant.

Table 145. INITIAL EARNINGS: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	Initial Earnings		
		N	M	S.D.
1953	< 500	370	1.37	0.53
	500 - 1500	387	1.38	0.55
	> 1500	280	1.36	0.55
1958	< 500	459	1.54	0.54
	500 - 1500	558	1.48	0.61
	> 1500	388	1.47	0.52
1962	< 500	557	1.41	0.44
	500 - 1500	614	1.50	0.64
	> 1500	502	1.49	0.58
Combined	< 500	1388	1.44	0.50
	500 - 1500	1568	1.46	0.61
	> 1500	1171	1.45	0.55

Analysis by Race of Graduate

How do white and Negro vocational graduates compare in terms of first job starting hourly wages? Table 146 provides the data.

For the three year of graduation groups, there is no consistent difference favoring either white or Negro graduates. None of the differences are statistically significant. The conclusion is that race of graduates is not a variable which influences first job hourly wage rates.

Analysis by Type of Graduate

How do vocational and academic graduates compare in terms of first job starting hourly wages? Table 147 provides the data.

Table 146. INITIAL EARNINGS: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	Initial Earnings		
		N	M	S.D.
1953	White	988	1.36	0.54
	Negro	37	1.53	0.60
	Other	3	2.03	0.45
1958	White	1282	1.51	0.54
	Negro	89	1.36	0.78
	Other	4	1.15	0.87
1962	White	1507	1.47	0.52
	Negro	123	1.41	0.93
	Other	4	1.35	0.18
Combined	White	3788	1.46	0.54
	Negro	250	1.41	0.84
	Other	11	1.46	0.45

Table 147. INITIAL EARNINGS: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES

Year of Graduation	Type of Graduate	Initial Earnings		
		N	M	S.D.
1953	Vocational	1037	1.37	0.55
	Academic	358	1.72	0.75
1958	Vocational	1405	1.50	0.56
	Academic	393	1.69	0.70
1962	Vocational	1673	1.43	0.56
	Academic	282	1.49	0.50
Combined	Vocational	4127	1.45	0.56
	Academic	1033	1.63	0.68

The 1953, 1958 and 1962 academic graduates earned respectively 35, 19, and 6 cents per hour more as the initial job starting wage than did the vocational graduates. For all years, the mean hourly starting wage of academic graduates is 18 cents per hour greater than that of vocational graduates. The difference is to be expected because a greater proportion of academic graduates have completed some, if not four years of college, than vocational graduates before obtaining their first full-time job.

Table 148 presents a more equitable comparison of the two types of graduates. It includes only vocational and academic graduates who have had no college education.

Table 148. INITIAL EARNINGS: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES WITH NO COLLEGE EDUCATION

Year of Graduation	Type of Graduate	Initial Earnings		
		N	M	S.D.
1953	Vocational	826	1.31	0.49
	Academic	150	1.44	0.61
1958	Vocational	1182	1.46	0.52
	Academic	215	1.48	0.55
1962	Vocational	1504	1.46	0.56
	Academic	208	1.44	0.49
Combined	Vocational	3524	1.43	0.53
	Academic	573	1.46	0.54

The initial earnings of the 1953 academic graduates were thirteen cents an hour greater than that of 1953 vocational graduates. By 1958, the greater initial earnings of the academic graduates was only two cents an hour. And

by 1962 the difference was reversed. The 1962 vocational graduates had slightly higher initial earnings. The differences, however, for 1958 and 1962 graduates are not significant.

Two interpretations can be given: (1) The differences in initial earnings lack statistical significance; therefore, there is no difference in initial earnings between vocational and academic graduates. (2) The initial earnings of vocational graduates have in the past been lower than those of academic graduates, but have now caught up with and surpassed the initial earnings of academic graduates. The lack of significant differences does nothing to help the latter interpretation. More data is needed from more recent graduating classes to confirm or reject the hypothesis implied by the second interpretation.

ANALYSIS OF PRESENT EARNINGS

Introduction

Present earnings have reference to the reported hourly wage or salary rate being earned by the graduates as of June 30, 1964. The job worked at the time may have been in the trade studied in high school, a highly related trade, a slightly related trade, or a completely unrelated trade.

In Chapter 3, the reliability and stability of the measure were established. It was also shown that present earnings were significantly correlated with such other occupational measures as related placement, i.e. the more related the initial job to the trade studied, the higher earnings two, six and eleven years after graduation; with job relatedness, i.e. the more all jobs held were related to the trade studied, the higher earnings two, six and eleven years after graduation; with employment security, i.e. the less unemployment experienced, the greater present hourly earnings; with initial earnings, i.e. the greater first job starting hourly earnings, the greater present earnings; and with job satisfaction, i.e. the greater present earnings, the greater the satisfaction reported for all jobs held.

This section continues the analysis of the measure in terms of the basic study variables.

Analysis by Year of Graduation

Within each year of graduation group, what is the distribution of present (June, 1964) hourly earnings? What is the mean and median present hourly earnings for 1953, 1958 and 1962 graduates? Table 149 provides the data.

For the graduates of 1953, 1958 and 1962 the mean present hourly rates are 3.08, 2.49 and 2.01 dollars respectively, and the median rates are 3.00, 2.30 and 1.90 respectively. The average production employee hourly wage for 1964 was 2.53 dollars per hour.[1]

1. Bureau of Labor Statistics, 1965, Employment and Earnings

The average earnings of those who were working in the trade studied at the time of the survey are significantly higher than the above averages. This can be inferred from the correlation between job relatedness and present earnings mentioned earlier.

The differences between the hourly earnings of graduates two years out of school and those six and eleven years out of school are respectively .48 and 1.07 dollars. Assuming a forty hour week, the mean 1962, 1958 and 1953 graduate earns about 80, 100 and 120 dollars per week respectively. On an annual basis, those earnings are 4160, 5200 and 6240 dollars respectively. How this compares with the earnings of academic course graduates will be discussed in a later section.

Table 149. PRESENT EARNINGS: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

Present Earnings	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
> 5.00	34	3.3	100.0	11	0.8	100.0	7	0.4	100.0	52	1.2	100.0
4.51-5.00	46	4.4	96.7	16	1.1	99.2	7	0.4	99.6	69	1.7	98.8
5.01-4.50	67	6.5	92.3	31	2.2	98.1	4	0.2	99.2	102	2.5	97.1
3.51-4.00	124	12.0	85.8	71	5.0	95.9	16	1.0	99.0	211	5.0	94.6
3.01-3.50	201	19.4	73.8	155	10.9	90.9	61	3.6	98.0	419	10.1	89.6
2.51-3.00	264	25.4	54.4	320	22.5	80.0	201	11.8	94.4	788	18.9	79.5
2.01-2.50	184	17.7	29.0	394	27.7	57.5	404	23.8	82.6	984	23.6	60.6
1.51-2.00	74	7.1	11.3	280	19.7	29.8	553	32.6	58.8	909	21.8	37.0
1.01-1.50	34	3.3	4.2	126	8.8	1	395	23.3	26.2	557	13.4	15.2
.51-1.00	9	0.9	0.9	17	1.2	1.3	44	2.6	2.9	71	1.7	1.8
.11- .50	0	0.0	0.0	1	0.1	0.1	5	0.3	0.3	6	0.1	0.1
Number	1037			1422			1697			4168		
Mean	3.08			2.49			2.01			2.44		
Median	3.00			2.30			1.90			2.30		
S.D.	1.00			.81			.69			.92		

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of present earnings after so many years out of school? Table 150 provides the data.

Table 150. PRESENT EARNINGS: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	Present Earnings		
		N	M	S.D.
1953	Vocational	656	2.97	1.10
	Comprehensive	411	3.03	1.11
1958	Vocational	846	2.45	0.94
	Comprehensive	631	2.33	0.90
1962	Vocational	1044	1.97	0.74
	Comprehensive	716	1.88	0.82
Combined	Vocational	2557	2.39	1.00
	Comprehensive	1761	2.31	1.02

Within each year of graduation group, there is no substantial difference in present hourly earnings between graduates of the two types of schools. The conclusion is that the type of school attended is unrelated to hourly earnings two, six and eleven years after graduation, notwithstanding the slight difference in favor of vocational school graduates.

Analysis by School Enrollment

Do vocational graduates of small, medium and large enrollment schools, as defined by this study, differ significantly in present hourly earnings two, six and eleven years out of school? Table 151 provides the data.

Table 151. PRESENT EARNINGS: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	Present Earnings		
		N	M	S.D.
1953	< 500	382	2.88	1.05
	500 - 1500	404	2.96	1.12
	> 1500	281	3.21	1.12
1958	< 500	486	2.33	0.92
	500 - 1500	585	2.41	0.93
	> 1500	406	2.47	0.90
1962	< 500	588	1.83	0.63
	500 - 1500	643	1.95	0.82
	> 1500	529	2.04	0.85
Combined	< 500	1459	2.27	0.96
	500 - 1500	1642	2.36	1.02
	> 1500	1217	2.45	1.04

In all year of graduation groups, the mean present hourly earnings increases with greater enrollment. For all graduates combined, the present hourly earnings are 2.27, 2.36 and 2.45 for small, medium and large enrollment schools respectively.

What is the explanation? One possible explanation is that the larger enrollment schools are located in or closer to areas of greater industrial diversity, growth and labor organization. Such factors would tend to increase hourly earnings. Another possible explanation lies in the fact that the larger enrollment schools offer more vocational courses, many of which are in trades that have higher hourly

earnings after some experience is gained, e.g. industrial electrician, machinest, and plumber. It is unlikely that the trend is related to differences in school characteristics directly.

Analysis by Race of Graduate

How do white and Negro vocational graduates compare in terms of hourly earnings two, six and eleven years out of school? Table 152 provides the data.

Table 152. PRESENT EARNINGS: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	Present Earnings		
		N	M	S.D.
1953	White	1017	3.01	1.11
	Negro	38	2.58	1.06
	Other	3	4.17	0.83
1958	White	1347	2.44	0.90
	Negro	96	1.87	1.06
	Other	4	2.42	0.51
1962	White	1582	1.96	0.74
	Negro	130	1.69	1.10
	Other	6	1.38	0.71
Combined	White	3959	2.39	0.99
	Negro	265	1.89	1.12
	Other	13	2.35	1.29

Within each year of graduation group, the Negro graduates had lower hourly earnings than the white graduates. Furthermore, the difference is greater after five and eleven years out of school than after two years. White 1953 graduates have a present hourly rate (June, 1964) of 3.01 compared to the rate of 2.58 for 1953 Negro graduates. The difference is substantial.

One explanation for differences in hourly earnings between white and Negro graduates is the finding that a much smaller percentage of the Negro graduates find work in the trade for which trained or in highly related trades. It has been shown that job relatedness to trade studied in high school correlates with present earnings. The disadvantage of the Negro is again demonstrated. Because he does not get into the trade for which trained, he also earns less two, six and ten years after graduation. No doubt there are still other reasons why Negro graduates earn less than white graduates after so many years out of school.

Analysis by Type of Graduate

How do vocational and academic graduates compare in terms of present hourly earnings two, six and eleven years after graduation. Table 153 provides the data for the two types of graduates without regard to post-high school education.

Table 153. PRESENT EARNINGS: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES

Year of Graduation	Type of Graduate	Present Earnings		
		N	M	S.D.
1953	Vocational	1067	3.00	1.10
	Academic	379	3.22	1.45
1958	Vocational	1477	2.40	0.92
	Academic	426	2.40	1.01
1962	Vocational	1760	1.94	0.78
	Academic	306	1.73	0.77
Combined	Vocational	4318	2.36	1.01
	Academic	1111	2.50	1.27

The academic graduates of 1953 were earning substantially more than the vocational graduates of 1953. The academic and vocational graduates of 1958 had the same rate of hourly earnings. However, the vocational graduates of 1962 were earning substantially more than the academic graduates of 1962. What is the explanation? The greater college education among the academics accounts for the data. The superiority of the 1953 academic graduates is attributable to the greater percentage of college graduates among them than among 1953 vocational graduates. However, the 1962 academic graduates do not include those who were attending college full-time, and had never yet held a job. That explains why 1962 vocational graduates were earning more than the 1962 academic graduates. The latter were mainly those with no college attendance or those who had dropped out of college to go to work.

Table 154 compares vocational graduates with academic graduates, neither of which have attended college.

Table 154. PRESENT EARNINGS: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES (Based on graduates with no college education who have $\geqq$ 6 months employable time)

Year of Graduation	Type of Graduate	Present Earnings		
		N	M	S.D.
1953	Vocational	822	3.02	0.95
	Academic	152	3.06	1.22
1958	Vocational	1198	2.46	0.79
	Academic	221	2.35	0.88
1962	Vocational	1536	2.01	0.70
	Academic	208	1.87	0.62
Combined	Vocational	3568	2.40	0.89
	Academic	581	2.36	1.02

The 1962 vocational graduates were earning fourteen cents an hour more than the 1962 academic graduates two years after graduation. The 1958 vocational graduates were earning eleven cents an hour more than the 1958 academic graduates six years after graduation. However, eleven years after graduation, the 1953 vocational graduates were earning four cents an hour less than the 1953 academic graduates. For all graduates combined, the non-college vocationals earned $2.40 an hour, whereas the non-college academics earned $2.36 as of June, 1964.

The data suggests this generalization: For the first six or more years after graduation, the non-college vocationals earn more than their academic counterparts. Somewhere between six and eleven years after graduation, the earnings of the non-college academic graduates catch up with the earnings of the vocational graduates. It may even be that thereafter the earnings of the academics exceed that of the vocational graduates. The data is not sufficient to be conclusive on the latter possibility.

A further study of the earning potential of vocational and academic graduates needs to be done to determine comparative earnings over a greater period of time. Within the time period studied, the vocational graduates with no college education have substantially greater <u>accumulated</u> earnings than the academic graduates with a college education.

ANALYSIS OF EARNINGS PROGRESSION

Introduction

How have the earnings of the vocational graduates of 1953, 1958 and 1962 progressed since their first full-time job after graduation? The measure that was finally adopted to tell the story of earnings progression was the average increase in earnings per month per month of employment. The measure consists of the difference between present hourly earnings and starting hourly earnings on first full-time job after graduation, multiplied by a constant to put the difference on a per month basis, and divided by the number of months employed. For example, if a graduate started at $300 a month on his first job, and increased his earnings to $400 a month over a ten month period, his earnings progression or average increase per month would be ten dollars. The measure does not take into account the number, amount or spacing of individual raises in the total employment period. Such factors would have a bearing upon total accumulated earnings over the period. The measure, therefore, must not be confused with the idea of accumulated earnings. The equation for the measure is given in Chapter 3.

Earnings progression, as defined above, was shown in Chapter 3 to be related to only one of the occupational measures, present earnings. Graduates with relatively high present earnings (as of June, 1964) tend to have relatively high earnings progression. Since present earnings are an element in the calculation of the measure, the relationship is understandable, although not a necessary one.

Earnings progression was found to be unrelated to employment security, employment stability, job satisfaction, related placement and job relatedness. The lack of relation with job relatedness is particularly noteworthy. The earnings progression of those who go into the trades studied or highly related trades is no different from those who enter only slightly related trades or even completely unrelated trades.

The present section continues the analysis of the measure in terms of the basic study variables.

Analysis by Year of Graduation

Within each year of graduation group, what is the distribution of the average increase in earnings per month per month of employment? What is the mean and median average increase in earnings per month? Table 155 provides the data.

Table 155. EARNINGS PROGRESSION: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL COURSE GRADUATES BY YEAR OF GRADUATION

Earnings Progression	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
>9.01	8	0.9	100.0	61	5.0	100.0	176	12.6	100.0	235	6.9	100.0
8.01-9.00	13	1.4	99.1	38	3.1	95.0	65	4.6	87.4	116	3.3	93.1
7.01-8.00	19	2.1	97.7	44	3.6	91.9	73	5.2	82.8	136	3.8	89.8
6.01-7.00	35	3.8	95.6	70	5.8	88.3	94	6.7	77.6	201	5.7	86.0
5.01-6.00	41	4.4	91.8	115	9.4	82.5	151	10.8	70.9	307	8.7	80.3
4.01-5.00	115	12.5	87.4	148	12.1	73.1	132	9.4	60.1	395	11.1	71.6
3.01-4.00	214	23.4	74.9	209	17.2	61.0	171	12.2	50.7	595	16.8	60.5
2.01-3.00	233	25.4	51.5	211	17.3	43.8	178	12.7	38.5	624	17.6	43.7
1.01-2.00	162	17.7	26.1	153	12.6	26.5	87	6.2	25.8	405	11.4	26.1
.01-1.00	54	5.9	8.4	73	5.9	13.9	44	3.2	19.6	172	4.8	14.7
0.0	23	2.5	2.5	97	8.0	8.0	230	16.4	16.4	352	9.9	9.9
Number	916			1219			1401			3548		
Mean	3.22			3.83			4.55			3.95		
Median	3.00			3.40			4.00			3.40		
S.D.	1.86			2.75			3.57			2.97		

The mean average increase in earnings per month of employment is 4.55, 3.83 and 3.22 dollars respectively for the graduates of 1962, 1958 and 1953.

The equivalent median values are 4.00, 3.40 and 3.00 dollars per month. The decrease in earnings progression with increased months of employment, from a maximum of 24 for 1962 graduates to a maximum of 132 for 1953 graduates, is to be expected. Earnings tend to increase at a negatively accelerated rate over such a long period of time, with the sharpest rate of increase coming in the first few years. For that reason, the 1962 graduates, with only twenty-four months out of school, show the highest earnings progression.

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of mean average earnings increase per month of employment? Table 156 provides the data.

Table 156. EARNINGS PROGRESSION: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL GRADUATES

Year of Graduation	Type of School	Earnings Progression		
		N	M	S.D.
1953	Vocational	548	3.16	1.82
	Comprehensive	368	3.32	1.92
1958	Vocational	702	3.96	2.77
	Comprehensive	517	3.66	2.72
1962	Vocational	837	4.57	3.54
	Comprehensive	563	4.53	3.61
Combined	Vocational	2097	3.98	2.96
	Comprehensive	1450	3.91	2.98

The differences in average dollars of increased earnings per month of employment between the graduates of the two types of schools are not significant. The conclusion is that the type of school, i.e. comprehensive or vocational, attended by the vocational course student has no bearing on his future earnings progression.

Analysis by School Enrollment

How do graduates of small, medium and large enrollment schools, as defined in this study, compare in terms of average earnings increase per month of employment? Table 157 provides the data.

Table 157. EARNINGS PROGRESSION: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL GRADUATES

Year of Graduation	School Enrollment	Earnings Progression		
		N	M	S.D.
1953	< 500	312	3.01	1.73
	500 - 1500	351	3.14	1.86
	> 1500	253	3.60	1.96
1958	< 500	377	3.82	2.82
	500 - 1500	493	3.79	2.71
	> 1500	349	3.90	2.74
1962	< 500	478	4.20	3.43
	500 - 1500	497	4.48	3.67
	> 1500	425	5.04	3.55
Combined	< 500	1169	3.76	2.91
	500 - 1500	1350	3.87	2.97
	> 1500	1028	4.29	3.02

Within each year of graduation group, the graduates of the > 1500 enrollment schools showed the greatest mean earnings progression. A plausible

explanation for the relationship between school enrollment and earnings progression after graduation is that the large enrollment schools are located in or near major metropolitan areas where earnings tend to be higher. It is not likely the school enrollment is related to earnings progression because of an unknown school characteristic which developed the earnings potential of large enrollment school graduates more than those from medium and small enrollment schools.

Analysis by Race of Graduate

How do white and Negro vocational graduates compare in terms of earnings progression? Table 158 provides the data.

Table 158. EARNINGS PROGRESSION: COMPARISON OF GRADUATES BY RACE

Year of Graduation	Race of Graduate	Earnings Progression		
		N	M	S.D.
1953	White	873	3.23	1.83
	Negro	32	2.98	2.35
	Other	3	4.30	1.42
1958	White	1117	3.89	2.75
	Negro	75	2.92	2.50
	Other	4	5.92	3.73
1962	White	1271	4.65	3.59
	Negro	92	3.54	3.24
	Other	4	1.85	1.69
Combined	White	3272	4.00	2.97
	Negro	200	3.23	2.86
	Other	11	4.00	3.11

Within each of the three year of graduation groups, the mean earnings progression score for white graduates was substantially greater than for Negro

graduates. The conclusion is that white vocational graduates increase their earnings at a more rapid rate than Negro vocational graduates. The difference in earnings progression between white and Negro graduates cannot be attributable to the fact that a much smaller percentage of Negroes enter the trades for which trained. Earnings progression is unrelated to the job relatedness, i.e. there is no difference in rate of earnings progression between those who enter the trades studied in high school and those who enter completely unrelated trades.

Analysis by Type of Graduate

How do vocational and academic course graduates with no college education compare in terms of earnings progression? Table 159 presents the data.

Table 159. EARNINGS PROGRESSION: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES (Based on graduates with no college education who have $\geqq$ 6 months employable time.)

Year of Graduation	Type of Graduate	Earnings Progression		
		N	M	S.D.
1953	Vocational	726	2.99	1.63
	Academic	132	3.27	2.41
1958	Vocational	1027	3.78	2.71
	Academic	176	3.93	2.85
1962	Vocational	1272	4.59	3.57
	Academic	173	4.11	3.74
Combined	Vocational	3037	3.92	2.98
	Academic	481	3.81	3.12

Two years after graduation, vocational graduates have a slightly greater mean earnings progression score than academic graduates. The difference is reversed six years after graduation, and becomes still greater in favor of academic course graduates eleven years after graduation. The data suggest that vocational graduates have an initial advantage in terms of earnings progression, but that within six years after graduation the advantage swings in favor of the academic graduates, and tends to become even greater in the following years. This is consistent with the interpretation offered in the preceding section on present earnings differences between the two types of graduates. By 1964, the 1962 vocational graduates were earning substantially more than the 1962 academic graduates. However, in the same year, 1953 academic graduates were earning slightly more than their vocational counterparts. Thus, over a period of about ten years, the academic graduates seem to overcome their earnings disadvantage of the early years at work.

10 THEIR POST HIGH SCHOOL EDUCATIONAL HISTORY

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CHAPTER 10 SUMMARY

Type of Post-High School Education

1. Year of graduation. The data do not permit a trend interpretation of the percentage of 1953, 1958, and 1962 graduates who reported post-high school education. About 41 per cent of the vocational graduates claimed some type of formal post-high school education. They attended virtually every type of post-high school source of education. The six most frequently mentioned sources are military-specialist school, four-year college, correspondence courses, two-year colleges, public trade-technical schools, and private trade-technical schools.

2. Type of school. There are no substantial differences between the graduates of vocational and comprehensive schools in terms of percentages who reported attending the different types of post-high school education.

3. School enrollment. There are no significant differences between small, medium, and large enrollment school graduates in percentages who report attending the different sources of post-high school education, with one exception: substantially fewer graduates from small enrollment schools report having attended college.

4. Race of graduates. A larger percentage of Negro vocational graduates report college-level education than white vocational graduates. The reverse is the case for post-high school trade-related education.

5. Academic versus vocational graduates. As expected, a much greater percentage of academic graduates report college-level education than vocational graduates. The reverse is the case for post-high school trade-related education.

Accumulated College Education

6. Year of graduation. The mean total class hours of college education accumulated by the graduates of 1953, 1958, and 1962 indicates that college credits are being carried up to 11 years after graduation. Also, the majority of the vocational graduates who attend college do not complete a four-year program.

7. Type of school. The difference in mean accumulated class hours of college education between vocational graduates of vocational and comprehensive schools is not significant.

8. School enrollment. The enrollment of former schools is unrelated to the mean class hours of college education accumulated by vocational graduates.

(Continued in Appendix B)

TYPE OF POST-HIGH SCHOOL EDUCATION

Introduction

Vocational education has been criticized for being terminal education, that is, for not preparing its graduates for higher education in the event that they so choose. Whether the criticism has merit or not, is not here the issue. It does imply that vocational graduates pursue little in the way of further formal education after graduation. That raises some researchable questions. What types of post-high school education do the graduates pursue? To what extent do they continue education after high school?

Analysis by Year of Graduation

Do the graduates of 1953, 1958 and 1962 differ in percentages that claim different kinds of post-high school education? Are there any discernable trends in terms of participation in the different kinds of education after high school? Table 160 presents the data.

Table 160. KINDS OF POST-HIGH SCHOOL EDUCATION REPORTED BY VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Sources of Post-High School Education	YEAR OF GRADUATION							
	1953		1958		1962		Combined	
	N	%	N	%	N	%	N	%
Two-year college	117	10.1	145	8.7	211	8.5	474	8.9
Four-year college	186	16.0	199	12.0	214	8.6	600	11.3
Post-college graduate school	41	3.5	22	1.3	—	—	63	1.2
Private trade/technical school	96	8.3	84	5.1	94	3.8	276	5.2
Public trade/technical school	92	7.9	123	7.4	163	6.6	380	7.1
Business-commercial school	44	3.8	40	2.4	40	1.6	124	2.3
Adult continuation school	76	6.5	97	5.8	78	3.1	252	4.7
Military specialist school	358	30.8	421	25.4	376	15.1	1157	21.7
Company course or school	185	15.9	157	9.5	93	3.7	436	8.2
Correspondence courses	171	14.7	185	11.2	156	6.3	512	9.6
Other than above	133	11.4	140	8.4	127	5.1	402	7.5

For the combined graduates, the six most frequently mentioned sources of post-high school education were as follows:

1. Military specialist schools . . . . . (21.7 percent)
2. Four year college . . . . . (11.3 percent)
3. Correspondence courses . . . . . (9.6 percent)
4. Two year colleges . . . . . (8.9 percent)
5. Public trade-technical schools . . . . . (7.1 percent)
6. Private trade-technical schools . . . . . (5.2 percent)

The percentages shown in Table 160 are not mutually exclusive, and can't be summed for a total percentage of graduates who reported <u>some</u> type of formal post-high school education. A separate analysis revealed that 41.6 percent of all vocational graduates claimed some type of formal post-high school education <u>other than military specialist school</u>. How much of such education was started and not completed is a question for which the study has no data. It can be concluded, however, that vocational education is not terminal education for a large percentage of graduates. The latter attend, in varying percentages, virtually every type of post-high school education.

What about trends? Are recent graduates obtaining additional education in greater numbers? Since the period of opportunity for post-high school education is greatest for the 1953 graduates and least for the 1962 graduates, the percentages by year of graduation are not truly comparable. What appears to be a trend of decreasing percentages attending the various sources of post-high school education is probably a reflection of the differences in time opportunity for additional education. With a few more years out of school, the graduates of 1962 can be expected to report more additional education than shown in Table 160. No conclusion can be drawn from Table 160, therefore, on the question of whether recent graduates are attending sources of post-high school education in greater proportions than those of five to ten years ago.

The percentage of 1953, 1958 and 1962 graduates who reported that they went <u>directly</u> to full-time college studies from high school is 8.3, 8.8 and 10.4 percent respectively. While these data suggest a slight trend, they are not conclusive.

Similarly, the percentage of 1953, 1958 and 1962 graduates who reported they went directly to full-time non-college studies is 0.7, 1.4 and 1.5 per cent respectively. The data hardly warrant the conclusion that there is a trend of increasing full-time non-college studies by vocational graduates. (Most vocational graduates continue their non-college studies on a part-time basis.)

Thus, what data the study has available, suggests there is no significant change over the past ten years in the percentage of graduates who pursue either college or non-college education. The data, however, are not considered adequate to be conclusive.

Analysis by Type of School

How do the vocational graduates of comprehensive and vocational schools compare in terms of percentages that report attending the different sources of post-high school education? Which of the two types of schools sends a greater percentage of graduates into post-high school education? Table 161 provides the data.

Table 161. KINDS OF POST-HIGH SCHOOL EDUCATION REPORTED BY VOCATIONAL GRADUATES BY TYPE OF HIGH SCHOOL ATTENDED

Sources of Post-High School Education	TYPE OF SCHOOL			
	Vocational		Comprehensive	
	N	%	N	%
Two-year college	236	7.6	238	10.8
Four-year college	348	11.2	252	11.4
Post-college graduate school	44	1.4	25	1.1
Private trade/technical school	149	4.8	127	5.8
Public trade/technical school	242	7.8	138	6.3
Business-commercial school	66	2.1	58	2.6
Adult continuation school	143	4.6	109	4.9
Military specialist school	672	21.5	485	22.0
Company course or school	256	8.2	180	8.2
Correspondence courses	277	8.9	235	10.7
Other than above	270	8.7	132	6.0

A slightly higher percentage of comprehensive high school graduates report attendance at two year colleges. Beyond that, the differences are negligible The conclusion is that the two types of schools send about an equal percentage of vocational graduates to each of the different sources of post-high school education. The proximity of such educational sources is undoubtedly a factor when schools are compared on an individual basis. It is not a factor in the present comparison.

Analysis by School Enrollment

How do small, medium and large enrollment high schools, as defined in this study, compare in terms of percentage of graduates who report attending the different sources of post-high school education? Table 162 presents the data.

Table 162. KINDS OF POST-HIGH SCHOOL EDUCATION REPORTED BY ENROLLMENT OF HIGH SCHOOL ATTENDED

Sources of Post-High School Education	SCHOOL ENROLLMENT					
	< 500		500 - 1500		> 1500	
	N	%	N	%	N	%
Two-year college	87	5.0	224	11.1	163	10.5
Four-year college	125	7.1	291	14.4	184	11.8
Post-college graduate school	15	0.8	34	1.7	20	1.3
Private trade/technical school	90	5.1	87	4.3	99	6.4
Public trade/technical school	135	7.7	117	5.8	128	8.2
Business-commercial school	36	2.0	50	2.5	38	2.4
Adult continuation school	85	4.8	77	3.8	90	5.8
Military specialist school	399	22.7	412	20.4	346	22.2
Company course or school	132	7.5	174	8.6	130	8.4
Correspondence courses	171	9.7	181	9.0	160	10.3
Other than above	149	8.5	153	7.6	100	6.4

For all enrollment categories, the percentages vary within a range of two percentage points for private trade-technical schools, public trade-technical schools, business schools, adult continuation school, military specialist school, company courses, and correspondence courses. The conclusion is that the enrollment of the high school attended has little or no bearing on the percentage of graduates attending such sources of post-high school education.

The percentage of vocational graduates from small enrollment schools, i.e. less than 500 enrollment, who reported attending two-year colleges and four-year colleges is less than half the percentage from medium and large enrollment schools. Why this is so is a matter for hypothesis and further research. Possibly, the small schools do less in the way of making it possible for graduates to enter college. It also may be because they are less likely to be in or near centers of higher education.

Analysis by Race of Graduate

How do Negro and white graduates compare in terms of percentage reporting attendance at the different sources of post-high school education? Table 163 presents the data.

A larger percentage of Negro graduates report attending two-year colleges (12.5 percent vs. 8.7 percent for white graduates) and four-year colleges (15.1 percent vs. 11.0 percent for white graduates).

A larger percentage of white graduates report taking company courses (8.8 percent vs. 2.0 percent for Negro graduates); correspondence courses (10.1 percent vs. 4.1 percent); and adult continuation courses (5 percent vs. 2.3 percent).

A comment-worthy difference is the percentage of Negroes and whites reporting attendance at military specialist schools. Almost 23 percent of white graduates report such experience, whereas only 12 percent of the Negroes report attending such schools. The percentage of white graduates who reported military service was 51 percent. Forty-two percent of Negro graduates reported such experience. It is apparent the Negro graduates are not attending military specialists schools in the same proportion as white graduates. Unfortunately, the study has no data

Table 163. KINDS OF POST-HIGH SCHOOL EDUCATION REPORTED BY RACE OF VOCATIONAL GRADUATES

Sources of Post-High School Education	RACE OF GRADUATE					
	White		Negro		Other	
	N	%	N	%	N	%
Two-year college	421	8.7	43	12.5	2	10.5
Four-year college	531	11.0	52	15.1	4	44.4
Post-college graduate school	59	1.2	6	1.7	3	15.8
Private trade/technical school	251	5.2	18	5.2	2	10.5
Public trade/technical school	353	7.3	18	5.2	3	15.8
Business-commercial school	16	0.3	6	1.7	2	10.5
Adult continuation school	240	5.0	8	2.3	2	10.5
Military specialist school	1098	22.7	42	12.2	3	15.8
Company course or school	425	8.8	7	2.0	0	0.0
Correspondence courses	491	10.1	14	4.1	0	0.0
Other than above	381	7.9	17	4.9	1	5.3

on the reasons for the comparatively small Negro attendance at military specialists schools. Conceivably, such reasons might shed light on the relative educational achievement status of white and Negro vocational school graduates.

Analysis by Type of Graduate

How do academic and vocational graduates compare in terms of having attended the different types of post-high school education? Table 164 presents the data.

As expected, a proportionately greater number of academic graduates report having attended two year colleges (15.8 percent vs. 8.9 percent for the vocational graduates); four year colleges (47.2 percent vs. 11.3 percent); and graduate schools (8.4 percent vs. 1.3 percent).

Conversely, a greater percentage of vocational graduates report having attended private trade schools (5.2 percent vs. 4.2 percent for academic

graduates); public trade schools (7.1 percent vs. 3.8 percent); company courses (8.2 percent vs. 6.1 percent); adult continuation schools (4.7 percent vs. 2.1 percent); and correspondence courses (9.6 percent vs. 7.7 percent). The differences are not great. They do, however, confirm that the vocational graduate has a much greater interest in a trade or trade-related education.

Table 164. KINDS OF POST-HIGH SCHOOL EDUCATION REPORTED BY VOCATIONAL GRADUATES BY TYPE OF GRADUATE

Sources of Post-High School Education	TYPE OF GRADUATE			
	Vocational		Academic	
	N	%	N	%
Two-year college	474	8.9	282	15.8
Four-year college	600	11.3	841	47.2
Post-college graduate school	69	1.3	150	8.4
Private trade/technical school	276	5.2	75	4.2
Public trade/technical school	380	7.1	68	3.8
Business-commercial school	124	2.3	69	3.9
Adult continuation school	252	4.7	37	2.1
Military specialist school	1152	21.7	385	21.6
Company course or school	436	8.2	109	6.1
Correspondence courses	512	9.6	137	7.7
Other than above	402	7.5	103	5.8

There is a further aspect of the data that warrants comment. Of the total academic graduates, 44 percent reported that they never attended college. Another 22 percent attended college for various periods but did not complete their college education. Thus, 66 percent of the academic graduates had no college education or an incomplete college education. In view of this, the percentage of academic graduates who report attending non-college sources of post-high school education is amazingly small. Academic graduates who do not go to college actually accumulate less non-college post-high school education than vocational graduates who do not go to college. Sixty-four percent of academic graduates reported they had not attended any of the non-college sources of post-high school education.

ACCUMULATED COLLEGE EDUCATION

Introduction

About 18 percent of vocational course graduates reported that they had some college education. The percentage who claim some college education is only part of the story. One would also like to know how much college education was accumulated by those that did go to college.

Chapter 3 introduced a college education index that described the total accumulated hours of college-level education. The index score was derived as follows: Graduates reported the average hours of class attendance per week in two year colleges, four year colleges and graduate schools. They also indicated the dates of attendance. From this data, it is possible to calculate an approximation of the total class hours accumulated in all three college-level institutions. That total is the college education index. It equates amount of college education to hours of classroom attendance.

The procedure had one flaw. There was evidence that some students reported average hours of classroom attendance <u>and</u> study hours instead of merely class hours as requested. This was the only interpretation that could be placed upon some of the high hours of weekly attendance reported. The percentage who misinterpreted the questionnaire in this way, in so far as it was possible to determine, was less than ten percent. All who reported more than twenty class hours per week were equated to twenty class hours. This, of course, is only a partial correction because there was no way of ascertaining whether those who reported less than twenty class hours per week were also including non-class study hours. The only reasonable assumption is that the college education index scores are, by this error, higher than what they would be if the graduates reported only average weekly hours of <u>class</u> attendance.

The error does not invalidate the <u>comparative</u> analysis made in this section. There is no reason to believe that those who misinterpreted the question were distributed in anything but a random manner among the categories

under comparison. The error does, however, suggest caution in interpreting the index values and the mean accumulated hours of education by type of institution as absolute values. They are undoubtedly inflated.

The calculated college education index scores may be interpreted as staying power of the graduates. The lower the score, the fewer the total college hours accumulated, the sooner the graduate dropped out of college. It should be understood, however, that the study has no data to explain differences in staying power.

Analysis by Year of Graduation

What is the college education index, i.e. mean total accumulated classroom hours of college education, for the vocational graduates of 1953, 1958 and 1962? Table 165 provides the data. (The index values multiplied by 10 are the actual mean total accumulated hours.)

Table 165. COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS OF POST HIGH SCHOOL EDUCATION BY YEAR OF GRADUATION

Sources of Post-High School College Education	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
	N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.
Two-year college	106	140.0	109.9	136	151.6	118.7	194	107.5	90.5	437	129.2	106.5
Four-year college	171	284.1	209.3	181	224.4	192.5	198	108.8	73.4	551	201.0	182.0
Post graduate school	33	144.3	228.6	22	63.0	80.9	-	-	-	55	101.2	178.7
College Education Index	243	221.7	161.6	285	175.5	130.3	382	91.9	59.3	911	152.8	129.3

The reader is cautioned against a year to year comparison. The index values of 222, 176 and 92 for the graduates of 1953, 1958 and 1962 respectively are a reflection of the differences in opportunity to accumulate college hours. The class of 1962 graduates who are attending college have necessarily an incomplete number of accumulated college hours. To a lesser degree, that is probably also the case for some 1958 graduates who may have gone to college after a year or more of work or who went part-time.

The total accumulated hours of the 1953 graduates is substantially greater than that of the 1958 graduates. This indicates that vocational graduates continue to accumulate college credits between six and eleven years out of school. The finding is attributable to the greater part-time college attendance by vocational graduates.

The apparent stretchout of college education for vocational graduates may be attributable to two factors. Most vocational graduates do not go directly from high school to college. The occupational history of many indicates that one or more years of gainful employment preceded enrollment in college. Also, a much greater percentage of vocational graduates pursue college studies on a part-time basis.

Analysis by Type of School

How do the vocational graduates of comprehensive and vocational schools compare in terms of total accumulated hours of college education. Table 166 provides the data.

Table 166. COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS BY TYPE OF HIGH SCHOOL ATTENDED

Sources of Post-High School College Education		TYPE OF SCHOOL					
		Vocational			Comprehensive		
		N	M	S.D.	N	M	S.D.
Two-year college		224	128.8	108.4	213	129.6	104.5
Four-year college		319	197.3	176.0	232	206.2	190.0
Post graduate school		39	77.1	142.0	24	140.5	220.4
College Education Index		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	136	206.1	150.4	107	241.5	172.7
	1958	159	182.1	130.3	126	167.3	129.8
	1962	213	90.8	59.1	169	93.3	59.6
	Combined	508	150.2	124.4	403	155.9	134.3

Within each year of graduation group, the difference in the college education index between the graduates of the two types of schools fails to be significant. The same is so for the index difference for the combined graduates. The conclusion is that type of school attended is unrelated to the graduate's college education staying power.

Analysis by School Enrollment

How do the vocational graduates of small, medium and large enrollment schools, as defined in this study, compare in terms of total accumulated hours of college education? Table 167 presents the data.

Table 167. COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS BY RACE OF VOCATIONAL GRADUATE

Sources of Post-High School College Education		SIZE OF SCHOOL ENROLLMENT								
		< 500			500-1500			> 1500		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Two-year college		81	155.2	121.0	209	120.8	101.1	147	126.7	103.2
Four-year college		114	189.5	174.9	264	210.6	185.9	173	194.1	180.0
Post graduate school		12	76.3	78.8	30	138.0	236.7	21	63.0	92.1
College Education Index		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	57	212.6	153.6	118	235.7	170.5	68	205.0	149.5
	1958	70	152.3	110.2	130	188.2	138.2	85	175.3	130.5
	1962	64	83.5	59.8	173	90.7	59.3	145	97.0	58.7
	Combined	191	147.2	123.8	422	161.4	138.8	298	144.0	117.6

The college education index values within each year of graduation group fail to reveal a significant trend between high school enrollment and accumulated hours of college education. There is a suggestion that those from medium

enrollment schools (500 to 1500) accumulate more college hours than those from either small or large enrollment schools. However, the lack of significant differences make it inadvisable to come to a firm conclusion on this point.

Analysis by Race of Graduate

How do Negro and white vocational graduates who report having attended college compare in terms of total accumulated class hours of college education? Table 168 provides the data.

Table 168. COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS BY RACE OF VOCATIONAL GRADUATE

Sources of Post-High School College Education		RACE OF GRADUATE								
		White			Negro			Other		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Two-year college		389	129.8	108.8	38	118.8	90.0	2	146.0	106.0
Four-year college		486	197.8	182.7	49	232.7	188.6	4	261.5	171.4
Post graduate school		53	109.5	193.4	6	53.2	21.3	3	60.7	37.6
College Education Index		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	219	214.8	161.0	21	281.4	159.2	1	410.0	0.00
	1958	250	173.0	128.2	26	191.0	151.9	1	414.0	0.00
	1962	337	90.8	59.8	33	90.0	54.0	3	156.3	42.0
	Combined	807	150.0	128.0	80	173.1	146.2	5	258.6	129.4

It should be stated that the number of Negro vocational graduates who reported attending college is so small as to make the comparison of questionable value. Within each year of graduation group, the difference in the college education index between white and Negro graduates favors the latter. It would seem that Negro vocational graduates who do go to college have somewhat greater staying power than their white counterparts. The finding should be regarded as suggestive rather than conclusive because of the small number of Negro graduates involved in the comparison.

Analysis by Type of Graduate

How do vocational and academic graduates from the same comprehensive schools, who report having attended college, compare in terms of total accumulated hours of college education? Table 169 provides the data.

Table 169. COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS BY TYPE OF HIGH SCHOOL GRADUATE

Sources of Post-High School College Education		TYPE OF GRADUATE					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
Two-year college		213	129.6	104.5	263	136.0	91.2
Four-year college		232	206.2	190.0	801	264.8	205.2
Post graduate school		24	140.5	220.4	134	158.8	195.2
College Education Index		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	107	241.5	172.7	250	330.8	176.5
	1958	126	167.3	129.8	293	280.1	158.2
	1962	169	93.3	59.6	430	119.4	48.5
	Combined	403	155.9	134.3	973	222.1	159.0

Within each year of graduation group, the academic graduates who reported attending college accumulated substantially greater hours of college education than the vocational graduates who came from the same high schools. Whether the differences are attributable to the type of program taken in high school, the type of student who elects each type of program, or a combination of such factors can not be determined from data available. One can merely say that academic graduates have greater college staying power than vocational graduates who came from the same high schools. Further research would be desirable to determine why.

ACCUMULATED NON-COLLEGE EDUCATION

Introduction

Earlier in the chapter, it was reported that 42.6 percent of vocational graduates attended some type of non-college, post-high school education other than military specialist schools. While the percentage is impressive, it does not say anything about how much post-high school, non-college education vocational graduates accumulate. The present section concerns accumulated non-college education in the same manner as the preceding section concerend accumulated college education. The non-colege education index, defined in Chapter 3 as the total accumulated hours of all sources of post-high school, non-college education, is analyzed in terms of the basic study variables.

The error of interpretation reported in the preceding section applies also to this section. Some of the graduates apparently reported both class hours and study hours per week instead of class hours only as was requested. The error was corrected to an indeterminate degree by adopting 40 hours as the maximum acceptable weekly class hours. For those who reported less than 40 hours, there was no way of determining to what extent they included study hours. The error inherent in the data reported in this section does not invalidate the comparative analysis since there is no reason to believe that the error is anything but randomly distributed among the comparative categories. The error does mean that the values reported are undoubtedly spuriously inflated. How much, cannot be specified. However, it is reasonable to assume that the percentage who misinterpreted the questionnaire item was small. Those who reported more than 40 hours per week of such education were less than five percent.

Analysis by Year of Graduation

For the graduates of 1953, 1958 and 1962 who reported attending a post-high school, non-college source of education, what is the non-college education

index with and without military specialist school included? Also, what is the mean accumulated class hours reported for each of the different sources of non-college education? Table 170 provides the data. (Multiply presented hours by 10 to obtain actual reported hours.)

Table 170. NON-COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS OF POST-HIGH SCHOOL EDUCATION BY YEAR OF GRADUATION FROM HIGH SCHOOL

Courses of Post-High School Non-college Education	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
	N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.
Private trade/technical school	84	128.3	156.6	79	102.6	149.4	79	79.5	92.2	244	103.4	137.3
Public trade/technical school	81	71.1	89.1	99	62.9	89.0	137	66.6	95.6	319	67.1	92.7
Business-commercial school	31	93.3	95.4	32	74.5	106.5	36	47.2	63.5	99	70.5	91.4
Adult continuation school	52	31.1	35.8	77	32.5	44.2	65	20.5	24.7	195	28.5	37.0
Military specialist school	292	84.2	97.2	376	75.8	82.0	321	68.4	60.1	991	76.1	81.0
Company course or school	135	48.2	52.5	132	49.4	99.9	76	36.1	72.4	344	45.9	78.1
Other than above	92	87.6	134.5	106	89.6	152.3	93	39.2	57.1	292	72.7	125.3
Non-college Education Index	461	105.9	125.7	601	86.1	111.1	622	67.7	80.9	1691	84.7	106.7
Non-college Education Index *	358	94.5	125.7	412	82.9	134.2	408	59.2	86.2	1184	78.4	117.8

* Excluding military school attendance

A comparison is not in order between the three year of graduation groups. The differences in accumulated hours of non-college education between the year of graduation groups must be attributed to the differences in time opportunity to accumulate such education. That there is a substantial difference in the non-college education index values for 1953 and 1958 graduates means simply that this type of education is still accumulated between six and eleven years after graduation. Thus, time opportunity must be comparable before different year of graduation groups can be compared in terms of total amount of non-college education.

An examination of the accumulated hours associated with the different sources of non-college education reveals the following rank order:

1. Private trade-technical schools . . . . . 103.4 hours
2. Military specialist schools . . . . . 76.1 hours

3. Business-commercial schools . . . . . 70.5 hours
4. Public trade-technical schools . . . . . 67.1 hours
5. Company course schools . . . . . 45.9 hours
6. Adult continuation schools . . . . . 28.5 hours

The differences can't be interpreted as differences in staying power. More than likely, they reflect differences in course durations.

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools, who reported post-high school, non-college education, compare in terms of the non-college education index and the mean total accumulated hours per source of non-college education. Table 171 provides the data.

Table 171. NON-COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS OF POST-HIGH SCHOOL EDUCATION BY TYPE OF HIGH SCHOOL ATTENDED

Sources of Post-High School Non-college Education		TYPE OF SCHOOL					
		Vocational			Comprehensive		
		N	M	S.D.	N	M	S.D.
Private trade/technical school . .		133	89.3	102.9	111	121.0	168.0
Public trade/technical school . .		194	54.2	78.1	125	87.2	108.8
Business-commercial school		50	58.1	84.2	49	83.0	96.5
Adult continuation school		109	24.1	29.1	86	34.0	44.5
Military specialist school		573	75.3	75.9	418	77.3	87.4
Company course or school		185	45.6	72.6	159	46.2	84.1
Other than above		195	71.7	126.9	97	74.8	121.8
Non-college Education Index *		681	71.3	106.0	503	88.0	121.0
Non-college Education Index		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	284	101.3	117.4	177	113.2	137.8
	1958	330	78.8	90.4	271	94.9	131.4
	1962	349	58.9	67.6	273	79.1	94.0
	Combined	968	78.3	94.0	723	93.3	121.0

* Excluding military school attendance

The lower section of Table 171 shows the non-college education index values. For each of the graduating classes, comprehensive school graduates have a greater index score than vocational school graduates. The conclusion is that vocational graduates from comprehensive schools accumulate substantially more post-high school education than those from vocational schools. This does not necessarily reflect adversely on the vocational school. It may be that graduates of comprehensive school vocational programs have a stronger need for additional trade training. Chapter 6 indicated that less of these graduates obtain work in the trade studied or highly related trades than do vocational school graduates. It may be that more of the comprehensive school graduates have a preference for other type of work, which causes them to seek more non-college education. The upper section of Table 171 shows the mean accumulated hours for each source of education. Comprehensive school graduates have substantially more accumulated hours in private trade schools, public trade schools, business-commercial schools and adult continuation schools than do vocational school graduates. The differences in hours of company school and military specialist school attendance are not significant.

Analysis by School Enrollment

How do vocational graduates of small, medium and large enrollment schools, as defined in this study, who reported post-high school, non-college education compare in terms of the non-college education index and the mean total accumulated hours for the different sources of non-college education compare? Table 172 provides the data.

There is no consistent trend that holds for each of the three graduating classes. The differences in the non-college index scores for the combined group are not significant. The conclusion is that the enrollment of the school attended is unrelated to the amount of non-college education that will be accumulated.

The upper section of Table 172 shows the mean accumulated hours for each source of education. With increased enrollment, the mean accumulated hours

Table 172. NON-COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS OF POST-HIGH SCHOOL EDUCATION BY ENROLLMENT OF HIGH SCHOOL ATTENDED

Sources of Post-High School Non-college Education		SCHOOL ENROLLMENT								
		< 500			500-1500			> 1500		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Private trade/technical school		86	116.5	128.1	74	127.8	188.5	84	69.4	69.5
Public trade/technical school		115	64.9	96.3	91	77.6	102.8	113	61.0	78.7
Business-commercial school		31	59.9	86.8	37	72.9	91.5	31	78.0	94.7 ▲
Adult continuation school		66	21.6	27.5	55	24.4	29.7	74	37.6	46.3 ▲
Military specialist school		331	71.3	72.9	348	77.9	83.6	312	79.2	85.7
Company course or school		99	60.6	114.5	123	41.5	66.7	122	38.3	42.6 ▼
Other than above		105	47.9	52.4	109	97.0	167.2	78	72.3	119.7
Non-college Education Index *		394	78.2	112.2	407	86.0	140.7	383	70.3	93.6
Non-college Education Index		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	154	118.6	131.1	165	101.4	138.7	142	97.3	100.3
	1958	215	79.8	107.2	203	94.4	124.1	183	84.2	99.0
	1962	191	64.2	72.9	213	67.8	77.9	218	70.7	89.8
	Combined	564	85.5	107.0	583	86.4	115.1	544	82.2	96.3

* Excluding military school attendance

shows an increasing trend for business-commercial schools and adult continuation schools, and a decreasing trend for company course schools. A plausible interpretation for these trends is lacking.

Analysis by Race of Graduate

How do Negro and white graduates who reported post-high school, non-college level education compare in terms of the mean total hours of such education accumulated? The lower section of Table 173 shows the non-college education index values.

The small number of Negroes who reported non-college education precludes placing confidence in the comparison. The results are suggestive, not conclusive. For each of the three year of graduation groups, the Negro graduates

Table 173. NON-COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS OF POST-HIGH SCHOOL EDUCATION BY RACE OF HIGH SCHOOL GRADUATE

Courses of Post-High School Non-college Education		RACE OF VOCATIONAL GRADUATE								
		White			Negro			Other		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Private trade/technical school		222	106.5	141.7	15	68.9	66.4	2	54.0	46.0
Public trade/technical school		300	66.3	91.7	12	102.8	124.5	2	56.0	44.0
Business-commercial school		93	69.9	93.2	5	74.4	59.7	1	100.0	0.0
Adult continuation school		186	28.2	37.1	6	18.7	19.3	1	100.0	0.0
Military specialist school		944	77.1	82.4	32	56.9	35.1	2	66.0	34.0
Company course or school		335	46.6	78.9	5	8.8	6.6	0	0.0	0.0
Other than above		275	73.1	125.3	15	61.9	131.4	0	0.0	0.0
Non-college Education Index *		1117	78.6	118.5	49	73.4	105.1	3	141.0	185.3
Non-college Education Index		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	441	106.3	127.7	14	96.7	67.3	1	32.0	0.00
	1958	571	86.8	112.3	19	70.7	82.8	1	12.0	0.00
	1962	583	67.8	79.6	30	60.2	75.1	2	256.0	248.0
	Combined	1601	85.3	107.6	64	70.5	77.0	4	139.0	210.9

* Excluding military school attendance

have a lower non-college education index score than the white graduates. This suggests that Negro graduates accumulate less post-high school, non-college level education. The study has no data to indicate why this might be so. The difference is in contrast with the finding that Negro vocational graduates who attended college accumulated more college hours than their white counterparts. It is possible that the Negro's poorer acceptance into the trades may weaken his resolve to pursue non-college education.

Analysis by Type of Graduate

How do academic and vocational graduates who reported post-high school, non-college level education compare in terms of the mean total hours of such education accumulated? The lower section of Table 174 shows the non-college education index values.

Table 174. NON-COLLEGE EDUCATION: MEAN TOTAL ACCUMULATED CLASS HOURS OF POST-HIGH SCHOOL EDUCATION BY TYPE OF HIGH SCHOOL GRADUATE

Sources of Post-High School Non-college Education		TYPE OF GRADUATE					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
Private trade/technical school . .		111	121.0	168.0	69	149.3	161.7
Public trade/technical school . .		125	87.2	108.8	57	117.8	137.4
Business-commercial school		49	83.0	96.5	62	70.7	73.0
Adult continuation school		86	34.0	44.5	27	22.8	33.9
Military specialist school		418	77.3	87.4	322	75.8	67.8
Company course or school		159	46.2	84.1	85	47.4	82.5
Other than above		97	74.8	121.8	70	97.5	159.7
Non-college Education Index *		503	88.0	121.0	320	96.6	132.8
Non-college Education Index		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	177	113.2	137.8	172	121.5	143.3
	1958	271	94.9	131.4	188	83.2	91.0
	1962	273	79.1	94.0	152	74.8	70.0
	Combined	723	93.3	121.0	512	93.6	108.6

* Excluding military school attendance

The direction of the differences are not consistent for the three year of graduation groups. The mean differences are not significant. The conclusion is that there is no difference in the amount of non-college education, over all sources of such education, accumulated by the two types of graduates.

The upper section of Table 174 shows that academic graduates who have attended trade or technical schools after high school accumulate substantially greater hours of such training than vocational graduates. The differences between the two types of graduates in other sources of non-college education are negligible. The difference in accumulated hours of private and public trade school education may be because vocational graduates very often continue in the trade studied in high school, whereas academic graduates start their trade training from the beginning. The latter would necessarily have to accumulate more hours to learn the beginning of a trade.

11 THEIR OFF THE JOB INTERESTS & AFFILIATIONS

- ☐ The Whole Person Concept of Education 1
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CHAPTER 11 SUMMARY

Education of the Whole Person

1. Vocational versus general education. Vocational education has been criticized for neglecting education of the whole person, a criticism difficult to answer because the concept of whole-person education is poorly defined.

2. Three suggested dependent variables. It is assumed that the education of the whole person will be reflected in, among other variables, range of conversational interests, range of leisure activities, and degree of organizational affiliation. The three variables provide a basis for comparing vocational and academic graduates.

The Graduate's Conversational Interest

3. Year of graduation. The range of conversational interests increases slightly with years out of school. Frequency of engagement in some topics increases with age; whereas, with others, there is a decrease. Family, work, and sports are the top three topics of conversation for all year-of-graduation groups. The least frequently discussed topics--religion, labor-union matters, and arts and literature.

4. Type of school. There is no difference in range of conversational interests between vocational graduates from comprehensive and vocational schools.

5. School enrollment. There is no difference in range of conversational interests between vocational graduates from small, medium, and large enrollment schools.

6. Race of graduates. Negro graduates have a slightly greater range of conversational interests than do white graduates. There are differences also in relative topic preferences.

7. Academic versus vocational graduates. A comparison of the two types of graduates who had no college education indicates no significant difference in terms of conversational interests.

The Graduate's Leisure Activities

8. Year of graduation. The range of leisure activities decreases slightly with years out of school. Frequency of engagement in some activities; e.g., attending educational programs, attending spectator sports, engaging in team sports, etc., decreased with age. Frequency of other activities; e.g., working in home workshop, watching television, etc., increased with age. The top three leisure activities were reading newspapers, watching television, and listening to music.

(Continued in Appendix B)

CONCEPT OF EDUCATING THE WHOLE PERSON

Introduction

The concept of educating the whole person has long been accepted by the majority of educators in the United States. The basic idea of the concept is simple: education should seek to develop those areas of knowledge, skill, attitudes, interests and beliefs which are necessary for adult adjustment in comtemporary society. In effect, education is seen as preparation for life.

Interpretations of what are the necessary knowledges, skills, attitudes, etc. vary widely. They include sharp differences of opinion. The same is the case for the methods educators claim are the best for developing such learnings. There is, however, majority agreement on the basic concept. Those who embrace a three-R fundamentalist view are a minority.

The concept of education of the whole person has often been the basis for criticism of vocational education. Because of its emphasis upon trade training, vocational education has been criticized for neglecting the education of the whole person. The point made is that narrow trade training necessarily neglects areas of education which are covered in academic or general education programs. Moreover, the neglect comes at a critical time, near the end of the formative years when the influence of a broader education is most essertial.

Such criticism is difficult to rebut because the concept of educating the whole person is deceptively simple. There is a lack of agreement on the criteria whereby the educational process can be evaluated in terms of how well it educates the whole person. Stated differently, there is no general agreement on the measurable dependent variables, excluding mere tests of knowledge and skill, that presumably reflect such education.

The present chapter is concerned with the issue of whether or not vocational education, compared with academic education, trains so narrowly that

its graduates reflect a lesser degree of education of their whole persons. Three dependent variables were adopted which presume to have some relevance to the education-of the-whole-person concept. It is not claimed that they are the only relevant variables, nor even the most important ones. Instead, they should be looked upon as providing a starting point for the comparison of vocational and academic education in terms of the whole person concept, as put forth by the general educator. The three dependent variables concern post-graduation (1) range and type of conversational interest, (2) range and type of leisure activities, and (3) degree of participation in community and other organizations. The underlying assumption is that the education of the whole person is reflected in the things he talks about, the ways he spends his leisure time, and the degree to which he participates in the organizations of his community.

THE GRADUATES CONVERSATIONAL INTERESTS

Introduction

The graduates were asked to indicate how frequently they talked about the following topics when they got together socially with others:

1. Work
2. Religion
3. Politics
4. Business conditions
5. World affairs
6. National affairs
7. State affairs
8. Community problems
9. Hobbies
10. Sports and athletics
11. Music, art, literature
12. Government matters
13. Labor union matters
14. Family

The answer frequency categories were: (1) almost never, (2) infrequently, (3) frequently, and (4) almost always. The ratings provided the basis for a breadth of conversational interest index. This measure was obtained by multiplying the mean frequency rating by 25. Each rating was given the value of the answer category indicated above. For a more complete description of the measure, see Chapter 3.

The rationale for the use of the measure is the reasoning that conversational interests are one dimension of the many that are relevant to the concept of education of the whole person. The index is a measure of breadth of conversational interest. It is a reasonable assumption that a person who engages in a wide variety of conversational topics demonstrates a broad interest in the world around him, and sufficient knowledge to provide the basis of conversation. In contrast with the person who has a narrow range of interests, such a person may be considered a more broadly educated person. It must be kept in mind that the concern is with people in general, not with individuals who may be exceptions to the rule.

Quite apart from the measure's usefulness for the concept of education of the whole person, it does describe one dimension of the vocational graduate — what he talks about.

Analysis by Year of Graduation

How does the conversational interest measure change with increased years out of school? Does the range of conversational interests increase as the graduate's range of experiences increase with more years out of school? Table 175 presents a frequency, percentage and cumulative percentage distribution of the measure.

Table 175. CONVERSATIONAL INTERESTS INDEX: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Conversation Interests	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
100	0	0.0	100.0	3	0.2	100.0	0	0.0	100.0	3	0.1	100.0
93-99	2	0.2	100.0	5	0.3	99.8	1	0.1	100.0	8	0.2	99.9
85-92	6	0.6	99.8	15	1.0	99.5	22	0.9	99.9	43	0.8	99.7
78-84	35	3.3	99.2	55	3.6	98.5	74	3.3	99.0	164	3.4	98.9
70-77	206	19.3	95.9	263	17.3	94.9	349	15.5	95.7	820	16.8	95.5
63-69	353	33.1	76.6	448	29.4	77.6	579	25.6	80.2	1389	28.6	78.7
55-62	266	25.0	43.5	413	27.1	48.2	633	28.0	54.6	1314	27.0	50.1
48-54	130	12.2	18.5	201	13.2	21.1	342	15.2	26.6	674	13.9	23.1
40-47	46	4.3	6.3	85	5.6	7.9	163	7.2	11.4	297	6.1	9.2
33-39	19	1.8	2.0	30	2.0	2.3	76	3.4	4.2	125	2.5	3.1
25-32	2	0.2	0.2	5	0.3	0.3	19	0.8	0.8	27	0.6	0.6
Number	1065			1523			2258			4864		
Mean	62.38			61.90			60.30			61.25		
Median	63			63			61			61		
S.D.	9.27			10.14			10.54			10.20		

The mean values for 1962, 1958, and 1953 are respectively 60.3, 61.9, and 62.4, indicating a slight increase in the conversational interest index with increased years out of school. The overall trend is confirmed in the mean frequency of conversation ratings of the individual topics from which the conversational interest index was derived. The mean ratings are shown in Table 176.

The arrows at the left of the table indicate a consistent trend of a higher mean rating with increased years out of school. Thus, the frequency with which graduates talk about business conditions, national affairs, state affairs, community problems, and family increases with age. This is to be expected. Some items do not show a consistent increasing trend, but they do show higher mean ratings for the 1953 graduates. They are religion, politics, government matters, and labor unions. Conversational topics that seem to decrease in frequency with age are sports and athletics, music, art, literature, and hobbies. The fact that there are changes in conversational interests with age explains the relatively slight increase in <u>breadth</u> of conversational interest with age.

The rank order of the conversational topics based upon mean frequency ratings for all years combined is given below:

1.	Family	2.9	8.	State affairs	2.4
2.	Work	2.8	9.	Community problems	2.4
3.	Sports and athletics	2.8	10.	Government matters	2.4
4.	Hobbies	2.7	11.	Politics	2.3
5.	World affairs	2.6	12.	Religion	2.0
6.	National affairs	2.6	13.	Labor union	2.0
7.	Business conditions	2.5	14.	Music, art, literature	2.0

The rank order does not change very much through the years. For example, family, work and sports were the top three topics for all graduation class year groups, whereas, religion, labor union matters and fine arts and literature were the bottom three topics for all groups.

Table 176. CONVERSATIONAL INTEREST INDEXES AND MEAN FREQUENCY RATINGS *
OF CONVERSATION TOPICS BY YEAR OF GRADUATION

Topics of Conversation	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
	N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.
Your work	1136	2.8	.68	1593	2.9	.70	2366	2.8	.74	5114	2.8	.72
Religion	1127	2.1	.74	1584	2.1	.74	2372	2.0	.77	5101	2.0	.76
Politics	1120	2.4	.75	1569	2.4	.81	2340	2.2	.80	5047	2.3	.80
▲ Business conditions	1116	2.6	.74	1570	2.5	.81	2340	2.4	.84	5043	2.5	.81
World affairs	1126	2.6	.71	1583	2.6	.74	2363	2.6	.78	5091	2.6	.75
▲ National affairs	1124	2.7	.71	1578	2.6	.72	2359	2.6	.78	5079	2.6	.75
▲ State affairs	1111	2.5	.72	1557	2.4	.73	2334	2.3	.78	5021	2.4	.76
▲ Community problems	1109	2.6	.76	1562	2.4	.80	2344	2.2	.84	5032	2.4	.82
Your hobbies	1110	2.6	.85	1566	2.7	.88	2351	2.7	.90	5046	2.7	.89
Sports and athletics	1110	2.8	.91	1565	2.8	.89	2355	2.9	.88	5046	2.8	.89
Music, art, literature, etc.	1106	2.0	.83	1572	2.0	.89	2343	2.1	.92	5040	2.0	.90
Government matters	1105	2.5	.76	1574	2.4	.77	2336	2.4	.81	5034	2.4	.79
Labor union matters	1113	2.1	.91	1570	2.0	.90	2315	2.0	.89	5016	2.0	.90
▲ Your family	1111	3.0	.72	1576	2.9	.77	2336	2.8	.83	5042	2.9	.80
CONVERSATION MEASURE	1065	62.4	9.27	1523	61.9	10.14	2258	60.3	10.54	—	—	—

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

▲ = Consistent higher mean rating with increased years out of school

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of the breadth of conversational interest measure? If, as claimed, the vocational graduates of comprehensive schools are exposed to more broadening influences, is it reflected in the measure? The bottom section of Table 178. presents the data.

Table 177. CONVERSATIONAL INTEREST INDEXES AND MEAN FREQUENCY RATINGS* OF CONVERSATION TOPICS BY TYPE OF SCHOOL

Topics of Conversation	TYPE OF SCHOOL					
	Vocational			Comprehensive		
	N	M	S.D.	N	M	S.D.
Your work	2999	2.8	.72	2115	2.9	.71
Religion	2991	2.0	.73	2110	2.1	.78
Politics	2957	2.3	.79	2090	2.3	.80
Business conditions	2955	2.5	.82	2088	2.5	.80
World affairs	2987	2.6	.74	2104	2.6	.78
National affairs	2983	2.6	.74	2096	2.6	.77
State affairs	2944	2.4	.76	2077	2.4	.76
Community problems	2949	2.4	.81	2083	2.4	.83
Your hobbies	2959	2.6	.89	2087	2.7	.88
Sports and athletics	2952	2.8	.90	2094	2.9	.87
Music, art, literature, etc.	2958	2.0	.89	2082	2.0	.90
Government matters	2955	2.4	.79	2079	2.4	.80
Labor union matters	2939	2.0	.90	2077	2.0	.91
Your family	2961	2.9	.80	2081	2.9	.80
CONVERSATION MEASURE	N	M	S.D.	N	M	S.D.
Year of Graduation: 1953	659	62.6	9.03	406	62.0	9.64
Year of Graduation: 1958	864	61.2	10.09	660	62.8	10.13
Year of Graduation: 1962	1331	60.1	10.49	927	60.6	10.60
Year of Graduation: Combined	2868	61.01	10.11	1997	61.59	10.31

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

There are no significant differences in the conversational interest index between the graduates of each type of school for any of the year of graduation groups or for the combined groups. The conclusion is that the type of school from which the graduate comes does not influence his future breadth of conversational interests.

Are there any differences in the mean frequency ratings given the individual topics of conversation by the graduates of the two types of schools? The ratings are shown in the upper section of Table 177. The rank order of the topics based on mean ratings appears to be much the same for both groups. Comparisons of individual item ratings reveal no substantial differences. The conclusion is that the type of school attended is not a variable influencing future conversational interests.

Analysis by Enrollment

How do the vocational graduates from small, medium and large enrollment schools, as defined by this study, differ in terms of the breadth of conversational interest index? Is there a significant trend? The bottom section of Table 178 presents the data.

The measure neither increases nor decreases as a function of school enrollment. The conclusion is that school enrollment is not a variable influencing the future breadth of conversational interest.

Are there any differences in the mean frequency ratings given the individual topics of conversation by the graduates from small, medium and large schools? The ratings are shown in the upper section of Table 178. There are no consistent trends among the mean ratings. Furthermore, the rank order of the topics, based upon mean ratings, is essentially the same for the three enrollment categories. The conclusion is that future conversational interests are unaffected by the enrollment of the high school attended.

Table 178. CONVERSATIONAL INTEREST INDEXES AND MEAN FREQUENCY RATINGS * OF CONVERSATION TOPICS BY SCHOOL ENROLLMENT

Topics of Conversation	SIZE OF SCHOOL ENROLLMENT								
	< 500			500-1500			> 1500		
	N	M	S.D.	N	M	S.D.	N	M	S.D.
Your work	1707	2.8	.74	1903	2.8	.72	1504	2.9	.68
Religion	1709	2.0	.75	1892	2.1	.76	1500	2.0	.76
Politics	1678	2.2	.81	1880	2.4	.77	1489	2.3	.81
Business conditions	1679	2.5	.83	1878	2.5	.81	1486	2.5	.80
World affairs	1698	2.6	.73	1892	2.6	.76	1501	2.6	.77
National affairs	1697	2.6	.76	1883	2.6	.74	1499	2.6	.75
State affairs	1690	2.4	.77	1831	2.4	.75	1500	2.4	.75
Community problems	1672	2.4	.83	1869	2.4	.80	1491	2.3	.84
Your hobbies	1678	2.6	.90	1876	2.7	.88	1492	2.7	.87
Sports and athletics	1685	2.8	.92	1873	2.9	.88	1488	2.8	.87
Music, art, literature, etc.	1680	2.0	.91	1875	2.1	.89	1485	2.0	.89
Government matters	1677	2.4	.81	1872	2.4	.77	1485	2.4	.79
Labor union matters	1679	2.0	.90	1858	2.0	.89	1479	2.0	.91
Your family	1681	2.9	.81	1874	2.9	.79	1487	2.9	.81
CONVERSATION MEASURE	N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation: 1953	385	62.4	9.44	392	62.5	9.05	288	62.1	9.34
Year of Graduation: 1958	504	61.2	10.43	591	61.9	9.72	429	62.6	10.41
Year of Graduation: 1962	726	60.0	10.68	810	61.0	10.47	727	59.9	10.42
Year of Graduation: Combined	1620	60.9	10.36	1803	61.6	9.95	1442	61.2	10.28

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

Analysis by Race of Graduate

How do Negro and white graduates differ in terms of the breadth of conversational interest index? The lower section of Table 179 presents the data.

Table 179. CONVERSATIONAL INTEREST INDEXES AND MEAN FREQUENCY RATINGS * OF CONVERSATION TOPICS BY RACE OF GRADUATE

Topics of Conversation	RACE OF GRADUATE								
	White			Negro			Other		
	N	M	S.D.	N	M	S.D.	N	M	S.D.
Your work	4732	2.8	.71	334	2.8	.82	19	2.9	.83
Religion	4717	2.0	.74	335	2.4	.83	19	1.5	.60
Politics	4670	2.3	.80	330	2.5	.82	19	2.1	.64
Business conditions	4668	2.5	.81	326	2.4	.91	19	2.4	.74
World affairs	4716	2.6	.75	326	2.9	.78	19	2.8	.69
National affairs	4702	2.6	.74	329	2.8	.80	19	2.7	.64
State affairs	4646	2.4	.75	327	2.6	.83	18	2.3	.74
Community problems	4656	2.4	.81	330	2.7	.90	18	1.9	.78
Your hobbies	4670	2.7	.88	327	2.8	.92	19	2.6	.98
Sports and athletics . . .	4671	2.8	.89	328	3.2	.80	18	2.8	.96
Music, art, literature, etc.	4663	2.0	.89	329	2.6	.94	18	2.0	1.05
Government matters	4664	2.4	.78	322	2.6	.85	19	2.5	.82
Labor union matters	4645	2.0	.90	323	2.1	.97	19	2.0	.86
Your family	4669	2.9	.79	325	2.9	.93	19	2.6	.88
CONVERSATION MEASURE	N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation: 1953	1016	62.3	9.16	43	65.4	10.96	3	58.0	7.12
Year of Graduation: 1958	1404	61.6	9.87	105	66.5	12.05	5	56.2	9.50
Year of Graduation: 1962	2069	60.0	10.34	169	64.3	11.92	8	64.9	8.83
Year of Graduation: Combined	4506	61.0	10.0	318	65.2	11.86	16	60.9	9.45

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

Within each graduating group, the Negro graduates have a higher index score than the white graduates. This suggests that Negro graduates have a broader range of conversational interests than white graduates. One plausible interpretation is that Negroes who have graduated from high school have a

greater interest in many of the topics listed because of intensified efforts in the civil rights movement in recent years.

What are the topics which show the greatest difference in mean frequency ratings between Negro and white graduates? The upper section of the table shows the mean ratings. There are some interesting differences in the rank order of the topics shown below:

WHITE GRADUATES		NEGRO GRADUATES	
1. Family	2.9	Sports and athletics	3.2
2. Work	2.8	Family	2.9
3. Sports and athletics	2.8	World affairs	2.9
4. Hobbies	2.7	Work	2.8
5. World affairs	2.6	National affairs	2.8
6. National affairs	2.6	Hobbies	2.8
7. Business conditions	2.5	Community problems	2.7
8. State affairs	2.4	State affairs	2.6
9. Community problems	2.4	Music, art, literature, etc.	2.6
10. Government matters	2.4	Government matters	2.6
11. Politics	2.3	Politics	2.5
12. Religion	2.0	Religion	2.4
13. Music, art, literature, etc.	2.0	Business conditions	2.4
14. Labor union matters	2.0	Labor union matters	2.1

Negro graduates show higher mean ratings in sports, community problems, world affairs, religion, politics, national affairs, state affairs, government matters, and music, art and literature, etc.

Analysis by Type of Graduate

How do vocational and academic graduates compare in terms of the breadth of conversational interest measure. The bottom section of Table 180 presents the data for all graduates, regardless of level of education completed.

Table 180. CONVERSATIONAL INTEREST INDEXES AND MEAN FREQUENCY RATINGS * OF CONVERSATION TOPICS BY TYPE OF GRADUATE

(Based on all graduates regardless of formal educational level attained)

Topics of Conversation		TYPE OF GRADUATE					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
Your work		5114	2.8	.72	1723	2.8	.76
Religion		5101	2.0	.76	1743	2.2	.75
Politics		5047	2.3	.80	1739	2.6	.77
Business conditions		5043	2.5	.81	1727	2.5	.81
World affairs		5091	2.6	.75	1740	2.8	.70
National affairs		5079	2.6	.75	1743	2.8	.68
State affairs		5021	2.4	.76	1750	2.4	.76
Community problems		5032	2.4	.82	1730	2.4	.81
Your hobbies		5046	2.7	.89	1729	2.5	.89
Sports and athletics		5046	2.8	.89	1726	3.0	.86
Music, art, literature, etc.		5040	2.0	.90	1728	2.3	.90
Government matters		5034	2.4	.79	1736	2.6	.75
Labor union matters		5016	2.0	.90	1731	1.8	.84
Your family		5042	2.9	.80	1731	2.8	.82
CONVERSATION MEASURE		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	1065	62.4	9.27	421	64.3	8.48
	1958	1524	61.9	10.14	559	62.8	9.24
	1962	2258	60.3	10.54	783	61.6	10.03
	Combined	4865	61.2	10.20	1763	62.6	9.50

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 1 = Almost always

Within each graduating class group, the academic graduates have a slightly higher conversational interest score than the vocational graduates. The differences, while consistent, are not statistically significant. The consistency

of the differences, however, do suggest that academic graduates have a slightly broader range of conversational interests.

How do the graduates compare in terms of the mean ratings given the individual items that comprise the conversational index measure? The data is shown in the upper section of the table. The academic graduates gave higher mean frequency of conversation ratings to the following topics: religion, politics, world affairs, national affairs, sports, music and art, and government matters. The vocational graduates yielded higher mean ratings on hobbies and labor union matters. The magnitude of the differences are not substantial, particularly when one considers the much higher percentage of college attendance and completion among the academic graduates.

Table 180 compared vocational and academic graduates without regard to the level of formal educational attained. How would vocational and academic graduates with no college education compare in terms of the conversation interest index and the mean frequency ratings of the topics that comprise the index? Table 181 provides the data for such graduates from comprehensive schools only.

The index scores for the two types of graduates are not significantly different. The conclusion is that the type of high school curriculum a graduate has followed does not influence the breadth of his conversational interests, as measured by the index.

Comparison of the mean ratings indicate that vocational graduates are slightly more inclined to talk about labor union matters, whereas, academic graduates are slightly more inclined to talk about politics and music, art, and literature. The differences on the other topics of conversation are either negligible or non-existant. The overall conclusion is that the type of curriculum a graduate has followed has, with the exception of a few topics, a negligible influence on type of conversational interests in future years.

The reader is reminded that the data herein discussed is what graduates <u>claim</u> they talk about and how frequently. There are indications that what is claimed may correspond with what they do talk about. For example, it is not unexpected that vocational graduates talk more frequently about labor union matters than academic graduates. Nor is it very surprising that both academic

Table 181. CONVERSATIONAL INTEREST INDEXES AND MEAN FREQUENCY RATINGS OF * CONVERSATION TOPICS BY TYPE OF GRADUATE (Based on graduates from comprehensive schools only with no college level education)

Topics of Conversation	TYPE OF GRADUATE					
	Vocational			Academic		
	N	M	S.D.	N	M	S.D.
Your work	1730	2.9	.71	789	2.8	.76
Religion	1720	2.1	.79	788	2.1	.76
Politics	1702	2.2	.81	783	2.4	.78
Business conditions	1699	2.5	.81	788	2.5	.85
World affairs	1714	2.6	.79	784	2.7	.73
National affairs	1707	2.6	.76	780	2.7	.72
State affairs	1691	2.4	.77	788	2.4	.76
Community problems.	1695	2.3	.84	776	2.4	.81
Your hobbies	1701	2.7	.88	777	2.6	.92
Sports and athletics	1712	2.9	.86	774	3.0	.84
Music, art, literature, etc. . . .	1694	2.0	.90	772	2.2	.92
Government matters	1694	2.4	.81	782	2.5	.76
Labor union matters	1691	2.1	.92	776	1.9	.89
Your family	1701	2.9	.80	773	2.9	.83
CONVERSATION MEASURE	N	M	S.D.	N	M	S.D.
Year of Graduation: 1953	305	61.3	10.0	172	62.9	8.9
Year of Graduation: 1958	542	62.3	10.4	267	62.0	9.6
Year of Graduation: 1962	771	60.4	10.7	357	61.4	11.1
Year of Graduation: Combined	1621	61.2	10.5	796	61.9	10.2

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

and vocational graduates talk more about work and family than, say, religion or labor union matters. Such agreements with expectation, while they do not validate the claims, do make them more credible.

THE GRADUATE'S LEISURE ACTIVITIES

Introduction

The graduates were asked to indicate how frequently they engaged in the following type of leisure activities:

1. Reading newspapers
2. Engaging in craft hobbies
3. Reading trade books, magazines, etc.
4. Attending spectator sports
5. Attending plays, concerts, ballet, etc.
6. Watching television programs
7. Reading general magazines
8. Working at home shop activities
9. Attending educational courses
10. Engaging in team sports
11. Engaging in performing arts
12. Visiting or entertaining friends
13. Reading non-fiction books
14. Collecting stamps, coins, etc.
15. Attending lectures & discussions
16. Engaging in individual sports
17. Listening to music at home
18. Going to the movies

The answer frequency categories were: (1) almost never, (2) infrequently, (3) frequently, and (4) almost always. The individual ratings provided the basis for a breadth of leisure activity index. This measure was obtained by multiplying the mean frequency rating of the graduate by 25. Each rating was given the value of the answer category indicated above, thereby giving the measure a range of 25 to 100. For a more complete description of the measure, see Chapter 3.

The rationale for the use of the measure was the reasoning that leisure activities are relevant to the concept of educating the whole person. The assumption is that a broad range of leisure activities reflect a broad and balanced interest in non-vocational activities. The defect of the assumption is that a narrow range of leisure activities does not necessarily mean a narrow interest in such activities. To a degree, conditions of income and opportunity will influence and determine leisure activities. Despite this weakness of the measure, it was felt that it explored a relevant dimension of the "total" individual. Presumably, conditions of money and opportunity are randomly distributed among some of the major independent variables that are analyzed in terms of the measure, e.g. type of school and school enrollment.

Analysis by Year of Graduation

How does the leisure activity index change with increased years out of school? Does the range of such activities increase, decrease or remain unchanged with age? Table 182 presents a frequency, percentage and cumulative percentage distribution of the index.

Table 182. LEISURE ACTIVITY INDEX: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Leisure Activities	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
G.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
100	0	0.0	100.0	1	0.1	100.0	0	0.0	100.0	1	0.1	100.0
93-99	0	0.0	100.0	0	0.0	99.9	1	0.1	100.0	1	0.1	99.9
85-92	0	0.0	100.0	1	0.1	99.9	1	0.1	99.9	2	0.1	99.8
78-84	4	0.4	100.0	8	0.5	99.8	17	0.8	99.8	29	0.5	99.7
70-77	23	2.1	99.6	60	4.0	99.3	111	4.9	99.0	194	3.9	99.2
63-69	128	11.9	97.5	185	12.3	95.3	317	14.2	94.1	632	13.1	95.3
55-62	333	31.0	85.6	504	33.7	83.0	708	31.7	79.9	1548	32.1	82.2
48-54	339	31.5	54.6	417	27.9	49.3	601	26.9	48.2	1363	28.3	50.1
40-47	213	19.8	23.1	265	17.7	21.4	365	16.4	21.3	846	17.6	21.8
33-39	33	3.1	3.3	50	3.4	3.7	100	4.5	4.9	185	3.8	4.2
25-32	2	0.2	0.2	5	0.3	0.3	10	0.4	0.4	18	0.4	0.4
Number	1075			1496			2231			4819		
Mean	54.00			54.86			55.06			54.74		
Median	54			55			55			54		
S.D.	7.86			8.49			9.05			8.64		

The mean values for 1962, 1958 and 1953 are respectively 55.1, 54.9 and 54.0, indicating a tendency for the active range of leisure activities to decrease with age. That does <u>not</u> mean time spent in leisure activities decreases within two to eleven years out of school. It implies only a shrinkage in the <u>range</u> of such activities. The change, however, is very slight within the years spanned by the study. Later data will show why this is so.

The mean frequency ratings for the different kinds of leisure activities are shown in Table 183.

The leisure activities are shown grouped in six categories: (1) reading activities, (2) self-education activities, (3) hobby activities, (4) athletic activities, (5) fine arts activities, and (6) popular entertainment activities. The arrows at the far left of the table indicate the direction of a consistent trend by year of graduation. As the years go by, the frequency of engagement in the following activities increases: newspaper reading, home workshop activities and T. V. watching. Activities that show a consistent decreasing trend with increased years out of school are: attending educational courses, attending spectator sports, engaging in team sports, and listening to music for pleasure. Other activities which show a decrease, albeit not a decrease for each year of graduation group, are: attending lectures and discussion groups, engaging in hobbies, attending plays and concerts, engaging in individual sports, and going to the movies.

For all vocational graduates combined, the rank order of leisure activities, based upon the mean ratings shown in Table 183 is as follows:

	Type of Leisure Activity	Mean Rating*
1.	Reading newspapers	3.4
2.	Watching T.V. programs	2.9
3.	Listening to music for pleasure	2.9
4.	Entertaining or visiting friends	2.8
5.	Engaging in individual sports	2.7
6.	Reading general magazines	2.6
7.	Reading trade books and periodicals	2.5
8.	Going to the movies	2.4
9.	Attending spectator sports	2.3
10.	Working in home workshop	2.2
11.	Engaging in team sports	2.0
12.	Reading non-fiction	2.0
13.	Attending educational courses	1.9

* 1 = Almost never, 2 = Infrequently, 3 = Frequently and 4 = Almost always

Table 183. LEISURE ACTIVITY INDEXES AND MEAN FREQUENCY RATINGS OF LEISURE ACTIVITIES BY YEAR OF GRADUATION

	Types of Leisure Activities	YEAR OF GRADUATION											
		1953			1958			1962			Combined		
		N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.
▲	Reading newspapers	1126	3.6	.69	1591	3.5	.79	2371	3.2	.82	5107	3.4	.80
1	Reading non-fiction books	1114	2.0	.85	1556	2.0	.86	2333	2.0	.88	5022	2.0	.87
	Reading general magazines	1115	2.6	.84	1574	2.7	.82	2360	2.6	.83	5068	2.6	.83
	Reading trade books/periodicals	1118	2.5	.86	1573	2.5	.90	2360	2.4	.89	5070	2.5	.89
2▼	Attending educational courses	1107	1.8	.90	1563	1.9	.96	2320	2.0	1.02	5009	1.9	.97
	Attending lectures, discussions	1111	1.5	.76	1568	1.5	.80	2333	1.6	.84	5031	1.6	.81
	Engaging in craft hobbies	1120	1.9	.91	1576	1.9	.90	2361	2.0	.92	5076	1.9	.91
3▲	Working in a home workshop	1114	2.3	.96	1564	2.2	.97	2340	2.1	.98	5036	2.2	.98
	Collecting stamps, coins, etc.	1107	1.4	.82	1550	1.5	.86	2311	1.5	.80	4987	1.5	.83
▼	Attending spectator sports	1127	2.1	.83	1569	2.2	.84	2344	2.4	.85	5059	2.3	.85
4▼	Engaging in team sports	1119	1.8	.88	1573	1.9	.94	2344	2.1	.97	5055	2.0	.95
	Engaging in individual sports	1115	2.5	.77	1571	2.7	.77	2364	2.7	.79	5069	2.7	.78
	Attending plays, concerts, etc.	1115	1.4	.64	1549	1.4	.65	2331	1.5	.68	5013	1.4	.66
5	Engaging in performing arts	1085	1.3	.63	1528	1.3	.70	2292	1.4	.81	4923	1.4	.74
▼	Listening to music at home	1117	2.8	.86	1573	2.9	.88	2354	3.0	.88	5063	2.9	.88
▲	Watching T.V. programs	1108	3.1	.81	1569	3.0	.88	2357	2.8	.94	5053	2.9	.91
6	Entertaining/visiting friends	1112	2.7	.58	1568	2.8	.62	2348	2.8	.72	5046	2.8	.66
▼	Going to movies	1128	2.0	.69	1583	2.3	.71	2348	2.6	.69	5078	2.4	.74
LEISURE ACTIVITY MEASURE		1075	54.0	7.86	1496	54.9	8.49	2231	55.1	9.05	—	—	—

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

▲ ▼ = Indicates direction of mean ratings with increased years out of school

14. Engaging in craft hobbies 2.9
15. Attending educational discussion groups 1.6
16. Collecting stamps, coins, other objects 1.5
17. Attending plays and concerts 1.4
18. Engaging in performing arts 1.4

The rank order of leisure activities in terms of the six groups defined previously, based upon a mean of the mean ratings, is as follows:

1. General reading activities 2.7
2. Popular entertainment 2.6
3. Sports and athletic activities 2.1
4. Self-education activities 1.9
5. Hobbies and home crafts 1.9
6. Fine arts activities 1.8

Analysis by Type of School

How do the vocational graduates of comprehensive and vocational schools compare in terms of breadth of leisure activities? The bottom section of Table 184 presents the data.

There are no significant differences in the leisure activity indexes between graduates from the two types of schools. The conclusion is that the type of school from which the graduate comes does not influence his future range of leisure activities.

Do the graduates from the two types of schools differ in the mean ratings given to the indivdual types of leisure activites? The ratings are shown in the upper section of Table 184. The rank order of leisure activities, based on mean ratings, is essentially the same for both groups. There are no significant differences between the mean ratings for specific activities. The conclusion is that the type of school attended is not a variable influencing specific future leisure time activities of vocational course graduates.

Table 184. LEISURE ACTIVITY INDEXES AND MEAN FREQUENCY RATINGS OF LEISURE ACTIVITIES BY TYPE OF SCHOOL

	Types of Leisure Activities	TYPE OF SCHOOL					
		Vocational			Comprehensive		
		N	M	S.D.	N	M	S.D.
1	Reading newspapers	2995	3.4	.82	2112	3.4	.78
	Reading non-fiction books	2949	2.0	.86	2073	2.0	.87
	Reading general magazines	2972	2.6	.83	2096	2.7	.83
2	Reading trade books/periodicals	2981	2.5	.87	2089	2.4	.90
	Attending educational courses	2936	1.9	.97	2073	1.9	.97
	Attending lestures, discussions	2950	1.5	.79	2081	1.6	.84
3	Engaging in craft hobbies	2983	1.9	.91	2093	1.9	.91
	Working in a home workshop	2954	2.2	.99	2082	2.2	.96
	Collecting stamps, coins, etc.	2929	1.5	.82	2058	1.5	.84
4	Attending spectator sports	2972	2.2	.84	2087	2.3	.86
	Engaging in team sports	2959	1.9	.94	2096	2.0	.96
	Engaging in individual sports	2977	2.6	.78	2092	2.7	.78
5	Attending plays, concerts, etc.	2940	1.4	.65	2073	1.5	.68
	Engaging in performing arts	2892	1.4	.74	2031	1.4	.76
	Listening to music at home	2969	2.9	.88	2094	2.9	.88
6	Watching T.V. programs	2962	2.9	.91	2091	3.0	.90
	Entertaining/visiting friends	2952	2.8	.66	2094	2.8	.66
	Going to movies	2978	2.4	.74	2100	2.4	.74
LEISURE ACTIVITY MEASURE		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	658	54.0	7.73	417	54.0	8.07
	1958	851	54.5	8.49	646	55.3	8.46
	1962	1305	54.8	8.94	926	55.4	9.19
	Combined	2827	54.5	8.56	1993	55.1	8.75

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

Analysis by Enrollment

Do the vocational graduates from small, medium and large enrollment schools, as defined in this study, differ in terms of the lesirue activity index? Is there a significant trend? The lower section of Table 185 presents the data.

Table 185. LEISURE ACTIVITY INDEXES AND MEAN FREQUENCY RATINGS OF LEISURE ACTIVITIES BY SCHOOL ENROLLMENT

	Types of Leisure Activities	SIZE OF SCHOOL ENROLLMENT								
		< 500			500-1500			> 1500		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
	Reading newspapers	1709	3.4	.81	1895	3.4	.79	1503	3.4	.81
1	Reading non-fiction books	1676	2.0	.87	1870	2.0	.87	1476	2.0	.86
	Reading general magazines	1690	2.6	.84	1882	2.6	.82	1496	2.6	.82
	Reading trade books/periodical	1690	2.5	.88	1883	2.4	.88	1497	2.5	.90
2	Attending educational courses	1658	1.9	.95	1870	1.9	.98	1481	2.0	.99
	Attending lectures, discussion	1669	1.5	.82	1875	1.6	.82	1487	1.6	.84
	Engaging in craft hobbies	1695	1.9	.91	1885	1.9	.91	1496	1.9	.91
3	Working in a home workshop	1673	2.2	.99	1876	2.1	.97	1487	2.1	.97
	Collecting stamps, coins, etc.	1679	1.5	.80	1812	1.5	.83	1496	1.5	.85
	Attending spectator sports	1684	2.2	.86	1881	2.3	.84	1494	2.2	.84
4	Engaging in team sports	1684	1.9	.94	1871	2.0	.96	1500	2.0	.94
	Engaging in individual sports	1687	2.7	.78	1879	2.7	.78	1503	2.7	.79
	Attending plays, concerts, etc	1652	1.4	.64	1868	1.5	.68	1493	1.4	.66
5	Engaging in performing arts	1662	1.4	.73	1788	1.4	.77	1473	1.4	.74
	Listening to music at home	1685	2.9	.88	1886	2.9	.88	1492	2.9	.87
	Watching T.V. programs	1681	2.9	.91	1879	2.9	.91	1493	2.9	.90
6	Entertaining/visiting friends	1681	2.8	.66	1874	2.8	.67	1491	2.8	.66
	Going to movies	1693	2.4	.75	1882	2.4	.73	1503	2.4	.74
LEISURE ACTIVITY MEASURE		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	379	54.2	7.80	402	54.1	7.8	294	53.6	8.00
	1958	497	54.5	8.52	574	54.8	8.46	426	55.2	8.47
	1962	710	54.9	9.29	808	55.4	8.68	713	54.9	9.21
	Combined	1590	54.6	8.73	1794	54.9	8.44	1436	54.7	8.78

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

The breadth of leisure activity index is not significantly related to school enrollment. The conclusion is that school enrollment is not a variable influencing the vocational graduates' range of future leisure activities.

Are there any differences in the mean ratings of frequency of leisure activities that suggest a relationship with the enrollment of former schools? The ratings are shown in the upper section of Table 185. There are no significant trends among the mean ratings that suggest enrollment of the former school is a variable influencing frequency of leisure activities. The conclusion is that future leisure activities are uninfluenced by size of school enrollment.

Analysis by Race of Graduate

How do Negro and white graduates differ in terms of the leisure activity index? The bottom section of Table 186 presents the data.

Within each graduating class group, the Negro graduates have a higher index score than the white graduates. Although the differences are not significant, their consistency suggests that Negro graduates have a slightly broader range of leisure activities than white graduates, that is, they report a greater frequency of involvement in the leisure activities listed.

How do the Negro and white graduates compare in terms of mean ratings for the individual leisure activities? The upper section of Table 186 presents the data. The mean ratings of Negro graduates are greater for the following factors, listed in order of the magnitude of the difference:

1. Engaging in team sports . . . . . (2.6 vs. 1.9)
2. Attending spectator sports . . . . . (2.8 vs. 2.2)
3. Engaging in performing arts . . . . . (1.8 vs. 1.2)
4. Attending educational lectures . . . . . (1.9 vs. 1.5)
5. Attending plays, concerts, etc. . . . . (1.8 vs. 1.4)
6. Listening to home music . . . . . (3.3 vs. 2.9)
7. Reading non-fiction books . . . . . (2.3 vs. 2.0)

Table 186. LEISURE ACTIVITY INDEXES AND MEAN FREQUENCY RATINGS OF LEISURE ACTIVITIES BY RACE OF GRADUATE

Types of Leisure Activities		RACE OF GRADUATES								
		White			Negro			Other		
			M	S.D.	N	M	S.D.	N	M	S.D.
	Reading newspapers	4721	3.4	.81	337	3.5	.73	19	3.5	.60
1	Reading non-fiction books	4652	2.0	.86	325	2.3	.89	18	2.3	1.10
	Reading general magazines	4694	2.6	.83	326	2.8	.83	18	2.7	.80
	Reading trade books/periodicals	4691	2.5	.89	332	2.5	.84	18	2.6	.83
2	Attending educational courses	4641	1.9	.97	322	2.0	1.00	19	2.4	1.26
	Attending lectures, discussion	4661	1.5	.79	324	1.9	.94	19	1.7	.96
	Engaging in craft hobbies	4699	1.9	.91	330	1.8	.92	19	1.8	.99
3	Working in a home workshop	4668	2.2	.98	320	1.9	.95	19	2.2	1.18
	Collecting stamps, coins, etc.	4620	1.5	.82	322	1.6	.86	19	1.5	.75
	Attending spectator sports	4685	2.2	.84	329	2.8	.83	17	2.5	.78
4	Engaging in team sports	4681	1.9	.93	326	2.6	1.01	19	1.9	.97
	Engaging in individual sports	4699	2.7	.77	324	2.5	.92	19	2.3	.80
	Attending plays, concerts, etc.	4637	1.4	.64	331	1.8	.85	17	1.7	.82
5	Engaging in performing arts	4563	1.3	.71	316	1.8	.98	18	1.2	.53
	Listening to music at home	4691	2.9	.88	325	3.3	.75	19	2.8	.87
	Watching T.V. programs	4673	2.9	.91	333	3.1	.86	18	2.8	.96
6	Entertaining/visiting friends	4671	2.8	.66	329	2.9	.72	18	2.6	.59
	Going to movies	4707	2.4	.74	325	2.5	.75	19	2.5	.75
LEISURE ACTIVITY MEASURE		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	1027	53.9	7.75	43	57.6	9.25	3	52.7	5.31
	1958	1385	54.6	8.23	97	58.8	10.68	5	48.6	10.07
	1962	2042	59.7	8.82	170	59.0	10.44	8	63.1	8.21
	Combined	4471	54.5	8.41	310	58.7	10.37	16	56.6	10.72

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

The rank order of the six group of activities, based upon group means of individual mean ratings, differ for the two races.

White Graduates		Negro Graduates	
1. Popular entertainment	(2.70)	General reading	(2.86)
2. General reading	(2.66)	Popular entertainment . .	(2.83)
3. Sports and athletics	(2.26)	Sports and athletics . .	(2.63)
4. Self-education	(1.96)	Fine arts activities . .	(2.30)
5. Hobbies and crafts	(1.86)	Self-education	(2.13)
6. Fine arts activities	(1.86)	Hobbies and crafts . . .	(1.43)

Since it has been shown that neither the type of school nor the school enrollment influence the leisure activity index or the mean frequency ratings of the activities, it is reasonable to assume school factors are not the source of the differences between Negro and white graduate leisure activities. The differences are more likely the products of differences in social and cultural milieu. It must be remembered that the Negro in our survey is a high school graduate. He certainly does not correspond to the commonly held image of the Negro high school dropout. Relative to their respective numbers, a smaller percentage of Negroes graduate from high schools than do white students. Those that do may have greater upward strivings than do their white counterparts. This may account for some of the differences in leisure activities.

Analysis by Type of Graduate

How do vocational and academic graduates compare in terms of the leisure activity index? Do the academic graduates, perhaps because of their greater exposure to a broader education, have a greater breadth of leisure activities? The lower section of Table 187 presents the data. It should be understood that the percentage of college graduates and those who have had some college is greater among the academic graduates.

Within each of the graduating class groups, the academic graduates have a slightly higher leisure activity index score than do the vocational graduates.

Table 187. LEISURE ACTIVITY INDEXES AND MEAN FREQUENCY RATINGS OF LEISURE ACTIVITIES BY TYPE OF GRADUATE (Based on all graduates regardless of formal educational level attained.)

	Types of Leisure Activities	TYPE OF GRADUATE					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
1	Reading newspapers	5107	3.4	.80	1753	3.5	.73
	Reading non-fiction books	5022	2.0	.87	1731	2.8	.88
	Reading general magazines	5068	2.6	.83	1740	2.8	.78
2	Reading trade books/ periodicals	5070	2.5	.89	1733	2.5	.93
	Attending educational courses	5009	1.9	.97	1720	2.2	1.08
	Attending lectures, discussions	5031	1.6	.81	1733	1.9	.93
3	Engaging in craft hobbies	5076	1.9	.91	1746	1.7	.84
	Working in a home workshop	5036	2.2	.98	1723	1.7	.88
	Collecting stamps, coins, etc.	4987	1.5	.83	1746	1.5	.81
4	Attending spectator sports	5059	2.3	.85	1741	2.4	.81
	Engaging in team sports	5055	2.0	.95	1735	2.1	.98
	Engaging in individual sports	5069	2.7	.78	1732	2.6	.81
5	Attending plays, concerts, etc.	5013	1.4	.66	1736	1.7	.77
	Engaging in performing arts	4923	1.4	.74	1729	1.5	.87
	Listening to music at home	5063	2.9	.88	1743	3.0	.85
6	Watching T.V. programs	5053	2.9	.91	1731	2.8	.97
	Entertaining/visiting friends	5046	2.8	.66	1738	2.8	.68
	Going to movies	5078	2.4	.74	1742	2.3	.72
LEISURE ACTIVITY MEASURE		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	1075	54.0	7.86	421	55.8	7.56
	1958	1497	54.9	8.49	559	55.5	7.90
	1962	2231	55.1	9.05	784	56.7	8.48
	Combined	4820	54.7	8.64	1764	56.1	8.10

* 1 = Almost always; 2 = Infrequently; 3 = Frequently; 4 = Almost always

The differences are not significant. However, their consistency suggests academic graduates may have a slightly greater involvement in leisure activities. The higher educational attainment in the academic graduate group may account for the differences.

How do the graduates compare in terms of the mean frequency ratings for the individual leisure activities and for the leisure activities grouped into the six categories described previously? The upper section of Table 187 shows the mean frequency ratings.

The academic graduates are more frequently engaged in the following activities:

1. Reading non-fiction books . . . . . (2.8 vs. 2.0)
2. Attending educational courses . . . . . (2.2 vs. 1.9)
3. Attending lectures and discussions . . (1.9 vs. 1.6)
4. Attending plays, concerts, etc. . . . . (1.7 vs. 1.4)
5. Reading general magazines . . . . . (2.8 vs. 2.6)

This may be a direct reflection of the very much higher percentage of academic graduates in the sample who attended college. Since a substantial number of the 1962 and 1958 academic graduates were still in college at the time of the survey, the differences may be a reflection of a college attendance period rather than what happens after formal education has been completed.

The vocational graduates are more frequently engaged in craft hobbies and home workshop activities.

The rank order of the six activities most frequently engaged in is essentially the same for both types of graduates:

Academic Graduates		Vocational Graduates	
1. Reading newspapers	(3.5)	Reading newspapers	(3.4)
2. Listening to music	(3.0)	Listening to music	(2.9)
3. Watching television	(2.8)	Watching television	(2.8)
4. Visiting/entertaining friends	(2.8)	Visiting/entertaining friends	(2.8)
5. Reading general magazines . .	(2.8)	Engaging in individual sports	(2.7)
6. Reading non-fiction books . .	(2.8)	Reading general mazazines . .	(2.6)

The rank order of the six activity groups, based upon group means of individual mean frequency ratings, for the two types of graduates is as follows:

Academic Graduates		Vocational Graduates	
1. Self-educational activities	(3.3)	Popular entertainment	(2.7)
2. General reading activities	(3.0)	General reading activities	(2.6)
3. Popular entertainments	(2.6)	Sports and athletics	(2.3)
4. Sports and athletics	(2.3)	Self-educational activities	(2.0)
5. Fine arts activities	(2.1)	Fine arts activities	(1.9)
6. Hobby activities	(1.6)	Hobby activities	(1.9)

Table 187 compared vocational and academic graduates without regard to their attained level of formal education at the time of the survey. Since a much higher percentage of academic graduates than vocational graduates attended or completed college, it is reasonable to assume that amount of education influenced the differences shown in Table 187. A more equitable comparison is in order.

How do vocational and academic high school graduates with no college education compare in terms of the leisure activity index, and the mean frequency ratings of the individual activities that comprise the index? Table 188 provides the data for graduates from the same comprehensive schools.

The leisure activity indexes for the two types of graduates are not significantly different for any of the year of graduation groups. The conclusion is that the type of curriculum the graduate has followed in high school, i.e. academic or vocational, does not influence the range of his leisure activities as an adult.

When the mean frequency ratings of the individual leisure activities are compared, the conclusion is much the same, i.e. the type of high school curriculum followed does not significantly influence future adult leisure activities. The mean ratings are slightly higher for the academic graduates in some activities, but the differences are not statistically significant. It does appear, however, that vocational course graduates engage in home workshop activities more frequently than academic graduates — a hardly surprising fact.

Table 188. LEISURE ACTIVITY INDEXES AND MEAN FREQUENCY RATINGS OF LEISURE ACTIVITIES BY TYPE OF GRADUATE (Based on graduates from comprehensive schools only with no college level education)

	Types of Leisure Activities	TYPE OF GRADUATE					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
	Reading newspapers	1726	3.4	.80	790	3.5	.76
1	Reading non-fiction books	1689	2.0	.85	772	2.1	.86
	Reading general magazines	1711	2.6	.85	782	2.7	.82
	Reading trade books/periodicals	1700	2.3	.90	774	2.4	.94
2	Attending educational courses	1687	1.8	.89	771	1.8	.93
	Attending lectures, discussions	1697	1.5	.77	780	1.5	.77
	Engaging in craft hobbies	1708	1.9	.91	785	1.8	.89
3	Working in a home work shop	1700	2.2	.96	767	1.8	.91
	Collecting stamps, coins, etc.	1677	1.5	.84	789	1.5	.8[illegible]
	Attending spectator sports	1697	2.3	.86	781	2.4	.84
4	Engaging in team sports	1707	2.0	.97	780	2.1	.96
	Engaging in individual sports	1706	2.7	.78	779	2.6	.84
	Attending plays, concerts, etc.	1690	1.4	.64	777	1.5	.72
5	Engaging in performing arts	1648	1.4	.73	776	1.5	.83
	Listening to music at home	1707	2.9	.90	784	3.0	.89
	Watching T.V. programs	1701	3.0	.90	771	3.0	.94
6	Entertaining or visiting friends	1708	2.8	.67	781	2.8	.71
	Going to movies	1713	2.4	.75	782	2.4	.75
LEISURE ACTIVITY MEASURE		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	312	53.3	8.1	172	54.5	8.4
	1958	534	54.8	8.5	267	54.2	8.6
	1962	776	54.6	9.1	357	54.9	8.9
	Combined	1625	54.4	8.8	796	54.6	8.7

* 1 = Almost never; 2 = Infrequently; 3 = Frequently; 4 = Almost always

THE GRADUATE'S ORGANIZATION AFFILIATIONS

Introduction

The graduates were asked to indicate their present membership status in the following kinds of community organizations:

1. Religious
2. Political
3. Service
4. Sports
5. Labor
6. Fraternal
7. Veterans
8. Business or trade
9. Cultural
10. Civic
11. Youth
12. Professional

The membership status categories represented different degrees of active participation. They were: (1) not a member, (2) inactive member, (3) active member, and (4) presently an officer. The ratings provided the basis for an organization affiliation index, which reflected degree of active participation in community organizations. The affiliation measure was obtained by multiplying the mean frequency rating of the graduate by 25. Each rating was given the value of numbers preceding the aforementioned answer categories. For a more complete description of the measure, see Chapter 3.

The rationale for the use of the measure was the reasoning that degree of organization affiliation reflected social interaction with different segments of the community. In a democratic society, such social interaction is desirable. It may be looked upon as a measure of the degree to which the individual is an influence in his community. Certainly, somewhere within the concept of education of the total person, there must be recognition of the dimension of organizational affiliation and leadership. Hence, one of the goals of education might be to instill a motivation and capability for active participation in recognized organizations in our society.

Analysis by Year of Graduation

How does the organization affiliation index change with increased age or years out of high school? Does the degree of active participation in community organizations increase as the graduate gets older and more established in his community? Table 189 presents a frequency, percentage and cumulative percentage distribution of the affiliation measure.

Table 189. ORGANIZATION AFFILIATION INDEX: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Organization Affiliation	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
C.I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
100	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0
93-99	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0
85-92	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0
78-84	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0	0	0.0	100.0
70-77	0	0.0	100.0	1	0.1	100.0	2	0.1	100.0	3	0.1	100.0
63-69	1	0.1	100.0	1	0.1	99.9	2	0.1	99.9	4	0.1	99.9
55-62	12	1.1	99.9	9	0.5	99.8	10	0.4	99.8	31	0.6	99.8
48-54	32	2.8	98.8	37	2.3	99.3	44	1.8	99.4	113	2.5	99.2
40-47	174	15.4	96.0	160	9.8	97.0	160	6.5	97.6	494	10.9	96.7
33-39	384	34.1	80.6	494	30.3	87.2	577	23.5	91.1	1460	32.0	85.8
25-32	525	46.5	46.5	928	56.9	56.9	1656	67.6	67.6	2449	53.8	53.8
Number	1128			1630			2451			4554		
Mean	33.90			32.24			31.06			33.08		
Median	33			31			29			31		
S.D.	6.67			6.11			5.84			5.98		

The mean values for 1962, 1958 and 1953 are respectively 31.1, 32.2 and 33.9, indicating a trend of increased orgainzation affiliation with more years out of school. This is as expected, and requires that the index be used to compare individuals or groups with like years out of high school.

Table 190 provides the mean ratings of affiliation with each type of organization. The upward pointing arrows represent consistently higher mean ratings for greater years out of school for the type of organizations so marked, i.e. religious, labor, fraternal and professional organizations. For all types of organizations, other than youth, athletic and cultural organizations, the 1953 graduates have a higher mean rating than the 1962 graduates.

Based upon mean ratings, the three types of organization with which graduates have the most active affiliation are: (1) religious, (2) labor, and (3) athletic organizations.

The mean ratings indicate something else about the vocational graduate; he is not a member of many organizations, and when he is, he is usually an inactive member. The percentages of non-membership and inactive membership reported below for all graduates combined shows his non-membership more clearly.

Type of Organization	Not a Member	Inactive
Religious	22.6 %	38.3 %
Political	82.2	13.6
Service	93.3	3.5
Athletic	73.0	7.3
Labor Union	68.6	10.6
Fraternal	89.1	4.9
Veterans	95.7	2.9
Business	86.4	5.8
Cultural	93.6	2.7
Civic	92.9	3.8
Youth	85.4	7.6
Professional	88.6	3.4

The vocational graduate does not conform to the stereotype "joiner" American. As shall be shown later, neither does the academic graduate. This may be because the survey covers the young adult years only. Organization affiliation status may change with the middle years.

Table 190. ORGANIZATION AFFILIATION INDEXES AND MEAN FREQUENCY RATINGS OF ORGANIZATION AFFILIATION BY YEAR OF GRADUATION

Types of Organizations	YEAR OF GRADUATION											
	1953			1958			1962			Combined		
	N	M	S.D.	N	M	S.D.	N	M	S.D.	N	M	S.D.
▲ Religious	1108	2.4	.87	1576	2.2	.82	2350	2.1	.81	5053	2.2	.83
Political	1111	1.3	.62	1558	1.3	.56	2333	1.1	.41	5020	1.2	.52
Service	1104	1.2	.54	1553	1.1	.44	2319	1.1	.34	4994	1.1	.42
Athletic	1101	1.5	.86	1545	1.5	.86	2324	1.5	.83	4989	1.5	.85
▲ Labor union	1105	1.7	.91	1555	1.6	.86	2327	1.4	.76	5005	1.5	.84
▲ Fraternal	1105	1.3	.64	1554	1.2	.57	2320	1.1	.43	4997	1.2	.53
Veterans	1117	1.1	.38	1554	1.1	.30	2315	1.0	.24	5004	1.1	.30
Business or trade	1114	1.3	.68	1556	1.2	.61	2324	1.2	.51	5002	1.2	.58
Cultural	1106	1.1	.40	1558	1.1	.40	2324	1.1	.45	5006	1.1	.42
Civic	1102	1.2	.56	1553	1.1	.45	2311	1.1	.32	4983	1.1	.42
Youth	1107	1.2	.66	1554	1.2	.56	2314	1.3	.63	4992	1.2	.62
▲ Professional	1102	1.3	.70	1544	1.2	.61	2293	1.1	.51	4957	1.2	.59
ORGANIZATION AFFILIATION	1128	39.9	6.67	1630	32.2	6.11	2451	31.1	5.84	—	—	—

* 4 = Presently an officer; 3 = Active member; 2 = Inactive member; 1 = Not a member

▲ = Indicates direction of mean ratings with increased years out of school

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of the organization affiliation index? The lower section of Table 191 presents the data.

Table 191. ORGANIZATION AFFILIATION INDEXES AND MEAN FREQUENCY RATINGS OF ORGANIZATION AFFILIATION BY TYPE OF SCHOOL

Types of Organizations		TYPE OF SCHOOL					
		Vocational			Comprehensive		
		N	M	S.D.	N	M	S.D.
Religious		2970	2.2	.83	2083	2.2	.83
Political		2944	1.2	.51	2076	1.2	.53
Service		2937	1.1	.40	2057	1.1	.45
Athlete		2939	1.5	.84	2050	1.5	.86
Labor union		2946	1.6	.85	2059	1.5	.81
Fraternal		2940	1.2	.54	2057	1.2	.51
Veterans		2944	1.1	.30	2060	1.1	.29
Business or trade		2938	1.2	.58	2064	1.2	.59
Cultural		2945	1.1	.40	2061	1.1	.45
Civic		2934	1.1	.40	2049	1.1	.45
Youth		2932	1.2	.62	2060	1.2	.62
Professional		2912	1.2	.58	2045	1.2	.60
ORGANIZATION AFFILIATION		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	669	33.5	6.36	429	34.6	7.08
	1958	921	32.2	5.90	709	32.3	6.37
	1962	1434	31.1	5.95	1017	30.9	5.67
	Combined	3069	32.0	6.10	2158	32.1	6.35

* 4 = Presently an officer; 3 = Active member; 2 = Inactive member; 1 = Not a member

Within each year of graduation group, there is no significant difference in the organization affiliation index between graduates of the two types of schools. The conclusion is that the type of school the vocational graduate has attended has no bearing on his future active participation in community organizations.

Are there any significant differences in the mean affiliation ratings given to the different types of organizations by the graduates of the two types of schools? The upper section of Table 191 shows the mean affiliation scores. There are no significant differences in any of the comparisons. The type of school attended by the graduate does not influence the type of organization he affiliates with after graduation.

Analysis by School Enrollment

How do vocational graduates from small, medium, and large enrollment schools, as defined in this study, differ in terms of the organization affiliation index? Is there a significant trend? The lower section of Table 192 presents the data.

Although the affiliation index increases slightly with increased enrollment for each year of graduation group, the trends are not significant. The conclusion is the school enrollment is not a variable influencing the graduates' future affiliation with community organizations. The slight tendency for a higher affiliation index for large enrollment schools can be attributed to the location of such schools in major metropolitan areas where there is a greater representation of the types of organization listed. For example, more of the trades in metropolitan areas are labor union affiliated than in the smaller communities.

Are there any differences in the mean ratings of affiliation with individual types of organizations in terms of school enrollment? The mean ratings are shown in the upper section of Table 192. There is no trend of mean ratings by enrollment for any of the organization categories. The conclusion is that the enrollment of the graduate's former school is unrelated to his future affiliation with the types of organizations covered by the survey.

Table 192. ORGANIZATION AFFILIATION INDEXES AND MEAN FREQUENCY RATINGS OF ORGANIZATION AFFILIATION BY SCHOOL ENROLLMENT

Types of Organizations		SCHOOL ENROLLMENT								
		< 500			500-1500			> 1500		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Religious		1685	2.2	.84	1874	2.2	.82	1494	2.2	.84
Political		1666	1.2	.53	1864	1.2	.49	1490	1.2	.54
Service		1667	1.1	.39	1853	1.1	.44	1474	1.1	.43
Athlete		1671	1.5	.84	1844	1.5	.86	1474	1.5	.85
Labor union		1666	1.5	.82	1854	1.5	.84	1485	1.6	.85
Fraternal		1667	1.2	.53	1856	1.2	.51	1474	1.2	.56
Veterans		1666	1.1	.31	1858	1.1	.30	1480	1.1	.28
Business or trade		1668	1.2	.56	1851	1.2	.58	1483	1.2	.61
Cultural		1673	1.1	.39	1853	1.1	.43	1480	1.1	.45
Civic		1670	1.1	.44	1843	1.1	.41	1470	1.1	.43
Youth		1665	1.2	.59	1852	1.2	.63	1475	1.2	.63
Professional		1652	1.2	.53	1835	1.2	.61	1470	1.2	.61
ORGANIZATION AFFILIATION		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	407	33.4	6.53	428	33.6	6.49	293	35.0	6.97
	1958	533	31.7	5.67	642	32.3	6.18	455	32.8	6.45
	1962	777	30.9	5.94	906	31.0	5.61	768	31.3	5.99
	Combined	1722	31.8	6.08	1987	32.0	6.08	1518	32.4	6.48

* 4 = Presently an officer; 3 = Active member; 2 = Inactive member; 1 = Not a member

Analysis by Race of Graduate

Do Negro and white graduates differ in terms of the organization affiliation index? The lower section of Table 193 presents the data.

Within each of the year of graduation groups, the Negro graduates have a slightly higher organization affiliation index than the white graduates. The consistency of the differences suggests that Negro graduates tend to become members of, and participate more actively in, organizations than do white

Table 193. ORGANIZATION AFFILIATION INDEXES AND MEAN FREQUENCY RATINGS OF ORGANIZATION AFFILIATION BY RACE OF GRADUATE

Types of Organizations		RACE OF GRADUATE								
		White			Negro			Other		
		N	M	S.D.	N	M	S.D.	N	M	S.D.
Religious		4681	2.2	.83	328	2.4	.84	19	1.7	.73
Political		4660	1.2	.51	316	1.3	.63	19	1.2	.52
Service		4638	1.1	.42	311	1.1	.44	19	1.1	.45
Athlete		4636	1.5	.83	310	1.8	.97	18	1.5	.83
Labor union		4648	1.5	.84	312	1.5	.84	19	1.4	.67
Fraternal		4641	1.2	.53	311	1.2	.55	19	1.0	.22
Veterans		4647	1.1	.28	312	1.1	.41	19	1.1	.22
Business or trade		4646	1.2	.58	311	1.3	.64	19	1.4	.67
Cultural		4649	1.1	.40	312	1.3	.68	19	1.0	.22
Civic		4632	1.1	.41	306	1.3	.62	19	1.1	.45
Youth		4634	1.2	.60	313	1.5	.80	19	1.3	.55
Professional		4606	1.2	.58	305	1.3	.69	19	1.3	.80
ORGANIZATION AFFILIATION		N	M	S.D.	N	M	S.D.	N	M	S.D.
Year of Graduation	1953	1073	33.8	6.56	42	37.1	8.23	3	35.0	4.24
	1958	1475	32.3	5.91	110	34.2	8.00	5	27.8	2.99
	1962	2192	31.0	5.64	183	34.0	7.24	10	32.4	5.85
	Combined	4757	32.0	6.04	336	34.5	7.68	18	31.6	6.55

* 4 = Presently an officer; 3 = Active member; 2 = Inactive member; 1 = Not a member

graduates. It should be kept in mind, however, that the differences are not great. Furthermore, neither Negro nor white graduates are strong joiners. They are overwhelmingly non-members.

Are there any differences in the mean affiliation ratings between Negro and white graduates? The upper section of the table shows the mean ratings. In no case are the mean affiliation ratings of white graduates greater than comparable ratings by Negro graduates. The Negro graduate is more frequently a member of the following types of organizations: athletic, youth, religious, cultural and civic organizations.

In rank order, the top three types of organizations in terms of mean affiliation ratings are the same for both Negro and white graduates: (1) religious, (2) athletic, and (3) labor union. The differences are not so much in kinds of organizations both races become members of, but in the percentages that become members and the degree of active involvement.

Analysis of Type of Graduate

How do vocational and academic graduates compare in terms of the organization affiliation index? Do the academic graduates, because of their broader education, become actively involved in community and other organizations to a greater degree than do vocational graduates? The lower section of Table 194 presents the data.

Within each year of graduation group, the organization affiliation index is slightly greater for academic graduates than for vocational graduates. While the differences are not significant, their consistency suggests academic graduates are slightly more involved in community organizations than vocational graduates.

How do the two types of graduates compare in terms of the mean affiliation ratings? The upper section of Table 194 presents the data. The differences are negligible, albeit consistently in favor of the academic graduates, with the exception of veterans' organizations and labor unions, in which vocational graduates are more active. Academic graduates are somewhat more active in professional organizations, e.g. 17 percent of the academic graduates reported they were officers in such organizations, whereas, only 7.4 percent of vocational graduates reported officer status.

In general, then, there are slight but consistent differences that indicate academic graduates are more actively involved in community and other organizations. What happens to those differences when vocational and academic graduates, from comprehensive schools only, who have no college education are compared? Table 195 provides the data.

Table 194. ORGANIZATION AFFILIATION INDEXES AND MEAN FREQUENCY RATINGS OF ORGANIZATION AFFILIATION BY TYPE OF GRADUATE

(Based on all graduates regardless of formal educational level attained)

Types of Organizations		TYPE OF GRADUATE					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
Religious		5053	2.2	.83	1739	2.3	.85
Political		5020	1.2	.52	1734	1.3	.62
Service		4994	1.1	.42	1721	1.2	.55
Athlete		4989	1.5	.85	1715	1.6	.89
Labor union		5005	1.5	.84	1723	1.3	.67
Fraternal		4997	1.2	.53	1728	1.3	.70
Veterans		5004	1.1	.30	1728	1.0	.28
Business or trade		5002	1.2	.58	1722	1.3	.64
Cultural		5006	1.1	.42	1721	1.2	.60
Civic		4983	1.1	.42	1721	1.2	.50
Youth		4992	1.2	.62	1720	1.3	.73
Professional		4957	1.2	.59	1706	1.4	.79
ORGANIZATION AFFILIATION		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	1128	33.9	6.66	423	36.2	7.85
	1958	1630	32.2	6.11	562	33.6	6.56
	1962	2454	31.1	5.84	794	32.3	6.2
	Combined	5227	32.0	6.21	1779	33.6	6.9

* 4 = Presently; 3 = Active member; 2 = Inactive member;
1 = Not a member

Within each year of graduation group, the organization affiliation index shows no significant difference between comprehensive school vocational and academic graduates who have had no college. It is noteworthy that the differences in favor of the academic graduates found when college educated graduates were included in the comparison (Table 194) have now virtually disappeared.

Table 195. ORGANIZATION AFFILIATION INDEXES AND MEAN FREQUENCY RATINGS OF ORGANIZATION AFFILIATION BY TYPE OF GRADUATE

(Based on graduates from comprehensive schools only with no college level education)

Types of Organizations		TYPE OF GRADUATE					
		Vocational			Academic		
		N	M	S.D.	N	M	S.D.
Religious		1697	2.2	.81	779	2.2	.83
Political		1694	1.2	.51	777	1.2	.53
Service		1679	1.1	.40	776	1.2	.51
Athletic		1672	1.5	.84	769	1.5	.88
Labor union		1680	1.5	.83	772	1.4	.80
Fraternal		1678	1.1	.47	779	1.2	.54
Veterans		1679	1.1	.30	777	1.1	.30
Business or trade		1683	1.2	.57	776	1.2	.59
Cultural		1685	1.1	.41	776	1.1	.51
Civic		1673	1.1	.41	772	1.1	.44
Youth		1684	1.2	.60	771	1.3	.67
Professional		1672	1.2	.53	769	1.2	.57
ORGANIZATION AFFILIATION		N	M	S.D.	N	M	S.D.
Year of Graduation	1953	326	34.1	6.6	173	34.8	6.9
	1958	584	32.0	6.1	269	32.7	6.2
	1962	850	30.7	5.4	364	31.0	5.4
	Combined	1762	31.7	6.0	806	32.3	6.2

* 4 = Presently an officer; 3 = Active member; 2 = Inactive member; 1 = Not a member

The differences between the mean ratings shown at the top of Table 195 also fail to be significant. The conclusion is that there is no difference in community organization affiliation between vocational and academic course graduates with no college level education.

12 MISCELLANEOUS FINDINGS ABOUT THE GRADUATES

- ☐ Employment Mobility Analysis 1
- ☐ Ordinal Day of Return Analysis 11
- ☐ Military Service Analysis 17

CHAPTER 12 SUMMARY

Analysis of Job Mobility

1. Job mobility measure. The number of moves vocational graduates made to other cities for employment was multiplied by the sum of weights assigned to distances moved to provide a measure of employment mobility.

2. Year of graduation. The mean number of moves to other cities for graduates of 1953, 1958, and 1962 was .4, .3, and .2--indicating very little mobility of vocational graduates. The percentage that moved to another city to get their first job is negligible. Of those who do move to other cities, the majority of cases are for distances less than 300 miles.

3. Type of school. There is no significant difference between graduates of vocational and comprehensive schools in terms of job mobility as herein defined.

4. School enrollment. There is no significant difference between graduates of small, medium, and large enrollment schools in terms of job mobility as herein defined.

5. Race of graduates. No conclusion can be drawn about job mobility differences between Negro and white graduates on the basis of the uncorrected sample. See text for details.

Ordinal Day of Return Analysis

6. Ordinal day of return. This has reference to how many days it took for the graduate's questionnaire to be returned. It reflects promptness and cooperation in returning the questionnaire.

7. Year of graduation. There is no significant difference between the graduates of 1953, 1958, and 1962 in terms of mean number of days required to return the questionnaire.

8. Type of school. Vocational school graduates were slightly quicker to return questionnaires than comprehensive school graduates.

9. School enrollment. There is no significant difference between graduates of small, medium, and large enrollment schools in terms of promptness of questionnaire return.

10. Race of graduates. Negro graduates were slightly less prompt in returning the questionnaire than white graduates.

11. Academic versus vocational graduates. Academic graduates were somewhat more prompt in returning questionnaires than vocational graduates.

(Continued in Appendix B)

ANALYSIS OF JOB MOBILITY

Introduction

To what extent do vocational graduates move to other cities to find employment or to improve their employment status? What are the distances moved?

A measure was developed to reflect both aspects of mobility, i.e. number of new city moves and distances moved. The graduate's score on the job mobility measure, was obtained by multiplying the sum of weights, ranging from 2 to 7, assigned to distances moved from 50 to more than 1200 miles by the number of moves made. The measure is for comparative purposes only. It cannot be interpreted directly in terms of number of moves or distances moved. The higher the score, the greater the graduate's job mobility which is a product of number of moves and weights assigned to distances moved. See Chapter 3 for a more complete definition of the measure.

In Chapter 3, it was shown that the job mobility measure was unrelated to any of the other occupational measures, i.e. employment security, related placement, job relatedness, job satisfaction, and earnings progression. It was concluded that those who moved to other cities to take jobs fared neither better or worse in terms of the occupational measures than those who stayed in the area in which they went to school. Individuals may, of course, be exceptions to the general rule. The finding is particularly relevant to the widespread idea that efforts should be made to stimulate employment mobility, to encourage people to go where the jobs are. In terms of the occupational measures used in this study, there is no evidence that those who go are better off than those who stay. It should be kept in mind, however, that these findings apply to vocational graduates, <u>not to the general labor market as such</u>.

The present section continues the analysis of the mobility measure in terms of the basic study variables.

Analysis by Year of Graduation

Within each year of graduation group, what is the mean and median number of new city moves reported by graduates? What is the frequency distribution for the number of moves reported? Table 196 provides the data. A later table will provide comparable data in terms of the job mobility measure described earlier.

Table 196. NUMBER OF MOVES TO OTHER CITIES: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Number of New City Job Moves	YEAR OF GRADUATION 1953 N	1953 %	1953 C%	1958 N	1958 M	1958 C%	1962 N	1962 M	1962 C%
6	1	0.1	100.0	0	-	-	0	-	-
5	3	0.3	99.9	0	-	-	0	-	-
4	7	0.7	99.6	5	0.4	100.0	2	0.1	100.0
3	25	2.4	98.9	23	1.7	99.6	12	0.7	99.9
2	71	6.8	96.5	66	4.7	98.0	52	3.1	99.2
1	174	16.8	89.7	219	15.7	93.3	161	9.7	96.0
0	756	72.9	72.9	1080	77.5	77.5	1439	86.4	86.4
Number of Cases	1037			1393			1666		
Mean	0.42			0.32			0.18		
Median	0.0			0.0			0.0		
S. D.	0.83			0.67			0.52		

The mean number of jobs that involved changes in residence to other cities were .42, .32 and .18 for the graduates of 1953, 1958 and 1962 respectively. The median number of such moves for all three year of graduation groups was zero. The data in Table 196 indicate the following: (1) The great majority of vocational graduates find all their jobs in the city where they went to school. Approximately 73, 77 and 86 percent of the 1953, 1958 and 1962 graduates respectively have never moved to another city for employment purposes.

(2) With increased years out of school, the number of such moves reported increases. However, the increase is negatively accelerated. There is no evidence of a relatively high mobility period after so many years out of school.

Less than three percent of the graduates reported that their first full-time job after graduation involved a move to another city. This is understandable in view of the age of high school graduates. Unless they have friends or relatives in other cities with who they can stay, it is very unlikely that they will make such moves at their age. How does this agree with the opinion held by some vocational educators that schools should not necessarily confine their trade training to local employment opportunities, that they should think more broadly in terms of state, regional or even national employment opportunities? The mobility findings offer little support for such views. First, there is very little mobility in the sense that the term is herein used. Second, the evidence indicates that those who have made such moves are no better off in terms of working in the trades studied or highly related trades than those who have made no such moves.

Table 197 provides similar data in terms of the job mobility measure which takes into account both number of moves to other cities and the distances moved.

The mean values of .45, 1.0 and 2.06 for 1962, 1958 and 1953 graduates respectively reflect what was established in Table 196. There is relatively little job mobility, as defined, among vocational graduates. It is a relatively infrequent factor among recent graduates, but does increase with increased years out of school. Even at eleven years out of school, however, the great majority of graduates have yet to make a move to another city to obtain employment.

When the vocational graduates do move to other cities, what distances do they go? Table 198 shows a distribution of distances moved by the three year of graduation groups.

Within each year of graduation group, the majority of the moves has been for distances less than 300 miles. The median distance moved is greater for

Table 197. JOB MOBILITY INDEX: FREQUENCY DISTRIBUTIONS FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Employment Mobility	Year of Graduation 1953 N	%	C%	1958 N	%	C%	1962 N	%	C%	Combined N	%	C%
> 100	2	0.2	100.0	0	0.0	100.0	0	0.0	100.0	2	0.1	100.0
90- 99	0	0.0	99.8	0	0.0	100.0	0	0.0	100.0	0	0.0	99.9
80- 89	1	0.1	99.7	0	0.0	100.0	0	0.0	100.0	1	0.1	99.9
70- 79	2	0.2	99.6	0	0.0	100.0	0	0.0	100.0	2	0.1	99.9
60- 69	5	0.5	99.4	3	0.2	99.8	1	0.0	100.0	9	0.2	99.8
50- 59	3	0.3	98.9	3	0.2	99.8	0	0.0	99.9	6	0.2	99.6
40- 49	2	0.2	98.6	5	0.4	99.6	3	0.1	99.9	10	0.3	99.5
30- 39	8	0.8	98.4	5	0.4	99.2	1	0.1	99.8	14	0.4	99.2
20- 29	18	1.9	97.6	17	1.3	98.8	13	0.8	99.7	48	1.2	98.8
10- 19	34	3.5	95.7	30	2.3	97.5	25	1.6	98.9	89	2.2	97.6
0- 9	884	92.2	92.2	1259	95.2	95.2	1562	97.3	97.3	3717	95.4	95.4
Number	959			1322			1605			3898		
Mean	2.06			1.00			0.45			1.03		
Median	0.0			0.0			0.0			0.0		
S. D.	10.45			5.45			3.22			6.45		

the 1953 graduates than for 1958 and 1962 graduates, indicating older graduates move somewhat greater distances. However, what is impressive is the relatively short distances moved. The implication for vocational education is clear. The labor market for which a school trains persons in the trade is relatively small in terms of geographic area. The great majority never obtain employment outside the city in which they received their high school education. Those that do, do not go great distances from that city.

It should be pointed out that these conclusions are tentative depending upon the results of correcting the sample for the address unknown cases. It is very likely that there is substantially greater mobility, as defined, among

Table 198. DISTANCES MOVED FOR EMPLOYMENT: FREQUENCY DISTRIBUTION FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

Distances Moved For Jobs (miles)	YEAR OF GRADUATION								
	1953			1958			1962		
	N	%	C%	N	%	C%	N	%	C%
> 1200	45	11.4	100.0	34	9.1	100.0	16	6.5	100.0
601 - 1200	32	8.1	88.6	28	7.5	90.9	16	6.5	93.5
301 - 600	55	13.9	80.5	50	13.4	83.4	34	13.8	87.0
151 - 300	74	18.7	66.6	55	14.7	70.0	44	17.9	73.2
51 - 150	96	24.2	47.9	94	25.1	55.3	58	23.6	55.3
< 50	94	23.7	23.7	113	30.2	30.2	78	31.7	31.7
NUMBER MOVES	396	—	—	374	—	—	246	—	—

the address unknown cases. In metropolitan areas, it is quite possible that graduates have moved to other parts of a city without leaving a forwarding address. In some of the smaller towns, however, the inability to locate the graduate through normal postal channels would seem to indicate a move to another city. On the basis of such reasoning, the mobility picture presented can be expected to change with sample correction.

Analysis by Type of School

How do vocational graduates of comprehensive and vocational schools compare in terms of job mobility? Table 199 presents the data.

Within each of the year of graduation groups, the comprehensive school graduates have a slightly higher mean job mobility score than the vocational graduates. The individual differences, however, are neither substantial nor statistically significant. The conclusion is that job mobility is unrelated to the type of high school attended.

Table 199. JOB MOBILITY INDEX: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL VOCATIONAL GRADUATES

Year of Graduation	Type of School	Job Mobility		
		N	M	S.D.
1953	Vocational	600	1.6	9.6
	Comprehensive	359	2.8	11.6
1958	Vocational	773	0.9	5.1
	Comprehensive	555	1.2	5.8
1962	Vocational	958	0.4	3.1
	Comprehensive	647	0.6	3.4
Combined	Vocational	2341	0.8	6.0
	Comprehensive	1558	1.3	7.0

Analysis by School Enrollment

How do graduates of small, medium and large enrollment schools, as defined in this study, compare in terms of the job mobility measure? Table 200 provides the data.

Within and across the year of graduation groups, there is no consistent pattern of the mean mobility scores that suggests job mobility is related to the enrollment of the high school attended. It must be concluded that job mobility and school enrollment are unrelated variables.

Analysis by Race of Graduates

How do white and Negro vocational graduates compare in terms of the job mobility measure? Table 201 provides the data.

Table 200. JOB MOBILITY INDEX: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL VOCATIONAL GRADUATES

Year of Graduation	School Enrollment	Job Mobility		
		N	M	S.D.
1953	< 500	342	2.0	12.0
	500 - 1500	351	2.4	10.3
	> 1500	266	1.7	8.1
1958	< 500	437	1.1	5.4
	500 - 1500	516	1.0	5.5
	> 1500	370	0.9	5.4
1962	< 500	547	0.6	3.9
	500 - 1500	562	0.4	2.4
	> 1500	496	0.4	3.2
Combined	< 500	1328	1.1	7.3
	500 - 1500	1438	1.1	6.3
	> 1500	1133	0.9	5.5

Table 201. JOB MOBILITY INDEX: COMPARISON BY RACE OF VOCATIONAL GRADUATES

Year of Graduation	Race of Graduate	Job Mobility		
		N	M	S.D.
1953	White	914	2.2	10.2
	Negro	35	0.0	0.0
	Other	3	0.0	0.0
1958	White	1217	1.1	5.7
	Negro	77	0.3	1.6
	Other	4	0.0	0.0
1962	White	1443	0.5	3.3
	Negro	119	0.3	3.3
	Other	4	0.0	0.0
Combined	White	3585	1.1	6.7
	Negro	232	0.3	2.5
	Other	11	0.0	0.0

Within each year of graduation group, the white graduates have a greater mean job mobility than the Negro graduates. The mobility difference between the two races increases with increased years out of school. Despite these differences, it cannot be concluded that the Negro has less job mobility, as defined, than the white graduate. The data in Table 201 is based upon those who were locatable and provided a questionnaire. It is known, however, that a substantially greater percentage of the Negro graduates were address unknown cases despite intensified efforts to locate them in the city in which they went to school. Thus, it may well be that, if data were available on the address unknown Negro graduates, the job mobility of the Negro graduates would be greater than that of the whites. The correction of the sample for address unknown and non-respondent cases, discussed in the Appendix, does not resolve the analysis. Correction for race of graduates could not be undertaken because the percentage of white and Negro graduates in the solicited sample of over ten thousand graduates was unknown. Inferences about the relative returns of white and Negro graduates could only be made by comparing the return performance of known all-Negro schools with that of schools known to have all or virtually all white graduates. The schools could not or would not identify graduates in terms of race.

Under the circumstances described, no conclusion can be reached about the relative job mobility of white and Negro graduates on the basis of data herein presented.

Analysis by Type of Graduate

How do academic and vocational course graduates, who have had no college education, compare in terms of the job mobility measure? Table 202 provides the data.

Within each year of graduation group, the academic graduates have a higher mean mobility score than the vocational graduates. Only the difference generated by the 1953 graduates, however, is significant. Thus, although both types of graduates exhibit relatively low job mobility, the academic graduates have

Table 202. JOB MOBILITY INDEX: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES WITH NO COLLEGE EDUCATION

Year of Graduation	Type of Graduate	Job Mobility		
		N	M	S.D.
1953	Vocational	771	1.3	6.7
	Academic	143	5.5	30.0
1958	Vocational	1112	0.9	5.1
	Academic	212	1.6	5.2
1962	Vocational	1449	0.5	3.3
	Academic	209	0.9	4.7
Combined	Vocational	3344	0.8	4.9
	Academic	564	2.1	16.0

somewhat greater job mobility than the vocational graduates. Why this should be so, is a matter for further study. One plausible hypothesis is that the vocational graduates who enter the trade studied or highly related trades are less mobile because of a relatively greater association with labor organizations and the seniority benefits that go with such associations. It should be recalled that vocational graduates had greater employment security as a group than academic graduates. The unemployment stimulus to job mobility would therefore be less.

ORDINAL DAY OF RETURN ANALYSIS

Introduction

Ordinal day of questionnaire return refers to the number of days between the initial contact of the graduate and when a questionnaire was received from him. Thus, it is a measure of the graduates' promptness and cooperation in returning the questionnaire.

The primary purpose of the measure was to determine whether there were relationships between promptness of return and the occupational and non-occupational measures. Such relationships would imply that those who did not return a questionnaire would perform differently on the occupational and non-occupational measures, if one is willing to assume that the non-respondents to the seventh and last contact are on a continuum with the non-respondents to earlier contacts who were prodded into a questionnaire return. It was shown in Chapter 3 that the ordinal day of return measure correlated significantly with only two occupational measures, job relatedness and employment security. One would predict, therefore, that non-respondents would perform differently on these two measures than the respondents. Similarly, one would predict that there would be no difference between respondents and non-respondents converted to respondents by intensified efforts on those measures that are unrelated to ordinal day of return. The outcome has considerable significance for survey methodology where correction for non-respondents must be considered.

Quite apart from such methodological considerations, the measure is of interest as a reflection of possible willingness to cooperate. This section is concerned with the analysis of the ordinal day of return measure in terms of the basic study variables.

Analysis by Year of Graduation

How do the graduates of 1953, 1958 and 1962 compare in terms of the ordinal day of return measure? Table 203 presents the data.

Table 203. ORDINAL DAY OF QUESTIONNAIRE RETURN: FREQUENCY DISTRIBUTION FOR VOCATIONAL GRADUATES BY YEAR OF GRADUATION

	YEAR OF GRADUATION											
Ordinal Day	1953			1958			1962			Combined		
C. I.	N	%	C%	N	%	C%	N	%	C%	N	%	C%
91-100	9	0.8	100.0	14	0.9	100.0	14	6.6	100.0	37	0.7	100.0
81- 90	4	0.4	99.2	7	0.4	99.1	17	0.7	99.4	28	0.6	99.3
71- 80	14	1.2	98.8	28	1.7	98.7	39	1.6	98.7	81	1.6	98.7
61- 70	34	3.0	97.6	88	5.5	97.0	154	6.4	97.1	280	5.4	97.2
51- 60	52	4.7	94.6	58	3.6	91.5	107	4.4	90.7	219	4.3	91.8
41- 50	113	10.1	89.9	175	10.9	87.9	246	10.2	86.3	537	10.4	87.5
31- 40	91	8.1	79.8	133	8.3	77.0	165	6.8	76.1	390	7.5	77.1
21- 30	139	12.4	71.7	154	9.5	68.7	292	12.1	69.3	591	11.4	69.6
11- 20	286	25.5	59.3	363	22.6	59.2	538	22.2	57.2	1188	23.0	58.2
1- 10	379	33.8	33.8	589	36.6	36.6	848	35.0	35.0	1818	35.2	35.2
Number	1121			1609			2420			5169		
Mean	23.44			24.28			24.75			24.37		
Median	15			15			15			15		
S. D.	19.08			20.52			20.66			20.30		

The mean ordinal day of return for 1953, 1958 and 1962 graduates is 23.44, 24.28 and 24.75. The differences are negligible. The promptness of return is apparently unrelated to years since graduation from high school. Graduates of more than ten years ago were just as prompt with their returns as were graduates of two years before the survey was undertaken. In Chapter 2, it was reported that the percentage of questionnaires returned, based on locatable graduates, was 59.7, 65.1 and 71.4 percent for the graduates of 1953, 1958 and 1962 respec-

tively, indicating a decreasing rate of return with increased years out of school. The lack of such a relation with the ordinal day of return measure indicates ordinal day of return and rate of return are unrelated.

Analysis by Type of School

How do the vocational graduates of comprehensive and vocational schools compare in terms of the number of days required to return the questionnaire? Table 204 provides the data.

Table 204. ORDINAL DAY OF QUESTIONNAIRE RETURN: COMPARISON OF VOCATIONAL AND COMPREHENSIVE SCHOOL VOCATIONAL GRADUATES

Year of Graduation	Type of School	Ordinal Day of Return		
		N	M	S.D.
1953	Vocational	687	22.5	18.4
	Comprehensive	434	24.9	20.1
1958	Vocational	912	22.8	19.8
	Comprehensive	698	26.2	21.3
1962	Vocational	1413	23.9	20.5
	Comprehensive	1007	26.0	20.9
Combined	Vocational	3027	23.3	19.8
	Comprehensive	2143	25.9	20.9

Within each year of graduation group, the mean ordinal day of return is slightly less for vocational school than comprehensive school graduates. While not substantial, the consistency of the difference suggests those from vocational schools were quicker to respond with completed questionnaires. Shall this be interpreted as greater willingness to cooperate?

Analysis by School Enrollment

How do the vocational graduates of small, medium and large enrollment schools, as defined in this study, compare in terms of the number of days required to return the questionnaire? Table 205 provides the data.

Table 205. ORDINAL DAY OF QUESTIONNAIRE RETURN: COMPARISON OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOL VOCATIONAL GRADUATES

Year of Graduation	School Enrollment	Ordinal Day of Return		
		N	M	S.D.
1953	< 500	416	22.0	17.7
	500 - 1500	399	23.1	19.8
	> 1500	306	25.9	19.6
1958	< 500	543	21.7	19.1
	500 - 1500	604	25.8	21.2
	> 1500.	463	25.3	20.9
1962	< 500	783	24.3	20.8
	500 - 1500	855	25.1	21.0
	> 1500	782	24.8	20.3
Combined	< 500	1747	22.9	19.6
	500 - 1500	1869	25.0	20.9
	> 1500	1554	25.2	20.4

No consistent trend relating ordinal day of return to school enrollment is revealed in the data. Individual differences between enrollment categories are not significant. The conclusion is that the promptness with which graduates returned questionnaires is unrelated to the enrollment of the school from which they came. If promptness of return is interpreted as an indicator of willingness to cooperate, it must be concluded that such willingness is also unrelated to school enrollment.

Analysis by Race of Graduate

How do white and Negro graduates compare in terms of number of days required to return the questionnaire? Table 206 provides the data.

Table 206. ORDINAL DAY OF QUESTIONNAIRE RETURN: COMPARISON BY RACE OF VOCATIONAL GRADUATES

Year of Graduation	Race of Graduate	Ordinal Day of Return		
		N	M	S.D
1953	White	1067	23.4	19.2
	Negro	42	25.8	17.0
	Other	3	14.0	5.4
1958	White	1456	23.6	20.0
	Negro	110	31.4	24.2
	Other	6	20.8	12.3
1962	White	2159	24.6	20.5
	Negro	186	26.3	22.1
	Other	10	19.8	16.1
Combined	White	4700	24.0	20.1
	Negro	339	27.9	22.4
	Other	19	19.2	13.9

Within each year of graduation group, the mean ordinal day of return for Negro graduates is slightly higher than for white graduates. The difference for the 1958 graduates is about a week. While the differences are not statistically significant, their consistent direction suggest Negro graduates are slightly slower to respond with questionnaires than white graduates.

Analysis by Type of Graduate

How do vocational and academic graduates compare in terms of number of days required to return the questionnaire? Table 207 provides the data.

Table 207. ORDINAL DAY OF QUESTIONNAIRE RETURN: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES

Year of Graduation	Type of Graduate	Ordinal Day of Return		
		N	M	S.D.
1953	Vocational	434	24.9	20.1
	Academic	423	24.5	19.0
1958	Vocational	698	26.2	21.3
	Academic	561	23.8	19.1
1962	Vocational	1007	26.0	20.9
	Academic	793	23.7	19.4
Combined	Vocational	3027	23.3	19.8
	Academic	1777	23.9	19.2

Within each year of graduation group, the academic graduates took slightly less, although not significantly less, time to return their questionnaires. The small differences do not warrant any interpretation about the relative willingness to cooperate between the two types of graduates.

MILITARY SERVICE AMONG GRADUATES

Introduction

The military service data obtained from the graduates was primarily for the purpose of determining their employable time in the period beginning with graduation and ending with June, 1964, the close of the period surveyed. It may be a matter of interest to some to know whether the percentage of graduates who claimed military service is related to the basic study variables.

Analysis by Year of Graduation

Does the percentage of graduates claiming military service differ for the three year of graduation groups? Table 208 provides the data.

Table 208. MILITARY SERVICE CLAIMED: COMPARISON OF VOCATIONAL GRADUATES BY YEAR OF GRADUATION

CLAIMED MILITARY SERVICE							
YEAR OF GRADUATION							
1953		1958		1962		Combined	
N	%	N	%	N	%	N	%
817	70.2	986	59.5	873	35.1	2685	50.4

The percentage of 1953, 1958 and 1962 graduates who reported military service was 70.2, 59.5 and 35.1 respectively. On the assumption that most graduates that enter the services do so within three years after graduation, the data suggest that fewer vocational graduates are entering the services in recent years.

Analysis by Type of School

How do vocational graduates from vocational and comprehensive schools compare in terms of percentage claiming military service? Table 209 provides the data.

Table 209. MILITARY SERVICE CLAIMED: COMPARISON OF VOCATIONAL GRADUATES FROM VOCATIONAL AND COMPREHENSIVE SCHOOLS

CLAIMED MILITARY SERVICE			
TYPE OF SCHOOL			
Vocational		Comprehensive	
N	%	N	%
1605	51.4	1080	49.0

The percentage is 51.4 for vocational school graduates and 49.0 for comprehensive school graduates. The conclusion is there is no difference between the graduates of the two types of schools in terms of military service.

Analysis by Enrollment

How do the graduates of small, medium and large enrollment schools, as defined in this study, compare in percentage claiming military service? Table 210 provides the data.

Table 210. MILITARY SERVICE CLAIMED: COMPARISON OF VOCATIONAL GRADUATES OF SMALL, MEDIUM AND LARGE ENROLLMENT SCHOOLS

CLAIMED MILITARY SERVICE					
SCHOOL ENROLLMENT					
< 500		500 - 1500		> 1500	
N	%	N	%	N	%
966	55.0	967	48.0	752	48.4

There is no consistent trend between school enrollment and percentage of graduates claiming service, although a greater percentage of small enrollment school graduates claim military service. Since the graduates of small enrollment schools had no more difficulty in finding jobs than those of medium or large enrollment schools, (Chapter 5) the greater percentage claiming military service cannot be related to employment difficulties in small enrollment school communities.

Analysis by Race of Graduate

How do white and Negro graduates compare in terms of percentage that claim military service? Table 211 presents the data.

Table 211. MILITARY SERVICE CLAIMED: COMPARISON BY RACE OF GRADUATE

CLAIMED MILITARY SERVICE					
RACE OF GRADUATE					
White		Negro		Other	
N	%	N	%	N	%
2439	50.3	145	42.2	8	42.1

A smaller percentage of Negro graduates claim military service than white graduates. The difference of eight percent is significant. In the absence of study data that might explain the difference, no hypotheses are offered.

Analysis by Type of Graduate

How do academic and vocational course graduates from the <u>same</u> schools compare in terms of percentage claiming military service? Table 212 presents the data.

Table 212. MILITARY SERVICE CLAIMED: COMPARISON OF VOCATIONAL AND ACADEMIC GRADUATES

CLAIMED MILITARY SERVICE			
TYPE OF GRADUATE			
Vocational		Academic	
N	%	N	%
1080	49.0	763	42.9

Forty-nine percent of the vocational graduate from comprehensive schools claim military service versus forty-three percent of the academic graduates. One factor accounting for the difference is deferment of military service for reason of college attendance among the 1962 and 1958 graduates.

13 APPENDIX

A. Schools Surveyed by Study 1

B. Chapter Summaries Continued 5

C. Correction of Study Sample 15

SCHOOLS SURVEYED BY STUDY*

I. NORTHEAST

1. Westbrook High School
   Westbrook, Maine
2. J. M. Wright Reg. Vo-Tech School
   Stamford, Connecticut
3. Oliver Wolcott Reg. Vo-Tech School
   Torrington, Connecticut
4. Diman Vocational High School
   Fall River, Massachusetts
5. Haverhill Trade High School
   Haverhill, Massachusetts
6. Quincy Trade High School
   Quincy, Massachusetts
7. Boston Trade High School
   Roxbury, Massachusetts
8. Cole Trade High School
   Southbridge, Massachusetts
9. Waltham Vocational High School
   Waltham, Massachusetts
10. Pawtucket Vocational High School
    Pawtucket, Rhode Island
11. St. Johnsbury Trade School
    St. Johnsbury, Vermont

II. MIDEAST

12. William Jason Comprehensive High School
    Georgetown, Delaware
13. Bladensburg Senior High School
    Bladensburg, Maryland
14. Fairmont Heights Senior High School
    Fairmont Heights, Maryland
15. Philip Schuyler High School
    Albany, New York
16. Sewanhaka High School
    Floral Park, New York
17. Linton High School
    Schenectady, New York
18. Abington Senior High School
    Abington, Pennsylvania
19. Eddystone Senior High School
    Eddystone, Pennsylvania
20. Central Dauphin High School
    Harrisburg, Pennsylvania
21. Hazleton Senior High School
    Hazleton, Pennsylvania
22. Greater Johnstown Joint High School
    Johnstown, Pennsylvania
23. Tyrone Junior-Senior High School
    Tyrone, Pennsylvania
24. William Penn Senior High School
    York, Pennsylvania
25. Chamberlain Vocational High School
    Washington, D. C.

*The numbers of the schools correspond with the school numbers in Table 9, Chapter 1, which indicates by year of graduation the number of graduates selected from each school.

26. Camden County Vo-Tech High School
Merchantville, New Jersey

27. Middlesex County Vo-Tech High School
New Brunswick, New Jersey

28. Hutchison-Central Technical High School
Buffalo, New York

29. McKinley Vocational School
Buffalo, New York

30. Saunders Trade and Technical School
Yonkers, New York

31. William E. Grady Vo-Tech High School
Brooklyn, New York

32. Mount Vernon High School
Mount Vernon, New York

33. Erie Technical Memorial High School
Erie, Pennsylvania

34. Connelley Vocational High School
Pittsburgh, Pennsylvania

35. Williamsport Technical Institute
Williamsport, Pennsylvania

III. GREAT LAKES

36. Mount Vernon Township High School
Mount Vernon, Illinois

37. Alton Senior High School
Alton, Illinois

38. North High School
Evansville, Indiana

39. Eastern High School
Lansing, Michigan

40. Central High School
Pontiac, Michigan

41. Patterson Cooperative High School
Dayton, Ohio

42. Lima Senior High School
Lima, Ohio

43. Norwood High School
Norwood, Ohio

44. Dunbar Vocational High School
Chicago, Illinois

45. Chicago Vocational High School
Chicago, Illinois

46. Gerstmeyer Technical High School
Terre Haute, Indiana

47. Washington Trade School
Detroit, Michigan

48. Anderson High School
Anderson, Indiana

49. Max S. Hayes Trade School
Cleveland, Ohio

50. Macomber Vocational High School
Toledo, Ohio

IV. PLAINS

51. Davenport Central High School
Davenport, Iowa

52. Des Moines Technical High School
Des Monies, Iowa

53. Poplar Bluff Senior High School
Poplar Bluff, Missouri

54. Topeka Trade School
Topeka, Kansas

55. Minneapolis Area Vo-Tech School
Minneapolis, Minnesota

56. O'Fallon Technical School
St. Louis, Missouri

57. Springfield Vo-Tech Industrial
Springfield, Missouri

V. SOUTHEAST

58. Anniston High School
Anniston, Alabama

59. Murphy High School
Mobile, Alabama

60. Hot Springs High School
Hot Springs, Arkansas

61. Northwestern Senior High School
Miami, Florida

62. Dixie Hollins Comprehensive High School
St. Petersburg, Florida

63. Pascagoula High School
Pascagoula, Mississippi

64. Hillside High School
Durham, North Carolina

65. New Hanover High School
Wilmington, North Carolina

66. T. L. Hanna High School
Anderson, South Carolina

67. Wilson High School
Florence, South Carolina

68. Howard High School
Chattanooga, Tennessee

69. Fulton High School
Knoxville, Tennessee

70. Memphis Technical School
Memphis, Tennessee

71. Maggie Walker High School
Richmond, Virginia

72. Jefferson High School
Roanoke, Virginia

73. Jefferson County Vocational School
Tarrant, Alabama

74. Orange County Vocational School
Orlando, Florida

75. Lively Technical School
Tallahassee, Florida

76. George W. Carver Vocational School
Atlanta, Georgia

77. Jordan Vocational High School
Columbus, Georgia

78. Theodore Ahrens Trade School
Louisville, Kentucky

79. Owensboro Area Vo-Tech School
Owensboro, Kentucky

80. Baton Rouge Vo-Tech School
Baton Rouge, Louisiana

81. Sullivan Memorial Trade School
Bogalusa, Louisiana

82. Gastonia Industrial Education Center
Gastonia, North Carolina

83. Murray Vocational School
Charleston, South Carolina

84. Virginia Mechanics Institute
Richmond, Virginia

85. Wyoming County Vo-Tech School
Pineville, West Virginia

86. McDowell Vocational School
Welch, West Virginia

VI. SOUTHWEST

87. Tucson High School
Tucson, Arizona

88. Jay High School
Jay, Oklahoma

89. Capitol Hill High School
Oklahoma City, Oklahoma

90. Duncan Senior High School
Duncan, Oklahoma

91. Brownsville High School
Brownsville, Texas

92. Denison High School
Denison, Texas

93. John Tyler High School
Tyler, Texas

94. El Paso Technical High School
El Paso, Texas

VII. ROCKY MOUNTAINS

95. William J. Palmer High School
Colorado Springs, Colorado

VIII. PACIFIC

96. Las Vegas High School
Las Vegas, Nevada

97. Benson Polytechnic High School
Portland, Oregon

98. Fremont High School
Los Angeles, California

99. John A. O'Connell Vocational High School
San Francisco, California

100. Pacific High School
San Bernardino, California

CHAPTER SUMMARIES (continued)

CHAPTER 2 SUMMARY

Procedure for Sample Correction

10. Logic of sample correction. The necessity for considering sample correction was recognized, and the general logic of such correction was described.

11. Sample correction for non-respondents. A five per cent corrective sample of vocational (N = 136) and academic non-respondents (N = 37) was selected for intensive follow-up. The returns were respectively 66 per cent (N = 90) and 65 per cent (N = 24). Consult text for correction procedure.

12. Sample correction for address unknowns. A five per cent corrective sample of vocational (N = 132) and academic (N = 48) address unknowns was selected for intensive search. The returns were respectively 51 per cent (N = 68) and 46 per cent (N = 22). Consult text for correction procedure.

CHAPTER 3 SUMMARY

Derived Measure Intercorrelations

9. Occupational measures. Of the 45 potential interrelationships between the occupational measures, 16 were established by the standard of interpretation adopted. Consult the text for details of the intercorrelational analysis.

10. Non-occupational measures. Of the 28 potential relationships between the non-occupational measures, 7 were established by the standard of interpretation adopted. Consult the text for details of the intercorrelational analysis.

11. Occupational-non-occupational measures. Of the 80 potential relationships between occupational and non-occupational measures, 17 were established by the standard of interpretation adopted. Consult the text for details of the intercorrelational analysis.

CHAPTER 5 SUMMARY

Reasons for Not Getting Job in Trade Studied

12. Year of graduation. In order of frequency, the reasons given for not getting jobs in same or highly related trades were: (1) no jobs available, (2) liked other work more, (3) not accepted as apprentice, and (4) insufficient pay.

13. Type of school. No significant differences in reasons given for not getting job in trade studied between graduates of vocational and comprehensive schools.

14. Enrollment of school. Reasons given for not getting job in trade vary with school enrollment; e.g., smaller percentage of large enrollment school graduates give the reason "no job available."

15. Race of graduate. A substantially larger percentage of Negro than white graduates reported that no job was available in the trade studied. Also, Negroes reported that they were not accepted into an apprenticeship program.

Opinion of How Well Prepared for the Trade

16. Year of graduation. Graduates of all class years who went into the trades studied or highly related trades reported they were well prepared by their high school training.

17. Type of school. Comprehensive and vocational school graduates had an equally high opinion of how well they were prepared for the trade.

18. Enrollment of school. Small, medium, and large enrollment schools had an equally high opinion of how well they were prepared for the trade.

19. Race of graduate. The analysis was omitted because too few Negroes reported they obtained their first job in the trade studied or allied trade.

Methods Used to Get First Job

20. Year of graduation. The rank order of the top six acknowledged sources of help in finding the first job was: (1) friend or relative (38%), (2) school teacher (18%), (3) school placement service (10%), (4) school coop programs (9%), (5) answering want ads (7%), and (6) school counselor (5%).

21. Type of school. Vocational school graduates acknowledge help in finding the first job to school sources more frequently than comprehensive school graduates.

22. Enrollment of school. The size of school enrollment is, with one exception, unrelated to the frequency with which different sources of job placement are acknowledged.

23. Race of graduate. Negro graduates report less job placement help from school sources than do white graduates. They rely more on the help of friends and relatives.

24. Type of graduate. Academic graduates receive much less help from school sources in finding a first job than vocational graduates.

CHAPTER 6 SUMMARY

A General Conclusion

7. Changes in shop equipment, methods, and materials. The data raise a question about a massive effort to re-equip vocational shops on the grounds that graduates are seriously handicapped because of obsolete equipment, unrealistic work methods, and substitute materials.

CHAPTER 7 SUMMARY

Where Most Was Learned About Skills

8. Year of graduation. The percentage of graduates who report that on-the-job was the source of learning most about trade skills increases with increased years out of school, as should be the case. Some skills are mostly acquired in school; e.g., mathematical skills, manual job skills, theoretical job knowledge, communication skills, and reading and interpretive skills. Other skills are mostly acquired on-the-job; e.g., practical job knowledge, clerical skills, personal relation skills, and supervisory skills.

9. Type of school. In general, a greater percentage of vocational school graduates claim they learned most of the basic skills in high school than academic school graduates.

10. School enrollment. A greater percentage of the vocational graduates from small enrollment schools than of those from medium and large enrollment

schools claimed they learned most of their trade skills in school. This suggests more trade skills are learned in small enrollment schools.

Need for More Basic Skill Training

11. Year of graduation. The percentage of graduates claiming need for additional training reflects both type of skill and years out of school. The need for additional training is greatest in supervisory skills, mathematical skills, and reading-interpretive skills. The data indicate a substantial percentage claimed need for more training in all basic skill areas.

12. Type of school. There are no substantial differences between graduates of vocational and comprehensive schools in terms of expressed need for additional training in the basic skill areas.

13. School enrollment. There is a consistent pattern which suggests that graduates from medium enrollment schools feel less need for additional skill training than those from small and large enrollment schools.

14. Training needs by trade. An analysis of training needs by trade makes clear that training needs vary by trade. For example, 77 per cent of machinists report the need for additional training in mathematics; whereas, only 25 per cent of the welders report such a need. The data indicate why one can't make blanket statements about the training needs of all T&I vocational graduates.

CHAPTER 9 SUMMARY

Analysis of Number of Jobs Held

11. Year of graduation. The mean number of full-time jobs held by 1953, 1958, and 1962 graduates respectively is 3.08, 2.48, and 1.96. Vocational graduates do not do much moving from employer to employer.

12. Type of school. There is no significant difference in mean number of jobs held between vocational and comprehensive school graduates.

13. School enrollment. There is no significant difference in mean number of jobs held between graduates of small, medium, and large enrollment schools.

14. Race of graduates. There is no significant difference in mean number of jobs held between Negro and white vocational graduates.

15. Academic graduates. There is no significant difference in number of full-time jobs held between academic and vocational graduates.

Analysis of Job Satisfaction

16. Year of graduation. Job satisfaction is expressed as the mean satisfaction rating given by the graduates to all full-time jobs held. The job satisfaction of 1953, 1958, and 1962 graduates was not significantly different. Mean job satisfaction scores indicate vocational graduates, as a group, are well satisfied with the jobs they hold.

17. Type of school. There is no significant difference in job satisfaction between graduates of vocational and comprehensive schools.

18. School enrollment. There is no significant difference in job satisfaction reported by graduates of small, medium, and large enrollment schools.

19. Race of graduates. Negro vocational graduates report less job satisfaction than white vocational graduates.

20. Academic graduates. There is no significant difference in reported job satisfaction between academic and vocational course graduates.

Analysis of Job Relatedness

21. Year of graduation. Job relatedness is expressed as the mean of the ratings given by graduates to each full-time job held for its relatedness to the trade studied in high school. There is no significant difference in the mean job relatedness reported by graduates of 1953, 1958, and 1962. The job relatedness means indicate that the average job held is only "slightly related" to the trade studied in high school.

22. Type of school. Vocational school graduates have a slightly higher mean job relatedness score than comprehensive school graduates. They are more likely to work in jobs related to the trade studied in high school.

23. School enrollment. There is no substantial difference in mean job relatedness scores for graduates of small, medium, and large enrollment schools.

24. Race of graduates. Negro graduates have a significantly lower mean job relatedness score than white vocational graduates.

Analysis of Initial Earnings

25. Year of graduation. For graduates of 1953, 1958, and 1962 respectively, the mean first-job starting hourly rates were 1.38, 1.50, and 1.47 dollars.

26. Type of school. Vocational school graduates had slightly higher starting hourly rates on their first full-time jobs than comprehensive school vocational graduates.

27. School enrollment. There is no significant difference in first-job starting hourly wages between graduates from small, medium, and large enrollment schools.

28. Race of graduates. There is no significant difference in first job starting hourly wages between Negro and white graduates.

29. Academic graduates. When graduates without college education are compared, there is no significant difference in first-job starting hourly earnings between academic and vocational graduates.

Analysis of Present Earnings

30. Year of graduation. For graduates of 1953, 1958, and 1962 respectively, the mean present (June, 1964) hourly earnings are 3.08, 2.49, and 2.01 dollars. Those working in the trades studied in high school tend to earn more than those in wholly different trades.

31. Type of school. There is no significant difference in present earnings between graduates from vocational and comprehensive schools.

32. School enrollment. Mean present hourly earnings reported by graduates is related to former school enrollment; i.e., the greater the school enrollment of the former school, the greater present earnings. Alternative interpretations are given.

33. Race of graduate. The present earnings of Negro vocational graduates are substantially less than those of white vocational graduates.

34. Academic graduates. When graduates with no college education are compared, the vocational graduates have higher present earnings after two and six years out of school than do the academic graduates, but the latter catch up in earnings after eleven years out of school.

CHAPTER 10 SUMMARY

Accumulated College Education (continued)

9. Race of graduates. Negro vocational graduates who attended college accumulated more class hours of college education than white vocational graduates.

10. Academic versus vocational graduates. Academic graduates who attended college accumulated substantially more class hours of college education than vocational graduates.

Accumulated Non-College Education

11. Year of graduation. The three classes of graduates cannot be compared in terms of accumulated class hours of non-college education because of unequal time opportunity. The greatest amount of class hours are accumulated in private trade-technical schools.

12. Type of school. Vocational graduates of comprehensive schools accumulate more class hours of non-college education than the graduates of vocational schools.

13. School enrollment. There is no significant difference between graduates of small, medium, and large enrollment schools in terms of mean accumulated hours of non-college, post-high school education.

14. Race of graduates. Negro graduates who attended non-college sources of post-high school education accumulated fewer class hours of such education than white vocational graduates.

15. Academic versus vocational graduates. Of those who reported post-high school, non-college level education, there is no significant difference between academic and vocational graduates, in terms of class hours of such education accumulated.

CHAPTER 11 SUMMARY

The Graduate's Leisure Activities (continued)

9. Type of school. There is no difference in the range of leisure activities or the type of leisure activities engaged in by graduates of comprehensive and vocational schools.

10. School enrollment. There is no difference in range or type of leisure activities engaged in by graduates from small, medium, and large enrollment schools.

11. Race of graduate. Negro graduates report a broader range of leisure activities than white graduates. There are also differences in the emphasis placed on individual activities.

12. Academic versus vocational graduate. A comparison of the two types of graduates who had no college indicates no difference in range of leisure activities. There is also little difference in individual types of leisure activities between the two types of graduates.

The Graduate's Organization Affiliation

13. Year of graduation. There is a slight increase in organization affiliation with increased years out of school. The graduates are overwhelmingly non-members and inactive members. Most active affiliation is with religious, labor, and athletic organizations. Least active affiliation is with cultural, civic, and community-service organizations.

14. Type of school. There is no difference in degree of organization affiliation between vocational graduates of comprehensive and vocational schools.

15. School enrollment. There is no difference in degree of organization affiliation between graduates of small, medium, and large enrollment schools.

16. Race of graduate. Negro graduates have a slightly greater degree of organization affiliation than white graduates. The difference is not substantial.

17. Academic versus vocational graduates. A comparison of the two types of graduates who have had no college education reveals no significant difference in degree of organization affiliation. Affiliation with individual organizations also fails to be significantly different.

Over-All Conclusion

18. Academic versus vocational graduates. When education of the whole person is defined in terms of conversational interests, leisure activities, and affiliation with community organizations, there is no evidence that suggests vocational graduates have been less wholly educated than academic graduates.

CHAPTER 12 SUMMARY

Military Service Among Graduates

12. Year of graduation. The percentage of 1953, 1958, and 1962 vocational graduates who reported military service is 70, 59, and 31 per cent respectively.

13. Type of school. There is no significant difference between graduates of vocational and comprehensive schools in terms of percentage reporting military service.

14. School enrollment. A slightly greater percentage of small enrollment school graduates reported military service than those from medium and large enrollment schools.

15. Race of graduate. Eight per cent fewer Negro graduates reported military service than white graduates. No data are available on the number of either race rejected from military service.

CORRECTIVE STUDY SAMPLE

Introduction

Of the 10,798 vocational graduates that constituted the survey sample, 50.5 percent (5434) returned questionnaires, 24.5 percent (2632) could not be located through the mails, and 25.0 percent (2732) were assumed to be unwilling to respond because mailings were accepted, but questionnaires were not forthcoming. These facts made it necessary to adopt a procedure for correcting the sample returns for address unknown cases and for non-respondent cases. Accordingly, two correction samples of address unknown cases and non-respondent cases were obtained for the purpose of correcting bias in the original, uncorrected sample. The details of how these cases were obtained through intensified search and persuasion, and the results of such efforts, are described in Chapter 2.

Correction Strategy

Sample correction was considered for each of the occupational measures, e.g. employment security, job stability, general placement, related placement, etc., and for the non-occupational measures, e.g. conversational interests, leisure activities, organizational affiliation, and others.

For each year of graduation, the above measures were calculated for the (1) address unknown correction sample usable returns, (2) non-respondent correction sample usuable returns, and (3) the combined address unknown—non-respondent correction samples. In addition, the measure values were already available from the uncorrected sample.

The strategy for determining whether the original sample values required correction was to test the differences between original (uncorrected) sample means and their corresponding three correction sample means. This was done by means of the t test for significance of differences between means. The

absence of significant differences at the five percent or greater level of confidence was the basis for deciding that correction of the original sample means was not required. The absence of such significant differences meant one could not with confidence reject the hypothesis that both uncorrected and correction sample means were random samples from the same population, and that the differences were attributable to sampling error. Where significant differences were revealed by the *t* test, the original sample means were corrected for the implied bias by the procedure described in the next section.

Correction Procedure[1]

Where *t* test results indicated the need for correction, the correction of original sample values was applied by the following equation:

$$X_c = \frac{N_0 X_0 + \frac{n_2}{.05p_2} X_{AU} + \frac{n_3}{.05p_3} X_{NR}}{N_t}$$

Where:

X_c = Corrected mean

N_o = Number of cases in original, uncorrected sample

X_o = Mean obtained from original, uncorrected sample

N_2 = Number of usable address unknown correction sample returns

.05 = 5% address unknown correction sample; also 5% non-respondent correction sample

p_2 = Proportion of address unknown 5% correction sample for which a return was secured

X_{AU} = Mean obtained from address unknowns correction sample

[1]The rationale for correction of the original sample was provided by Marion F. Shaycoft of Project Talent, a study conducted by the University of Pittsburgh and the American Institutes for Research.

N_3 = Number of usable non-respondent correction sample returns

P_3 = Proportion of non-respondent 5% correction sample for which a return was secured

X_{NR} = Mean obtained from non-respondents correction sample

N_t = Total number of cases

It should be pointed out that the usuable correction sample returns were somewhat less than the actual returns reported in Chapter 2. Questionnaires with substantial omissions or information that suggested the respondent was not taking the questionnaire seriously were not processed.

The logic of the correction procedure implied by the above procedure is to weight the address unknown and non-respondent correction sample values in proportion to the total number of such cases and the magnitude of the returns involved in the two types of correction sample. The corrected value is then an estimate of what the value would have been had all cases surveyed responded.

OCCUPATIONAL MEASURES

Employment Security

The employment security measure indicates the percentage of employable time between graduation and June, 1964 that was spent in full-time employment. Table A-1 below provides the mean employment security values obtained for the correction sample as a whole, and for the address unknown and non-respondent sub-groups. The uncorrected sample means, reported in Chapter 9, are also shown. The employment security means obtained from the five percent correction sample are slightly greater than the equivalent means obtained from the 51 percent uncorrected sample. The lower section of the table provides the *t* values obtained from testing for significance of difference between:

1. Uncorrected sample and correction sample (*t* 1-2)
2. Uncorrected sample and address unknown sample (*t* 1-3)
3. Uncorrected sample and non-respondent sample (*t* 1-4)
4. Address unknown sample and non-respondent sample (*t* 3-4)

Table A-1. EMPLOYMENT SECURITY: UNCORRECTED, CORRECTION AND CORRECTED DATA: ALSO *t* TEST RESULTS

EMPLOYMENT SECURITY	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1026	92.07	15.64	1421	87.10	20.21	1701	84.00	23.18
2. Combined correction sample	33	94.49	13.27	54	90.32	16.22	35	90.26	14.93
3. Add. unkn. correction sample	24	94.79	11.82	26	87.54	19.58	10	84.50	17.34
4. Non-resp. correction sample	13	94.00	16.45	28	92.89	11.18	25	92.56	12.34
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.72			1.06			1.88	
t 1-3		.66			.26			.27	
t 1-4		.33			.46			1.34	
t 3-4		.3			.22			1.44	

None of the mean employment security differences tested proved to be significant. The conclusion is that it is not necessary to correct the original uncorrected sample.

Employment Stability

The employment stability measure describes the average number of months per full-time job held with a given employer. Table A-2 compares the mean employment stability values obtained from the main uncorrected sample with the equivalent values obtained from the total correction sample and the address unknown and the non-respondent correction samples. The employment

Table A-2. EMPLOYMENT STABILITY: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

JOB STABILITY	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1038	46.52	34.93	1416	26.12	19.10	1685	12.57	7.45
2. Combined correction sample	39	48.36	34.62	54	24.26	18.54	35	14.77	7.06
3. Add. unkn. correction sample	24	49.17	33.70	26	23.73	18.91	10	11.30	7.95
4. Non-resp. correction sample	15	47.07	36.01	28	24.75	18.16	25	16.16	6.14
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.32			.70			1.73	
t 1-3		.37			.63			.54	
t 1-4		.06			.38			2.40*	
t 3-4		.18			.20			1.88	

* Significant at 5 percent level of confidence.

stability means obtained from the correction sample are slightly higher than those obtained from the uncorrected sample. The *t* test results, however, indicate that differences in mean values failed, with one exception, to attain

significance at the five percent or better level of confidence. The exception was the mean employment stability of the 1962 uncorrected sample compared with the 1962 non-respondent correction sample. The overall lack of significant differences between the uncorrected and correction sample means justify, in our opinion, the conclusion that no correction is required for the original sample.

Number of Jobs Held

The number of full-time jobs held with different employers since graduation from high school was considered another reflection of employment stability. The original, uncorrected sample indicated that vocational course graduates did not do much jumping from employer to employer. Table A-3 compares the mean number of jobs held values obtained from the uncorrected sample with those obtained from the correction sample as a whole, and those obtained from the address unknown and non-respondent correction sample sub-groups.

Table A-3. NUMBER OF JOBS HELD: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

NUMBER OF JOBS HELD	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1114	3.08	1.84	1491	2.48	1.50	1764	1.96	1.14
2. Combined correction sample	44	2.91	1.55	57	2.58	1.77	35	1.74	0.90
3. Add. unkn. correction sample	25	2.84	1.46	26	2.23	1.89	10	2.10	1.14
4. Non-resp. correction sample	19	3.00	1.65	31	2.87	1.60	25	1.60	0.75
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.60			.49			1.13	
t 1-3		.65			.84			.39	
t 1-4		.19			1.43			1.57	
t 3-4		.33			1.36			1.48	

The *t* test results lead to the conclusion that correction of the original sample is unnecessary. The correction sample means, without exception, fail to attain a significance of difference at the five percent or better level of confidence. Accordingly, no correction of the original sample was undertaken.

General Placement

This measure provides the mean time in months required by graduates to obtain their first full-time job after graduation. The measure is a reflection, in part, of school efforts to place graduates.

Table A-4 compares the mean months required to get the first full-time job obtained from the original, uncorrected sample with comparable values obtained from the address unknown, the non-respondent, and the combined address unknown—non-respondent correction sample. The *t* test results indicate that

Table A-4. GENERAL PLACEMENT: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

GENERAL PLACEMENT	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	946	1.26	2.63	1193	2.29	4.02	1807	1.70	2.77
2. Combined correction sample	37	0.71	1.21	46	1.94	3.24	33	1.54	2.70
3. Add. unkn. correction sample	22	0.73	1.25	19	1.68	2.37	8	1.20	1.47
4. Non-resp. correction sample	15	0.67	1.15	27	2.12	3.72	25	1.64	2.98
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		1.27			.58			.33	
t 1-3		.94			.66			.51	
t 1-4		.87			.22			.11	
t 3-4		.14			.44			.39	

the address unknown and non-respondent correction sample means are not significantly different. Moreover, when the sub-samples are combined into a single correction sample, the resulting means are not significantly different from the original, uncorrected sample means. None of the *t* values are signif-

icant at the five percent or better level of confidence. The conclusion is that the original sample means for this measure do not require correction for address unknown and non-respondent cases.

Related Placement

The related placement measure is a composite of months required to obtain the first full-time job after graduation and how related that job was to the trade studied in high school. Consult Chapter 3 for the equation used to calculate the measure.

Table A-5 compares the mean related placement values obtained from the original, uncorrected sample with comparable values obtained from the address unknown, the non-respondent, and the combined address unknown—non-respondent correction sample. The t test results, reported in the lower half of the table, reveal no significant difference between address unknown and non-respondent correction sample means. Moreover, there are no significant differences between original sample means and correction sample means for the 1953 and 1958 graduates. However, the 1962 graduates reveal a different picture. The original sample mean of 42.2 is significantly greater than the correction sample mean of 35.8. The t value of 3.04 is significant at better than the 1 percent level of confidence. Accordingly, the related placement mean obtained for 1962 graduates

Table A-5. RELATED PLACEMENT: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO t TEST RESULTS

RELATED PLACEMENT	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	915	47.43	32.30	1126	37.75	29.81	1672	42.22	30.68
2. Combined correction sample	37	49.14	29.76	46	34.20	27.42	33	25.91	17.51
3. Add. unkn. correction sample	22	47.54	28.74	19	40.37	30.11	8	25.50	19.77
4. Non-resp. correction sample	15	51.47	31.03	27	29.85	24.43	25	26.04	16.73
5. Corrected sample		NC			NC		4199	35.78	-
SIGNIFICANCE TESTS									
t 1-2		.32			.79			3.04**	
t 1-3		.02			.38			1.54	
t 1-4		.48			1.36			2.63**	
t 3-4		.38			1.28			.07	

** Significant at 1 percent or better level of confidence.

was corrected by the procedure explained earlier in this section of the Appendix. The corrected sample mean is shown on line five of the table. It indicates a lower related placement performance than was originally thought to be the case.

Table A-6 provides the percentages of graduates placed into the same trade studied, highly related trades, slightly related trades and completely unrelated trades for (1) the original uncorrected sample, (2) the combined address unknown—non-respondent correction sample, and (3) the corrected sample. For all graduates, the corrected sample percentage placed in the same trade is 25.0 percent, whereas, the percentage placed in a completely unrelated trade is 41.3 percent.

Table A-6. UNCORRECTED, CORRECTION AND CORRECTED SAMPLE DATA ON PERCENTAGE OF GRADUATES PLACED INTO EACH OF FOUR CATEGORIES OF RELATIONSHIP BETWEEN FIRST JOB HELD AND TRADE STUDIED IN HIGH SCHOOL

FIRST JOB HELD	NATURE OF SAMPLE FROM WHICH PERCENTAGE VALUES WERE OBTAINED	YEAR OF GRADUATION							
		1953		1958		1962		Combined	
		N	%	N	%	N	%	N	%
SAME TRADE	1. Uncorrected sample	301	32.6	313	27.6	498	29.6	1118	29.8
	2. Total correction sample	11	25.0	15	26.3	1	2.8	27	19.8
	3. Non-resp. corr. sample	4	21.0	7	23.3	1	4.0	12	16.2
	4. Add. unkn. corr. sample	7	28.0	8	29.6	0	0.0	15	24.2
	5. Corrected sample	-	-	-	-	-	-	2699	25.0
HIGHLY RELATED TRADE	1. Uncorrected sample	168	18.2	189	16.6	333	19.8	691	18.4
	2. Total correction sample	11	25.0	5	8.8	6	17.1	22	16.2
	3. Non-resp. corr. sample	7	36.8	1	3.3	3	12.0	11	14.9
	4. Add. unkn. corr. sample	4	16.0	4	14.8	3	30.0	11	17.7
	5. Corrected sample	-	-	-	-	-	-	1868	17.3
SLIGHTLY RELATED TRADE	1. Uncorrected sample	150	16.3	164	14.4	229	13.6	544	14.5
	2. Total correction sample	7	15.9	10	17.5	8	22.8	25	18.4
	3. Non-resp. corr. sample	2	10.5	5	16.7	7	28.0	14	18.9
	4. Add. unkn. corr. sample	5	20.0	5	18.5	1	10.0	11	17.7
	5. Corrected sample	-	-	-	-	-	-	1771	16.4
COMPLETELY UNRELATED TRADE	1. Uncorrected sample	303	32.9	470	41.4	625	37.1	1402	37.3
	2. Total correction sample	15	34.1	27	47.4	20	57.1	62	45.6
	3. Non-resp. corr. sample	6	31.6	17	56.7	14	56.0	37	50.0
	4. Add. unkn. corr. sample	9	36.0	10	37.0	6	60.0	25	40.3
	5. Corrected sample	-	-	-	-	-	-	4460	41.3

The importance of the concept of related placement for vocational educational evaluation should give pause in unqualified acceptance of the correction. It must be pointed out that the correction sample is only 3 percent of the original, uncorrected sample. One can question the adequacy of the correction sample from the standpoint of the small numbers involved. In any event, it is reasonable to conclude that between 25 and 29.8 percent of the graduates are placed in the same trade studied in high school, between 17.3 and 18.4 percent of the graduates are placed in highly related trades, between 14.5 and 16.4 percent are placed into slightly related trades, and between 37.3 and 41.3 percent are placed into completely unrelated trades.

Job Relatedness

The measure is the mean of the relatedness ratings given to each job held. Jobs were rated 4 if they were in the same trade as the one studied in high school, 3 if in a highly related trade, 2 if in a slightly related trade or occupation, and 1 if in a completely unrelated trade or occupation.

Table A-7 compares the mean relatedness values obtained from the original, uncorrected sample with those obtained from the address unknown, the

Table A-7. JOB RELATEDNESS: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

JOB RELATEDNESS	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1106	2.26	1.01	1473	2.20	1.05	1736	2.33	1.11
2. Combined correction sample	44	2.21	0.91	56	2.06	1.01	35	1.71	0.85
3. Add. unkn. correction sample	25	2.20	0.92	26	2.22	1.07	10	2.05	0.88
4. Non-resp. correction sample	19	2.21	0.89	30	1.92	0.95	25	1.58	0.80
5. Corrected sample		NC			NC		4199	2.11	-
SIGNIFICANCE TESTS									
t 1-2		.32			.98			3.28**	
t 1-3		.29			.10			.80	
t 1-4		.21			1.45			3.36**	
t 3-4		.04			1.09			1.48	

** Significant at 1 percent or better level of confidence.

non-respondent, and the combined address unknown—non-respondent correction samples. The *t* test results, reported in the lower half of the table, reveal no significant difference between address unknown and non-respondent correction sample means. However, consistent with the findings on related placement, there is a significant difference between the 1962 uncorrected sample mean and the 1962 correction sample mean. Accordingly, the corrected sample mean is reported in line 5 of the table. The downward correction of this measure is not substantial, and applies only for the 1962 graduates.

Job Satisfaction

The job satisfaction measure is the mean of satisfaction ratings made by vocational graduates for each full-time job held. The original, uncorrected sample indicated a relatively high degree of rated job satisfaction. The mean ratings obtained from the correction sample indicate no need to change the conclusions about this measure that were drawn from the original, uncorrected sample. Table A-8 compares the mean job satisfaction ratings obtained from the original sample with those obtained from the address unknown and non-respondent correction samples, separately and combined into a single correction sample. With one exception, none of the sixteen *t*

Table A-8. JOB SATISFACTION: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

JOB SATISFACTION	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1107	3.19	0.61	1473	3.13	0.66	1743	3.06	0.74
2. Combined correction sample	44	3.20	0.57	56	3.12	0.80	34	3.16	0.54
3. Add. unkn. correction sample	25	3.04	0.55	26	3.30	0.78	9	2.92	0.29
4. Non-resp. correction sample	19	3.42	0.53	30	2.97	0.78	25	3.24	0.59
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.11			.11			.78	
t 1-3		1.22			1.30			.57	
t 1-4		1.63			1.31			1.21	
t 3-4		2.25*			1.55			1.51	

* Significant at 5 percent level of confidence.

test results proved to be significant at or beyond the five percent level of confidence. Accordingly, no correction of the original sample means was undertaken for this measure.

Number of Moves to Other Cities

This measure indicates the mean number of moves to new cities made by vocational graduates to either obtain employment or to improve their employment status. The uncorrected sample findings indicated that such moves were extremely infrequent. The great majority of graduates do not move to other cities to improve their employment status. This conclusion, however, was on weak grounds as long as one did not have comparable data on the address unknown cases which constituted 24.5 percent of the total sample and the non-respondents cases which constituted 25 percent of the sample. Table A-9 compares the mean number of new city moves reported by vocational graduates in the original, uncorrected sample with comparable means obtained from the address unknown, the non-respondent and the combined address unknown—non-respondent correction sample. Of the sixteen mean difference comparison, none produced *t* values that were significant at the five percent or better level of confidence.

Table A-9. NUMBER OF MOVES TO OTHER CITIES: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

NUMBER OF MOVES TO OTHER CITIES	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1037	.424	.833	1394	.316	.673	1666	.185	.521
2. Combined correction sample	42	.310	.597	56	.288	.822	34	.147	.429
3. Add. unkn. correction sample	24	.292	.611	25	.125	.590	10	.200	.400
4. Non-resp. correction sample	18	.333	.577	31	.419	1.009	24	.125	.439
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.88			.30			.42	
t 1-3		.77			1.41			.09	
t 1-4		.46			.83			.56	
t 3-4		.22			1.27			.45	

Accordingly, it was concluded that the mean values derived from the original sample for this measure do not require correction. Oddly, the address unknown cases in the correction sample reported fewer new city moves than the original sample graduates. The address unknown problem was particularly acute in the major metropolitan areas. These results suggest that such cases merely moved to other parts of city without leaving forwarding addresses.

Job Mobility Index

The employment mobility measure is a composite that reflects number of moves to other cities to improve employment status plus the distances moved. Consult Chapter 3 for the equation used to calculate the measure.

Table A-10 compares the mean employment mobility values obtained from the original sample with those obtained from the address unknown, the non-respondent, and the combined address unknown—non-respondent correction samples. The *t* test results, reported in the lower half of the table, indicate that the mean differences are not significant at the five percent or better level of confidence. There are substantial differences in variances for the 1953 and 1958 comparisons. The conclusion is that the employment mobility values obtained for the original sample need not be corrected for address unknown and non-respondent cases.

Table A-10. JOB MOBILITY INDEX: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

JOB MOBILITY INDEX	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	959	2.06	10.45	1322	1.00	5.45	1605	0.46	3.22
2. Combined correction sample	41	0.49	2.15	54	4.26	26.04	33	0.61	3.43
3. Add. unkn. correction sample	23	0.43	2.04	25	8.40	41.19	9	0.00	0.00
4. Non-resp. correction sample	18	0.56	2.29	29	3.10	14.65	24	0.83	4.00
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.96			.91			.28	
t 1-3		.75			.88			.42	
t 1-4		.61			1.93			.57	
t 3-4		.19			.60			.60	

Initial Earnings

The initial earnings measure describes the mean dollars per hour earned by vocational course graduates at the start of their first full-time job. Table A-11 compares the initial earnings values obtained from the original sample with those obtained from the correction sample for the graduates of 1953, 1958, and 1962. None of the initial earnings mean differences attained significance at the five percent or better level of confidence. Accordingly, no correction of the original sample means was undertaken for this measure.

Table A-11. INITIAL EARNINGS: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

INITIAL EARNINGS	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1034	1.38	0.54	1401	1.50	0.56	1669	1.47	0.55
2. Combined correction sample	38	1.30	0.41	52	1.54	0.53	33	1.45	0.27
3. Add. unkn. correction sample	21	1.25	0.29	25	1.60	0.53	9	1.44	0.35
4. Non-resp. correction sample	17	1.36	0.52	27	1.49	0.52	24	1.45	0.24
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.90			.51			.21	
t 1-3		1.10			.89			.16	
t 1-4		.15			.09			.18	
t 3-4		.80			.74			.09	

Present Earnings

The present earnings measure describes the mean dollars per hour earned by the vocational graduates as of June, 1964, that is, after eleven, six or two years out of school depending upon year of graduation. Table A-12 compares the present earnings means obtained from the original, uncorrected sample with those obtained from the address unknown, non-respondent, and combined correction samples. The *t* test results indicate that no mean differ-

ence test attained significance at the five percent or better level of confidence. It was concluded that uncorrected and correction means were drawn from the same population, and that no correction of the uncorrected present earnings means was necessary.

Table A-12. PRESENT EARNINGS: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

PRESENT EARNINGS	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1037	3.08	1.00	1422	2.49	0.81	1697	2.01	0.69
2. Combined correction sample	37	3.09	1.04	53	2.48	1.02	32	2.11	0.71
3. Add. unkn. correction sample	20	3.14	0.94	23	2.49	0.81	8	2.06	0.54
4. Non-resp. correction sample	17	3.04	1.15	30	2.48	1.15	24	2.13	0.76
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.06			.09			.81	
t 1-3		.27			.00			.20	
t 1-4		.16			.07			.84	
t 3-4		.28			.03			.23	

Earnings Progression

The earnings progression measure describes the mean increase in earnings per month per month of employment. Table A-13 compares the earnings progression means obtained from the original, uncorrected sample, and reported in Chapter 9, with those obtained from the address unknown, the non-respondent and the combined correction sample. The *t* test results indicate that none of the differences tested are significant at the five percent or better level of confidence. Thus, correction sample means of this measure are not significantly

different from the uncorrected sample means. Accordingly, no correction was applied to the original sample data.

Table A-13. EARNINGS PROGRESSION: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO t TEST RESULTS

EARNINGS PROGRESSION	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	916	3.22	1.86	1219	3.83	2.75	1401	4.55	3.57
2. Combined correction sample	33	3.22	2.02	40	3.84	3.07	30	4.47	3.86
3. Add. unkn. correction sample	18	3.44	1.71	22	3.99	3.30	7	4.36	2.92
4. Non-resp. correction sample	15	2.95	2.30	18	3.67	2.74	23	4.50	4.10
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.00			.02			.12	
t 1-3		.50			.27			.14	
t 1-4		.55			.24			.07	
t 3-4		.68			.32			.08	

NON-OCCUPATIONAL MEASURES

College Education Index

The measure indicates the mean total hours of college education accumulated by those who attended. Table A-14 compares the mean values obtained from the original, uncorrected sample with those obtained from the address unknown, the non-respondent, and the combined address unknown—non-respondent correction samples. The numbers of cases in the correction samples who attended college are too few to warrant an interpretation of the *t* values. No correction of original sample means was applied.

Table A-14. COLLEGE EDUCATION: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

COLLEGE EDUCATION	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	243	221.7	161.6	285	175.5	130.3	382	91.9	59.3
2. Combined correction sample	12	206.8	179.7	17	145.8	116.2	4	90.2	53.4
3. Add. unkn. correction sample	8	237.9	188.3	8	147.8	140.5	3	116.3	33.0
4. Non-resp. correction sample	4	144.5	142.0	9	144.1	89.1	1	12.0	0.0
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.31			.92			.06	
t 1-3		.28			.59			.71	
t 1-4		.95			.72			1.34	
t 3-4		.80			.06			2.23*	

* Significant at 5 percent level of confidence.

Non-College Education Index

The measure indicates the mean total hours of non-college education accumulated by those who attended specified sources of non-college education. Table A-15 compares the mean values obtained from the original, uncorrected sample with those obtained from the address unknown, the non-respondent, and the combined address unknown—non-respondent correction sample. The small number of cases in many cells makes the *t* test of dubious value. Nevertheless, the *t* values are given. The two values that are "significant" do not warrant interpretation because of the means based on less than 10 cases. No correction of the original sample means was applied.

Table A-15. NON-COLLEGE EDUCATION: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

NON-COLLEGE EDUCATION	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	461	105.9	125.7	601	86.1	111.1	622	67.7	80.9
2. Combined correction sample	11	120.7	103.3	21	73.7	64.8	7	153.6	110.8
3. Add. unkn. correction sample	4	71.8	80.3	8	83.8	74.9	0	-	-
4. Non-resp. correction sample	7	148.7	104.5	13	67.5	56.9	7	153.6	110.8
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.39			.51			2.78**	
t 1-3		.54			.06			-	
t 1-4		.89			.60			2.78**	
t 3-4		1.15			.54			-	

** Significant at 1 percent or better level of confidence

Attitude Toward Former High School

The measure is a mean of an attitude score based upon ratings of ten high school factors. Consult Chapter 3 for measure's equation.

Table A-16 compares the mean atitude values obtained from the original, uncorrected sample with those obtained from the address unknown, the non-respondent, and the combined address unknown—non-respondent correction samples. The t test results, reported in the lower half of the table, reveal no t values significant at the five percent or better level confidence. The conclusion is that the mean attitude-toward-former-high school values obtained from the original sample do not require correction.

Table A-16. ATTITUDE TOWARD FORMER HIGH SCHOOL: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO t TEST RESULTS

ATTITUDE TOWARD FORMER HIGH SCHOOL	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1078	2.83	0.58	1469	2.88	0.54	1808	3.00	0.53
2. Combined correction sample	44	2.86	0.53	58	2.77	0.59	35	2.93	0.51
3. Add. unkn. correction sample	25	2.76	0.49	27	2.69	0.59	10	2.70	0.57
4. Non-resp. correction sample	19	2.99	0.55	31	2.84	0.59	25	3.02	0.44
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.34			1.52			.77	
t 1-3		.60			1.81			1.78	
t 1-4		1.19			.41			.19	
t 3-4		1.43			.95			1.73	

Conversational Interests Index

The converstional interests measure describes the graduates range of conversational interests. Consult Chapter 3 for a description of the measure.

Table A-17 compares the conversational interest mean values obtained from the original, uncorrected sample with those obtained from the address unknown,

the non-respondent, and the combined correction sample. The *t* test results, reported in the lower half of the table, indicate no significant differences in mean values. Accordingly, no correction was applied to the corrected sample mean values.

Table A-17. CONVERSATIONAL INTERESTS INDEX: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

CONVERSATIONAL INTERESTS INDEX	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1065	62.38	9.27	1523	61.90	10.14	2258	60.30	10.54
2. Combined correction sample	44	61.20	9.05	58	59.76	9.28	45	60.18	12.79
3. Add. unkn. correction sample	25	62.84	8.65	27	58.59	10.07	13	57.00	14.50
4. Non-resp. correction sample	19	59.05	9.12	31	60.77	8.41	32	61.47	11.79
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		.83			1.58			.08	
t 1-3		.25			1.68			1.12	
t 1-4		1.55			.62			.62	
t 3-4		1.37			.88			1.05	

Leisure Activity Index

The leisure activities measure describes the graduates' range of active involvement in selected leisure activities. Consult Chapter 3 for a description of the measure.

Table A-18 compares the leisure activity mean values obtained from the original, uncorrected sample with those obtained from the address unknown, the non-respondent, and the combined correction sample. The *t* test results, reported in the lower half of the table, indicate no significant differences between appropriate mean values at the five percent or better level of confidence. One can't reject the hypotheses that the samples are drawn from the same population. Accordingly, no correction was applied to the leisure activity mean values obtained from the original sample.

Table A-18. LEISURE ACTIVITY INDEX: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

LEISURE ACTIVITY INDEX	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1075	54.00	7.86	1496	54.86	8.49	2231	55.06	9.05
2. Combined correction sample	44	52.27	8.02	58	53.36	7.70	45	53.02	8.73
3. Add. unkn. correction sample	25	53.56	8.81	27	52.18	8.59	13	54.85	10.13
4. Non-resp. correction sample	19	50.47	6.44	31	54.39	6.66	32	52.28	7.98
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		1.43			1.32			1.50	
t 1-3		.28			1.62			.08	
t 1-4		1.94			.31			1.73	
t 3-4		1.26			1.08			.88	

Organization Affiliation Index

The organization affiliation measure describes the degree to which graduates become actively involved in community organizations. Consult Chapter 3 for a description of the measure.

Table A-19 compares the organization affiliation mean values obtained from the original, uncorrected sample with those obtained from the address unknown, the non-respondent, and the combined correction samples. The *t* test results, reported in the lower half of the table, indicate no significant differences in mean values obtained for the address unknown and non-respondent correction samples. Accordingly, there is justification for combining the two sub-samples into a single correction sample. For 1953 and 1958 graduates, the corrective sample means differ significantly above the one percent level of confidence. Accordingly, correction was applied to the original sample means. The corrected sample means are shown in Table A-19. The magnitude of the correction does not alter the general conclusion presented in Chapter 11, namely (1) graduates are not highly active in community organizations, and (2) active involvement increases with increased years out of school.

Table A-19. ORGANIZATION AFFILIATION INDEX: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

ORGANIZATION AFFILIATION INDEX	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	1128	33.90	6.67	1630	32.24	6.11	2451	31.06	5.84
2. Combined correction sample	44	37.18	8.03	58	33.88	7.35	45	31.16	4.89
3. Add. unkn. correction sample	25	37.84	7.18	27	32.18	4.89	13	30.77	4.44
4. Non-resp. correction sample	19	36.32	8.96	31	35.36	8.69	32	31.31	5.06
5. Corrected sample	2945	35.84	-	3654	33.00	-		NC	
SIGNIFICANCE TESTS									
t 1-2		3.17**			1.99*			.11	
t 1-3		2.91**			.05			.18	
t 1-4		1.56			2.79**			.24	
t 3-4		.61			1.65			.33	

* Significant at 5 percent level of confidence.
** Significant at 1 percent or better level of confidence.

Acknowledged High School Learning

The measure describes how much graduates working in the trade studied claimed to have learned about the trade in high school. Consult Chapter 3 for a description of the measure.

Table A-20 compares the mean acknowledged high school learning values obtained from the original, uncorrected sample with those obtained from the address unknown, the non-respondent, and the combined address unknown—non-respondent correction samples. The mean values obtained from the correction samples are slightly lower than those obtained from the original sample. However, the *t* test results indicate that the differences are not significant at the five percent or better level of confidence. Accordingly, it was not felt necessary to correct the original sample means.

Table A-20. ACKNOWLEDGED HIGH SCHOOL LEARNING: UNCORRECTED, CORRECTION AND CORRECTED DATA; ALSO *t* TEST RESULTS

ACKNOWLEDGED HIGH SCHOOL LEARNING	YEAR OF GRADUATION								
	1953			1958			1962		
	N	M	SD	N	M	SD	N	M	SD
1. Original uncorrected sample	350	8.15	2.29	515	8.12	2.20	687	8.30	2.50
2. Combined correction sample	15	7.28	1.49	17	7.61	2.26	8	7.36	3.34
3. Add. unkn. correction sample	10	7.14	1.50	10	7.69	2.80	5	6.52	2.44
4. Non-resp. correction sample	5	7.56	1.43	7	7.50	1.11	3	8.77	4.09
5. Corrected sample		NC			NC			NC	
SIGNIFICANCE TESTS									
t 1-2		1.45			.94			1.05	
t 1-3		1.38			.61			1.58	
t 1-4		.57			.74			.32	
t 3-4		-			-			-	

Concluding Remarks About Sample Correction

The strategy of testing for significance of difference between original, uncorrected sample statistics and subsequently obtained correction sample statistics before correcting the former by means of the latter resulted in the need to correct only 3 of the 19 occupational and non-occupational measures. (They were related placement, job relatedness and organizational affiliation). This itself is a strong argument for concluding that there is little, if any, basic difference <u>in matters relevant to the study</u> between the approximately 5,400 graduates who returned questionnaires and the approximately 5,300 graduates who did not, either because they could not be located or were unwilling to complete and return a rather demanding questionnaire.

VT 001 276

VT 001 276

Health Service Occupations, Occupational Needs, Educational Requirements, 1971-1976, Hartford Area.

Connecticut State Dep. of Education, Hartford

Connecticut Univ., Storrs. Labor Education Center

Oct66

DOCUMENT NOT AVAILABLE FROM EDRS 57p.

*HEALTH OCCUPATIONS, *OCCUPATIONAL SURVEYS, *HEALTH SERVICES,

Hartford, Connecticut,

Planning programs of vocational education requires knowledge of occupations in short supply, an estimate of the number needed in the future, and the nature of the training desired. Gathering data to determine this was the purpose of this study. Administrative personnel in health services were asked to furnish current full- and part-time employment, expansion needs for 1971 and 1976, expected employment mortality, and current openings for various health occupations. They were also asked to give formal education needed, course content preferred, type of prior work experience preferred. advancement opportunities, normal hiring channels, and licensing and other special job features for these occupations. The survey covered 50 occupations which employed 8,327 persons in June 1966, of whom 5,877 were full-time and 2,450 were part-time. There were 890 vacancies. Expansion plans called for 3,726 additional workers by 1971 and 5,266 by 1976. Replacement needs were estimated at 3,910 by 1971 and 9,703 in 1976. All of the responses concerning educational and experience requisites are reported for all the occupations. (EM)

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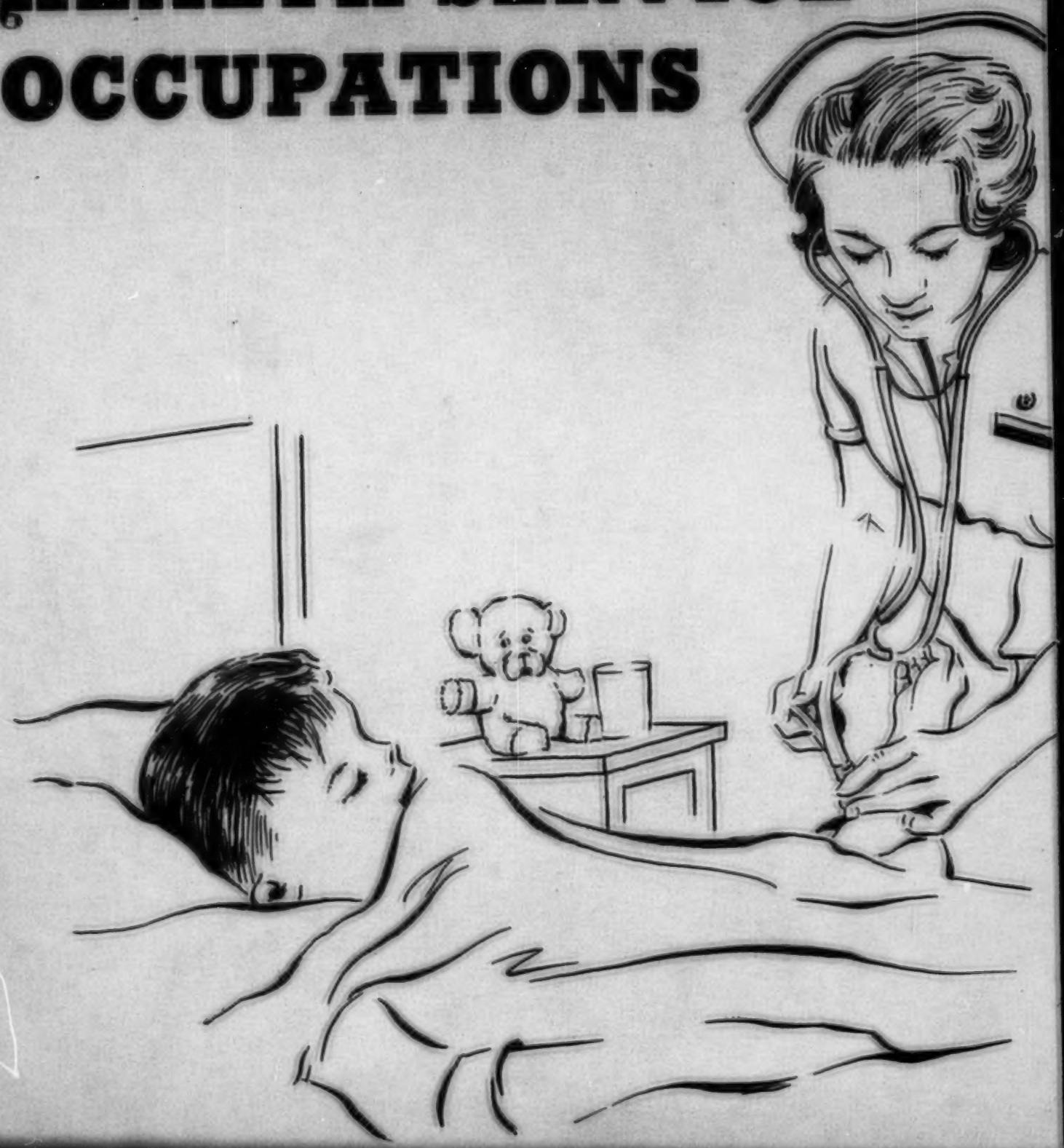
HEALTH SERVICE OCCUPATIONS



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OCCUPATIONAL NEEDS

EDUCATIONAL REQUIREMENTS

1971-1976

HARTFORD AREA

Division of
Vocational Education
State Department
of Education

Labor Education Center
University
of Connecticut

OCTOBER 1966

INTRODUCTION

The need and demand for better health care have resulted in a shortage of both facilities and trained personnel. It is clear that the demand for health care will increase, necessitating an even greater number of trained persons in this field. At the same time a record number of students will be entering high school and post secondary schools seeking education and training for the jobs of tomorrow.

It is the responsibility of the Division of Vocational Education of the Connecticut Department of Education to train youth for jobs. In order to do this, it is necessary to obtain a knowledge of job needs and of the type of training required. While the trained worker need for health occupations in general is apparent, information on the types of occupation in short supply, a reasonable estimate of the number needed in future periods, and the nature of training and course content desired, must be obtained. From this information, the Division of Vocational Education will be able to establish courses which will better meet the manpower needs of the health community, and equally important, which will enable our youths to obtain better and more useful jobs than they would without such training.

To obtain this data, the Division of Vocational Education of the Connecticut Board of Education, Joseph T. Murphy, Director, contracted with the Labor Education Center of the University of Connecticut, Professor John J. Glynn, Director, to conduct this study financed by a grant from the U.S. Department of Health, Education, and Welfare under the Vocational Education Act of 1963. The study was under the general supervision of the Vocational Education Services of the Division, Dr. Herbert Rignthand, Director, and Dr. Philip Masley, Research Consultant, and conducted by Professor David Pinsky and Mrs. Barbara Lowndes of the University.

The survey staff is grateful for the excellent cooperation and suggestions from the many persons and organizations in the health field who supplied data and estimates, and were helpful in other ways.

NOVEMBER 1966

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HEALTH SERVICES HAVE LARGE GROWTH NATIONALLY

A growing population, extension of the life span, greater concern with health problems, the growth of private and government health insurance plans, and a more affluent society have increased the need for health services throughout the nation. Although facilities have been increased in recent years, the growth of the need for more health care has exceeded this increase, resulting in an unprecedented shortage of both trained personnel and facilities. The advent of Medicare and Medicaid is certain to further increase this shortage. While Medicare went into effect in July of this year, the effect on hospital needs is not yet clear. The U.S. Surgeon General had predicted a 5% rise in hospital and health care as a result of this legislation.

The health personnel needs below the physician level are centered around nursing. The U.S. Surgeon General's Consultant Group on Nursing stated that there would be a need for 850,000 professional nurses by 1970 for "safe, therapeutically effective, and efficient nursing service." The number of nurses now practicing nationally is approximately 621,000. The rate of growth is such that the number of nurses in 1970 will fall far short of this total. While national figures for related health occupations are not available, it is apparent that similar shortages will also develop for other health occupations such as licensed practical nurses, nurses aides, x-ray technicians, dental hygienists.

The continuing shortage of health personnel is emphasized in the U.S. Labor Department's Occupational Outlook Handbook, which states, "A continued rapid expansion of employment in the health field is expected through the mid-1970's, although the rates of growth will differ considerably among the various health service occupations . . . . In addition, many new workers will be needed each year to replace those who retire, die, or - particularly in the case of women - leave the field for other reasons."[1]

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[1]Occupational Outlook Handbook, 1966-67 edition. U.S. Department of Labor.

FACILITIES AND SERVICES CONTRIBUTE TO ECONOMY

Health services are thought of mainly in terms of improving physical well-being. They also make a major contribution to the economy. The nation's 1,138 hospitals employ more than 1,800,000 workers, half again more than the entire railroad industry and more than double the number in automobile manufacturing. Hospitals are the fifth largest industry in the nation with assets in excess of $21 billion. Add to this the other forms of health services, i.e. doctors, dentists, industrial health, rest homes, and public health, and the true magnitude becomes apparent. In addition, employment has been growing faster in health services than in any other sector.

In Connecticut, the number of persons employed in non-governmental health activities totals 43,000, nearly double the 23,000 employed in 1956. This is the fastest growing segment of the state's economy also, and provided an annual payroll of close to $200,000,000 in 1966.

NEED FOR CONNECTICUT SURVEY

The growth will undoubtedly continue over the next decade. Required to meet this expansion will be trained personnel as well as physical facilities. The training time for health service workers involves not only time for actual class learning and work experience, but also time to plan curricula and build physical facilities.

In order to plan for the expansion of training programs, some concept of the nature and the number of these increasing jobs must be obtained. The Division of Vocational Education of the Connecticut Department of Education requested the Labor Education Center of the University of Connecticut to conduct a study for the Hartford and Waterbury areas to determine:

a. The type and number of trained workers, below the baccalaureate level, needed for health services jobs for the next five and ten years

b. The educational and course content requirements for these jobs

THE STUDY

The selection of the occupations to be studied was made in consultation with key persons in associations representing the various health fields. These included the Greater Hartford Hospital Association, the Connecticut State Medical Association, the Conn. State Dental Association, Conn. State Dental Laboratory Association, the Convalescent Home Association, and Public Health officers. The occupations included not only those directly involved with health services but also supporting occupations such as dietitians, medical secretaries, food service and clerical personnel. The number of occupations surveyed in each of the various health categories was hospitals - 40, convalescent homes - 18, physicians' offices - 9, dentists' offices and dental laboratories - 6, employees health clinics - 8, and public health - 13. The specific occupations included in each category are shown in the tables showing occupational needs in Appendix B.

To determine future needs, administrators were asked to list for each occupation:

a. Current Employment - full and part time

b. Expansion Needs - 1971 and 1976

c. Expected Withdrawals from the health field

d. Current Job Vacancies

To determine the content of education courses needed to train personnel for these jobs, the respondents were asked to state for each listed occupation their opinion as to:

a. Formal Education Needed

b. Course Content Preferred

c. Type of Prior Work Experience Preferred

d. Advancement Opportunities

e. Normal Hiring Channels

f. Licensing and other Special Job Features

The survey forms used are shown in Appendix A.

THE HARTFORD AREA

The Hartford Area covered by this survey includes the following 27 towns in the North Central part of the State: Avon, Bloomfield, Bolton, Canton, East Granby, East Hartford, East Windsor, Ellington, Enfield, Farmington, Glastonbury, Granby, Hartford, Manchester, Newington, Rocky Hill, Simsbury, Somers, South Windsor, Stafford, Suffield, Tolland, Vernon, West Hartford, Wethersfield, Windsor, Windsor Locks.

Economically, the area is characterized by its aircraft industries, government activity, insurance business, wholesale and retail trade, and tobacco growing. These characteristics provide the Hartford Area with a balanced and high level economy, which continues to grow and which is subject to little cyclical fluctuation. The average per family income was $9,744 in 1965, which was 17th highest among the 297 major metropolitan areas in the United States. This average reflects incomes from the poverty areas in Hartford's north end to the affluent sections in West Hartford.

HEALTH SERVICES IN THE AREA

The basic health services and facilities in the area are hospitals, convalescent homes, rest homes, doctors, dentists, employees' health clinics, and public health services. The number of persons employed in non-governmental health services in the area was 11,800 in 1966, a gain of 5,000 over the past decade. General hospitals employ 8,500 of the 11,800 health workers.

The Hartford Area has 15 hospitals with 3,880 beds. Of these, eight are general and seven special hospitals. The University of Connecticut will open its general hospital about 1970. Most of the hospitals have expansion programs so that the number of beds is expected to rise to 5,512 by 1976, a gain of 1,599 or 41%.

While the number of beds is expected to rise, so is the population. In the Greater Hartford area the current population of 620,000 is expected to reach 774,000 by 1976. The number of beds will rise at a faster rate than that of the population, so that the ratio of 4.1 beds per 1,000 people in 1966 will increase to 4.9 beds per 1,000 people in 1976. This projected ratio will still be below the ratio of 5.75 beds per 1,000 population stated as desirable by the administrators of the Hill Burton Act.

The 42 convalescent hospitals in the area provide 2,278 beds. Two new homes are being built by existing organizations and another new home is planned. Plans are for an expansion to 4,276 beds by 1976, nearly double the current number. Additional convalescent hospitals may open increasing the expansion beyond this figure.

The number of persons over 65 years of age totals 50,470 at present and this is expected to reach 67,400 by 1976. The current ratio of 45 beds per 1,000 persons over 65 years of age should rise, based on these projections, to 59 per 1,000 persons over 65 years of age by 1976.

There are 12 rest homes with 673 beds and their expansion plans envision 937 beds by 1976. The area has 889 doctors in private practice with 1,098 employees and 416 dentists with 686 employees. Business and industrial firms with employee health clinics number 37 which employ 208 persons. Dental laboratories number 14 and employ 84 persons.

OCCUPATIONAL NEEDS - 1966 to 1971 - 1976

The study covered 50 different occupations in which 8,327 persons were employed in June 1966, of whom 5,877 were full time and 2,450 were part time. There were 890 vacancies in these positions. Expansion plans among the respondents called for 3,726 more positions by 1971 and 5,266 by 1976. Replacement needs for persons who withdraw from their occupations is expected to reach 3,910 within the next five years and 9,703 within the next ten years. The job vacancies, expansions, and replacements add up to a need for 8,526 trained persons in the next five years and 15,859 in ten years.

The table "Part I - ESTIMATED DEMAND - TOTALS" (pages 7-25) shows the estimated need for each of the 50 occupations for the next five and ten year periods.

NURSES HAVE LARGEST DEMAND

The occupation with the largest ten year need is staff nurse with an estimated demand of 6,159. This consists of 257 current vacancies, an expansion of 1,438, and a replacement need of 4,464. The total need in ten years for all types of registered nurses is 6,746. There will be a ten year demand for 2,346 nurse aides and 1,016 licensed practical nurses.

In the technical field, the largest ten year needs will be for 322 medical laboratory technicians, 148 operating room technicians and 136 X-ray technicians.

For dental occupations, there will be a need for 436 dental assistants (chairside only), 367 dental hygienists, 265 combined secretary-dental assistants, and 212 dental laboratory technicians.

There will be a need for 901 persons as secretary-receptionists in physicians' and dentists' offices.

In the food area, the largest needs will be for dietary aide, 263, cook, 218, and cook helper, 152.

GENERAL HOSPITALS HAVE LARGEST NEEDS

The largest needs, by type of institution, were in general hospitals which expressed a ten year need of 7,469 trained workers, a little less than half of the total. Second largest was convalescent homes with a need for 3,243, followed by dental offices and laboratories, 1,561, special hospitals, 1,555, and physicians' offices, 1,194.

The five and ten year needs are shown separately by type of institution for each occupation in the applicable tables following the table "Part I - ESTIMATED DEMAND - TOTAL."

Health Occupations
Survey
Hartford Area

Part I
Estimated Demand - 1966 to 1971 and 1976

TOTAL OF AREA NEEDS

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	8327	5877	2450	890	('71)	3726	3910	8526
					('76)	5266	9703	15859
Nurse, Supervisor	149	138	11	8	('71)	49	26	83
					('76)	76	62	146
Nurse, Head	210	208	2	17	('71)	79	54	150
					('76)	120	138	275
Nurse, Instructor	55	49	6	11	('71)	31	14	56
					('76)	51	35	97
Nurse, Staff	2279	1301	978	257	('71)	881	1789	2927
					('76)	1438	4464	6159
Nurse Anesthetist	27	25	2	4	('71)	17	13	34
					('76)	28	37	69
Nurse, Licensed Practical	644	481	163	116	('71)	319	174	609
					('76)	467	433	1016
Nurse Aide	1467	1038	429	120	('71)	715	521	1356
					('76)	944	1282	2346
Psychiatric Aide	157	122	35	58	('71)	5	62	125
					('76)	5	145	208
Rehabilitation Aide	18	18	0	4	('71)	17	12	33
					('76)	22	32	58
Orderly	261	183	78	41	('71)	120	120	281
					('76)	187	295	523

TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Pharmacy Helper	11	8	3	0	('71)	6	2	8
					('76)	8	7	15
E.E.G. Technician	14	10	4	1	('71)	7	5	13
					('76)	11	13	25
E.K.G. Technician	17	14	3	5	('71)	10	8	23
					('76)	14	22	41
X-Ray Technician	113	97	16	1	('71)	46	25	72
					('76)	71	64	136
Cytotechnician	25	22	3	2	('71)	12	7	21
					('76)	18	17	37
Medical Laboratory Technician	224	164	60	13	('71)	110	58	181
					('76)	172	137	322
Operating Room Technician	83	77	6	10	('71)	66	17	93
					('76)	91	47	148
Inhalation Therapist	21	17	4	7	('71)	10	4	21
					('76)	15	10	32
Orthotist-Prosthetist	6	6	0	4	('71)	4	1	9
					('76)	5	2	11
Dental Hygienist	162	93	69	28	('71)	110	78	216
					('76)	133	206	367
Dental Assistant (Chairside only)	132	92	40	30	('71)	133	90	253
					('76)	155	251	436
Secretary-Dental Assistant	278	210	68	13	('71)	70	78	161
					('76)	80	172	265
Dental Laboratory Technician	99	91	8	22	('71)	96	34	152
					('76)	116	74	212
								TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Formula Room Worker	6	5	1	1	('71)	2	1	4
					('76)	3	3	7
Pediatric Technician	4	4	0	0	('71)	3	1	4
					('76)	3	2	5
Physical Therapist Aide	11	8	3	6	('71)	12	10	28
					('76)	19	21	46
Social Service Case Aide	6	4	2	3	('71)	12	8	23
					('76)	17	16	36
Central Supply Worker	84	78	6	6	('71)	30	16	52
					('76)	50	41	97
Medical Secretary	139	125	14	17	('71)	70	59	146
					('76)	103	145	265
Secretary-Receptionist (Physician or Dentist's office)	800	583	217	29	('71)	243	258	530
					('76)	272	600	901
Bookkeeping Clerk	69	39	30	1	('71)	29	21	51
					('76)	43	50	94
Computer Operator	5	5	0	0	('71)	7	2	9
					('76)	7	7	14
Key Punch Operator	20	16	4	0	('71)	13	19	32
					('76)	16	47	63
Tabulating Machine Operator	2	1	1	0	('71)	8	4	12
					('76)	12	11	23
Junior Programmer	1	0	1	0	('71)	3	0	3
					('76)	3	1	4
								TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Nursing Unit Clerk	104	67	37	14	('71)	70	28	112
					('76)	115	74	203
Medical Record Clerk	5	5	0	0	('71)	6	1	7
					('76)	6	3	9
Recreation Director	31	25	6	2	('71)	23	9	34
					('76)	26	25	53
Dietitian	57	42	15	5	('71)	31	18	54
					('76)	41	45	91
Assistant Dietitian	70	55	15	5	('71)	27	17	49
					('76)	45	43	93
Chef	14	14	0	2	('71)	4	2	8
					('76)	4	6	12
Cook	163	131	32	8	('71)	50	61	119
					('76)	63	147	218
Cook Helper	76	63	13	3	('71)	38	42	83
					('76)	43	106	152
Meat Cutter	7	7	0	0	('71)	1	3	4
					('76)	1	5	6
Baker	6	6	0	1	('71)	5	1	7
					('76)	6	3	10
Dietary Aide	63	33	30	6	('71)	56	72	134
					('76)	63	194	263
Food Service Supervisor	2	1	1	0	('71)	1	1	2
					('76)	1	1	2
								TOTAL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Housekeeper, Executive	28	28	0	4	('71)	13	12	29
					('76)	16	29	49
Laundress	34	24	10	0	('71)	28	21	49
					('76)	31	56	87
Maintenance-General	68	44	24	5	('71)	28	31	64
					('76)	30	77	112

TOTAL

Part I
Estimated Demand - 1966 to 1971 and 1976

GENERAL HOSPITALS

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	3186	2050	1136	338	('71)	1449	1839	3626
					('76)	2529	4602	7469
Nurse, Supervisor	94	85	9	5	('71)	39	11	55
					('76)	66	27	98
Nurse, Head	126	124	2	2	('71)	50	22	74
					('76)	90	54	146
Nurse, Instructor	45	40	5	7	('71)	24	8	39
					('76)	44	21	72
Nurse, Staff	1150	504	646	139	('71)	485	1344	1968
					('76)	929	3351	4419
Nurse, Anesthetist	18	17	1	0	('71)	15	12	27
					('76)	24	34	58
Nurse, Licensed Practical	307	224	83	52	('71)	121	53	226
					('76)	218	133	403
Nurse Aide	420	288	132	33	('71)	140	96	269
					('76)	238	229	500
Orderly	153	96	57	22	('71)	70	81	173
					('76)	124	204	350
Pharmacy Helper	8	5	3	0	('71)	4	2	6
					('76)	5	7	12
E.E.G. Technician	10	8	2	1	('71)	7	5	13
					('76)	11	13	25
E.K.G. Technician	13	11	2	4	('71)	8	8	20
					('76)	12	22	38

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
X-Ray Technician	69	57	12	1	('71)	37	8	46
					('76)	61	21	83
Cytotechnician	24	21	3	2	('71)	12	7	21
					('76)	18	17	37
Laboratory Technician	126	80	46	10	('71)	93	16	119
					('76)	151	44	205
Operating Room Technician	77	71	6	6	('71)	64	15	85
					('76)	89	42	137
Inhalation Therapist	20	16	4	7	('71)	9	4	20
					('76)	14	10	31
Formula Room Worker	6	5	1	1	('71)	2	1	4
					('76)	3	3	7
Pediatric Technician	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Physical Therapist Aide	10	7	3	2	('71)	7	4	13
					('76)	12	10	24
Social Service Case Aide	4	2	2	1	('71)	8	2	11
					('76)	11	6	18
Central Supply Worker	79	73	6	5	('71)	27	13	45
					('76)	47	34	86
Medical Secretary	69	59	10	9	('71)	48	22	79
					('76)	81	60	150
Bookkeeping Clerk	61	32	29	1	('71)	24	18	43
					('76)	38	44	83
Computer Operator	1	1	0	0	('71)	3	0	3
					('76)	3	1	4

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Key Punch Operator	11	7	4	0	('71)	8	8	16
					('76)	11	20	31
Tabulating Machine Operator	2	1	1	0	('71)	8	4	12
					('76)	12	11	23
Junior Programmer	1	0	1	0	('71)	3	0	3
					('76)	3	1	4
Nursing Unit Clerk	100	64	36	14	('71)	56	24	94
					('76)	99	63	176
Dietitian	41	32	9	3	('71)	15	9	27
					('76)	24	22	49
Assistant Dietitian	65	50	15	5	('71)	26	15	46
					('76)	44	37	86
Chef	6	6	0	1	('71)	2	1	4
					('76)	2	3	6
Cook	34	32	2	2	('71)	11	10	23
					('76)	16	22	40
Cook Helper	15	12	3	2	('71)	8	10	20
					('76)	10	24	36
Meat Cutter	4	4	0	0	('71)	1	2	3
					('76)	1	2	3
Baker	5	5	0	1	('71)	5	1	7
					('76)	6	2	9
Food Service Supervisor	2	1	1	0	('71)	1	1	2
					('76)	1	1	2
Housekeeper	10	10	0	0	('71)	7	2	9
					('76)	10	7	17

Health Occupations
Survey
Hartford Area

Part I
Estimated Demand - 1966 to 1971 and 1976

SPECIAL HOSPITALS

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	1066	897	169	182	('71)	285	433	900
					('76)	350	1023	1555
Nurse, Supervisor	36	34	2	2	('71)	6	13	21
					('76)	6	29	37
Nurse, Head	51	51	0	13	('71)	20	18	51
					('76)	21	52	86
Nurse, Instructor	10	9	1	4	('71)	7	6	17
					('76)	7	14	25
Nurse, Staff	225	134	91	39	('71)	58	100	197
					('76)	73	226	338
Nurse, Anesthetist	3	3	0	2	('71)	0	0	2
					('76)	0	0	2
Nurse, Licensed Practical	85	72	13	19	('71)	55	27	101
					('76)	72	69	16[illegible]
Nurse Aide	186	170	16	7	('71)	30	79	116
					('76)	46	173	2[illegible]6
Psychiatric Aide	157	122	35	58	('71)	5	62	125
					('76)	5	145	208
Rehabilitation Aide	18	18	0	4	('71)	17	12	33
					('76)	22	32	58
Orderly	57	57	0	8	('71)	7	15	30
					('76)	12	32	52
Pharmacy Helper	3	3	0	0	('71)	2	0	2
					('76)	3	0	3

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
E.E.G. Technician	2	2	0	0	('71)	0	0	0
					('76)	0	0	0
E.K.G. Technician	3	2	1	1	('71)	2	0	3
					('76)	2	0	3
X-Ray Technician	17	17	0	0	('71)	2	3	5
					('76)	3	8	11
Cytotechnician	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Laboratory Technician	25	23	2	1	('71)	3	8	12
					('76)	3	19	23
Operating Room Technician	6	6	0	4	('71)	2	2	8
					('76)	2	5	11
Inhalation Therapist	1	1	0	0	('71)	1	0	1
					('76)	1	0	1
Orthotist-Prosthetist	6	6	0	4	('71)	4	1	9
					('76)	5	2	11
Pediatric Technician	4	4	0	0	('71)	2	1	3
					('76)	2	2	4
Physical Therapist Aide	1	1	0	4	('71)	2	0	6
					('76)	3	1	8
Social Service Case Aide	0	0	0	0	('71)	2	0	2
					('76)	2	0	2
Central Supply Worker	5	5	0	1	('71)	3	3	7
					('76)	3	7	11
Medical Secretary	48	45	3	7	('71)	19	28	54
					('76)	19	66	92

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Bookkeeping Clerk	6	6	0	0	('71)	3	1	4
					('76)	3	4	7
Computer Operator	4	4	0	0	('71)	4	2	6
					('76)	4	6	10
Key Punch Operator	7	7	0	0	('71)	5	9	14
					('76)	5	23	28
Nursing Unit Clerk	4	3	1	0	('71)	14	4	18
					('76)	16	11	27
Dietitian	7	7	0	0	('71)	0	4	4
					('76)	0	8	8
Assistant Dietitian	5	5	0	0	('71)	1	2	3
					('76)	1	6	7
Chef	6	6	0	0	('71)	0	1	1
					('76)	0	3	3
Cook	34	30	4	1	('71)	3	11	15
					('76)	3	30	34
Cook Helper	21	21	0	0	('71)	2	10	12
					('76)	2	24	26
Meat Cutter	3	3	0	0	('71)	0	1	1
					('76)	0	3	3
Baker	1	1	0	0	('71)	0	0	0
					('76)	0	1	1
Housekeeper	18	18	0	3	('71)	4	10	17
					('76)	4	22	29

SPECIAL HOSPITALS

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Part I
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CONVALESCENT HOMES

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	1636	1061	575	203	('71)	1092	667	1962
					('76)	1325	1715	3243
Nurse, Supervisor	1	1	0	1	('71)	2	1	4
					('76)	2	2	5
Nurse, Head	32	32	0	2	('71)	9	14	25
					('76)	9	32	43
Nurse, Staff	307	162	145	54	('71)	209	98	361
					('76)	267	254	575
Nurse, Licensed Practical	166	114	52	36	('71)	109	52	197
					('76)	137	134	307
Nurse Aide	778	521	257	76	('71)	506	294	876
					('76)	619	753	1448
Orderly	50	29	21	11	('71)	43	24	78
					('76)	51	59	121
Physical Therapist Aide	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Recreation Director	24	20	4	1	('71)	21	8	30
					('76)	24	22	47
Dietitian	8	3	5	2	('71)	15	5	22
					('76)	16	15	33
Chef	2	2	0	1	('71)	2	0	3
					('76)	2	0	3

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Cook	80	58	22	5	('71)	33	33	71
					('76)	40	79	124
Cook Helper	33	24	9	1	('71)	26	19	46
					('76)	29	51	81
Dietary Aide	63	33	30	6	('71)	56	72	134
					('76)	63	194	263
Medical Secretary	1	1	0	1	('71)	2	1	4
					('76)	2	1	4
Medical Record Clerk	5	5	0	0	('71)	6	1	7
					('76)	6	3	9
Housekeeper	0	0	0	1	('71)	2	0	3
					('76)	2	0	3
Laundress	30	22	8	0	('71)	28	19	47
					('76)	31	51	82
Maintenance-General	56	34	22	5	('71)	22	26	53
					('76)	24	65	94

CONVALESCENT HOMES

Part I
Estimated Demand - 1966 to 1971 and 1976
REST HOMES WITH NURSING CARE

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	146	100	46	5	('71)	59	82	146
					('76)	60	196	261
Nurse, Head	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Nurse, Staff	35	27	8	1	('71)	10	16	27
					('76)	10	36	47
Nurse, Licensed Practical	21	8	13	1	('71)	5	12	18
					('76)	5	26	32
Nurse Aide	43	29	14	2	('71)	30	36	68
					('76)	30	91	123
Orderly	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
Recreation Director	7	5	2	1	('71)	2	1	4
					('76)	2	3	6
Dietitian	0	0	0	0	('71)	1	0	1
					('76)	1	0	1
Cook	15	11	4	0	('71)	3	7	10
					('76)	4	16	20
Cook Helper	7	6	1	0	('71)	2	3	5
					('76)	2	7	9
Laundress	4	2	2	0	('71)	0	2	2
					('76)	0	5	5
Maintenance-General	12	10	2	0	('71)	6	5	11
					('76)	6	12	18

Part I
Estimated Demand - 1966 to 1971 and 1976

PHYSICIANS IN PRIVATE PRACTICE

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	1098	816	282	52	('71)	286	362	700
					('76)	324	818	1194
Nurse, Staff	242	186	56	12	('71)	70	94	176
					('76)	80	214	306
Nurse Anesthetist	6	5	1	2	('71)	2	1	5
					('76)	4	3	9
Nurse, Licensed Practical	58	56	2	8	('71)	22	24	54
					('76)	26	56	90
Nurse Aide	26	18	8	2	('71)	4	12	18
					('76)	4	28	34
E.E.G. Technician	2	0	2	0	('71)	0	0	0
					('76)	0	0	0
X-Ray Technician	12	9	3	0	('71)	6	12	18
					('76)	6	28	34
Laboratory Technician	58	46	12	2	('71)	14	28	44
					('76)	18	62	82
Medical Secretary	4	3	1	0	('71)	0	1	1
					('76)	0	3	3
Secretary-Receptionist	690	493	197	26	('71)	168	190	384
					('76)	186	424	636

Part I
Estimated Demand - 1966 to 1971 and 1976

DENTISTS, DENTAL LABORATORIES AND DENTAL SCHOOL

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	770	565	205	101	('71)	486	352	939
					('76)	572	888	1561
Nurse, Staff	8	7	1	5	('71)	4	10	19
					('76)	5	22	32
Dental Hygienist	143	75	68	28	('71)	108	72	208
					('76)	130	193	351
Dental Assistant (Chairside)	132	92	40	30	('71)	133	90	253
					('76)	155	251	436
Secretary-Dental Assistant (combined)	278	210	68	13	('71)	70	78	161
					('76)	80	172	265
Secretary-Receptionist	110	90	20	3	('71)	75	68	146
					('76)	86	176	265
Dental Laboratory Technician	99	91	8	22	('71)	96	34	152
					('76)	116	74	212

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PUBLIC HEALTH

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	263	230	33	8	('71)	52	136	196
					('76)	86	378	472
Nurse, Supervisor	11	11	0	0	('71)	1	0	1
					('76)	1	2	3
Nurse, Staff Public Health	218	189	29	6	('71)	31	108	145
					('76)	57	319	382
Nurse, Licensed Practical	7	7	0	0	('71)	7	6	13
					('76)	9	15	24
Public Health Aide	4	4	0	0	('71)	4	0	4
					('76)	6	0	6
X-Ray Technician	3	2	1	0	('71)	1	1	2
					('76)	1	3	4
Laboratory Technician	3	3	0	0	('71)	0	2	2
					('76)	0	5	5
Dental Hygienist	9	8	1	0	('71)	2	2	4
					('76)	3	6	9
Physical Therapist Aide	0	0	0	0	('71)	2	6	8
					('76)	3	10	13
Social Service Case Aide	2	2	0	2	('71)	2	6	10
					('76)	4	10	16
Medical Secretary	1	1	0	0	('71)	0	1	1
					('76)	0	2	2

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	(Year)	Expansion	Replacements	Total
Bookkeeping Clerk	2	1	1	0	('71)	2	2	4
					('76)	2	2	4
Key Punch Operator	2	2	0	0	('71)	0	2	2
					('76)	0	4	4
Dietitian	1	0	1	0	('71)	0	0	0
					('76)	0	0	0

Part I
Estimated Demand - 1966 to 1971 and 1976

EMPLOYEES HEALTH CLINICS

OCCUPATION	CURRENT EMPLOYMENT Total	Full	Part	CURRENT VACANCIES	NEW WORKERS NEEDED (Year)	Expansion	Replacements	Total
Total (Occupations Surveyed)	162	158	4	1	('71)	17	39	57
					('76)	20	83	104
Nurse, Supervisor	7	7	0	0	('71)	1	1	2
					('76)	1	2	3
Nurse, Staff	94	92	2	1	('71)	14	19	34
					('76)	17	42	60
Nurse Aide	10	8	2	0	('71)	1	4	5
					('76)	1	8	9
E.K.G. Technician	1	1	0	0	('71)	0	0	0
					('76)	0	0	0
X-Ray Technician	12	12	0	0	('71)	0	1	1
					('76)	0	4	4
Medical Laboratory Technician	12	12	0	0	('71)	0	4	4
					('76)	0	7	7
Dental Hygienist	10	10	0	0	('71)	0	4	4
					('76)	0	7	7
Medical Secretary	16	16	0	0	('71)	1	6	7
					('76)	1	13	14

TRAINING FACILITIES AND PROGRAMS

The training for health occupations in the Hartford Area is carried on mainly in hospitals and technical schools. In addition to those trained within the area, the manpower supply is supplemented by those who have been trained outside of greater Hartford and who move in.

The largest programs are in nursing. The Hartford and Saint Francis Hospitals have three-year diploma programs and graduated 166 nurses last year, which is about the same as for the past five years. There is no indication of an upward trend to meet the growing need for nurses. While facilities are available to train more nurses, the number of new students has been limited by the number of qualified applicants. Statewide, the number of nurses graduated last year numbered 648, the lowest in over five years.

The Hartford area has started this year a training program for licensed practical nurses for the first time as a result of preliminary data from this study. The Hartford Technical Institute plans to train 200 in this occupation in 1966-67. In addition to classroom work, the program will provide practical training experience in hospitals. The vocational technical schools throughout the state have greatly increased their programs for L.P.N's and plan to train 1,000 persons this year, more than double the 450 trained last year.

Nurse aides is the third large health occupation training program. Planned for training within the area during the current year are 180 in hospitals and 80 in technical schools. Some of the larger convalescent homes also have formal programs.

Other training programs in Hartford include 20 dental assistants, 45 X-ray technicians, 18 laboratory technicians, 6 orthotist-prothetists, 4 nurse anesthetists, 4 cytology technicians. New programs with two classes each are being developed for inhalation therapists and operating room technicians. Psychiatric and rehabilitation aides are trained as needed by special hospitals.

The hiring channels indicated for staff nurses were newspaper advertisements, trade journals, and graduates of training courses. The position above staff nurse used these sources plus promotions from lower levels. Channels of recruitment for other positions included the above, plus private and public employment services, recommendations of present employees and civil service lists.

Special licensing or accreditation is required for certain of the occupations. All registered nurses and licensed practical nurses require examination by the Conn. State Board of Examiners for Nursing, and licensing by the State Department of Health. Four respondents indicated that they hire only dietitians accredited by the American Dietetic Association. In some cases certain technical personnel had to be registered with their national associations. These included e.e.g. technician, e.k.g. technician, X-ray technician, cytotechnician, and medical laboratory technician. All recreation leaders must take a two-week special training course and be certified by the State Department of Health.

EDUCATION AND EXPERIENCE

In order that training and educational programs for health service better meet occupational requirements, Part II of the survey form was concerned with the level of education, course content, and prior work experience which the institution administrators required or preferred for each occupation. Also included were questions concerning advancement opportunities and hiring channels.

The pattern of responses differed from general and special hospitals on the one hand, and convalescent and rest homes on the other. Therefore, two separate tables, one for hospitals and one for convalescent and rest homes were prepared. Details of these responses are shown on the following tables - Part II - EDUCATIONAL AND EXPERIENCE REQUIREMENTS AND PREFERENCES, pages 28-38.

For the occupation Staff Nurse, eight hospitals stated a preference for diploma school and one for college as

the educational level. For the course content preferred, four listed nursing curriculum, two English, while eight other courses had one response each. Two responses listed psychiatric as the type of experience preferred. For advancement opportunities, two listed assistant head nurse, five head nurse, and one supervisor.

Also among hospitals, for the occupation medical laboratory technician, three responses indicated a preference for high school plus three years, two for technical institute, one for high school and one for college. As for course content, five responses were for biology, four for chemistry and one each for English, mathematics, and specialized technical training. One response listed industrial laboratory as prior work experience preferred. For advancement opportunity, four listed upgrading within the same category and one listed medical technologist.

The responses received from convalescent and rest homes differed somewhat from the hospitals. All 32 responses listed diploma school as the educational level preferred. The course content had 19 responses for a course in geriatrics, 15 in nursing curriculum, five in psychology, two in anatomy, two in English, two in bedside care, and one each in five other subjects. Ten preferred hospital and eight convalescent home prior experience. Thirteen listed head nurse and ten assistant head nurse as advancement opportunities.

The occupation of recreation director in convalescent and rest homes had 20 responses for a high school level of education, six for junior college, and one for high school plus on-the-job training. The courses preferred were crafts 16 and psychology 16, geriatrics 3, and human relations 2. Prior work experience preferences were convalescent home, six, personal contact work, two, recreation center, one, and youth organizations, one. Advancement opportunity to instructor was listed in four responses.

The responses and preferences for 37 hospital and 18 convalescent and rest home occupations are shown in the following two tables.

Part II
Educational and Experience Requirements and Preferences

HOSPITALS

OCCUPATION	EDUCATIONAL Level	Resp.	PREFERENCES Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Nurse, Supervisor	Diploma School	1	Accounting	1	Direct Patient Care	1	Asst. Director of Nursing	8
	College	7	Administration	1	Head Nurse	6		
			English	1	Psychiatric	1		
			Group Processes	1	Supervisory	2		
			Human Relations	2				
			Management Prin.	3				
			Nursing Curric.	4				
			Personality, Theories of	1				
			Psychology	1				
Nurse, Head	Diploma School	3	Accounting	1	Asst.Head Nurse	2	Supervisor	8
	College	4	English	1	Direct Patient Care	1		
			Group Processes	1	Psychiatric	2		
			Human Relations	2	Staff Nurse	4		
			Management Prin.	2				
			Nursing Curric.	4				
			Personality, Theories of	1				
			Psychology	1				
Nurse, Instructor	College	5	Accounting	1	Asst. Instructor	1	Asst. Director, School of Nursing	1
			Education	1	Psychiatric	1	Director, Nursing Education	2
			English	1	Staff Nurse	3	Supervisor	1
			Human Relations	1				
			Management Prin.	1				
			Nursing Curric.	4				
			Psychology	1				
			Teaching Methods	1				
Nurse, Staff	Diploma School	8	Anatomy	1	Psychiatric	2	Asst. Head Nurse	2
	College	1	Biology	1			Head Nurse	5
			Chemistry	1			Supervisor	1

OCCUPATION	EDUCATIONAL Level	Resp.	PREFERENCES Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Nurse, Staff (Cont.)			English	2				
			Group Processes	1				
			Human Relations	1				
			Mathematics	1				
			Nursing Curric.	4				
			Personality, Theories of	1				
			Psychology	1				
Nurse, Anesthetist	Diploma School	1	Anesthesiology	1	Staff Nurse	1		
	College	1	Biology	1				
			Chemistry	1				
			Nursing Curric.	1				
			Oxygen Therapy	1				
Nurse, Licensed-Practical	High School + one year	8	Anatomy	1	Psychiatric	1	Upgrade-Same Category	1
			Biology	1				
			Chemistry	1				
			English	1				
			LPN Curriculum	3				
			Mathematics	1				
			Medical-Surgical Nursing	1				
			Nursing Principles	1				
			Nutrition	1				
			Patient Care - General	1				
Nurse Aide	Elem. School	1	English	1			Upgrade-Same Category	1
	High School	5	General Science	1				
	High School + O-J-T	1	Hygiene	1				
			Mathematics	1				
			On-the-job Train.	1				
Psychiatric Aide	Elem. School	1	IPN Curriculum	1			Upgrade-Same Category	1
	High School	1	Personality, Theories of	1				

OCCUPATION	EDUCATIONAL Level	Resp.	PREFERENCES Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Rehabilitation Aide	High School + O-J-T	1	On-the-job Train.	1	Nurse Aide	1		
Orderly	Elem. School	1	English	1			Upgrade-Same Category	1
	High School	1	Hygiene	1				
	High School + O-J-T	1	Mathematics	1				
			On-the-job Train.	1				
Pharmacy Helper	High School	3	Biology	1				
			Chemistry	1				
			Mathematics	1				
			On-the-job Train.	1				
E.E.G. Technician	High School	2	On-the-job Train.	1	Hospital	1	Chief Technician	1
	Technical Inst.	1	Specialized-Technical Train.	1			Upgrade-Same Category	1
E.K.G. Technician	High School	3	Biology	1	Hospital	1	Chief Technician	1
			On-the-job Train.	1	Nurse Aide	1		
X-Ray Technician	High School	1	Anatomy	2	Asst. Technician	1	Chief Technician	3
	Technical Inst.	1	Biology	1	Hospital	1	Radiologist	1
	High School + 3 years	1	Chemistry	2			Supervisor	1
			Mathematics	1				
			Pathology Techniq.	1				
			Physics	2				
			Special Technical Training	1				
Cytotechnician	Technical Inst.	1	Biology	3	Medical Laboratory Technician	1	Chief Technician	1
	High School + 3 years	2	Chemistry	3			Upgrade-Same Category	1
			Cytology	1				
			English	1				
			Mathematics	1				

HOSPITALS

OCCUPATION	EDUCATIONAL PREFERENCES Level	Resp.	Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Medical Laboratory Technician	High School	1	Biology	5	Industrial Lab	1	Medical Technologist	1
	Technical Inst.	2	Chemistry	4			Upgrade-Same Category	4
	High School + 3 years	3	English	1				
	College	1	Mathematics	1				
			Specialized Technical Train.	1				
Operating Room Technician	High School	2	Anatomy	1	Licensed Practical Nurse	1	Chief Technician	1
	High School + 1 year	2	Biology	1	Nurse Aide	1		
			Chemistry	1				
			English	1				
			Equipment Use and Care	1				
			Mathematics	1				
			Operating Room Procedures	1				
			Safety	1				
Inhalation Therapist	High School + O-J-T	1	Anatomy	1	Hospital	1	Chief Technician	1
	High School + one year	1	Biology	1	Male Aide	1	Instructor	1
	Diploma School	1	Chemistry	1	Science Field	1		
			On-the-job Train.	1				
			Physics	2				
Formula Rm Worker	High School	2	Hygiene	1			Supervisor	1
			On-the-job Train.	1				
Physical Therapist Aide	High School	4	Anatomy	1	Nurse Aide	2		
			Biology	1				
Social Service Case Aide	Junior College	1	English	1	Personal Contact Work	1		
	College	1	Languages	1				
			On-the-job Train.	1				
			Psychology	1				
			Sociology	1				

OCCUPATION	EDUCATIONAL Level	Resp.	PREFERENCES Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Central Supply Worker	Elem. School	2	Business Math	1	Commercial Concern	1	Upgrade-Same Category	1
	High School	3	General Science	1	Institution	1		
	High School + O-J-T	1	On-the-job Train.	2	Nurse Aide	4		
	College	1	Record Keeping	1	Rehabilitation Aide	1		
Medical Secretary	High School	1	Anatomy	1	Case Record Clerk	1	Executive Secretary	2
	High School + 1 year	1	Biology	1	Secretarial	1	Medical Record Librarian	1
	Junior College	6	Bookkeeping	2	Typist	1	Office Supervisor	1
			English	3	Ward Clerk	1		
			Medical Terminol.	7				
			Medical Transcription	2				
			Record Keeping	1				
			Shorthand	4				
			Typing	5				
Bookkeeping Clerk	High School	4	Bookkeeping	3			Bookkeeper	1
	High School + 1 year	1	Business Machines	1			Business Services Officer	1
			Business Math	2			Chief Clerk	1
			On-the-job Train.	1			Supervisor	1
Computer Operator	High School	2	Basic Business	1			Programmer	2
			Computer Training	1				
			Statistics	1				
Key Punch Operator	Elem. School	1	Key Punch Course	2	Clerk	2	Computer Operator	1
	High School	3	Typing	2			Tab Machine Operator	1
Tabulating Machine Operator	High School	1	Bookkeeping	1			Supervisor	1
	Junior College	1	Business Math	1				
			On-the-job Train.	1				
			Tabulating Course	1				
Junior Programmer	College	1	College Business	1				

HOSPITALS

OCCUPATION	EDUCATIONAL PREFERENCES Level	Resp.	Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Nursing Unit Clerk	High School	5	Anatomy	1	Clerk	4	Chief Clerk	1
			English	2	Typist	2	Medical Secretary	1
			On-the-job Train.	1				
			Typing	3				
Dietitian	College	6	Chemistry	2	Asst. Dietitian	1	Chief, Dietitic Service	2
			Dietetics	5	Hospital	3	Director of Dining Halls	2
			English	1	Internship	3		
			Food Management	1				
			Mathematics	1				
			Nutrition	1				
Asst. Dietitian	High School	3	Dietetics	3	Food Supervision	1	Dietitian	4
	College	3	English	1	Hospital	2		
			Food Management	2	Internship	1		
			Mathematics	1	Restaurant	1		
			On-the-job Train.	2				
Chef	Elem. School	2	Baking	1	Assistant Chef	1	Director of Dining Halls	2
	High School	2	Chemistry	1	Head Cook	1		
	Technical Inst.	3	Cooking	1	Quantity Cooking	7		
			Economics of Cooking & Purchasing	1	Restaurant	2		
			English	1				
			Food Management	2				
			Literature of Cooking	1				
			Mathematics	1				
			Meat Cutting	1				
			Menu Planning	1				
			Nutrition	1				
			Quantity Cooking	2				
Cook	Elem. School	2	Economics of Cooking & Purchasing	1	Hospital	2	Assistant Chef	2
	High School	4	English	1	Institution	2	Chef	5
	Technical Inst.	1	Literature of Cooking	1	Quantity Cooking	2		
					Restaurant	1		

OCCUPATION	EDUCATIONAL Level	Resp.	PREFERENCES Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Cook (Continued)			Mathematics	1				
			Menu Planning	1				
			Nutrition	1				
			On-the-job Train.	1				
			Quantity Cooking	2				
Cook Helper	Elem. School	5	Cooking	2	Food Service	3	Cook	7
	High School	2	English	1				
			Equipment Use and Care	1				
			Hygiene	1				
Meat Cutter	Elem. School	1	Anatomy	1	Apprenticeship	1	Cook	1
	High School	3	English	1	Meat Company	1		
	Technical Inst.	1	Mathematics	1				
			On-the-job Train.	1				
Baker	Elem. School	1	English	1	Commercial Concern	1	Upgrade-Same Category	2
	High School	1	Mathematics	1	Quantity Cooking	1		
	Technical Inst.	1	On-the-job Train.	1				
Housekeeper	Elem. School	1	Bacteriology	1	Asst. Housekeeper	1	Supervisor	1
	High School	6	Chemistry	2	Commercial Concern	1	Upgrade-Same Category	3
	College	1	Decoration	1	Hospital	3		
			General Science	1	Institution	2		
			Housekeeping	1				
			Management Prin.	1				
			On-the-job Train.	2				
			Spanish	1				

HOSPITALS

Health Occupations
Survey
Hartford Area

Part II
Educational and Experience Requirements and Preferences
CONVALESCENT AND REST HOMES

OCCUPATION	EDUCATIONAL Level	Resp.	PREFERENCES Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Nurse, Supervisor	College	1	Nursing Curric.	1	Head Nurse	1		
Nurse, Head	Diploma School	23	Geriatrics	15	Convalescent Home	8		
			Nursing Curric.	11	Staff Nurse	12		
			Psychology	4				
Nurse, Staff	Diploma School	32	Anatomy	2	Convalescent Home	8	Asst.Head Nurse	10
			Bedside Care	2	Hospital	10	Head Nurse	13
			Biology	1				
			Chemistry	1				
			Communication	1				
			English	2				
			Geriatrics	19				
			Mathematics	1				
			Nursing Curric.	15				
			Psychiatric Nurs.	1				
			Psychology	5				
Nurse, Licensed-Practical	High School + 1 year	28	Anatomy	1	Convalescent Home	8	Upgrade-Same Category	2
			Bedside Care	3	Hospital	7		
			English	1				
			Ethics	3				
			Geriatrics	17				
			Hygiene	1				
			LPN Curriculum	10				
			Management	1				
			Nursing Principles	1				
			Patient Care - General	2				
			Personal Develop.	1				
			Psychiatric Nurs.	3				
			Psychology	5				

OCCUPATION	EDUCATIONAL PREFERENCES Level	Resp.	Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Nurse Aide	Elementary School	12	Anatomy	4	Convalescent Home	6	Upgrade-Same Category	2
	High School	17	Bedside Care	13	Homemaking	1		
			Biology	1	Hospital	1		
			Body Mechanics	4				
			Charting	1				
			English	1				
			Ethics	3				
			Geriatrics	4				
			Hygiene	1				
			Patient Bathing and Grooming	6				
			Patient Care - General	7				
			Physiology	1				
			Psychology of the Aged	2				
			Public Relations	1				
			Public Speaking	1				
			Sanitation Princi.	1				
Orderly	Elementary School	4	Anatomy	7	Convalescent Home	6	Upgrade-Same Category	1
	High School	13	Biology	1	Hospital	1		
			Body Mechanics	11				
			English	1				
			Geriatrics	2				
			Housekeeping	1				
			On-the-job Train.	1				
			Patient Bathing and Grooming	2				
			Patient Care - General	1				
			Physiology	1				
			Psychology	2				
			Public Speaking	1				

CONVALESCENT AND REST HOMES

OCCUPATION	EDUCATIONAL PREFERENCES Level	Resp.	Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Medical Secretary	High School	1	Record Keeping	1				
			Typing	1				
Medical Record Clerk	Junior College	1	Charting	1				
			Record Keeping	1				
			Typing	1				
Recreation Director	High School	20	Crafts	16	Convalescent Home	6	Instructor	4
	High School + OJT	1	Geriatrics	3	Personal Contact Work	2		
	Junior College	6	Human Relations	2	Recreation Center	1		
			Organization	1	Youth Organizations	1		
			Psychology	16				
			Public Relations	1				
			Sociology	1				
Dietitian	College	7	Chemistry	1	Convalescent Home	3		
			Dietetics	5	Hospital	4		
			Diets-Therapeutic	2				
			Food Management	1				
Chef	Elem. School	1	Quantity Cooking	1	Head Cook	1		
Cook	Elem. School	15	Diets-Therapeutic	24	Convalescent Home	10	Asst. Chef	2
	High School	14	Economics of Cooking + Purch.	12	Cook - Homestyle	3		
	Technical Insti.	1	English	1	Hospital	2		
			Menu Planning	14	Institution	16		
			On-the-job Train.	1	School	2		
			Personnel Adjust.	1				
			Quantity Cooking	25				
			Sanitation Prin.	1				

OCCUPATION	EDUCATIONAL Level	Resp.	PREFERENCES Course Content	Resp.	PRIOR EXPERIENCE PREFERRED	Resp.	ADVANCEMENT OPPORTUNITIES	Resp.
Cook Helper	Elem. School	11	Diets-Therapeutic	2	Convalescent Home	1	Cook	4
	High School	2	English	1	Cook - Homestyle	1		
			Equipment Use and Care	2	Institution	1		
			Hygiene	1				
			Menu Planning	2				
			Personnel Adjust.	1				
			Quantity Cooking	2				
			Sanitation Prin.	1				
Dietary Aide	Elem. School	16	Diets-Therapeutic	1	Convalescent Home	1		
	High School	2	Hygiene	3				
			Nutrition	1				
			On-the-job Train.	3				
			Psychology of the Aged	4				
			Sanitation Prin.	8				
Laundress	Elem. School	17	Equipment Use and Care	6	Convalescent Home	6		
	High School	1	On-the-job Train.	5				
			Sanitation Prin.	6				
Maintenance-General	Elem. School	14	Equipment Use and Care	9	Convalescent Home	1		
	High School	6	Gen. Maintenance and Repairs	15				
			On-the-job Train.	1				
			Service School	1				

APPENDIX

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Appendix C - Occupations Surveyed	A6
Appendix D - Occupational Definitions	A7
Appendix E - Method of Computing Replacements	A13

H E A L T H O C C U P A T I O N S S U R V E Y

Institution _____

Respondent _____

Title _____

Conducted By

The University of Connecticut

in cooperation with

The State Department of Education

Vocational Education Division

Date _____

Interviewer _____

APPENDIX A

HEALTH OCCUPATIONS SURVEY
Hartford and Waterbury Areas
P A R T I
ESTIMATED DEMAND
1966 to 1971 and 1976

OCCUPATION See attached list of definitions TITLE CODE	NUMBER CURRENTLY EMPLOYED	NUMBER OF NEW JOBS (Expansion) by:	EXPECTED WITH-DRAWALS FROM HEALTH FIELD (marriage, family, other business or industry) by:	FULL AND PART-TIME CURRENT EMPLOYMENT (Total should agree with II) FULL	PART	CURRENT JOB VACANCIES (Number you would fill now if qualified workers available)	COMMENTS
I	II	III	IV	V	VI	VII	VIII
NURSING Nurse, Suprv. 075.128		1971 1976	1971 1976				
Nurse, Head 075.128		1971 1976	1971 1976				
Nurse, Instructor 075.128		1971 1976	1971 1976				
Nurse, Staff 075.378		1971 1976	1971 1976				
Nurse Anesthetist 075.378		1971 1976	1971 1976				
Nurse, Lic., Practical 079.378		1971 1976	1971 1976				
Nurse Aide 355.878		1971 1976	1971 1976				
Orderly 355.878		1971 1976	1971 1976				

HEALTH OCCUPATIONS SURVEY
Hartford and Waterbury Areas
PART II
EDUCATIONAL AND EXPERIENCE REQUIREMENTS AND PREFERENCES

OCCUPATION See attached list of definitions	FORMAL EDUCATION NEEDED High School Hi.Sch.plus one Junior College Tech. Institute College	COURSE CONTENT List courses of spec. importance to the occupation (chemistry, math, biology, English, anatomy, etc.)	TYPE OF PRIOR WORK EXPERIENCE PREFERRED	NEXT HIGHER OCCUPATION (Advancement Opportunity)	NORMAL HIRING CHANNEL (Newspapers, Friends of Employees, Employment Services, etc.)	LICENSING, ASSOCIATIONS AND OTHER SPECIAL JOB FEATURES	COMMENTS (use extra sheet if necessary)
I	II	III	IV	V	VI	VII	VIII
NURSING Nurse, Suprv. 075.128							
Nurse, Head 075.128							
Nurse, Instructor 075.128							
Nurse, Staff 075.378							
Nurse Anesthetist 075.378							
Nurse, Lic., Practical 079.378							
Nurse Aide 355.878							
Orderly 355.878							

H.O.S. L.E.C. 3/66

APPENDIX A

THE UNIVERSITY OF CONNECTICUT
STORRS, CONNECTICUT
06268

LETTER SENT TO

HOSPITALS

Dear - - - - :

The University of Connecticut, under the sponsorship of the Division of Vocational Education of the State Department of Education, is conducting a survey of health occupations in the Hartford and Waterbury areas.

The purpose of this study is to ascertain employment opportunities in this field, and to identify those occupations which have potential for program developments in vocational education at the secondary and post secondary school levels.

In a few days our field investigator, Mrs. Barbara Lownds, will be calling you for an appointment. We will greatly appreciate your cooperation.

Very truly yours,

David Pinsky

David Pinsky
Professor of Labor Education
Labor Education Center

THE UNIVERSITY OF CONNECTICUT
STORRS, CONNECTICUT
06268

LETTER SENT TO

DENTISTS

Dear Doctor:

The University of Connecticut is conducting a study to determine future needs in the field of health occupations. The study, which is sponsored by the Department of Health, Education and Welfare, will be used by the State Department of Education and other institutions to establish training programs in secondary and post secondary schools.

We have already surveyed the needs for personnel in physicians' offices, hospitals, convalescent homes and in public health. In order to get the complete picture, it is necessary to obtain similar data from dentists in private practice. The purposes and methods of this study have been discussed in detail with and approved by the Connecticut State Dental Association.

Although we recognize that future expansion and replacement needs are difficult to predict, we feel that the dentist himself is in the best position to make this estimate.

Your cooperation in this survey may prove invaluable in helping to meet your future needs regarding auxiliary personnel.

Will you kindly complete the enclosed form and return it to us. If there is any question regarding the study or the form itself, please do not hesitate to call.

Very truly yours,

David Pinsky

David Pinsky
Professor of Labor Education
Labor Education Center

APPENDIX B

OCCUPATIONS SURVEYED

GENERAL & SPECIAL HOSPITALS

Nurse, Supervisor
Nurse, Head
Nurse, Instructor
Nurse, Staff
Nurse, Anesthetist
Nurse, Licensed Practical
Nurse Aide
Psychiatric Aide
Rehabilitation Aide
Orderly
Pharmacy Helper
E.E.G. Technician
E.K.G. Technician
X-Ray Technician
Cytotechnician
Laboratory Technician
Operating Room Technician
Inhalation Therapist
Orthotist-Prosthetist
Formula Room Worker
Pediatric Technician
Physical Therapist Aide
Social Service Case Aide
Central Supply Worker
Medical Secretary
Bookkeeping Clerk
Computer Operator
Key Punch Operator
Tabulating Machine Operator
Junior Programmer
Nursing Unit Clerk
Dietitian
Assistant Dietitian
Chef
Cook
Cook Helper
Meat Cutter
Baker
Food Service Supervisor
Housekeeper

CONVALESCENT HOMES

Nurse, Supervisor
Nurse, Head
Nurse, Staff
Nurse, Licensed Practical
Nurse Aide
Orderly
Physical Therapist Aide
Recreation Director
Dietitian
Chef
Cook
Cook Helper
Dietary Aide
Medical Secretary
Medical Record Clerk
Housekeeper
Laundress
Maintenance-General

PHYSICIANS

Nurse, Staff
Nurse Anesthetist
Nurse, Licensed Practical
Nurse Aide
E.E.G. Technician
X-Ray Technician
Laboratory Technician
Medical Secretary
Secretary-Receptionist

DENTISTS

Nurse, Staff
Dental Hygienist
Dental Assistant (Chairside)
Secretary-Dental Assistant
Secretary-Receptionist
Dental Laboratory Technician

REST HOMES

Nurse, Head
Nurse, Staff
Nurse, Licensed Practical
Nurse Aide
Orderly
Recreation Director
Dietitian
Cook
Cook Helper
Laundress
Maintenance-General

PUBLIC HEALTH

Nurse, Supervisor
Nurse, Staff Public Health
Nurse, Licensed Practical
Public Health Aide
X-Ray Technician
Laboratory Technician
Dental Hygienist
Physical Therapist Aide
Social Service Case Aide
Medical Secretary
Bookkeeping Clerk
Key Punch Operator
Dietitian

EMPLOYEES HEALTH CLINICS

Nurse, Supervisor
Nurse, Staff
Nurse, Aide
E.K.G. Technician
X-Ray Technician
Medical Laboratory Technician
Dental Hygienist
Medical Secretary

DEFINITION OF TITLES

075.128 Nurse, Supervisor

Supervises and coordinates activities of nursing personnel engaged in specific nursing service, such as obstetrics, orthopedics, pediatrics, and surgery. Plans and organizes orientation and in-service training programs for staff members.

075.128 Nurse, Head

Directs nursing activities and instructs nurses in organized hospital unit. Assigns duties and coordinates nursing services. Orders, or directs ordering of drugs, solutions, and equipment, and accounts for narcotics.

075.128 Nurse, Instructor

Demonstrates and teaches patient care in classroom and clinical units to nursing students. Instructs students in principles and application of physical, biological, and psychological subjects related to nursing.

075.378 Nurse, Staff (General Duty Nurse, Registered Nurse, Professional Nurse)

Renders general nursing care to patients in hospital, infirmary, sanitarium, or similar institution, administering prescribed medications and treatments in accordance with approved nursing techniques. Aids physician during treatment and examination of patients. May rotate among various clinical services of institution. May assist with operations and deliveries.

075.378 Nurse Anesthetist

Administers intravenous, spinal, and other anesthetics to render persons insensible to pain during surgical operations, deliveries, or other medical and dental procedures. May give patient postoperative care as directed.

079.378 Nurse, Licensed, Practical

Under supervision of physician or staff nurse, cares for ill, injured, convalescent and handicapped persons. Takes and records temperature, blood pressure, pulse and respiration rate. Applies compresses, ice bags and hot water bottles. Administers specified medicine. Attends to routine duties in care of patients.

355.878 Nurse Aide (Hospital Attendant or Nursing Assistant)

Assists in care of hospital patients, under direction of nursing and medical staff. Answers lights and bells. Bathes and dresses patients. Serves food and feeds patients. Transports patients. Assists with examinations. Cleans rooms. Takes and records temperature, pulse and respiration rates, and food and liquid intake and output. May apply compresses and hot water bottles.

355.878 Psychiatric Aide

Assists mentally ill patients, working under direction of nursing and medical staff. Assists patients in grooming, feeding, in becoming accustomed to hospital routine. Encourages them to participate in activities which promote rehabilitation. Aids or restrains to prevent injury. Administers prescribed medications.

355.878 Rehabilitation Aide

Assists in restoring physical, emotional and social effectiveness of medical patients and other disabled persons. Encourages patients to participate in activities which promote rehabilitation.

355.878 Orderly

Performs any of the following duties as directed by nursing and medical staff to care for hospitalized male patients: bathes patients, gives rubs, cleans and shaves operative areas, lifts and transports patients, assists physician in putting on casts and braces. May administer enemas and catheterizations. Sets up equipment such as oxygen tents, x-ray machines and bone fracture equipment. Does cleaning and routine jobs.

074.387 Pharmacy Helper (Pharmacy Clerk)

Mixes pharmaceutical preparations, under direction of pharmacist. Issues medicines, labels and stores supplies, and cleans equipment and work areas in hospital pharmacy. Prepares inventory and orders supplies.

078.368 E.E.G. Technician (Electroencephalograph Technician)

Measures impulse frequencies and differences in electrical potential between various portions of the brain, using equipment that records data as a series of irregular lines on a continuous graph to be used by medical practitioner in diagnosing brain disorders.

078.368 E.K.G. Technician (Electrocardiograph Technician)

Records electromotive variations in actions of heart muscle, using electro-cardiograph machine, to provide data for diagnosis of heart ailments.

078.368 X-Ray Technologist (Radiologic Technologist)

Applies roentgen rays and radioactive substances to patients for diagnostic and therapeutic purposes. Develops film in accordance with photographic techniques. Prepares reports and maintains records of services rendered.

078.381 Cytology Technician (Cytotechnician)

Performs routine laboratory tests to determine pathological condition of cells of the human body. Stains and mounts cells to aid in diagnosing nature and extent of disease or cellular damage.

078.381 Laboratory Technician (Medical Laboratory Assistant, Medical Technician)

Performs routine tests in medical laboratory for use in treatment and diagnosis of disease. Prepares tissue samples, takes blood samples and prepares vaccines. Executes urinalyses and blood counts. Under supervision, makes quantitative and qualitative chemical and biological analyses of body specimens.

079.378 Operating Room Technician (Surgical Technician, Surgical Orderly)

Assists at operations by preparing operative area of patient and arranging and passing instruments under direct supervision of a registered nurse or physician. Maintains specified supply of such fluids as plasma, saline, blood and glucose for use during operation. Adjusts lights and other equipment as directed. Washes and sterilizes equipment. Cleans operating room. May assist in administering blood, plasma, or other injections and transfusions.

APPENDIX D

079.368 Inhalation Therapist (Oxygen-Therapy Technician)
Sets up and operates various types of oxygen equipment, such as iron lungs, oxygen tents, resuscitators and incubators to administer oxygen and other gases to patients.

078.368 Orthotist-Prosthetist
Writes specifications for and fits artificial limbs, braces and appliances for body deformities and disorders following prescription of qualified medical practitioner. Instructs patient in proper use of device.

078.368 Dental Hygienist
Performs dental prophylactic treatments and instructs groups and individuals in care of teeth and mouth. Charts conditions of decay and disease for diagnosis and treatment by dentist.

079.378 Dental Assistant (Chairside only)
Records patients medical history and dental treatment rendered. Arranges instruments, materials and medications and hands them to dentist as required. Keeps oral operating area clear. Prepares dental amalgam. Sterilizes instruments. May expose and process x-ray films.

079.378 Secretary-Dental Assistant
Performs same duties as Dental Assistant (chairside) in addition to which receives patients, schedules appointments, collects fees for services, answers telephone, orders supplies and pays bills.

712.381 Dental Laboratory Technician
Constructs and repairs dental appliances, according to dentist's prescription. Fabricates full and partial dentures. Constructs crowns, inlays and wire frames. Constructs porcelain teeth. Tests completed appliance for occlusal harmony.

317.887 Formula Room Worker
Prepares, bottles and sterilizes infant formulas.

355.878 Pediatric Technician (Nurse Aid, nursery)
Bathes, weighs, dresses and feeds newborn babies under direction of nursing and medical staff.

355.878 Physical Therapist Aide (Physical Therapy Attendant)
Prepares patients for treatment by physical therapist. Assists patients in dressing, undressing, and moving about. Sets up and assembles such equipment as hydrotherapy tanks and vibrators. May assist in fitting patients with corsets, braces, and hand splints.

195.208 Social Service Case Aide
Aids patients and their families with personal and environmental difficulties which predispose illness or interfere with obtaining maximum benefits from medical care. Works on simpler aspects of cases or provides service to less complex cases under close and regular supervision of caseworker.

223.887 Central Supply Worker (Central Supply Aide)
Cleans, sterilizes, and assembles hospital equipment, supplies, and instruments according to prescribed procedures and techniques. Stores prepared articles and supplies. May fill requisitions, write charges and inventory supplies.

201.368 Medical Secretary
Prepares medical charts and reports for doctor or hospital personnel, utilizing knowledge of medical terminology. May prepare and send bills to patients and record appointments.

237.368 Secretary-Receptionist (Physician or Dentist's Office)
Greets patients. Schedules appointments. Gives information to callers. May prepare and send bills to patients and record appointments. Files correspondence and other records. May take dictation. Composes and types routine correspondence.

210.388 Bookkeeping Clerk (Bookkeeper)
Keeps one section of set of financial records. Verifies and enters details of transactions in account and cash journals. Summarizes details and transfers data to general ledger. Balances books and compiles reports.

213.382 Computer Operator (Digital-Computer Operator or Console Operator)
Monitors and controls electronic digital computer to process business, scientific, or other data, according to operating instructions.

213.582 Key-Punch Operator (Card-Punch Operator, Printing-Card-Punch Operator)
Operates alphabetic and numeric key-punch machine, similar in operation to electric typewriter, to transcribe data from source material onto punch cards and produce prepunched data. May tend machines that automatically sort, merge, or match punchcards into specific groups.

213.782 Tabulating Machine Operator (Tabulating-Equipment Operator, Tabulator Operator)
Operates machine that processes data from tabulating cards into printed records.

219.388 Junior Programmer (Detail Programmer or Program Coder)
Selects symbols from coding system peculiar to make or model of digital computer and applies them to successive steps of completed program for conversion to machine processable instructions. Usually works with Programmer, performing such additional tasks as converting flow charts and diagram of simple problem from rough to finished form, or making minor changes in established programs to adapt them to new requirements.

219.388 Nursing Unit Clerk (Floor Clerk)
Prepares and compiles records in hospital nursing unit, such as obstetrics, pediatrics, or surgery. Keeps file of medical records of patients in unit, including temperature, pulse rate, blood pressure and diet instructions. Keeps time records on unit personnel. Requisitions supplies as directed. Answers telephone, directs visitors and distributes mail, flowers, etc.

APPENDIX D

249.388 Medical-Record Clerk
Classifies medical records of patients and compiles statistics for use in reports and surveys. Keeps daily statistical record of information such as admissions, discharges, deaths, births, and types of treatment rendered.

079.128 Recreation Director (Recreational Therapist)
Plans, organizes and directs medically approved recreation program for patients in hospitals and other institutions. Directs and organizes such activities as adapted sports, dramatics, social activities and arts and crafts, regulating program in accordance with patients' capabilities, needs and interest.

077.168 Dietitian
Plans and directs food service program. Plans menus and diets. Directs workers engaged in preparation and serving of meals. Maintains and analyzes food cost control records to determine improved methods for purchasing and utilization of food, equipment and supplies. May instruct individuals and groups in application of principles of nutrition to selection of food.

079.588 Assistant Dietitian (Diet Clerk or Diet Aide)
Compiles dietary information for use by kitchen personnel in preparation of foods for hospital patients. Processes new diets and changes as required. May check trays for errors. May keep records of and prepare reports on perpetual inventory, food purchases, total meals served, and food costs.

313.131 Chef (Chief Cook or Kitchen Chef)
Supervises, coordinates, and participates in activities of cooks and other kitchen personnel engaged in preparing and cooking foods. Estimates food consumption, and requisitions or purchases foodstuffs. Selects and develops recipes. May maintain time and payroll records.

315.381 Cook
Prepares and cooks meals in quantities according to menu and number of persons to be served. Plans menus. May serve meals. May order supplies and keep records and accounts. May supervise activities of one or more workers who assist in preparing and serving meals.

317.887 Cook Helper
Assists cook in preparing foods by performing routine duties of a lesser skill.

316.781 Meat Cutter (Meat Butcher)
Cuts, trims, and bones meats to prepare them for cooking, using knives, saw and cleaver. Chops or grinds meats. Shapes and ties roasts. May clean fowl and fish.

313.781 Baker (Bread Baker or Ovenman)
Prepares bread, rolls, muffins, and biscuits according to recipe. May bake pies, cakes, cookies, and other pastries.

355.878 Dietary Aide - or Tray-line Worker

Prepares and delivers food trays to patients. Apportions food servings according to diet list. Places servings in blender to make foods for soft or liquid diets. Collects dirty dishes. Washes dishes and cleans work area.

319.138 Food Service Supervisor

Trains and supervises employees engaged in serving food in hospital and similar institutions and in maintaining cleanliness of food service areas and equipment. Keeps records. Requisitions supplies and equipment.

321.138 Housekeeper (Housekeeping Supervisor)

Supervises work activities of hospital cleaning personnel to insure clean, orderly, attractive rooms. Assigns duties and inspects work for conformance to prescribed standards. Determines need for remodeling, and makes recommendations to management.

361.884 Laundress

Washes, dries and irons articles using equipment such as hand iron and small washing and drying machines.

382.884 Maintenance-General

Keeps building in clean and orderly condition and tends furnace and boiler. Takes care of yard and keeps walk clear of snow and debris.

APPENDIX D

US #105

METHOD OF COMPUTING REPLACEMENTS

The respondents reported the number of withdrawals expected in five and ten years in each of the occupations surveyed. The instructions stated that only those who withdrew from the health field for such reasons as marriage, starting a family, entering another field of employment, or retirement should be included. Persons who left one hospital for another or who left a convalescent home to work for a doctor were not to be counted as a withdrawal. These persons remain in the health field and training a replacement for them is not involved on a community-wide basis.

The total employed by and the total withdrawals from the respondents were tabulated for each occupation for five and ten year periods. From these totals the annual rate of withdrawals from the employed were computed. These rates were then applied annually to the total of currently employed plus replacements plus expansion which yielded annual replacement needs. The annual needs were then totalled to show the five and ten year replacements needed to meet the indicated employment goals in the area.

VT 001 281

VT 001 281 ED 011 039

Systems Under Development for Vocational Guidance, A Report of a Research Exchange Conference, Ohio State University, August 18 and 19, 1966.

Campbell, Robert E., ed. * and others

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Purposes of the conference were -- (1) to review experiences, problems and insights, developed by the individual participants through research and operational use of new technologies, (2) to review the relation of these technologies to vocational education, vocational counseling, and guidance, and (3) to arrange for continued communication among participants as they use systems analysis and technology in vocational guidance research and practice. Three areas were discussed -- (1) projects devoted to the study of careers, (2) projects for the development and presentation of material for the enhancement of career decisions but not involving the computer, and (3) projects devoted to the development of material and the presentation and assessment of presentation with the assistance of time shared computers. Summaries are given for -- (1) Project TALENT, (2) exploratory study of information processing procedures and computer based technology in vocational counseling, (3) a Harvard-Needs-Newton information system for vocational decisions, (4) a study of intellectual growth and vocational development, (5) the development and evaluation of a pilot computer assisted vocational guidance program, (6) clear language printout of demographic and psychometric data regarding college students, (7) a multi-media approach for communicating occupational information to noncollege youth, (8) vocational orientation systems, and 5 other projects. (EM)

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Systems Under Development for Vocational Guidance

A Report of A Research Exchange Conference

August 18—19, 1966

The Center for Vocational and Technical Education
The Ohio State University · 980 Kinnear Road · Columbus, Ohio

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The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

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SYSTEMS UNDER DEVELOPMENT FOR VOCATIONAL GUIDANCE

A Report of a Research Exchange Conference

August 18 and 19, 1966

held at

The Ohio State University, Columbus, Ohio

Edited by

Robert E. Campbell, The Ohio State University

David V. Tiedeman, Harvard University

Ann M. Martin, University of Pittsburgh

The Conference was sponsored by The Center for Vocational and Technical Education, The Ohio State University, 980 Kinnear Road, Columbus, Ohio 43212

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Preface

In keeping with its catalytic role, The Center was pleased to sponsor the Research Exchange Conference on Systems Under Development for Vocational Guidance. Broadly speaking, the conference was a unique experiment in research stimulation and coordination. It provided an opportunity for independent researchers concerned with mutual problems to exchange ideas for methodologies and to reinforce each other's efforts. Traditionally, the research exchange time lag has been lengthy and has been a hindrance to the sequential investigation of major problems. In addition to facilitating research, the conference expedited the diffusion of guidance innovations by reporting research in progress, thereby, communicating future trends.

Dr. Robert E. Campbell, Occupational Psychologist at The Center, and Dr. Ann M. Martin, Project Director, Multi-media Approach to Communicating Occupational Information to Non-College Youth, University of Pittsburgh, are to be commended for their work as conference coordinators. Special thanks is due Dr. David V. Tiedeman, Professor of Education, Harvard University, for his role as program chairman. The Center is also indebted to the conference participants for their presentations, reactions, and contributions during the two-day meeting.

Robert E. Taylor
Director,
The Center for Vocational and
Technical Education

CONFERENCE OBJECTIVES

In recent years, several new technologies and methods have been developed in the field of information processing for career decision-making purposes. These advances can best be characterized as follows:

1. Computer-assisted counseling systems
2. Gaming techniques
3. Use of communications media

Computer assisted counseling systems combine systems analysis of the counseling process with measurement systems for determining which information should be provided to a particular student at a given sequence in the program. The computer allows the handling of a greater amount of information about individual students thus increasing the potential of understanding how human individuals make decisions.

Gaming techniques (e.g., the Life Career Game designed by Sarane Boocock at John Hopkins University) have introduced the possibility of developing career potentials among students through practice sessions in simulated decision-making situations. In these games students get at what values and what life patterns are inherent in the choices they make.

Communications media (e.g., TV, AV, audio tape, etc.) provide a core around which to build in providing students, parents and counselors with a selective view of changing concepts of work, education and self. These concepts are then available to those who have choices to make in relation to education and work. The purposes of the conference were:

1. To review experiences, problems and insights, developed by the individual participants through research and operational use of these new technologies.

2. To review the relation of these technologies to vocational education, vocational counseling and guidance.

3. To arrange for continued communication among participants as they bring to bear systems analysis and technology in vocational guidance research and practice.

Ann M. Martin

Robert E. Campbell

Conference Coordinators

David V. Tiedeman

Program Chairman

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CONFERENCE SUMMARY

A small group of researchers met informally for two days to share mutual problems and ideas in the development of new technologies and innovations for vocational guidance. Prior to the conference, each investigator had been operating reasonably independently in the development of his System project. Although, there was considerable substantive communality, among the various research projects each project is distinct in its goals, methods, techniques, and theoretical disposition. All projects have the common goal of eventually assisting persons to become more effective in their educational and occupational planning, but each project varies in magnitude and developmental stages in relation to this goal.

The projects under discussion fell into three areas: (1) projects devoted to the study of careers per se; (2) projects for the development and presentation of material for the enhancement of career decisions but without involving the computer in presentation and materials; and (3) projects devoted to both the development of material and the presentation and assessment of presentation with the assistance of time-shared computers.

Conference participants were in general agreement that exchange during the conference was excellent. There was sincere willingness for mutual exploration of problems and reciprocal assistance. Furthermore, there was consensus that continued communication should occur in a second conference which is tentatively planned for mid-winter. The first meeting merely served to identify major issues, initiate communication, and establish future foci. Therefore, in the next conference, the investigators would like to pursue questions of substance in more depth.

The notion of Systems Development proved to be the theme of the conference which participants wish to explore further. Systems for guidance-like activities which are now in development include those for:

1. Assisting the individual in self evaluation and educational-vocational exploration.
2. Assisting with counselor activities, especially routine tasks and data storage.
3. Assisting in describing the world of work in its many facets and complexities.

The above three guidance systems are largely modeled on existing guidance activities. There is agreement among conference participants that guidance Systems can be constructed to substitute effectively for the clerical activities now undertaken by the guidance counselor. However, there is a larger issue presently facing conference participants. A time-shared computing System permits the user to obtain educational and vocational facts in unique ways. It is now possible to construct data bases, and to provide computer routines which will permit both user access in several modes of thought development, and monitoring of use. The routines are designed to help the user learn how he has decided as well as how to decide. The substantive issues facing participants therefore, concern means whereby the above can be done in efficient manners. These are issues which the participants wish to frame in subsequent meetings.

Because time-shared computers now make the above interactions possible, the participants felt that they "just scratched the surface" in identifying and discussing problems and issues in systems research in guidance. However, the following list represents concerns in implementing the System which are now evident to the participants.

Model of Counselor Functioning:

In establishing an experimental System, one of the first problems is to design the basic model of counselor activities to be performed by the System. The investigator is immediately faced with the question of which theoretical representation of counselor functioning should be employed as an operational framework for the establishment of a System. As the building of the System progresses, theoretical decisions have to be met, e.g., how people make vocational choices, the role of diagnosis, amount of self direction, etc. In building a model, does the researcher operationally simulate observed counselor activities; or does he develop a new model?

It should be stressed that no System intends to replace or eliminate the counselor; a System should be perceived as an aid or tool for the counselor. A System can be extremely helpful in handling routine tasks (storing occupational and educational information, demographic data, academic performance, etc.) Hence, the goal in most Systems is to free the counselor from routine tasks in order to provide more time for adequate work with more complex problems.

All of the participants were concerned about the accusation that the computers are de-humanizing or ultimately replacing counselors. This is far from the truth; the attitude is that a System is a tool like other tools frequently used, e.g., group testing or occupational films. As one participant put it, "Any counselor the machine replaces, wasn't a counselor in the first place."

The counselor is never excluded from a System. Systems are programmed in such a way as to allow for frequent counselor intervention and monitoring. The counselor can thereby intervene at any point which he deems appropriate for assisting the client. The client has the same option in transferring from the System to the counselor.

In developing a model, the participants were concerned about such things as the use of natural language on the computer print-outs, student expectancies and attitudes, "hardware" limitations imposed upon the model and goals of the model. Many of these concerns are discussed in more detail in subsequent sections.

Data Base Construction:

This topic deals primarily with the input for a System, e.g., what kinds of information will a System need in order to accomplish its goals? The input data will vary as a function of the goals of the System, but typically occupational information, educational information, demographic data, test results, school characteristics, and academic records of the student are included. Most Systems also allow for student input, i.e., the storage of personal data which are directly supplied by the student as he interacts with the System. In addition to selecting the general major categories of the data input, the investigator has a number of decisions to make in regard to organization of the data, the quantity of data, mode of presentation, etc. For example, in providing information about vocational training opportunities, how should these be grouped, how much detail should be included, and at what points within a System's sequence should the material be introduced? What data bases should be provided besides the educational data base? Occupational? Military? Marriage? Leisure? How can you provide access linkage so that movement from base to base is possible? How can you monitor access and interpretation so that a history of use is provided and a sense of increased complexity in thought and action plan ensues in conjunction with use? How can you simulate "career" so that a sense of progress and of operation for progress can be provided for the user?

Battery of Measurement Instruments:

The inclusion of test results as a type of input variable presents some problems for Systems researchers - not only problems of quantity and quality, but also problems of test interpretation and testing procedures. For example, what kinds of information should be obtained through tests and which tests are most appropriate to measure the appropriate traits? Should the System be designed to do the actual testing or should the testing be done independently of the System? Similar questions are asked in regard to test interpretation. Can Systems be designed with enough flexibility to handle the complexities of test interpretation not only for singular tests but tests in combination.

In selecting tests the System developer also has to consider the physical capacity of the computer. The System may be limited by the amount of data it can effectively handle in a sufficiently small interval of time. Perhaps this is an instance where the counselor must intervene in cooperation with the System. The researcher has a number of alternatives for handling test data and he will probably experiment with different approaches while attending to "feed-back" from the client.

Taxonomy of Occupations and Descriptions:

This is basically a problem of how to classify and present educational and occupational information, e.g., nature of training, requirements for admission, job opportunities, etc. One of the major advantages to the student using a computer System in making an occupational choice is that the System, if properly programmed, can allow a wide spectrum of occupational exploration. For example, if a System is ideally designed, the System can help the student in moving from one occupation to another within a family of occupations, across levels of occupations, and through career progressions.

To provide this exploration, a complex well-organized occupational classification system is needed - one in which the student can explore on the basis of one or more occupational attribute (skill requirements, income, etc.) For example, the student might very well ask the System, "I have these given traits, what occupations are available to me?" Or, "With a given set of traits, what additional traits would I need to enter this or that occupation?" There are also problems relating to storing local, geographic and national trends and the continual difficulty of maintaining up-to-date information.

After a taxonomy of occupations has been developed, there are questions which pertain to the kind of media for presenting this occupational information.

An elaborate System might incorporate film strips, audio tapes, slides, and other innovative techniques. A System must also include points at which the student can temporarily interrupt his interaction with the computer and use other modes of obtaining occupational information, e.g., group counseling, work experience, on-the-job visits, etc.

Computer Technologies Development:

Implementing an effective vocational guidance System requires fairly elaborate computer equipment or "hardware". As the System is experimentally shaped and evaluated for its effectiveness, modifications of standard equipment and the design of new equipment becomes mandatory. One of the major benefits of a research exchange conference is to provide the sharing of information, particularly on equipment. The individual participants reported their success with different kinds of equipment outlining equipment capacities and limitations. Due to the rapid advances in computer technology across different fields of study, it is a major task for the individual researcher

to stay abreast of developments. It was recommended that perhaps an inventory of Systems equipment be maintained as a reference base. It was also noted that new kinds of hardware will soon become available. This new hardware will originally be available merely for research until materials and programs (the"software") make large scale operation possible. At this time, signs are that "computer utilities" may well come into being. Such "utilities" could in turn make feasible the possible. Large scale operation on the order of a "utility" will undoubtedly be needed in order to make widespread the use of computer-based guidance Systems.

Presentation Techniques:

The mode of presentation of information to the client as he interacts with the System represents another choice for the investigator. At present several presentation alternatives are available for research: typewritten printouts, films, slides, and audio recordings. Combinations or sequences of presentations are now also possible for programming consideration. Discovery of reasonably optimum presentation modes for different kinds of data and tasks (occupational information, educational information, test results, problem solving, and decision making) is now urgently needed. The general trend is toward combining different modes of presentation which could especially incorporate natural language and thereby permit adaptation of the System by the user himself.

Analysis of the World of Work:

Analysis of the world of work differs from merely providing "a taxonomy of occupations and descriptions." The researcher is concerned with a more comprehensive analysis of the world of work. Two major questions emerge: (1) How should the world of work be described and presented? (2) How much information does the student need about the world of work to make sound

vocational choices?

An effective analysis draws upon a vast range of inter-disciplinary data, e.g., sociological correlates, labor economics, career progressions, style of life, etc. Analysis therefore requires movement toward integration of research from the fields of economics, psychology, sociology, education, and anthropology. As integration proceeds on a time-shared computer System, it could provide a more personal analysis for the individual as he attempts to relate himself to the world of work. The System could conceivably pose thought-provoking, longitudinal career questions of the occupational neophyte. It could also allow the student to look more carefully at the series of choice points involved in the world of work as opposed to a singular occupational choice. As the student interacts with the System, the investigator can obtain valuable information from the student which might pose problems for further research. The student also has an opportunity to test his knowledge and perceptions of the world of work as contrasted with the actual reality of work.

Research Study:

As one can see, continued research effort is needed to provide data for implementation and continued refinement of a System. Longitudinal and cross sectional studies on occupations, the decision making process, the process of learning, career behavior, measurment instruments, counselor behavior, etc. are critical in providing data bases for developing a System. This is a two-way street in which findings from various research studies can be tried out on a System. The System in its turn can identify researchable gaps and problems for further research study.

Clarification of the Monitoring Role:

As the student interacts with a System, there are numerous occasions

for intervention (monitoring) by the counselor, teacher, and/or other relevant person. There is no set rule as to when monitoring should occur; monitoring will vary with the individual System programming design. Most Systems incorporate intervention points frequently so that the monitor or the student can "go off" the System as the need arises. Typically this will occur when their problems become highly personal, when "hangups" occur, where referral to other resources is needed and/or where the student appears not to be ready to continue interacting with the System. When the student transfers from the computer to the counselor, the counselor can have benefit of the student's previous interactional record.

The procedure of monitoring should again remind us that a System is a tool under control of counselor and student. However, in developing a System, clarification will certainly be needed as to the frequency, the amount, and the kind of monitoring.

Subjects and settings:

Although it is generally assumed that Systems are being developed for persons in need of vocational guidance, considerable variation exists within this population, e.g., age, educational level, and vocational readiness. A senior in college may want different kinds of information than a junior high school student contemplating a vocational education program. There are also variations in the vocational guidance setting, e.g., Youth Opportunity Center, college, or United States Employment Service. Differences in subjects and settings greatly influence the input and programming sequence. Although the basic model could be essentially the same, changes would have to be made to account for the specific population. Most researchers envision flexibility in their models so that the basic model can be easily altered to adapt to other subjects and settings.

Other questions related to this issue are the physical location of a System, joint sharing of the physical equipment, educating cooperating personnel, criteria for the selection of System users, the work tolerance of the individual as he uses a System, and cost analysis of a System.

Some of the questions in the foregoing paragraph are not mutually exclusive. For example, the problems of physical location, time-sharing, and cost analysis of a System can be interdependent. If a school system wanted to use a System but found the cost prohibitive, alternatives such as sharing the equipment with other school systems, using the equipment for other school services (bookkeeping, grading, scheduling,) and as a research tool greatly reduce the per capita cost.

Educating cooperating school personnel in implementing a System is critical if a System is to work. Some Systems include this phase as part of the experimental model, i.e., indoctrinating school personnel for acceptance, educational benefits, and their role in the System. Others do not. However, whatever their present project, participants agree that marked change in counselor education will become critical as time-shared computer Systems become available in education and vocational guidance.

PROJECT SUMMARIES

PROJECT SUMMARY

Title: Exploratory Study of Information Processing Procedures and Computer-Based Technology in Vocational Counseling

Principal Investigator: J. F. Cogswell

Institution: System Development Corporation, Santa Monica, California

Funding Agency: Division of Adult and Vocational Research, USOE

Duration: Phase 1 -- 18 months. December 1965 - May 1967

Phase 2 -- 2 years

Objectives: The objectives of the study are: (1) to survey and report counseling and related information-processing practices in the vocational education field; (2) to explore ways in which information-processing technology can be applied to aid the counselor by relieving him of certain routine information-processing functions and by providing him with additional information on which to base his decisions; and (3) to develop and evaluate an experimental computer-based man-machine counseling system.

Procedures: At a very general level of discourse procedures being employed are as follows:

A. Survey of Vocational Guidance Operations in the Field

Counseling procedures and information-processing practice will be surveyed in twelve vocational education installations. Three of each of the following types will be included: junior colleges having at least 50 % of their students in terminal programs,

vocational training schools, vocational high schools, and Job Corps training centers. In addition, two state employment agencies and one private and one municipal vocational guidance operation will be studied. One of these installations will be selected as the experimental site.

B. Detailed Analysis of the Counseling Procedures Employed at Experimental Field Site

The procedures at the experimental field site will be analyzed by the following procedure: The flow of students will be described through all of the steps in the counseling process from the time of initial application and/or entrance to the final interview, decisions, and actions. The procedures employed by each counselor will be described.

C. Design and Development of the Computer-Based Information-Processing Functions

The planning team will review the survey data and the detailed data collected at the experimental site. It will decide which functions should be developed as computer-based information-processing procedures and how these procedures should be used in operation.

Although the specific computer-based function to be developed will depend upon the design formulated by the planning team, the following functions might be incorporated in the final design:

(1) A student-information data base

(2) An information retrieval system

(3) A system for monitoring student performance

(4) A counseling appraisal function

(5) An automated interview function

D. Evaluation of the Modified Counseling System

The evaluation will be concerned with the following variables: (1) the attitudes of students and staff toward the automated procedures; (2) the ways in which counselors use their time; (3) the number of students who drop out of training; (4) the maturity of the counselees' vocational plans; (5) the training effects of communicating to counselors, well-explicated models of their counseling procedures; and (6) the relevance of the questions that students ask of the machine to their own personal problems.

The measures will be partially developed during the six-month survey period, and will be refined for use during the first two months immediately following the selection of the experimental site.

Current status: All survey data has been collected. It is being analyzed. The counseling operations in a local high school and junior high school have been selected as the focal system for study. The counselors have been trained in computer applications and have participated in the initial design formulation. Analysis of the counseling operations demonstrate that counselors do not have time to see all of their students, counselors spend a large amount of time in processing data that could be handled much more efficiently by machine, and the counseling operation is decidedly weak in providing vocational guidance. Design ideas under consideration to date are as follows: storage of all student curricular and post high school educational data in the computer for ready processing and retrieval; tracking and monitoring of

student progress to identify students in need of counseling; on-line generation and application of multiple regression formulae for prediction and research; automated report preparation; and automated interviews in course programming, post high school educational planning, and vocational guidance. In addition, plans are progressing toward using the computer to bring auxiliary counseling services into the school. Discussions with the California State Employment Service are in progress for building an automated vocational guidance interview for the high school, and plans to store in the computer and make available to counselors and students. The Los Angeles Vocational Advisement Service's occupational information is under consideration.

PROJECT SUMMARY

Title: Project TALENT

Principal Investigator: John C. Flanagan and William W. Cooley

Institution: University of Pittsburgh and American Institutes for Research

Funding Agency: U. S. Office of Education

Duration: 1957 to 1984

Objectives: To conduct follow-up studies of a large, representative sample of American high school students tested in 1960 for the ultimate purpose of improving high school guidance.

Procedures: Develop a computer-measurement system for guidance which utilizes Project TALENT results.

IMPLICATIONS FOR GUIDANCE

The great number of career plan changes that take place during and immediately following high school suggest that plans formed in high school are unrealistic for one reason or another. This is an unfortunate phenomenon since educational decisions made during and immediately following high school are based upon these unrealistic (or at least unstable) plans.

There is really no concern if a boy changes his career goal from physics to mathematics between grade 10 and grade 12 because the high-school preparation of future physicists and future mathematicians in similar. On the other hand, if a tenth-grade boy planning to go into business later decides in the twelfth grade to become an astronautical engineer, he will be rather set back if he has not taken the necessary mathematics options during high school.

These practical guidance considerations are based on the following principles: (1) there is no single high-school curriculum appropriate for all students, (2) the appropriateness of a curriculum depends in part upon career plans of the student, (3) different career plans are appropriate for different students, and (4) the appropriateness of a career plan depends upon the abilities and motives of the student and the projected supply and demand characteristics of the job market.

Because of the number of students to be served and the volume of information to be processed, at least partial automation of school guidance services is necessary if these principles are to be followed. One computer measurement system of guidance has already been proposed by William W. Cooley (see recent Project TALENT published articles). A major function of this system would be to give each student a good projection of his possible vocational future. Project TALENT would be useful in the development of such a system. First of all, the results of the follow-up studies described earlier have provided evidence of the predictive validity of the TALENT variables for membership in various post-high-school occupational, educational, and career-plan groups. A measurement system using these data could, for example, take a boy's test scores and return to him the probability of future membership in each of the six occupational categories discussed earlier. These probabilities would sum to one. A particular boy might get this set of probabilities:

1. Physical Science - .70
2. Medicine - Biology - .03
3. Humanities - .02
4. Business College - .04
5. Technical - .20

6. Business Noncollege - .01

This information does not tell the boy that he must become a physical scientist. It informs him that in a group of boys who share his measured characteristics, one year out of high school most plan to be physical scientists, some intend to be technicians, and very few plan careers in the other four areas. He is not forced to react in any particular way, but he may choose to incorporate the information into his planning for his future.

Project TALENT can also aid in the development of a computerized system of guidance by providing a model for future career follow-ups. These follow-ups could be carried out by local school districts or by a central agency established by the Office of Education. Information obtained through these studies could then be systematically given to all local guidance programs.

Other TALENT contributions to a computer measurement system will include:

(1) the phrasing of a comprehensive, coherent trait-and-factor theory of adolescent personality

(2) the delineation of a measurement system related to that theory

(3) the packaging of computer programs for the data processing and analytical operations of a school measurement system

(4) an effort through content analysis of school courses, achievement tests, and vocational positions to synthesize the common element of curriculum and guidance sciences.

PROJECT SUMMARY

Title: A Harvard-Needs-Newton Information System For Vocational Decisions

Principal Investigator: Russel G. Davis, Allan B. Ellis, Wallace J. Fletcher, Edward Landy, Robert P. O'Hara (Executive Director), David V. Tiedeman, (Chairman, Executive Committee), and Michael J. Wilson.

Institutions: Graduate School of Education, Harvard University, New England Education Data Systems; Newton School Department.

Funding Agency: U. S. Office of Education under the provisions of Section 4 (c) of the Vocational Education Act of 1963.

Duration: 1 June 1966 - 30 June 1969.

Objectives (General):

The overall objective of this project is to develop the prototype of an information system which with repeated application could ultimately improve the career decision-making of all persons, particularly students who are or ought to be in an attitude of vocational choice. This will require providing comprehensive, accurate, and relevant data at appropriate choice points in the educational and vocational sequences they may elect. It will also require providing these persons with instruction and supervised practice in the making of vocational decisions, and hence in understanding how their use of

data through decisions in turn creates information of value to them. The content of the system will include current and projected data on education, training, and job characteristics and personal data about the user. Also required will be computer routines that will connect the user to the data in terms of his personal characteristics. Other goals include study of the relationship of economic deprivation to "sense of agency;" the effectiveness of accurate data turned into information in generating such a sense where it is lacking; and the placement of the System into an existing vocational education program so that evaluation and revision of both program and system may occur. Eventually, this project could assist persons in the New England area to make better choices about the education, training, and retraining which they elect, with potential benefit both to the individual and the region.

In general, the project must engage in intensive and extensive work to enable the System to bring into anyone's awareness the following four elements which are important in purposeful decision-making:

1. Accurate and comprehensive information about alternatives and consequences.
2. A "sense of agency" -- a functioning belief by the person that he <u>can</u> choose and thereby become a determining agent in the course of his career, and that he assumes personal responsibility for the consequences of choice.
3. Knowledge about the process of decision-making and the psychology of career choice as well as the relation of decision to action.

4. Knowledge about his own idiosyncratic value system and its consequences for his decision-making.

Each of these elements may be considered a necessary but not sufficient condition for purposeful decision-making. Accurate, comprehensive, and relevant data are needed to reduce the limiting effects of chance in the decision-making process. Data turned into information is the content of decision making and the quality of decisions is ordinarily directly related to the quality and comprehensiveness of the information possessed by the decision maker. Even the most purposeful person is limited in a decision by the lack of complete information. However, with machine data processing, we now have the capability to make data turned into information more comprehensive. It remains for us to make this more comprehensive information useful, and to assess its effect on the individual.

Objectives (Specific):

This project falls naturally into three broad areas, each of which depends for its successful execution on the other two. Each area actually consists of two closely related sub-areas, as follows:

A. Development of a computer-based data system for use in vocational decision-making:

1. Collection of data on education, training, and job characteristics, and on the persons who will use the system (these data may initially be only first approximations to the kind eventually developed).

2. Development of computer routines (computer programs) and utilization or adaptation of display devices (audio, video, tape, cartoon, film, etc.) which will connect the user, in terms of his personal characteristics, directly with the data so that he can generate information for his use in vocational decision-making.

B. Development of a training program, or course, in vocational decision-making:

1. Specification and provision of the elements and process of decision-making for individuals of various ages and vocational situations.

2. Supervised practice in decision-making for students and counselors, using the data and routines described in (A) above.

C. Study and assessment of the system, its users, and its use:

1. Assessment of the decision-making process, yielding clues about both the quality of the data involved and its use by students.

2. Study and analysis of student characteristics and their relationship to such things as vocational decision-making, occupational choice, and performance in education, training, or work.

The specific objectives for each of the areas are as follows:

A. Development of a computer-based system for use in vocational decision-making.

<u>Part 1</u>. Description of occupations prevalent in a region of New England in terms of requisite skills.

a. To make information about occupations readily available to students.

b. To organize this material in such a way that the student can relate it to his vocational decision process.

c. To characterize occupational information in terms of skills so that it becomes meaningful to talk about specific abilities and interests in relation to specific occupations.

Occupational forecasting and prediction of manpower needs and occupational patterns for a region of New England.

a. To more accurately assess the future occupational demands throughout a region of New England.

b. To better determine the present occupation pattern for the selected New England region and to relate this to predicted future patterns in terms of manpower shifts, new skills, and needed curriculum development.

c. To assess the role that forecasts can play in vocational guidance and in career decision-making.

d. To better determine the relationship between future occupational demands and present vocational curricula.

Part 2. Development of a computerized system which becomes an integrating medium for the synthesis and the presentation of vocational information. In order to make these resources immediately available to students, it will be necessary to:

a. Develop computer programs for information retrieval, processing, and display.

b. Develop facilities for direct communications (via consoles) with the computer for counselors and for students in decision-making course.

c. Establish a "media-room" where students may have access to computer-controlled slide, tape, and television display of vocational information at their convenience.

d. Develop programs for the automated analysis of vocational literature.

e. Explore the applicability of computer-based instruction methods of presentation of occupational information.

f. Examine experimental computer system presently in use at Palo Alto School System.

B. Development of a training program, or course, in vocational decision-making.

Part 1. Specification and provision of the elements and process of decision-making.

a. To provide the student with an understanding of career as a time-extended set of choices which requires that well-considered decisions be made periodically with reconsideration of prior decisions at each new decision-point.

b. To familiarize the student with the myriad forces- external and internal, cultural and material - which operate upon his career decisions.

c. To enhance the student's awareness and assessment of his own abilities and interests especially as they relate to vocational decisions.

d. To develop a sense of agency in the student.

e. To develop the student's ability to digest and interpret occupational information.

f. To establish in the student's decision process the proper use of such things as probability statements, projections, and expectancy tables.

Part 2. Supervised practice by counselors of students engaged in vocational decision-making.

a. To assist while requiring the student to engage in the decision-making process in selecting the path of his own career.

C. Study and assessment of the System, its users, and its use

Part 1. Development of a measurement system to assess student characteristics relevant to vocational decision-making. Instruments will be selected or designed to assess such things as:

a. Vocational self-concept

b. Sense of agency

c. Work values

d. Occupational constructs

e. Vocational planning readiness

f. Occupational interests

g. Skills potential

h. Aptitudes

Part 2. Longitudinal studies of the relationship between 1) student characteristics and occupational choice, 2) performance in school and success in junior college, post-secondary schooling, or the world of work.

a. To determine the occupational groups a given student most resembles.

b. To estimate the degree of success a given student is likely to have in particular occupational fields.

c. To relate a given student's experience and plans to those of the students who have gone before him.

Procedures: Procedures are not yet completely developed. However, progress has been made at two levels:

1. Preliminary specification

   A. Understandings needed for prevention of claim that System determines lives (See Appendix A, attached).

   B. Preliminary specifications for data and routines (See Appendix B, attached).

   C. Procedures for implementing the making of vocational decisions (See Appendix C, attached).

II. Rudiments of the PERT for the Information System (See Appendix D, attached).

Current Status or Progress: Grant has been negotiated effective 1 June 1966. The rudimentary PERT (Appendix D) presently mirrors the progress and status of the project since its inception as of that date.

NOTE:

Appendixes were not included in this report due to space limitations.

PROJECT SUMMARY

Submitted by: William W. Turnbull, Executive Vice President
Educational Testing Service

Project Director: Thomas L. Hilton, Senior Research Psychologist
Educational Testing Service, Princeton, New Jersey

Title: An Investigation of Intellectual Growth and Vocational Development

Objectives: (1) To trace the intellectual development of students who subsequently elect vocational as opposed to college preparatory curricula.

(2) To investigate the interaction over time of stated vocational plans, individual characteristics, environmental influences, and subsequent occupation.

(3) To develop a preliminary theoretical model of vocational development.

Procedures: A five-year longitudinal investigation of the vocational orientation and preparation of American youth is proposed. Support is requested for the first two years of the study (Phase 1) with the expectation that support later will be requested for Phase 2. This investigation will make extensive use of the data of the Study of Academic Prediction and Growth, a ten-year longitudinal study initiated at ETS five years ago. The Growth Study, sponsored by ETS and the College Entrance Examination Board, involves some 40,000 students in 17 U. S. public school systems and six independent schools. In 1961 and again in 1963, the students were given a compre-

hensive battery of objective aptitude and achievement tests and in 1963 they completed a 25-page background and experience questionnaire. A third nation-wide testing and questionnaire administration will take place in the fall of 1965 and a fourth in the fall of 1967.

The investigation proposed here will focus on how students' attributes interact with environmental variables to result in certain students' electing to prepare for a vocation and in others' electing to prepare for higher education; and on how this choice influences the students' educational development. To supplement the several batteries of test data available for each student from the Growth Study itself, a variety of special questionnaires will be given, ending with a follow-up questionnaire one and a half years after he graduates from high school. The funds requested will be used primarily for (1) data analysis and (2) obtaining the additional interview and questionnaire data required.

Time Schedule: January 1, 1966 to December 31, 1967

QUARTERLY PROGRESS REPORT

April 1, 1966 to June 30, 1966

A Study of Intellectual Growth and Vocational Development

Grant Number: OEG-1-6-06183-0650

Educational Testing Service

Princeton, N. J. 08540

July 1, 1966

1. Description of Work Completed

a. Administrative

During the initial period of work on the Study of Intellectual Growth and Vocational Development, the major emphasis has been on staffing and detailed planning. To assist the ETS staff members who are mentioned in the original proposal, three additional ETS staff members with experience in the area of guidance research have been asked to devote part of their time to the Study. They are, Norman E. Freeberg, Research Psychologist; Gerald Halpern, Research Psychologist; and Donald A. Rock, Research Psychologist. The investigations to be conducted by these staff members will be described shortly. Thomas B. Sprecher, Research Psychologist, who was mentioned in the original proposal subsequently has resigned from his position at ETS; and Sandra Cohen, Associate Research Psychologist, is devoting full time to a major study for the National Institute of Child Health and Human Development. Marion W. Tyson, Administrative Assistant, will be responsible for all administrative matters connected with the Study; Lynn K. Gaines and Lenora E. Segal will continue as Research Assistants.

In addition, Barbara Rothenberg and William Godwin, who are in the final stages of completing their doctoral work at Cornell University and the University of Indiana respectively, were asked to join the staff of the Developmental Research Division at ETS with the expectation that they would devote a major part of their time to this study. Each will join the staff in July and their role will be discussed in the report for the next period.

Part of this planning stage has involved the development of a flow chart depicting the major steps which must be taken to complete the project. A copy of this chart is attached. As the planning for the project continues this chart will become considerably more elaborate.

b. Research

The total project is being implemented as a series of closely related but separate smaller studies, each under the direction of an experienced staff member. The first of these, designated by the ETS project number 870-2, is entitled The Case Development Interview Technique and is under the direction of Gerald Halpern. A team of researchers will visit a sample of the 17 Growth Study school systems to obtain information concerning their vocational programs and the way in which students select a particular curriculum as an initial step in career planning. Interviews will be conducted for small samples of students at selected schools to determine the status of their vocational planning. The instrument resulting from this study will then be used for larger samples to describe the curriculum choice processes.

Project 870-3, The Follow-Up Study, is planned as a questionnaire survey of vocational and educational involvements. In the Fall of 1966 there will be a second follow-up (the first having been conducted within the Growth Study) of a ten percent sample of the seniors tested in the Spring of 1965 (Growth Study Group 2 subjects) and in June of 1967 a first follow-up of the seniors tested in the Spring of 1967 (Growth Study Group 3 subjects). The size of the sample of 1965 graduates has been doubled over the five percent originally specified. Preliminary estimates of probable returns and usable responses indicate that a five percent sample would not produce numbers large enough for the analyses tentatively planned.

Project 840-4, The Background and Experience Questionnaire Analysis and Development, will involve the development of scoring keys for the Background and Experience Questionnaire (BEQ) for measures of non-school experiences likely to be relevant to school performance and vocational development.

Project 870-5, Simulation of Curriculum Assignment Process. In this Study, under the direction of T. L. Hilton, an effort is being made to develop a series of decision rules which will simulate the process by which students become identified with certain high school academic courses. First indications, based on a pilot case study at one Growth Study school, are that at least six groups are involved in this process: teachers, members of the guidance staff, administrative officers, parents, the students themselves, and their peers. The sequential decision-making takes place over a period spanning at least six years. The major curriculum assignments--some of which

are made by the students themselves and these are "self-assignments"--are made at the ninth grade level, but these appear to be highly influenced by ability groupings which originate in certain judgments made by sixth grade teachers.

2. Plans for Next Reporting Period

In the next time period the research will proceed in accordance with the plan which is shown on the appended diagram. The Vocational Planning Interview Schedule will be completed; the factor structure of the BEQ will be compared across administrations; the Case Development Interview will be perfected; a preliminary model of the curriculum assignment process will be completed; and the follow-up questionnaire and procedures for conducting the follow-up will be refined. No major departures from the proposed research are expected nor problems which have not been anticipated.

PROJECT SUMMARY

Title: The Development and Evaluation of a Pilot Computer Assisted Vocational Guidance Program

Principal Investigator: Joseph T. Impellitteri
Assistant Professor of Vocational Education

Institution: The Pennsylvania State University

Funding Agency: Pennsylvania Department of Public Instruction

Duration: January 1, 1966 to April 30, 1968

Objectives:

1. To develop a computerized system which will present selected occupational information to ninth grade boys via slide projections, tape recordings and computer terminal printouts.
2. To evaluate the effectiveness of the system in aiding ninth grade boys to explore occupational opportunities.
3. To provide a model for an expanded future system which may include a much greater number of occupations from the unskilled to the professional.

Procedures: System Development

1. The Hardware - IBM 1050 terminals with slide and tape capacity tied into an IBM 1410 computer. The coursewriter language, developed by IBM, is being used.
2. The Occupational Information
   a. Eighty (80) representative trade and technical occupations have been selected for presentation.
   b. Descriptions of the 80 occupations have been collected from commercial concerns, federal and state educational and labor departments, industries and labor unions.

c. Color photographs of actual workers in the 80 occupations will be taken.

d. Interviews will be conducted with actual workers in 80 occupations.

e. A format for essential information has been devised. The total amount of information will be abstracted and written to fit the format.

f. Twenty minute interviews with workers must be edited to two minutes.

g. The total amount of time allowed to present each occupational description is 7 - 8 minutes.

3. The Operational Sequence - See Figure 1, next page.

NOTE: Computer selects suitable occupations on the basis of students' aptitudes as measured by the GATB and their answers to a series of questions.

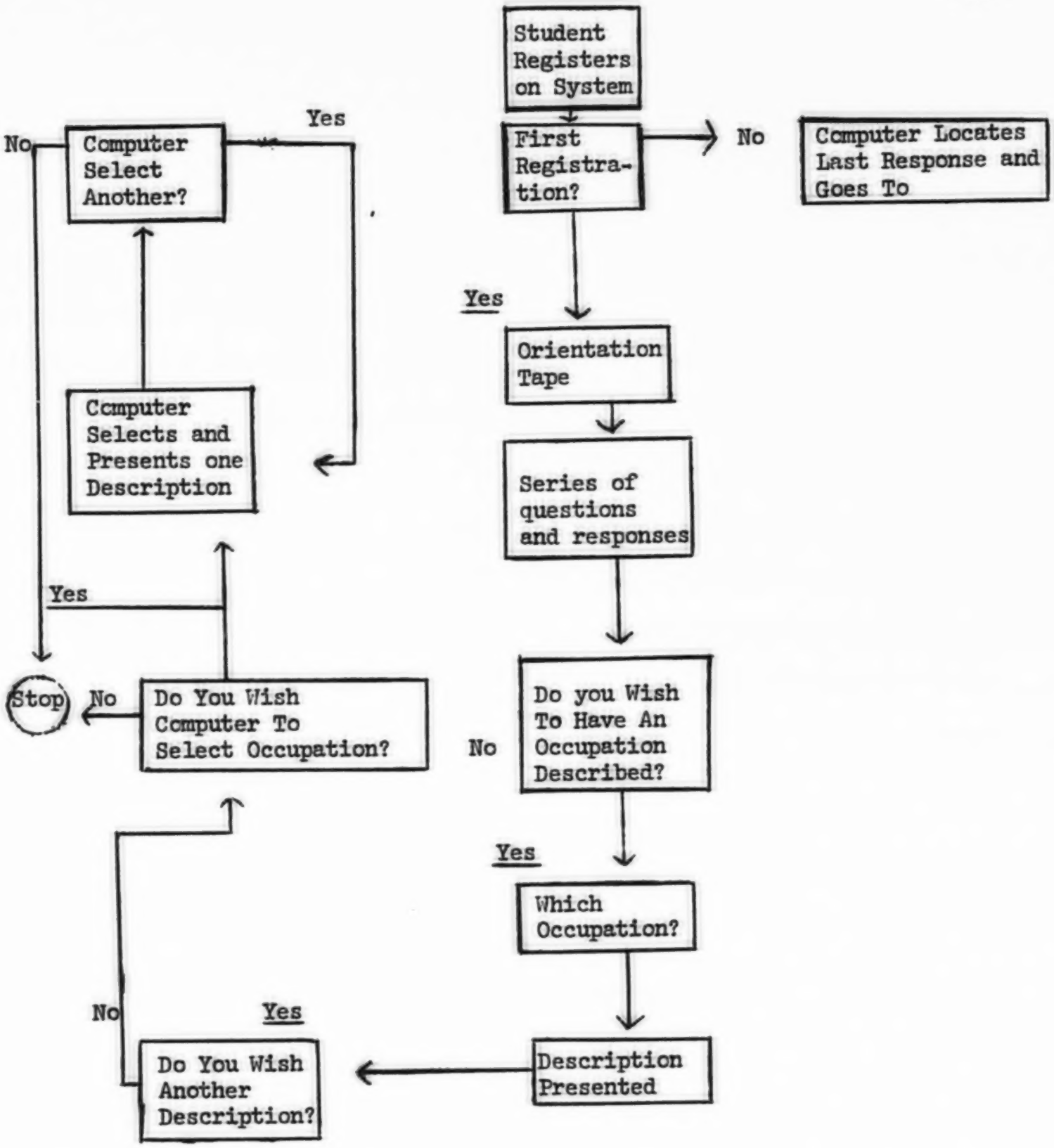

Figure 1: Operational sequence of the system.

Evaluation 1. Of equipment: A reaction inventory to the equipment will be administered after the students have completed the program.

2. Of the effectiveness of the system: Prior to, immediately following and six months after the students have had contact with the system, the following measures will be administered:

a. An occupation information achievement test (based on the stored information)

b. A career decision-making test

c. A self-concept inventory

d. A scale of values

The design which will be utilized in analyzing the data collected above is presented in Figure 2.

Current Status or Progress: The computer program has been completed, and ten occupational descriptions have been entered. Three-fourths of the interviewing and photographing have been completed, as well as the total number of occupational descriptions. Editing of tapes, and abstracting of literature is now going on.

A brief time schedule for the project is presented below:

1. Complete development of the system - 1/1/67.
2. Field trial of the system - 1/1/67 to 4/30/67.
3. Revision of the system - 5/1/67 to 8/31/67.
4. Final field trial and evaluation - 9/1/67 to 4/30/68.

EXPERIMENTAL (Computer System) N = 200 ninth grade males				CONTROL (No Computer System)
Treatment Group # 1 n = 50 Arrangements made with counselor after each 30 - 45 minute session at computer terminal.	Treatment Group #2 n = 50 Counselor available if requested by student at any time.	Treatment Group #3 n = 50 Group session with counselor each week.	Treatment Group #4 n = 50 No counseling provided.	N = 200 ninth grade males

Figure 2: The Design for Evaluation.

Title: Vocational Problem-Solving Experiences for Stimulating Career Exploration and Interest: Phase II

Principal Investigator: John D. Krumboltz
Associate Professor of Education and Psychology

Institution: Stanford University

Funding Agency: U.S. Office of Education

Duration: June 1, 1965 - November 30, 1966

Objectives: In an effort to improve ways of motivating young people to explore their own career opportunities and see the world of work as a set of intriguing and enjoyable problems, it is proposed that modifications in the structure and use of the life-like occupational problem-solving kits developed in Phase I of this project be tested. The general purpose of Phase II is to test alternative ways of constructing and using problem-solving materials. Specific ways of tailoring occupational problem-solving materials to the preferences, interests and abilities of individuals will be tested in the Phase II continuation:

1. To determine the optimal difficulty level of the occupational problems for students with varying interests and ability levels.
2. To determine the effect of adding specific questions for students to explore after problem-solving.
3. To determine the effect of giving students their choice of problem-solving kits.
4. To determine the effect of assuring students an opportunity to make use of the information to be sought.

Procedures: Three additional occupational problem-solving kits will be constructed in Phase II making a total of eight available for experimentation. Criterion instruments will assess the degree of vocational exploratory behavior and career interest among tenth grade non-college bound males.

The first experiment will present three problem-solving kits, each of which is constructed so that success in solving the problem is hard, moderately hard, or easy to attain. Analysis will be made of the effect of each difficulty level on subjects at each of three ability levels and having each of six initial types of vocational interest.

In the second experiment a random half of the subjects will be allowed to work on the two problem-solving kits of their first choice and half will be given the same two kits but picked from among those not listed as their first choice. A random half of each of these choice and no-choice groups will then each be given a list of specific questions comparing the two occupations while the other half receive more general questions. Finally, a random half of subjects who receive each type of question will make appointments with a counselor to report their reactions and findings, while the other half will not make such appointments. All subjects will have the counseling interview but only half will know of the appointment in advance. The analysis will determine the relative effect of each factor and possible interactions on the extent of vocational exploration and career interest.

PROJECT SUMMARY

Title: Clear Language Print-out of Demographic & Psychometric Data Regarding College Students

Principal Investigator: Thomas Magoon

Institution: University of Maryland - Counseling Center

Funding Agency: Above

Duration: Indefinite

Objectives: To make available to counselors, readily and concisely, the array of demographic and psychometric data which we annually gather about individual college students.

Procedures: This project has been developed with the expectation of having remote station retrieval on demand with the advent of IBM 360 type equipment in the University's Counseling Center. Our data are programed for clear language print-outs and these are now run weekly for use with clients who have had intake interviews and are about to start counseling.

Status: Now operative containing demographic census data. Available for all students counseled at Center. Program now being written to incorporate (a) CPI scores and profile, (b) ACT scores and profile, (c) Holland VPI scores and profiles, (d) each semester's GPA.

Title: Educational Information Transmission Via Message Repeater Tape (Single messages)

Principal Investigator: Thomas Magoon

Institution: University of Maryland - Counseling Center

Funding Agency: Above

Duration: Indefinite

Objectives: To present information economically, articulately, uniformly in on-demand schedule of users; by doing so with content ordinarily transmitted by counselor, considerable saving in professional manpower time is effected.

Procedures: Develop audio message repeater tapes for (a) intake of clients into Reading and Study Skills Laboratory program (educational skills development); (b) preparing students after intake interviews for participation in effective problem solving counseling (see first project report); (c) and for orientating students, both clients and non-clients, to use of occupational information in their vocational planning.

Current Status and Progress: Three message repeater tapes are now operative in our Counseling Center. They are used in the reception area with headsets. They are self operative by users and range from eight to fourteen minutes in length each. The repeater tapes are used on ordinary tape recorders. No problems have developed to date except when occasional helpful listeners try to rewind the tape!

Title: Educational Information Transmission via Multiple Message Repeater Tapes

Principal Investigator: Thomas Magoon

Institution: University of Maryland - Counseling Center

Funding Agency: Above

Duration: Indefinite

Objectives: To present varied information economically to users in an on-demand schedule, when and where most usage will occur; by doing so user is exposed to information much of which will practically be unavailable to him otherwise.

Procedures: Originally the Juke Box was the instrument believed to provide this economical random access response capability. One was acquired and several adaptations made to improve its utility. It has proven to be too cumbersome to be mobile, but more important are the following limitations: (a) cost of recording records and (b) the limited playing time per record. Currently we have on order a 23 track tape machanism that has as much or more response capability as the Juke Box would, it is light weight (7 lbs.) and runs on batteries as well as through outlet current.

Current Status and Progress: To record in Fall, 1966, 15 minute semi-structured interviews with representatives of each academic major within the University (up to 95 majors). Material is then to be placed in varied settings and usage and user reactions gathered. This same equipment clearly usable for (a) vocational information and (b) social modeling presentations for prospective

and present clients in individual and/or group counseling. Shortly there is to be a visual component available for the above equipment and this raises questions as to what kinds (if any), of these audio-stimuli will be enhanced by visuals as well.

Title: An Effective Problem Solving Model for Educational-Vocational Planning

Principal Investigator: Thomas Magoon

Institution: University of Maryland - Counseling Center

Funding Agency: Above

Duration: Indefinite

Objectives: To develop a self-directed model approximating vocational counseling but offering more thorough treatment and allowing use with multiple individuals at one time, and done largely through written communication.

Procedures: To define and teach steps in problem solving and then enable the client to apply the process to the problem of his own indecision. There are 12 parts to the material and the client works on these one at a time and following these the counselor makes additional written and/or oral comments facilitating the clients work. The parts include study methods and efficiency, ability and achievement, interests, work experience, leisure experience, expectations of significant others, etc. These are followed by an integration section and then a taking action on plans section and conclude with a client evaluation.

Current Status and Progress: This model is now operative at the Counseling Center and in the University's Pre-College Summer Session Program. The material has gone through six revisions and our experience suggests the treatment offers more thorough counseling, lends itself to very varied usage by counselors

and clients. Clients indicate finding it as much or more value to them than "traditional" counseling. Problems of most prominence at present involve how to introduce more incentives, hence making the stimulating material more powerful, and consideration of other variations in usage and development of content in other problem areas.

PROJECT SUMMARY

Title: A Multi-Media Approach for Communicating Occupational Information to Noncollege Youth

Principal Investigator: Ann M. Martin

Institution: University of Pittsburgh

Funding Agency: U. S. Office of Education under the Provisions of Section 4 (c) of the Vocational Education Act of 1963

Duration: October 1, 1965 - November 30, 1967

Objectives:

1) To design and develop materials and procedures needed to convey information on the important aspects of education and work in today's world. These materials will be designed to teach the basic planning skills of self-estimation and educational and vocational decision-making to 8th and 12th grade students. The materials will be designed specifically for guidance of non-college youth.

2) To design and develop displays of opportunities for specialized study and work in local regions.

3) To develop a program to train educational personnel to use these materials in the guidance of noncollege youth.

4) To evaluate the impact of the system of materials and procedures for their use on student attitudes, understandings, career plans, and educational and vocational choices.

5) To provide for additional refinement and development of the system of materials as it operates in actual practice.

6) To contribute to theory and practice in vocational guidance through a scientific and systematic approach to the problem of effective means of communicating occupational information.

Procedures: The project will extend for three years. A working conference was held during the first year of the project to assist in summarizing the present "state of the art" of vocational guidance for secondary school students. It focused on questions, methods, tools, and information called for to meet the needs of noncollege bound youth.

The project will be conducted in three phases. The basic work program will include the following:

1) Setting of specifications for development of instructional and informational materials desired.
2) Design, development, production, and tryouts of these materials.
3) General evaluation of effectiveness of the program in experimental schools.

It is not possible to specify in detail the exact materials to be produced for the project in advance of the development of specifications based on a theoretical model. However, the following types of materials may be expected to result from project work:

1) TV program series (Videotape and/or kinescopes introducing vocational counseling and related problems and approaches to teachers and guidance personnel).
2) Small library of 8 mm. single concept films (2-5 minute loop films stored in cassettes) which can serve as a kind of visual glossary to explain specific occupational activities and information, with special attention given to those occupations or problems which are most frequently misunderstood.

3) Collection of overlay transparencies and 2" X 2" slide sets for use in general presentations to groups and for individual review of that occupational information or material, which can, through use of transparencies of various sizes and types (including 16 and 35 mm filmstrips), introduce useful material.

4) Study booklets (with a number developed in programmed instructional formats) for the introduction or review of selected areas--useful to introduce a field and/or to expose a student or counselor to the nature of substantive content requirements in the field. A unique feature of the programmed materials will be the development of a personal-assessment programmed text or counsel-aid to assure more complete involvement of the student with occupational information and vocational choice.

5) Teacher's guides to offer recommendations concerning ways in which the materials produced may be used singly and/or in combination.

In a general way, materials to be produced (for the project) will be mutually reinforcing and will be recommended for use in a definite over-lapping sequence, functioning as a "system" of information when fitted properly into counseling procedures.

Answers to the following questions are being sought:

1. How much is it possible to raise the level of educational and vocational planning of secondary school students by use of these materials?
2. Does improved self-estimation from direct training and practice in self-analysis of interests, values, abilities, etc., generalize to the

important decision-making behaviors of educational and vocational choice?

3. What corresponding increase takes place in educational motivation, attitudes, and vocational preparedness?
4. How is the rate of improvement related to environmental or other socioeconomic factors?
5. What are the characteristics of those who demonstrate above average increase in vocational planning skills?

The amount of improvement in vocational planning will be determined from a pre-guidance and post-guidance administration of a basic test battery. The amount of improvement which takes place in educational decision-making will be determined by student follow-up questionnaires and guidance counselor and teacher evaluations. The primary criterion will be the improvement which takes place in the choice of post-high school program or occupational area entered by 12th grade students on graduation and the educational programs entered in the 9th grade by the 8th grade students. Student, school, counselor, teacher, and guidance program background data will be accumulated to determine the effect of various socioeconomic factors upon changes in vocational planning.

Current Status or Progress:

The following is a list of the guidance materials currently produced. These materials serve as illustrations of materials to be developed during the second phase of the project for use in participating experimental schools in the Pittsburgh locale.

I. <u>Guidance Materials Currently Produced</u>

A. Slide-Tape Presentation: MAN AT WORK

This prototype on the factory worker had its origins in the theory on work. It is based on a functional job analysis model combined with

concepts of life style and People, Data, Things analysis of work.

The presentation was developed as an example of stimulus materials for group discussion with student and professional audiences.

B. Slide-Tape Presentation: THE DRIFTERS

The format of this slide-tape presentation was developed as a means of exploring the potentials for presenting different kinds of themes and messages with slide-tape sequences. It has proved useful as a demonstration of the use of the filmstrip to raise controversial issues. This presentation was developed as a vehicle for discussion of the "dropout" problem with student and professional audiences.

C. Slide-Tape Presentation: WHO POINTS THE WAY

This was the first film produced by the project. It was conceived as resource material for the conference on Occupational Information and Vocational Guidance. The presentation was developed as a promotional piece to be used with laymen as well as professionals, showing the need for occupational information.

D. Slide-Tape Presentation: THE CLAMDIGGER

This presentation is a development of the "Clamdigger model" as presented originally in the second quarterly report. The basic concepts of "What is a Job" are explored through means of the neutral stimulus of a simple form of work - clamdigging.

The slide-tape presentations described above have been reviewed by members of the project's National Consultant group, staff members and job trainees at the Job Opportunity Training Center, Washington, D. C., and secondary school students at two parochial and two public schools in the Pittsburgh area.

II. Theoretical Developments on which the Guidance Materials will be Based.

A model for communicating occupational information which takes into account the three criteria of Work, Education and Self and includes the concept of levels, from the generic to the interrelated, is undergoing development. The model takes into consideration the question of how to make vocational data meaningful for differing subpopulations and individuals at different stages of occupational choice and the methodology appropriate for the communication. This model will establish the basis on which production efforts will proceed.

III. Research Activities as In-put for Development of Materials.

Data are being gathered, with the assistance of research services of American Institutes for Research, to determine the types of problems "noncollege" high school graduates in differing cultural settings in the Pittsburgh locale face in obtaining jobs. These data will be used to develop empirical objectives for films of work factors for the range of "noncollege" subpopulations identified. The draft films planned for this first phase will consist largely of vignettes featuring the problem faced by "typical" recent graduates by type of school. The vignettes will picture the individual either at work, in a mock-work environment, or in his home as he ordinarily does things and will describe graphically how successful he (or she) was in getting a job, what he (or she) does on the job and how he (or she) feels about the job, future plans, etc.

The data obtained from the Project TALENT Data Bank provides a base of knowledge about present guidance programs in the American secondary schools. Their questionnaire supplies information about the structure of guidance

programs, the function of counselors, and the manner in which students relate to available guidance facilities. The distribution of the questionnaire items by type of school, number of students, percentage of male dropouts, etc. yields a more specific view of the guidance situation. The interpretation of this data will be especially valuable as a point of orientation for the development of media.

A research paper has been developed on Subgroup Differences on Attitudes Toward Work. Findings of the studies reported will be applied in the development of guidance materials. This paper can be obtained from the Project office.

IV. A Workshop on Communicating Occupational Information to Noncollege Youth

A workshop was held at the Hotel Roosevelt, Pittsburgh, August 6 - 14. It was conducted for a sample of schools who will be asked to try out the guidance system of materials to be developed in the course of the project.

The primary focus of the workshop is the problem of conveying information on: (1) occupational awareness (the world of work), (2) career planning (the world of self), and (3) vocational capability (the world of education and training) to noncollege youth. The workshop will concentrate on several areas of educational practice: teaching, administration, guidance, and curriculum planning. Answers to the following questions are being sought:

1. Who are the "noncollege" subpopulations? (Can we identify "noncollege" youth?)
2. What are the "noncollege" occupations? (What are the levels of occupational knowledge required?)

3. What are the methods of communication? (How do we reach these groups? To what do they respond?)
4. What are the various factors to be taken into account in developing guidance materials for the "noncollege" subpopulations?
5. What are the roles of the guidance counselor, teacher, administrator, and curriculum planner with reference to these groups?

PROJECT SUMMARY

Title: Vocational Orientation Systems (VOS)

Principal Investigator: Frank J. Minor
IBM Corporation
Manager, Engineering Psychology Department
Advanced Systems Development Division

Consultants: Dr. Donald E. Super
Dr. Roger A. Myers
Teachers College, Columbia University

Institution: IBM, Advanced Systems Development Division

Funding Agency: Same

Duration: January 1966 - December 1967

Objectives: A computer-based system is being designed to: (1) provide for more effective utilization of occupational information by high school students during their educational-vocational planning process, (2) relieve the counselor of manual information handling tasks associated with the classification, selective retrieval, and storage of occupational information.

The design approach being employed is that of a man-machine system approach which makes an optimum assignment of functions and responsibilities between the counselor, the student, and the machine. More simply, each of these three "components" in the counseling process are assigned those tasks which they are best equipped to handle.

A "counseling model" has been developed which describes the functions to be performed by the system. Students will operate the system in a real-time problem-solving mode. Through learning, the student will reduce the uncertainty of his educational-vocational plans. The student will have an unlimited number of

sessions with VOS on a demand basis. The major functions to be performed by the system are as follows:

1. Test the validity of the student's estimate of his strengths and weaknesses.

   This is accomplished by comparing the student's "self-description" with measured results from his scholastic achievement record, aptitude tests and interest inventories.

2. Test the wisdom of vocational aspirations of the student.

   This is accomplished by allowing the student to select occupational families to which he aspires and checking for discrepancies with his measured aptitudes, scholastic achievement and interests.

3. Prompt the student to consider occupational families which he has made no mention of, but is qualified for as indicated by his measured aptitudes and interests.

4. Allow student to explore the "nature of work" (duties, educational requirements, environment) for the occupational family to which he aspires.

5. Allow student to analyze and "work" with important occupational information, for a specific occupation within the occupational family. This includes such factors as: competition, salary, variety of duties, creativity, educational requirements, methods of entry, growth prospects, etc.

6. Test the realism and level of specificity of the student's educational-vocational planning for the specific occupations to which he aspires.

Procedures: 1. A "counseling" model in the form of a block diagram has been postulated which describes the functions to be performed by the systems.

2. The counseling model is being translated into system requirements, i.e., (I/O equipment, data base, operating procedures).

3. Field testing and experimentation is planned in order to test the validity of the "counseling" model.

Current Status or Progress: A preliminary version of the system is currently being programmed for demonstration purposes. The demonstration version will be completed this Fall 1966. The computer system employed is the IBM 7010-1440 CAI system, a remote terminal which provides audio, film image projector, and typewriter output capabilities for presenting information to the student. Responses by the student are made by means of an alpha-numeric typewriter keyboard at the terminal.

CONFERENCE PARTICIPANTS

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Other Center Publications

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agricultural Education, "Program Development and Research."

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

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*SEMINARS, *OCCUPATIONAL HOME ECONOMICS, *PROGRAM DEVELOPMENT, HOME ECONOMICS TEACHERS, ADULT PROGRAMS, *HOME ECONOMICS EDUCATION, SOCIAL CHANGE, EDUCATIONAL RESEARCH, INNOVATION, POSTSECONDARY EDUCATION, *PILOT PROJECTS, DISADVANTAGED YOUTH,

A seminar was held to provide state leaders in home economics with an opportunity to gain greater understanding of home economics programs of occupational preparation. Participants included directors of area vocational schools, teacher educators, deans of schools of home economics, university extension specialists, state education department personnel, school administrators, subject matter specialists, U. S. Office of Education representatives, home economics supervisors, Department of Labor staff, and guidance personnel. The following papers were among those presented -- (1) "A Challenge to Home Economics Leaders," by Alberta Hill, (2) "Understanding the Urban Society," by Rose Terlin, (3) "Dynamics of Change," by Henry Brickell, (4) "A Framework for Program Development," by Lawrence Borosage, (5) "Development of Post-High School Programs," by Berenice Mallory, (6) "Use of Research Studies," by Elizabeth Simpson, and (7) "Effective Plan for Pilot Programs," by M. G. Linson. Key problems and ideas for action which grew out of group discussions are presented under four headings -- (1) Work With All Phases of Vocational Education, (2) Adult Programs to Meet Community Needs, (3) Programs designed to Meet the Needs of the Disadvantaged, and (4) Ways to Select and Prepare Teachers for Teaching in Occupational Programs. (MS)

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A NATIONAL LEADERSHIP SEMINAR ON HOME ECONOMICS EDUCATION

A Report

March 28-31, 1966

Program
Development
for
Occupational Education

The Center for Vocational and Technical Education
The Ohio State University · 980 Kinnear Rd · Columbus Ohio 43212

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The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PROGRAM DEVELOPMENT

FOR

OCCUPATIONAL EDUCATION

A Report of a National Seminar for Leaders in Home Economics Education

March 28-31, 1966

Sponsored by

The Center for Vocational and Technical Education

The Ohio State University

Columbus, Ohio

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PREFACE

One of the most dramatic changes in the labor force has been the increased entrance of women. In 1960, one out of three in the labor force was a woman. This rapid increase of women entering the labor force and expanding job opportunities in home service fields have placed increased emphasis on the need for home economics education to prepare persons for gainful employment outside the home as well as for homemaking. Wage-earning education programs for occupations related to home economics are urgently needed for both secondary students and out-of-school youth and adults.

Although many of the principles and skills taught in homemaking classes, if mastered, will contribute to successful employment, the courses planned for employment preparation differ from those planned for homemaking. Because of this, thoughtful study which will lead to a new understanding of vocational education preparation must be undertaken by those who are charged with the responsibilities for providing leadership in the development of wage-earning programs.

Since home economics employment courses are receiving new emphasis in vocational education, it is essential that high standards be achieved. This seminar was planned to provide state leaders in home economics with an opportunity to gain greater understanding and insight as well as specific procedures in program development.

We want to express our appreciation to the resource personnel who effectively contributed to the development of this seminar. We would also like to acknowledge the work of the members of the Seminar Planning Committee, Miss Dorothy Lawson, Seminar Consultant, and Dr. Sylvia L. Lee who served as Seminar Coordinator and who directed the preparation of this report.

We trust this publication will prove to be of continuing assistance to the participants and to others.

Robert E. Taylor
Director

INTRODUCTION

Home economics education leaders throughout the United States face the challenge of maintaining and strengthening the total program of home economics in the public schools at the secondary, post secondary and technical and adult level. The emergence of education for gainful employment in home economics has confronted leaders with numerous concerns. The seminar which is reported here was conceived and designed to provide home economics leaders with an opportunity to gain greater understanding and insight, as well as, information about specific procedures in program development for education for gainful employment in home economics.

Specifically the objectives were:

To provide and develop an understanding of the changing society and its implications for home economics for gainful employment particularly with reference to the leadership roles of state supervisors and teacher educators.

To acquaint educators with methods and techniques for bringing about change in educational programs.

To develop an understanding of the resources provided through recent legislation -- resources which will help strengthen occupational education programs.

To provide an opportunity to (a) explore the many facets involved in developing and administering occupational education programs at the high school, post-high school and adult levels and, (b) identify some methods and techniques which may be used in their development.

To determine the personnel and materials needed and available for use in the development of programs.

To identify needed research and experimental programs.

To determine ways that research findings and pilot programs can provide tested information and ideas for program development and improvement.

This report includes the presentations made by the seminar consultants and ideas for action growing out of group discussion on the final day of the seminar. It is hoped this material will be helpful to home economics leaders as they proceed with the development of programs in education for gainful employment and in education for homemaking.

Appreciation is due to:

Dorothy Lawson for her leadership in developing and carrying out the Seminar.

All those who shared resource material for display.

Program consultants for their fine presentation.

Home Economics leaders who participated on the program and on Seminar committees.

The Home Economics Department of the University of Illinois for providing copies of THE EMPLOYMENT ASPECT OF HOME ECONOMICS for those attending the Seminar.

Kathleen Howell, Research Associate for her assistance in preparing this report.

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SEMINAR PAPERS

SUMMARY OF A CHALLENGE TO HOME ECONOMICS LEADERS

Dr. Alberta Hill
Associate Professor, Home Economics Education
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The role of leadership in planning programs of education for gainful employment involves answers to such questions as why should home economics prepare students for occupations? For whom should such programs be planned? What are the clusters of jobs requiring home economics content? What content, skills and competencies are needed for job preparation? In what ways can home economics contribute to courses planned by other vocational services? What type of work experiences are available? How can we evaluate these programs? Who will teach home economics wage earning courses? Our underlying beliefs should guide us in answering these questions. I would challenge you, therefore, to think about your own philosophy of education, your beliefs about the composition, structure and principles underlying occupational education. Consider the following questions about your beliefs.

1. What are the goals of education in a country such as ours? What are the goals of education in a world such as ours? Maybe we should say, what are the goals of education in a universe such as ours? One of the major questions that comes to mind is the extent to which we are going to focus efforts on the preparation of the individual to fulfill his role, and the extent to which we are going to think primarily about the needs of society. You will be quick to point out to me that these are not necessarily conflicting goals, but there is a difference in focus. Which is to be the focus? We say we need to educate every citizen to the limit of his capacity to absorb, and that we must release the potential of each and every person among us. We then also say that we need to coordinate this education to the needs of society. There are times when those two ideas will be in conflict, and we need to think very carefully about which may be the focus at which time; how do we fit the two goals together so that we are developing people who can contribute to society. I don't want to put society, and especially the economy of our society, so far in the front that we forget the individual and the need to develop his potential.

2. Another question about education is who is going to provide education? Are we at a place where our old educational systems will no longer work? Had we better let some other agency like business take over? Are we going to say that education can better be provided by a small segment or segments of our society rather than the total society? Have you picked up comments questioning the ability of our educational agencies recently? If you haven't, be alert to them. It was suggested to me recently, when I was talking to a group of people considering teacher education for office and business occupations, that as we challenge ourselves about teacher education for the 21st Century we should look forward to "really new innovations," such as business agencies, not colleges

and universities, training teachers of the future. This was suggested to me by an educator! Is the question, "Who is going to provide education?" Or should we ask "what aspects of education can be provided better by some other agency of our society?"

3. What do we really believe about methods of learning and methods of teaching? Particularly: do you believe that all education can be carried out best in a realistic situation? Or do you think that all education can be provided best in a simplified, purified atmosphere? Or, can some education be carried out in a realistic setting, and some in an organized, purified environment? What is done better in one situation, than in another? We in home economics education (and I am going to admit this even if there are one or two people here who aren't home economics educators) have never thoroughly answered this question in relation to teaching foods at the high school level. We have talked about teaching all foods on a meal planning basis in which the person is put immediately into the complexity of a meal.

4. What do you really believe about teacher preparation? What do you really believe about the best way to prepare teachers? How do people learn to be teachers? Is it necessary for people to have some of the theory of learning and the theory of teaching in order to do a good job? Are there some aspects of the teaching job that can be done by practitioners rather than by those usually thought of as teachers who understand the organization of learning activities and development of curriculum?

5. Now, what do you really believe about home economics? What is it? We must develop for ourselves some kind of a conceptual structure in which we can work, and I would challenge you to look at Betty Simpson's article in the AVA Journal and to read it again, and reread it until you are sure that you can see at least this kind of structure. I also suggest reading the last issue of ILLINOIS TEACHERS. You will find there a marvelous review of many of the theories and philosophies of home economics. It is a good quick reference for you to use in doing the thing I am asking you to do: look again at home economics as a discipline, as a field of study.

(At this particular point, there is one comment I have to make because it has struck me as being so very funny. I am laughing at myself--I am laughing at ourselves. Within the last year or two I have sensed a little uneasiness -- we aren't sure whether or not we can prepare people for both the occupation of homemaking and the occupations for which they get a paycheck. Yet, I would suspect that almost everyone of us has been, either as a student or a faculty member, connected with a college, a school, department or division of home economics which stated two major objectives of the home economics unit: one, preparation for home and family life, and the other, preparation for a profession. Doesn't it strike you as being a little funny that we have accepted this for 50 years, but some of us now question whether or not we can prepare for home and family living and for occupations at the less than college grade level?)

6. I'm asking you to take a look at your philosophy, and in challenging you to think more clearly about what you really believe, I would be amiss not to challenge you to really study and decide what you believe about change. This is a very popular topic for speeches, for speakers, and for articles of all kinds. In his new book, Bruner said, "I shall take it as self-evident that each generation must define afresh the nature, the direction and aims of education to assure such freedom and rationality as can be obtained for future definitions, for there are changes both in circumstances and in knowledge that impose restrictions and give opportunities."[1] It is that last phrase that gave me help in further defining my beliefs about change -- "impose restrictions and give opportunities." This is a little more radical. Marshall McLuhan is quoted as saying, "Even points of view must go, because it is no longer possible to take a fixed position for more than a single moment."[2] And this is a quote that has to do with medicine but I think it is one that we might just chew on awhile. "We have a choice of living dangerously or dying early. There is no safe place from the perils of progress."

Now, what do we really believe about change? Sometimes we are a little ambivalent about it! For example: we have just had our Iowa Vocational Association Meeting and a very sound educator gave a very good speech. He talked about change and gave some of the kind of startling figures that most of us have heard many times, but in a good way, a new way; he really challenged us. But, he went on to say that he was glad he was working in the midwest, because in the midwest we are near enough to our agricultural past that we still have midwest agricultural values of work! Do you find something a little contradictory in this? When I think about what "midwest values of work" are, I think about farm people. One of the most devastating things I have seen for farm people or farm boys is the need to change one of their values, i.e., to work for themselves. The ideal: you worked hard, got your own farm and worked for yourself. This is no longer possible for most of them. We believe in change but at the same time we are glad our community hasn't changed.

Often, besides contradicting ourselves, we really do not realize which changes are significant; which things are really changes, and which things are just changes in the gadgets used in what we are doing, which are truly basic changes. The gadgetry of our present conflict in Viet Nam is certainly much different from that used in the Korean War, but the behavior that causes and prevents war, to my knowledge, has not changed very much. Maybe at times we put too much emphasis on the change rather than on looking for those things that are not changing.

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[1]Bruner, Jerome S. Toward a Theory of Instruction. Cambridge, Mass: Harvard Press 1966, 171 pages (p.22).

[2]Howard, Jane. "Oracle of the Electric Age". Life, February 25, 1966.

As we look at change, I would challenge you to take a good look at homes and families in our society. What are their functions? How are they changing? And perhaps this should be tied in with my challenge to you about looking at home economics. I think it has been rather universally agreed that the family is not losing its function. About 15 years ago we talked about the families losing their function, but now we are fairly well agreed that this is not true. But there are changes -- structural changes in the family; change in the form and content of the function -- more of what has been a family function is being shared with other social institutions.

In the last Journal of Marriage and the Family there is an article by Clark Vincent[1] that I would suggest to you as a good resource as you are taking a good look at families and their functions. He talks about the adaptive function of the family. These are some of the things he suggests. (While I am talking I wonder if you would like to translate this into a program of action for preparing people for occupations.) He suggests that the family has had to adapt to increasing lengths of education and increasing costs of education. Often a wife and mother must work in order to help provide education for the children. Does this call to mind the development of a wage-earning program? Doctors at mental institutions have decided that it is really better for patients to go home from the hospital as soon as possible -- that it is better for the patient to have home, family care since the home tends more and more to be the only place where people can get individual attention. Does this have implications for occupational preparation? In a highly industrialized society, you do not get individual attention in the grocery store or at the meat counter, you do not get it at the office where there may be 50 persons working in one room. The home becomes the only place where people can get individual attention.

If you recently have engaged yourself in thinking about Maslow's need theory in the development of self-actualization, you will recognize that some people in our economy believe that if the basic needs are met in the home then people will be better able to become self-actualized and find their self-realization in their occupational profession. To look at it another way, you will find that in the kind of homes that some have, the only place for true self-realization becomes on the job. As we talk about functions of the family, we need to consider the extent to which the family provides the basic needs so that people can achieve higher needs outside it, and the extent to which the family should provide the environment for the highest individual development. There is much concrete help in this theory for developing a wage-earning program.

All we have tried to do this morning is to prick--and I have been trying to prick me as I have been trying to prick you--to think through the basic principles which will guide us as we develop principles for occupational education.

---

[1]Vincent, Clark E. "Familia Spongia: The Adaptive Function". J. of Marriage and the Family, 28.29-36, February 1966.

A

Understanding The Changing Urban Society

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Madam Chairman and members of the seminar group:

I bring you warmest greetings from Mrs. Keyserling and the staff of the Women's Bureau. Mrs. Keyserling was most regretful that circumstances prevent her own participation in this conference which she had been anticipating. After meeting today with the panel of reactors for this morning's session, I know she would not have been disappointed in her expectations for this meeting. I hope I can meet the responsibility of replacing her in helping us think together about this large and challenging subject of the changing urban society and its implications for your present work and future planning.

In 1900--less than half of our population lived in urban areas; by 1960--70 percent were living in urban areas; today the percentage of change is even greater--although we will probably have to wait until the 1970 Census data is published to know how much greater.

I submit that this 70 percent in urban areas constitutes a revolution of far-reaching proportions in terms of the patterns of peoples' lives. Not since Moses led the children of Israel out of Egypt to the promised land, has a vast movement of people held such historic significance, although the impact of the "Enclosures" that marked the beginnings of the Industrial Revolution may be comparable. The French Revolution, the Napoleanic wars,--even the Russian Revolution produced no such upheavals for the life of the ordinary citizen--most of whom remained peasants, tillers of the soil, or dwellers in country towns and villages.

Today in America--and in a relatively short span of time--all that has changed.

If I were to name three groups vitally affected by this vast exodus from rural areas to an urban society, I would list them as:

(1) our legislators--because our political structure lags far behind the living realities;

(2) our city planners and urban redevelopers and;

(3) our home economists.

What implications has this new, suddenly urbanized America for home economists? Why do I single you out?

This vast complex makes up what we must now think of as megalopolis--which, whether its inhabitants want it so or not, is all urban-oriented.

Our cities are in bad trouble. Many agree on this. In analyzing some of these "troubles" I am isolating those factors which home economists can do something about. I am not suggesting you revise the tax structure, as necessary as that is--(although some of the things you home economists know about budgeting might well prove useful to the "city fathers"). I am pointing to the problems we face; the new programs being developed to meet them; and the way we have to think about these things if home economists are to make their fullest contribution.

Before we can examine some of the elements of this "crisis of the cities" I want to indicate some of the changes in women's lives that constitute a component of this large change:

First of all, there are a lot more women--aged 14 and over:

1940 - 51,000,000
1965 - 71,000,000
1980 - 90,000,000 (as estimated)

This, with increased urbanization, has brought dramatic increases in the number of women in the labor force,--from 14 million in 1940 to nearly twice that figure today. It is projected that by 1980 there will be nearly 36½ million women in the labor force. This has a definite relation to the shift in population from an agriculturally-, to an industrially-, and then to a service-based economy--which in turn strengthens the trend towards urban living--and the demand for women in the labor force. The service-based economy requires more women workers and attracts more women into the labor force. Consider only the impact of Medicare on the need for personnel in all kinds of health service occupations, so largely staffed by women.

Before exploring some of the specifics, let us consider first the broader picture of women in this new urban setting in an industrialized society.

The shift from rural to urban civilization has also brought significant changes in home and family life which have been reflected in the changing pattern of women's lives. Most of the goods and services the family needs come from outside the home and labor saving devices in the home have simplified homemaking still further.

Being a wife and mother remains the primary goal for most women and rightly so, but possessed of the gifts of extended longevity and release

from time-consuming household chores women also want and need to be a part of the world outside the home. They are eager to use their abilities, special talents and energies not only to fulfill personal ambitions but to make a meaningful contribution to the economic, social or political life of the community.

For many women the obvious choice, when they come to their middle years and find homemaking responsibilities less demanding, is paid employment. There are however compelling economic reasons why so many make this choice. Even in families where the husband is employed, our rising standard of living coupled with rising costs of education, consumer goods and services, health care and recreation in an urban setting, make the two-paycheck family an accepted American institution.

In many of what the Census calls "husband-wife families" the husband's salary is so low that his wife has no other choice but to work. Among these working wives, one-fifth had husbands who earned less than $3,000 a year in 1964. Another quarter had husbands with incomes of between $3,000 and $5,000 and just over another quarter had husbands with incomes of between $5,000 and $7,000. Working wives "with husbands present," as the Census Bureau describes them, comprise 57 percent of America's 26 million women workers in March 1965. As you note from the above data, 75 percent of the married women's husbands have incomes of less than $7,000 per year. Women who are widowed, separated or divorced account for another 20 percent of all women workers. Many of these women support themselves and often dependents as well.

The fact that so many women are combining homemaking and jobholding gives rise to many problems characteristic of our urban society. There is for instance the great need for new and expanded services that are home-oriented:

1. Child-Care Facilities

Of pressing concern is the need for child-care facilities. It is a fact of our times that one-fourth of all mothers with children under 6 years of age are in the labor force and this group of women is heavily concentrated on the lower rungs of the income ladder. These women are not working for pin-money but for the pins that hold the family together. In families where the husband's income is less than $3,000 a year, about 30 percent of mothers with children under 6 years of age are working. In sharp contrast, only one in seven mothers, with children so young in families where the husband's income is $7,000 or more, is employed.

In spite of the fact that, today, there are 4 million American children under 6 years of age whose mothers are in the labor force, licensed day-care facilities are available for only about 255,000 children. Last year the Women's Bureau of the Department of Labor and the Children's Bureau in the Department of Health, Education, and Welfare co-sponsored a national sample

survey conducted by the Bureau of Census. We learned that of the more than 12 million children under 14, included in the survey, 8 percent were expected to care for themselves; 13 percent were looked after by the mother while she worked and 15 percent were cared for in homes other than their own. Nearly half of the children were provided care in their own homes, usually by their father or another relative.

Recent Federal legislation has been helpful to some extent. The increase of $3 million in Federal aid available under Title V of the Social Security Act will help provide more badly needed child-care facilities in the 49 States participating in the program. However, the problem is far from solved. We must consider that between 1960 and 1970, a 55 percent increase is expected in the number of working mothers, aged 20-44, with children under age 6.

Certainly in our planning for the future we should recognize the fact that it is not only mothers who work outside the home who require community services to help care for their children. The President's Commission on the Status of Women pointed this out in its report, American Women.

> Child care services are needed in all communities, for children of all kinds of families who may require day care, after school care, or intermittent care. In putting major emphasis on this need, the Commission affirms that child care facilities are essential for women in many different circumstances, whether they work outside the home or not.[1]

The Commission further recommended child-care centers be included in plans for housing developments, community centers, urban renewal projects and migratory labor camps and that after school and vacation activities be provided for children whose mothers must be away from home when children are not in school. "Failure to assure such services," the Commission pointed out, "reflects primarily a lack of community awareness of the realities of modern life."

The forward-looking urban community is also concerned with other services which are needed to strengthen the home and permit women to discharge more easily their family responsibilities and make a larger contribution to the world around them.

Today's urban woman seldom can count on the assistance of grandmothers, mothers-in-law and maiden aunts to share the home and help in its operation. While fathers tend to have a larger share in homemaking than was formerly

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[1]Report of the President's Commission on the Status of Women, American Women, U. S. Government Printing Office: 1963, p.19.

true, they are away from home most of the day and the responsibility for home management falls almost exclusively on the mother. To further complicate her life, the growing mobility of today's jobholder may mean the family moves frequently and is likely to be an anonymous entity in a strange neighborhood.

2. Homemaker Services

In this setting, the family must turn to the community when illness or other emergencies disrupt normal life in the home. Homemaker services for those who can pay and those who cannot are as vital a part of a community's resources as health centers, rehabilitation services, family counseling facilities and opportunities for education in homemaking.

3. Household Employment

A very real need in almost every community is to find readily available household help. Yet in spite of the fact that there are many women seeking employment, the number of those going into household employment is rapidly declining. The situation is of particular concern to our Women's Bureau because we have found that low wages, poor working conditions, and the lack of status attributed to this work deter many women from entering the field. Nor are employers satisfied with the unskilled and often unschooled workers who do apply. They tend to expect "miracles" and perennially seek that "jewel of a maid"--in spite of long hours and low pay.

There were 1.4 million women private-household workers, excluding almost 350,000 babysitters, at the time of the 1960 census. In 1964, the median wage of those working year-round, full time, including the babysitters, was only $1,082. That this is an urban occupation is reflected in the 1960 census figures showing about 74 percent of such workers in urban areas. About 64 percent were Negroes and 54 percent lived in the South.

The Bureau's concern prompted us in 1964 to call a consultation of representatives from social agencies, women's organizations, government agencies and others interested in the problem. The consensus was that there was a real need for concerted action to explore the problems and work out new approaches to their solution. After a second such meeting, the private groups involved formed the National Committee on Household Employment in February 1965.

In February of this year the Committee was awarded a $105,000 contract under the Manpower Development and Training Act for an Experimental and Demonstration Program through which new approaches to recruiting, training, and placement of household workers will be possible. The National Committee which has also received some funds from several commercial enterprises and the American Woman's Association, will work through local Community Committees on Household Employment. These will assist in conducting surveys of employers needs, stimulate the organization of training programs and help recruit trainees.

Dr. Margaret Morris who is Project Director of the committee is an outstanding home economist.

While this is a pilot project, we believe that it will give us many clues as to how we can give this occupation greater status, improve wages, hours and other conditions of work and attract more women to it. Certainly it should help develop new techniques for providing home related services and for training the workers who will provide them.

4. The Poverty Problem

A most disturbing aspect of our urban life is the persistence of a hard-core poverty which, while it exists in rural areas and among the migrant farmworkers, is concentrated in the cities.

At the root of poverty is the inability of too large a segment of the population to earn enough to supply the basic necessities of life for themselves and their dependents.

Unemployment stood at 3,150,000 in February. This represents a drop in the unemployment rate from 4 to 3.7 percent, the lowest it has been since November 1953. These figures reflect an encouraging growth in our economy and they also indicate a measure of success in the Nation's war on poverty.

The role of home economist in the war on poverty undertaken by this administration is a significant one, with many facets. I shall highlight just a few in areas of the home economics field that may be most familiar to you.

Consumer-education Specialists

Under the direction of a trained home economist, teams are at work in local neighborhoods to accomplish two goals: (1) to enable families to understand the cost of credit and (2) at the same time to mount an attack on fraudulent credit charges, exposing those who prey on the poor. If you were to mount a motto on the American urban credit structure in many disadvantaged neighborhoods it might read: "To them that hath shall be given; from them that hath not shall be taken away even that which they have." These words were originally spoken--not in approbation--but in despair at the human situation of man's inhumanity to man.

The home economists are proving a most valuable ally in working with poor families: to help them with budgeting--to help them know how and where to buy; to expose frauds and to organize the poor themselves to take appropriate action to protect themselves. To their surprise, perhaps, many home economists are finding themselves functioning as directors in community organization projects--a field formerly reserved to professional social workers.

Nutrition Education

Beyond this very strategic area of consumer protection, is the even more universal need of consumer education for the nutritional development of the family. Many who have come from rural areas to our urban centers no longer have their small- or big-garden plots of fresh fruits and vegetables (carrots and tomatoes for the picking) but rely on the local supermarket where tomatoes are probably poorer and cost much more. There was a menu pattern among many poor share-croppers who have migrated in large numbers to our cities which--in spite of pellagra often characteristic--was still better than what they are getting in the cities. Collard greens have some food value; as do pigs' tails and sowbelly--among the most popular items in my supermarket in Washington. But, I'm sure you will readily agree--these food patterns are not adequate for family health in urban living. A whole new crash program on nutrition education is needed as our people become city-dwellers.

Department of Housing and Urban Development

A significant breakthrough in tackling urban problems was achieved at the Federal level with the establishment of the new Department of Housing and Urban Development. In a television interview yesterday, Dr. Charles Weaver, the Secretary of this new agency emphasized that the Department concept of rehabilitation of our urban communities includes both human and physical rehabilitation.

The Demonstration Cities Program, about which you will be hearing a great deal more, Secretary Weaver described as designed to provide total rehabilitation of deprived urban areas through a program which includes:

a. Increased education opportunities
b. Job Training
c. Homemaker Training

When Secretary Weaver was asked on the interview about the "most pressing needs," he answered:

a. More qualified and trained people
b. More know-how developed by experimentation
c. More money

All of this points to the need for a new kind of flexibility and new kind of curriculum for the whole distinguished field of home economics. This urban "revolution" calls for new pioneers--and were not the early home economists truly pioneers--to bring their resources to bear in creating a better life for all people. Pioneering is a time of innovation, creativity, experimentation but also a time for hard, disciplined work--work that often cannot be measured by results, in the short run.

In conclusion, I want to paraphrase Emma Lezarus who was a schoolteacher when she wrote the immortal words for the Statue of Liberty. These words could be spoken by our cities today as they face disintegrating rural America and the influx of the deprived who are also the hopeful, eager seekers who come to our cities:

> Send me your tired, your poor
> Your helpless masses yearning to breathe free:
> The wretched refuse of your tired shore
> Send these: the homeless, tempest-tossed to me
> I, the Golden City lift my lamp beside the golden door.

How shall the whole profession of home economists contribute its insights, its disciplines, its knowledge and know-how to create "golden cities"?

Dynamics of Change[1]

Dr. Henry Brickell
Assistant Superintendent
Manhasset Public Schools
Manhasset, New York

Part I The Dynamics of Educational Change[2]

What causes schools to change the way they allocate teachers, time, space, or other resources? How is shifting to ungraded classes, programed instruction, television, team teaching, large- and small-group instruction, and the like, achieved within the institutional framework? Given an existing set of dynamics and statics, how can more innovations be stimulated, evaluated, and the best ones extended to other schools and school systems?

To study the problem firsthand in New York State, the writer visited thirty-five local school systems of every complexion (one hundred schools, fifteen hundred classrooms), thirteen colleges and universities, the State Education Department, ten regional college-affiliated school-study councils, schools of medicine and agriculture, and a variety of professional, commercial, and school-related citizens' organizations. The discussion that follows is based upon the findings for one state, New York, but it has implications for school systems throughout the country.

The Process of Change within Local Schools

A school is a social institution in which someone teaches something to someone else with a method at a time in a place. The six major structural elements of the institution are teachers, subjects, students, methods, times, places. This study focused exclusively on programs which require significant shifts in the normal arrangement of those institutional elements.

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[1]EDITOR'S NOTE: Dr. Brickells presentation included comments based on his experiences reported in the publication, Organizing New York State for Educational Change. Part I of his presentation is reflected in an article from Theory Into Practice, Vol. I, No.2, April, 1962. Part II is composed of short excerpts from a paper prepared for the N.E.A. Center for the Study of Instruction.

[2]Theory Into Practice, Vol. I, No. 2, pp. 81-87, April, 1962.

The writer did not investigate classroom practice--the behavior that the teacher is usually free to exhibit in his own classroom with his own pupils. It was found that the public and the school board, the administrator, and the teacher exert varying degrees of influence in instituting broad educational changes.

The Public and the Board. Parents, citizens' groups, and boards of education are not strong agents in determining the path of instructional innovation, but their influence is decisive when exerted. The public and the board are important sources of demands for new or better results, but not for specific instructional innovations, perhaps because they know little about teaching methods. However, if they do develop a lively interest in a new type of program--foreign languages in the elementary school, for example--that innovation is likely to appear.

The public and the board ordinarily do not inhibit the profession in introducing structural innovation. Factors such as mutual selection of each other by administrators and communities evidently cause public wishes to be absorbed into the schools so effectively that severe dislocations between the hopes of the profession and the ambitions of the community are rare. Thus the public is not identifiable as a separate force.

The Administrator. Instructional innovations of the type studied are introduced by administrators--not by teachers. Even in the best of circumstances for the expression of new ideas--in schools where administrative authority is exercised with a light hand and faculty prerogative is strong--teachers seldom suggest distinctly new types of working patterns for themselves.

The complexity of group decision-making and the difficulty of a peer group's choosing among several attractive possibilities (or, more exactly, possibilities with different degrees of attractiveness for each member) are well known. The value of leadership and the uses of authority in such a situation are also well known. An administrator is powerful because he can marshal the necessary leadership, to precipitate a decision. He may not be, and frequently is not, the original source of interest in a new type of program; but unless he gives it his attention and actively promotes its use, it will not come into being.

The great significance of administrative initiative is heavily disguised. Phrases like "democratic administration," "the team approach," "shared decision-making," and "staff involvement" are commonplace. Behavior to match them is rare. The participation patterns in widespread use are very often little more than enabling arrangements, organized after an administrator has decided the general direction (and in some cases the actual details) of an instructional change. The control center of the school, as things are managed today, is the administrator.

The Teacher. In the absence of administrative initiative, classroom teachers apparently can make only three types of instructional change:

1. Change in classroom practice--that is, any alteration in instructional procedure which a teacher can accomplish in his own classroom without disturbing the work of other teachers.

2. Relocation of existing curriculum content--an activity which a group of teachers commonly initiates and can carry forward relatively unassisted so long as there is no administrative opposition. A typical example would be the relocating of arithmetic topics between the fourth and fifth grades to assure proper dovetailing.

3. Introduction of single special courses at the high-school level--these are commonly terminal courses in a sequence. They are often begun at the initiative of a teacher who has just returned from an intensive learning experience, such as a summer institute.

Introducing the Change and Evaluating It

Professional suspicion about the value of innovations in other school systems, and even about the sincerity of other innovators, is a widespread and serious inhibitor of educational change. Administrators and teachers suspect that many new programs may have been concocted largely to gain recognition for their sponsors.

The most persuasive experience a school person can have is to visit a successful new program and to observe it in action. Speeches, literature, research reports, and conversations with participants outside the actual instructional setting are interesting, but relatively unconvincing. However, anything "abnormal," "unreal," or "artificial" in the circumstances surrounding an observed program--that is, anything appreciably different from conditions in the visitor's own school system--can rob a visit of persuasive effect. For this reason, people from a rural school district, for example, have little interest in visiting a wealthy suburb.

Despite initial apathy or even opposition on the part of a number of teachers, new instructional programs can be successfully introduced. Faculty members ordinarily begin to prefer new methods within four months to a year after a novel program has been introduced, regardless of their very early reactions. It seems reasonable to believe that after teachers learn how to do the new job, they feel competent and secure.

Proposed innovations often arouse feelings of inadequacy and uncertainty in teachers. These feelings should not be mistaken for outright resistance to the change; this is seldom the case.

The key to successful innovation is providing assistance to the

teachers as they begin to implement the new approach. More new programs have been destroyed by inability than by reluctance.

In evaluating instructional innovations, pupil reaction is usually considered sufficient as a criterion. In the eyes of the practitioner, no other evidence outweighs student reaction as a measure of success. More complex evaluative techniques are rarely used. Even if the normal operation of the school produces pertinent information, such as scores on standardized achievement tests, the data are inspected with interest but are almost never regarded as conclusive in and of themselves. For example, if achievement-test scores show little or no difference as a result of the new procedure (which is what they usually show) but students nevertheless respond to the instruction with interest or enthusiasm, the method is judged to be superior to what was done before.

Instructional changes are nearly always reported as resulting in improvement. Almost everything new seems to work better. The writer's observations led him to conclude that the attention, encouragement, and recognition given to teachers by persons outside the classroom during the introduction of new programs are among the strongest causes of their success.

Classroom teachers normally work in such isolation that the kind of attention provided by the principal and others during major instructional changes can scarcely fail to have an exhilarating effect. The "Hawthorne effect"--higher production stimulated by a change which does not alter the original resources--evidently goes hand in hand with educational innovation.

The Role of Outside Institutions and Organizations

A number of organizations outside the local school system attempt to influence innovations. They meet with mixed success.

The State Education Department. Because the state education agency in New York is larger and more influential than that in most other states, observations concerning it may have limited applicability. The following might fit a number of other state education departments:

The department both promotes and inhibits change. It encourages the adoption of innovations that it officially endorses, discourages the adoption of others. Departmental discouragement inhibits all but two types of schools--the slow-movers who never even reach the boundaries of state approval and the fast-movers who, in their own words, "Don't ask."

The department has no adequate mechanism for encouraging experimentation along lines that it does not officially approve. Despite many recent moves to sponsor innovation, it is still essentially prudential in outlook and devotes much of its effort to regulatory activities.

It is entirely too small to provide direct service to the schools.

The Colleges and Universities. Except for their role in training teachers, which is universally regarded as being of critical importance, the colleges and universities have little influence on instructional innovation in elementary and secondary schools. Very few of the local programs studied during the survey had been suggested, planned, evaluated, or even observed by college personnel--on either a paid or voluntary basis.

The colleges and universities are not well organized to exert direct influence on elementary and secondary programs and do not consider this to be one of their basic responsibilities. Institutions of higher learning are organized primarily to teach regular courses of predetermined content and length.

For instructional shifts of major scope, it is necessary to deal with the entire staff rather than with individual teachers. College courses designed for a collection of individuals must teach information and skills which will be useful in a variety of school settings. They cannot be directed narrowly toward the needs of one particular system, the form in which they would be most useful to a school system adopting a new instructional program.

No one in the profession understands the necessity for continuous in-service education as well as the college personnel who are providing pre-service education. They said quite frankly, "We do not pretend to turn out a finished product." They assert that the colleges do not attempt to equip the prospective teacher with specific instructional techniques, but concentrate on developing a general professional wisdom from which he can draw the specific techniques that he needs for any given task. Actual instruction in specific techniques was said to be the responsibility of the schools which employ the college graduates--a responsibility which most local schools patently are unable to meet.

Despite college disclaimers of any serious effort to teach specific techniques, the writer came away from the interviews with the strong impression that certain specific techniques are indeed taught, but that they can be better described as "currently in vogue" rather than as "basic professional wisdom." These are exemplified by methods of using a textbook, making lesson plans, and assigning homework. After close study, the writer concluded that teacher-education programs do not train teachers in how to carry out new instructional processes until those processes are in general use.

Professional Associations. The professional associations are the most effective communicators, not primarily because of their publications and programs, but rather because of the opportunities they provide for informal contact among individuals at meetings. (A talk with a trusted friend who has himself experienced a new program is very close to an actual

visit in its persuasive effect.) Notwithstanding their effectiveness compared to other agencies, the communication which the associations provide is random, disjointed, overlapping, and unfocused.

College-Affiliated School-Study Councils. The college-affiliated school-study councils act primarily as communicators of information. They are rarely tied in directly with the process of changing the instructional approaches used in their member schools. These councils are generally poorly financed and weak in influence.

The heart of the problem seems to be that the study councils are usually managed by college personnel interested chiefly in discovering new information and paid for by local school systems interested chiefly in learning to do in the best way what is already known. The result is an enterprise so underfinanced that it can perform neither function very well.

Private Philanthropic Foundations. The great contribution of the private philanthropic foundations in education, as in other fields, is that they have created conditions under which able people could be freed to concentrate at least temporarily on limited functions. Some promising new programs have resulted. Nonetheless, it is difficult for private foundations to promote the spread of any distinctive instructional approaches that they have sponsored because of the professional suspicion aroused by any new approach, particularly one which is being actively advertised.

Commercial Organizations. The commercial organizations, such as textbook publishers, are extremely powerful. When they promote an instructional change, a great wave of influence sweeps over the schools. On the other hand, once they begin to market a given product, they serve as powerful inhibitors of change because they seek volume distribution and repeated sales of the same product.

All in all, the commercial organizations tend to be a unifying influence over curriculum content and instructional methods not only on the state-wide level, but nationally as well. They seem to hold the better schools and the better teachers short of the point they could reach, while taking poorer school systems and less capable teachers further than they would otherwise go.

The Three Phases of Instructional Innovation

The key conclusion of this study is that the design, the evaluation, and the dissemination of innovations are not at all the same. They are three distinctly different processes. The circumstances which are correct for any one of them are essentially wrong for the others. They cannot be reconciled. Moreover, most of the persons who work well in one phase do not work well in another.

The hallmark of the ideal design setting is freedom; the hallmark of the ideal evaluation setting is control; the hallmark of the ideal demonstration setting is normality.

Phase 1: Design. The ideal circumstances for the design of an improved instructional approach are artificial, enriched, and free. At their best, they provide a group of highly intelligent people, a somewhat limited problem, time to concentrate on a solution, ample money and resources, freedom to try almost anything, the likelihood that the solution will be used somewhere, and the prospect of personal recognition if the problem is solved. The more artificial, enriched, and free the setting, the more distinctive the innovation it is likely to produce.

Phase 2: Evaluation. The ideal circumstances for the evaluation of a new instructional approach are controlled, closely observed, and unfree. At their best, they provide conditions in which the forces that might influence the success of the new approach can be controlled when possible and kept under close surveillance when actual control is impossible. The freedom which is essential in searching for a good design is destructive in making a good evaluation.

Phase 3: Dissemination. The ideal circumstances for the dissemination of a new approach through demonstration are those which are ordinary, unenriched, and normal. At their best, they are exactly like the everyday situations in the observer's own school and community. Anything which the observer could label "abnormal" or "unrealistic"--such as the enriched conditions necessary for good design or the controlled conditions necessary for proper evaluation--robs the observed program of persuasive effect.

The most formidable block to instructional improvement today is that education--unlike medicine, agriculture, and industry--fails to distinguish the three phases of change: design, evaluation, and dissemination.

Part II Two Change Strategies For Local School Systems[1]

Two Local Change Strategies

This paper lays out two major strategies a local school system might use to bring about change in its instructional program after it has identified shortcomings in the learning of its students. Both

[1]Short excerpts from a paper prepared for the NEA Center for the Study of Instruction, Oct. 1-3, 1965.

are elaborate. In choosing to deal with change strategies available to those inside a school system, it ignores a panoply of forces in the outside school environment which are far more powerful than any which can be generated within the school. With that caveat clearly in mind, we proceed.

The major strategic decision for the local school system is whether it will invent a new instructional process or will adopt one invented elsewhere. Here the main road forks.[1]

Local Invention - A Set of Conditions

Few school systems are naturally rich enough in resources or free enough in atmosphere to provide the necessary hothouse conditions for the invention of a truly new instructional program. Faculties are so heavily burdened with the duties of operating current programs that they cannot simultaneously work out better ones. Thus the school system seriously intending to develop its own innovation must deliberately create an invention setting, the ingredients of which appear to be these:

1) A group of highly intelligent people with differentiated roles.

It seems clear that shared goals, cross-pollination of ideas, mutual support during failure, reinforced exhilaration during success, the convenience of a sympathetic but critical hearing from fellow workers, and the creation of a cadre devoted to the spread of the ultimate invention are more than sufficient reasons to create a group rather than to rely on individuals working separately.

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[1]There is a third branch, most people would assert, called adaptation. Adaptation, in the conventional wisdom, represents the best of the other branches, being as it were an ingenious blending of invention and adoption. It is almost universally recommended and most schools claim to use it. My own observations have been that it is indeed a third pathway, usually laid out by wandering aimlessly back and forth between the other two, a pathway filled with trees and underbrush. Most adaptation, as I observe it, is not so much a shrewd redesigning of an outside program to fit special local contours as it is a matter of knocking the corners off trying to get it through the doors of the school. What gets inside looks like what the school was capable of understanding and reproducing -- its impressions of the innovation, so to speak -- a poor copy rather than an improvement over the original. In any case, adaptations can be understood as the invention of modifications in what is being adopted and will not be treated separately.

2) A limited problem.

Unless the problem area is narrowed so that a definite problem emerges which the group can solve with the time, talent, and funds available to it, success is not likely.

3) Available time.

Considerable working time must be allowed if a true innovation is sought.

4) A special place in which to work.

The choice of a work setting somehow separated from the familiar working environment enhances the sense of specialness which a successful working party always seems to develop. And it eliminates many interruptions.

5) An expected product.

Without in any way predetermining the nature of the final instructional program to be produced, it should be clearly established that the working party is expected to come up with a definite body of school practice which can be used to solve the problem.

6) Fundamental knowledge of human behavior and of subject content to be taught.

It is extremely valuable to infuse into an invention setting fundamental knowledge on which instructional techniques can be based. Principles from psychology, sociology, anthropology, and other behavioral sciences give the innovating group a broad platform on which to erect pedagogical methods.

If the working party is placing subject content into its new program, it is essential for it to have a deep knowledge of the subject selected.

7) Proper equipment and materials.

One characteristic of the schools in this nation which seems quite unlikely to change is the universal dependence of teachers on instructional equipment and materials to carry the subject content and often to guide the methods of their teaching. From this we can predict that a design team is entirely likely to express its ultimate invention in equipment and materials. It follows that the group

must be given its choice of the components already on the market, and, more important, must be given the capability for producing novel equipment and materials over the entire spectra of audio, visual, and printed media.

8) Knowledge of parallel efforts.

It is desirable although not essential for the innovation team to know how others are attacking similar problems.

9) Freedom to design almost any promising approach.

Any kind of restriction in an invention setting lessens the chance of getting a truly distinctive answer.

It is probably best for the working party not to be guided by assumptions about what would be acceptable in the field -- at least in the exploratory stages -- because it is always conceivable that a new program of superb character could be widely disseminated even if quite distinct from those currently in use.

10) Try-out situations.

The designers must be offered locations in which the innovation can be tried repeatedly, redesigned if necessary, and tried again as a part of its actual invention.

11) The likelihood that the innovation will be used.

Most members of invention teams need to feel that if they design a useful program, a use will be found for it.

12) The prospect of personal recognition if the innovation is successful.

The invention group should be promised the option of broadcasting the results of their work in person and in writing if they wish to do so.

Local Adoption - A set of conditions

Most school systems must adopt their instructional programs.[1]

[1]Adaptation, as indicated earlier, can be best conceived as the invention of modifications. It seems reasonable to believe that high-quality modifications can only come out of rich invention settings.

Depending upon the magnitude of the change, the following conditions appear to be necessary for authentic adoption and successful use.

1) An identifiable innovation.

The new program must be in a form which is identifiable describable, and reproducible. An instructional innovation must be adopted as a body of practice.

2) Public acceptance.

Public enthusiasm for the specific innovation is not necessary. (A particular innovation may not even have high visibility to outsiders.) However, while public neutrality is harmless, public opposition would in all likelihood devastate the innovation. Thus opposition must be prevented even if enthusiasm is not aroused.

The public must be informed about a change so that it will not come as a surprise and arouse opposition for that reason alone.

3) Strong administrative endorsement.

If any principle is well-established, it is that a positive desire for the changeover -- not merely a neutral acceptance -- must be displayed by the administrative staff.

4) Balanced attention to the novel and to the familiar.

Probably the most delicate balance to be struck in the introduction of an innovation is that between pointing out its familiar elements (to reassure teachers) and pointing out its distinctive ones (to show what the change is).

5) Convergence of outside reference group norms.

Staff members belong to professional associations outside the local school system and to other outside groups which can grant them status and prestige.

Favorable opinions of the innovation by outside professional leaders, by colleges or other schools which graduates will attend, or use of the innovation by highly-regarded school systems should be called to the attention of prospective local users.

6) Early staff awareness and interest.

Simple awareness can be established by printed material and by references in speeches. At a later stage, actual interest must be developed. A kind of "artificial visit" is needed.

It is at about this point that the staff will want to examine the actual instructional equipment and materials.

7) A sense of staff involvement.

It is highly desirable to have the prospective adopters (or representatives they have chosen) join the process of inquiring into the innovation.

8) The precipitation of a decision to try the innovation.

This is the great moment in the adoption of the innovation - events rise to this peak and trail downward from it.

It seems to be established beyond doubt that the best way to answer such questions is to have prospective adopters visit a site where the innovation is in actual use.

9) Testing program amended.

If a desired innovation does not coincide with school achievement tests, those tests must be made to coincide with the innovation.

10) Prohibitive regulations removed.

Regulations which might prevent - or appear to prevent - the adoption of the innovation must be amended, suspended, or otherwise lifted aside so that prospective users can see clearly that those barriers have been removed.

11) Physical facilities modified.

Some innovations require more space; some require new subdivisions of old space; some require more flexible allocations of it from day to day.

12) Time schedules adjusted.

If the innovation requires more operating time, or a shift in time placement, or more flexible time scheduling, arrangements for accommodating it should be planned in advance.

13) Materials and equipment provided.

Among the supremely critical conditions of successful innovation is the ready availability of teaching equipment and materials.

14) Extra start-up time.

To change requires more energy than to remain the same.

15) Initial staff training.

Of all the steps in adopting an innovation, the most consequential one is training the staff to conduct it. This is the key to success, an inescapable requirement of authentic adoption.

All the equipment and materials teachers will need to teach the program should be employed by them during their training.

16) Continuing staff training.

Turnover in school faculties is so high that in-service training in the new approach must be given continuously.

17) Trial before final adoption.

Some form of trial before permanent adoption serves as a final reassurance to the staff that the ship can still return to shore if the voyage seems doomed. There are two major forms the trial can take: 1) pilot use in a few selected settings, or 2) universal temporary adoption.

B

A Framework for Program Development[1]

Dr. Lawrence Borosage, Department of
Education, Michigan State University

I look upon this meeting of home economists who are considering the whole area of wage-earning occupations as a rather historic occasion. I am sure the outcome of your efforts will have a national impact, and I am excited about the fact that I have the opportunity to share this experience with you people. I hope that out of it will come all kinds of innovative activities.

I would like to talk about a kind of conceptual framework of program development, and secondly, about a specific local community situation, its agencies and instrumentalities that we will be working with in developing wage-earning programs.

First of all, I would like to mention six things I think all people in vocational education (trade and industrial, agriculture, business, distributive education, home economics) ought to look at in this year, 1966, in projecting where the program of vocational education should be in the next decade or the next 15 years. It is the undergirding rationale for what I am going to be talking about. These are not original with me; I wish they were. A representative of the Ford Foundation, laid these planks in connection with educational programs in local communities. Let me share with you the six things to which all people in vocational education must somehow subscribe.

(1) Vocational educators must have the capacity and the willingness to see the community and its vocational education needs as a whole rather than a collection of agencies and self-interests. From my own point of view, the day that we could look upon the four areas that have characterized vocational education as separate and discrete is long gone. As we look at the occupational world, what I see increasingly is the occupational man. No longer are occupations going to fit the neat tidy packages into

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[1] EDITOR'S NOTE: This article was prepared from a transcription of a tape recording of Dr. Borosage's presentation. The illustrations were taken from the recorder's minutes. As such the article is subject to the inevitable errors.

which we have plugged them in the past. In other words I think people in home economics education must work closer with people in trade and industrial education. People in trade and industrial education must work closer with people in agriculture because the nature of the occupational world is such that it demands this kind of relationship.

(2) There must be the capacity to set some common goals, to fix priorities, to develop new approaches, to test these in action and to evaluate performance against national as well as local standards.

(3) Another capacity vocational educators must have is the capacity to mobilize governmental as well as private resources and to forge working relationships among agencies of both sectors. I would say this has particular applicability to the task in which you are engaged and are undertaking for the future.

(4) The capacity to involve and to affect critical centers of community power, is necessary to break the bottle-neck in education, employment, law and health and other fields.

(5) The capacity to finance the considerable cost of research and experimentation is no less vital.

(6) Finally, vocational educators need the capacity to convince the people involved -- on the one level, industrial, business, labor, governmental and civic leadership, and on the other level, the woman affected -- that these programs are for real; they are not window dressings for the status quo, not a crumb dropped conspicuously by the affluent few who dine at the community main table.

I would like to point out thirteen leadership sensitivities which individuals responsible for developing programs in wage-earning occupations in home economics must consider.

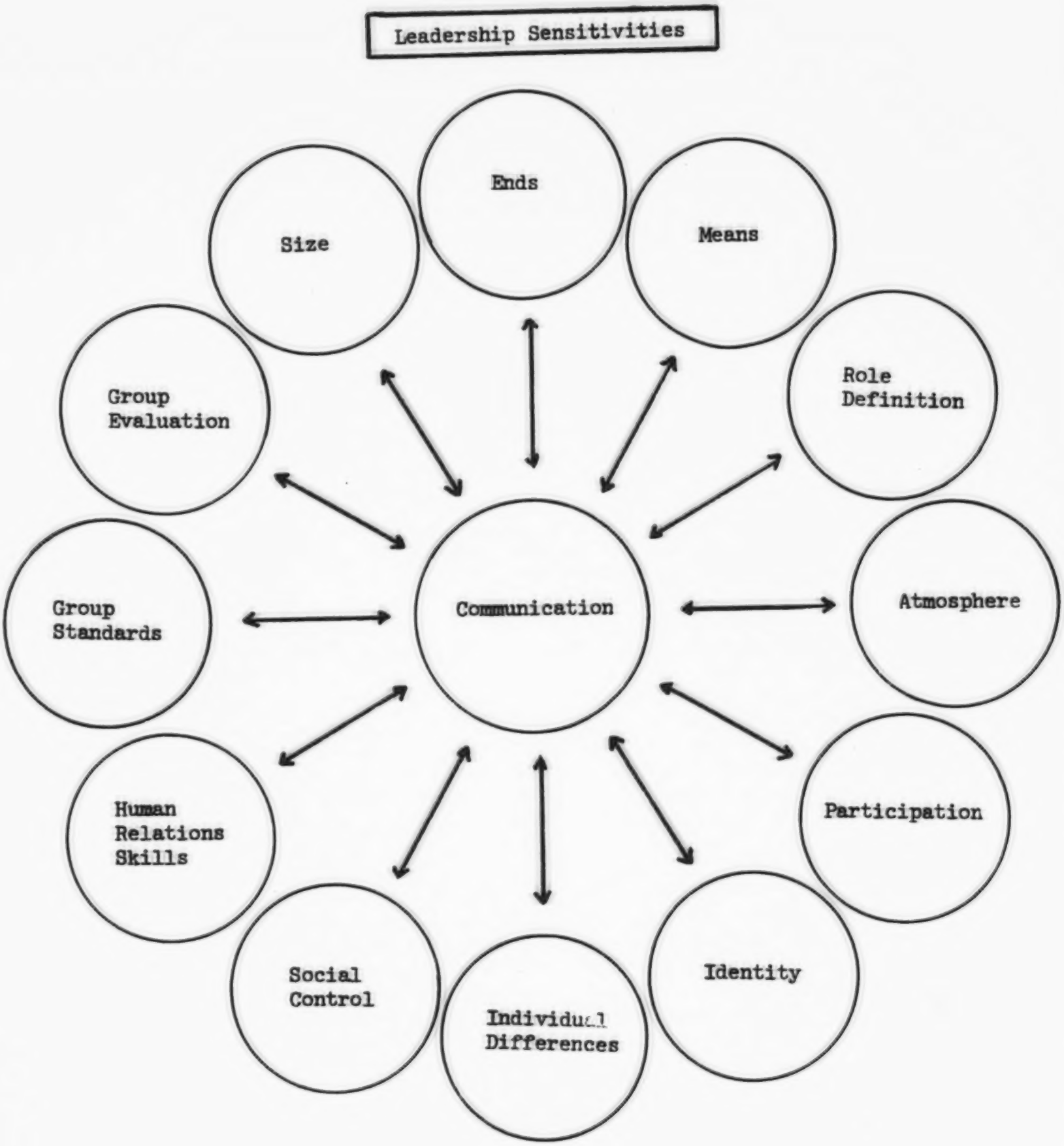
Communication

We must learn how to communicate with many different groups with which we have not been communicating. Communication is not something that exists in a vacuum. Communication is an all-pervasive ingredient to almost every act involved in program development. We must consider communication as it relates to the other twelve leadership sensitivities I am going to identify. Notice on Illustration I that the arrows are double headed between communication and the other leadership sensitivity areas.

Ends

Anyone in the leadership capacity must have the ability to do two kinds of things concerning the ends of the program. One is to state the objectives very clearly. If we do not have clearly stated objectives in terms of wage-earning occupations, it is going to be exceedingly

Illustration I



difficult for us to communicate to the multiplicity of groups external to the school system. It will be equally difficult to communicate within the internal system.

The other dimension of the question of ends, is goals. In program development, in addition to the specific objectives, we also must consider long range goals. These goals must be clearly stated, particularly in dealing with periods of five to ten years in advance. In other words, one leadership sensitivity is to try to answer the question: What are we about or what are we trying to do?

Means

How are we going to try to achieve the objective or how are we going to try to achieve the goals which we have established for ourselves? What kinds of plans are we going to develop? What kind of a long range plan will expedite the long range goal? What kind of planning is needed for short range goals? Of more importance, how will we link the long-range and the short-range goals?

Role Identification

Sensitivity to role definition is of tremendous importance in the kinds of involvements that can be anticipated. Most communication break-down takes place in the whole question of ends, either because the goals and objectives are not clearly stated, or because roles are not clearly defined. Who is going to be responsible for what? For example, what is the role of the advisory committee? Can we define the role of that committee clearly? Will that committee see itself as a policy-making body rather than an advisory body? In the past when advisory committees have gotten into difficulty, it was frequently because their roles had not been clearly defined. How do we clarify the role of the employment service? Are we going to involve organizations and voluntary groups such as the AAUW? They certainly have a role to play. How are we going to define their roles so that there is understanding?

Atmosphere

The next leadership sensitivity, from my point of view, is creating the kind of an atmosphere in which people can work together. I am referring to the feeling, the tone, or the mood that exists in a group of people who are attempting to work together to arrive at some common goals. We know that the atmosphere can be characterized differently. Having listened to some home economists talk about the environment in which they work, I can only conclude that it is still a man's world. The decision making that takes place frequently is not necessarily from the point of view of what is best for the home economics program, but what is best from a male point of view. For example, if the decision maker has had most of his experience in the area of trade and industrial education, in all probability, he will give the area of trade and industrial education

a great deal of emphasis. If the individual has had most of his experience in agricultural education, you can rest assured that decisions will emphatically reflect this area. This is the kind of hard reality of life in which I think unfortunately too many of you people find yourselves. The atmosphere frequently is characterized by strain, tension, and insecurity. If you have experienced this in your relationship with your peer group or with your superiors, you will recognize that it can also be experienced by those people you will be working with in developing programs. Those of us who are in leadership situations are the people that are responsible for creating the atmosphere.

Participation

Next, is the whole matter of participation. We are talking about more than just merely getting people together to sit down and talk about some of our problems. There are three ideas in this matter of participation as I see it. First of all, it is the mental and emotional involvement of people. People who are really going to participate in program development have to have the feeling that they have a mental and emotional involvement -- "I am really in on this thing." Second, to gain effective participation the individuals must feel that somehow they are making a contribution to the situation. Third, they must sense a responsibility for sharing.

Identity

Identity is a leadership sensitivity that may be a problem. We have found community and agency people are willing to come together; they are willing to discuss a problem; they may be willing to say, "Yes, we will cooperate in the solution of the problem." Then, everyone leaves and nothing much happens. I think part of the problem is that people want identity; they want to sense some identification. As home economists you want to preserve your identity, but if we are working with community agencies, with business, or with governmental agencies, we must remember that they want some identification, too. When these people begin to feel that they are losing their identity and are being subordinated to something else, watch and see what happens. They are not going to be interested in having a part in what we are attempting to achieve.

Individual Differences

Sensitivity to individual differences among the agencies with which we work cannot be overlooked. Their objectives and their goals may not be the same as those that you cherish. Consequently, we must recognize that there are differences in the groups as well as the people with which we will be working.

Social Control

The whole question of social control is the next leadership sensitivity. When we get groups of people to work together we find that in reality there are two types of organizations at work -- formal and informal. The formal organization may be reflected in a kind of organizational chart. But when you learn how things get done, you realize they don't necessarily follow the organization chart. The minute you put people into boxes your organization chart doesn't work any more, and it doesn't work because you have individual differences. I think that if you studied your own organization very, very closely (national associations, etc.) you would discover that the way we say things "ought" to happen is not necessarily the way things do happen. This is because we find other ways to get things done. I think we need to pay attention to this. In program development we need to recognize the way activities take place may not be indicated in the organizational pattern; this is largely because of the informal interaction that takes place among people.

Human Relations

Sensitivity to human relations would seem to be self-explanatory and therefore it will not be discussed here.

Group Standards

Group or individual standards are the level of individual or group operation that is acceptable. Some groups insist on high levels of performance and others are satisfied with mediocrity. In most instances the difference lies in identifying what is par for the course. What constitutes a good standard? What do we mean for example when we say, "This school has a good home economics program"? We are taking a look at that school in terms of some kind of standards or criteria. The standards of the group influence the criteria for the program.

Group Evaluation

If we have established certain kinds of goals and objectives, we need to ask periodically, "How are we doing?" If there is any vocational education area in which we have not quite measured up, I think this is the area. Our evaluation tools are not the best. We have not had time to do the kinds of things that need to be done in evaluation. The interesting part of it all is that at this juncture in history we are beginning to see that some of the private foundations and some of the private research organizations are really doing more from the standpoint of depth evaluation in vocational education than most vocational educators themselves. For example, I cite the kinds of studies in which the American Institute for Research is engaged. They have made some national studies of the process and the product of vocational education. We have never had a study of this depth, before, in 49 years of vocational education.

Even these studies lack something from the standpoint of sophisticated evaluation techniques.

Size

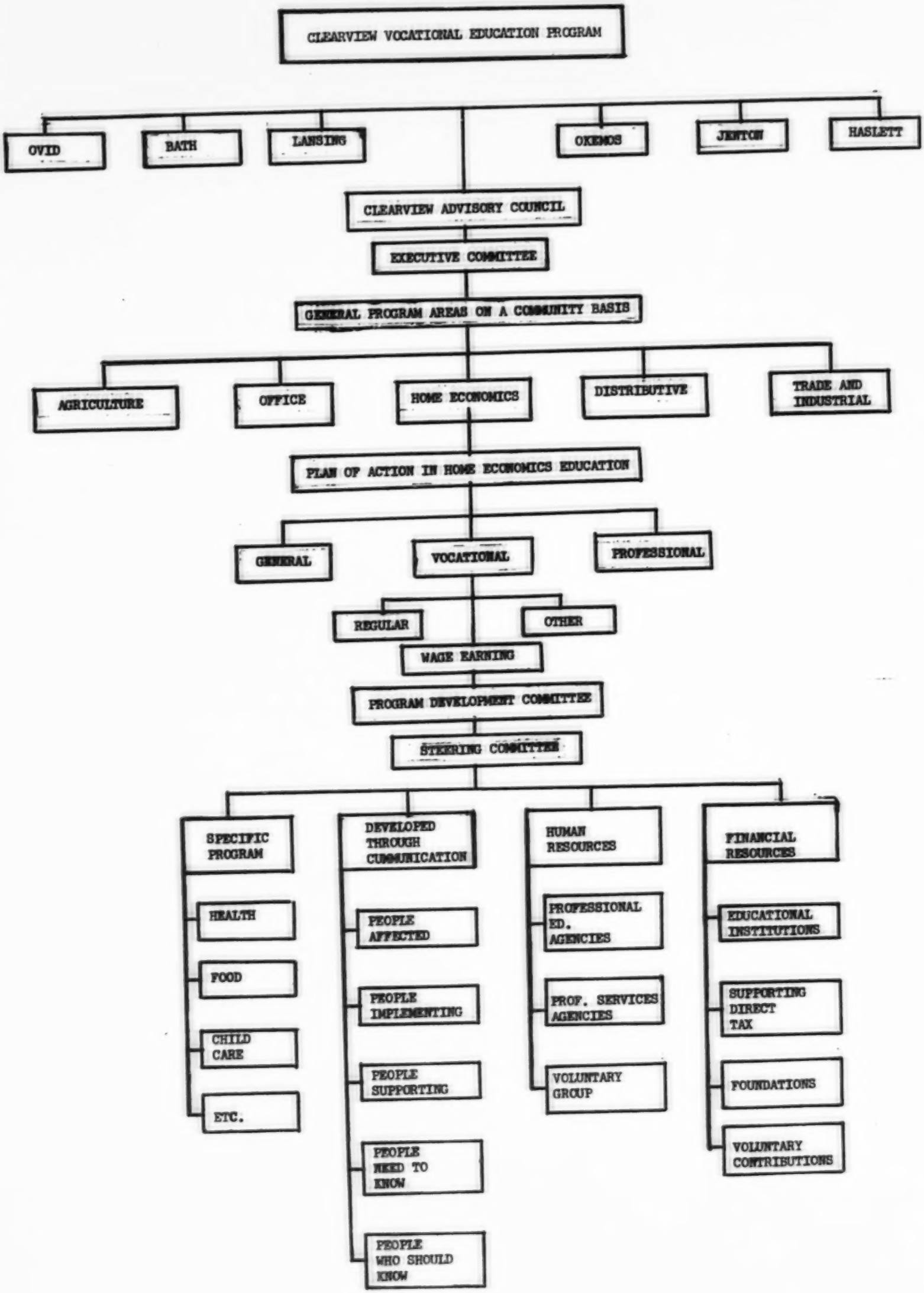
Finally, there is the whole concept of size. We are going to have to recognize when we talk about the concepts of size, and communication and programs that what is done in a smaller community is, of necessity, different than that which is done in a larger community. We have found in some of our evaluation studies that frequently the most effective program is not in the very small communities or the very large community but it is in medium-sized communities. Some of our findings show a higher student cost for vocational education in the medium-sized communities than in either the larger or smaller community. There is better equipment in the middle sized community than in the large or the very small community. These are some of the kinds of things we have to take into consideration in program development, depending upon the size of the community or the size of the program. These then are thirteen leadership sensitivities that any individual working in program development must take into account.

Now, how is this reflected? I am going to try to project what I have said up to this point into an organizational structure. I have set up a hypothetical community program which I shall call the Clearview Vocational Education Program (Illustration II). I am assuming that the Clearview Vocational Education Program involves a multiplicity of communities. This, increasingly, is the pattern. First of all there has to be an overall advisory council to determine the direction of the total vocational education program. General program areas, agriculture, office education, home economics, etc., are considered on a community-wide basis.

In home economics you will be concerned with general home economics programs and with vocational home economics programs. I have included a third category for which someone should have some responsibility, the professional aspect. What are we going to do with the people who now have degrees? Who is going to see that something happens to these people? It can be done. Persons in the audience here have demonstrated very beautifully what can be done to update professional people as well as to look at what is necessary in both the vocational and the general levels in a total home economics program.

Under the vocational program, I hear people talk about the regular program. Then I hear people talk about wage-earning programs, in some cases, as separate and discrete. I think ultimately in terms of long range planning we are going to have to get away from talking about the regular program and the wage-earning occupation program because I think

ILLUSTRATION II



both of these are going to be synthesized together at one point. For wage-earning programs on a community-wide basis, we need to have a program development committee. This program development committee in a sense is the advisory body for wage-earning programs. Stemming from the program development committee is a steering committee made up of a few members who can help us in policy making.

Specific programs will be developed through communication, through human resources and through financial resources. These then are the next four categories of program development: (1) Identification of Specific Programs, (2) Development through Communication, (3) Development through Human Resources, (4) Development through Financial Resources. Starting with a plan of action for home economics wage-earning education let's take a look at the specific program areas. What are the major areas in which specific programs might be developed? There are health occupations. There are certain kinds of occupations that deal with food. There are occupations that deal with child care and one could go on. But I hope you don't find yourself trying to define with the greatest clarity these various occupational areas. Because if you do I think you are going to be spending the rest of your time trying to arrive at definitions and there isn't going to be very much action taking place. For example, if we didn't do anything about the learning process until we got a clear cut definition of how learning takes place, we wouldn't be in business. We still can't define how learning takes place although we make certain assumptions. What I am saying is don't get bogged down in definitions.

Moving on to the second category, we develop new programs in health occupations, food, child care, etc., by communicating with three groups in general. First, the people that are going to be affected by it -- students. I am talking not only about students in high school, but also about those who are adults, those who come from middle class families, and those who come from disadvantaged families. I am not really sure that we know how to communicate with the people who will be affected by many of the kinds of things that we will be doing. If for example you establish a program to train aids for low-income families, we have an entirely different communication problem because of the people affected. If we are talking about a program for people in higher education levels the value system involved is entirely different. The people who will be affected by the program, then, is the first group we are going to have to think about in terms of communication.

The second group with whom we are going to have to communicate includes the people who are implementing this program, those in the leadership capacity.

The third sub-group in the communication category represents the people supporting the program who in a sense are the decision makers. If I am a home economics teacher and I want to do something about wage-earning occupations there are certain people that must be contacted to legitimize the action that I am planning to initiate. These are the

decision makers. If there is a home economics supervisor in the community, a director of vocational education, a superintendent of schools, a dean or president of the community college, or a director of adult education we need to communicate with these decision makers, people who are supporting the program.

The people who need to know about the program make up the fourth sub-group. If we establish pilot programs involving some university people as consultants and some people from the state department of education, they need to know what we are attempting to do in terms of program development. Then finally, the people who should know, the general public. The people in the community should know what we are attempting to do.

Illustration III shows another way of looking at communication. The home economist is placed in the center. All you need really in addition to the home economics educator is two other groups to have a program, the educational family (the administration broadly conceived and faculty), and the students. You don't have to go any further. But it is pretty risky for one to confine his or her efforts to these two groups. I think we have to go beyond that; we have to involve more individuals.

I would put into the next ring of the circle what I call key people. By key people, I mean leaders in education, business people, and those in labor and government. Now we have gone beyond the educational family, starting out into the community. Now, you can stop at that point and still have a program, or you can continue moving into a fifth circle that I will identify as cooperators. The term cooperators may refer to organizations or individuals, perhaps a home economics group, AAUW, a Kiwanis Club, all kinds of organizations with whom we may cooperate.

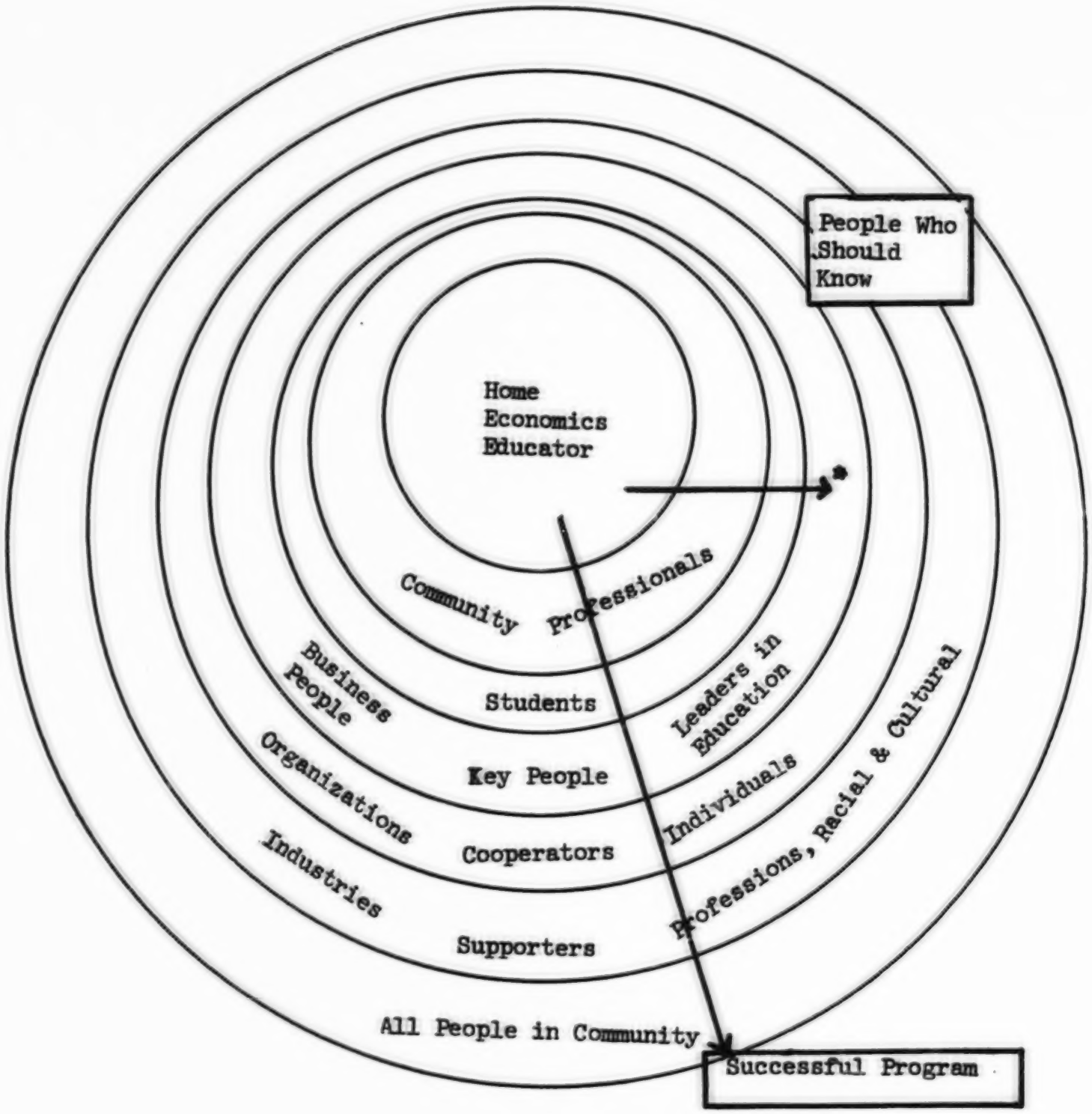
Then, going to the sixth ring of the circle, I have placed those I would refer to as supporters. They don't necessarily have to cooperate, but they support what we are attempting to do. One can get supporters from the professions, from racial and cultural groups, the urban league, from industries. They are not necessarily as directly involved in program planning as are the key persons. Then finally, I would go to the general public, including all of the people in any given community.

Again, your program could stop right here, but as it involves more and more people in the community, to that extent in my estimation, will the program be successful, and deeply rooted in the community. One of the concerns at the present time is the matter of linkage between the school and community organizations. Radially, we need to involve many, many more individuals.

To be more specific now in terms of communicating with the people who will be affected, we are going to have to take into account the

Illustration III

Program Explanation



*Lack of linkage between school and community organizations.

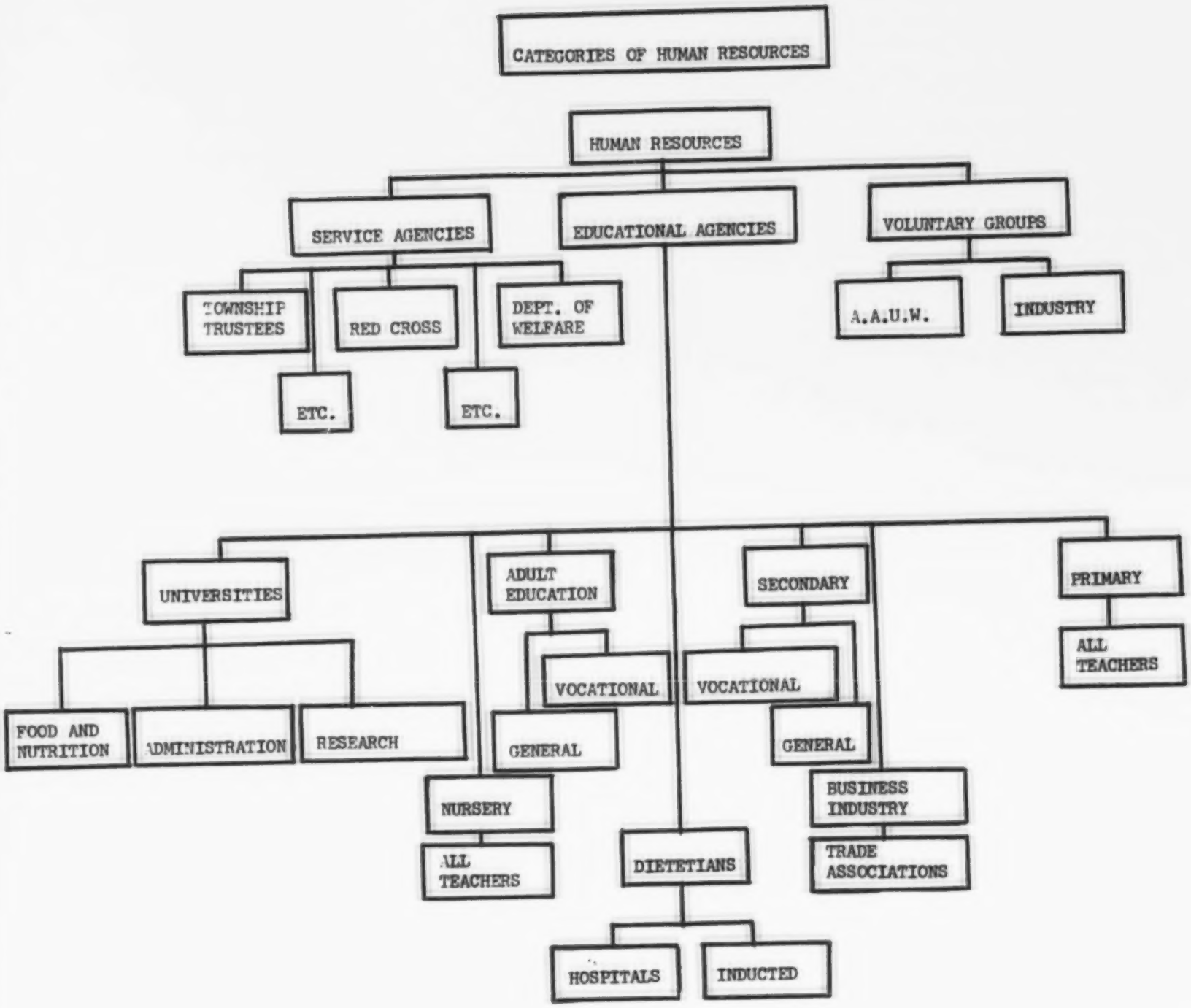
language barrier with which we will be confronted as we work with some groups of people. It seems to me there has to be lateral communication among the people affected, those implementing and those supporting the program. For example home economists in the public school structure will need to communicate with not only their own faculty but also with dietitions in hospitals, in industry, and with many other groups that are not necessarily associated with the formal educational family but who can help from the stand point of implementation. We have indicated that these specific programs are going to be developed through communication with five audiences: (1) the people affected, (2) people implementing, (3) people supporting, (4) people who need to know and (5) people who should know.

In a configuration showing three major categories of human resources we see: (1) educational agencies, (2) community service agencies, (3) voluntary groups (Illustration IV). Tracing through the human resources of the educational agencies, and thinking in terms of the totality, how can we involve as many people as possible who can make a contribution to a program? One place to start working with educational agencies is at the university level. For example, we can work with specialists in the university if we are dealing with food service. Help is needed from the administrators in universities if you are going to call upon these people to work with you on pilot projects. Department heads and deans make decisions regarding loads, and time expenditures that are involved. The third area in which universities can be involved is in research.

If we have either a general or a vocational adult education program in a community, what do we have to take into consideration from the standpoint of educating adults? What kinds of things can we do at the secondary level in both the vocational and the general home economics program? How can we involve teachers at the primary level? Where does guidance start? Does it start on the junior high school level, the elementary level? Thinking in terms of totality, what should be taking place on each of these levels in the exploratory function? For the educational aspect of business and industry we look to trade associations since they have an educational responsibility for their membership.

Developing human resources through service agencies may reach departments of welfare. I don't think that we can carry on certain kinds of programs in isolation from such service agencies. There may be certain kinds of programs which can be implemented by the Red Cross, Visiting Nurses Association, Department of Welfare and township trustees. Next we need to consider how to call upon voluntary groups that are established to work with us in program development. In some cases, in addition to searching out voluntary groups we may have to create them. The solution to the poverty program, for example, calls for people who are indigenous rather than external to the system.

ILLUSTRATION IV



In the fourth category, financial resources (Illustration V), we look for material support through direct taxation, through support of the public schools. Certainly one can look for financial resources through voluntary contributions; this is happening. Finally if we are resourceful enough, how can we tap the foundations? Can we be creative enough to develop the kinds of proposals and the kinds of research that might attract the foundations? Can we get research funds to establish pilot and other research projects?

To move on to one final aspect let me suggest a system of relationships and program development in a rural community (Illustration VI). This system came out of some experimentation that we have been working with now for eleven years. The Michigan State University Advisory Committee has been working with two communities to get some real answers to this whole question of how to establish relationships among the university, a local school system, and the community and industry. Working with administrative persons such as a school superintendent involves role definition. How do you define the role of consultant? What do you want the university to do? What I am saying is that we must define roles. In this particular situation the role of the Michigan State University Advisory Committee was defined as: (1) consultation, (2) interviewer training, (3) research, (4) coordination and (5) publication.

An action committee was established in that local community and the functions of that action committee were (1) to plan the action and (2) to organize for the activities of survey, interpretation, responsibility for the pilot program, evaluation, and the follow up. In order to get the administrative cooperation of the community industry, broadly conceived, the third group was established. Beyond administrative cooperation we wanted the community industry group to designate the interviewers.

There are two ways in which you as a person in a leadership capacity, particularly that of participation, can move; two points of departure. You can say to yourself, "I know everything that needs to be known about home economics education in wage-earning occupations. I am going to make a decision as to what this program is going to be like." You can set up a program and you become the expert. Or on the other hand you can say to yourself, "Anything that we are going to do in this program is going to have a new approach. In addition to getting the facts and information which also serve an educational function, we are going to involve as many people as we can in order to utilize the educative function." I would make community studies and surveys even if I had all the information I needed to have to start a program. I would do this because I think the educative function is that important. The people in the community go through self-discovery as they become involved in digging out certain kinds of facts. As they internalize this project they sense what the real need is. Frequently we who are educational experts go ahead and get data together and we try to present this to people. This does not have the kind of impact on people as does the process of self-discovery.

Illustration V

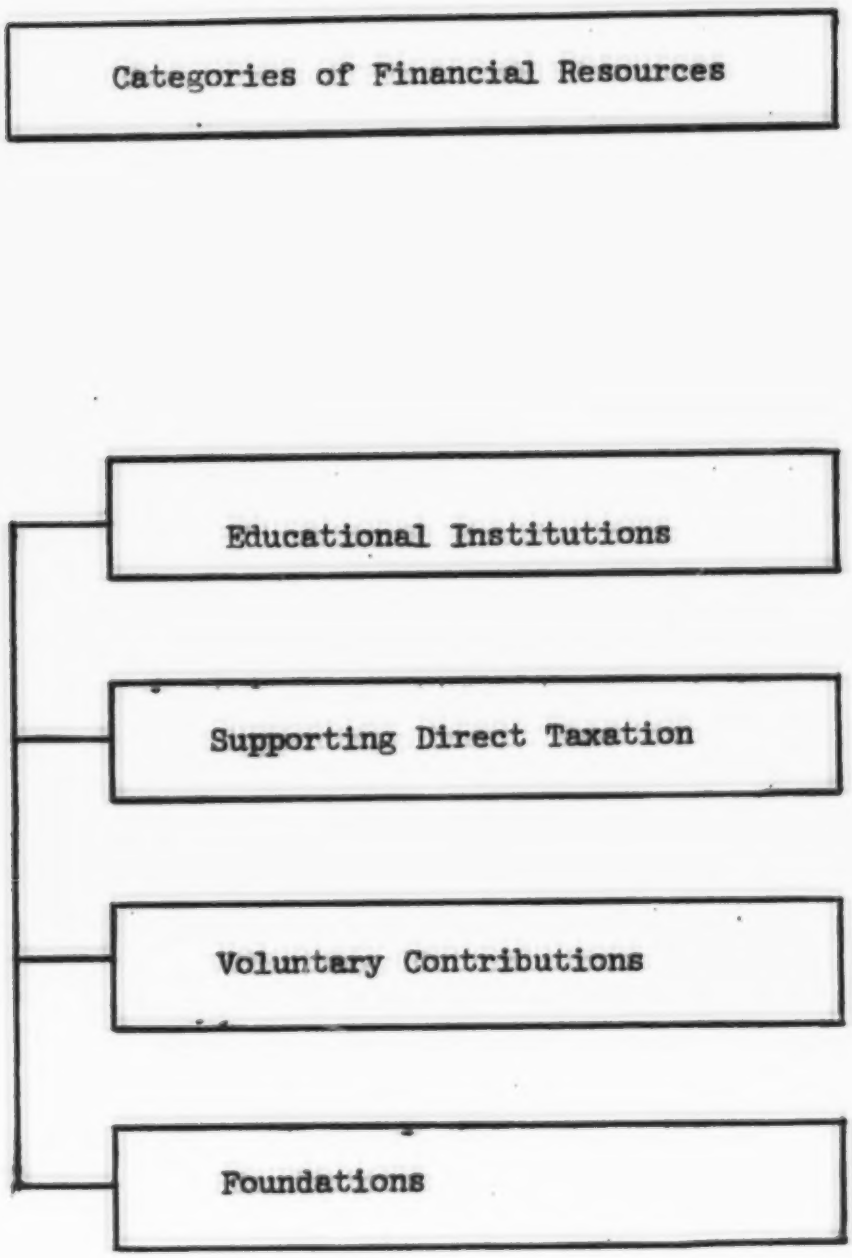
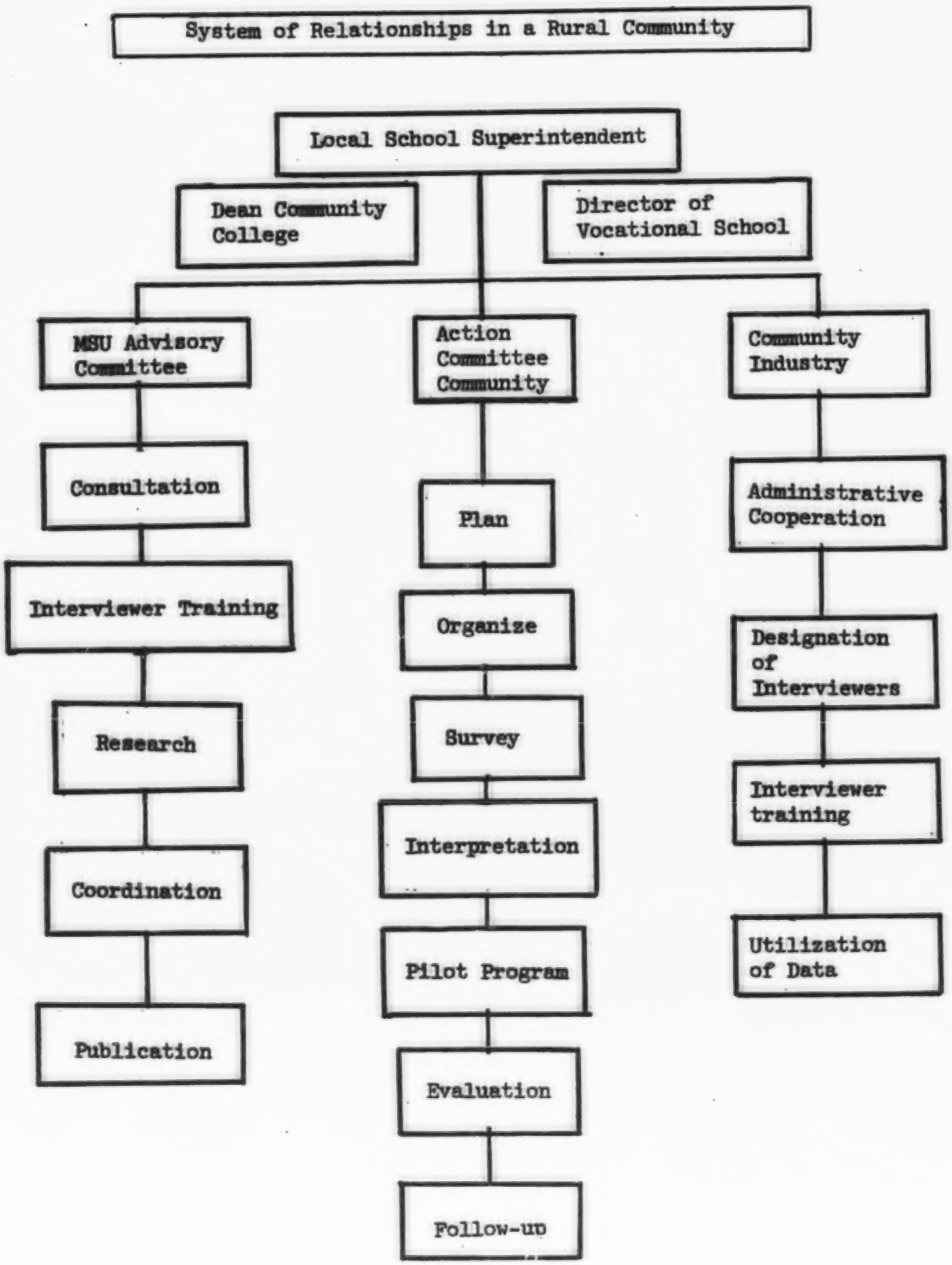


Illustration VI



Who is in a better position to do interviewing to get information about wage-earning occupations for women in a community than employment managers and personnel directors? They do this everyday. Interviewing is their job. This is their area of expertise. When we conducted surveys for needed information we used people from the community or people from the industry -not necessarily the professional educators. We found two things; a higher degree of expertise in interviewing ability; and as I indicated before, internalizing this kind of experience, they learned. They, themselves,discovered the need.

We made the people in the community and in industry responsible for interviewer training, rather than people in public education. (It was interesting to find that they in turn called upon people in the university for assistance.) We made the community-industry group responsible for the utilization of data. We found, time and time again, individuals from industry and business could interpret some of the data much better than we could as educators.

Let me just summarize with four points. I think those of us in the field of vocational education are going to have to look at our programs a little bit differently than in the past. Next, all people in vocational education have to work closer together than we have because if we have had experiences that would be helpful to each other these experiences and competencies should be shared. Third, we need to develop some kinds of leadership sensitivities in terms of those 13 concepts that I have indicated. Finally, you can develop a program from a narrow point of view and still have a program, or you can decide to involve as many of the people in the community as possible to help you do the kind of thing that needs to be done. Some of these notions may be new or different to some of you. I hope, however, that they are not quite as different as those of the little teenager, who was looking over the labels at a perfume counter in the department store. Finding such captions as "Night of Passion," and "Embraceable," she looked up at the clerk and asked, "Don't you have something for a beginner?"

Development of Post-High School Programs[1]

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What do we mean by the term post-high school? Literally it means "after high school." It is the educational system which offers instructional programs after the high school becomes inappropriate to meet the needs of youth and adults. It often provides for both full-time and part-time educational programs.

Ten years ago there were fewer than 500 public institutions offering post-secondary occupational education in America. Today, there are twice that number. Ten years from today, using the same rate of growth, conservative estimates will increase this number to 2,000 institutions offering vocational education after high school.

The institutions offering post-high school programs may be grouped according to five types of organizational structure: high school, vocational-technical school or institute, technical institute, the community or junior college, and the university. Under the Vocational Education Act of 1963 all of these institutions meeting the "area" criteria in the Act may be classified as area vocational schools. Each of these schools performs a necessary function in post-high school occupational education. Their main characteristics may be described as follows:

<u>High school</u> - A secondary school offering post-high school occupational programs in addition to its regular secondary vocational curriculums.

<u>Vocational-technical school or institute</u> - A school specializing in occupational education which may operate as a high school although it is usually a post-high institution. It may be administered by a local school district, a county school system, or it may be administered and operated as a state school.

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[1]This paper draws heavily on: "Post-High School Occupational Education." Prepared for use in the Regional Conferences conducted by the Division of Vocational and Technical Education during January and February, 1965.

Technical institute - A highly specialized single purpose institution offering training in technical occupations in which emphasis is placed on the application of the functional aspects of science and technology.

Community or junior college - A two-year college providing short and long-range occupational programs as well as parallel academic college programs.

University - A division or department of a four-year institution offering occupational curriculum designed to fit persons for gainful employment in recognized occupations which require less than a baccalaureate degree for entry.

The majority of students who enroll will probably be between the ages of 18 and 25, although older groups are often represented in such programs of occupational preparation. As more and more programs develop, it is likely that we will find a wider age span among the enrollees in such courses.

In this presentation I will discuss briefly the need for post-high school education, explore some of the urgent problems, and review briefly some of the types of programs at the post-high school level which are being developed to prepare for occupations using home economics knowledge and skills.

Need for post-high school education

It is a bit amazing to realize that we are starting to prepare the leaders for the year 2000. The post-secondary 18-year old of today will be the past-50-year-old worker in the year 2000.

Young people in large numbers will be the outstanding characteristic of the work force in the next 10 to 15 years. To illustrate: according to information from the Occupational Outlook Handbook the number of 18-year olds in 1965 was 3.8 million. By 1975 this number will have risen to 4.1 million. Young people under 25 will account for almost half of the net increase of the labor force between 1960 and 1970; their proportion growing from less than 19 percent to more than 23 percent. From 1960 to 1975 the labor force will grow from 73 million to 93 million, an increase of 27 percent. Those under 25 will equal 42 million in this 15-year period.

The presence of so many who must find their role in society and make their contribution to the economy of the society is significant. The majority of this group will not require a baccalaureate degree as preparation for work but they will, nevertheless, require more than a high school diploma. The findings of the President's Panel of Consultants on Vocational Education indicated that eight out of ten youngsters now in grade school will not finish four years of college. The Secretary of Labor reported to President Johnson in 1965 that of the 3.5 million Americans who will turn 18 this year of 1966, 200,000 will be unable to find room in colleges and another 300,000 will be unable to find jobs. These figures indicate that enrollments in occupational

education must be substantially increased if this group of youth, 500,000 in number, is to be served.

Advantages of post-high school occupational education

A number of advantages may be identified for providing more post-high school occupational education. Some of these are individual advantages to the community, state, or region.

- Society places a premium on education. Two years of post-high school education is fast becoming the accepted norm. Those who have completed such programs may be as common in tomorrow's community as the high school graduate is today.

- Occupational programs in a community college, technical institute, or other institute offering sound vocational education are likely to attract large numbers of students who would not otherwise further their education.

- Students who can look forward to spending two post-high school years in preparation for future occupations will be able to plan their high school program in a different way, i.e., they can spend more time in high school gaining a foundation for later occupational programs.

- Students who elect to start vocational training in high school and continue it in post-high school can build on their training for minimum job entry, and they can acquire a broader and more specialized background necessary in higher occupational levels.

- An area, a community, or a region that provides adequate post-high school programs in community colleges, technical institutes or other types of institutions receive the interest and attention of industry that is seeking sites for relocation. Industries are more interested in being located in places where they can look to such post-high school education as the source of preparation for workers.

- To the extent that we provide adequate post-high school programs we will be able to minimize the immediate impact on the labor market of students who are ill-equipped to begin work.

In the past education beyond high school has been concerned primarily with students heading for the professions. However, in today's world industry, business, health, and welfare programs have increased the demand for vocational preparation for all workers from the single skilled to the semi-professional. The required knowledge and skills for the various jobs can no longer be passed from one generation to the next. Therefore, employers' stake in sound education for occupations is increasing.

Some considerations in developing post-high school occupational education

1. Providing a state-wide plan for post-secondary education
The functions of the different types of educational institutions available to provide training after high school need to be identified clearly so that their potential in a state-wide plan can be measured. For example: community colleges may concentrate effort on parallel college programs and be concerned primarily with transfer courses. Other institutions may emphasize occupational programs, and still others may serve the dual purpose of providing vocational curriculums for jobs and parallel college programs. Some technical institutes may offer curriculums totally specialized in job skills and knowledge; while others may require a core of academic courses in the occupational program.

The task of educating out-of-school youth and adults for jobs that would otherwise be unobtainable by them is so significant to the social and economic health of the State and the Nation, that the combined efforts of many kinds of institutions seem essential. However, the important fact is not so much the number of institutions available, but that realistic occupational curriculums are provided under a master plan for post-high school education.

2. Providing preparation for a wide range of occupations
The post-high school curriculums should provide preparation for occupations ranging from the less complex to those requiring sophisticated competencies.

The youth and adults needing training after high school include individuals of varying achievements. Some students enrolled in post-high school institutions will have completed organized high school programs of vocational education. They will need greater breadth or depth in an occupational field so that initial employment for them will be a position of greater responsibility. Other high school graduates will have had no prior vocational preparation. The challenge then becomes that of providing a course of study for all of these individuals so that their motivation will be increased and their potential for an occupationally productive citizen will not be lost.

3. Achieving the primary purpose--employment competency
Occupational curriculums in post-high school institutions should have as their primary purpose, the achievement of competencies needed for employment, growth, and flexibility in a specific job or job cluster.

Reimbursable post-high school vocational education by law is limited to job preparation not requiring a baccalaureate degree. Courses are to be made available to individuals whose vocational intent is a matter of record and whose employment objectives may be classified

jobs for which the curriculums have been planned.

4. Providing adequate facilities and equipment
Equipment and facilities for post-high school occupational education should be such as to attract prospective students as well as to enhance the quality of instruction. It is an oversimplification to say that the equipment and facilities stimulate interest in post-high school programs. However, there is little doubt that up-to-date equipment in operation, facilities that simulate employment conditions, and students learning in a job environment act as a magnet for enrollment.

It is not enough just to make vocational curriculums available. They should occupy appropriate locations in the school plan; and the equipment facilities and library should be up-to-date and sufficient to provide quality programs.

5. Utilizing research to undergird and support program development
Research activities should have an important role in the development of post-high school programs for job preparation.

Many of the procedures followed and the opinions expressed about post-high school vocational education have been developed out of expediency, individual initiative, and personal philosophy. Literature documenting successful experiences at this level of training remains scarce. There is still much to be known. Research studies are essential to undergird and direct the expansion of vocational education programs for youth and adults seeking study at the post-high school level. It behooves us to design studies and pilot programs that will produce valid results. Findings need to be shared and a climate built for needed change.

Ideally, every aspect of post-high school vocational education should feel the impact of research activities. Some areas which seem to merit priority treatment are: (1) the articulation of post-high school curriculum with job training provided in secondary schools; (2) patterns for cooperative training or supervised work experience in post secondary programs; (3) curriculums to prepare for jobs requiring skills or knowledge overlapping two or more vocational fields; (4) variations in scheduling appropriate to the vocational objectives for post-high school students.

as semi-professional or less. Vocational education which is designed as a part of a four-year bachelor's degree curriculum, therefore, is not part of the reimbursable program.

However, it should not be the purpose of post-high school vocational education to restrict the educational ambitions of those enrolled in the organized curriculum being completed. On the contrary, the nature of the employment and individual potential for growth make it imperative that further education, whether in vocational or adult classes or under other auspices, be emphasized as a fact of work life.

Some community colleges and technical institutes which receive vocational funds have open-end programs which include arrangements for selected students who are enrolled in occupational curriculums to transfer to a bachelors degree program with little or no loss of credit. The problem, however, is to avoid weakening the occupational preparation in order to protect the transfer status of the students who will continue their formal education.

Institutions that provide such opportunities for transfer must be sure that the following safeguards exist: (1) each occupational curriculum is designed to achieve, without compromise, competencies needed for employment, growth, and flexibility within a specific job or job cluster; (2) students enrolling are aware of the extent and purpose of the occupational curriculum.

Within these provisions it is the privilege of the post-secondary institution to include transfer as a sub-objective of a vocational curriculum. As he matures in his vocational plans, it becomes a decision of the student whether or not to seek transfer to a baccalaureate program. It becomes a prerogative of the senior institution to accept in transfer all, some, or none of the occupational course work.

In planning vocational curriculum to meet employment requirements and opportunities many patterns for organizing instruction may be considered. All, however, should go beyond the attainment of mere entry competencies, i.e., those specialized knowledges and manipulative skills necessary to obtain a job. The teaching of basic principles which do not become obsolete will provide flexibility within a job cluster and the background needed for growth in an occupation. Related and general education as individual differences make it appropriate, will promote useful and productive contributions by the worker-citizen.

Whatever organizational patterns are determined to be appropriate by an institution, the vocational integrity of the offering must be evident. This will be the case when the controlling objective is to develop those copetencies needed to get, to hold, and to grow in the

Post-high school programs for home economics related occupations

States are in very different stages in their development of post-high school programs for occupations using home economics knowledge and skills. In some states, programs are being initiated, in others established programs are being strengthened; in still others, offerings are being expanded. Regardless of where I go or with whom I talk the place of post-high school programs in the total offering in home economics is a topic of concern.

Questions for discussion

For our further discussion of post-high school programs, I should like to suggest the following questions, some of which have been submitted to us, and others which will have to be answered as programs are established.

1. For what occupational objectives should programs to established? For what jobs are graduates prepared?

   The materials we receive and the questions we are asked indicate the two areas in which most programs are being developed:

   food management, production and service and
   care and guidance of children

   Programs have various titles and prepare for various types of jobs.

   For example:

   -- Curriculum for Food Service Administration in a junior college in Phoenix, Arizona prepares for "beginning supervisory positions in the quantity foods field in industrial and school cafeterias, hospitals, restaurants and hotels.

   --A curriculum with the same title at the Agricultural and Technical College at Morrisville, New York prepares for "positions of responsibility in commercial restaurants, cafeterias, hospital dietary departments and dining halls.

Both of these are two-year programs. In contrast the job opportunity from a nine-month course at the Madison (Wisconsin) Vocational, Technical, and Adult School is entitled Food Service Assistant and prepares for work in hospitals, college or university residence halls, school lunch programs, homes for aged, nursing homes and child care centers. It is indicated that the assistant works under the supervision of a dietitian or food service supervisor.

The Child Development curriculum in preschool education at the Woodrow Wilson Branch of the Chicago City Junior College indicates it provides training for work in nursery schools, day care centers, programs for culturally deprived children.

In deciding on programs to be established we shall need to answer such questions as:

What are the present opportunities for employment?
What jobs are likely to open up?
What are the particular occupations in which we in home economics have an interest and are qualified to develop?

Hopefully, imaginative and innovative programs will be developed. For example, what are the possibilities for (1) helpers for home economics teachers, (2) aides and assistants to social workers, (3) assistants in research laboratories?

2. What will be the relative emphasis in the curriculum on general education and on the education needed for an occupation or a cluster of occupations?

All of the two-year post-high school programs which I have reviewed include required courses in general education or liberal arts.

At Orange Coast College, California, there is a two-year curriculum leading to an Associate of Arts degree. Its goal is a cluster of occupations in--

hotels, restaurants, clubs, colleges, and industry, as cooks or assistant cooks, bakers, chef's assistants;
hospital and nursing homes as food service supervisors; and
school cafeterias as manager or cook manager.

Course requirements are:

23-24 hours general education
26 hours food service courses
9-11 hours specialty option

The Child Care curriculum at Woodrow Wilson Branch, Chicago City Junior College is another two-year program leading to an Associate Arts degree.

This curriculum consists of specialized courses in nursery school (40%), related courses (20%), general education (40%).

3. What experience beyond the classroom should be provided? What will be the plan for supervision?

A few examples:

The Madison Vocational School program for Food Service Assistant indicates that approximately two-thirds of the 36 week training program will be spent in supervised learning situations in hospitals, university residence halls and other institutions.

Another program in Care and Guidance of Children indicates that students are required to participate in field orientation experience in a local child-care center.

A group discussing preparation for child care identified these questions to be answered:

What kind of experiences do students need?
When should they have these experiences?
Where will appropriate experiences be available?
Who will secure the work experience positions?
Who will supervise?
Will students be paid for in-training work experience?

4. What shall be the admission requirements?

It is difficult to determine admission requirements from reading program announcements or catalogues. For example, the leaflet on the Child Care curriculum from the Chicago Junior College states that--

> "all high school graduates are eligible to apply as are non-graduates who have passed the General Education Development Examination and advanced students interested only in specialized courses."

This indefinite statement is understandable when one realizes that the institution is offering

-- a two-year program leading to an Associate in Arts degree
-- a one-year program for those who have an A.A. or a B.A. and want to prepare for work in child care
-- specialized courses for persons working in child care to up-grade competencies

The leaflet describing the Food Service technology course in Columbus, Ohio, states that applicants must have a high school diploma and be, generally speaking, in the upper two-thirds of the high school class. It suggests that a high school background in biology, chemistry, and business courses is desirable. A statement verifying good health and the passing of several college entrance examinations is also required.

5. Should we have an advisory committee? What would be its composition and function?

I'm sure we all recognize that if programs preparing for occupations are to succeed they will need the counsel and support of prospective employers.

Over the past two years the people in our office have worked with persons representing a wide variety of groups in order to get suggestions and

feelings about programs being planned to prepare for occupations. Some of these are Children's Bureau, Public Health Service, Social Welfare, Housing, and Women's Bureau.

There are a number of decisions that will need to be made in relation to the establishment and use of an advisory committee.

What are its functions?
What should be the membership? (Plan for rotating membership.)
Who will be responsible for setting up the committee?
How often will it meet?
Who will plan meetings and keep records?

Since questions relevant to staff needs and qualifications as well as equipment and other resource needs have been developed by other Seminar participants, they have not been included in this presentation.

Use of Research Studies

Dr. Elizabeth Simpson, Chairman,
Home Economics Education,
University of Illinois

My assignment was to review research and training programs that might be of special interest to those concerned with the occupationally-oriented programs in home economics education. What I shall present here will not be a comprehensive review of all that is being done in this area. Two major sources of information were used in locating studies: lists of studies and special programs funded under the federal education acts and reports supplied by home economics educators in several colleges and universities. Fifty colleges were contacted with a request for reports of any studies or workshops concerned with occupational education in home economics. These fifty were selected because there appeared to be some reason to believe that they might have some special activities in progress in this area.

What we discovered was not unexpected. There were not many reports of studies available. A number of studies are in progress. It seems that every day one hears of projects just approved for funding, just underway, half-completed. In most cases, the investigator or project director says, "Wait until my results are in. I am not ready to make a report just yet." But, let me report what two assistants and I did find.

One interesting thing to look for in the reports is the way in which some of the current issues related to employment education in home economics are related to the studies. As one example, Roy Roberts' point of view regarding the relationship between the homemaking and occupationally-oriented aspects of the program may be seen in his choice of problem and the implications drawn from the findings.

Gainful Employment of Former Homemaking Students and the Knowledges and Skills Contributed by the Homemaking Curriculum

Dr. Roberts is Professor Emeritus of Vocational Education, University of Arkansas, Fayetteville. His study that I am reporting is titled, "Determining Kinds of Gainful Employment in Which Former Homemaking Students from Arkansas Secondary Schools Engage, and What Knowledge and Skills Homemaking Curriculum May Contribute to These Gainful Occupations." This study was funded under the Vocational Act of 1963.

The study was designed to answer these questions:[1]

1. What kinds of gainful employment do homemaking students engage in and when do they accept gainful employment?

2. What information and skills are needed for these gainful occupations?

3. To what extent is instruction in the information and skills needed for these gainful occupations included in the home economics curriculums?

4. To what extent may curriculum revisions be made to include units or parts of units containing knowledge and skills needed in the gainful occupations?

Data were obtained from (1) questionnaires sent to former homemaking students, (2) letters to employers of these students, (3) information from school records, (4) job descriptions and analyses, and (5) opinions of qualified consultants. The questionnaires were given to 82 teachers with instructions for obtaining the data sought. These teachers were all ones who had taught in the same school since 1955, that is, ten years. Eighty-seven firms and individuals were contacted for information about the preparation for employment of former homemaking students. A two-day conference was held for discussing and evaluating the data and job descriptions.

Data were obtained from 1,640 former homemaking students who were involved in vocational homemaking courses 10 years ago. Of this number, 71 percent had been employed in a gainful occupation some time during the 10-year period. Most were employed in clerical, sales and service occupations. For the most part, the college graduates were employed as elementary school teachers.

About one-half of the former students indicated that they had acquired knowledge and skill in high school homemaking courses useful to them in their gainful occupations. Specific kinds of knowledge and skills acquired were in the areas of personal relations, clothing selection, grooming, food, and etiquette. The data indicate that the homemaking courses provide competencies concerned with both the technical and personal relations aspects of the occupations.

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[1]Roberts, Roy W., Determining Kinds of Gainful Employment in Which Former Homemaking Students from Arkansas Secondary Schools Engage and What Knowledge and Skills Homemaking Curriculums May Contribute to These Gainful Occupations, College of Education, Fayetteville, Arkansas, February, 1966, p. 5.

The panel of consultants found that job descriptions for occupations in which former homemaking students were employed contained references to many competencies usually included in homemaking courses.

Roberts concluded that the data of the study suggest that present day home economics courses may be enriched to include many competencies needed by young women who enter gainful occupations without reducing the value of the content for homemakers.

The study suggests there is a need for special courses in some aspects of home economics for young women who expect to enter the labor force after high school graduation. The courses may include competencies in occupations such as those concerned with the preparation and serving of food, hotel and motel housekeeping, child care, care of the aging, power sewing, technical information for sales persons and home management and home decoration occupations. Roberts suggests the possibility of having occupationally-competent persons teach the wage-earning courses under the supervision of the home economics teacher. He points up there is a need for preparation for employment in home economics related occupations at the post-high school level.

Occupational Opportunities in Food Service

A master's study, conducted at the University of California by Dale R. Rossi,[1] was designed to explore the available occupational opportunities in the food service industry within the City of Santa Monica for high school students with knowledge and skill in home economics. The purposes were:

1. To identify the specific occupations where the knowledge and skills acquired in home economics can be applied.

2. To determine the training necessary to develop marketable skills which will enable the trainee to enter the occupational field.

3. To analyze and identify abilities, attitudes, and work standards which will enable the trainee to obtain and hold a job.

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[1]Rossi, Dale Rhodehamel, A Study of the Occupational Opportunities in the Food Service Industry in the Santa Monica Area for Secondary School Students With Home Economics Skills, unpublished study, University of California, 1966.

4. To determine the optimum training time necessary to develop such skills.

5. To study the physical requirements and equipment necessary to implement such a training program under conditions similar to those of actual occupation.

The sample consisted of commercial concerns whose primary function is the preparation or service of food for profit and noncommercial concerns whose service of food is a supplementary function, such as hospitals. A questionnaire-interview was the method of investigation employed.

Knowledges Needed by Mothers and Workers in Child-Related Occupations

Ruth Whitmarsh is chief investigator for an exploratory study of knowledges in child development and guidance needed by mothers and workers in occupations related to child care. This project, funded under the Vocational Education Act of 1963, is being conducted at the University of Illinois. The purpose of the study is to ascertain both the unique and common knowledges needed by homemakers and employees in child-related occupations. The hypotheses are:

1. A common core of knowledges is needed by both mothers and by employees in certain child-related occupations.

2. Mothers, in order adequately to perform their tasks, need certain unique knowledges in the area of child development and guidance. Employees in certain child-related occupations, in order adequately to perform their jobs, need certain unique knowledges in the area of child development and guidance.

3. Employees in each of certain child-related occupations, in order that they may perform their tasks, need knowledges unique to that specific occupation in the area of child development and guidance.

The data-collecting instrument contains items of knowledge taken from the area of child development and guidance. A score, on a five-point scale, has been assigned by a random sampling of mothers who have had courses in child development at the college level, workers in each of three child-related occupations, and specialists in the area of child development and guidance. The practitioners indicated the depth of knowledge they believed needed with respect to each item in order to perform their tasks. The specialists indicated the depth of knowledge they considered important for mothers and workers. A report of this study will be available around June 1st.

Identification of Knowledges and Skills for Successful Employment

Washington State University has received a grant under the Vocational Act of 1963 to engage in research and development project on employment education. The research is to identify up-to-date information about the knowledges and skills essential for employment in office, distributive, agricultural, manufacturing, construction and service occupations. Objectives are to:

1. Identify and define clusters of concepts, knowledges, skills and traits essential for successful work in present and future clusters of occupations.

2. Identify and measure psychological, sociological and economic factors influencing pupils' opportunity and willingness to pursue education necessary for development of concepts, knowledges, skills and traits essential for employment.

The overall goal of this research is to identify combinations of knowledges and traits most likely to maximize career-long occupational opportunity, competence and choice in an evolving technological society.

The first step of this project is to obtain facts about major types of tasks performed in some major areas of work. As a basis for curriculum development major types of knowledges needed to prepare people for such work is also being identified.

The two service occupations for which instruments and procedures are being developed are food service and child care. Two graduate assistants, working under the project director, and in consultation with Joane Wohlgenant, Home Economics Education and other home economics specialists, are preparing the instruments. Alberta Hill, serving as research consultant from the field of home economics education, assisted in developing conceptual structure for possible knowledges.

Instruments to be used in the study of tasks and knowledges of food service and child care occupations will soon be ready to use in testing. The first use of interview assessment instruments will be with a representative sample selected from four different localities in Washington and possibly one in Idaho. The sample will be selected from (1) school lunch programs secured from state school lunch supervision, (2) hospitals and nursing homes provided by the state health department, and (3) directory of the Washington State Restaurant Association. The Child Care establishments will be selected from a list of licensed child care centers provided by Department of Public Assistance.

Interviewers, selected from qualified persons living within the area in which the study will be made, will assist with securing data. These

will be persons with knowledges in food service and/or child care. Orientation to the purpose of the project and training of interviewers are to be provided by the project director.

Problems in Conducting Occupational Education Programs

As a special problem in her program of advanced graduate study at the University of Illinois, Margaret Dewar is carrying out a study of the problems encountered in the local high school in implementing home economics occupational programs which include work experience. A major hypothesis of the study is: The teachers who are presently, or will be, assuming responsibility for the programs will indicate less concern about the problems if they have participated in a workshop or graduate course in occupational education in home economics.

All fifty state supervisors responded to her request for names of teachers planning or conducting occupationally-oriented home economics classes and the schools involved. Two hundred and ninety-eight names were received. These teachers were sent a questionnaire which included a personal data sheet and a problem check list to which they were asked to react in terms of the degree to which each was considered a problem in developing the home economics occupational education program. To date, 166 teachers, about 56 percent, have responded. Results of this study should be ready for dissemination by June.

As you can see, I decided to report studies in progress as well as those completed. We can be looking forward to the results of a number of studies that have important implications for employment-education programs in home economics.

Interests in Occupation Education

Beth Jordan reports[1] that, at Virginia Polytechnic Institute, a master's thesis in progress pertains to the interests of high school girls in training for gainful employment in home economics occupations. The thesis will not be completed until 1967. However, some findings are already available with respect to numbers interested and occupations for which training is desired. These findings are being used as a basis for initiation of occupational training courses in the high schools in a city system.

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[1]Letter from Beth Jordan, Professor of Home Economics Education, Virginia Polytechnic Institute, Blacksburg, Virginia.

Iowa State University Studies

Following are the titles of research projects now in process in the Home Economics Education Department at Iowa State University.[1] None of these has been completed and there is no report available at the present time:

Bases for planning curricula in homemaking for junior and senior high school pupils in Iowa.
Personal values of family members and their relationship to satisfying home life and successful employment.

Leader-Eleanore L. Kohlmann

Pilot study of employment-oriented courses in home economics for academically retarded.

Leader-Alberta Hill

Prediction of success of graduates of Iowa State University in teaching vocational home economics.

Leader-Hester Chadderdon

Bases for vocational education for food service industry employees.

Leader-Hester Chadderdon and
Majorie McKinley

Relationship of home environment and employment.

Leader-Marguerite Scruggs

Employment Opportunities in Kentucky

Anna Gorman of the University of Kentucky reports as in the beginning stages a study of opportunities in Kentucky for employment in occupations utilizing home economics knowledge and skills. Job opportunities identified will be classified in the various subject matter areas of home economics and in the occupational categories used in the Dictionary of Occupational Titles. Probable work situations such as hospitals, commercial eating establishments, and the like, will also be ascertained for each. In addition, the location within the state of establishments hiring each type of worker will be determined.

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[1] Letter from Marguerite Scruggs, Head, Department of Home Economics Education, Iowa State University, Ames, Iowa.

Employment Practices Study

A study conducted by Mary Ruth Swope at Eastern Illinois University was carried out to try to determine:

1. Present employment practices among homemakers in 3 communities in central Illinois - 1 town of 1,000 population - a town of 10,000 and a city of 20,000 population.

2. Potential employment in tasks related to homemaking skills if a trained person were available.

3. What maximum hourly wage homemaker's would be willing to pay for trained workers.

4. Whether or not they would be willing to pay social security for the workers.

5. Whether they would employ unionized workers.

6. What age person they would be willing to employ for various tasks--trying to establish whether or not high school age trained persons would be accepted.

Results are available from E. I. U. Write to Dr. Mary Ruth Swope.

Evaluation of Pilot Programs

A project currently being carried out at Cornell University by Sara Blackwell and Helen Nelson is titled, "Evaluation of Secondary School Pilot Programs to Prepare Students for Wage Earning in Home and Related Occupations." Cooperators in this study are the Bureau of Home Economics Education, State Education Department, Albany; Home Economics Departments in New York schools; Ithaca Senior High School, and high schools with pilot programs in Long Island, New York City, Niagara Falls, Vestal, and Newburgh.

The objectives of this project are:

1. To evaluate the progress toward specific course objectives related to knowledge, skill, attitude and interest of students enrolled in experimental courses in home economics related to wage earning.

2. To determine the relationship between extent of student progress toward course objectives and student success in obtaining and holding jobs and

a. student characteristics

motivation to enroll

age, I.Q., academic ability, and socioeconomic status

personal qualities thought related to employability (including post-high school plans)

satisfactions gained from course and from the work defined by the course

b. type and amount of work experience during the course

3. To help provide by means of descriptive data answers to questions raised by secondary schools and teacher preparation institutions regarding courses in which home economics is related to wage earning.

a. what are the commonalities in home economics-related wage-earning training courses?

b. what procedures are efficient and what standards reasonable for selection of students?

c. what instructional materials are useful?

d. what facilities, resources, and financing needed for teaching and training?

e. what guidance and counseling support is needed?

f. what are the time demands on teachers and/or coordinators?

g. what are the problems schools and teachers meet in setting up and carrying through a wage-earning course?

h. what are the occupational backgrounds of teachers who teach job-related home economics courses?

i. what are the supporting skills necessary in these home economics-related wage-earning occupations?

A number of instruments are being devised for use in evaluating the pilot programs of this study. It is to be hoped that these instruments

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may be made available to others engaged in similar evaluation projects.

Affect in Task Performance

A research project, funded under the Vocational Act of 1963, and titled, "Some Antecedents of Affect in Psychomotor and Cognitive Task Performance in Secondary School courses and programs; Relevance of Affect for Vocational Preparation" is being carried out at Cornell University by Frances B. Hiltzel.

This is an experimental study designed to answer the following questions:

1. Is the affective state relative to a specific task or course in school a function of its career relevance, the student's self concept of ability, and his actual ability to perform in the task or course?

2. Do grade level, sex, SES, and grade point average affect the above relationship?

3. Is there a relationship between the affect resultant from performance in a course or vocational program and vocational choice in school or subsequent job choice? Affect here refers to emotional involvement, feeling. From the study, insight may be gained regarding vocational developments.

Classification of Educational Objectives, Psychomotor Domain

I have a small grant under the Vocational Act of 1963 for the purpose of developing a classification system for educational objectives, psychomotor domain.

The broad categories of the scheme in its present stage of development are: perception, set, response, mechanism, and complex overt response. These are further broken down, of course.

The second part of this report is concerned with pilot projects and training programs funded under the federal acts.

Funded through a grant under The Elementary and Secondary Education Act of 1965, a project at the University of Wisconsin is titled, "Utilizing the Total Curriculum Approach to Meet the Needs of the Culturally Deprived, Economically Impoverished, and Potential Dropouts at Central University High School, Madison, Wisconsin." In charge of the program are Bernadine Peterson and Ellen M. Meister.

The program has been planned for the 20 most likely dropouts in grades 10 and 11.

The plan being used experimentally was developed to meet the needs of these students through:

1. expansion of home economics and industrial arts education programs to meet vocational needs of boys and girls;

2. designing of course work dealing with the common elements in vocational education at eleventh grade;

3. development of a work-study program to meet individual needs of twelfth grade students;

4. an increased use of vocational guidance and counselling as part of the total program;

5. development of specialized curriculums in English and social studies for grades ten, eleven, twelve;

6. development of appropriate small group and individualized teaching strategies utilizing automated instructional media and flexible scheduling.

Michigan State University through its Research and Development Program in Vocational-Technical Education seeks to utilize an interdisciplinary approach to develop pilot programs in preparatory education and occupational training for employment in the hospitality industry. The programs have emerged as a joint effort of Home Economics Education, Distributive Education, and the School of Hotel, Restaurant and Institutional Management.

A Workshop for Administrators of Vocational Home Economics Training Programs in Wage-Earning Occupations was initiated by Willa Tinsley, Dean of Home Economics, and was directed by Ann Buntin at Texas Technological College from August 1-20, 1965.

The major objective of the workshop was to provide an opportunity for home economists responsible for administrative or consultant services in vocational educational programs to develop the knowledge and understanding needed to expand further the vocational home economics programs to include preparation for occupational competency in jobs using home economics knowledge and skills.

The enrollment in the workshop included 33 persons, with representation from six states.

Anna Fults, the Department of Home Economics Education of Southern Illinois University, and the 1965 graduate workshop participants in home economics wage earning compiled a bulletin: "Workshop for the Preparation of Home Economics Teachers to Teach Wage Earning Programs

in Food Service." This bulletin is designed to assist in the planning and developing of wage-earning programs. The materials presented are developed to include recommendations set up by the State of Illinois to fulfill the requirements of the Vocational Education Act of 1963 and preceding vocational education acts.

The information is especially developed for establishing training programs in food service related occupations for boys and girls in the 11th and 12th grades.

June Cozine, Oklahoma State University, served as director for a four weeks "Training Program for Teachers and Leaders of Gainful Employment Training Programs in Home Economics" from June 7 to July 2, 1965.

One of the objectives of the program was to develop tentative curriculum materials for three courses: Child Care Services, Clothing Services and Food Services. The final report of this project contains tentative guides for gainful employment programs in Vocational Home Economics in the three courses previously mentioned.

Just last week, Anna Gorman and Aleene Cross received word of approval for funding of their proposals for instructional programs for teachers of occupational training programs.

And, so it goes. There is an unprecedented interest in research and developmental programs in home economics education and in vocational education in general. This is one of many promising developments in our field.

It is, I believe, a part of an era of "process" emphasis which we are entering. In any educational program, as indeed, in many phases of life, we are concerned with two major factors--substance and process.

Substance in our field includes traditional programs, generally accepted identities, guides, forms, standards, rules and regulations. By process I refer to questioning, examining, inquiring, evaluating, and criticizing.

With the acceleration of change in all areas of life, process must surely take precedence over substance.

Research activity may be seen as processive. Increased emphasis here would seem to be an imperative of the times.

EFFECTIVE PLANS FOR PILOT PROGRAMS

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Dr. Marvin G. Linson
Assistant Director, State Board Vocational Education
Colorado

As I went about the task of preparing my remarks for today, I found it difficult to be very profound, for much of what I am going to say has been said before. Furthermore, I was constantly reminded, as I thought of who might be in the audience, that most of you are more knowledgeable on this subject than I am. I consoled myself, however, with the thought that as busy as we all are these days, it is well we be reminded occasionally of those things we all know are right, but in our haste we sometimes neglect.

I firmly believe that, although time is of the essence in our race to keep vocational education abreast of the needs of the people, we dare not sacrifice quality in our programs for the sake of speed or quantity. I am suggesting, as you can readily guess, that pilot programs can and should be our quality control in vocational education.

I am also suggesting that quality pilot programs will be possible only when we have a systematic, continuing State program for piloting promising innovations in vocational education.

It has been said the one thing we can be certain of is that tomorrow will bring change. If we are to be creators and not followers of change, we need to be organized in such a way that our efforts in creating change will be as routine, but perhaps better planned, than any of our other day-to-day tasks.

I say better planned, because we dare not subscribe to or promote change just for the sake of change; and in my humble opinion the directing or creating of change is State leadership's best opportunity to fulfill its leadership function. Only if we organize our efforts in such a manner that a certain percentage of our time is devoted to designing, testing, and disseminating innovations, will we be worthy of the leadership titles we hold.

Anyone in a management position in any of our major industrial concerns today would soon find his company losing its share of the market if they did not constantly expend large portions of their profits to make obsolete the very product which made the profit in the first place. And, furthermore, that same management person would soon find his job in jeopardy.

I suggest to you that one of the major reasons many other groups are concerning themselves with vocational education is because we have failed primarily at the State Department level to provide this kind of leadership.

I realize that supervisors have a responsibility for defending and maintaining the kinds of programs they have described in the various state plans. I, also, realize it is difficult to destroy that which we have sworn to defend.

Industrial leadership finds it possible, however, to serve the dual kind of role I have described--that of promoting the present product while at the same time they are encouraging their research staffs to find something better. Their motivation is profit. Ours is not. But it may be even more important--our very life. This may sound as though I believe we should promote change in order to preserve our jobs; and that is exactly what I believe--not my job or your job necessarily--but I am egotistical enough to believe that the State Boards for Vocational Education in the various states provide the best structure for fostering, promoting, and administering vocational education. We will succeed in maintaining a leadership role in vocational education only if we earn the right to be called vocational education leaders. In a democracy, leadership should never be vested in anyone or any group for any other reason.

I have said, so far, that we need a systematic, continuing program for piloting promising innovations because it is essential if we are to provide the leadership function given to State Departments of Education by our Constitution; and I have said no one can do it as well as we can. But there are other reasons every bit as important. Vocational education has a responsibility to those it serves--the student, the employer, and society in general. This responsibility is to provide training which will enable students to enter the labor market as well-trained and efficient as possible.

The rapid changes taking place in the world of work make it imperative that we change our programs in order that we might never be "justly" accused of training unemployables. We need to know what, if any, changes in program will be needed to serve tomorrow's homemakers, we shouldn't guess. We should try out our best ideas in controlled experimental programs, so that we might disseminate widely that which is good and destroy that which proves to be undesirable.

As brilliant as some of our researchers may be, and as capable as some of our educators and educational planners may be, they have made and they will continue to make mistakes. It is the purpose of pilot programs to guard against these mistakes or to keep them to a minimum. General Motors or General Foods would never consider placing a new design or a new cake mix on the market before it had been tested at the proving ground or in the kitchen. So as new ideas are advanced which effect the teaching-

learning process, they should be tested in pilot programs to ascertain their value in vocational education programs.

I am sure that all of us at some time or another have deplored the "extremes" of the educational pendulum. I believe the wise, continuing and systematic use of pilot programs will hasten the development of educationally sound programs in vocational education, thereby shortening the arc of the pendulum.

In my opinion, a third most important reason exists for systematic, continuing state programs for piloting promising innovations. This reason relates to "climate,"--the fear of change and the misunderstanding of what we mean when we refer to pilot programs.

I heard an assistant state supervisor in a large state make the statement that there were some new kinds of programs being tried in his region, but he didn't want the head supervisor to know about it until the program succeeded or failed. The implication was that the program would not have been approved for reimbursement. This certainly isn't the kind of climate which would encourage innovation. Perhaps, the real reason that such a climate exists in this state is the fact that no systematic, organized plan exists for conducting pilot programs.

It is normal to resist change, and it is easy to see why people, especially educators, fear change. For as you analyze how we have gone about planning for change, you realize it has been haphazard at its best.

Brickell,in his study of educational change in the schools in the state of New York, concluded that "the most formidable block to instructional improvement today is that education unlike medicine, agriculture, and industry fails to distinguish the three phases of change--design, evaluation, and dissemination. Moreover, it fails to support adequately the basic research which should precede the design stage." I subscribe fully to this statement for I know it is true in at least one other state--my own.

State leadership, if it is to make any noticeable contribution to the development of new ideas, must recognize the differences in each of these phases, and furthermore, they must recognize the part that they can and should play in each phase.

We have discussed some of the "whys" to this point. Before we proceed to the "hows," I think it is best that we define a pilot program. In the Report of the Second Research Coordinating Conference on Agricultural Occupations, a pilot program was defined as "a planned activity for testing a new idea in a realistic situation."

Since I believe a pilot program is something more than the testing of a new idea, I am suggesting that, for the purpose of unity of thought, you think of a pilot program as a planned activity in the development and

adoption of innovation. There are the following four distinct steps in a pilot program.

1. Identifying new ideas and concepts
2. Designing ideas into workable educational programs of action
3. Evaluation through field testing
4. Disseminating ideas which have proved successful

Each of these steps calls for a different set of circumstances: different people, different atmosphere, and different purpose. If each step is to serve its proper purpose, it must be completed before the next is started, and they must be conducted in the proper order. The responsibility for the proper use of the steps in proper sequence seems to me to be that of state leadership.

I am discussing these steps, not because I think you are unfamiliar with them, but rather to point out the state leadership responsibility associated with each step. I am sure teacher educators, supervisors, local teachers, and local school administrators, each feel that given the time and money, they could and should be responsible for each of these steps. But if we are practical, I think we may agree that because of time, money, and the very nature of our organizational structures, some of the groups mentioned are better equipped to do the job than others, and some have a greater obligation than others.

In step number one, we identify the ideas which are currently in the minds of people that have implications for educational innovation. Priority should be assigned to those ideas which have particular significance for further development.

The second step involves the process of designing the significant ideas found in step one into a workable plan for action in local schools.

The third step is one of evaluation. Here the plan conceived in step two is tried out where it can be thoroughly tested to determine its educational values. When a new idea has been proved valuable to education, it then is ready for wide dissemination through a fourth step often referred to as demonstration programs.

Each of these four steps are related to each other, but each one is a separate and distinct step that can and should be treated as an individual problem.

Generally speaking, leaders in vocational education have not recognized the importance of these four steps, nor have they recognized that their responsibility varies considerably in each step.

I would like to review briefly with you the unique characteristics of each step, and the procedures which I believe are essential if satisfactory results are to follow.

Step I. Identifying Ideas for Innovations in Vocational Education

Teachers, State Department personnel, teacher educators, and lay citizens all have ideas for improving vocational education programs. Some of these ideas are known only to the person who has the idea, and others have been disseminated widely through the written and spoken word. Some ideas have limited possibilities for application in a statewide program. Some of these ideas are good, and some no doubt would prove undesirable. Some ideas have been tried and found successful. Others have been tried and have been abandoned. In many instances the results of either are known only to a few.

Unless the State supervisory staff provides some means of gathering these ideas, many will never be made known. The State staff needs to develop an atmosphere which encourages free communication of these ideas. They, also, need to provide the structure for the handling and processing of these ideas in order that each idea receives consideration for further development.

To implement Step I, the State Board through its staff might well establish the following definite procedures.

1. A procedure should be established for continuous evaluation of present programs in the State as a means of identifying needs.

2. A committee should be established to receive ideas, evaluate ideas, and suggest those for which pilot programs should be developed. This committee should also be responsible for determining which changes have recently been made in their own and other states. The National Center, the U.S. Office of Education, and the American Vocational Association research committees should provide this kind of information as a continuing service to the states.

3. Periodic requests should be made of those affected by vocational education programs to submit their suggestions for program improvement. (Advisory committees, teachers, administrators, and teacher educators)

4. Priorities should be assigned to promising ideas.

5. The necessary structure to move ideas from Step I to Step II should be provided.

As I see it, State leadership has a responsibility at this step for creating a permissive atmosphere regarding change. I believe the reason we have been reluctant to create this atmosphere is because we have feared the indiscriminate, haphazard, and uncontrolled change that has characterized so many changes in education. I suggest that if this step and the others that are to follow are conducted in an orderly, systematic manner, we will have no reason to fear change.

Step II. Designing the Educational Plan

Everyone in vocational education at one time or another has thought of something which he or she felt would improve the program with which they worked. Many of these ideas lie dormant because of a lack of time on the part of the inventor to develop the idea to the point that it could be put into action. Others lie dormant because the inventor lacks the understanding necessary to design a sound program.

This step must be conducted by competent people, given the necessary time and the freedom from normal controls, standards, and regulations.

All rules, except those necessary for the protection of health and safety of students, should be suspended for those who are designing innovation.

State leadership should provide for the following:

1. A project coordinator who will be assigned major responsibility for coordinating the development of a plan to the point where he believes it can be tried out in one or more schools with a better than average chance of succeeding. Free him from other duties.

2. Specialized consultants who will be given time and freedom to test ideas against known factors and basic research.

3. A critical review of the plan by specialists, staff members, school administrators, and others who are qualified by training and experience to make such an appraisal.

4. A plan that includes the following detail:

   A. Objectives of the innovation.
   B. A step-by-step procedure that will be followed in putting the plan into operation.
   C. A list of teaching materials and equipment needed.
   D. The kind of enrollment appropriate for the program.
   E. A procedure for selecting students.
   F. The kind of community and school setting needed for the trial stage.
   G. The qualities of teachers and/or others who will be in charge of program and training needed.
   H. The length of time to complete the trial.
   I. The evaluation instruments that will be used and who will evaluate.
   J. The number and description of control centers where all factors of evaluation are matched with the evaluation centers to the highest degree possible.
   K. The time schedule.

L. The number of schools needed for experimental centers.
M. The approximate (extra) cost of conducting the evaluation step and the source of funds.
N. The changes evaluation centers will need to make in their traditional operation.

5. Approval of the plan and necessary financing.

6. A local project coordinator in each pilot center.

Brickell says, "The basic ingredients of a good invention setting are a richness of talent and a freedom to explore. At its best, Step II provides for 1) a group of highly intelligent people, 2) a somewhat limited problem, 3) time to concentrate on a solution, 4) ample money and resources, 5) freedom to try almost anything, 6) the likelihood that the solution will be used somewhere, and 7) the prospect of a personal recognition if the problem is solved. The more artificial, enriched, and free the setting, the more distinctive the innovation it is likely to produce. Freedom is essential. The atmosphere and the actuality of freedom must be deliberately created."

State leadership has a responsibility here for initiating the structure and organization which can carry out the design step. Few state legislatures would finance this kind of an operation in the State Department knowingly, and most state staffs are not large enough to free many of their staff at any one time for this kind of an assignment. There are means, however, of providing reimbursement--100 percent if necessary--to colleges, universities, and local schools for the purpose of getting this job done. It is also possible for the state to contract with private agencies and individuals for certain kinds of consultant services. In addition to the securing of finances, I would think that state leadership has a responsibility for promotion and supervision of these design activities.

Step III. Evaluation or Testing

This step involves taking the completed plan agreed upon in Step II and putting it into operation in one or more local schools. The plan is field tested under actual working conditions.

It should be realized that a teacher who is introducing a major change will need varying amounts of assistance. Evaluation of the innovation should be constant. Immediate evaluation may be found in student reaction. Other subjective and objective means of evaluating progress should also be used extensively.

The special attention the teacher receives during innovation may cause him to over-produce to the extent that the apparent beneficial effects of a given innovation will be due to the added effort on his part

rather than from this innovation itself. To insure a more accurate evaluation, it may be necessary to give the teachers of control groups the same kind of special attention.

There are undoubtedly other means of guarding against the "Hawthorne" effect. Persons who are knowledgeable in this area of research should be utilized in designing proper methods of evaluating the innovation while it is being tried under actual field conditions.

Every effort should be made to conduct experimental programs under carefully controlled conditions which permit little deviation from the designed plan. Adequate financing to insure proper teaching materials, facilities, and teacher time for preparation is essential. Since evaluation programs are untried and may deviate considerably from standard procedure, it seems wise not to involve more schools than are necessary for proper evaluation. A limited number of schools, never more than those which can be properly supervised, should be selected at any one time.

State leadership should provide for the following:

1. Adequate evaluation and/or control schools.

2. The cooperation of the superintendents and others who will be involved.

3. Personnel and materials needed in the evaluation and control centers.

4. Financial aid which might be supplied from the State Department.

5. Appropriate contracts between the schools and the State Department which clearly states the responsibilities of the local school which will enable it to receive reimbursement.

6. Provision for training the personnel who are to work the project.

7. Provision for describing innovation in professional publications.

Since field testing is often done to compare one method or one program with another for the purpose of advocating change, it seems logical that state leadership should control this step if possible, or at least observe it closely if control is not possible.

Those who have made a study of educational innovation tell us this step has traditionally been skipped. Too often pilot programs have

moved from the design stage to the demonstration stage. We not only have the opportunity to stop this trend: we have the responsibility for reversing it.

Some success factors in this stage might include:

1. Avoid overloading teachers.

2. Changes in plans must be avoided after the experiment starts to assure reliable evaluation.

3. The evaluation procedure should be rigidly followed.

4. Visitors who are not directly responsible for the operation of project should be discouraged.

5. Reports of progress should be made only to school and State Board officials and should not be published until the evaluation is completed.

6. Recognize when a program isn't working and stop. (But appreciate the benefits derived from knowing that it won't work and share this knowledge as completely as if it had succeeded.)

Step IV. Demonstrating Field Tested Innovations

The adoption of new ideas is at best a slow process. People seldom try a new practice until they have had an opportunity to observe someone else do it. There are exceptions to this rule, of course, but people who have studied the process of dissemination of new ideas indicate that written or oral reports of innovations bring about adoption at a much slower rate than does observation.

It is also true that people generally are slow to accept new practice unless they are observed in situations similar to their own. Studies have shown that the smaller farmer is inclined to believe that new practices on large farms may not be applicable on his farm. Home economics teachers and school administrators in a small district may follow the same reasoning in rejecting a new practice which is successful in a larger or wealthier district.

The demonstration of new practices takes place only after evaluation has shown, during the evaluation stage, that the practice is educationally sound. Consequently, the purpose of a demonstration in a pilot center is to disseminate the idea or practice as rapidly as possible in as many centers as possible. During the demonstration process, it may be advisable to avoid artificial, enriched, abnormal, or unrealistic settings or conditions. It may also be profitable to reward

the demonstration center with recognition and attention.

State leadership should provide for the following:

1. A written description of the innovation, including details necessary for the implementation of the idea or practice.

2. A variety of schools to serve as demonstration centers.

3. Arrangements for superintendents and other school people to visit successful programs in the original evaluation phase.

4. Training for teachers and others, necessary to enable them to conduct the new plan or procedure.

5. The necessary equipment and qualified people.

6. The selection of many but varied centers where the innovations may be conducted under normal conditions.

7. An evaluation procedure to compare with results obtained during evaluation phase.

8. Revision of the State Plan to allow for normal financial assistance for programs proven successful in evaluation stage.

9. Arrange for as many teachers and administrators as possible to observe demonstration centers.

10. Wide publicity, by oral and written work, to explain the accomplishments of the demonstration schools and the value of the innovation to education.

11. Arrange for key people to observe the demonstration. Special attention should be given to leaders in the profession and to people who are known to adopt change readily, as well as leaders of various social cliques.

12. Workshops for other teachers in the state to teach the procedures needed in handling the new practices.

13. Revision of the preservice training program.

At this stage, state leadership has a major responsibility for "spreading the word" and training teachers. We have a responsibility for telling others about the bad, as well as the good; and we have a responsibility for training beginning, as well as established teachers, so they might carry on the types of programs which have proven to be worthwhile.

In discussing the specific steps in pilot programs and the procedures to be followed in implementing each step, I have suggested many activities for state staff personnel both at the supervisory and teacher education levels.

There are several points I made or alluded to that need to be reemphasized, however, as they apply to the administration of pilot programs in any given state.

The first one concerns the number of pilot programs which should be under way at any one time. I believe that there should never be any more pilot programs under way (at the evaluation or testing stage) than there are field personnel on the supervisory and teacher education staff. If there are two supervisors and one teacher educator in a state who normally visit local schools for a large portion of their time, then there should not be more than three experimental programs in progress. In smaller states where there might be only one supervisor and one teacher educator, I would think that more than one experimental program at any one time would be too many.

When programs have been proven and are at the dissemination stage, I would not be as concerned about the numbers, provided each demonstration center could be visited at least three or four times a year.

Another point I believe can be defended is that at least one full-time person be assigned the responsibility for coordinating and promoting action research activities at the State level. This person to be in addition to the teacher education personnel who are assigned research duties.

Third, I believe every State Plan and/or Policy Manual should not only provide for research activities of all kinds, but should spell out in some detail the procedures for identifying, designing, evaluating, and demonstrating pilot programs in order that every person engaged in vocational education will be aware of their responsibility for improving the statewide program through innovation.

If this procedure works for agriculture, medicine, and industry, it is time we bring the same orderly, systematic approach to action research in education.

Fourth, the responsibility for financing pilot programs is primarily that of the State--especially in Steps I, II, and III. The Vocational Education Act of 1963 provided funds for this purpose. I hope we will make every effort to use them wisely.

Since our purpose in promoting pilot programs is to focus attention on problems of importance to the statewide program, it is unreasonable to expect that a single school district can be expected to bear more than a

minor portion of the expense. The cost of carrying on a pilot program, properly done, is much greater than the traditional on-going program; and since it benefits the entire State, it should be the responsibility of the entire State. A local school superintendent often finds it impossible to perform Step III without defending the expenditures through volumes of publicity. This defeats the purpose of the testing stage.

If State funds are supporting the project, less objection may be found locally and interference can be controlled by those who are concerned primarily with the findings of the study rather than the cost per pupil. The local project director and/or teachers may be freed of outside duties without objection from other staff members who may be carrying heavier teaching loads.

Fifth, great care needs to be taken to assure that there be clear cut distinction between the testing stage and the demonstration or dissemination stage.

In closing, let me review with you some key words that clearly describe the characteristics of the four steps in piloting an innovation.

Step I - IDENTIFICATION

Permissiveness,
Persuasion, Coordination

Step II - DESIGN

Intelligent People, Ample Resources,
Ample Time, Freedom from any Other Assignment,
Limited Problem, Availability of Consultants

Step III - TESTING (Evaluation)

Controlled, Closely Observed,
Restricted, Enriched, Diverse Settings

Step IV - DISSEMINATION

Unenriched, Normal but Diverse Settings,
Carefully Trained Teachers, In-Service Training

I am sure some of you will disagree with some of the things I have said, but I am hopeful we can all agree that vocational education can benefit from the increased use of properly conducted pilot programs; and further, that it is the responsibility of state leadership to initiate a major trend in this direction immediately.

IDEAS FOR ACTION

WORK WITH ALL PHASES OF VOCATIONAL EDUCATION: SUMMARY OF DISCUSSION

KEY PROBLEMS	IDEAS FOR ACTION
1. Who are the people likely to be concerned with wage-earning programs in home economics?	Students, parents, home economics and other teachers. Educational leaders--board of education, administrators, curriculum and other specialists, guidance counselors. Community leaders Civic groups--YMCA, YWCA, Kiwanis Club, Chamber of Commerce, women's groups; representatives of legal agencies--court, juvenile officers. Agencies--Welfare, Employment,Health, Economic Opportunity, family counseling centers, Head-start. Trade and professional organizations.
2. What is the role of leaders in home economics in contacting and working with all phases of vocational programs?	To establish compatible role relationships with persons concerned with programs. Create a climate for exploring individual and community needs and resources; for establishing cooperative job experience programs; for business and educational liaison. Help teachers and school administrators develop programs. Recognize contributions and share materials from all services. Promote continuous evaluation for program improvement, plan guidelines for program follow-up and evaluation. Maintain and use a file of sources of relevant research and resource materials.

KEY PROBLEMS	IDEAS FOR ACTION
2. (Continued)	To develop, publicize and interpret guidelines for programs. Assist teacher educators in developing curricula to prepare teachers. Help interested persons chart their potential.
3. In what ways can leaders keep in touch with wage-earning programs and projects which are related to home economics and how can they cooperate in some programs and coordinate others?	Establish working relationships with supervisor and teachers in other areas as well as with home economics teachers. Identify existing and/or emergent programs or courses with content related to home economics subject matter. Through contacts that will prompt reciprocal role relationships. Stimulate personal commitments. Make observations. Use progress reports.
NEEDS:	Interdisciplinary and cooperative approach. Home Economists must take the initiative in structuring quality wage-earning programs for home economics-related occupations rather than having them superimposed by others outside the area. Since the law is flexible, state plans need to be flexible. We can learn from others and adapt rather than adopt ideas. Steps should be taken to correct or supplement incomplete or incorrect information.

KEY PROBLEMS	IDEAS FOR ACTION
NEEDS: (Continued)	Guidelines for pilot programs. Especially prepared program coordinators. Establish priorities--not "bite off more than we can chew."

ADULT PROGRAMS TO MEET COMMUNITY NEEDS: SUMMARY OF DISCUSSION

KEY PROBLEMS	IDEAS FOR ACTION
1. Who are the people to share in planning adult wage-earning programs which will contribute to community and personal needs?	Advisory committee. Women interested in entry or re-entry job opportunities. Key people informed of community needs and resources. University and community consultants qualified to provide help in program development. Persons professionally trained to work with urban and low-income families. United community service personnel. Those who can provide job opportunities. School administrators, teachers, program coordinators.
2. What occupations are especially appropriate for adults?	Occupations in day-care centers for the aged, children. Aid to social worker, nurse, pre-school leader, homemaker, home economist. Food service workers. Garment workers. Supervisors of homemaker and other aids and service occupations.

KEY PROBLEMS	IDEAS FOR ACTION
2. (Continued) How are these determined?	By listening to concerns of individual families, professionals, and employers. From the identification of individual and community needs through use of ad hoc committees. From information provided by authorities, specialists, and consultants in seminars. Through mobilization and coordination of total community resources.
3. Who are the adults for whom programs may be planned?	Women of all ages, all levels of education. Women seeking employment. Women who could benefit from the program.
How are they informed of opportunities for training available to them?	Information disseminated through mass media, through existing home economics programs. Person-to-person contact. Meetings of employment seekers with resource people to explain occupational training and employment opportunities. Observations of preparation for employment classes or local institutions which have employment opportunities.

KEY PROBLEMS	IDEAS FOR ACTION
NEEDS:	Higher level status occupations for adults clarification of terminology Professionally trained people qualified to work with varing ethnic groups. Recognize and provide education for factors that may affect occupational success indirectly such as budget and home management efficiency. Pilot programs testing the use of home economics skills and principles in courses preparing for distributive or trade and industrial occupations. Alert students in undergraduate home economics courses to ways of contributing to various adult programs.

PROGRAMS DESIGNED TO MEET NEEDS OF DISADVANTAGED: SUMMARY OF DISCUSSION

KEY PROBLEMS	IDEAS FOR ACTION
1. Who are the disadvantaged?	People with special needs. People who cannot help themselves. Economically, socially, culturally, educationally, physically or mentally handicapped.
2. How do we identify them?	Deliberate efforts to find out about those with special needs in local community -- first hand contact. Identification made in general terms only since there are variables which are difficult to isolate. Individuals incapacitated by insufficient income, education, underemployment, physical, mental, or emotional handicaps. People inhibited by their housing, culture, skill development, aspirations, communications and delinquency.
What types of occupations would be appropriate for the disadvantaged?	All types are appropriate if individuals are "fitted" to occupations. New jobs must be created to meet needs. Additional information may be gained by consulting other professionals working with people now being served.

KEY PROBLEMS	IDEAS FOR ACTION
(Continued)	Entry level position in care and service occupations, such as child-care aid, food service, clothing aid or worker, health services, homemaker's assistant, hotel and motel housekeeping, with provisions made for upgrading as needed.
3. What other individuals, agencies, and groups do we need to know about and work with?	All groups concerned with the health, education and welfare of people. Employers with openings for which persons are being educated. Business and industrial representatives. Red Feather agencies, family services, visiting nurses. Church groups, youth. Employment agencies. Trade union representatives. Youth organizations. College and university faculty and staff. Vocational rehabilitation personnel. Law enforcement officers and staff.
CAUTION:	When we lead people to want something we must be sure they can get it.

KEY PROBLEMS	IDEAS FOR ACTION
NEEDS:	Do a kind of classroom teaching that will prevent needing emergency measures. Break away from tradition and focus on meeting individual needs. Learn more about the world of work, industry, and other relationship to vocational education. Film recommendation: "Children Without,"a film made in the Detroit area; available from state teachers associations affiliated with NEA.

WAYS TO SELECT AND PREPARE TEACHERS FOR TEACHING IN OCCUPATIONAL PROGRAMS: SUMMARY OF DISCUSSION

KEY PROBLEMS	IDEAS FOR ACTION
1. What are the basic competencies required of teachers who teach for gainful employment?	Attitude -- desire to help. Sensitivity to forces hindering human development. Proficiency in supervising and coordinating programs. Performance efficiency through occupational internship or job experience. Resourcefulness in getting information. Articulation in correlating learning experiences with job skills. An over-all perspective of varying phases of occupational education as well as variations in value systems of ethnic groups. Ingenuity in organizing and restructuring courses and programs to prepare students for occupational opportunities in local communities; alert to changes. Feeling of adequacy in assuming teaching and leadership roles. Note: Some expression of inadequacy is part of the growth process.

KEY PROBLEMS	IDEAS FOR ACTION
2. How can teachers in training and in service be prepared for teaching in occupational programs?	Identification and development of competencies needed. Identification of aspects of wage-earning programs through summer, seminar, part-time or evening college or university courses. By the dissemination of information about courses available to student, potential and in-service teachers. Initiation of courses for specialists and others who wish to prepare for vocational certification. Short intensive courses, observations, work shops. Use of mass media, closed TV circuits. Observation experiences in the classroom. First-year internship under supervision of master teacher. Utilization of experiences and knowledge of teacher educators who have been preparing students for wage-earning occupations other than home economics-related. Through integration of principles or aspects of occupational education with family living, methods or other established courses. Utilization of information gained from curriculum guides used at other colleges and universities. Coordination of effort among total home economics faculty and administration.

KEY PROBLEMS	IDEAS FOR ACTION
2. (Continued)	Examination of many patterns of teacher preparation, those presently possible and those that will emerge.
3. What plans can be made for having state and local supervisors and teacher educators work together on plans for preparing teachers?	Program exchange of ideas around issues such as how to select teachers for wage earning, for the disadvantaged; certification for those trained in other fields, or those returning to teaching; exploration of possibilities of incentives such as issuing credit for occupational internship; use of para-professionals as teacher aids; what is being done (besides "grant" projects) to prepare homemaking teachers to teach in occupational programs; type and extent of occupational experiences for teachers. Communication of effective, emergent or innovative teacher preparation patterns.

KEY PROBLEMS	IDEAS FOR ACTION
NEEDS:	Information about the similarities and differences between competencies needed for teaching courses in preparing for wage earning and those preparing for homemaking. Criteria for teacher qualifications in preparation for wage earning and in homemaking. Guidance at freshman and sophomore years in planning for work experience.

APPENDIX

Bibliography of Displayed Resource Materials

Availability possibilities:

1. Has been sent to all Head State Supervisors

2. Has been sent to Head State Supervisors in regions _____ _____ _____.

3. Is available on request:

   a. to Head State Supervisors only
   b. to Home Economics Teacher Educators
   c. to others - Please specify any limitation.

4. May be purchased for $1.00 per unit.

   a. is available on limited basis only
   b. is available for mass distribution

5. May be reproduced by others if approval is obtained and appropriate recognition is given.

6. Tentative materials or working papers not available for general distribution at this time.

	Title	Source
1,5,6	1. Personal Development and Management (A Course for Occupational Home Economics Education)	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama 36104 Revised 1966
1	2. The Significance of Personal worth in the World of Work (Part of Personal Devel. & Management Course)	Ruth Stovall, Supervisor Home Economics Education Dept. of Education Montgomery, Alabama
1,5,6	3. Outline for a Preparatory Course in Occupational Home Economics in the Field of Clothing, Textiles, and Home Furnishing Services	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama 36104
1,5,6	4. Information for School Administrators on Occupational Home Economics in Alabama High Schools	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama 36104
1,5,6	5. Report Forms Required of Occupational Teachers of Home Economics	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama 36104

_____ 6.	Directions and Forms for Making Home Economics Occupational Surveys 1956-1966	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama 36104
1,5,6 7.	Guidelines for Developing Pilot and Experimental Programs of Occupational Education in Home Economics for Alabama during 1965-1966	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama 36104
1,5,6, 8.	Outline for a Preparatory Course in Occupational Home Economics in the Field of Food Services (Preparation and Management)	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama
1,5,6 9.	Suggestions of Books and Bulletins Available as References for Occupational Home Economics Classes	State Department of Education Home Economics Education Service Vocational Division Montgomery, Alabama February, 1966
No Inf. 10.	Development of the Child-Care Training Center Program	Pueblo High School Tucson, Arizona 1965
1 11.	An Introduction to the World of Work	Director, Home Economics Education State Department of Vocational Education 412 State Building Phoenix, Arizona 85007 1965
No Inf. 12.	Home Economics-Business Education (Experimental Project)	Mrs. Emma Riggs, Program Specialist Sacramento City Unified School District Curriculum Development Center 810 V Street Sacramento, California July 1, 1964
No Inf. 13.	Policies and Procedures for Programs of Vocation of Homemaking and Occupations Using the Knowledge and Skills of Home Economics	Homemaking Division State Board for Vocational Education 510 State Office Building Denver, Colorado 80203
3a,b,c 1, 5 14.	Occupational Course in Food Services Worker in the Field	Home Economics Education Service Connecticut State Department of Education Vocational Education Division Hartford, Connecticut April, 1966

3 a,b,c 1, 5	15. Connecticut Concepts Are Showing p. 4,5,6. Progress Report	Home Economics Education Service Connecticut State Department of Education Vocational Education Division Hartford, Connecticut April, 1966
6	16. School Food Service Training Prepared 1965	Frances Champion, Supervisor Home Economics Education State Department of Education Room 203, Knott Building Tallahassee, Florida 32301
6	17. Occupational Opportunities Using Home Economics Knowledge & Skills 1965-1966	Frances Champion, Supervisor Home Economics Education State Department of Education Room 203, Knott Building Tallahassee, Florida 32301
1	18. Workshop for Preparation of Home Economics Teachers to Teach Wage Earning Programs in Food Service	Dr. Anna Carol Fults, Chairman Department of Home Economics Education Southern Illinois University Carbondale, Illinois 62903
4	19. The Employment Aspect of Home Economics Education (an annotated bibiliography)	Division of Home Economics Education Department of Vocational & Technical Education University of Illinois Urbana, Illinois 61803 1965
4a	20. Careers in Food Service Iowa Job Guide (The Job as it appears in Iowa's Larger cities)	Iowa State Employment Service Iowa Restaurant Association 204 Shops Building Des Moines, Iowa
2, 5, 6 3a	21. Orientation to Home Economics Related Occupations	Home Economics Education Purdue University Purdue, Indiana June, 1965
1	22. Reference List for Quantity Food Service	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
1	23. Plans for Work Experience in Relation to Child Care Program in High School	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
3a	24. Clothing Services	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612

3a	25. The Right Angle	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
1	26. Development of Fibers and Fabrics Units for Seventh Through Twelfth Grades Placing Emphasis on Job Related Opportunities at the Tenth Grade	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
1	27. Alteration of Garments for Women	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
1	28. Home Economics Related to Wage Earning Suggested Resource Materials.	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
1	29. Employment Survey of Home Economics Teachers	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
1	30. Alteration Tips	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
1	31. Suggested Pilot Study for Training Home Economics Pupils for Catering Service	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612
2	32. Digest of Seminar in Occupational Home Economics Education	State Supervisor, Home Economics Ed. State Board of Vocational Education Room 1116, State Office Building Topeka, Kansas 66612 June, 1964
5,6	33. Course Outline - Waiter-Waitress Training	Homemaking Education Services Vocational and Adult Education Division Department of Education Carson, City, Nevada
3c,5,6	34. Job Training in Home Economics	Homemaking Education Services Vocational and Adult Education Division Department of Education Carson City, Nevada

No Inf. 35.	Home Economics Education Syllabus for a Comprehensive Program	Bureau of Home Economics Education State Education Department Albany, New York 12221
1, 4a, 5 36.	Alterations of Ready-to-Wear	Director, Home Economics Education State University Station Fargo, North Dakota 58102 April-May, 1965
1, 4a 37.	Food Service Technology (Dietetics)	Miss Margaret McEniry, State Supervisor Home Economics Education State Department of Education Division of Vocational Education 65 S. Front Street Columbus, Ohio 43215
1,4a 38.	Extended Employment	Miss Margaret McEniry, State Supervisor Home Economics Education State Department of Education Division of Vocational Education 65 S. Front Street Columbus, Ohio 43215 January, 1964
1 39.	Manual of Operation for Training and/or Retraining Adults for Jobs Requiring Home Economics Knowledge and Skills	Miss Margaret McEniry, State Supervisor Home Economics Education State Department of Education Division of Vocational Education 65 S. Front Street Columbus, Ohio 43215 March, 1965
1, 4a 40.	Manual of Operation for Home Economics Job Training Programs in High Schools	Miss Margaret McEniry, State Supervisor Home Economics Education State Department of Education Division of Vocational Education 65 S. Front Street Columbus, Ohio 43215 March, 1965
1 41.	Vocational Home Economics in Ohio High Schools 1963-1964	Miss Margaret McEniry, State Supervisor Home Economics Education State Department of Education Division of Vocational Education 65 S. Front Street Columbus, Ohio 43215
1 42.	Preliminary Application and Information Data for Approval for a High School Job Training Program in Vocational Home Economics	Miss Margaret McEniry, State Supervisor Home Economics Education State Department of Education Division of Vocational Education 65 S. Front Street Columbus, Ohio 43215

1	43.	Home Economics Publications	Miss Margaret McEniry, State Supervisor Home Economics Education State Department of Education Division of Vocational Education 65 S. Front Street Columbus, Ohio 43215
1	44.	Highlights of the Vocational Education Act of 1963, Public Law 88-210	Home Economics Education Home Economics West Oklahoma State University Stillwater, Oklahoma 1965
No Inf	45.	Report on Activities Related to Occupational Education in Home Economics in Puerto Rico	Commonwealth of Puerto Rico Department of Education Area of Vocational & Technical Education P. O. Box 818 Hato Rey, Puerto Rico 0019
1	46.	Vocational Home Economics Education Survey Summary Sheet	Mrs. Margaret Crockett Supervisor of Occupational Training Program Home Economics Education Department of Education Nashville, Tennessee
1	47.	Survey of Home Economics Students' Employment for 1965-66 and Employment Plans for 1965-66	Mrs. Margaret Crockett Supervisor of Occupational Training Program Home Economics Education Department of Education Nashville, Tennessee
1	48.	Home Economics Education Occupational Training Program Survey	Mrs. Margaret Crockett Supervisor of Occupational Training Program Home Economics Education Department of Education Nashville, Tennessee
6	49.	Units of Work and Questionnaires. Prepared by the Workshop in Wage-Earning Home Economics Courses During the summer of 1965.	Supervisor, Home Economics Education State Department of Education State Office Building Montpelier, Vermont 05602
3a	50.	Occupational Trends in Health Care Industries King County 1965-1970	State Board for Vocational Education P.O. Box, 248 Olympia, Washington 98501 December, 1965

1,3a,5	51. Guidelines for Teaching The Homemaker's Assistant	Director, Home and Family Life Education State Board for Vocational Education P.O. Box, 248 Olympia, Washington 98501
4	52. A Sample Wage Earning Training Program for: Child Day Care Aide	Dr. Genevieve W. Shubert, Supervisor Home Economics Division Milwaukee Vocational Technical and Adult Schools 1015 North Sixth Street Milwaukee, Wisconsin 53203
4	53. A Sample Wage Earning Training Program for: Waitress Training	Dr. Genevieve W. Shubert, Supervisor Home Economics Division Milwaukee Vocational Technical and Adult Schools 1015 North Sixth Street Milwaukee, Wisconsin 53203
4	54. A Sample Wage Earning Training Program for: Short Order Cook	Dr. Genevieve W. Shubert, Supervisor Home Economics Division Milwaukee Vocational Technical and Adult Schools 1015 North Sixth Street Milwaukee, Wisconsin 53203
4	55. A Sample Wage Earning Training Program for: Alteration Woman	Dr. Genevieve W. Shubert, Supervisor Home Economics Division Milwaukee Vocational Technical and Adult Schools 1015 North Sixth Street Milwaukee, Wisconsin 53203
4	56. A Sample Wage Earning Training Program for: Home Management Aide	Dr. Genevieve W. Shubert, Supervisor Home Economics Division Milwaukee Vocational Technical and Adult Schools 1015 North Sixth Street Milwaukee, Wisconsin 53203
4	57. A Sample Wage Earning Training Program for: Dry Cleaning & Laundry Aide	Dr. Genevieve W. Shubert, Supervisor Home Economics Division Milwaukee Vocational Technical and Adult Schools 1015 North Sixth Street Milwaukee, Wisconsin 53203

Other materials on display may be found in: Rotz, Patricia H. and Ruth Whitmarsh. The Employment Aspects of Home Economics Education: a selective bibliography with annotations. Urbana: Division of Home Economics Education, University of Illinois, 1965.

SEMINAR PROGRAM

March 28-31, 1966

Program Development for Occupational Education in Home Economics

MONDAY MORNING

Greetings from The Ohio State University - Dr. Dorothy D. Scott
A Challenge to Home Economics Leaders - Dr. Alberta Hill
Understanding the Changing Urban Society - Miss Rose Terlin
Reactor Panel - Moderator - Dr. Phyllis D. Lowe
Panel Members: - Mr. Paul D. Apple, Mr. Spencer Douglas,
Mrs. Lucile C. Fee, Miss Rose Terlin,
Mrs. Irene E. McDermott, Dr. Charles Weaver

MONDAY AFTERNOON

Dynamics of Change - Dr. Henry M. Brickell
Designs for Bringing About Change - Project Reports
Innovations and Change at The State Level - Ruth Ellen Ostler
Techniques Used in Changing a Local Program - Mrs. Marlene Jones

TUESDAY MORNING

Theme: Developing Programs for Gainful Employment
A Framework for Program Development - Dr. Lawrence Borosage,
Reports of Programs in Progress
City High School Program - Joyce Terrass
Program for Adults - Mrs. Carrie Williams

TUESDAY AFTERNOON

Theme: Guidelines for Some Aspects of Program Development
Symposium: Highlights Basic to Program Development
Determining Appropriate Programs and Job Areas - Barbara Gaylor
Curriculum Materials - Ruth S. Kimpland
Space and Equipment Needed - Ata Lee
Work Experience - Mrs. Genevieve L. Crouse
Interpreting Programs - Jewell Deene Ellis

WEDNESDAY MORNING

Theme: A Leader's Responsibilities in Developing Programs
Symposium: The Role of Supervisors - Moderator - Ruth Ellen Ostler
- Relationships with Administrators and All Phases of Vocational Education - Ruth Stovall
- Laws and Regulations of Significance in Planning - Dr. Berenice Mallory
- Surveys and Job Analyses - Mary Bell Vaughn
- In-Service Programs for Teachers - Mrs. Mary E. White
- Evaluation and Testing - Dr. Helen Y. Nelson
- Advisory Committees - Mrs. Katherine R. Conafay

Symposium: The Role of Teacher Education Institutions - Moderator - Dr. Aleene Cross
- Selection of Teachers - Basic Competencies Needed - Dr. Flossie M. Byrd
- In-Service Programs - Dr. Mary E. Mather
- Revising Pre-service College Programs to Meet Present and Projected Needs - Dr. Alberta D. Hill
- Changes Needed in State Certification Requirements - Dr. Marjorie East

WEDNESDAY AFTERNOON

Theme: Significant Resource Areas
Development of Post-High School Programs - Dr. Berenice Mallory
Use of Research Studies - Dr. Elizabeth Simpson
Effective Plans for Pilot Programs - Dr. M. G. Linson

THURSDAY MORNING

Theme - Ideas for Action
Small Group Discussion Topics
- Work With Administrators and All Phases of Vocational Education
- Adult Programs to Meet Community Needs
- Program Designed to Meet Needs of Disadvantaged
- Ways to Select and Prepare Teachers for Teaching Occupational Programs

Reports of group discussions

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Other Center Publications

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Education Clinic?

A Report of a National Seminar on Agricultural Education "Program Development and Research."

"Guidance in Vocational Education." - Guidelines for Research and Practice

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

VT 001 317

VT 001 317 ED 011 041

A National Survey of Vocational Education Programs for Students with Special Needs.

Groves, Ramsey M.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

20May66

EDRS Price MF-$0.18 HC-$4.00 100p.

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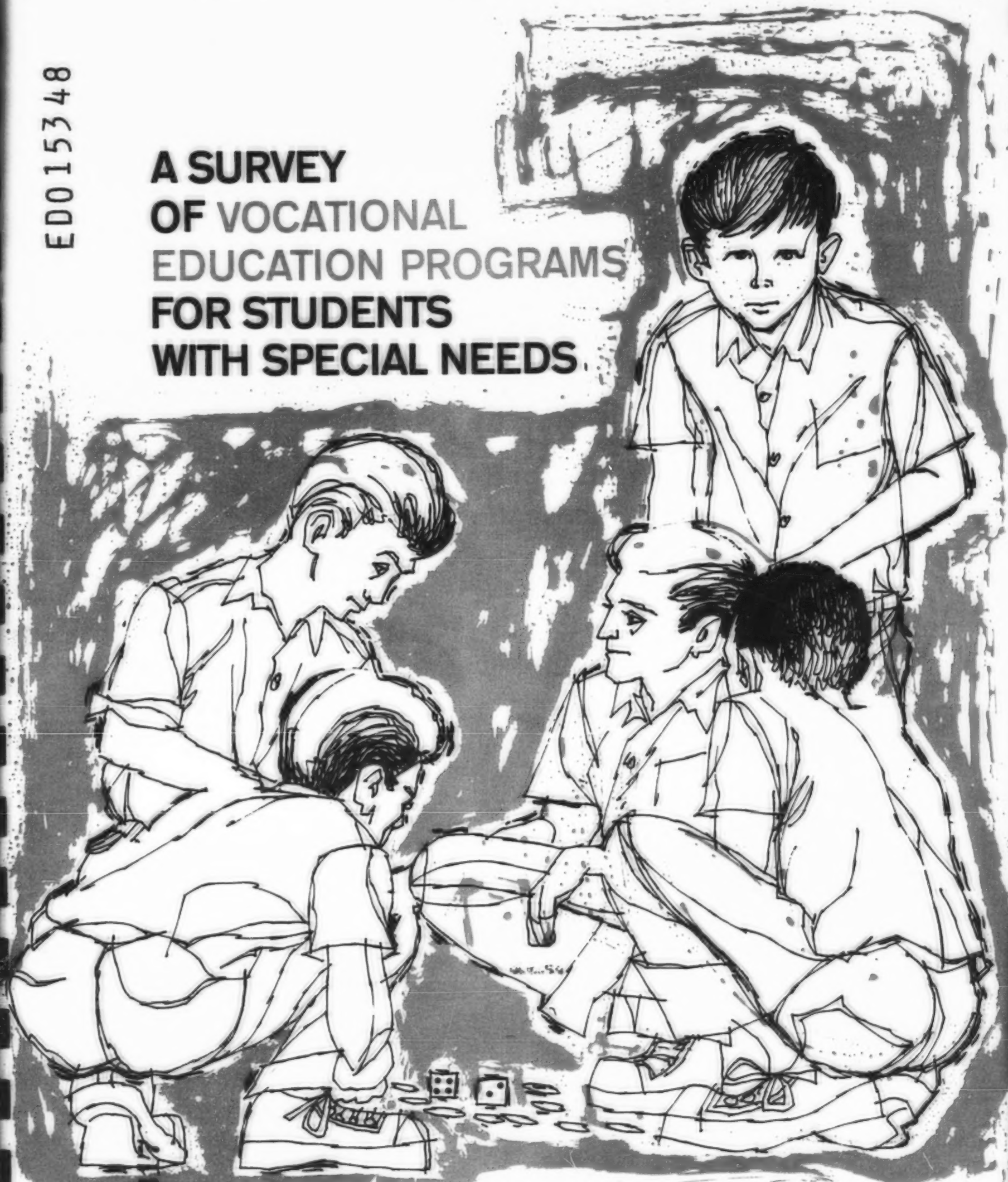
ED015348

A SURVEY OF VOCATIONAL EDUCATION PROGRAMS FOR STUDENTS WITH SPECIAL NEEDS



THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
The Ohio State University/980 Kinnear Road/Columbus, Ohio

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The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

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A NATIONAL SURVEY OF VOCATIONAL EDUCATION PROGRAMS FOR STUDENTS WITH SPECIAL NEEDS

Ramsey M. Groves

Project Investigator

The survey was conducted by The Center for Vocational and Technical Education, The Ohio State University, 980 Kinnear Road, Columbus, Ohio 43212.

The work presented or reported herein was performed pursuant to a grant from the U. S. Office of Education, Department of Health, Education, and Welfare.

INTRODUCTION

One of the central thrusts of the National Vocational Education Act of 1963 was its focus on developing programs for those with special educational handicaps who could not succeed in the regular vocational program. This concern placed a sharp emphasis on evolving new programs and operational patterns and procedures in vocational education to adequately serve this group.

To secure information needed for structuring a long-range program of research, development, and training designed to facilitate and accelerate the development of needed programs in this area, The Center undertook a national survey of vocational education programs for students with special needs. This study was designed to provide insights into the extensiveness of such programs, and some of the pivotal factors impinging on their origination and operation. The following report should be of value to state directors of vocational education, supervisors, teacher educators, researchers, and curriculum development personnel as they work to improve and extend offerings in this vital area.

I would like to acknowledge the work of Dr. Ramsey M. Groves, Director, Agricultural Institute, New Mexico State University, who conducted the study, and the assistance and consultation of Dr. Albeno Garbin, Occupational Sociologist, Dr. Robert Campbell, Occupational Psychologist, and Dr. James Hensel, Specialist in Agricultural Education of The Center staff, as well as Dr. Ralph J. Woodin, Professor, Department of Agricultural Education, The Ohio State University. We are indebted to Miss Barbara Kemp, Program Specialist for Persons with Special Needs, U. S. Office of Education, and to Dr. Herbert D. Brum, State Supervisor, Disadvantaged Youth and Work-study, Ohio State Department of Education, for their critical reading of the manuscript prior to publication. We hope that this report will contribute to further research, development, and training activities in this area.

Robert E. Taylor
Director

ABSTRACT

In general, the major objective of this study was to ascertain the current status of vocational education for students with special needs. More specifically, this research attempted (1) to determine the numbers and the locations of existing programs the purposes of which were to meet the vocational educational need of this category of students, and (2) to describe some of the salient characteristics of such programs. Based on the derived data, a series of recommendations were offered which if implemented should foster improvement in vocational education programs for students of special needs.

Although it was intended originally that this project be national in scope, the number of returned and usable questionnaires necessitated the research be based on 79 programs, representing 24 different states. This report summarizes the characteristics of these programs according to five major headings: (1) general setting, (2) administration, (3) pupil personnel, (4) curriculum, (5) special services, and (6) teacher personnel.

The majority of the programs studied were located in large comprehensive high schools. All were partially supported by vocational education funds provided by Public Law 88-210. Administratively, these programs were operating in a manner similar to the regular vocational programs. In the area of pupil personnel, a majority of the programs were operated for more than one type of disadvantaged student, however, many limitations were placed upon who could enroll in these programs. The curriculums for a majority of the programs were specifically planned and adapted to the students' abilities. They were often designed to assist the student in becoming employed in a broad spectrum of occupations rather than being skill oriented. Many outside personnel were involved in the operations of these programs, but only slightly more than half of the programs had advisory groups involved. A majority of the teachers were employed on extended contracts and devoted 100 percent of their time to program activities.

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CHAPTER I

INTRODUCTION

"The wealth of society is its stock of productive labor."
Sir James Mackintosh
British Philosopher
(1765-1832)

This report is concerned with the attempts, encouraged by Public Law 88-210, of educational administrators and vocational teachers to help those students who cannot succeed in regular vocational programs. From this report should come additional encouragement and direction for other administrators and teachers to initiate new vocational programs. A concerted effort is needed to broaden the opportunities for these students if we are to lessen this waste of human resources.

Any society which hopes to remain strong and viable must make efficient use of all its resources. One of the most valuable resources of any society is its people. Kenneth Clark, writing in Education in Depressed Areas, stated that:

> It is now axiomatic that trained human intelligence is the most valuable resource of a civilized nation. Like other natural resources, it must be discovered and transformed creatively into its most effective and usable form.[1]

We have long been concerned about the waste and destruction of "natural" resources, but only recently have we become particularly cognizant of the dangers of exploitation and waste of human resources.

The spread of discontent and the disturbances among those left behind by the ever-widening technological explosion are evidence of the dangers of human exploitation. Humanitarian as well as political and economic reasons demand that our society provide each individual with every opportunity to participate in the opportunities of our rapidly changing world.

Historical evidence shows that our founding fathers viewed education as one of the most effective means for insuring the individual a productive place in society. However, with the advent of a technological-based economy, the less able and poorly prepared individuals have fallen behind. Education in general has failed to help this group to become productive members of a changing society.

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[1]Clark, Kenneth B. "Education Stimulation of Racially Disadvantaged Children." Education in Depressed Areas, A. Harry Passow, Editor. New York: Teacher's College Press, Columbia University, 1963, p. 144.

Statistical evidence shows that in 1963, 35 million Americans were still below the poverty level. Of these 35 million, 7.2 million were family units, and 1.8 million were persons living alone.[2] Unemployment is also a major problem among these groups of less able, low-income workers. The many references to unemployment cite the lack of education and skills as the greatest drawback to securing and maintaining of employment status by these individuals. The National Commission on Technology, Automation, and Economic Progress states:

> Unemployment has been concentrated among those with little education or skill, while employment has been rising most rapidly in those occupations generally considered to be the most skilled and to require the most education. This conjunction raises the question whether technological progress may induce a demand for very skilled and highly educated people in numbers our society cannot yet provide, while at the same time leaving stranded many of the unskilled and poorly educated with no future opportunities for employment.[3]

Automation, mechanization, and technological change have caused the disappearance of many traditional entry jobs for the burgeoning tide of young workers. High school dropouts and poorly prepared graduates are at a disadvantage in a technological society.

With the advent of the "Great Society", there have been many legislative attacks on the human problems produced by technological advances. Prior to the widespread "war on poverty", the authors of the Vocational Education Act of 1963 saw a need and an opportunity to aid these people through federal aid to education. In the Declaration of Purpose, the Act states:

> SECTION 1. It is the purpose of this part to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State--those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps--will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.[4]

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[2] Technology and the American Economy, The Report of the National Commission on Technology, Automation, and the Economic Progress, Washington, D.C.: U.S. Department of Labor, Government Printing Office, p. xiii.
[3] Ibid, p. 21.
[4] Public Law 88-210, 88th Congress, H.R. 4955, December 18, 1963, p. 1.

The staff at The Center for Vocational and Technical Education viewed the problems of developing programs for students with special needs as an area of immediate importance. The unique national position of The Center provided the setting from which effort could be exerted to develop research in vocational education for students with special needs which would assist in improving this facet of vocational education. The major purpose of this study was to determine the current national status of vocational education programs for students with special needs as an initial step in developing research needs in the area. The report provides some basic information which will help others in planning and conducting vocational programs for these students and a base for developing further research.

Objectives of the Study

The following objectives were identified to give direction to the study:

1. To determine the number and the location of existing vocational education programs for students with special needs.
2. To determine common characteristics of existing vocational education programs for students with special needs.
3. To summarize the reported characteristics of vocational education programs for students with special needs and provide a composite description of existing programs which will serve as a basis for developing research efforts relative to these programs.

The study was limited to those vocational programs designed and operated specifically for students with special needs which are provided in public high schools and supported in part by vocational education funds.

Scope of the Study

The study was national in scope, encompassing all 50 states, the District of Columbia, and the territories of Guam, Puerto Rico, and the Virgin Islands.

Definition of Terms

In order to minimize the possibility of misunderstanding, certain terms used in this study were defined as follows:

1. Students with special needs: As defined by the Vocational Education Act of 1963 (P.L. 88-210), students with special needs are those who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education programs. For this study, the definition will include all such persons being served by a public high school, except those who are classified as "special education students" because of low mental capacities and require a high degree of attention by specially trained school personnel.

2. Disadvantaged youth: These are usually youth from the lower socio-economic groups in a community who are notably deficient in cultural and academic backgrounds. For the purposes of this study, they shall be considered the same as students with special needs, and the two terminologies will be used interchangeably.

3. Vocational education: The term "vocational education" shall be limited to those programs operated in the public schools for the purpose of preparing persons for entrance into any field of work or occupation and which are supported in part or totally by funds from P.L. 88-210.

4. Types of handicaps: Several categories are referred to in the literature for classifying students with special needs. These characteristics are listed in the following categories:

a. Physically handicapped--to include only those handicaps which do not require the individual to be institutionalized for special treatment or rehabilitation purposes.

b. Educationally deprived--to include references to those students ranking in the bottom one-third of their class and classified as slow learners because of academic problems such as poor reading ability or alienation from the school environment.

c. Economically deprived--to include references to problems arising from insufficient family income to satisfy basic needs in society today.

d. Socially disadvantaged--to include references to problems stemming from environmental situations, parental neglect, and inabilities to adjust to demands of a democratic society.

e. Ethnically disadvantaged--to include references to problems arising from racial or minority group relationships with the total society.

f. Intellectually handicapped--to include references to those handicaps inherent in youth with low mental capacities and their inability to cope with educational programs geared to the average or above average student, but not to include those students with mental health problems or those normally classified as belonging in special education and requiring special methods.

Need for the Study

Since the beginning of public vocational education in 1917, there has been a continuing effort to provide vocational programs to meet the changing needs of individuals in a changing society. However, there has been no concerted effort to meet the needs of those students who fail to fit the general pattern of studies in our public schools and who cannot succeed in regular programs. Barlow states that, "Education, in general, has failed to help the disadvantaged youth, and vocational education has largely eliminated this group by imposing selection devices."[5]

Vocational leaders and teachers have struggled to prevent their programs from becoming the "dumping ground" for those students who could not conform to the general pattern of education. In doing so, a rather stringent set of qualifications were developed frequently which prevented less able students from entering existing vocational programs. In turn, few attempts were made to adapt vocational or occupational training to fit the needs and abilities to those excluded or to develop specific vocational programs for them.

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[5]Barlow, Melvin L. "Challenges to Vocational Education," NSSE Yearbook Vocational Education, 1965, PART 1. Chicago: University of Chicago Press, p. 13.

One of the earliest attempts to meet these needs were the continuation schools in operation prior to the 1930's. With the advent of widespread unemployment during the depression years, these schools fell by the wayside. Not until 1945 was there another serious effort made to study the needs of those who could not succeed in regular programs. In that year, the U. S. Commissioner of Education appointed a commission to survey for three years the educational needs of school-age youth who were not benefiting from regular vocational programs. However, this study failed to generate any appreciable change in vocational education to meet the growing need for such programs.

The report of the President's Panel of Consultants issued in 1962 was one of the first national efforts to delineate the problems of a group they labeled as "youth with special needs."[6] It was from this report that the Vocational Education Act of 1963 evolved, and vocational education was charged with responsibility for a broader spectrum of programs and people. Those referred to specifically related to special needs. Section 4 (a) states that the State may use its allotment in accordance with its approved plan for the following purpose which was one of several written into the act. Section 4 (a) of the Act states:

> Vocational education shall be provided for persons who have academic, soci -economic, or other handicaps that prevent them from succeeding in the regular vocational education programs.[7]

The 1963 legislation and the authorization of funds to implement it was to have provided additional impetus for planning and conducting programs for students with special needs. Leaders in vocational education began developing such programs, and several experimental and pilot programs were instituted. A few states made concerted efforts in this area, and some states appointed specialists to head up their efforts. However, discussions with school administrators and vocational leaders indicated frequently a reluctance to initiate such programs without a better understanding of the kinds of programs in operation and knowledge of how they are succeeding.

Procedure

The data for this report were secured through the use of a mailed questionnaire. Six operational areas were identified to determine various characteristics of existing programs. These areas of emphasis included: 1) general data, 2) administration, 3) pupil personnel, 4) curriculum, 5) special services, and 6) teacher personnel.

Initial development of the questionnaire was based on a review of the literature and discussions with staff members of the Department of Agricultural Education and The Center for Vocational and Technical Education at The Ohio State

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[6] U. S. Department of Health, Education, and Welfare, Report of the Panel of Consultants on Vocational Education: Education for a Changing World of Work. Washington: U.S. Government Printing Office, 1964, p. 126.

[7] op. cit., The Act, P.L. 88-210.

University. Interviews with teachers in two programs for students with special needs helped in the refinement of the questionnaire.

Copies of the preliminary questionnaire were mailed to sixteen persons who were interested in or involved in vocational education. Thirteen of these people evaluated the questionnaire and made suggestions for its improvement. The questionnaire was approved by the U. S. Office of Education. A copy of the questionnaire appears in Appendix A.

The data from the questionnaire were summarized to secure the total response to each question or to the various parts of questions. Open-end questions were summarized by categorizing responses. These responses were then totaled, and percentages of total responses were determined.

Identifying Local Programs

During the development of the questionnaire a letter was written to all state directors of vocational education requesting their assistance in identifying teachers of vocational education programs for students with special needs. A copy of this letter and the form for listing names of teachers and their addresses appear in Appendix B.

Additional efforts to identify local teachers and programs were made by contacting state directors or research coordinating units, various state supervisory personnel, and local school administrators and vocational directors or supervisors. Returns from fifty-one states and territories were secured by these methods. The number of different teachers identified by these sources are shown in Table 1.

Table 1

Sources Used in Identifying Respondents for the Study

Initial Source of Information	Number	Number Responding	Number Local Respondents Identified
State Directors	54	40	204
State R.C.U. Directors	40	20	10
Local Administrators	88	55	94
State and Local Supervisory Personnel	46	14	25
Total	228	129	333

Initial Contact with Local Teachers

Survey questionnaires were mailed to 333 teachers during the latter part of April, 1966. A follow-up letter was mailed to those persons who had not responded by May 20, 1966. Included as a part of this letter was a brief questionnaire which teachers were asked to complete and return. (A copy of this letter with the form appear in Appendix C of the study.) Data in Table 2 indicate the numbers and types of responses from the questionnaire.

Table 2

Types and Numbers of
Responses to the Questionnaire

Type of Response	Number of Responses
TOTAL number of persons contac	333
TOTAL responses	229
The program did not meet limitations of study or responses on questionnaire indicated program did not fit the study	90
Incomplete questionnaires	11
Duplicate questionnaires received on the same programs	15
No such program in operation	5
Questionnaire received too late for use	29
TOTAL usable questionnaires based on completed questionnaires from programs meeting limitations of the study	79

Reasons for Rejecting Certain Responses

As outlined previously, only vocational programs operated in public high schools funded either partially or fully by P.L. 88-210 and designed specifically for students with special needs were included in the study. Failure to meet these qualifications resulted in the exclusion of 90 questionnaires from the study. Thirty of these exclusions resulted from reviews of the returned questionnaires while the other 60 programs were exluded as a result of the subsequent information through a follow-up letter. Table 3 summarizes the number of responses excluded and the reasons for removing them.

Table 3

Numbers and Types of
Responses Excluded from Study

Reasons for excluding certain responses from the study	Number of Responses
Respondent reported no federal money involved	16
Respondent indicated program did not meet limitations of the study, no reason given	15
Program appeared to be special education for the mentally retarded	15
Program was not operated by a public high school	12
Program was pre-vocational	11
Program was operated only in junior high school	8
Program was still in the planning stages	7
No P.L. 88-210 money was involved	6
Total	90

From these data it can be determined that vocational programs for students with special needs were being developed by other agencies and, in some instances, outside of the public school. It is possible that those developing programs can also provide direction and examples for educators and vocational teachers as they plan and conduct such programs in the public high schools, but they were not included in the study.

Locations of Programs Used in the Study

All but three of the fifty-four states and territories contacted responded. The original responses from state and territorial directors showed that twelve of these states had no vocational programs in operation for students with special needs. A review of the 229 responses to the questionnaires eliminated all but seventy-nine questionnaires, and it was determined that there were fifteen additional states not represented in the study. Table 4 shows the twenty-four states from which usable responses were received and the number of schools from each state included in the study.

Table 4

Number of Programs of Vocational Education for Students with Special Needs by States Meeting the Qualifications for the Study

States Responding	Total Programs
Ohio	33
Florida	7
Illinois	5
Indiana	4
Utah	4
Michigan	3
Colorado	2
Maryland	2
Missouri	2
Pennsylvania	2
Tennessee	2
Arizona	1
Arkansas	1
Connecticut	1
Delaware	1
Iowa	1
Massachusetts	1
Minnesota	1
Nebraska	1
Nevada	1
New Mexico	1
North Carolina	1
Wisconsin	1
Wyoming	1
Total Programs	79

It should not be implied that these data include all the programs within these states nor should it be implied that there are no programs in operation in those states not represented in the table. However, twelve states did report they had no programs which met the criteria for the study.

Characteristics of the Setting in which Vocational Programs were Located

To enhance the understanding of vocational education programs for students with special needs, it seemed desirable to know something of the setting in which they were located. To secure such information, the respondents were asked to provide pertinent data from which the setting could be deduced. The first request for this type of data related to the vocational service area or areas under which the individual programs operated. Table 5 summarizes the number of programs by each service area or combinations of services involved.

It should be noted that nineteen of the respondents classified their programs as Occupational Work Experience but did not identify the vocational service responsible for those programs. The general operational pattern of vocational education in most states would probably place these programs under one of the service areas. Since this could not be ascertained for all states, these programs are reported as a separate category.

Table 5

Number and Percentage of Programs for Youth with Special Needs by the Vocational Services Involved

Vocational Services Involved	Number of Programs	Per Cent
Trade and Industrial Education	23	29.0
Occupational Work Experience (No service identified by respondents)	19	24.0
Home Economics	10	13.0
Vocational Agriculture	9	11.0
Distributive Education and Trade and Industrial Education Combination	7	9.0
Business and Office Education	6	8.0
Distributive Education	2	2.5
Business and Office Education and Distributive Education Combination	2	2.5
Business and Office Education and Vocational Agriculture Combination	1	1.0
Total	79	100.0

School and Community Setting

With the reported decline in the number of schools has come an accompanying growth in size of schools. Changes in population patterns also affect school size and enrollment in various programs. The respondents were asked to describe the community and school setting by giving population and enrollment figures for the program on which they reported. Table 6 presents the data relating to school and community settings.

Table 6

Distribution of Selected Characteristics of School and Communities Offering Vocational Education for Students with Special Needs

Selected Characteristics	Number	Per Cent
Type of High School		
Comprehensive High School	50	63
General High School	21	27
Vocational High School	5	6
Others	3	4
Total	79	100
Size of Community		
50,000 - over	33	42
10,000 - 49,000	22	28
2,000 - 9,000	11	14
Under 2,000	4	5
Not Reported	9	11
Total	79	100
Size of School		
1,500 - over	35	44
500 - 1,400	30	38
100 - 400	8	10
Under 100	1	1
Not Reported	5	6
Total	79	100

Table 6 (continued)

Selected Characteristics	Number	Per Cent
Vocational Enrollment		
200 - over	27	34
100 - 199	19	24
50 - 99	11	14
Under 50	10	13
Not Reported	12	15
Total	79	100

High schools offering three or more reimbursable vocational programs were classified as comprehensive high schools, and those which had less than three reimbursable vocational programs were categorized as general high schools.

The majority of all programs, 50 (63%), were located in comprehensive high schools which offered three or more reimbursable vocational programs. Of this 50, 35 of the schools were 3-year high schools. Thirty-three (42%) of these programs were in high schools located in communities with 50,000 population or over. Of these 33, 20 programs were located in schools situated in population areas of 100,000 and over. Only one program was located in a school situated in a rural community. The 79 programs were located in schools ranging in size from less than 100 enrollment to over 1,500 enrollment. Of these schools, 35 (44%) had 1,500 or more students. The vocational enrollment varied from less than 50 to over 200 students enrolled in all vocational programs. The majority of the schools, 27 (34%), had vocational enrollments of 200 students and above. Only 21 (27%) of all programs were located in schools having vocational enrollments of less than 100 students.

The majority of all programs reported were located in large, comprehensive high schools with relatively large vocational enrollments and situated in heavily populated areas.

Financial Support

Before a program could qualify for inclusion in this study, it had to be supported in part from vocational funds available as a result of the passage of P.L. 88-210. To determine the funding pattern, the respondents were asked to indicate by percentages the amount of funding from several suggested sources. This question was difficult to answer for many of the respondents because, as some indicated, local teachers did not have access to this type of information. However, 65 of the 79 respondents did provide information on the percentage of P.L. 88-210 funds used in their programs. The remaining 14 respondents indicated that P.L. 88-210 funds were involved in their programs but failed to provide percentages. These data are presented in Table 7.

Table 7

Distribution of Programs Using P.L. 88-210
Funds by Per Cent of Funds Involved in Program

Percentage of P.L. 88-210 funds involved	Numbers of Programs	Per Cent
100%	5	6.3
75-99%	5	6.3
50-74%	15	19.0
25-49%	27	34.0
10-24%	5	6.3
Less than 10%	8	10.0
Reported but per cent not shown	14	18.1
Total	79	100.0

Although there was a lack of response to the requests for percentages of state and local funds involved, some conclusions could be drawn based on those who did respond. A majority or 26 respondents indicated that from 25 to 50 percent of their funds came from state support. Only seven respondents indicated a source of funds other than those mentioned. Four of these involved funds from P.L. 89-10, Elementary and Secondary Education Act of 1965, while the remaining three respondents indicated other sources without identifying the funding agency. Based on the trends indicated in the data received, it would appear that a basic formula for support of these programs would be 50 percent local funds, 25 percent state funds, and 25 percent P.L. 88-210 funds.

Classification of Programs

To determine the basis on which programs were being operated, the respondents were asked to specify the classification of their program. The suggested classifications were: 1) experimental, 2) pilot, 3) demonstration, 4) developmental (changing or evolving type of program), and 5) regular (established or on-going program). None of the respondents categorized their programs as demonstration programs. Thirty-two (41%) of the respondents said their programs were regular programs. Twenty (25%) of the programs were classified as pilot programs, 15 (19%) as developmental programs, and 12 (15%) were classified as experimental programs.

Years Programs were Initiated

To determine the effect of the passage of P.L. 88-210, the respondents were asked to indicate the school year in which their programs began. The majority,

66 (84%) of the respondents, stated their programs started after 1962. Table 8 contains the responses to this question.

Table 8

Distribution of Program by
School Years in Which Programs Began

First Year of Program	Number of Programs	Percentage of Programs
1965-66	37	47
1964-65	17	21
1963-64	14	18
Prior to 1963	11	14
Total	79	100

Summary

This chapter was concerned with the introduction to the report, including need for the study, procedure used, and a general description of the setting for vocational education programs for students with special needs.

The need for this study is predicated on society's growing concern for the disadvantaged and the passage of legislation which encourages the expansion of vocational education to meet the needs of students who cannot succeed in regular vocational programs. The Center for Vocational and Technical Education initiated this study to provide a base from which further research can proceed and to provide assistance to administration and teachers in planning and conducting vocational education programs for students with special needs.

A questionnaire was developed to secure the data upon which this report is based. State directors of vocational education and others provided the names of 333 local teachers to whom copies of the questionnaires were mailed. A follow-up letter in addition to the questionnaire helped determine the status of programs in which 229 of these teachers were located. Many of the responses were duplicate reports on programs which had more than one teacher. Sixty-nine per cent of all teachers contacted responded.

Seventy-nine questionnaires from 24 states were judged usable for this study. Of the 150 responses not included, 90 were excluded because the programs reported did not meet the qualifications of the study. Twelve state

directors of vocational education stated there were no programs in operation in their states, and 15 additional states were determined as not having programs which met the qualifications of the study. Three other states did not respond.

The majority of programs reported were operating under the supervision of only one vocational service. These programs were located primarily in large, comprehensive high schools situated in heavily populated areas and were generally funded by 50 percent local funds, 25 percent state funds, and 25 percent federal funds.

The majority of these programs, 41 percent, were reported to be operating as regular programs rather than as the other classifications suggested. Sixty-six, (84%) of all vocational educational programs for students with special needs included in this study were begun after passage of P.L. 88-210.

SUMMARY OF FINDINGS

1. Few states had appreciable numbers of vocational education programs for students with special needs, and over half of all states had no programs which met the scope of this study.

2. Public Law 88-210 has had an effect on the development of vocational education programs for students with special needs in that all programs included were supported in part by funds authorized by this Act, and 85 percent of the programs were established after 1962.

3. The majority of the vocational education programs for students with special needs were operated as established vocational programs; were located in large, comprehensive high schools; were situated in heavily populated areas; were funded from a combination of federal, state, and local sources; and were supervised by only one vocational service at the state level.

4. The majority of vocational education programs for students with special needs had been developed primarily as a result of local initiative on the part of local administrators and vocational teachers with little involvement of state vocational services or university and college personnel.

CHAPTER II

ADMINISTRATION

Introduction

Ten items were selected to determine administrative characteristics of vocational programs for students with special needs. Table 9 is a compilation of general characteristics of administration in the 79 programs reported. The table indicates the number and percentage of programs possessing these characteristics.

Table 9

Selected Characteristics of the Administration of Vocational Programs for Students with Special Needs (N=79)

Characteristics of Programs	Programs Possessing Characteristics Number	Percentage
Initial planning--involved groups or persons other than teachers	73	92
Administrative--person in charge, also in charge of other vocational programs	68	86
Agencies outside of school system involved:		
Administration	23	29
Supervision	50	63
Financing	79	100
Advisory	62	78
Operates maximum enroll. required	63	80
Operates minimum enroll. required	45	57
Per pupil cost same as other vocational programs	45	57
Physical facilities--designed or modified for program	29	37
Operates under separate administratative policy	16	20
Student required to pay fees to participate in program	11	14

Administrative Head

School administrators seldom have full responsibility for any segment of the educational program. In some schools where the staff in a department is large enough to warrant it, a teacher may assume some administrative responsibility. In many large vocational programs, a quasi-administrator under the title of vocational director or supervisor often performs administrative tasks. To determine the relationship of administrators to these programs, the respondents were asked to indicate if the administrative person in charge of other vocational programs in their school was also responsible for their program. They were also requested to indicate the percentage of time which an administrator spent in administering their program.

Sixty-eight (86%) of the 79 programs studied had the same administrative head as the other vocational programs in the school. As shown in Table 10, 43 administrative persons devoted less than 25 percent of their time to the administration of these programs, while 6 others devoted from 75 to 100 percent of their time.

Table 10

Percentage of Administrator's Time Devoted
to Vocational Programs for Students with Special Needs
(N=55)

Percent of Time Allotted to These Programs	Number of Programs	Percentage of Programs
25 - under	43	78
25 - 49	4	7
50 - 74	2	4
75 - 100	6	11
Total	55	100

Involvement of Outside Agencies

Literature in vocational education indicates that use of advisory committees and other persons and agencies outside of the school have been the mark of many successful vocational programs. To determine the involvement of outside agencies or groups in vocational education programs for students with special needs, the respondents were asked to indicate the areas in which such groups were involved with their programs. Their responses were listed under areas of administration, supervision, financial support, and advisory capacity. The summary of other agencies involved in these areas are shown in this table (N=79):

	Number	Percent
Financing	79	100
Advisory Capacity	62	79
Supervision	50	63
Administration	23	29

Only 23 (29%) of the 79 schools reported that agencies outside the school were involved in some manner with the administration of these vocational programs. The division of vocational education was involved in the administration of 13 programs, the state department of education in 7 programs, and other agencies with 3 programs. Fifty respondents (63%) reported that other agencies were involved in the supervision of their programs. Twenty-eight of these 50 respondents reported the division of vocational education was involved while 10 reported that the state department of education participated. Other agencies involved in supervision included local industry and businesses, the division of secondary education, university personnel, and other agencies not specifically identified. All respondents also reported the other agencies involved in financing their programs. Again the division of vocational education, working with 31 (39%) programs, and the state department of education, involved with 22 (28%) programs, composed a majority of outside agencies involved in financing these programs. Sixty-two (79%) of the respondents reported various agencies involved in an advisory capacity to their programs. Most advisory groups, as reported by 33 respondents, were composed of a combination of agencies or groups working together. Twelve individuals identified the division of vocational education as an advisory group, while seven individuals worked with university or college personnel and five with local businesses or industries. Other agencies mentioned as serving in an advisory capacity were the U. S. Department of Labor, the State Department of Education, and the State Employment Service.

Although administration of vocational programs continues to remain the responsibility of the local school system, other agencies can be extensively involved in supervision, financing, and as advisory groups.

Specific Administrative Policy

The broad involvement of vocational education programs with agencies and people outside the local school system suggests a need for the development of specific administrative policies covering these programs. To ascertain the degree to which such policies have been developed, respondents were asked to indicate if any separate and specific policy was in force in their schools for their programs. The summary of the responses to the question is shown in this table:

	Number	Percent
Program operates under regular school policy	61	77
Program operates with specific school policy for this program	16	20
No response to question	2	3

Sixty-one (77%) of the respondents reported their programs were operating under the regular administrative policy of the school system while 16 (20%) of the individuals replied there was a separate, written administrative policy for their programs in addition to regular school policy. The majority of schools operating with a specific policy for the vocational education program reported that the separate policies related primarily to employed students and to enrollment.

Based on these reports, it may be assumed that the regular school policies are sufficiently broad and inclusive to cover contingencies which may arise relative to vocational education programs for students with special needs.

Evaluation

The recent development of vocational education programs for students with special needs precluded the application of evaluation procedures at the time of the study. There was also confusion on the part of the respondents regarding the evaluation question, and over one-half of them failed to answer the question or answered relative to student evaluation rather than program evaluation. The lack of conclusive data necessitated omitting any report on evaluation.

Per-Pupil-Cost of Special Programs

A common characteristic of most vocational education programs has been the higher-than-average cost per pupil when compared to other school programs. To determine if this characteristic was evident in these programs, the respondents were asked to indicate the per-pupil-cost of their special program in relation to regular vocational programs.

There was variation in the reported per-pupil-costs of vocational education programs for students with special needs. As indicated in Table 11, 45 (57%) of the respondents reported these programs cost the same as regular vocational programs, 19 (24%) respondents indicated that the per-pupil-cost was higher, and 15 (19%) reported the cost as lower. One program was reported as being 100 percent higher in cost than a regular program while 12 respondents reported that the special vocational program was less than 25 percent more expensive per pupil. The same number, or 12 respondents, indicated programs were operating at 10 percent less per-pupil-cost than regular programs, and 3 of the respondents said that per-pupil-cost was from 25 to 50 percent lower.

Table 11

Comparison of Per-Pupil-Costs for
Vocational Education Programs for Students
With Special Needs and Regular Vocational Programs

Levels of per-pupil-cost of programs compared to regular programs	Number	Percent
Per-pupil-cost same as in regular program	45	57
Per-pupil-cost higher	19	24
Per-pupil-cost lower	15	19
Total	79	100

Physical Facilities

The specialized knowledge and skills taught in most vocational courses require that physical facilities be developed to fit the program. To determine the extent to which special vocational programs were operating in specially planned facilities, the respondents were asked to respond only with "yes" or "no" to the question concerning facilities. The respondents were not asked to describe how physical facilities were designed or modified.

A majority or 49 (62%) of respondents indicated their physical facilities were not designed or modified specifically for the operation of vocational education programs for students with special needs. However, 29 (37%) respondents indicated their facilities were designed or modified for the program.

Enrollments per Teacher

A generally accepted principle of operation for vocational programs has been the establishment of minimum and maximum enrollment requirements per teacher. Although this characteristic is used widely to determine in part the reimbursements for vocational programs, it has also served as a limiting factor in setting the size of classes. Many writers strongly recommend that smaller pupil-teacher ratios are needed when working with disadvantaged students. The respondents were asked to indicate whether they had a minimum or maximum enrollment requirement. Where there were such requirements, the respondent was asked to state the numbers of students required.

Minimum enrollment requirements were reported by 45 of the 79 programs. As indicated in Table 12 these varied from enrollments of less than 10 to a minimum enrollment of 30. Eighteen or 23 percent of the respondents reported that minimum enrollments ranged between 15-19 students. Twenty-three of the respondents indicated that no minimum enrollment requirements were specified.

Table 12

Distribution of Programs Having Minimum Enrollments per Teacher

Minimum enrollments per teacher	Number of Programs	Percent
Under 10 students	9	12
10 - 14 students	13	16
15 - 19 students	18	23
20 students and over	5	6
No minimum enrollment required	23	29
No response	11	14
Total	79	100

Maximum enrollment requirements were reported by 63 of the respondents. Only 10 respondents indicated there was no maximum. As shown in Table 13, the maximum enrollment for teachers varies from less than 10 to over 30, with 21 to 25 students per teacher being reported by the majority or 23 of the respondents.

Table 13

Distribution of Programs Having Maximum Enrollments per Teacher in Vocational Programs for Students with Special Needs

Maximum enrollments per teacher	Number of Programs	Percent
Under 10 students	2	3.0
10 - 15 students	13	16.0
16 - 20 students	13	16.0
21 - 25 students	23	29.0
26 - 30 students	8	10.0
Over 30 students	4	5.0
No maximum enrollment required	10	13.0
No response	6	8.0
Total	79	100.0

The fact that 63 programs had either no minimum enrollment or less than 20 students required per teacher indicates that consideration is being given to reduced student-teacher ratios in special programs.

Program Enrollment

As part of the general characteristics of vocational education programs for students with special needs, the respondents were asked to indicate the number of students enrolled in these programs. Although these data do not necessarily show the enrollment on a per teacher basis, they are included to indicate the range of sizes of existing programs. Table 14 shows that a majority of these programs are enrolling less than 50 students, indicating that many programs have a relatively small pupil enrollment per teacher.

Table 14

Distribution of Programs by Number of Students Enrolled in Vocational Education Programs for Students with Special Needs (N=79)

Number of Students	Number of Programs	Percent
Under 15	14	18
16 - 25	19	24
26 - 50	19	24
50 - 200	13	16
Over 200	3	4
No Response	11	14
Total	79	100

Only 16 (20%) of the 79 programs enrolled more than 50 students.

Program Planning

According to writers in the field of administration, involvement of personnel in the planning of programs is a necessary prerequisite to the successful implementation and operation of any school program. To determine who was involved in the original planning for these vocational education programs for students with special needs, respondents were asked to indicate individuals or groups involved in the original planning for the program.

As indicated in Table 15, administrators were reported by 76 of the respondents as being involved in the original planning for these programs. Teachers were involved with others in planning for 67 of these programs. The next most often mentioned agency was the state vocational service which was involved in planning for 36 of the 79 programs. Three teachers stated they were the only individual involved in the original planning. Other

individuals or groups who were cited as being involved in the original planning for these programs were curriculum directors, guidance personnel, advisory committees, business or industrial leaders, and university personnel.

These data indicate there has been broad involvement of personnel connected with these programs in the initial planning of the programs.

Table 15

Involvement of Various Personnel in Initial Planning for Vocational Programs for Students with Special Needs

Personnel of Groups Involved in the Original Planning for Vocational Programs	Number of Programs	Per Cent
Administrator, Guidance Personnel, and Curriculum Director	18	23
Administrator, Teacher, and the State Vocational Services	17	21
Administrator, Teacher, Curriculum Director, and State Vocational Services	15	19
Administrator and Teacher	10	13
Administrator, Teacher, Advisory Committee, and Other Not Specified	8	10
Administrator, Teacher, Guidance Personnel, State Vocational Services, and Others	4	5
Administrator and Guidance Personnel	3	4
Teacher Only	3	4
Administrator and Advisory Committee	1	1
Total	79	100

Student Fees

Characteristically, many vocational programs have required students to pay fees in order to reduce school cash outlay in paying the cost of operating these programs. In order to determine if fees were required, and if this tended to limit enrollment in these programs, the respondents were asked to state if fees were required. They were also asked to state if this tended to limit enrollments in their programs.

Sixty-eight (86%) of the respondents replied there was no administrative requirement that students pay fees. Of the 11 (14%) respondents indicating fees were required, 10 said that fees were $5.00 or less, and one reported a $10.00 fee. Of these 11, none believed that the fees had the effect of limiting enrollment, and 6 of these 11 respondents said that provisions were made to assist those students who could not afford to pay the fees.

Summary

Characteristics related to the administration of vocational education programs for students with special needs were presented in this chapter.

Administrative persons in charge of these programs also had administrative responsibility for other vocational programs in 86 percent of the programs. Administrators were reported to be involved in the initial planning for the majority of the programs.

Agencies outside the school were involved in financing all the programs. Seventy-eight percent of the programs had other agencies involved in an advisory capacity and 63 percent had them involved with supervision. Per-pupil-costs were the same as in regular vocational programs in 57 percent of these programs.

Only 20 percent of the school systems having vocational programs for students with special needs had separate administrative policy for those programs. However, 80 percent had maximum enrollment limitations, 57 percent had minimum enrollment limitations, and 14 percent of the programs required the students to pay fees. Thirty-seven percent of the programs were operating in facilities which were specifically planned or modified for vocational education programs for students with special needs.

SUMMARY OF FINDINGS

1. Administrative patterns in these programs are very similar to those in regular vocational programs, and few schools have a specific administrative policy which is applied to these programs.

2. Administrators were involved in the initial planning for these programs, and the majority of the programs in operation are in schools with sympathetic and interested administrators.

3. Administrative policies in a majority of the programs keep class sizes relatively small, and few programs require students to pay fees, offering greater opportunity for students with special needs to participate and to secure the attention they need.

4. The majority of the programs utilize on-the-job training to provide students with needed abilities and skills, therefore, little need for special physical facilities exists.

CHAPTER III

PUPIL PERSONNEL

Introduction

Many references describe the characteristics of the disadvantaged, but little has been said about vocational education for disadvantaged students. Twelve items were included in the questionnaire to determine some of the characteristics and limitations of students enrolled in vocational education programs for students with special needs. Table 16 summarizes some of the selected characteristics of these students.

Table 16

Selected Characteristics of Pupil Personnel of Vocational Programs for Students with Special Needs (N=79)

Characteristics of Programs	Number	Percentage
Involves students with various disadvantages	70	88
Minimum level of ability or other qualifications limits enrollment	54	68
Student required to participate in experience programs	53	67
Maximum level of ability or other qualifications limits enrollment	48	61
Cooperative selection committee determines enrollment	34	43
Involves students from all high school grade levels	27	34
Upper or lower age level limits enrollment:		
Upper	12	15
Lower	39	49
Ability grouping or other technique used to divide students into groups	23	29
Youth organization operates in conjunction with program	19	24

Types of Handicaps

Students with special needs were categorized by six types of handicaps. These were physical handicaps, educational deprivation, economic deprivation, social disadvantage, ethnic disadvantage, and below average mentality. Only 14 (18%) programs enrolled students with the same handicap, while all others operated with two or more types of disadvantaged students involved. As shown in Table 17, seven respondents indicated their program was for those students with educational handicaps and seven others for the student with below average mentality.

Table 17

Numbers of Programs Enrolling Handicapped Students by Reasons for Handicaps (N=79)

Reasons students cannot succeed in regular vocational programs	Number of Programs	Per Cent
Educationally deprived, socially disadvantaged, below average mentally	30	38.0
Educationally deprived, economically deprived, socially disadvantaged, ethnically disadvantaged	10	13.0
Educationally deprived, economically deprived, physically handicapped, and others not listed	11	14.0
Below average mentally	7	9.0
Educationally deprives	7	9.0
Economically deprived, socially disadvantaged, and others not listed	6	7.5
All categories above except physically handicapped	6	7.5
Other reasons not listed in questionnaire	1	1.0
Educationally deprived and ethnically disadvantaged	1	1.0
Physically handicapped	0	0.0
Total	79	100.0

Sixty-five (82%) involved two or more types of disadvantaged students. There were no programs specifically for students with physical handicaps; however, one program contained some physically handicapped students. Social disadvantage was most commonly mentioned disadvantaged and was reported as the causal factor in over half of the programs.

Based upon the description of handicaps in the literature and the pattern reported in the study, programs developed in the future will probably include those students with more than one disadvantage rather than students with a single type of disadvantage. The lack of precise descriptive terminology makes it difficult to categorize students by only one handicap.

Grade Level of Students

State plans have often specified that the student must be a specific age to enroll in vocational programs. Local schools, in turn, have limited enrollment to upper grade levels to ensure enrolling only students meeting these age limit requirements. A combination of these two factors has often limited students with educational disadvantages to nonvocational programs until their junior year in high school. The disadvantaged child, characterized by repeated failures, would be old enough upon entry into high school to enroll in any vocational program having a minimum age requirement but cannot enroll when there is a grade level requirement. This type of student often drops out of school before he reaches the grade level at which he can take the vocational program.

To determine the pattern of operation in vocational programs for students with special needs, the respondents were asked to indicate at what grade level their programs operated. Table 18 shows that 27 (34%) of the programs include freshmen through juniors while 13 (16%) programs were specifically designed for any one of high school grade level. There were also 13 programs operating on an ungraded basis which included 3 programs designed specifically for former dropouts. Of the total, 51 of the 79 programs were available to juniors and seniors. Students at these grade levels had greater opportunities for enrollment in vocational courses for students with special needs than at any other grade level.

Table 18

Educational Level of Students
Enrolled in Vocational Programs

Grade level of students enrolled	Number of Programs	Per Cent
Freshmen, Sophomores, Juniors, and Seniors	27	34
Junior-Senior combination	18	23
Ungraded (may include below average students from any grade)	10	13

Table 18 continued

Grade level of students enrolled	Number of programs	Per Cent
All other combinations	7	9
Senior	5	6
Freshmen	4	5
Sophomore	3	4
Former Dropouts	3	4
Freshman-Sophomore combination	1	1
Junior	1	1
Total	79	100

Since age will probably remain a major determinant for deciding who may enroll in vocational programs, it is unlikely that there will be much change in the pattern of programs in the future. However, some writers in the field of education believe that if assistance is to be offered students with special needs, they must be reached at an earlier age. With only three programs reported for dropouts, it would seem that this area would also offer a fertile field for program development in view of the number of students who annually drop out of school.

Age Limits

Vocational education legislation has prescribed a minimum age level of 14 years of age or older for participation in vocational programs. Students normally graduate from high school at ages 18 or 19. Writers in the field characterize the disadvantaged as being one to two grades behind their peers. To determine the age ranges for students with special needs, the respondents were asked to indicate if their program had an upper or lower age limit.

As shown in Table 19, 39 (49%) programs had lower age limits ranging from under 14 to 16 years of age. The majority of these, or 27 programs, stipulated 16 years of age as the minimum.

At the other extreme, 56 (71%) of the respondents indicated no upper age limit. Of the 9 respondents indicating an upper age limit, 2 reported age 18, 5 reported age 20, and 2 reported age 21 as maximum ages. Fourteen respondents did not answer the question on upper age limits.

With the large number of respondents reporting 16 years as a minimum starting age, it is evident that these programs could not be used by early school dropouts. Vocational programs for students with special needs are fewer in number at a lower

age level. The lack of upper age limits in the large majority of the programs should offer encouragement for the return of former dropouts.

Table 19

Number of Programs with Upper or
Lower Age Limits Limiting Participation

Age Limits		Number of Programs
Lower		
	Under 14	3
	14	3
	15	6
	16	27
	None	40
	Total	79
Upper		
	18	2
	19	0
	20	5
	21	2
	None	56
	No response	14
	Total	79

Selection of Students

Vocational educators have been reluctant to include less able and slower learners in their regular programs. Some of these educators have warned against vocational education becoming the "dumping ground" for those who cannot succeed academically. To determine if vocational programs for students with special needs were having to take all students without selection, the respondents were asked to indicate the procedure for selecting students used with their programs. Seventy (89%) of the respondents stated, as shown in Table 20, that other persons in addition to teachers participated in the selection process. Of these 70, approximately one-half, or 34 of the respondents, indicated that the vocational teacher, guidance counselor, administrator, and other teachers made selection decisions based on tests, records, and observed student abilities. In the various selection schemes, teachers and administrators were mentioned most often as participants. As a rebuttal to the "dumping ground" theory, it is noted that only two teachers reported they were required to take all students who were sent to them without participating in their selection or screening.

Table 20

Procedures Used in Selecting Students Enrolling in Vocational Education for Students with Special Needs

Personnel Involved	Number of Programs	Per Cent
Cooperative selection committee	34	43
Guidance counselor selects for teacher's approval	18	23
Teacher selects from lists provided by administrator or other teachers	14	18
Teacher and administrator select from all interested	6	8
Teacher takes all who are interested	4	5
Teacher takes all who are sent	2	2
Teacher selects from referrals by teachers	1	1
Total	79	100

Ability Limitations for Enrollment

Although all students with special needs are not characterized by low mental ability, this characteristic has traditionally been associated with these individuals. According to some writers, the use of I.Q. scores has been overemphasized and overworked in categorizing students. To determine the extent to which mental ability is used in selection of students for vocational programs for students with special needs, the respondents were asked to indicate if a minimum or maximum level of ability or other qualifications were used to limit enrollment.

Thirty-five respondents indicated minimum I.Q. range of 70 to 75 as a limiting characteristic, while 31 programs were reported to use an I.Q. score of 90 as a maximum level of ability which limited enrollment in those programs. Other characteristics mentioned most often were reading ability and whether or not the student was employable. Fifty-four programs (68%) of the respondents indicated a minimum ability level or other characteristics which tended to limit enrollment. Forty-eight (61%) of the respondents reported a maximum ability level or other characteristic which limited enrollment.

Based on these characteristics, the majority of all programs limit participation based on one or more characteristics. This factor would tend to

eliminate some students who could benefit from vocational training, particularly students with high mental ability but with some other special need or disadvantage.

Student Participation in Experience Programs

Vocational education has commonly used experience as one of the primary methods of teaching. To determine the manner in which such training has been developed in these new programs, the respondents were asked to indicate if their students were required to participate in activities such as on-the-job experience, supervised farm experience, home experience, or other types of experience programs. They were also asked to describe the type of experience program which they operated.

Fifty-three (67%) of the respondents indicated that such an experience was required while the other 26 indicated no such requirement. Of the 53, the majority or 44 of the respondents reported supervised on-the-job training as the basic experience program. Eight respondents said their students were required to work 15 hours per week, not necessarily under supervision, while one respondent used field trips to provide the experience.

The respondents were also asked to indicate whether the requirement that a student participate in an experience program tended to limit the enrollment and whether or not any assistance was given the student in locating and securing experience opportunities. Twenty-seven (34%) of the respondents believe that the requirement tended to limit enrollment; all of the respondents whose programs required experience indicated that the school or teacher assisted the students in securing experience opportunities. Forty-four of these teachers said that they assisted the student in securing job locations and by providing supervision on the job.

The response to these questions indicated that the majority of these programs were of an occupational work experience nature. Although the actual type of occupational experiences provided were not described, they could be assumed to be training for service-type occupations rather than training for skill.

Youth Organizations

Since the inception of vocational education, a number of youth organizations have developed in conjunction with local programs. These have become national organizations and have served as aids in training vocational students. To determine the extent to which youth organizations were prevalent in connection with these new programs, the respondents were asked to indicate whether there was a youth organization connected with their program and if so, what percent of their students participated.

A large majority of the respondents, 76 percent indicated that no youth organization was available. Of the 19 (24%) who indicated such an organization was available, 2 of these reported that none of their students took an active part in the organization. The other 17 respondents said that from 10 to 100 percent of their students belonged to the available organization.

Use of Grouping Techniques

Students enrolled in vocational programs for special needs have a variety

of disadvantages or deprivations which place them in such programs. To find out if there was further grouping of these students, the question was asked if any procedure was used for dividing students where more than enough students were enrolled to complete one section.

Only 23 (2 of the respondents indicated some procedure for dividing students into groups. Ten of the respondents said that interest and ability were the only characteristics considered. Ten other respondents grouped their students by grade levels while the other three respondents reported the use of tests and selection committees. Forty-nine (62%) of the respondents reported that no special selection technique was used.

Summary

This chapter has presented an overview of selected characteristics of pupil personnel in vocational programs for students with special needs. Students with various handicaps were involved in these programs primarily at the junior and senior grade levels in high school. Students were most often selected through the use of cooperative selection committees composed of vocational teachers, administrators, guidance counselors, and other teachers. The most often used criteria for selection of these students was I.Q. scores, with the majority of programs having minimum and maximum ability levels limiting participation. In most instances, students of 15 years of age or less were not permitted to enroll in these programs, and few of the program reported maximum (upper) age limits.

The majority of the programs required their students to participate in some type of experience program with occupational work experience being mentioned most frequently. Some of the respondents believed this requirement limited enrollment in their programs, but the majority of respondents said they assisted students in securing positions for the experience program.

Although youth organizations are available in most vocational programs, three-fourths of the respondents said that no such organizations were available to students with special needs enrolled in their vocational programs.

A large majority of the respondents indicated the use of selection procedures for determining who enrolled in their programs, but less than one-third of them indicated any procedure for deviding students into groups where more than enough students enrolled to make up more than one section.

SUMMARY OF FINDINGS

1. There are many limitations such as age, grade levels, ability levels, and other characteristics which are used in determining who may participate in these programs.

2. Most of these programs require all students to participate in occupational work experience as a means of teaching job knowledge and skills.

3. The majority of vocational education programs for students with special needs do not have a youth organization associated with them in which students in these programs can participate.

4. Few programs exist at the grade or age levels at which many of these students begin to drop out of school.

5. Selection procedures seem to be adequate in most of the programs, although I.Q. scores are often the only criterion suggested for selecting students who are eligible to participate.

CHAPTER IV

CURRICULUM

Introduction

The characteristics of students with special needs make it increasingly necessary to develop a curriculum in special vocational education which is congruent with the level of ability and needs of these students. This section is designed to show some of the characteristics of curriculums as they have been developed in existing programs. To determine these characteristics, 10 items were included in the questionnaire. Table 21 shows the summary of the information in this area.

Curriculum Development

As indicated in the study, few of these programs were in operation prior to 1963. As far as could be determined, there were no curriculum guides to assist in planning vocational education for students with special needs. To determine whether some of the respondents' programs had curriculums which could be used as guides in curriculum development, the respondents were requested to answer three items on curriculum sources. The first item related to the availability of copies of curriculum outlines which could be used by others. Sixty-one (77%) of the respondents indicated their program was outlined in such a way that it could be adapted to another school system. Many of these people included copies of such information when they returned their questionnaires.

Table 21

Selected Characteristics of Curriculum of Programs for Students with Special Needs (N=79)

Characteristics of Programs	Number of Programs	Per Cent
Curriculum planned specifically for these students	75	95
Teacher and others cooperated in curriculum development	64	81
Students enrolled receive standard high school certificates	63	80
Curriculum outlined so it could be used for others	61	77

Table 21 continued

Characteristics of Programs	Number of Programs	Per Cent
Subject matter materials selected or developed to fit students' abilities	57	72
Primary goal to make students more employable	55	70
Curriculum adapted from another type program	53	67
Special audio-visual materials used to supplement curriculum	28	35
Special graduation certificate	12	15

Eighteen respondents indicated their curriculum was not available in a form that could be used by others.

The other two items related to curriculum development were concerned with the sources of information for their curriculums. Seventy-five (95%) of all respondents said the curriculum in use was planned specifically for their programs.

In the third category, 53 respondents said they had adapted a curriculum from another program in planning a curriculum specifically for their own use. Five individuals failed to respond to this question while the other 41 (50%) stated they did not adapt their present curriculum from any other program in operation. Those individuals who indicated the source of the curriculum from which they adapted materials said they had used a regular vocational programs outline as a guide for developing their new programs.

The large number of respondents who planned the curriculums specifically for their programs indicated that programs will differ to some extent. The amount of difference and kind of difference could not be ascertained from the information included in the responses. Sample curriculum outlines included with the returned questionnaires indicate a majority of these programs were developed on a level to meet the needs and abilities of students with special needs.

Occupational Goals

Most vocational programs have occupational or vocational goals for which the programs prepare students. These goals are most often expressed in the terms of the skills or abilities which the students learn. The respondents were asked to answer the question: "What are the occupational goals or purposes for which this program is designed to prepare the student-trainee?". The responses to this question were categorized into four types of responses as revealed by

Table 22. Although none of the respondents gave specific skill or ability goals, 55 (70%) reported their programs were designed to make the student employable. Improving future employees and making them more employable and better citizens appear to be the basic purposes for operating these programs.

Table 22

Stated Occupational Goals of the Vocational Programs for Students with Special Needs

Occupational Goals or Purposes	Number of Programs	Per Cent
Make student employable	55	70.0
Improve student's citizenship	11	14.0
Keep student in school	3	3.5
Exploratory--to develop a job interest	3	3.5
No response	7	9.0
Total	79	100.0

Graduation Requirements

Some schools have developed multi-track systems within their schools programs to provide for a variety of student needs. Some of these systems have classified one track as the vocational program, and students receive special certificates at graduation. To determine graduation requirements for students with special needs in these vocational education programs, the respondents were asked if their program led to regular high school graduation. Those respondents who answered "no" to this were asked to indicate if their students would receive a special certificate upon graduation.

Sixty-three (80%) of the respondents said that students in their programs were qualified for regular high school graduation. Table 23 shows the percentages of students which the respondents expected would normally graduate from their high schools. Of the 14 respondents who said their students were not qualified for high school graduation, 12 indicated that those students would receive a special vocational certificate upon completion of a minimum high school curriculum. The other 2 respondents did not indicate the nature of high school termination for their students.

Table 23

Distribution of Programs by Percentages of Students Who May Complete High School as Predicted by Teacher

Percentage of Students Graduating from High School	Number of Programs
100%	11
75% - 99%	26
50% - 74%	13
25% - 49%	5
10% - 24%	2
Less than 10%	2
Did not report per cent graduating	4
No response	16
Total	79

Selection of Curriculum Materials

As Kemp and Riessman have stated, the disadvantaged have many difficulties associated with normal learning patterns in the public schools. Riessman believed that one of the primary styles of learning with these students is by physical and visual means rather than by aural or listening methods. Two questions were based upon this characteristic, and the respondents were asked to state whether special efforts had been made to adapt normal subject matter materials or to secure special audio-visual materials. Of the 75 responses to the first question, 57 (72%) suggested they had adapted the normal subject matter abilities to fit the abilities and needs of the students in their programs. In describing how, the majority of these respondents said that they had either selected their materials at a low reading level or had rewritten materials themselves, eliminating difficult vocabulary. Few of the respondents indicated any other type of adaptation of materials except in the mathematical area. The other 18 respondents stated they used regular subject matter materials. Twenty-eight (35%) respondents stated they had developed or secured special audio-visual material to supplement the curriculum materials in their program. Forty-six stated they had not secured such materials, and five persons failed to respond to the question. The respondents were also asked to list any special sources of such materials. Of those who responded to this request, a large majority indicated they developed their own or secured

assistance from curriculum and materials specialists within their schools.

None of the materials reported were available for inspection; so it is not known at what level these were adapted. Further evaluation of these materials could result in securing valuable assistance for future programs.

Program Schedules

A blank schedule table was included in the questionnaire upon which the respondents were asked to show a sample schedule for a typical week of students in the program. The diversity of the responses made it impractical to summarize these in a meaningful manner. The only conclusion that could be drawn from an examination of the returns was that a majority of the programs provided one-half of the school day for academic and vocational subjects, and the other half of the day was scheduled as released time for student employment in occupational experience programs.

Personnel Contributing to Curriculum Development

Vocational curriculums are commonly developed cooperatively among teachers or with individual teachers working with outside agencies or groups. To determine the extent to which other individuals were involved with teachers in these programs in curriculum development, the respondents were asked to report what personnel had been involved in developing curriculum for their programs. Table 24 shows the summary of responses to this question. In 64 (81%) of the programs, the teacher was involved with one or more other individuals in developing curriculums. Many of the teachers indicated the other participants provided primarily advisory assistance rather than actual participation. Local vocational directors and administrators were mentioned most often as having an active part in the curriculum development.

Table 24

Personnel Contributing in a Major Way to the Development of the Curriculum

Personnel Contributing to Development of Curriculum	Number of Programs	Percent
Teacher, vocational director, and local administrator	33	42
All individuals listed plus curriculum specialists, and other vocational teachers	19	24
Teacher only	8	10
Teacher, vocational director, state supervisory personnel	7	9
Teacher and guidance personnel	5	6

Table 24 continued

Personnel Contributing to Development of Curriculum	Number of Programs	Percent
Vocational director and local administator	4	5
Advisory group and university or college personnel	0	0
No response	3	4
Total	79	100

Summary

This chapter was concerned with the characteristics of curriculum and curriculum development in vocational education programs for students with special needs. One of the concerns of the study was an attempt to identify some existent programs which could provide guidance to those persons planning such programs.

Sixty-seven percent of these programs were using curriculums adapted from regular vocational programs, and in 95 percent of the programs, the curriculums were planned specifically for the type of students enrolled. Seventy-seven percent of the respondents indicated their curriculums were outlined so they could be used by others. In 81 percent of the programs, the teachers were involved with administrators, guidance counselors, curriculum specialists, and others in developing the curriculums.

Further evidence of the planning involved in these programs was shown by the fact that in 72 percent of the programs, subject matter materials were selected or developed to fit the students' abilities. In 35 percent of these programs, special audio-visual materials suitable for these students had been developed or secured by the teachers in charge.

The primary goal or objective in 70 percent of the programs was to make the students more employable. Other respondents reported similar goals rather than technical skills or abilities. Eighty percent of the respondents said their students would qualify for regular graduation certificates, and, in most cases, the respondents predicted a majority of their students would eventually graduate from high school.

SUMMARY OF FINDINGS

1. The majority of programs were designed specifically for the type of students enrolled, and the curriculums in these programs appeared to be adapted to the abilities and needs of these students.

2. There has been little if any effort outside of the schools to develop curriculum content or materials to assist teachers in the operation of such programs.

3. Teachers have been the primary source of curriculum content, subject matter materials, and audio-visual aids, and where other persons were involved, they have been primarily from the local school system in which these programs were located.

4. The primary objective of the majority of these programs was to make the student more employable by offering him an opportunity to secure work experience during regular school hours; there were few programs which taught students a specific set of skills.

CHAPTER V

SPECIAL SERVICES

Introduction

One of the recent major improvements in education has been the addition of many types of professional personnel who perform special services. These personnel not only assist teachers but are directly responsible for many student needs. It would be difficult to envision a successful vocational program operating without some of these individuals. To determine the types of special services available in vocational programs for students of special needs, 10 questions were included. Table 25 summarizes the major findings of these questions. Each of the 10 items will be discussed under separate headings to clarify the responses to the questions.

Special Service Personnel

Ideally, a school system should employ a wide variety of well-qualified personnel to work with the many problems of the disadvantaged child. These persons do not necessarily have to be full-time employees but should be available within a total school system when needed. To determine the numbers and kinds of these persons involved with vocational programs, the respondents were asked to indicate numbers of individuals classified as part-time, full-time, or on-call. An error in typing the questionnaire resulted in the full-time category being left out and the listing of two part-time columns. This did not seem to offer too much difficulty to the respondents, as most of them struck out one part-time and headed that column full-time.

Table 25

Selected Special Services Utilized in
Vocational Programs for Students with Special Needs (N=79)

Characteristics of Programs	Number of Programs	Per Cent
Provisions made for students to secure experience at school or on the job	73	94
School personnel other than teacher assist in early identification or potential enrollees	71	89
School provides counselor or other personnel to assist	69	87
One or more outside agencies assist students to secure employment	63	80

Table 25 continued

Characteristics of Programs	Number of Programs	Per Cent
School has system for early identification of potential enrollees	59	75
School provides special or remedial courses for these students	56	71
Advisory group works with teacher or school	44	56
Parents have closer relationship with program and teacher than in regular programs	43	54
School uses referral system to identify potential enrollees	33	42
School or vocational department provides placement service for students	29	37

In the questionnaire, 11 different types of personnel were suggested with an apportunity to add others not specified. The respondents were asked to indicate which individuals were presently available and those not available, but needed. There was no compilation of the total number of different types of individuals available by schools.

As shown in Table 26, the most often mentioned specialists available were school counselors, reported by 66 (84%) of the schools. School nurses and vocational supervisors were the next most often reported categories. In some instances the respondents reported having full-time, part-time, and on-call individuals available within the school system. The most often checked category for all types of personnel was the on-call category. This would indicated that such individuals are available within the school system but not necessarily located in the school system with the vocational education program.

The pattern of special service personnel available would indicate that many types of specialists are used throughout the school systems reporting. It was not determined to what extent these personnel were used by the respondents in their programs.

Table 26

Percentages of Programs Having Special Personnel Available to Assist Teacher or Students (N=79)

Kinds of Personnel Available	Number of Programs	Per Cent
School Counselor	66	84
School Nurse	62	79
Vocational Supervisor	61	77
Psychologist	55	70
Reading Specialist	45	57
Curriculum Specialist	40	51
Vocational Guidance Personnel	39	49
Speech Therapist	36	46
School Doctor	30	38
Social Worker	27	34
Physical Therapist	13	17

Advisory or Consultative Groups

In the administration section of this report, reference was made to kinds of agencies or groups which served in an advisory capacity to these programs. Since advisory groups are commonly used with skill-trade vocational programs, an attempt was made to determine to what extent these groups were also utilized for vocational programs for students with special needs. The respondents were asked to indicate whether such a group was involved with their programs.

Forty-four (56%) of the respondents indicated that advisory groups were involved in their programs. Of the various types of relationships suggested, 21 (27%) of the respondents said that the advisory/consultative group was specifically developed for their program. It was reported by 35 (44%) that they had no advisory/consultative group.

The additional fact that disadvantaged youth have difficulty in securing and holding jobs should encourage teachers of these programs to work closely with business and industry. Since it is impractical, in most

instances, to work closely with all businessmen and industrial managers, the development of an advisory group could be a good substitute. These people can provide assistance in development of curriculum, job placement and experience, as well as in other resources to advance and improve vocational programs for students with special needs.

Table 27

Numbers of Programs by Types of Advisory Committees Used (N=79)

Type of Advisory Committee Used	Number of Programs	Per Cent
Separate and specific advisory/consultative group for vocational program for students with special needs	21	27
Advisory/consultative group for the total vocational program in the school system	11	14
Advisory/consultative group for the particular school in which program operates	4	5
Advisory/consultative group for the total school system	3	4
Combinations of 2 or more above	3	4
Advisory/consultative group outside school on a state or regional basis	2	2
Sub-total	44	56
None	35	44
Total	79	100

Placement Service

Placement programs in public high schools are seldom referred to in educational writings. However, placement programs are considered essential among colleges and universities. To determine if such programs were beginning to develop in public high schools, the respondents were asked to indicate if such a service did exist in their schools. Twenty-nine (37%) indicated there was some type of placement program available to graduates of their program and that the vocational teacher or teachers served as the placement person in their school. Of the 50 remaining respondents, 48 said that no placement

program was available in their school. One person said that such a program was being planned while the other teacher failed to respond to that question.

The fact that a few of these programs are developing across the nation should aid in providing guidelines for future development of placement agencies in the public high schools. The decision to involve the public schools in the placement program will have to be resolved in each school system.

Services by Agencies outside the School

Another issue which many school men are attempting to resolve is the interaction between the school system and non-school agencies. State employment agencies have been working with high school seniors in many schools for years, and in occasional school districts other agencies have been utilized to assist students. To ascertain the kinds of agencies involved with vocational programs for students with special needs, respondents were asked to indicate the agencies involved with their school systems and programs. As shown in Table 28, state employment agencies were involved more often than any other non-school group. Twenty-four (30%) of the respondents checked this agency.

Two other agencies were suggested in the questionnaire, private employment agencies and police probation departments or officers. None of the respondents indicated that these agencies worked in any way with their programs. No other agencies were identified by the respondents other than those suggested in the questionnaire.

Even though no reports of success or disappointment with these agencies were made, it would seem that the number of programs involving other agencies would suggest some success was forthcoming and further use of such agencies would be feasible.

Table 28

Number and Percent of Programs Involving Non-school Agencies to Assist Students in Becoming Employable

Agency or Group Working with Program to Assist Students to Become Employable	Number of Programs	Per Cent
State Employment Agency	24	30
Business or Trade Associations and Local Industry and Businessmen	18	23
Local Industry and Businessmen	12	15
Business or Trade Associations	5	6
State Rehabilitation Agency	3	4

Table 28 continued

Agency or Group Working with Program to Assist Students to Become Employable	Number of Programs	Per Cent
None	13	17
No response	4	5
Total	79	100

Opportunities for Application of Knowledge and Skills

This area is concerned with the same activity as was discussed under pupil personnel. In the pupil personnel section of this report, respondents were asked if students were required to participate in experience programs. To determine what provisions were made with respect to opportunities for experience, the respondents were asked to report the methods used in their programs. In a previous section of the report, 53 of the respondents said that work experience was required, but in response to this question, 73 respondents said that opportunities were provided for students to apply knowledges or skills taught by their programs. As shown in Table 29, the area of work experience again was in the majority with 40 (50%) of the programs reported as using on-the-job training or work experience as a method of providing this service. Viewed in combinations, parents were involved with 20 (25%) programs in providing occupational experience. Only 2 programs reported the use of public agencies, such as parks, buildings and grounds, and others as a means of providing opportunity for application of knowledge and skills.

Table 29

Methods by Which Students are Given Opportunity to Apply Knowledge and Skills

Methods Used	Number of Programs	Per Cent
Work experience or on-the-job training	40	50
Work experience, vocational laboratory, and parental supervision	16	20
School vocational laboratory	10	13
Work experience and parental supervision	3	4
Public agencies; parks, buildings and grounds, shops, etc,	2	3

Table 29 continued

Methods Used	Number of Programs	Per Cent
Parental supervision at home or personal business	1	1
Other than any above	1	1
None	6	8
Total	79	100

Teacher-Parent Relationships

According to some writers, parents of the disadvantaged are just as interested, or in some instances more so, in their children's success in school than parents of other students. To determine what the relationship between parents and teachers would be in vocational programs for students with special needs, the respondents were asked to indicate if there was a closer relationship between parents and teachers than in a regular vocational program. If the response was in the affirmative, they were asked to describe how parents were involved with the program.

Forty-three (54%) of the respondents indicated a closer relationship between parents and teacher than in regular programs. Of these 43, a majority or 22 respondents indicated that parents were involved through home visits. It is worthy of note that none of the vocational agriculture teachers reported that parents were involved more through home visits than in their regular vocational courses. This may be true because vocational agriculture teachers normally utilize home visits as a method of working with parents and students in regular programs. Six of the occupational work experience programs and 14 of the trade and industrial programs were reported as using home visits as the method of involving parents more in these programs than in their regular programs. Other methods used to involve parents were parent-teacher cooperation in providing work experience, parent-teacher conferences, and utilization of fact that parents were more eager to help the teacher than in regular programs. These three categories accounted for 14 of the responses. Seven other respondents reported that parents were involved more but did not describe how.

The fact that 54 percent of the responses revealed that parents were involved more with these programs than with regular programs provides some indication that parental assistance can be secured if an attempt is made by the teacher. Further exploration is recommended to determine other ways in which parents can be meaningfully involved with these programs.

Remedial or Special Courses

Many programs reported as assisting disadvantaged children are of a

remedial nature. These programs attempt to remove weaknesses or overcome some lack of ability or understanding. One of the purposes of the questionnaire was to determine what special or remedial courses were being provided for students with special needs who were enrolled in vocational programs.

Fifty-six (71%) of the respondents indicated their school system provided special or remedial courses to assist their students in correcting or improving some learning deficiency. Forty of these programs were reported as having some type of reading course in which their students were enrolled. The other 16 had their students enrolled in special classes which were in a self-contained classroom setting where more than one subject was taught. The remaining 23 (29%) of the respondents said that no special or remedial courses were provided in their school.

Identification of Potential Enrollees

Guidance counselors and other special service personnel have as one of their responsibilities the channelling of students to programs through which their needs can best be met. Without some prior information on students from teachers and other school personnel, guidance counselors have difficulty in identifying some individuals needing help. To cover the subject of identification, the respondents were asked to answer three questions.

The first question asked if the school system had any method for the early identification of enrollees for vocational education programs for students with special needs. If they answered in the affirmative, they were then asked to identify the grade level at which these students were first identified.

Fifty-nine (75%) of the respondents said their school systems did have such a system in operation. Four of these were at the elementary level, 29 at junior high school level, 18 at first year high school level, and 8 were either combinations of the above or the respondent answered only "yes" to the question. The remaining 20 respondents said no early identification program was practiced in their school system.

The respondents were then asked to identify the personnel who were responsible for the early identification of these potential enrollees. Six suggestions were made as to the individuals that might provide this early identification. Table 30 summarizes the 79 responses to this question. As shown in the table, vocational teachers were involved in combination with others in 47 of the programs and individually in only 8. The vocational guidance counselor was also identified as being involved in early identification in combination with others in 47 programs but acted individually in 14 of these programs. Industrial arts teachers were suggested as one source of early identification, but none of the respondents identified these teachers as being individually responsible in their school. They did, however, participate in combination with others in 27 programs as reported by the respondents.

Table 30

Personnel Involved In Early
Identification of Potential Enrollees

Personnel Involved	No. of Programs Individual Only	No. of Programs In Combination With Other
Vocational Teacher	8	47
Classroom Teacher	5	27
Industrial Arts Teacher	0	27
Vocational Guidance Counselor	14	47
Administrator (Principal or Other)	1	35
Psychologist	1	27

The third question in this series asked whether there was a referral system in place of or in addition to the early identification program. Thirty-three (42%) of the respondents indicated that classroom teachers, elementary teachers, and administrators provided names of individuals on a referral basis to guidance counselors or vocational teachers. Forty-three (54%) said that there was no referral system active in their schools. The remaining four percent of the respondents failed to respond to the question.

All 79 respondents identified some individual or group of individuals who assisted by providing some identification of potential enrollees for their programs, but in only 75 percent of the cases was there any methodical approach to this problem. It can be assumed that if students are to be channelled to those programs which best meet their needs, a coordinated effort must be made with most school personnel participating to accomplish the task adequately.

Summary

An area entitled special services was included in the study to determine the kinds of services which schools provided to assist teachers and students in vocational education programs for students with special needs. This chapter was a report of what is available in the 79 schools included in the study.

Several questions in this area related to the identification of students for these programs. Seventy-five percent of the schools had planned systems for early identification of these students, and in some schools this identification began as early as the elementary school level. Respondents from 89 percent of the programs said that persons other than the vocational teacher were

responsible for this identification although the vocational teacher was also involved in a large majority of the programs. Forty-two percent of the schools also had referral systems whereby other school personnel could help channel students to these programs.

Provisions were made in 94 percent of the schools for students to secure work experience either at school or on the job. Eighty percent of the schools involved outside agencies in helping students become more employable and secure employment. Thirty-seven percent of the schools or vocational departments had placement services to help the students secure their first job. Advisory groups worked with 56 percent of the programs, and parents had a closer relationship with 54 percent of the programs than in comparable, regular programs.

Many kinds of professional personnel were found to be available with school counselors being the most plentiful and reported by 84 percent of the respondents. Counselors were closely followed by school nurses in 79 percent of the programs and vocational supervisors in 77 percent. Special or remedial courses were available in 71 percent of the schools, and many of the courses were remedial reading conducted by specialists in 57 percent of these schools.

SUMMARY OF FINDINGS

1. Most school systems in which vocational education programs for students with special needs are located are identifying students for these programs prior to their entry into high school.

2. Practically all programs provided students with opportunities to secure work experience in the school or allowed the student released time in his schedule to work in business or industry.

3. Few schools had an active, organized placement service which assisted graduates of these programs to secure their first jobs.

4. Advisory committees were involved with only a small majority of vocational education programs for students with special needs.

5. Parents of students enrolled were involved more closely with vocational education programs for students with special needs than parents of students in similar regular vocational education programs.

6. A wide variety of professional personnel were found to be involved with a majority of these special vocational programs.

CHAPTER VI

TEACHER PERSONNEL

Introduction

It would seem that teachers for vocational education programs for students with special needs should have abilities and understandings beyond that of teachers of regular vocational programs in order to cope with the additional problems resulting from working with the disadvantaged. To determine some of the characteristics of these teachers and the involvement of various teacher personnel in these programs, the respondents were asked to reply to 9 items relating to the area of teacher personnel. A summary of these responses appears in Table 31. Each item is reported separately in this section.

Table 31

Desirable Characteristics of Vocational Teachers for Students with Special Needs (N=79)

Characteristics of Programs	Number of Programs	Per Cent
Teachers need special personal qualifications to work with these students	78	99
Teachers have had occupational experience related to program	66	84
Teacher employed beyond regular school term	59	75
Teachers have had special education or training programs	56	71
Teachers devote 100% of time	44	56
Teacher involves resource people in instruction	43	54
More than one teacher involved	32	41
Teachers have assistants or special teachers to assist	22	28

Personal Qualifications

Many writers including Riessman and Strom believe that the selection of teachers for the disadvantaged should be based upon the individual personal qualities of the teacher rather than upon academic excellence alone. They emphasize teachers of the disadvantaged need somewhat different qualities

than teachers working with average and above average children. Respondents were asked to indicate the personal qualifications needed by vocational teachers for working with students with special needs. Only one respondent failed to answer this question while 78 listed characteristics or qualifications they thought were necessary. It is interesting to note that a majority of the responses related to human qualities rather than knowledges, skills, or abilities necessary for an occupation. Sixty-three (80%) of the respondents suggested that teachers of the disadvantaged needed the qualities of patience, common sense, sense of humor, and understanding or a combination of all of these to work with the type of students enrolled in this program. Only 14 (17%) respondents believed that a teacher needed a knowledge of job skills or should have had work experience in order to work with the type of students enrolled in these courses. Table 32 summarizes the responses to this question. It is possible the manner in which the question was phrased resulted in a one-sided response in favor of personal qualities. An additional question was needed to determine what skills or abilities these teachers believed important.

The ability to predict success in teaching still eludes many educators and teacher-educators. The old adage that "teachers are born, not made" may be true. The respondents in this study apparently believed that human qualities are of the greatest importance in working with disadvantaged youth.

Table 32

Types of Personal Qualifications
Believed Needed by Teachers of Vocational
Programs for Students with Special Needs

Personal Qualifications Reported Needed by Teachers	Number of Programs	Per Cent
Patience, common sense, sense of humor, and understanding	24	30.0
Understanding of students	20	25.0
Patience	17	22.0
Knowledge of job skills	9	11.0
Work experience by teacher	5	6.0
Common sense and sense of humor	2	3.0
Public relations ability	1	1.5
No response	1	1.5
Total	79	100.0

Special Preparation of Teachers

Most other vocational teachers have little, if any, special training which qualifies them for working with other than average students. To determine what preparation, if any, is required for teachers in special vocational education courses for the disadvantaged, the respondents were asked to indicate whether the teacher had completed any special work. If they answered "yes," they were also asked to indicate the type of preparation and the number of college credit hours or non-credit hours involved.

Of the 76 persons responding to this question, 56 (71%) indicated they had had some special education or other preparatory work which helped them to work in these programs. Of these 56, approximately one-half had received their training in non-credit workshops, and the other half had pursued college training as a method of preparation. Those who indicated college credit courses reported most often working in guidance, counseling, special education, and psychology. Twenty (25%) of the individuals responding to the questionnaire said they had no special preparation for working with the disadvantaged.

Occupational Experience

Most vocational services require teachers to have had a certain number of years of actual work experience in the area in which they are teaching. To determine if these teachers of vocational education for students with special needs also had such requirements, the respondents were asked to indicate if they had occupational experience related to their programs. They were further asked to show the type of experience and the number of years involved.

Of the respondents, 66 (84%) indicated they did have occupational experience related to this program. However, when tabulated, the types of experience were found to be of such a wide variety that they were impractical to report individually. The majority of the indicated experiences were in the sales and service occupational areas. These ranged from occupations such as aircraft mechanic, grocery clerk, and sales agent, to waitress. It is interesting to note that with such a large majority of the respondents having had work experience, only nine teachers reported that they felt a need for knowledge and skills related to jobs as qualifications for teaching these programs.

Only 12 (15%) of the respondents said that they did not have any occupational experience related to their program. One respondent failed to answer this question.

Since teachers were not asked specifically if they believed occupational experience was essential to success in teaching these vocational programs, no conclusions can be drawn in this area. Some of the teachers did indicate voluntarily that they felt the teacher in these programs needed a broad knowledge in the world of work.

Teaching Certificates

An attempt was made to determine the types of teaching certificates the respondents held, and, if not certified, what problems they might have. All

teachers reported they were certified in one manner or another, some temporarily, others permanently. The broad range of states from which the responses came made it difficult to categorize types of certificates and to know whether they were temporary or permanent. Twenty different types of responses were received in this section. The only conclusion that could be drawn from these data was that most of the certificates seemed to be of a secondary or vocational nature.

Use of Special Teachers or Assistants

There have been numerous articles in educational journals and other media discussing the use of teaching assistants or teacher aides in programs designed for the disadvantaged. The respondents were asked if their programs had such personnel available.

Of the 78 respondents, 22 (28%) said that they did have such assistance while 56 (71%) indicated that they did not. Of those assistants reported, most were either reading specialists or shop and laboratory assistants.

The small number of programs which had special teachers or assistants does not indicate their wide acceptance or a growing trend in this direction. However, the types of students enrolled often demand large amounts of individual attention, and the writer believes that further attention should be given to employing such personnel.

Teachers' Use of Resource Persons

As reported in some of the literature, an added incentive for learning with the disadvantaged is personal contact with successful persons outside the school. Respondents were asked what use, if any, they were making of resource people in the conduct of their vocational program.

Forty-three (54%) of the respondents indicated they used resource persons in their program. Of the other 36, 28 of the respondents said they used resource persons only to talk to their students, while 7 respondents indicated they used resource personnel for actual demonstration and teaching activities. The one other individual reported the use of a resource person as an advisor to the instructor. Forty-six percent of the respondents said they did not use resource persons.

Percentage of Teachers' Time Devoted to Program

The respondents were asked to indicate the percentage of time the teacher devoted to his program. Table 33 shows the percentage distribution of teachers' allotted time to the programs in the study. Forty-four (56%) of the respondents said they devoted 100 percent of their time while 15 (19%) respondents indicated they devoted 50 percent or less of their time to the program.

Table 33

Percentage Distribution of Teachers' Time
Allotted to Vocational Programs for
Students with Special Needs

Percentage of Time Allotted to Programs	Number of Programs	Per Cent
100	44	55.5
90 - 99	4	5.0
80 - 89	3	4.0
70 - 79	2	2.5
60 - 69	3	4.0
50 - 59	4	5.0
25 - 49	12	15.0
Less than 25	3	4.0
No response	4	5.0
Total	79	100.0

The respondents were also asked to break down by percentages the amount of time they spent in the various activities related to these programs. Table 34 summarizes these responses.

Table 34

Percentages of Time Teachers
Spent in Various Activities

	(Percent of time spent (no. of programs)					
Activities	45-54	34-44	25-34	15-24	5-14	Under 5
Personal and vocational counseling	0	0	3	7	40	3
Classroom instruction	22	10	16	17	7	0
Laboratory instruction	4	6	5	9	3	0
Individualized work with student	0	0	1	16	30	4

Table 34 (continued)

Activities	Percent of time spent (no. of programs) 45-54	34-44	25-34	15-24	5-14	Under 5
Preparation of materials	0	0	3	15	37	4
Home visits	0	0	0	2	34	7
Supervision and coordination of work experience	0	0	22	15	15	2
Other activities	0	0	0	0	14	4

From the widespread responses of the percentages of teacher's time spent in various activities, it can be determined that classroom instruction and supervision of occupational experience programs require the majority of the teacher's time.

Numbers of Teachers Involved in Individual Programs

The large number of disadvantaged students located in certain areas and in certain schools should demand a broad program involving a number of teachers. To determine the number of teachers in the programs surveyed, the respondents were asked to indicate the number of other vocational teachers involved in any way with their programs. Thirty-two (41%) of the respondents said that more than one teacher was involved in those programs. Forty-seven respondents said that they were the only teacher involved, while two individuals failed to answer the question. Table 35 summarizes the response to this question. Where additional teachers were involved in the program, they were teaching other sections or groups within a total program.

Table 35

Distribution of Programs by
Numbers of Teachers Involved

Number of Teachers	Number of Programs Reporting
1	47
2	9
3	9
4	5
5	1

Table 35 (continued)

Number of Teachers	Number of Programs Reporting
6	2
Over 6	4
No response	2
Total	79

Extended Service of Teachers

Many vocational teachers are employed beyond the normal school year with some employed for the total year. To find the employment pattern in these programs, the respondents were asked to state the number of months they were employed. Respondents reported that 59 (75%) of these teachers were employed on extended contracts beyond the regular school year. Table 36 shows the number of programs employing teachers for various lengths of time.

Table 36

Numbers of Programs Employing
Teachers on Extended Contracts

Number of Months Teacher Employed	Number of Programs	Per Cent
Regular school year only	20	25
10 Months	20	25
11 Months	23	29
12 Months	16	21
Total	79	100

Summary

This chapter summarized the findings in the area of teacher personnel involved in vocational education programs for students with special needs. All respondents believed special personal qualifications were needed for teachers of the disadvantaged. Personal qualities of patience, common sense, a sense of humor, and understanding were mentioned in a majority of the responses. Eighty-four percent of the respondents indicated that they had occupational experience related to their programs. Seventy-five percent said that they had special

training or education which prepared them to work with the types of students in these programs.

Seventy-five percent of the respondents reported that they were employed on extended term contracts. The most common employment pattern beyond the regular school year was for 11 months. Fifty-six percent of the respondents reported that they devoted 100 percent of their time to these programs.

Teachers involved resource people in 54 percent of these programs, and teachers had assistants or special teachers or helpers in 28 percent of the programs. The majority of the resource persons were used to talk to students rather than to give demonstrations or assist in the teaching. In 41 percent of the programs, more than one teacher was reported to be involved. Four programs involved more than six teachers.

SUMMARY OF FINDINGS

1. Teachers of vocational education programs for students with special needs should have personal qualities of patience, understanding, common sense, and a sense of humor to cope best with problems inherent in conducting programs for such students.

2. Although most teachers had occupational experience related to the program in which they were teaching, they believed that personal qualities of the teacher were more important than occupational experience.

3. Most teachers were employed on a full-time basis with these programs and were employed beyond the regular school year to operate such programs.

4. Many teachers involved resource persons in their programs, and in some programs there were special teachers or assistants to work with the teacher.

5. A majority of the teachers in these programs had special training or education which improved their ability to work with students with special needs.

CHAPTER VII

SUMMARY

This report was concerned with reporting the status of vocational education programs for students with special needs and describing some of their characteristics. Seventy-nine programs provided the data for the report.

One hundred fifty responses were not included in the study. Ninety of these failed to meet the criteria of the study. Programs were reported from 39 states, but only 24 states were represented after removal of those programs which did not meet the criteria. Although these programs were excluded and certain states were not included in the study, this should not indicate that these states were failing to develop programs for students with special needs. Many of the programs reported did involve the type of student which this study identified but were excluded for failure to be supported by vocational education funds and because they were not in public high schools. Several state directors indicated that planning was being done to initiate these programs in the near future.

A lack of response from local teachers in some states would account for the seeming absence of the programs in those states or the small numbers reported for many of the states included in the study. Further improvement on the method of conducting the study could result in increased numbers of responses and better representation for some states.

All vocational services except Health Occupations were represented with Trade and Industrial Education involved in over one-fourth of all programs reported. The majority of the programs were located in large, comprehensive high schools in heavily populated areas, and all were supported in part by vocational funds available through P. L. 88-210. Programs were described by the areas of administration, pupil personnel, curriculum, special services, and teacher personnel.

In the administration area, initial planning involved persons other than teachers in 92 percent of these programs, and the administrative person in charge was also in charge of all other vocational programs in the school in 86 percent of the schools. These programs operated with maximum and minimum enrollment requirements in 80 percent and 57 percent, respectively, of the programs reported. Fifty-seven percent of the respondents reported the per-pupil-cost as being the same as in regular vocational programs, and students were required to pay fees in 14 percent of these programs.

In the pupil personnel area, 88 percent of the programs were operated for more than one type of disadvantaged student, and 34 percent of these programs involved students from all high school grade levels. Student participation was limited by minimum ability levels in 68 percent of the programs, by maximum ability levels in 68 percent of the programs, and by upper or lower age levels in 15 percent and 49 percent of the programs, respectively. Sixty-seven percent of the programs required students to participate in occupational experience programs, and 24 percent of the programs had youth organizations in conjunction with them.

In the curriculum area, 95 percent of the programs had curriculums specifically planned for these students, and teachers were involved with other persons in planning 81 percent of these programs. Subject matter materials and audio-visual materials were specifically adapted to these programs in 72 percent and 35 percent of the programs, respectively. Students were qualified for regular high school graduation certificates in 80 percent of the programs and for special vocational certificates in 15 percent of the programs. The primary goal of 70 percent of the programs reported was to make the students more readily employable.

In the special services area, over 75 percent of the respondents reported that school counselors, school nurses, and vocational supervisors were available in the school system to assist with these programs. Seventy-eight percent of the programs involved outside agencies to assist in helping students become more readily employable, and 54 percent of the programs involved parents more than did regular programs. Fifty-six percent of the programs used advisory groups, and 92 percent of these programs provided some means for the students to practice knowledge and skills taught in the program. Seventy-five percent of the programs had a planned system for early identification of potential enrollees, and 71 percent of the schools offered special or remedial courses for these students.

In the area of teacher personnel, all respondents believed that teachers of the disadvantaged needed special personal qualifications to work with such students, and 84 percent of these teachers had had some occupational experience related to their programs. Seventy-one percent of these teachers had special training to improve their ability to work with these students. Seventy-five percent of all teachers were employed beyond the regular school term, and 56 percent devoted 100 percent of their time to these programs. Teachers involved resource persons in 54 percent of these programs. Fifty-four percent of these programs had more than one teacher and 28 percent of the programs had assistants or special teachers working in them.

CHAPTER VIII

RECOMMENDATIONS

The following recommendations are based on the investigator's findings, knowledge of the research literature, and professional experience. They do not represent necessarily the posture of The Center nor of the U. S. Office of Education, but primarily the views of the investigator.

1. State departments of vocational education should determine the need for such programs in each state and make a concerted effort to meet that need.

2. U. S. Office of Education personnel should work closely with state departments of vocational education in making local school administrators and teachers aware of the opportunities for developing programs in this area.

3. The U. S. Office of Education and the State Department of Vocational Education should concentrate their efforts to develop programs in heavily populated areas having large, comprehensive high schools.

4. State Directors of Vocational Education should work with all vocational services to develop state-wide master plans for broadening the offerings in vocational education programs for students with special needs.

5. State vocational directors should provide funds to operate demonstration programs to better acquaint local administrators with the operation of such programs.

6. State directors of vocational education and vocational supervisory staffs should actively seek out and work with administrators who have an interest in working with the disadvantaged and assist these administrators in developing broad offerings in vocational education for students with special needs.

7. State supervisory personnel should include administrators in workshops or conferences for teachers on the subject of vocational education programs for students with special needs.

8. State reimbursement policies should be developed to encourage smaller class size in these programs and these reimbursements should be adequate to preclude a need for tuition charges.

9. School administrators should work for the development of school policies which are favorable to these programs and which will encourage the development of these programs.

10. Federal and state regulations which place minimum age limits on who may participate in vocational education programs for students with special needs should be modified to allow students at the junior high school level to participate in vocational education programs for students with special needs.

11. Where possible, the only criteria for selecting students for participation in the programs should be on the basis of need and the ability of the student to profit from the instruction.

12. Research is needed to determine numbers and kinds of jobs for which students with special needs can be trained.

13. Youth organizations should be associated with programs for students with special needs.

14. A state-by-state survey should be made to determine the numbers and locations of students with special needs.

15. A national study should be initiated to determine the types and numbers of jobs available for students with special needs and what types of vocational programs could be used to meet these needs.

16. State departments of education and vocational education should provide curriculum and materials specialists to assist teachers in local programs in developing curriculums, subject matter materials, and audio-visual aids.

17. Teacher educators and other specialists at the college or university level should be involved with the development of curriculum, subject matter materials, and audio-visual aids for these programs.

18. Advisory groups should be involved with others in curriculum development to help the student secure the type of training that will make him employable at the highest possible level of salary and skills.

19. School systems should establish methods and employ personnel to secure early identification of students with special needs and provide remedial or special programs which will assist many of these students in improving or removing deficiencies to enable them to benefit from regular vocational offerings.

20. Administrators and teachers of vocational education programs for students with special needs should identify and use all possible opportunities to provide students in these programs with work experience within the communities in which the school is located.

21. Advisory groups constituting potential employers of graduates of the programs should be involved with the operation of the programs to help insure adequate training for students with special needs.

22. School systems should provide an adequate, well-trained staff of specialists to assist students and teachers in vocational education programs for students with special needs.

23. School systems should establish active and well-planned placement programs to assist students from these programs to secure their first jobs.

24. Administrators should employ persons to teach in vocational education programs for students with special needs who have personal qualities which permit them to be empathetic with such students.

25. Administrators should encourage and assist teachers in these programs to secure special training or education which will improve their ability to work with students with special needs.

26. Teachers should be employed on a full-time, twelve-month basis in these programs to work with students, employers, and parents to improve the success of the programs.

27. Further research should be initiated to determine the qualifications needed by teachers in vocational education programs for students with special needs.

28. School systems should employ special teachers or assistants to provide for more individual attention of students in these programs.

29. States should employ a vocational supervisor for these vocational programs whose primary responsibility would be to serve as a liaison person between the U. S. Office of Education and local school systems to work with teachers in these programs.

APPENDIX A

March 25, 1966

Dear

The Center for Vocational and Technical Education is conducting a national survey of vocational education programs for students with special needs, those who can't succeed in regular programs (disadvantaged), to gain additional insight into these rapidly emerging programs. The primary purposes of this survey are:

a. to provide us with a comprehensive description of the status of vocational education programs for students with special needs.

b. to provide information needed for planning and initiating new programs in vocational education for students with special needs.

State directors of vocational education have identified approximately 200 of these programs across the nation. Ideally the best way to secure information about these programs would be on an individual interview basis. Since this is a physical and financial impossibility, we have constructed a questionnaire to help secure as complete a picture of these programs as possible. These questionnaires are to be directed to the teacher or instructor conducting local programs.

As a person who has interest in vocational education and in the education of the "disadvantaged" we are asking you to help improve the instrument to be used in this survey. We are interested in your evaluation of the questionnaire and we are not asking you to respond to the questions for information purposes. We would like for you to offer suggestions for ways in which this instrument could be changed or improved to secure the most usable information from the local programs. We are especially interested in reducing the length of this instrument, if practical.

Please score the questions according to the instructions and return the questionnaire along with your suggestions in the enclosed, self-addressed stamped envelope. We would appreciate having this returned by April 6. Thanks in advance for your assistance.

Sincerely yours,

Robert E. Taylor
Director

RGa

Reviewers of Questionnaire

Dr. Herbert D. Brum
State Supervisor for Disadvantaged
Youth Programs in Ohio
Department of Education
Columbus, Ohio

Dr. James E. Christiansen
Assistant Professor of Agricultural Education
University of Florida
Gainesville, Florida

Mr. Leslie F. Crabbe
Supervisor, Agricultural Education
FFA Camp Muskingum
Carrellton, Ohio

Mr. Joe Davis
Assistant Superintendent
Columbus City Schools
Columbus, Ohio

Mr. Bill Duntin
Director, Vocational Education Programs
Warren City Schools
Warren, Ohio

Mr. William W. Johnson
Education Specialist
U. S. Office of Education
Office of Disadvantaged and Handicapped
Washington, D. C.

Mrs. Barbara Kemp
Program Specialist for Persons With Special Needs
U. S. Office of Education
Washington, D. C.

Dr. William B. Logan, Sr.
Director, Distributive Education
The Ohio State University
Columbus, Ohio

Mr. C. L. Lowman
State Consultant for Vocational Programs
State Department of Education
Tallahassee, Florida

Mr. Claude McGhee
Assistant Professor of Agricultural Education
West Virginia University
Morgantown, West Virginia

Mr. James H. Pelley
College of Education
Miami University
Oxford, Ohio

Dr. Robert M. Reese
Director, Vocational Education Service
The Ohio State University
Columbus, Ohio

Mr. Russell Riley
Director of Vocational Education
Grove City Schools
Grove City, Ohio

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700 East Jefferson Street
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Dr. Richard H. Wilson
Associate Professor
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The Ohio State University
Columbus, Ohio

Mr. Robert Zimpfer
Director of OWE Programs
Penta County Vocational School
Perrysburg, Ohio

APPENDIX B

January 21, 1966

To State Directors:

The rapid expansion of resources available to vocational education has triggered an equivalent growth in personnel, programs and research activities. Primarily these efforts have been in the area of existing programs, expanding and extending current activities, and researching problems and issues related to the traditional programs. The Vocational Education Act of 1963, however, set forth as one of the primary objectives, that of providing vocational education for persons who have academic, socio-economic, or other handicaps which prevent them from succeeding in regular vocational education programs.

A concern for the disadvantaged has also been identified as a prime task area for research and development by The Center for Vocational and Technical Education at The Ohio State University. Before a great deal of progress can be made, there is a need to assess the present status of these programs, e.g.: An identification of the programs now in operation, programs just getting underway or being expanded, as well as some knowledge of what is being planned. Such information will provide a basis for sharing progress and developments in this area. This letter is therefore sent to you as a first step in a nationwide assessment of the present situation related to vocational education programs for the disadvantaged which are supported by vocational education funds.

Would you please take a few minutes to list, on the attached sheet, the programs in your state that are directed primarily toward the disadvantaged learner.

The final report from this survey can contribute to the identification of research priorities, initiation of new program efforts, development of a set of guidelines for action programs, and implementing innovations in the area of vocational education for those who cannot succeed in regular programs. Summary reports will be available for distribution - a copy will be sent to you if you so desire. Please don't put this letter down without responding. This is an urgent need -- your help is essential.

Thanks in advance for your help.

Sincerely,

Robert E. Taylor
Director

RET:aa
Enclosure

SURVEY OF VOCATIONAL EDUCATION PROGRAMS FOR STUDENTS WITH SPECIAL NEEDS

Instructions: The following descriptions will help you in identifying programs for students with special needs who cannot succeed in the regular programs. The several categories which are listed are not intended to be inclusive or limiting, but merely to serve as a guide.

Individual programs may include students who have one or more of the characteristics listed. Please identify the schools and the persons in those schools who could be contacted for further information and return this form in the enclosed self-addressed stamped envelope. Please use back of form, if necessary.

Description: Vocational education programs, financed in part by vocational education funds for students who cannot succeed in the regular program.

Mentally handicapped	- between 90 - 70 I.Q.
Physically handicapped	- permanent or limiting physical disabilities
Educationally deprived	- ranking in the lower 1/3 of their class or classified as slow learners because of academic problems
Economically deprived	- parents whose primary income is from welfare aid or family is classified in the poverty income below $3,000 per year
Socially disadvantaged	- those having special social problems which affect their educational success, such as: alienated youth, loss of parents, etc.
Ethnically disadvantaged	- racially associated problems affecting educational success, such as: language, social barriers, etc.

_____

Name and Address of High School Name of Local Teacher to Contact

_____

_____

_____

_____

School System _____

Person Responding _____

February 25, 1966

We have had good response to date on our letter to state directors concerning the identification of vocational education programs for students with special needs. Several directors have indicated a need for a delay in returning the questionnaire to secure an up-to-date appraisal of these programs in their states.

If you have not yet returned your questionnaire, may I take this opportunity to encourage you to do so. We need to get as complete a picture as possible if the results are to be meaningful and helpful to you and other vocational education leaders throughout the nation.

I am enclosing another copy of the original letter along with the report blank for your convenience in reporting for your state. Thanks again for your cooperation in this matter.

Sincerely,

Robert E. Taylor
Director

TGG

Enclosure

APPENDIX C

April 22, 1966

We recently contacted your State Director of Vocational Education in attempting to identify teachers of local vocational programs for disadvantaged youth. However, due to a breakdown in communication, we have not as yet heard from his office. Since many of our responses have been coming from people in Home Economics, it seems logical to contact you in hopes of identifying at least 1 or 2 programs in your area.

I am enclosing a copy of the letter which went to the State Director's office and the form on which we would appreciate your entering the name of any local program that we might contact to secure a complete survey of vocational education programs for students with special needs.

Thank you in advance for your assistance and cooperation in this matter.

Sincerely,

Ramsey M. Groves
Consultant

rgg

Enclosure

April 28, 1966

The rapid expansion of resources available to vocational education has triggered an equivalent growth in personnel, programs, and research activities. Primarily, these efforts have been in the area of existing programs, extending and expanding current activities, and researching problems and issues related to the traditional programs. The Vocational Education Act of 1963, however, set forth as one of its primary objectives that of providing vocational education for persons who have academic, socio-economic, or other handicaps which prevent them from succeeding in regular vocational education programs.

A concern for the disadvantaged has also been identified as a prime task area for research and development by The Center for Vocational and Technical Education at The Ohio State University. Before a great deal of progress can be made, there is a need to assess the present status of these programs. We are, therefore, coming to you, one of the few experts in this area of vocational education, to help us determine what is being done in programs for students with special needs. Your local program has been identified by your state director of vocational education as a vital part of this rapidly growing area.

Your response to the enclosed questionnaire will be combined with approximately 200 others from across the nation to provide the first comprehensive look into the national picture of these programs. Your program is an important part of this emerging area of vocational education. In order to provide other administrators and vocational leaders with the best possible help and advice in planning and initiating new programs in this area, it is important that we learn as much as possible from those of you who have experience. We hope that you can cooperate in this vital national survey.

Enclosed you will find the questionnaire which has been developed to secure information about these vocational education programs. Please complete this questionnaire and return it in the enclosed self-addressed stamped envelope by May 20, 1966.

Thanks in advance for your assistance in this important matter.

Sincerely,

Robert E. Taylor
Director

rgg
Enclosure

P.S. I am including an original survey form and would appreciate it if you would enter the names and addresses of other local programs which may not have come to our attention through the state supervisor.

May 20, 1966

Recently, we sent you a copy of an important questionnaire. It is possible that this material has been misdirected through the mails or that you have not had time in your busy schedule to complete it. Since your vocational program for students with special needs is one of the few in the country, it is important that we hear from you to secure the benefit of your experiences in this area. Any compilation of information on vocational education programs for students with special needs would not be complete without the inclusion of your program as a part of the final report.

Would you please check the appropriate box below and return this letter in the enclosed stamped self-addressed envelope. Your cooperation in this matter is very much appreciated.

☐ No such program

☐ The questionnaire was not received or has been misplaced

☐ Please send another questionnaire

☐ The questionnaire has been sent to another person for completion _____

_____

☐ Our program does not fit your description

☐ The questionnaire is being completed and will be returned in a few days

☐ The questionnaire has been returned

Sincerely yours,

Robert E. Taylor
Director

SURVEY OF VOCATIONAL EDUCATION PROGRAMS

FOR

STUDENTS WITH SPECIAL NEEDS.

Please Return

by

May 20, 1966

THE CENTER FOR RESEARCH AND LEADERSHIP DEVELOPMENT
IN VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
980 Kinnear Road
Columbus, Ohio

INTRODUCTION

This questionnaire was developed to secure information concerning vocational education programs for students with special needs (those who cannot for a variety of reasons succeed in the regular vocational program). A number of national leaders in vocational education have helped us in the preparation of this questionnaire and many of the questions are the result of their assistance. The questions included are judged to be of critical importance in giving needed understandings of emerging programs in this area.

The following simple instructions will aid you in completing this questionnaire.

1. Use the blank page at the back of the questionnaire to add any other information that would be useful in this survey and add suggestions that you would make for changing these programs to better fit the needs and abilities of such students.

2. Please send along any descriptive materials which would be helpful in understanding your program and interpreting it to others.

3. Use your administrator or other qualified persons, if necessary, in answering this questionnaire.

4. Please return the questionnaire in the enclosed self-addressed, stamped envelope by May 20, 1966.

5. Please sign below if you and your school would allow us to refer to your program by name in editing the final report of this survey.

_____ _____
Date Name

_____
School

GENERAL INFORMATION

Name of person responding _____

Title or Position _____

Instructions: Please provide us with information about your reimbursed vocational education program for students with special needs (those who cannot succeed in regular vocational programs and for which special programs have been developed). Names of individuals or schools will not be used in describing or reporting any program without written permission from those involved.

Name of school _____

Address of school _____

Name or brief description of course _____

_____

Name of administrative person immediately responsible for this program _____

_____ Title _____

1. Check the vocational service(s) involved or participating in this program and underline the one primarily responsible for its conduct.

   ____Agriculture
   ____Business and Office Education
   ____Distributive Education
   ____Home Economics
   ____Trade and Industrial Education
   ____Health Occupations
   ____Other (describe) _____

2. Check the classification that best describes your program now.

   ____Experimental (Research)
   ____Pilot (Trial)
   ____Demonstration
   ____Developmental (Changing or evolving)
   ____Regular (Established or on-going)
   ____Other (describe) _____

3. In what school year were the first classes offered in this program?

   19____19____ Has it been in continuous operation since? ____No ____Yes

4. What is the size of town or city in which school is situated (or briefly describe the school setting)? _____

   _____

   _____

5. Check the classifications which best describe the type of school in which this program is located.

Check one below	Check one below
____General High School (less than 3 reimbursed vocational programs)	____3 year (10-12)
____Comprehensive High School (3 or more reimbursed vocational programs)	____4 year (9-12)
____Vocational High School (vocationally oriented)	____5 or 6 year (7/8-12)
____Other (briefly describe)_____	____Other (describe)_____
_____	_____

6. What is the approximate enrollment for the school year 1965-66?

Total school?_____Total Vocational Programs?_____This program?_____

7. Approximately what percentage of funds to finance the development and maintenance of this program come from the following sources?

____% Local ____% Vocational Education Funds (P.L. 88-210)

____% State Aid ____% P.L. 89-10 Elementary and Secondary Act 1965

____% Other (briefly describe)_____

_____

____No ____Yes 8. Is the person to whom you report, such as principal, supervisor, assistant superintendent, administratively responsible for all other vocational programs in your school? What per cent of his time is allotted to this program?_____% time?

9. Please check appropriate blank to indicate if any agencies outside the local school system are involved in any way with the administration, supervision, financing, or advisory capacity of this program.

Agency	Administration	Supervision	Financing	Advisory
Local industry or business	____	____	____	____
Social service or agency	____	____	____	____
U.S. Department of Labor	____	____	____	____
_____Foundation	____	____	____	____
State Dept. of Education	____	____	____	____
Division of Secondary Educ.	____	____	____	____
Division of Vocational Educ.	____	____	____	____
State Employment Service	____	____	____	____
University or college personnel	____	____	____	____
Other (please list)				
_____	____	____	____	____
_____	____	____	____	____
_____	____	____	____	____

Please describe briefly how their involvement was secured and in what ways they are involved.

_____

_____

_____

_____

____No ____Yes 10. Does this program operate under separate, written administrative policy in addition to regular school policy? If yes, how do they differ?_____

_____

_____

____No ____Yes 11. Has there been an evaluation of this program since it began? If yes, please indicate how often this occurs and check those who participate. How often?_____

Participants

____Instructor
____Local Supervisor
____Principal
____Superintendent
____Board of Education
____State Vocational Supervisor
____State Department of Education
____Advisory Committee
____Other (please list)_____
_____

12. Please describe briefly the basis for the evaluation and any conclusions which resulted in change in this program._____

_____

_____

_____

_____

_____

13. How does the per pupil cost in this program compare to per pupil cost in a similar, regular vocational program?

_____Same _____%Higher _____% Lower

____No ____Yes 14. Were your physical facilities designed or modified specifically for this program?

15. Is there a minimum or maximum enrollment per teacher for this program? Please enter NO or specify number.

_____Minimum number _____Maximum number

What do you consider an optimum number for your program?

_____Optimum number

16. Please check the individuals or groups who were involved in the original planning for this program.

____Local administration
____Local teacher
____Curriculum director
____Guidance personnel
____Advisory Committee
____Business or Industrial Leaders
____State Vocational Services
____State Department of Education
____University or College staff members
____Other State or Federal Agencies (list)

_____
_____
_____

____No ____Yes 17. Are the students required to pay fees or purchase any items other than normal school supplies? If yes, what is the approximate amount required? $_____Amount

____No ____Yes 18. If the answer to Question 17 is yes, does this tend to limit those who can participate in the program?

____No ____Yes 19. If the answer to Question 17 is yes, is there any provision to assist those who cannot afford the cost?

STUDENT-TRAINEE INFORMATION

20. Please check one or more of these descriptions which most nearly identify the types of students for which the program was planned.

Type of Handicap	Example
____Physically handicapped	-Permanent or limiting physical disabilities
____Educationally deprived	-ranking in the lower 1/3 of their class or classified as slow learners because of academic problems such as poor reading ability
____Economically deprived	-primary source of parents income is from welfare aid or income is below $3,000 plus additional $600 for each child
____Socially disadvantaged	-those having special social problems which affect their educational success, such as: alienated youth, loss of parents, etc.
____Ethnically disadvantaged	-racially associated problems affecting educational success such as: language, social barriers, etc.
____Below average mentally	-90 I.Q. or lower (but not special ed.)

I.Q. range in your program_____I.Q. to _____I.Q.
Name of test used_____

____Other (please describe)_____
_____
_____

501 to 64

21. Check the educational level on which this program operates.

____Freshman
____Sophomore
____Junior
____Senior
____Combination of all above
____Former dropouts
____Ungraded (may include below average students from any grade)
____Other (please describe)_____

22. Please check to indicate which statement best describes the procedure used to select students who enroll in this vocational program.

____Teacher required to take all who are sent
____Teacher takes all who are interested
____Teacher and administrator select from all who are interested
____Teacher selects from those referred by other teachers
____Guidance counselor selects all those who meet qualifying criteria and provides teacher with list from which teacher selects
____Cooperative selection committee composed of vocational teacher, guidance counselor, administrator, and certain teachers made decisions on basis of tests, records, and observed student abilities
____Other (describe)_____

____No ____Yes 23. Is there a minimum level of ability or other qualification which provides a means to limit the enrollment in this program? If yes, briefly describe the characteristics and how determined:

____No ____Yes 24. Is there a maximum level of ability or other qualification which provides a means to limit the enrollment in this program? If yes, briefly describe the characteristics and how determined:

____No ____Yes 25. Is there either an upper or lower age limit which determines whether a student may participate? If yes, please indicate:

_____Lower age limit _____Upper age limit

____No ____Yes 26. Is the student required to participate in activities such as on-the-job experience, supervised farm experience program, home experience program or other, to participate in this vocational program? If yes, please describe:

____No ____Yes 27. If yes to Question 26, does the teacher or school assist the student in securing such an opportunity? Please describe briefly how this is done:

_____

_____

_____

____No ____Yes 28. If there is a requirement in Question 26, does it provide a means to limit the enrollment in this program?

____No ____Yes 29. Is there a youth organization to which the students can belong as a result of participating in this program? If yes, briefly describe special activities which are different from regular program.

_____

_____

_____

_____% 30. If yes to Question 29, what per cent of the students in this program belong to this youth organization?

____No ____Yes 31. If there are students for more than one section of this program, is a grouping or selection technique used to divide them? Briefly describe the basis:

_____

_____

_____

_____

_____

_____

CURRICULUM INFORMATION

____No ____Yes 32. Is the program curriculum outlined so that it could be adapted to a similar program in another school system? If available, please include a copy with this questionnaire.

____No ____Yes 33. Did you plan the curriculum specifically for this program?

____No ____Yes 34. Did you adapt the curriculum from another program to fit this program? If yes, please indicate the source of curriculum materials.

_____

_____

_____

35. What are the occupational goals or purposes for which this program is designed to prepare the student-trainee?_____

_____

_____

____No ____Yes 36. Does this program lead to a standard certificate of graduation? What per cent of the students do you expect to graduate from high school? _____%

____No ____Yes 37. If Question 36 is answered No, does the student receive a special certificate? If yes, please describe briefly:

_____

_____

_____

____No ____Yes 38. Were special efforts made to adapt normal subject matter materials to fit the abilities and needs of the students in this program? Describe how: (Example: Selected material at 6th grade reading level)

_____

_____

_____

_____

____No ____Yes 39. Have special audio-visual materials been developed or secured to supplement the curriculum materials in this program? If you have identified some special sources for such materials, please list the three most important ones here:

1. _____
2. _____
3. _____

40. Please provide us with a sample schedule of a typical week for students in this program:

Period	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

41. Please check the personnel who contributed in a major way to the development of the curriculum for this program and indicate briefly how each contributed.

____Teacher _____

_____

_____

____Director or local supervisor _____

_____

_____

____Administrator (Principal or Other) _____

_____

_____

____Guidance personnel _____

_____

_____

____State Supervisory personnel _____

_____

_____

____Curriculum specialist _____

_____

_____

____Other vocational teachers _____

_____

_____

____Advisory group _____

_____

_____

____University or College personnel _____

_____

_____

____Others (please specify) _____

_____

_____

SPECIAL SERVICES INFORMATION

42. Check the appropriate blanks to indicate the kinds of personnel available to assist or work with the students or teacher in this program and indicate whether they are part-time or full-time school employees or available on a call basis.

Personnel	None now, but needed	Part-Time	Part-Time	On Call
Psychologist	____	____	____	____
Curriculum specialist	____	____	____	____
Vocational supervisor	____	____	____	____
School counselor	____	____	____	____
Vocational Guidance Personnel	____	____	____	____
Social worker	____	____	____	____
Reading specialist	____	____	____	____
Speech therapist	____	____	____	____
Physical therapist	____	____	____	____
School nurse	____	____	____	____
School doctor	____	____	____	____
Others (Please list				
_____	____	____	____	____
_____	____	____	____	____

____No ____Yes 43. Is there an advisory or consultative group which assists the teacher in planning and conducting this program? If the answer is yes, please read the list below and check the one category which best describes this relationship.

____Separate and specific advisory/consultative group for this program

____Advisory/consultative group for the total vocational program in the school systems

____Advisory/consultative group for the particular school in which the program operates

____Advisory/consultative group for the total school system

____Advisory/consultative group outside the local school system on a state or regional level

____No ____Yes 44. Does the school or vocational program have in operation a functioning placement program which assists graduates of this program to secure a job? If yes, please describe this program briefly and indicate how successful it is:

_____

_____

_____

_____

_____

_____

_____

_____

_____None 45. Please indicate other agencies outside the school system which are involved in helping the student in this program to become more employable or in locating employment.

____Business or trade associations
____State Employment Agency
____State Rehabilitation Agency
____Probation Department or Officer
____Private Employment Agencies
____Local Industry and Bussinessmen
____Other (please list)

_____

_____

_____

____No ____Yes 46. Does this program provide the trainee an opportunity to apply the knowledge or skills taught in the program? If yes, please indicate the method(s) used.

____Work experience or on-the-job training
____School ("sheltered") vocational laboratory
____Public agencies: parks, buildings, and grounds, shops, etc.
____Parental supervision at home or personal business
____Other (please list)

_____

_____

_____

_____

____No ____Yes 47. Is there a closer relationship between parent and teacher in this program than with regular vocational program? If yes, briefly describe how parents are involved:

_____

_____

_____

____No ____Yes 48. Does the school provide special or remedial courses in which the students in your program are enrolled to help correct or improve some learning deficiency? (Example: reading, mathematics, etc.) If yes, please list or briefly describe.

_____

_____

_____

_____

____No ____Yes 49. Does the school system have any method for the early identification of potential enrollees? At what level are they first identified for this program?

____Elementary school
____Junior high school
____First year of high school
____Other (specify)

_____

_____

_____

_____

50. Please indicate who is responsible for the early identification of potential enrollees and what is the role of each:

____Vocational teacher or coordinator_____

_____

____Classroom teacher_____

_____

____Industrial Arts Teacher_____

_____

____Vocational Guidance Counselor_____

_____

____Administrator (Principal or other)_____

_____

____Psychologist_____

_____

____Other (please list)_____

_____

____No ____Yes 51. Is there a referral system (in place of or in addition to Question 50 above) which helps direct these potential enrollees to you? If yes, please describe briefly how it works.

_____

_____

_____

_____

VOCATIONAL TEACHER OR INSTRUCTOR INFORMATION

____No ____Yes 52. Are there certain personal qualifications which you believe a teacher must have to work with the type of student enrolled in this program? If yes, please list or describe:

_____

_____

_____

____No ____Yes 53. Has the teacher had any special education or other preparatory training (college workshops, extension course, etc.) which improves his (her) ability to work with this program? If yes, indicate type and number hours of credit.

Type of Training	Credit Hours	Non-Credit or Clock Hours

____No ____Yes 54. Does the teacher have occupational experience related to this program? If yes, list the type of experience and number of years.

Type Experience	Number Years
(Example: Machinist)	7

55. What type of teaching certificate to you have?_____
_____If not certificated, does this create a problem? Describe:_____
_____
_____
_____

____No ____Yes 56. Do other regular or special teachers or assistants, such as shop or laboratory assistant, work with the teacher in conducting this program? If yes, please describe:
_____
_____
_____
_____

____No ____Yes 57. Are resource people from outside the school system involved in the instruction in this program? If yes, please describe how they are used:
_____
_____

58. Approximately what per cent of the teacher's time is allotted to this program and what per cent of that time is allocated to the following activities?
____% of teacher's time spent with this program.

____%Personal and vocational counseling
____%Classroom instruction
____%Laboratory or shop instruction
____%Individualized work with students
____%Preparation of materials
____%Home visitation of students
____%Supervision and coordinative cooperative work experience of students
____%Other duties related to this program. (Please list other activities.)
_____
_____

59. How many other vocational teachers are involved in any way with this program for pupils with special needs?

____None ____1 ____2 ____3 ____(Specify)

Please describe how they are involved, briefly:

_____

_____

_____

_____

____No ____Yes 60. Is the teacher on an extended service contract so that his/her services are available beyond the normal school year? Check the number of months employed.

____10 months ____11 months ____12 months (including regular vacation time)

Other Center Publications

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agricultural Education, "Program Development and Research."

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

VT 001 333

VT 001 333 ED

Teaching Economic Understandings in Business Courses, a Report of a Workshop.

California State Dep of Educ, Sacramento. Bur of Bus Educ

65

EDRS Price MF-$0.18 HC-$2.88 72p.

*ECONOMICS, *BUSINESS EDUCATION, *CURRICULUM PLANNING, HIGH SCHOOLS, CURRICULUM GUIDES, BIBLIOGRAPHIES, WORKSHOPS, *TEACHING TECHNIQUES, INSTRUCTIONAL MATERIALS,

The materials and suggestions for teachers were developed at a 1961 summer workshop for business education teachers and later reviewed at conferences of businessmen and business educators. Business education provides an appropriate setting in which to examine and discuss the application of basic economic principles. Suggestions are given for involving students in the economic analysis of situations they encounter daily. Examples are given to show how economic understandings may be introduced into classes in bookkeeping, business law, business mathematics, general business, merchandising, shorthand, typewriting, and business English. A bibliography and an outline of a 1-semester course on the American economy are included. (PS)

ED015348

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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TEACHING ECONOMIC UNDERSTANDINGS IN BUSINESS COURSES
-A Report of a Workshop-

California State Department of Education
Bureau of Business Education
721 Capitol Mall
Sacramento, California 95814

VT01333

Some of the basic material in this report has been previously published for the purpose of making available to business education teachers suggestions for including economic understandings in business education courses. These suggestions were developed at a workshop and reviewed at conferences of businessmen and business educators.

This release contains the material included in the original report plus an expanded and up-to-date bibliography and an outline of a one-semester course in the American economy which was developed by the Bureau of Secondary Education of the California State Department of Education.

Miss M. Claire O'Brien, Consultant, Bureau of Business Education, conducted the economic education workshop and the business education conferences and assumed the responsibility for developing this release.

The State Superintendent of Public Instruction, the State Board of Education, as well as businessmen and industrial leaders are very much concerned about the need to expand the extent and scope of teaching economics in the public schools of California. Business educators have a very important part to play in this new effort.

We hope that this report will be valuable to business teachers in implementing some of the suggestions made by businessmen and educators. It is hoped, also, that business teachers will be resourceful in developing new methods of introducing economic understandings in business courses.

R. C. Van Wagenen, Chief
Bureau of Business Education

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INTRODUCTION

This publication is based upon a report of a workshop held during the summer of 1961. The workshop was sponsored by the Bureau of Business Education for the purpose of developing some examples of materials relative to economic understandings which could be included in business education subjects.

The participants in the workshop were the Californians who attended the National Workshop on Economics for Business Education Teachers at Montclair State College, New Jersey, in 1960.

The personnel of the workshop follows: Leo A. Dierks, Chairman of Business Education Department, Samuel Ayer High School, Milpitas; Lionel B. Goularte, Chairman, Business Education Department, Woodside High School, Redwood City; Peter Kanonchoff, Chairman, Business Education Department, Monroe High School, Los Angeles; Dr. Richard S. Perry, Chairman, Business Education Department, San Fernando Valley State College, Northridge; Robert D. Rankin, Business Education Teacher, Taft High School, Los Angeles; Dr. Robert J. Thompson, Chairman, Business Education Department, Foothill College, Los Altos. Miss M. Claire O'Brien, Consultant in Business Education, Bureau of Business Education, California State Department of Education, was the director of the workshop.

Dr. Harold Bienveru, Director of the Southern California Council on Economic Education, and Dr. Vernon Ouellette, Director of the Northern California Council on Economic Education, were consultants to the group.

The preliminary draft of the report was produced in the 1961 summer workshop. The material included in this publication is the result of suggestions made by groups and individuals to whom the report was submitted for review.

Dr. James D. Calderwood, Professor, School of Business Administration, University of Southern California, reviewed the report and made suggestions for its improvement.

The workshop was organized as the result of a recommendation of an advisory committee formed to consider ways in which the Bureau of Business Education could encourage the teaching of economics in business education subjects in high schools and of encouraging business education teachers to participate in teaching courses in economics.

The participants in the workshop agreed that a high school course in economics should be offered to all students in order to bring together economic understandings which had been presented in many courses in elementary and high school either as a planned part of the course of study or as incidental information.

Topics may be introduced into most business education subjects which would provide information concerning economic problems. These topics afford appropriate settings in which to examine and to discuss the application of basic economic principles. In all discussions relating to economic understandings, the students should be encouraged to appreciate the relationship between economics and the subjects they are studying in addition to developing skills in analyzing economic problems and in making intelligent choices based on accurate information.

The information contained in this report are examples of economic understandings which could be used in business subjects and are designed for teacher use rather than student use. It is hoped this information will stimulate teachers to find additional ways of including economic principles in the courses they teach in order to increase the students' understanding of the American economic system.

ACKNOWLEDGMENTS

Appreciation is extended to the people who attended the conferences which were conducted to review the material developed in the workshop. Three conferences were held in Sacramento, Los Angeles, and Hayward. The names of the conference participants follow:

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ECONOMIC UNDERSTANDINGS IN BUSINESS AND DISTRIBUTIVE SUBJECTS

In recent years, specialists of all kinds have been urging that more time should be devoted to their subject in the high school curriculum. The mathematicians, the physicists, and the language specialists have among others all made strong cases that young people should know more about their particular field. Now come the economists urging the same thing. Teachers may sometimes wonder how space can be found in the already crowded curriculum for more of these subjects regardless of their importance.

Economics, however, enjoys something of an advantage over other disciplines in that it can be introduced into a large number of existing courses with the result that students can acquire considerable economic understanding without taking a course devoted exclusively to it. Economics can easily be introduced into business education courses as well as such courses as civics, problems of democracy, world history, American history, geography, home economics, and even literature.

It is vitally important that our young people have some understanding of the complex economic issues which confront our nation and on which they are going to be voting in a few years. It is not necessary for business education teachers to convert their courses into economics courses. The teaching of business subjects has other purposes besides the promotion of an understanding of our economic system. Business education courses provide almost limitless opportunities for gaining an understanding of many of these economic issues.

Economic problems are everybody's business because they are part of everybody's life. You and your students read newspapers and watch television newscasts dealing with such subjects as government spending, foreign aid, gross national product, balance of payments, and full employment. Each of these presents an economic problem that should concern every American.

THE NATURE OF ECONOMIC UNDERSTANDING

Because it does concern many things which are current and dramatic and because for the most part economists use everyday language to talk about these things (in contrast, for example, to the doctors and lawyers), many people are under the mistaken impression that economics is just a matter of common sense. Nothing could be further from the truth. One does not acquire economic understanding by reading about current events or by memorizing a collection of historical facts. Economics is a social science. In order to have real economic understanding one must be able to arrange economic information in an orderly and meaningful pattern of systematic relationships. One needs a logical framework of analysis into which economic problems can be fitted so that they hang together in a related whole. Once one possesses the tools of economic analysis, one can find one's way through the forest of ever-changing facts which surround us.

The ultimate test of economic understanding is whether or not one has the ability to deal with future economic problems as they arise. When new problems arise - in such fields as labor-management relations or foreign trade, for example, will they just seem a bewildering collection of "facts" or will we have a feeling of familiarity because we know how to approach and analyze them?

The study of history teaches us that constant change has characterized our national life over the years. This is as true of our economic life as it is of our political and social life. Therefore, it is essential that we possess some of the tools of economic analysis. Acquiring these is not as difficult a task as one might think and experience has shown that it is not beyond the capabilities of high school students.

To help form opinions on current issues which have economic implications and to help make rational judgments concerning economic problems, business students need to become familiar with the facts and methods to be used in the

analysis of economic problems. This publication is concerned with selected approaches to economic analysis that can be followed by teachers of Bookkeeping, Business English, Business Law, Business Mathematics, General Business, Merchandising, Shorthand and Typewriting in preparing students to vote intelligently, serve in the community, and make judgments in regard to issues that affect the economic life of their environment.

WHERE AND HOW TO START

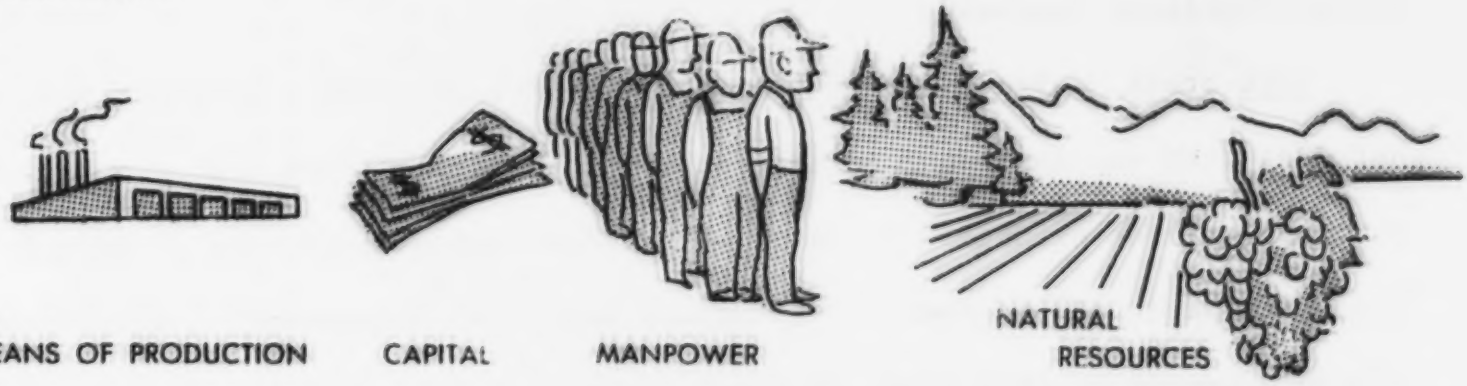
If you're a normal business teacher you will say at this point, "Yes, I know all of that and I'm anxious to present economic understandings, but how and where do I start in X course?" On the pages which follow, you will find information that will help you in getting started on how to include economic concepts in various business courses.

Just start. You start by thinking with the students. Economic analysis does not deal with explanations and solutions ready-made, as does Business English or Bookkeeping, for example. It deals with a developmental process, a way of thinking. Its principal purpose is to replace emotional, unreasoned judgments about economic issues by objective, rational analysis. Once this lesson is learned the most difficult, as well as the most important, step toward realizing the attainment of the goals of economic education will have been taken. You start by priming your mind and those of your students with the basic tenets of economics.

Pose a question about WANTS. You don't even need a textbook (in fact do without one) to germinate a discussion about the wants of people. All people have certain basic needs such as food, clothing, and shelter. Ask the students this question. "If you could have everything you want in this world, what would you select first and how extensive can you make your list of wants?" The students will furnish you with a list that will be limited only by their imagination. All

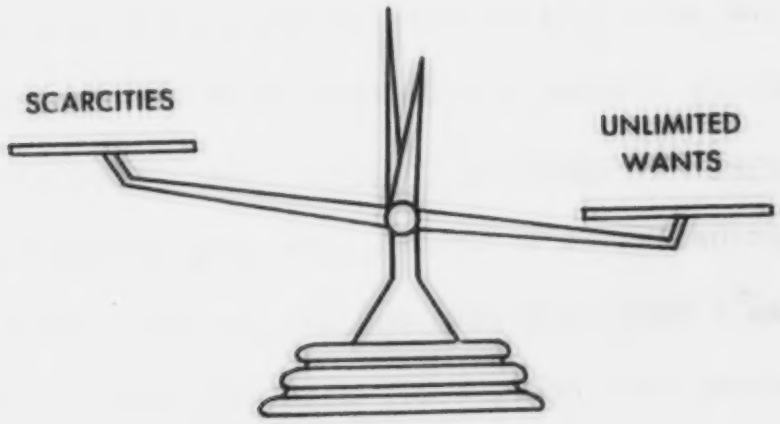
you have to do is direct their thinking. In reality, one of the basic assumptions that an economist must make is that human beings maximize satisfactions and are guided by their selfish interests. Write a list of wants on the chalkboard. Their suggestions will include basic needs and luxuries. At this point, you and the class have recognized the first basic tenet of an economic system--WANT.

Consider SCARCITY. Now the students are ready for the second basic tenet of an economic system, one that is inherent in every society; democratic and totalitarian, SCARCITY. Scarcities in natural and human resources -- the means of production -- constitute the limits to human needs and wants. As you develop some of these scarcities with the students, you should again sketch the ideas on the chalkboard.



Universal economic problem--WANT versus SCARCITY. The fact that there is no end or limit to total human wants creates a scarcity of resources. Thus, scarcity of resources is always relative to the magnitude of wants. The economic problem that results must be faced by every society. This basic fact of scarcity gives rise to the need for economizing--that is, for allocating the available productive resources so as best to satisfy the wants of the people. A clear recognition of this fact is fundamental to economic understanding and rational decision-making. To cope with this economic problem, a nation must develop an economic organization or system. The fact of scarcity is no cause for despair, however, because it has been with us from the beginning. On the contrary, its existence is a reason for optimism provided expanding wants are for goods and services that

will serve to lead our nation to even greater economic competence and efficiency.



Economic System. Thus, economics becomes a study of how society produces and distributes the goods and services it wants and how society allocates its limited resources, both natural and manpower. More specifically, the study of economics includes an examination of the activities in which eople engage -- such as: pro ducing, saving, spending, and so on, for the purpose of satisfying their wants for food and shelter; providing for their wants for modern conveniences and comforts; and providing for their collective wants for such things as national defense, education, and other social benefits.

The idea of a system may be a little difficult for the student to comprehend unless you relate it to some system with which he is familiar, such as that used by banks in processing a check; by bookkeepers for balancing the accounts; by consumers when calculating the cost of installment buying; by writers in determining whether they have written a complete sentence; and by football coaches in preparing the players to work as a team. A system constitutes a way of accomplishing an objective. To the football team, it's a touchdown. To a nation, it's the satisfaction of human wants.

Choice-making. Since individuals or nations cannot possibly satisfy all economic wants, they must decide which to choose and how to achieve them. Economic decisions are made by millions of individuals -- the people. Decisions are made by individuals separately and by individuals collectively through

democratic processes. Taxation to take care of the educational system is an example of a decision made collectively by the people of a district.

Wise choice-making follows a principle to which economists refer as real cost, alternative cost, or opportunity cost. This principle must be introduced to the students. Actually, it's nothing more than common sense. You have heard the saying, "You can't have your cake and eat it too." So have the students. The real cost of eating your cake, i.e., what you really have to give up, is the pleasure of keeping it. Or if you choose to keep it to admire, the real cost of your choice is enjoyment of eating it. The real cost of any use of limited human or material resources or of income is the most desired other use of the resources or income that must be given up.

The student who must decide how to spend his dollars thinks about what he desires most. Perhaps he narrows his choices to records or clothes. If he spends his dollars on new clothes, its real cost is the most desired other use that he might make of the dollars, the pleasure of owning and listening to a record -- a use which he must sacrifice because he chose the clothes.

Often the businessman has to make a decision relative to short or long term investment which will result in less immediate profit or more eventual profit, respectively. The real cost of the investment of his capital, since it is a limited resource, is the most desired other use of it that must be given up.

The real cost concept applies also to communities, states, and nations -- as well as to individuals. High salaries paid to engineers may attract more students into engineering. To our nation, the real cost of the additional engineers is not their high salaries, but the scientists, teachers, mathematicians, or other professional men that these students might otherwise have become.

In time of war priority for using transportation facilities is given to people and good connected with the war effort. The real cost to the nation is the trips and vacations which would have been taken by individuals if this priority had not been set up.

In peace time the people decide what priority to give to private needs in place of public needs such as education. The real cost of spending money for national defense is that resources will have to be used which would otherwise be used for such purposes as the manufacture of automobiles and refrigerators or in the construction of highways.

When individual needs cannot be met by private resources the people, through democratic processes, may decide that government should provide services and facilities to satisfy these needs. These needs may be classified as community needs because they are needed by many individuals in the community and because they contribute to the general welfare of the entire community. Education is a good example of a community need as it cannot be provided by individuals working alone and it satisfies the need of the community for educated citizens.

Individuals and nations, because they have limited resources, must make such choices. To be sure that the students choose wisely, you must make it your

responsibility to apprise them of the importance of carefully weighing the alternatives.

CONTINUE WITH ECONOMIC REASONING

If your students are still with you, you are now ready to help them do some economic reasoning in connection with the subject you teach. But before you get into a specific subject, consider two more suggestions that are presented below as basic requirements for effective teaching of economic concepts. If these requirements are kept in mind, you will begin to present the same old subject matter in a new way and most important -- it will contain an "economic flavor."

Use Language Carefully. Such abstractions as democracy, capitalism, and welfare are open to misinterpretation. In economics, a good deal of confusion arises because many everyday terms are used in a technical sense. Thus in common usage, production means growing or making something tangible, such as wheat or television sets. But to the economist, production means rendering satisfaction to others. All people who work are producers whether they sell, operate machinery, or provide a service -- all, of course, for a price.

Two other terms that cause confusion are capital and investment. To the layman, capital usually means the funds awaiting investment or the stocks, bonds, and real estate a person owns. But to the economist, capital also denotes the tools, machines, factories, and other goods used to produce commodities. It is even used at times to include holdings of consumer goods such as automobiles and washing machines. Investment is popularly used to mean the purchase of stocks, bonds, and real estate or other property yielding an income. But to the economist, it generally means the expenditure of funds on new equipment and other goods used in production. It is part of the process of creating capital.

Other economic terms that have several meanings are money, competition, depression, demand, and income. If you are a little hazy about the meaning of

these terms, simply do a little reviewing in a textbook on elementary economics. All the meanings will come back to you in a very short time.

Follow a Definite Plan When Explaining an Economic Event. To explain an economic event is to answer the age old questions: What is it? Why is it? What of it?

Suppose you try to explain a one per cent decrease in prices as shown by the consumer price index.

What is it? First, you try to identify with the students the type of price decrease that has occurred. Have all prices decreased or only a few? Was the decrease rapid or gradual? Did wages also decrease? You do your best to determine the distinguishing characteristics of the price decrease.

Why is it? Next, you and the class look for causes, by drawing on available information for clues. If you observe that only the price of meat has decreased, you look for changes in conditions that may have influenced the supply and demand for meat. Perhaps the cattlemen have been raising more beef cattle than the consumers are willing to purchase in the form of cuts for the dinner table -- at a given price, of course. You follow this line of thinking because an analysis of previous experience has shown that an increase in supply or a decrease in demand or both, tends to decrease prices. Thus, you might look for causes such as the amount of government subsidy, changes in consumer demand, or the increased rainfall in the beef-producing sections of the nation resulting in a shorter growing period.

If, however, you observe that prices of clothing, furniture, and most consumer goods are also decreasing, you suggest to the students that they look for changes in conditions that affect the whole price structure: a decrease in government spending or a decrease in the money supply, for example. You do so because previous economic analysis has shown that a decrease in total spending in

an economy without a comparable decrease in the supply of goods tends to affect the total price structure. These, of course, are but a few of the possible causal factors. Many alternatives must be examined to attempt to discover why the event occurred.

What of it? You finally explore with the class the possible implications of the event. Although you can never know definitely what will occur in the future, it is important to determine what is possible, and what is probable; a bare description of an economic event is seldom useful. Are prices likely to continue falling, to level off, or to increase? Will the price decrease result in more sales and increased production? The implications for future prices, production, and employment are what give the price decrease its greatest significance. You should try to determine the implications or potentialities of an event by reasoning out what could follow from it under various conditions. You look for historical precedents. Does past experience with deflation suggest any clues? You also make assumptions for purposes of analysis that certain conditions may or may not prevail -- that the economy will be in a boom or a depression, that war or peace will prevail, that production will expand or shrink with falling prices. Under each of these sets of assumptions about future conditions, you reason through the possible consequences of the price decrease under study.

THE CENTRAL THEMES OF MODERN ECONOMICS

Let us look at the central themes of modern economics which collectively constitute the kind of analytical framework referred to above. These themes can serve as kinds of pegs on which all sorts of practical economic problems can be hung. They can be used as a guide to help one find one's way through the mass of economic information available to us.

1. The Market System of Decision-Making

The first theme is that of the kind of economic system we have in the United

States. The central economic problem in every society is that man has a multiplicity of material wants but is unable to satisfy all of them because of the relative scarcity of the means of production. This fundamental fact of ever-growing wants and limited means gives rise to the need for constant decision-making by both individuals and society as a whole. How shall the limited resources of the nation be used? What shall be produced and in what quantities? How shall what is produced be distributed among the citizens of the country? Every society, whether it be primitive or modern, communist or capitalist, is faced by these basic economic questions. Every society has to develop an economic system -- an organized way of dealing with economic issues -- which will provide answers to them.

In the Soviet Union, the answer to these questions is found through government control of productive resources and through centralized planning of their use. In the United States, on the other hand, we try to operate a decentralized economic system in which all of us participate in economic decision-making as consumers, businessmen, farmers, workers, savers, investors, and voters by making free decisions as to how we will spend our money, what we will produce, where we will work, how much we will save, where we will invest, and how much taxes we will pay. All these individual decisions are registered in the economic institution known as the market. In the aggregate they determine the prices of goods and services. Prices, which are determined by the aggregate decisions of everyone who buys and sells in markets, in turn influence the behavior of each of us as individuals. Our economic system is thus often referred to as a market system or as a "price-directed" economy.

In fact, over the years, the functioning of the market system has been subject to more control as government has assumed responsibility for maintaining economic growth and full employment. This control has been exercised through

democratic institutions.

In summary, young people graduating from high school should know:

(a) The way in which our economic system actually operates to answer the questions posed earlier, and specifically the roles played by consumers, business, workers, and government.

(b) The achievements of our economic system, including our high living standards, the economic growth of our nation, and the fostering of economic security and justice, all within the framework of a free society.

(c) The unresolved problems still facing us, such as monopoly, labor-management relations, inflation, recession, the farm surplus problem, adjustments to automation, etc.

(d) The principal differences between our economic system and those of other important countries, such as communism in the Soviet Union.

2. Economic Growth

The second major theme in modern economics is that of economic growth. Here we are concerned with the ability of a society to increase the output of goods and services so that more wants may be satisfied. Obviously, the whole history of the United States has been one of economic growth. Yet today growth is no longer being taken for granted as something which happens automatically. We are seeking to develop policies to promote it. High School graduates should know:

(a) The factors responsible for economic growth in general and for the growth of the American economy in particular.

(b) Why an acceleration of our growth rate is regarded as an important objective of public policy today.

(c) What sort of problems confront us as we seek to assure a satisfactory rate of economic growth in our country and what sort of policies are available to us to help us achieve this objective.

(d) Why we are concerned with the growth of the less developed countries of the world and what can be done about this problem.

3. Economic Stability

The third major theme in modern economics is that of economic stability. If growth is a long-run problem, stability is a short-run one; for here we are concerned with the ups and downs of the business cycle, the alternating periods of recession and inflation, or what economists usually today call fluctuations in the level of income and employment.

High School graduates should have some understanding of:

(a) The nature of the problem of economic instability and the effect of inflation and depression on our economy and our citizens.

(b) The role of money and banking and how monetary policy can be used to promote economic stability.

(c) The role of government taxing and spending and how fiscal policy can contribute to economic stability.

(d) The changes which have occurred over the years in the structure of our economy and the effect these have had on economic stability.

4. Other Important Economic Topics

The nature of our economic system and the degree of efficiency with which it operates, and the search for economic growth and stability are the dominant themes of modern economics. Our society does, however, have other objectives. The desire for economic security and justice and the problem of reconciling all our economic objectives with one another and with the demands of a free society are all important. So is the area of international trade and finance which, although it is approached with the usual tools of economic analysis, is usually regarded as a quasi-separate part of the economic principles course.

5. Economic Themes in Business Education

Obviously, all the economic topics mentioned here cannot be incorporated into business education courses. Many can, however. But the teacher of business courses should be familiar with the nature of economic understanding and with

the central themes of economics. If he is not, he cannot hope to handle properly those economic topics which can be introduced into the courses he teaches.

UNDERSTANDING THE ECONOMY

Finally, you must become thoroughly acquainted with methods of economic analysis, economic facts, and economic institutions to which you expect to expose your students. The National Task Force on Economic Education, composed of five of the nation's outstanding economists and two of its leading secondary school educators, have described the minimum understanding of economics essential and attainable by high school students. The goal of this group was to provide helpful guidelines for high school teachers. Although you cannot hope, nor should you attempt, to teach all of the understandings outlined in the Task Force Report it is your responsibility to select those that are related to the subjects you teach, and to supplement or integrate them as you see fit.

BOOKKEEPING AND ECONOMIC EDUCATION

From the early beginnings of secondary education in this country up to the present, the study of bookkeeping has been considered by thoughtful educators to be one of the best ways to help young people learn three things: (1) how systematic records form the basis for making economic decisions of businessmen, industrialists, and government officials; (2) how to acquire a marketable skill so that the individual can take his place in business, industrial, or governmental affairs of the country; and (3) how to manage one's own personal business affairs so that income and expenditure are wisely planned.

Bookkeeping instruction must be more than the teaching of recording and fiscal period processes. Instruction in this subject must include methods by which students learn to make decisions regarding the economic problems of a business.

The good bookkeeping course builds upon the knowledges gained by the students in the general business course. The student learns to interpret the financial records of business in terms of such things as: (1) What factors increase or decrease profits; (2) how profits relate to what the proprietor could earn if he worked for someone else instead of taking the risks and responsibility of conducting the business himself; (3) what factors should be taken into account when going into business for one's self; and (4) how to apply good bookkeeping practices to the handling of one's own personal affairs.

Bookkeeping pervades the activities and understandings of all citizens. The housewife who manages the family income, the professional man who needs to know how to handle his business affairs, the individual who must have adequate records for income tax purposes, the voter who participates in electing those who will decide economic policies at all levels of government -- all these would be more intelligent about business and economic affairs if they had a better understanding

of the topics taught in a course in bookkeeping.

While it is true that the doctor, the lawyer, the engineer, the contractor, the school administrator, and the like often employ others to keep their financial records, it is very important for them to know how to interpret these records so that financial decisions and planning can be more effective.

Bookkeeping can also be used to teach about the operation of the economy as a whole. In modern economics, as much attention is paid to macro-economics (the aggregates of the whole country) as to micro-economics (the details of the individual firm and market).

How to Include Economic Understandings in Bookkeeping

The approach to instruction in bookkeeping is an economic approach when the point of departure is the balance sheet. The balance sheet shows a person or a business exactly what is owned and who retains title or equity in the assets of the business. The symbols in bookkeeping and accounting have their roots in our economic system and can become meaningful only if this symbolism is understood.

In the high school bookkeeping course, the primary objective is to teach the principles underlying bookkeeping and to provide sufficient practice in the application of these principles to assure that bookkeeping skills and knowledges are learned.

The economic understanding of students of bookkeeping may be enlarged beyond the present levels achieved through a study of bookkeeping by considering the following:

1. The presentation of the fundamental bookkeeping equation and the balance sheet to develop the concepts related to types of ownership in the American economic system.

2. The study of accounts receivable, accounts payable, bank deposits, checks, bank reconciliation, etc., to develop concepts dealing with money, banking, and credit.

3. The presentation of the income statement to introduce the idea of national income accounting.

The National Income and Product Accounts

The statement was made in the opening paragraph of this section on Bookkeeping and Economic Education that the study of bookkeeping is one of the best ways to help people learn . . . "how systematic records form the basis for making economic decisions of businessmen, industrialists, and government officials." This statement provides an opportunity for a discussion of our system of national income and product accounting, which we use to measure the performance of the economy as a whole.

The concepts of the Gross National Product and the National Income, the initial breakdown of these into their major subdivisions, and the idea of the circular flow of income through the economy could be introduced here. The national accounts are our principal tool for analyzing the problems of growth and stability and determining what policies are appropriate. Teachers of bookkeeping should not limit themselves to business accounting and lose the opportunity of giving a picture of the economy as a whole and how it performs. Having discussed the national accounts, it is logical to make the point that we have national economic objectives, such as growth and stability. The national income and product accounts provide us with the statistical information on which Congress, the Administration, the Federal Reserve authorities, and other policy makers can base their decisions as they seek to achieve these objectives just as business accounting provides the basis for business decision-making.

The Balance of Payments

A second important economic table which can be introduced into a bookkeeping course is the balance of Payments of the United States. This statistical table lists all the international payments made by American citizens and businesses and by the U.S. Government to foreigners and to foreign governments as well as the

receipts from them. Our payments include imports, tourist expenditures abroad, overseas military expenditures, foreign aid, and private business investment abroad. Our receipts come primarily from exports, income from foreign investments, repayment of loans by foreigners, and foreign investments in the United States. When the payments exceed the receipts, as has been the case for some years, the deficit must be met by losing gold to foreign countries and by going into debt to them. The Balance of Payments is a double-entry bookkeeping concept and is an appropriate vehicle for presenting ideas on such topics as international trade, foreign investment, foreign aid, why these are important to the United States and what sort of problems arise in connection with them.

Government Budgets

The budgets of federal, state, and local government can be analyzed not only as a bookkeeping concept of revenues and expenditures but also can be used as a means of explaining what the economic functions of government are in our society, why they have become more important over the years, and what heppens if the budget doesn't balance (increase in national debt, etc.). A budget deficit can mean an investment in the future if the amount of the deficit represents capital expenditures. In recent years the national deficit has been increasing at a slower rate than the national income. One of the problems connected with this fact is the question of whether government or private enterprise should accumulate deficits.

BUSINESS LAW AND ECONOMIC EDUCATION

The functioning of our American economy can be demonstrated effectively through the business law course. Opportunities for increasing economic understandings through this course are numerous. The students in the business law class are usually juniors and seniors who have some appreciation of our business economy and they may possess the ability to think critically.

Some examples of how economic understandings may be introduced into the business law class are presented in the following paragraphs. A unit on negotiable instruments may include the following information:

> A promissory note is a written promise to pay money.
>
> A negotiable instrument must contain an unconditional promise. Although no particular words are necessary, the maker must unconditionally order payment.
>
> Words indicating merely a request do not constitute an order to make payment.
>
> A promise or order to pay upon the happening of a certain event or out of a certain fund is conditional and therefore not negotiable.

Credit has been defined by such words or statements as the following: (1) trust; (2) the promise to pay for present goods in the future; (3) the right to future payment; and (4) the act of obtaining goods in exchange for a promise. It is important to know something of the importance of credit as a factor in the American economy since credit is used in about 90 per cent of the total value of all merchandising and banking transactions.

Credit is based on confidence. The extent to which credit is used is limited by the confidence of sellers or lenders regarding the ability and willingness of individuals to pay debts. This might be expanded into a discussion of

the following topics: "3 C's of Credit," (character, capacity, and capital); the different kinds of credit; the use of charge accounts; and installment buying. All of these areas are related to the unit on Negotiable Instruments which often tells the "how" but not the "why" of credit.

Another example concerns the unit on "Property." Most business law texts present such matters as: the methods of acquiring property; the kinds of ownership; the limitations on ownership; and the kinds of real property.

Freedom to own property is quite important in the American economy where property is owned and used primarily by individuals and firms rather than by the government. In our society, the right to own private property is established and maintained by the government. Without government, the right of the individual to own property would generally be only as strong as his ability to keep others from taking his possessions. Federal, state, and local governments enforce property rights (even against themselves and against each other) and, in doing so, they maintain a source of economic incentive for many of the productive activities of the people.

It may be pointed out that the individual may use his property to enhance his own welfare as well as to meet the needs of others. An example of this would be the farmer who grows wheat on his land and sells it at a profit for himself. In promoting his own financial position, the farmer is also promiting the welfare of the community. This leads us to a consideration of consumer demand which ultimately determines the use of manpower and resources in the economy.

Although the business law course may seem to be concerned primarily with technical relationships and processes, such as contracts, negotiable instruments, and bailments, many important aspects of our economic life could be introduced, if a somewhat broader approach were taken.

For example, one of the basic features of the capitalist system is private p roperty and our right as citizens, within the limitations imposed by society, to

own it and use it in order to make a profit. A democratic society can impose limitations on the use of property; for instance, master plans for land use and condemnation proceedings for the uee of property for facilities such as schools and highways. A business law course could teach students much about this. What does the Constitution say about private property? How has our definition of "property" been broadened over the years? Today it means not just real property but also "rights." The word "person" also no longer means just a human being but also a "legal person" created by the law, i.e. a corporation. These legal concepts could be used to get over the idea of a private enterprise profit-making system.

Why has the corporation grown in importance over the years at the expense of the one-man and family-owned business? Mainly because of certain legal advantages such as limited liability of the stockholder, continuity of existence, transferability of ownership, etc. What is the relationship of the stockholder to the corporation? The evolution of the big corporation as a legal entity has resulted in the separation of the function of ownership from the function of control in many large businesses. The stockholders now have legal ownership of the corporation (i.e. they have the stock certificate) and they receive the income from it (the dividend). But the real power is in the hands of those who control the property, i.e. the professional managerial class. What does this development do to our traditional theory of individual initiative and the profit motive?

One noticeable trend today is that pension funds are buying more and more common stock. Indeed, they are now the largest purchasers of stock. For example, over 26 per cent of Sears Roebuck common stock is now owned by the employees pension fund. Since the law has not yet in every case clearly defined the ownership rights of workers who have contributed to pension funds, who really owns the stock is obscure. But who controls it is much clearer; it is the trustees of the

fund who are often bankers.

All this may be a little too sophisticated for high school students but, if manageable, some important current developments, involving both law and economics, could be communicated.

The anti-trust laws could also be used as a vehicle for communicating ideas on the functioning or malfunctioning of the market mechanism. Why were the Sherman and Clayton Acts passed and the Federal Trade Commission established? Why are anti-trust suits brought against well-known firms by the Department of Justice? Why do we consider competition so desirable that we try to enforce it by law? Why do monopolies develop and what are their consequences in terms of the efficient operation of the market mechanism of decision-making referred to earlier? The anti-trust laws in short provide an excellent opportunity for describing our market mechanism and its defects and achievements.

Finally, laws such as The National Labor Relaticns Act and The Labor-Management Relations Act could lead to a discussion of labor-management relations and the role of collective bargaining in the economy. Minimum wage and maximum hour laws represent a modification of the free market mechanism as does the exercise of union organization. Once again we see that a consideration of the law leads us into economic matters.

BUSINESS MATHEMATICS AND ECONOMIC EDUCATION

The purpose of this section is to assist the teacher of Business Mathematics to do a more effective job of teaching, not by bringing into the course additional material unrelated to the subject but by supplementing the course content with background information which will give the students a better understanding of the American economy.

Students are interested in the world around them. By including economic concepts in the business arithemetic course, the teacher can strengthen the economic understandings of the students.

Profit and Loss

Some examples of how economic understandings may be introduced into the business mathematics class are presented in the following paragraphs. The following introductory information and illustration could be included in the unit, "Profit and Loss":

> A store owner frequently wants to know the amount of gross profit he is making on a single article or on the quantity of the article sold.
>
> The gross profit is found by subtracting the cost from the selling price.
>
> Selling price - Cost = Gross Profit
>
> The term "cost" means the gross cost; that is, the prime cost plus the buying expenses.
>
> If the cost is more than the selling price, the selling price is subtracted from the cost. The result represents a loss.
>
> Cost - Selling Price = Gross Loss

This presentation would be followed by a similar presentation on finding net profit.

To supplement and relate this information to the American economy, the teacher could present the following economic principle: profit is the reward for initiative and risk bearing. Generally, business mathematics textbooks do not include such principles. The student is told how to determine gross profit and net profit or loss but nothing about the concept of profit and its function in the economy. No mention is made of such ideas as: (1) a businessman may risk his life's savings to go into business; (2) he may have to operate at a loss for a few years in order to establish his business; (3) part of his risk may involve the hiring of employees; (4) more than two-thirds of the national income is distributed as compensation for producing the nation's goods and services; or (5) our business system cannot function without profits.

More could be said about the scope of "profit and loss" in relation to economics, but the point is that the determination of profit by arithmetic computation is only the means to an end -- the idea of profit. Without profit, businessmen would not be willing to exercise the choice of investing his savings or his skills in a business operation.

Plan for Teaching a Unit on Profit and Loss

The following is an economic resource unit which is designed to give the teacher an idea of how to introduce economic concepts in the course in unit on Profit and Loss:

I. Profit is the Reward for Initiative and Risk Bearing

A. A profit can be made only if income is greater than outgo.

1. When used in economics, income refers to money, material goods, and services received or earned during a given period of time such as a year or a month.

2. Outgo consists of such things as: invested capital, additional borrowed funds, rent, salaries, operating expenses and raw materials.

B. The hope of making a profit is necessary to induce enterprisers to undertake the risks of business.

In the American economy, the hope of making a profit is relied upon to induce individuals to undertake the production of most of the different kinds of goods and services that people want to meet their private needs.

C. It is commonly recognized that the American enterprise system has produced one of the highest standards of living in the world.

II. "Profit" Has Many Meanings

A. Competitive profits are profits that are earned by a business or an industrial concern that competes with others in the sale of its products.

B. Monopoly profits are those that are received by a concern that controls the supply or the prices of the goods or the services that it sells.

C. Speculative profits are profits that are made as a result of a change in price after one has bought something -- land, corporation stocks, or merchandise, for example.

D. Gross profit is the difference between the amount that is paid for goods and the amount that is received when the goods are sold.

E. Net profit is the amount remaining after the total amount of all expenses has been deducted from the gross profit. Such expenses include payment for the services, land, and capital belonging to others that

may have been employed in the enterprise.

F. Pure profit is the amount remaining to the owner after an allowance has been made for the use of the owner's own services, his land, and other capital.

III. Sources of Profits

A. Superior efficiency in management.

Some people are better managers than others; they know where, when, and how to buy; how to bargain successfully; how to put new ideas into practice.

B. Imperfect competition.

1. Pure competition seldom, if ever, exists.

2. In order to have perfect competition in the sale of a certain kind of a good, everyone would have to know exactly where he could buy at the highest price, and there would need to be so many buyers and sellers that the amount anyone bought or sold would make no important difference in the market price. Only in rare cases are all these conditions met.

3. Some people develop brand preferences; in these cases, regardless of whether there is any real difference between two or more brands of a product, as long as people think there is a difference the maker has a better chance of selling the product if buyers prefer his brand.

C. Pure monopoly

1. One manufacturer supplying a particular product or service, the price to be charged depending only upon how badly people want the product and their ability to pay for it.

2. There are few cases of absolute monopoly.

D. Luck or chance

1. Landowners not suspecting their land possessed valuable mineral or oil resources -- i.e. discovery of oil.

2. Making large profits because of an unforeseen increase in population -- i.e. large shopping center moving into an area formerly waste or orchard land.

3. Unexpected commercial developments -- i.e. Palm Springs, California City.

Primarily, the person affected did not anticipate the event which brings him profit; he is said to be lucky and his profit is said to be "chance gain". The students should be cautioned, however, that luck may bring losses as well as gains.

Property Taxes

Another example concerns a unit on property taxes and may be stated as follows:

Local taxes. The money needed to pay the expenses of local governments is obtained chiefly from the property tax. Property taxes also provide most of the money needed by county governments and a part of the funds required by some states.

In order to determine the amount to be raised by property taxes, each local tax district makes an estimate of its expenditures for the coming year. This

estimate is called a budget.

An estimate is also made of the income that will be received from other sources such as license fees, permits, and fines. The difference between the total budget and the total miscellaneous receipts is the amount that must be raised by the property tax.

The tax rate is computed by dividing the total tax to be collected by the total assessed valuation.

The following subjects could be discussed for the purpose of adding knowledge and understanding of the economic implications relative to property taxes: (1) the purposes of property taxes; (2) the problem of whether or not the ownership of property is an indication of a person's ability or capacity to pay property taxes; (3) the reasons why property taxes are easy to determine and collect; or (4) the effect of high property taxes on the availability of money for investment purposes.

Similar approaches to other economic understandings can be developed in the units on Sales and Excise Taxes, Income Taxes and Social Security Taxes.

Allocation of funds collected by the government by means of taxes is determined by the voters who must decide which needs, including both private and community needs, have the highest priority. The amount of financial support given to the educational system of a district is a good example of decisions which voters are called upon to make.

Construction of Index Numbers

The statistical device of the index number is used to measure many economic trends, including the movement of consumer and wholesale prices, industrial production, and department store sales.

The Consumer Price Index, for example, could be selected as a vehicle for teaching such arithmetic concepts as the nature of an index number, weighting, and

percentages. But the student will want to know why the cost of living goes up and down and why some items in it, such as the cost of medical care, have gone up more than others in recent years. This could open up a discussion of the problem of economic instability, including the nature and causes of inflation and deflation.

The Federal Reserve Board's Index of Industrial Production could also be used in the same way. Its construction is an exercise in arithmetic techniques. Its short-term fluctuations, e.g. 1960-1961, reveal economic instability. Its long-run rise, e.g. 1945-1962, reveal growth.

Income Distribution Statistics

Income distribution figures often use the concept of the median income. The arithmetic concepts of the median and the mean could be discussed along with such economic concepts as changes in the pattern of income distribution over the years. Why is income more equally distributed than formerly? What role has been played by the progressive income tax, labor union, minimum wage laws, social security, estate taxes, the greater productivity of the economy, etc? How are incomes determined in a market economy? Why does Elvis Presley earn more than your local doctor? This is an exercise in understanding the market mechanism which stems from income statistics.

Rates of Interest

The arithmetic problem of calculating simple and compound interest could lead into such economic concepts as the relationship between common stock yields and bond yields, the rate of growth of the Gross National Product of the United States and other countries, the role of consumer credit in the American economy, and the efforts of the Federal Reserve authorities, the Federal Housing Administration, and other agencies to influence the interest rate structure in order to promote economic stability. The rate of interest is actually the price of loanable

funds (money capital) and such is once again determined by supply and demand in the market -- the capital market. How does the market allocate savings among various uses? Through the capital market.

GENERAL BUSINESS AND ECONOMIC EDUCATION

One of the objectives of the general business course is to develop in the students an awareness and an understanding of the economic system of the United States. It is important that students realize that the nation will remain strong and dynamic only if the American people understand the nature of the American economic system.

An overall view of the American economic system can be given at the beginning of the course. Then, for the balance of the course, those particular aspects of our economy relating to business can be emphasized. The basic idea of free decentralized decision-making in markets by consumers and producers and of the market as the allocator of our resources is fundamental here. This is the place to include the concept of the price-directed economy and of our goal of efficiency in its operation. This is also the place to mention our other economic goals of growth, stability, security, and justice within a framework of freedom.

Consumers' money demands largely determine what is produced. Businessmen, striving to maximize profits, try to produce goods and services which consumers want. The profit motive operating under competitive pressures determines to a great extent how goods are produced, with what kinds of machinery, and with how much labor. Thus, businesses draw productive resources such as labor, land, and machinery into those occupations where they will contribute most to meeting consumer demands. They pay money to workers, landowners, and suppliers of raw materials and services. These incomes, in turn, make it possible for consumers to buy the goods they want. This creates the circular flow of income.

Emphasis should be placed on the fact that our type of economic system is related to our type of democratic political system. The choices made by individuals are important factors in determining the economy of the nation. Some of these

choices include decisions relative to how to earn a living, what will be produced, what proportion of income will go into savings, what goods will be purchased, and what type of investment will be made.

With this overview of our economic system as a background, emphasis can then shift to business subjects. These could include the role of the producer in the market; the way in which business is organized; the effect of business monopoly on economic efficiency; the contribution of business to economic growth through research and increases in productivity; the effect of changes in the level of business investment on economic stability; and the role of business-financed "fringe benefits" on economic security.

The basic points about money which should be brought out are, first, that it permits our system of markets based on specialization and exchange to function; and, second, that it is an instrument for achieving certain economic goals. The principal goals of monetary policy today are economic stability and economic growth. The way in which money is created (by banks making loans), the limits on money creation (the role of bank reserves), and the techniques of monetary management by the Federal Reserve are in a sense technical matters which hang on the central theme of monetary policy.

FORMS OF BUSINESS ORGANIZATION

Businessmen have freedom to choose or adopt the form of organization which assists them in organizing their activities. In our American economic system the four basic forms of organization follow: (a) sole proprietorship; (b) partnership; (c) corporation; and (d) cooperative.

A. You desire to start a lawn-mowing service for the peop'e on your block and they are interested in receiving this service.

1. Is this a form of business?
2. What kind of organization is this?

3. Who receives the benefits from your services?

4. Who makes all the decisions for the business?

5. Who receives all the profits?*

6. What capital investment would be necessary, if any?

7. If additional people wish you to cut their lawns how may you increase productivity if you are using every available hour at the present time?

8. If while mowing the lawn you knock over an expensive marble statute of Venus worth $300, who is liable for the damages and to what extent?

9. Of the four types of business organization, which best fits the above business?

10. Your business was so good that you added assets of a power mower, power edger and also purchased a new $4,000 sports car for your pleasure. During the following week, the power mower runs wild and destroys the employer's favorite petunia bed, knocks over an expensive antique vase, cuts off the tail of the pet cat and puts a dent in their new station wagon. You are sued for damages that amount to $525. Your power mower and edger are worth $100. What are your liabilities for the damages incurred, if any?

11. If the lawn-mowing service requires more cash than you can afford for the original capitalization, what are some of the ways you may obtain it?

B. You now desire to branch out into the area of landscaping and other aspects of the lawn care business. You find this will entail advertising,

* All underscored words should be defined.

plant knowledge and purchasing, more detailed accounting records, etc. You decide to ask some friends who are specialists in these areas to join you in the business.

1. What kind of organization is this?
2. Who receives the benefits of your services?
3. What capital investment would be necessary?
4. Who makes the decisions?
5. How are the profits distributed?
6. If your business goes bankrupt and after selling all you own you still owe $10,000, what would be the liability of each part owner if there were four? What if one of the part owners had no money to contribute toward the liability?

C. You now find business so wonderful that you need a new warehouse, office, and additional trucks to take care of the increased business in lawn care, landscaping, etc. You have a problem of raising money and desire to sell stock in the business.

1. What kind of organization is this?
2. Who receives the benefits of your services?
3. What steps are necessary to raise money by selling stock? May any business arbitrarily decide to sell stock?
4. How are profits distributed in this type of organization? Are all profits distributed?
5. Who owns the business?
6. Who makes the decisions in this type of organization?
7. What is the role of the stockholder in relation to the functioning of the corporation?
8. If the company goes bankrupt and is unable to pay $50,000 to

its creditors, what would be the liability of each stockholder if there were 100 stockholders?

D. You decide to find some way to have more weekends available for trips without having to stay home and mow your lawn every Saturday or hire someone to do it for you. Seven of your neighbors would also like to find a solution to this problem and you all agree to take turns mowing all eight lawns when your turn arrives. This plan enables you not to have any lawn mowing except once every two months and be able to leave for weekend trips on Friday night.

1. What type of organization is this?
2. Who benefits from the services?
3. What policies should be formulated?
4. Who decides the policy in this type of organization?
5. The organization pays for an $80 power mower by dividing the cost among the members. One of the members accidentally let the mower run rampant and inflicted damages to a neighboring piece of property to the extent of $100. What is the liability of the organization, if any? What is the liability of the individual, if any?

MONETARY SYSTEM AND FEDERAL RESERVE SYSTEM

Only a minor part of the total transactions that go on day by day is settled by payment of currency. At least 90 per cent or more are settled by a transfer of deposits by check. Checks are now the main method of payment to wage earners. The pay checks are deposited in banks and other checks are written for things which wage earners buy. Of course some checks are exchanged for cash, but the majority of money remains in the bank to be spent as checkbook dollars.

How much currency, then, must a bank keep on hand? People usually use currency for smaller purchases. Even the smaller purchases at department stores are now in many cases lumped together and paid at the end of the month when the charge account statement is received. What would happen if people withdrew more currency at the same time? It should be remembered, however, that the more money people draw out of the bank, the more they will spend, and the more other people will bring back. The amount of currency needed is increased at Christmas and other similar periods of time when people are making more expenditures of the kind that requires currency.

The bulk of expenditures are made by the transfer of funds by check. Deposits to cover these checks may come into existence when banks make loans to customers. For example, if a person wants to borrow money to buy a car or a new home or if a businessman wants to borrow money to purchase goods they may go to the bank for a loan. After the bank agrees to make the loan it sets up a checking account which can be spent by writing checks. The banks, therefore, create money by providing funds to be used for the purchase of goods and services.

The Federal Reserve authorities are responsible for formulating and executing monetary policy. This means that they try to regulate the amount of money which our banking system creates in such a way as to promote growth and stability.

The size of the required reserve which banks must deposit in the Federal Reserve Bank determines how much money the banking system can create by making loans.

Questions for discussion:

1. Where does a bank get the funds with which it meets daily withdrawals?
2. How much reserves must a bank maintain?
3. Why are banks required to keep minimum reserves?
4. Could banks lend and invest if they kept 100 per cent reserves?

5. What do the reserve banks do? How do they affect banks' reserves and their ability to lend?
6. Why is there a profit made when the Treasury produces new coins -- the profit being known as seigniorage?
7. During periods of inflation and recession, how do we try to regulate the amount of credit available?
8. Is it wise to make credit terms more liberal during periods of recession?
9. Why is credit important to the economy of the United States?
10. What is a safe ratio of credit for the average family?

Topics for discussion:

1. Nature and functions of money.
2. Creation of credit by commercial banks.
3. Control of the money supply by the Federal Reserve System.
4. Impact of inflation and recession on our economy.

PRODUCTION OF GOODS

Production of commodities and services required for everyday living involves four main factors. These factors are as follows:

a. Natural resources
b. Labor
c. Capital
d. Management

The improvement in the use of these factors is responsible for increased productivity. It is only because of increased productivity that American industry has been able to achieve the tremendous rate of production. The measurement of productivity for the whole economy is national income (Gross national product minus capital consumption) divided by man-hours of labor. In our complex economy, it is often difficult to know what is responsible for an increase in productivity since any one or a combination of such factors as better equipment, management, transportation, and labor may be the cause of the increased productivity.

The following problems illustrate the effect of increased productivity on real income:

1. A man has a salary of $90 a week and receives a 7 per cent raise. If the cost of living remains the same, what is the effect on his real income?
2. A man has a salary of $50 a week and receives an increase in pay of $25 weekly making a total paycheck of $75. If the cost of living increases 25 per cent, what is the effect on his real income?
3. One person repairs watches, another raises ducks, and a third person sells clothing. Each person sells to each other and to the man down the street -- a retired elephant trainer living on social security. If the person raising ducks is convinced that he is working too hard and raises fewer ducks while at the same time increases prices to make up for his lost income, what might occur as a result of the price increase by one man? Is the increase in price evidence of increased productivity on the part of the man raising ducks?

Questions

1. How can full employment be maintained in our economy with more automatic machines being installed?
2. What is the source of capital investment in production tools?
3. Is it fair for management to pass on increasing costs of production to consumers?
4. Is a supply and demand chart of interest to producers?
5. Why is the price of an economic good sometimes out of proportion to its production cost?
6. Does an oversupply of production goods drive a price down?
7. Productivity and production are different in which respects?

Topics for discussion:

1. The effect of changes in demand for goods and services.
2. Accumulation and use of capital through savings and investment.
3. Labor problems related to production.
4. Conservation of natural resources.
5. Impact of automation on labor.

MERCHANDISING AND ECONOMIC EDUCATION

Merchandising and retailing courses in the high school include certain principles of marketing. Marketing is that part of an economy which directs the movement of goods and services from producer to consumer.

It is important that students have some understanding of the many marketing activities which take place in distributing goods from the manufacturer to the consumer.

Our system of distribution is very complex. Goods flow through a variety of channels on the way to the consumer market. Manufacturers must determine the most efficient channels of distribution for their product in order to remain competitive.

Competition takes many forms. The different forms of competition are found in the various philosophies of merchandising or marketing. Stores distributing similar merchandise may use entirely different methods and means of appealing to customers. Clothing, for example, may be mass merchandised, sold by self-service or emphasize high style.

One of the important considerations in marketing is that of market research. Market research assists (1) in the determination of market potential, (2) in the testing of consumer reactions, and (3) in the determination of the relative efficiency of alternate systems of distribution.

Some of the government agencies that are concerned with market research are the U. S. Department of Agriculture and the U. S. Department of Commerce. In addition, there are a number of private agencies such as A. C. Nielsen and Brookings Institution which participate in market research.

Our economy is essentially a free market price system. Certain factors, however, limit the operation of this pricing mechanism. There are several basic principles which interact in the pricing of goods: (1) generally, people will buy

less of an item at a higher price than they will at a lower price, and (2) producers will supply more of an item at a higher price than they will at a lower price.

Sales promotion involves both advertising and display. As a consumer in the American economic system, the student has been exposed to various sales promotions through radio, newspaper, and television. Because of the increasing number of new products on the market each year, the consumer is becoming more dependent upon the service rendered by persons in the distributive field.

Specific Relationships of Economics to Merchandising

Before manufacturing a product, the market is researched and the product is designed so that it will be sold. There are several elements in the marketing of a product that have economic implications. Some of these are: price, sales promotion, distribution, and financial stability.

Before the price is set consideration must be given to the method of distribution and promotion. This function involves people who must have knowledge of the various over-all problems of marketing the product. Distribution and sales people must be just as skillful as production personnel. In short, everyone who works in a company carries a great deal of responsibility for its success.

With the product produced, marketed, and sold, there remains the problem of fiscal accountability. Is a profit being made or a loss incurred? The facts and figures of business records now enter the picture. The mathematical procedures for determining profit or loss are covered in bookkeeping and in business mathematics. The results of these calculations are used by the businessman in determining merchandising policies.

The establishment of price is tested by the income from sales and the subtraction of the cost of doing business from the sales income. The gross profit that results must meet further subtraction before arrival at net profit. The

story of competition has its effect on the ability to produce and distribute with greater efficiency and with a resulting rise in the standard of living.

In the section which follows there are some units and teaching suggestions to help a student gain a better understanding of the role of marketing in economics.

I. How Businesses Are Organized

A. Specific Objectives

1. Appreciation of the interdependence of the various sizes and types of business in America.
2. Develop an understanding of the various types of business entity and be able to identify them.
3. Develop understanding of the methods of financing the business operation.
4. Develop awareness of the dynamic nature of our economic system and some of the effects of its changing nature.

B. Teaching Suggestions

One approach to this topic would be to assign students a research project in which they list the types of businesses found in the local shopping center and the type of organizational structure used by each one. The discussions that follow the reports on the topic can bring out the specific objectives of the unit. To avoid meaningless discussion, the teacher should assign the questions relating to the topic in advance. Collateral reading may be assigned to help guide the students to successfully complete the assignment.

II. How Our Business Works with Government

A. Specific Objectives

1. Appreciation of the role of government in our economic system.

2. Appreciation of the interrelationships between the various levels of government and the business community.
3. Understanding the concept of legal monopoly.
4. Appreciation of the personal and social values of property rights.

B. Teaching Suggestions

By keeping a file on magazine articles, news clippings, etc., the teacher can have resource material for this unit which is both meaningful and interesting. With a little effort this file could be kept reasonably current so that the timeliness could give additional force to the effectiveness of the teaching situation. Also, the teacher could have the students identify as many levels of government as they can. By skillful leadership, this type of discussion can bring out the relationships existing between these levels and business.

III. <u>How We Pay for Government Services</u>

A. Specific Objectives

1. Understanding the relationship between government services and taxes.
2. Understanding that although direct tax sources vary, almost everyone is affected in some way.
3. Appreciation of the effect of current business conditions on the ability of the people to support government services through taxation.
4. Developing an interest in governmental activities, especially financial management.

Teaching Suggestions

For this unit, current events are the best source of ideas, materials and projects for this topic. The best method for the teacher to keep informed on new developments regarding this resource unit is by reading the Wall Street Journal, Business Week, etc. By being a well-informed citizen, the teacher should have timely and interesting material at his fingertips.

The local community is also a fine source of related material. Reports by business and city officials could be given. Local tax methods could be explored.

SHORTHAND, TYPEWRITING, BUSINESS ENGLISH AND ECONOMIC EDUCATION

Courses in shorthand, typewriting, and business English offer opportunities to incorporate economic topics in the practice materials used in these subjects.

These courses do not offer the same opportunities to incorporate economic topics related to the subject matter as the other business education courses included in this publication. However, practice materials consisting of economic subjects could be used in shorthand, typewriting, or business English courses. Although students will not have an opportunity to investigate in depth the topics included, they will be given an opportunity of becoming aware of economic principles and of the importance of studying economic problems and issues.

Economic topics could be used in shorthand as the subject of either letters or articles dictated to the students. During the preview of the dictation, a brief explanation could be made and discussion could be held for the purpose of calling attention to certain economic principles, problems, or issues and for defining terms.

Practice material consisting of economic topics could be used in typewriting for timed-writings and for composition at the typewriter. Occasionally, brief discussions should be held which would result in bringing to the attention of the students the economic problems and issues included in the assignment.

Economic problems and issues could be the subject of themes and talks in the business English course. Words used in the themes or talks could be the source of spelling lists and definitions.

Teachers could develop their own materials or they could use materials from such sources as books, pamphlets, magazines, newspapers, and radio and television programs. Cooperation with teachers of courses such as history, economics, general business, business law, or business mathematics would be an appropriate method of deciding what kind of material to include in practice material in shorthand, typewriting and business English courses.

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APPENDIX A

GENERALIZATIONS FROM ECONOMICS*

Overview

Economics is concerned with analyzing information, issues, and public policies connected with the production, distribution, and consumption of wealth and income. This discipline begins with the study of scarcity and unlimited wants and proceeds through specialized production, interdependence, exchange, markets, prices, costs, and public policy. Emphasized are economic stability and growth; the allocation of resources to their most important uses; an equitable distribution of income; and, in our economy, a wide range of economic freedom for workers to choose their jobs, consumers to choose goods, and investors and entrepreneurs to own property and choose their investments.

All problems that may properly be termed "economic" must be considered in these categories whether they originate in capitalist, socialist, facist, or communist countries. Economic theory has been defined as "a method rather than a doctrine, an apparatus of the mind, a technique of thinking which helps its possessor to draw correct conclusions." The study of economics is thus important to the individual and society for both the knowledge which it provides and the thinking processes which it requires. Valid information about our economy and the ability to use it effectively are indispensable to effective citizenship in assessing many of the most pressing public issues of the day.

Consideration of specialized areas in economics must be based firmly on this approach. Included in economics are the study of money and banking, business

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* Social Studies Framework for the Public Schools of California. Prepared by the State Curriculum Commission, June, 1962.

cycles, public finance and taxation, industrial organization and public policies toward business, labor-management relations, accounting, finance, statistics, consumer economics, international trade and finance, economic growth and development, and comparative economic systems.

Economic Ends and Means

1. Economic welfare is a goal in most, if not all, modern societies. It is believed that it is beneficial for people to have more rather than fewer economic goods and that poverty per se is not desirable. Many economists believe that economic welfare is an important quality of society; that economic progress makes the other qualities of society more readily obtainable; and that the creative arts--such as painting, music, and literature--flourish more fully in a highly productive economy.
2. Productive resources are scarce, and human wants are unlimited. Since man cannot satisfy all of his desires for material goods, he must make choices. The essence of "economy" lies in making wise decisions with regard to such matters as saving, spending, purposes of expenditures, kinds of investments, and types of jobs to be undertaken. The "real cost" of any end product is thus the alternatives sacrificed in producing it. This is known as the "opportunity cost principle."

The Gross National Product--A Measurement of Economic Achievement

1. The size of the Gross National Product (consisting of the total value of all economic goods--products and services--produced annually) depends upon many conditions. Among these are (a) the extent and richness of natural resources; (b) the number, quality, and motivation of the working population; (c) the amount and nature of capital goods (factories, houses, bridges, roads, machines and tools of all kinds) created through saving and investment; (d) the effectiveness of investors and entrepreneurs in

organizing and developing productive activity; (e) the existence of a large free-trade area, in which the free flow of goods permits each locality to specialize in the production of those goods in which it has the greatest relative advantage and to obtain other goods by trade (the "principle of comparative advantage"); and (f) the presence of political institutions that are conducive to and encourage creative and productive effort on the part of all people. To maintain the conditions upon which high productivity (and consequently our high standard of living) depend, conservation must be practiced.

2. The size of both the GNP and population greatly influences economic welfare. This welfare depends upon the balance between population growth and depletion of resources and upon improvements in production techniques and expansion of capital goods. When population growth exceeds the capacity of the land and capital goods, output per worker declines unless there are compensating improvements in technology. This principle is known as the "law of diminishing returns."

3. The full use of productive facilities directly influences economic welfare. Fluctuations tend to be more severe in industrially advanced nations than in those that are primitive. In the former, specialization and complexity are vastly greater, shifts in demand and changes in techniques are more frequent, a larger proportion of resources are devoted to the production of durable consumer and producer goods, and substantial changes in the volume of investment expenditures are dependent upon the people's desire to save a fairly stable part of their incomes.

4. Government can contribute to the maintenance of high-level production and employment, rapid economic growth and progress, and the stability of the

dollar by proper use of its authority through sound fiscal and debt-management policies.

5. High per-capita income is the result of high productivity of labor. The total income of a society is its total output of goods. Therefore, if American labor is ten times as productive as foreign labor, American wages can be ten times as high without curtailing the ability of American industry to sell its products in world markets. High wages thus rest on high productivity, not on tariffs.

The Composition of Income--The Allocation of Resources

1. Basic to sound economic organization is securing effective cooperation among specialized producers. The type of economic system determines how much of each commodity and service is to be produced and how each resource unit is to be allocated to its most important use.

2. In a competitive, private-enterprise system, prices indicate the relative value of goods and services. On the one hand, these prices reflect the willingness of buyers to buy and sellers to sell; and, on the other hand, they influence the decisions of both consumers and producers. A relatively high price tends to restrict present consumption and to stimulate production of a larger supply in the future. A relatively low price has the reverse effect. Raising or lowering a competitive price by artificial means, whether by private monopoly or governmental authority, is likely to aggravate the situation that the action is designed to alleviate, unless the change in price is accompanied by the power to affect directly future demand or supply in an appropriate manner.

3. A market price system works best when both buyers and sellers are highly competitive, well informed, and able and disposed to act in accordance with the information available (competition--knowledge--mobility). Thus,

a free-enterprise system is supported and strengthened by government action designed to keep markets free (antitrust policy), buyers and sellers informed (prohibition of false advertising and laws against misrepresentation), and the system mobile. At the minimum, government must maintain order and justice, protect property, enforce contracts, and provide a sound money system in some fields if free enterprise is to be effective.

4. Because of special conditions in such fields as public utilities, government has been authorized to regulate prices to assure that they are not discriminatory. The quality of service rendered by electric power, gas and telephone companies has also been regulated. In some cases, the government has directly undertaken the provision of services such as those required in the operation of post offices and distribution of the water supply.

5. There are many ways to organize economic activity. Most national economies in the world today, though differing in fundamental respects, make considerable use of the price system to ration goods, providing incentives for productive services, and allocate resources to their best uses. A free society provides opportunity and incentives for the individual to invest what he owns in an effort to make a profit.

<u>The Distribution of Income</u>

1. In a competitive system, the prices paid for productive services also serve to divide the total output of goods among those responsible for their production. Thus, the wages of workers, the dividends of investors, and the rents of landlords all provide the incomes that determine the size of each individual's claim to actual goods and services.

2. In a competitive market, each productive agent tends to receive as income a sum equal to the value of his productive contribution to society. The

greater the demand of the public for the particular service or product and the smaller the supply, the larger is the income. Those possessing the greatest skills demanded by the public tend to receive the highest incomes. Inequality in the distribution of income thus is the result of unequal payments for services and of unequal ownership of property. At the same time, the opportunity to acquire a larger income furnishes an incentive to develop individual abilities, to save and acquire property, and to use resources most efficiently and productively.

3. Imperfections in competition create important public problems. The power of monopoly, whether exercised by buyers or sellers, management or labor, or private groups sometimes supported by government, usually distorts the allocation of resources and distribution of income.

4. The way to improve the standard of living for all the people is to increase productivity. Such has been the tremendous economic achievement in the United States. Industrial output per man-hour has increased six times since about 1850. Half of this gain has been realized in shorter hours (and more leisure) and half in more goods. Thus, the average length of the work week has been reduced 50 per cent and, at the same time, real income per capita has tripled. The grinding poverty in which a large part of the world's population lives today is caused by the sheer unproductivity of human labor, not by deficiency in purchasing power or imperfection in the distribution of income.

Summary

Since the world's resources are insufficient to satisfy all wants, the study of economics, both theoretical and applied, is essential to the general education of all people. The individual makes economic decisions throughout his life. Through voting and other types of community participation, he helps to decide problems involving the economic welfare of all people.

APPENDIX B

THE AMERICAN ECONOMY

Proposed One Semester Course

The American Economy is a one-semester course designed for the high school. A syllabus for the course was developed through the cooperation of the California State Department of Education, the Northern California Council on Economic Education, and the Southern California Council on Economic Education. These organizations secured the services of Dr. Norman Townshend-Zellner, Chairman of the Department of Economics, Fullerton State College who wrote the syllabus with the assistance of Dr. Sylvia Lane, Fullerton State College, and Mark D. Lit, Fairfax High School. The syllabus from which the accompanying outline is adapted is published by the California State Department of Education.

This material which will form the basis for this one-semester course in Economics is composed of nine units. Following is a brief description of the purposes and the major ideas developed in these units.

Unit 1 contains an introduction to the general idea of economic problems which must be solved; and the necessity of a rational objective approach to the solution of these problems using economics as a tool of understanding.

In Unit 2 the student has an opportunity to compare economic systems at three different stages of development -- nonliterate, less developed, and mature economies. In this unit the student is building an awareness of what makes the United States economic system so productive.

The purpose of units 3, 4 and 5 is to help the student to understand the basic framework and relationships of the economic system of the United States. Relevant economic concepts and principles are introduced which give students an idea of major problem areas. Unit 3 includes two subjects which illustrate the role of the individual in the American economy. The two subjects, identified as major learning experiences, are insurance and consumer budgeting. Unit 6 includes

consumer credit as a major learning experience.

Material presented in units 6 and 7 is designed so that the student will learn how the economic system operates and how to solve basic economic problems. In these units the student learns how the private enterprise, competitive market, and price system operate to determine what the economy shall produce, how it shall be produced, and for whom.

Included also in this section is a consideration of two aspects of the operation of the United States economy: (1) the level of spending and effective demand in the system; and (2) the operation of the monetary and banking system.

Unit 8 includes material to enable the student to understand the problems arising from the interdependence of the U.S. economy with the world economic system.

In addition to these nine units the syllabus will include additional selected learning experiences and selected bibliographies of reference materials.

The following pages contain an outline of the nine units included in the syllabus.

THE AMERICAN ECONOMY

Outline for a Proposed Course in Economics
by
Dr. Norman Townshend-Zellner

UNIT ONE

THE WORLD OF ECONOMICS: PURPOSES, METHODS, AND OVERVIEW (DEVELOPMENT OF MODEL 1)

I. Purpose of course -- to develop.

A. Economic understanding

B. The ability to reason intelligently and objectively about economic issues and problems.

II. Methodology involved in the course.

A. Identification of:

1. The economy
2. Economic results, or outcomes
3. People, or society

B. Economic issues and problems are generated out of the economic results, and confront people at personal, local, state, and national levels.

C. Attention, time, effort, and resources are directed to solving problems through problem-solving activity, involving goals and policies.

D. Economic problem solving via a 5-step, rational, objective approach.

1. Define and gain insight into the nature of the problem.
2. Define goals and objectives in terms of the problem.
3. Elicit and define alternative policy solutions.
4. Define and analyze consequences of alternative policy solutions in terms of goals and other effects of achieved goals.
5. Choice of best policy solution.

E. Obstacles to intelligent, rational, economic problem-solving: ignorance and emotions.

1. How ignorance and emotions block intelligent, rational problem-solving, in general, and in each of the five steps.
2. Solution: detect, remove, and replace with intelligent, rational, problem-solving activity.

F. Role of Economics and economic understanding and analysis as a tool in economic problem solving.

1. A technical extension of rational, objective economic problem solving.
2. Definition of economics as a social science.

3. How economics was developed (scientific method).
4. Usefulness of economics in understanding, prediction, and control.
5. How, specifically, economics and economic understanding can be used in each of the 5 steps in problem solving.

III. The world of economics (or the economy) as an economic system.

A. The notion of "system" as fundamental to understanding the world of economics, and crucial to intelligent, rational, problem-solving activity.

1. Definition of "system" as a group of interrelated parts that, in some sense, is a complete whole in itself.
2. Using the notion of "system" as an intellectual tool in economic problem solving, and its specific relation to our 5 steps of rational problem solving.
3. Intelligent thought and systems thinking; abstraction of a system for rational problem solving; specific examples.
4. Dangers in abstraction of a given system for problem solving.

B. The economy as our entire economic system -- abstracted from our entire social system:

1. The economic system is an intellectual abstraction.
2. The economic system is interdependent with all other activities and decisions of people -- e.g. political, social, religious, legal, philosophical, etc.

IV. Studying the economic system -- A first model explaining how the system works.

V. How the student fits in the economic system.

UNIT TWO

ANALYSIS OF ECONOMIC SYSTEMS IN SELECTED STAGES OF DEVELOPMENT: NONLITERATE, LESS DEVELOPED, AND MATURE ECONOMIES

I. Purpose in using comparative approach.

A. Usefulness *per se*, in understanding other economic systems (e.g., the economic systems of underdeveloped countries).

B. Prevention of incorrect generalization from the U. S. economic system; prevention of ethnocentrism.

C. Create perspective and insight to enhance understanding of our own economic system.

II. Three nonliterate, tradition based, prescientific cultures, and the nature of their economic activity.

III. Economic systems of the less developed countries.

IV. Economic systems of the mature, technologically advanced, highly developed countries (use of Model I).

UNIT THREE

THE UNITED STATES ECONOMY (ECONOMIC SYSTEM) DIMENSIONS, ASPECTS, AND OVERALL MODEL II

I. Purpose

A. Develop a more detailed Model II -- to help student understand the economy. (Model II will be an expanded, detailed version of the "circular flow" model).

II. The public, or people.

III. The economy's resources, their ownership and organization.

IV. Dual role of people in the economic system -- as consumers and producers.

V. Economic organization of consumers and preliminary analysis of consumption.

VI. Economic organization for producers and preliminary analysis of production.

VII. Leisure, and the trend to leisure as an alternative to production.

VIII. Key role of the entrepreneurial factor in production and employment.

IX. Specialization, exchange and money.

UNIT FOUR

THE UNITED STATES ECONOMY (ECONOMIC SYSTEM) DIMENSIONS, ASPECTS, AND OVERALL MODEL II (CONTINUED)

I. Key dynamics of the economic system: Roles of incentive, reward, choice control and risk.

II. Market and price system (subsystem).

UNIT FIVE

THE UNITED STATES ECONOMY (ECONOMIC SYSTEM): DIMENSIONS, ASPECTS, AND OVERALL MODEL II (CONTINUED)

I. Savings.

II. Financial institutions.

III. Investment.

IV. Savings, financial institutions and investment: Model II-A.

V. Government.

UNIT SIX

OPERATION OF THE U. S. ECONOMIC SYSTEM: WHAT SHALL BE PRODUCED? HOW SHALL IT BE PRODUCED? AND WHO RECEIVES WHAT IS PRODUCED?

I. The major area of concern in Unit Six.

A. To explain how the U. S. economic system operates to solve three basic problems it (and every other economic system) faces:

1. What shall the economy produce and (the other side of the same coin) how shall it allocate its resources?
2. How shall the economy produce? What methods of production and combination of factors shall be used?
3. For whom shall the economy produce? How shall total production be distributed, divided, or split up among the people?

B. To explain the operation of the economic system in two distinct phases:

1. How the competitive, private enterprise, market and price system operates to solve these questions (excluding the role of government). What are its virtues? What fundamental problems are generated by the operation of the private enterprise system?
2. What modifications and additions to the private enterprise system have been developed through government (federal, state and local)? And how do these operate to meet the problems and preserve and enhance the virtues of the private enterprise system elements?

C. To consider briefly the special cases (in this general area) of agriculture, labor, and economic security.

II. Detailed analysis of how the competitive, private enterprise market system operates to solve:

A. <u>What</u> shall be produced?

B. <u>How</u> shall goods and services be produced?

C. <u>Who</u> gets what is produced?

III. The strategic importance of effective competition in markets to enable the private enterprise market-price system to work well in solving the above problems.

IV. Analysis of the elements of competition to determine what it is that contributes to effective or ineffective competition in markets.

V. By using the market classification scheme and analyzing the degree of ineffective competition in a given market, we can anticipate the degree of distortion in the way that market operates to solve the three basic questions considered in this unit.

VI. A close look at demand and supply in markets with highly effective competition (many buyers and sellers, no product differentiation, freedom of entry, effective information); how price is determined in such markets; and how prices change in such markets in response to changes in demand and/or supply.

VII. Three dilemmas, or problems, posed to our private enterprise market and price system.

VIII. The role of government in relation to how the private enterprise, competitive market and price system operates to solve the three basic problems considered in this unit.

IX. The case of agriculture.

X. The case of organized labor.

XI. The case of economic security.

UNIT SEVEN

OPERATION OF THE U. S. ECONOMIC SYSTEM: HOW MUCH IS PRODUCED AND HOW MANY JOBS ARE PROVIDED -- ECONOMIC STABILITY AND GROWTH

I. Economic stability defined.

II. Economic growth defined.

III. Linkage between stability (at high levels of employment) and growth.

IV. Importance of economic stability and growth.

V. Economic stability and growth: A look at the record.

VI. Measuring national income, production and prices.

VII. Major forces determining the level of production, income, and employment in the United States economic system.

VIII. Major forces determining the level of production, income and employment in the United States economic system: The role of the Federal Government via fiscal policy (expenditures, taxing, borrowing).

IX. The role of the banking and monetary system in economic stability and growth.

X. The banking and monetary system in economic stability and growth: The role of the Federal Government.

XI. Necessity to coordinate and integrate government's monetary and fiscal policy.

XII. Government's special measures to promote growth.

XIII. Monetary fiscal policy and "cost-push" inflation.

UNIT EIGHT

THE UNITED STATES IN THE WORLD ECONOMIC SYSTEM

I. The economic interdependence of the U. S. economic system with other national economic systems in the world economic system.

II. Trade and investment among national economic systems is based on the same underlying factors as trade and investment among regions of the U. S.

III. Major differences involved in international trade and investment (compared to domestic).

IV. In the interdependent world economic system, inflations and depressions are "contagious," and spread from one national economic system to another.

V. The international balance of payments.

VI. Major economic problems and developments in world trade and investment.

UNIT NINE

THE SPECTRUM OF ECONOMIC SYSTEMS

I. Importance of a rational, objective nonemotional approach.

II. Review elements of Unit One.

III. Dimensions in a spectrum-analysis of economic systems.

IV. Analysis of various economic systems in terms of the above spectrum dimensions.

V. Some specific points of comparison between the United States/ and Russia's economic systems.

VI. Relative production and growth of the United States and Russia.

VT 001 378

VT 001 378 ED 011 042

National Vocational-Technical Education Seminar on the Development and Coordination of Research by State Research Coordinating Units.

Christensen, Virgil E.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

66

EDRS Price MF-$0.18 HC-$3.48 87p.

*SEMINARS, *EDUCATIONAL RESEARCH, *PROGRAM DEVELOPMENT, RESEARCH COORDINATING UNITS, *ADMINISTRATIVE ORGANIZATION, INFORMATION DISSEMINATION, *VOCATIONAL EDUCATION, DIFFUSION (IDEAS), AGRICULTURE, EDUCATIONAL CHANGE,

PERT

The purpose of the 5-day seminar was to assist research coordinating unit personnel and other educational leaders fulfill their roles in planning and conducting comprehensive state programs of research and development in vocational education. Its specific objectives were to -- (1) develop a concept of research and development and the conditions essential for its success, (2) develop understanding of a functional organizational structure, (3) identify key individual and organizational roles, (4) develop an understanding of the dynamics of planned change, (5) stimulate empathy and support, (6) establish lines of communication for coordinating state, regional, and national activities, and (7) provide a setting for sharing ideas and seeking solutions. The seminar was attended by 57 participants from many of the states. Papers were -- "The Research and Development Concept -- What is There to be Done and Who can do it Best," by Ray Jongeward, "Improving Research in Vocational Education," by Alan B. Knox, "Structuring the Research Environment," by Loyal W. Joos, "Organizing for Implementing Changes in Education, Some Implications from Agriculture and Diffusion Research," by H. F. Lionberger, "Dissemination of Research and Development Information," by Harold Haswell, "Applications of PERT to Education," by Desmond L. Cook, and "Research Coordination -- What Lies Ahead," by David L. Bushnell. (JM)

Research Development and Coordination

January 31 — February 4, 1966

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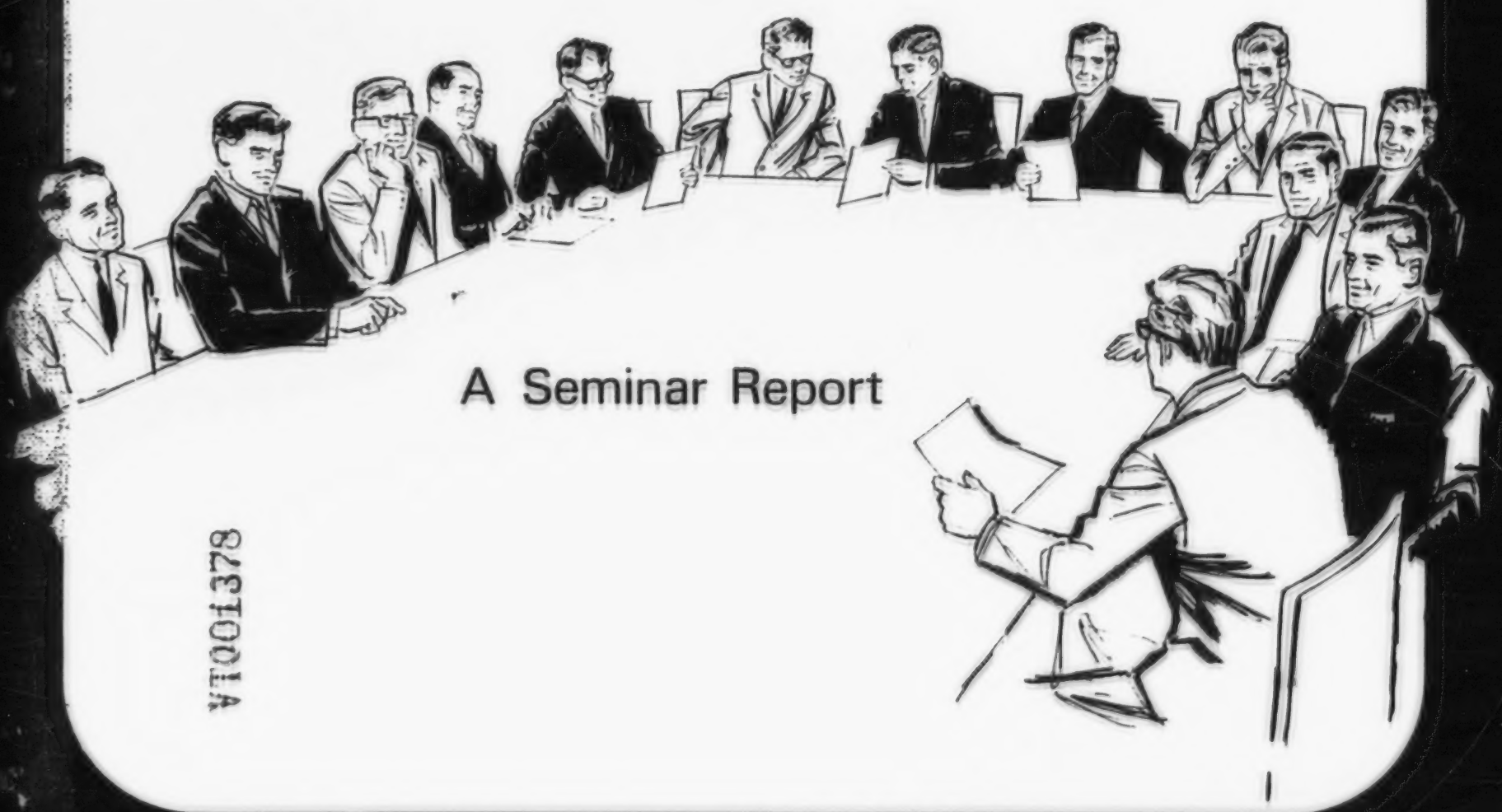

A Seminar Report

VT001378

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION • The Ohio State University, Columbus, Ohio

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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NATIONAL VOCATIONAL-TECHNICAL EDUCATION SEMINAR

ON THE

DEVELOPMENT AND COORDINATION OF RESEARCH

BY STATE RESEARCH COORDINATING UNITS

Sponsored by

The Center for Vocational and Technical Education
The Ohio State University

In Cooperation with
Cornell University
and
The U. S. Office of Education
Division of Vocational and
Technical Education

1966

PREFACE

The rapid expansion of research and development in vocational and technical education has placed increased demands on the vocational education research community. The availability of Federal funds for research has been paralleled in many instances by increased funding from state and local sources. Renewed vigor and interest in research have permeated all levels of vocational and technical education.

Viewing the vocational education research effort in an organizational frame of reference, we recognize the critical role assigned to the State Research Coordinating Units. There are inherent in these evolving structures opportunities for effective leadership, coordination, and stimulation of research and development activities throughout the several states. The major purpose of this seminar was to assist personnel in these coordinating units and other educational leaders in planning and conducting comprehensive state programs of research and development.

We want to express our appreciation to the resource personnel who effectively contributed to the development of this purpose. Recognition is also due Dr. C. W. Hill, Professor of Agricultural Education at Cornell University, who served as coordinator of the national research seminar series, for his interest and assistance in this seminar. We would also like to acknowledge the work of the members of the Seminar Planning Committee and Dr. Virgil E. Christensen who served as seminar coordinator and who prepared this report.

We trust that this publication will prove to be of continuing assistance to the participants and to others who were not able to attend.

Robert E. Taylor
Director

INTRODUCTION

The five-day seminar reported herein proved to be one of the "stormiest" five days in the history of research. Blizzard conditions and abnormally heavy snowfalls beset the sessions from hours before opening until hours after the last departing participant's plane finally received clearance for take-off.

While snowdrifts on the outside piled high in a non-normal skewed distribution sixty of the sixty-two invited participants "plowed" their way through the most formidable problems of organizing and conducting effective Vocational Education Research Coordinating Units. To the Seminar participants, consultants and speakers, who made such noble efforts to keep the planned program on schedule, go our sincerest thanks.

The contents of this report are in several instances transcriptions from tape recordings made during the Seminar and as such are subject to the inevitable errors.

I appreciate the Seminar consultants' willingness to share their materials and trust that they, along with the reader, will understand and overlook any misquotes appearing herein.

V. E. C.

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PURPOSE OF SEMINAR:

To assist research coordinating unit personnel and other educational leaders in fulfilling their roles in planning and conducting comprehensive state programs of research and development in vocational education.

OBJECTIVES:

1. To develop a concept of research and development for state programs of vocational education and the conditions essential to its implementation and success.

2. To develop an understanding of a functional organizational structure for establishing and administering a program of research and development in vocational education.

3. To identify key individual and organizational roles and clarify their relationships to research and development activities.

4. To develop an understanding of the dynamics of planned change through research and its application to vocational education.

5. To stimulate empathy and support for research and development activities in vocational education.

6. To establish lines of communication for coordinating state, regional, and national research and development activities in vocational education.

7. To provide a setting where individuals might share ideas and seek solutions to common operational problems in vocational education research and development activities.

SEMINAR PLANNING COMMITTEE

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SEMINAR PAPERS AND REACTIONS

BY CONSULTANTS

THE RESEARCH AND DEVELOPMENT CONCEPT -

WHAT IS THERE TO BE DONE AND WHO CAN DO IT BEST?

by R. E. Jongeward*

Historically in America there has been the cry -- "There must be a better way!" Someone always builds better mousetraps. It is an American expectancy, especially among business and industrial concerns.

Until recently there have been two notable exceptions--the Church and the School. Recent religious stirrings reveal movement and re-examination of historic and traditional beliefs. For the first time in 800-900 years, Catholics may be eating meat on Fridays. It is even conceivable that Southern Baptists may soon drink in front of one another. Ecumenicalism is creating new patterns of worship and causing religious strangers to examine the likenesses and differences of one another's faith. The old-time strains of "Give me that old-time religion that was good enough for father" are fading into the yester-years.

Grandpa's little old red schoolhouse with its oxcart methods and single purpose curriculum is losing the nostalgia it once held. There is new life, new hope, new dreams of a modern, second-to-none educational system for everyone--including the poor and those whose color is less than white. Change, a word infrequently used and with little meaning among the now grey-headed educators, has suddenly burst forth with great force, almost engulfing student and teacher alike. The end is not yet in sight when the pace of change may be slowed. In fact, increased educational funds, a booming economy and a rapidly changing technology all point to an even greater tempo in the future. With over 50% of our population under 25 years of age, the restlessness and impatience of youth are easily seen in our schools, on college campuses, and on our streets.

It is little wonder, therefore, that we find ourselves somewhat bewildered and perplexed by the events of the day. We are awakening to the fact that we are living in one of Margaret Mead's "other worlds." Some are finding that they are being passed by, others and struggling to keep up with the vast complexities of our modern day. Hopefully many will successfully throw their arms about the problems of the day even though it is difficult to find mere hand holds.

---

*Director of Research, Washington State Office of Public Instruction, Olympia, Washington.

It seems entirely appropriate today, therefore, that we should consider getting recent research into action by examining what it is that needs doing, who should do it and how shall it be accomplished. This paper has presented an opportunity for me to express some personal opinions and observations about these questions. I have welcomed this since they represent my internal struggles over the past four years as Director of Educational Research in the State of Washington. As a result, you may find this discourse less than academic and not carefully documented from the research literature but rather (hopefully) a logical analysis of a series of alternatives that seems to lead to an inevitable conclusion.

Basic to my thesis is the premise that somehow, somewhere, sometime educational research should affect the student and the quality of the program offered. Granted, this is a narrow definition of research and not acceptable to everyone.

Perhaps crudely indeed, and at the risk of omitting important approaches to getting research into action, I'd like to examine four or five approaches to this basic idea that "there is a better way" and what effect they have upon the student and the teacher.

(1) This approach is one with which we are all familiar. It is the Higher-Education-Oriented approach to Educational Research and Development in which the College and University experts "do the research and tell the answers." (No quarrel with the need for University/College Research but recall the basic premise.) The thought here is that "experts tell, and everyone listens," or that "telling is teaching," or "listening is learning." Yes, it's true some people do listen and learn but widespread effect in practice is usually missing - why else the 25-50 year lag between discovery and application? Obscure and technical language usage has also acted as a deterrent to effective communication and general acceptance. Let's admit too, that familiarity with research has not been a strong emphasis in teacher education.

(2) A second approach may be thought of as the prescribed-curriculum-approach. Rigid state department rules and regulations may frequently represent this pattern. No changes can be made in methods, materials, or techniques unless they have been "approved" by the great white father in the state office. Students receive a sterile diet of packaged and safe knowledges. Teachers are rewarded for conforming to set patterns and standardized contents. This approach, too, emphasizes the listen-and-learn, telling-is-teaching concept. Changes are infrequent, resisted, and suspected if proposed. The boast can be made of such schools and situations, "Our schools are just as good as they used to be"--in fact, they are exactly the same as they were 50 years ago!

(3) The product-or-gadget-oriented-approach to educational change is a recent phenomenon that has sprung up with the advent of the "hardware salesman" and the "50-cent NDEA dollar." Here, the rigidity of the State Department approach is missing--so is the research from the College and University! There are also insidious elements at work here too. Keeping up with the Snob Hill School District provides sufficient incentive to order thousands of dollars of equipment--that was originally produced for industry and only slightly adapted for educational purposes--that is touted to launch a new era in educational practice by its flashy advertisements and smooth sales personnel.

Speed is the watchword in order to use the "cheap money" that is available now, and to be the first in the area to exploit a new breakthrough! Program objectives and planned evaluations are nonexistent and very soon thereafter dust is collecting on the equipment in the school storeroom or is discarded by teachers and administrators because maintenance costs were too high or the students absconded with vital components, rendering the equipment useless.

The profit motive, cheap money and the chance for quick reputations all combine to provide for rather widespread and quick spread of the innovation or change that accompanied the "new hardware." Little or no assessment of the effect upon the student was made, frequently the change was short-lived, and teachers felt guilty and somewhat "burned" for having been "taken in" by the gimmickry of the innovation. Most of them vow not to change so easily next time. Well-planned innovations will have a difficult time obtaining a favorable hearing in such situations.

(4) A fourth approach to getting research into practice may be identified as the "dissemination-of-research-information" idea. This is the belief that if all that good, solid research left untouched on College and University shelves could only be gotten to the consumer--the teacher--the problem of lag or gap between research and practice would be solved.

The problems with this plan are manifold. Methods of information retrieval are found to be very expensive, cumbersome, and not very efficient. Somehow, teachers don't read the valuable research journals, research reports, briefs and summaries that are prepared. If they do, very soon there are arguments among staff members on just "what does research say" on a given subject. They often conclude (not entirely justifiably nor unjustifiably) that we can prove any point of view with research--all we have to do is look long enough to find support for your own viewpoint.

When this discovery is made the teacher is encouraged to think that her own teaching stacks up with the best methods known to research; therefore, he is perfectly justified to continue, unchanged. As a result, the teacher becomes impervious to the changes that are happening around her.

(5) A fairly recent and new-to-education approach to improved educational method is now in existence. It's the efficiency angle. Cost-benefit analysis, used successfully in the military and in industry offers justification to some school boards and administrators to make vast changes in organizational structures, personnel utilization and instructional methods to effect greater economies in the school program. Unfortunately again for students, and for the quality of programs offered them, these techniques while they worked well when applied to things do not produce the same results when used on people (students). These methods have not been sufficiently tested or adapted to make them effective instruments in the hands of school personnel. There can be little doubt as to the need for careful cost accounting practices being adopted by education, but these must be carefully planned and tested before they are used.

Now that I have disposed one-by-one of many of the existing (there are more--and the ones mentioned may exist in various combinations) educational practices for instituting much needed changes and for providing improved program offerings, you may rightly ask--so how does he propose to do it?

My answer may surprise you . . . Honestly, I don't really know myself! I do have some clues, however, that appear to me to offer some promise. Let me suggest them.

Shall we be as personal as we can? In general, how do we learn? Do we modify our behavior (learn) more easily when we are favorably inclined (positive attitude) toward the task at hand? Do we modify our behavior more easily during or after we have been actively engaged in some activity or pursuit?

The answers, of course, are obvious and we have agreed to them for years. My question at this point is "Do we practice what we believe?" I think not! When we mount programs for getting what is known into immediate practice this is particularly the case.

Students frequently attend colleges and universities where it is do-as-I-say-not-as-I-do, rather than being actively involved in the process of learning, thereby gaining understanding by example as well. These students graduate, become teachers and only a handful discover (and probably accidentally) how learning takes place and soon become good teachers. Then school administrators, researchers, college

in-service professors repeat the errors of the past by devising all sorts of schemes to get those staid teachers to change their methods, techniques and/or materials. When they don't, we can't understand why!

Active involvement is fundamental to the learning process (we learned in Ed. 101). Therefore, I must irrevocably draw the conclusion that if teachers are going to accept changes, adopt the latest research knowledge, or make basic changes and improvements in their programs then they must actively participate in the process that will enable them to learn and understand them, to develop positive attitudes toward them and finally adopt them as part of themselves. This seems so very basic if we realize that curriculum changes in a classroom actually represent changes (modified behavior) in people.

An R & D Example

The story is told of Winston Churchill during the year 1914 when he visited France and saw the beginning of World War I with soldiers in trenches and the use of other land fortifications. He returned to England impressed by the fact that an improved military technique for fighting such a war could include a movable platform from which soldiers could fight. He took this idea to Army personnel and after much discussion they rejected it as not practical. Tenacious Churchill decided that the idea still had merit and went to the Royal Navy and proposed they undertake research and development work that might lead to the development of this idea. They finally agreed and with limited funds began exploring the feasibility of devising such a vehicle. History, of course, reveals the success of this early R & D effort in the development of what we know today as the tank.

It is interesting to note that much of the original development by Navy personnel is still visible today. For example, the nomenclature associated with the tank denotes nautical connotations in a remarkable way, i.e., the body of the tank is known as the hull; the protection on the exterior resembled the armor plate of battleships; the tank weapons are found in turrets--other parts include such things as superstructure, bow, hatch and compartment.

At approximately the same period the Germans began thinking about developing a similar idea. German Army personnel conceived of their vehicle as a mobile fortress. As a result of this R & D effort the resultant tank became a very heavy armor-plated, extremely bulky vehicle, known as a tank, that had very little maneuverability in the field.

Shortly after these two developments, the Americans began exploring the development of a combat vehicle embodying military characteristics of firepower, mobility and crew protection. In this case the R & D effort was contracted to the auto manufacturers. Auto engineers perceived this vehicle to be a light, easily maneuverable weapon similar to the automobile of the day. In contrast, therefore,

to the English and German versions of the tank, the Americans devised autos known as light tanks weighing only three tons and carrying from one to three men. The U. S. version that resulted from this experimental effort actually resembled an armored automobile.

This story leads me to conclude that the day of the classroom-teacher-researcher is at hand if we are to fully realize our objective. This person would actively engage in processes of inventing, designing, field testing, demonstrating and disseminating research within the confines of the classroom, the school, and the district. Planning for change or working in an atmosphere of planned change is essential for all of us in education.

In conclusion, the questions raised earlier in this paper must be answered as follows:

(1) Involvement of classroom teachers in research and research activities appears to hold the best promise of long-term educational improvement for students and programs.

(2) Who must do it? There is something for everyone--the College and University researcher, the State Department research office, and the classroom teacher. Above all, there must be excellent communication established among all participants and a wholesome team effort mounted if real progress is to occur.

(3) What needs to be done? Everything--the sky is the limit!

"Reaction to Mr. Jongeward's Presentation"

by Dr. Robert M. Worthington*

I. (Commenting on Ray Jongeward's statement that the teachers in the local school systems should be involved in research):

"I agree with Mr. Jongeward's remarks that the teacher is the key to our effort. The teacher of vocational education and any subject for that matter, will make or break the program. They must be involved. They (the teacher) are the ones who ask the right questions--they provide the feedback as to whether or not we are doing what we should do. I agree that in action research, the teachers might be reluctant to accept innovations that appear artificial and many people think suggestions for change are artificial if they didn't have anything to do with it--let's try to get teachers involved. As Stephen Corey says,"action research is research undertaken by educators in the field in order to improve their practices.' The NEA Association for Curriculum evelopment says that action research and the action research idea has so much to recommend it that we should strive for the time when a part of every teacher's day will be set aside for action research as part of his regular load."

II. (Commenting on the remarks of action versus basic research):

"Really a primary goal of research should be the improvement of institutions. Outcomes of action research are based on behavioral changes that occur in the teachers; the researchers themselves will change as a result of this. Practices do not change unless the teachers themselves change. Action research depends upon interaction between individuals and groups. This promotes free flowing of ideas, creating means first solving problems and good group dynamics. The teachers should become a part of the research team. This I think should be our major thrust in our educational effort in vocational education. There is no doubt that we need basic research to find or seek truth, but we need, it seems to me, to put a major thrust forward in action research getting teachers and school people involved as part of the total team so that the dissemination and diffusion will be built into our research efforts.

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IMPROVING RESEARCH IN VOCATIONAL EDUCATION

by Alan B. Knox*

I. Background

A. The purpose of the session this morning is to explore a way of thinking about the improvement of research related to vocational education, as one of the professional roles of the Seminar participants (referred to in this outline as RCU staff).

B. The purpose of this outline is to suggest some background ideas about working relationships between RCU staff and researchers within their state, so that the Seminar session can be devoted to a discussion of detailed strategies.

C. A helpful starting point is with the RCU staff member himself.

1. Although he may perform other important duties, it is assumed that one of his major responsibilities is improving the quantity and quality of research in his state, related to vocational education. (It is recognized that in another role the RCU staff may be the researcher, as with "in-house" research.)

2. "Improving" assumes some existing research activity related to vocational education, that should be considered.

3. The helping relationship between the RCU staff and the existing and potential research activity within the state
   a. is exceedingly complex
   b. varies from situation to situation
   c. requires empathy for the local situation and flexibility in working relationships

4. The role of "change agent" is proposed as a useful way of thinking about one of the major roles of the RCU staff, because the literature describing the "change agent" suggests
   a. a simplified basis for understanding the helping relationship

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b. ways to diagnose facilitators and barriers in the local situation
c. decision points in a long-range strategy by RCU staff

II. General characteristics of a model to better understand the social system of researchers with which the RCU staff would establish linkage.

A. A model is a simplified system that contains the major components and dynamics of the more complex social system that we are trying to better understand.

B. The parts of the systems model are interrelated components and not steps.

C. For purposes of the present outline, it is proposed that the general concept of the "system" be thought of as the specific example of the University department of vocational education. (Other systems that might have been selected for illustrative purposes include a local school system or a state government bureau.) The "system" includes the researchers and their related staff, along with the formal and informal organizational structure within which they operate.

D. A helpful way to approach a description of a system model for understanding how to improve the quantity and quality of research related to vocational education, is to begin with a list of typical activities of the RCU staff as change agent.

1. In the improvement of research related to vocational education, RCU staff engage in the identification of
   a. agencies and units that are conducting and could profitably conduct research related to vocational education
   b. a desirable amount and type of research activity (objectives)
   c. the existing amount and type of research activity
   d. crucial gaps between the existing circumstances and the changed circumstances
   e. the activities or resources that are needed to close the gaps
   f. the combination of activities by the RCU staff that constitutes an optimal strategy

2. Activities "a," "b," and "f" deal with the objectives of research related to vocational education in your state and this decision is not typically made primarily by RCU staff. (Other sources of objectives include: the interests of individual researchers; urgent problems facing teachers and administrators in the

field of vocational education; goals of institutions sponsoring research related to vocational education; guidelines of state and federal governmental units that administer programs related to vocational education; and policies of government research granting agencies and private philanthropic foundations.)

3. An understanding of activities "c," "d," and "e" especially can be increased by conceptualizing current research activities related to vocational education in your state (or a university within it) as a social system.

E. The proposed system model related to vocational education research has three broad aspects--input, output, and functioning of the system. Each of these three aspects will be described briefly below to indicate interrelationships and the input and output aspects will be described in greater detail.

1. Output - The primary output that is of interest to us in the present context is RESEARCH FINDINGS. (A secondary concern may be that the research findings be in a form and be produced by a process that encourages utilization. However, it is important not to define "output" too broadly, so as to include all research related activity and ways to actively achieve adoption of findings, or "output" will include much of education.)

2. Input - To achieve the output of research findings, three types of input are needed
   a. competent researchers
   b. priority ideas
   c. money to buy time

3. Functioning of the system - There are many factors that contribute to the levels of productivity and satisfaction that characterize a social system, (e.g., the flow of important communication between persons within the system that contributes to coordination; and the relative level of satisfaction and continued cooperation that results from the balance between what the individual contributes to the achievement of organizational objectives and the set of incentives and rewards that he receives). However, this point will be dealt with in the presentation by Dr. Joos, and the remainder of this outline will concentrate on the relationship between the RCU staff as change agents in relation to the input variables.

III. The major output from the system is findings from excellent research. To increase the quantity of inadequate research would be of little benefit to anyone. Research findings are defined as tested knowledge from which we may generalize. (It is recognized that useful research related activity such as evaluation or utilization or preparation of researchers may precede, accompany, or follow research.) The process of producing tested knowledge typically includes

A. identification of a question or problem where present knowledge is inadequate,

B. development of a tightly reasoned rationale that explicitly states how the researcher is conceptualizing the problem, based on previous experience, research, and theory,

C. statement, at critical points in the rationale, of predictions of anticipated relationships,

D. collection and analysis of empirical data that is most pertinent to test the tenability of the predictions and is most representative of the situations to which the researcher would generalize, and

E. presentation of precisely stated conclusions which, if the research is successful, constitute tested knowledge from which we may generalize.

IV. Three major types of input are proposed

A. The most crucial type of input appears to be an adequate supply of competent researchers who are interested in topics related to vocational education.

1. It is assumed that educational research is becoming increasingly complex and to conduct it in a way that produces tested knowledge from which we may generalize requires a competent researcher. To become a competent researcher requires substantial education and experience related to research theory and methods.

2. There are three basic ways in which to increase the present inadequate supply of competent researchers who are interested in topics related to vocational education

a. encourage the competent researchers who are currently engaged in research related to vocational education to devote more of their time to this area of activity

b. encourage competent researchers who are not engaged in research related to vocational education to pursue questions in this area

c. increase the supply of competent researchers who will pursue questions in this area

3. The crucial question is what can the RCU staff do to most effectively increase this input? (We will return to this question at the end of the outline as a springboard for discussion.)

B. Priority Ideas for Research. The process of research is seeking answers to researchable questions, the understanding of which will contribute to the solution of pressing problems in the field of vocational education.

1. Uses of priority ideas for research
   a. to contribute to the solution of the most urgent problems
   b. to initiate researcher interest and activity related to vocational education
   c. to obtain other needed support for research

2. Sources of priority
   a. points to urgency for the consumer of research, such as might be identified by the critical incident technique
   b. theoretical attractiveness to the researcher, because the idea has potential for innovation, specific application of broader concepts, and theory building

C. The major function of money as an input is to buy time of the researcher, related staff, the computer, etc., that is needed to conduct research.

1. The typical way in which to obtain money to buy time is to prepare a sound research proposal.

2. Two major ingredients in a sound research proposal are a priority idea and a competent researcher.

3. The present availability of money to support research related to vocational education is greater than ever before, and may even exceed the availability of competent researchers and priority ideas.

V. Questions related to the role of the RCU staff in encouraging more, excellent research related to vocational education, that will obtain tested knowledge from which we may generalize.

1. Is the concept of the change agent role of the RCU staff, as they work with present and potential vocational education researchers, an appropriate and useful one?

2. To what extent does the interrelatedness of our most pressing problems justify the use of a system model?

3. How warranted is our assumption that the need for research related to vocational education far exceeds the supply? How about the demand and utilization?

4. How necessary to the improvement of research related to vocational education is increasing the amount of time by competent researchers that is devoted to topics in this area?

5. If crucial, then how can we identify the actions by RCU staff that would most effectively increase this time commitment? (Most promising alternatives.)

6. What existing circumstances provide the major source of resistance to increasing research time on vocational education topics?

7. What existing circumstances most facilitate the improvement of research in vocational education?

8. What additional incentives can be added to the system?

9. Which resisting factors can be most effectively minimized and which facilitating factors can be most effectively maximized by RCU staff?

STRUCTURING THE RESEARCH ENVIRONMENT

by Loyal W. Joos*

I am quite aware that this seminar has to do with research in vocational education, which some think is a subdivision of education; and in spite of that I choose to talk about stimulating educational research, because I think of all education as having a vocational aspect, and also because I believe that the processes which will encourage research in vocational education are generally applicable in the general educational context. Let us begin by stating that the research enterprise needs a lot of stimulating throughout education. It may seem to you that we in vocational education are vastly behind the general research progress in other educational groups. If so, I mean to bring you to think otherwise, because I believe that most of what passes for good research in education suffers by reason of certain lacks in basic philosophy which are less troublesome to us in vocational work than they are to those whose field may be described as educational psychology; yet it is in psychology that the research reports are found which are often cited as models of good research.

For my part, I think of educational research as some systematic procedure carried on for the general purpose of adding to our store of useful educational knowledge; and I define useful to mean that the use or possession of the knowledge will improve the educational process in one or more of several ways. We can think of improvements to input, to process, to output, and to utilization. Ideas related to quality, quantity, and efficiency are all part of the picture of improvement. I believe, for example, that if we were to apply the power of the modern computer to the problem of the logistics involved in the school lunch program, to the end that better meals were available at 75% of current cost, that this would be a contribution to education and a valid use of a researcher's time. On the other hand, proving that better hot lunches increased learning rate I would regard as interesting but of considerably less importance.

I am to discuss with you some ways in which research may be stimulated; and I am going to avoid almost entirely the kind of research which is conducted in, for, or by colleges and universities. I shall be talking in terms of that research often labeled as "action research," apparently because it is done by some one who is active

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in education such as a teacher, supervisor, or school principal; rather than by someone who used to be active and is now removed to some (presumably) higher level. More about this later.

It will be seen that the efforts that might be made to provide a good research climate can be effective only if they are made by the right people; the researcher cannot provide his own climate for research, and he who does provide it is not likely to have been a researcher. So if you are not a researcher, but an administrator of some sort, then you are the one I want to talk to - but I want to warn you in advance that if you do this thing well, you will not be able to remain outside the process. You have to become involved. For example -

Structure Basic to Research

Structure has to do with the game and its rules. In this case the game is vocational education, and the rules say who shall be allowed to participate, under what conditions, and for what goals. What are the goals of vocational education? How can you tell when you are winning? We have not done a very good job at stating the rules of vocational education, but we have done a lot better than has been the case in, say, educational psychology.

If your rules say that the object of the game is to train people for gainful employment, you have a rather specific measure of success. You could do some reliable studies to show how well you played the game. Unfortunately, such specific and narrow-gauge structure will tend to throttle research of such questions as "Are the right people being trained?" "Is vocational training productive of general skills?" or some others you might think of.

In building a structure for research in vocational education, we must begin by re-thinking the whole purpose and philosophy of vocational education. Further, we must write all this thinking down so it can be read and studied by the practitioner, so that the teacher in the classroom can see that what he is doing is not instructing a boy merely how to drill a hole without breaking the bit, but educating him to an awareness of the total significance of that process. The reason is simple: unless the practitioner is aware of the whole problem, he can do little useful thinking about better ways to attain the total goal.

Of course you could attempt to stimulate research just by saying to the practitioner, "I want you to study what you are doing and try to think of better ways to do it. I'll give you extra time, and even reward you with a promotion if your research report looks good." I don't think this will work, but even if it did, the result would be that you would soon have to choose between letting him take over your job as a leader or telling him that you have changed your mind, and he can stop thinking.

No, as a leader you are also the keeper of the rules. You make the philosophy of vocational education, and without a philosophy (or theory) research is impossible. You begin with theory, develop one or more hypotheses from the theory, set up a systematic test of the hypotheses, and attempt to reconcile the results with your philosophy. This is fundamental, and you must see that it is done.

Provocation as a Stimulus

Now that you have done all this heavy thinking, your problem is to get some practitioners involved. You might try provoking them in the manner of Dr. Conant or of Admiral Rickover; except that research designed to prove someone wrong is rather sterile exercise. I would recommend, instead, a combination of skepticism and faith. Let people know that you are skeptical of the present ways of doing things, but that you have faith in their ability to do better. Please notice that if you have properly structured the rules, "doing better" will have been defined. The skepticism may stimulate some research into the question, "How badly have we been doing?" and this will very soon, of itself, produce some obvious ways of improving.

Some years ago, for example, a researcher was given the task of studying the vocational agriculture departments in Baltimore County, Maryland. The problem was simply stated: Should Baltimore County continue to offer vocational agriculture courses in Franklin and Hereford high schools? Now Hereford was (and is) the oldest such department in the United States. Yet he discovered that it had never served the purpose for which it was established, for the reason that most prospective farmers dropped out of school before the 10th grade, which was the earliest opportunity to enroll in vocational agriculture. As a result of this research, a plan was finally (after 40 years) set up whereby 9th grade boys could enroll. There are several lessons which could be drawn from my example, but I will mention only one, which is that it is not enough to draw up the rules; someone has to keep score. Of course, keeping score means more than filing state reports. I sometimes think that we could learn a lot from the sport's world, where we find that a baseball manager has detailed statistics on every major league player, including the number of times he has swung at a low outside pitch.

I know that when the climate is right for research, the practitioner who is uncomfortable with the job being done has an alternative. He doesn't have to get out of teaching in order to become fulfilled; he can instead experiement within a broad and permissive structure. He can be allowed to think and to innovate; indeed he can and should be aided and abetted. First, however, you have to stimulate some action, and a good way is to provoke people by setting the dogs on as many sacred cows as possible.

New Categories for Old

There is a useful habit of thought which operates by labels and categories. For example, we call education vocational when it intends to train people for employment, and when we talk about various methods or plans of operating, these tend to be labeled with the names of people or places, like "the New Jersey plan," or "Rogerian counseling," and the like. As useful and convenient as this may be for talking about what has been, it is a straight-jacket when it comes to research and innovation, because fresh ideas and methods tend to be lumped into old categories and forgotten. It is too easy to give a new thought only cursory consideration, just enough to say, "Oh, that's the same thing that Smith tried in New York in the twenties. Didn't work out."

Unfortunately, educational literature is full of these dead categories; they are in fact embalmed and preserved in textbooks used to teach our teachers about education. It almost seems that some professors care less about the utility of a thing than about the students being able to identify the label of it. Suppose, for example, we were to talk about a linguistic method of teaching reading. Nineteen out of twenty reading experts will say, "Ah, Bloomfield!" and quit listening.

Now, if the researcher in education is to have an adequate "label structure" in his thinking, he must have a lot of extra categories handy under any general heading so that he is quite prepared to put a different label on each fresh "linguistic method," or each fresh idea in vocational education. It may turn out that the latest thing to come to attention is the same old idea that has carried two other labels before, but you can't afford to say so until you are sure, and perhaps not even then. Nothing so discourages the neophyte in research as to be told "that's been tried before," and nothing is so infuriating as to hear this from someone who hasn't really listened long enough to know what is being said.

A Time for Research

The Bible tells us that there is a time to live and a time to die, along with a time for everything else; research is a notable exception. I can tell you from experience that it is always too late to begin a research project. Perhaps the trouble is with the notion that research is done in projects, while education just keeps on going endlessly. In the case of research conducted by practitioners, the first obligation of the teacher is to conduct the prescribed program. If nothing is introduced to break the rhythm, the daily, weekly, and yearly round will continue without much change.

At present, the research efforts of practitioners usually result from the necessity of fulfilling the requirements for advanced degrees. Such research is usually a one-shot affair; with the requirement fulfilled, the research is terminated, never to be

resumed. In most cases this is a good thing, because a first try at research is likely to be fairly treated if buried with as little fanfare as possible. In those instances where the degree-seeker does more than the minimum of research, the usual thing is that he has left the active field and has been drawn into the halls of higher learning, and so has passed out of my consideration of active researchers.

The cooperative research program of the U.S.O.E., and more recently certain other acts of government,have provided in the first case the encouragement and opportunity to do research, which tended to be initiated by college and university personnel; and in the later cases a kind of mandate to research and/or evaluate which is undoubtedly the reason that we are here today. The recent expansions of research efforts have revealed an interesting thing, and that is the very poor fit between traditional research technology and the tasks which face the researcher in practical educational fields. Small sample studies, based on the normal probability model, are woefully inadequate for our needs today; I shall have more to say on this another time.

These stimuli to research are, I presume, introducing "breaks in the rhythm," which I mentioned earlier. Research must be conducted, if not because the federal aid rules require it, certainly because the shifting educational situation requires valid information of a very practical kind. Some of us are learning right now how to design and conduct studies undreamed of five years ago. I have personally conducted an analysis on survey data composed of responses from more than 485,000 people, and summarized these data in usable form in a matter of one day. In order to conduct evaluations of new methods and curricula, we have set up procedures which consider data at a rate and complexity which exceeds anything attempted by any of the testing companies in the U. S. ten years ago, and we do these things in order to help our teachers and supervisors with today's problems. We provide a possibility of continuous assessment of school programs in order to provide an information base for prompt program planning and revision.

A Way to Live with Research

In Oakland Schools, we are learning how to live with research. Since it is no longer something you can take or leave, or even take from time to time, we take the long view; we live with it. This means that practitioners have as a requisite service, the use of competent system designers and technical consultants. The know-how is provided, not only to do the job but to teach the practitioner to use and control the whole process.

Hopefully, the result of such efforts will be the development of a new kind of school administration, one in which research and evaluation is not only a tolerated part of the process but is the very sensory organ which guides administrative progress. This is only possible if and when technical assistance of a high order is provided, together with good data processing capability.

These prerequisites of research are built into the administrative organization, and occupy a unique position in staffing, in that the research staff is independent of other staff functions. In this way, each other staff person is free of organizational restrictions in using research technological services. Likewise, the research staff has no direct responsibility for conducting other administrative functions.

This sort of staffing structure results in the responsibility for initiating research activities resting with educational practitioners and their supervisors. The services of the research department are as available to a teacher who wishes to design a study of method as they are to the administrative head who wants a design and program for a long-range study of educational efficiency. But in neither case does the research technologist initiate the study.

Communicating about Research

One of the best reasons for conducting research studies in the situation and the context of the education practitioner, is that which has been called the principle of involvement. This principle is simply that it is easier to inform people about research when they have been involved with it as it took place. It is true that there is an apparent bias among educators to place more value on the word of experts from afar than upon their own experiences, but this bias is more effective when it comes to planning group activities for in-service training than when planning next year's staffing pattern in the school.

A complementary feature of the principle of involvement is that good research activities tend to attract kibitzers from other places; people who have come to see for themselves that new program being tried in the hinterland. This adds status and even glamour to research involvement.

Of course, research is of little effect without publication. Here again the uses of the past are not adequate, because the nationally distributed professional journals are insensitive to the needs of local school researchers. Of course, it is an excellent thing to be published in that way, but such publication is too slow, too costly, and too undependable to begin to do the publication job needed. In any case, the first task is to prepare a research report for the use and edification of those who are directly concerned. Mimeographed or photo-offset reports are useful for this purpose.

Don't stop with merely local distribution of your report. Mail them to libraries, local institutions of higher learning, and your professional colleagues everywhere. Always mail them only to people by name, and let it be known that additional copies are available. The costs of such self-publication should be justified as bread upon the waters.

There is a saying in academic circles that one must publish or perish. I would caution you not to do both. The quality of your research will be evident to the reader of your report. If it is good research, poor reporting won't kill you, but it will reduce the number of people who want to hear about it. Some people get by for years by hiding poor research in glossy reporting, but that's unprofessional. My own test of good research publication rests on the local reaction to it. If local people are motivated to undertake further steps in research because of what has already been done, your communication is a success, and so is the research.

Financing Research

There are plenty of people who know more about soft-money financing for research than I do. Soft-money is the kind that is obtained on a project basis, usually from some "outside" agency like the government or a foundation. It is money that is to be used only for that particular project, and it may or may not be extended or augmented if the project needs more money or if it leads to other projects. It's soft because you can't use it to build up a permanent research staff or facility unless you are good at maintaining a continual flow of more soft money. Soft money has the further disadvantage that the source of money usually has some way of keeping a string tied to the researcher for the purpose of ensuring that the research results meet some previously determined expectation.

The structure I have been talking about is based on hard money financing of a research staff, but it does not preclude the use of soft money for particular projects. Here again, the responsibility for project financing rests with the initiator of a project. Of course, if the initiator is a classroom teacher, soft money financing will not be obtained without including an administrative person (other than the research staff) as an applicant, in the name of the corporation, for project funding. This is probably a good thing, because teachers can't initiate research without administrative help--if they do, they will get administrative hindrance.

Hard money financing of research should include money for teacher-initiated research. Usually the costs are very minor, and the extra time that local teachers will devote to such research is clear gain to the corporation.

There is more to research than getting it funded as a project, as many people have learned to their sorrow. Once you begin a research project, it should be followed through to the end. It may seem all too obvious to say that you have to look ahead to see what that end may be, before you begin; but that is just what many people fail to do. These unfortunates find themselves, one fine day, the possessor of a pile of unprocessed data, and they don't know what to do next. They had failed to look ahead. Occasionally it happens that such a person never recovers from the experience. As Shakespeare says, "the play's the thing." Don't let your skill as a fund raiser get you into a game you can't play.

"Reaction to Dr. Joos' Presentation"

by Dr. Gordon I. Swanson*

I am reminded, first of all, of the college counselor who was speaking to the high school graduate who came to him to see if he should submit an application for admission to college. The counselor said, "Are you in the top 10% of your class?" and the student said, "No, but I think it's possible." I think as Ray told you at the outset that this (Joos-Swanson) is a pupil-student relationship--one that makes one of us possible. And because of this previous relationship I have had with Dr. Joos, I can tell you some things that others wouldn't be able to tell. Now, while Dr. Joos has no vices, he does have some sets. One of them is to get my goat and the other is to take an extreme position just for the effect of the position. You will note that in his paper he pulled in an extreme amount of pragmatism and for this he expects your questions. He got in a little bit of Conant and the Ancient Mariner crept in. I should also tell you that what he says he believes. He did make the conclusion that I hope you drew, as I did, that there's no question that we're going to be involved in research in vocational education. The question of whether or not we're going to be involved is not a question at all; the only question is whether we're going to do it well - how we see the rules of the game; how we see the game in the first place and how we keep the score.

I have just a few comments I would like to make on his paper. He began, you recall, with this disclaimer of who was an active researcher and he said that anyone who did the kind of research which is conducted in, for, and by colleges and universities, this cateogry he would avoid; and this he removed from the category of active researchers here is an area where he expected to get my reaction--and I'm going to give it to him. The college and the university is one of the only institutions in this country that employs the supply of manpower that is prepared with research degrees. It is one of the only institutions that is in the business of absorbing the kind of research confidence that Dr. Knox talked about this morning. Now, it is true that school systems do employ people who have research degrees and the Pontiac system is a good example. Indeed, it is an unusual example, I believe, because in the field of education, compared with almost all other fields of research, there are very few people spending a full career in research. Usually, research is a

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part of an academic career. How many people do you know who are spending a full professional career on full-time research? You find them by the score in the field of physics, or mathematics, or in chemistry. You can find them in the space and defense industries, but in education how may do you know that are spending a full professional career in research? And if indeed there are institutions who are willing to employ people who want to spend a full professional career in research in education, where are these institutions? And what are the most likely institutions? What time can you buy in researchers and in what institutions may you find them?

It seems to me that any time we consider the research component of any field, or whatever game we're playing, and if we want to enlarge this, we need to capture the time of competent researchers. And we have to capture the time wherever we can find the researchers. It seems to me that there is an important body of energy going on someplace by people who have achieved some level of competence. It's important not to avoid this research effort in colleges and universities. He'll come back at me on this, but this you understand was a disclaimer at the outset.

He also pointed out, and I think rather properly, when you do describe the rules of the game that you do not describe them narrowly, because then you restrict the kinds of questions which should be asked. He mentioned that the object of vocational and technical education is to train people for gainful employment and we have a rather specific measure to success. When he said, "do not look at this narrowly, look at it broadly," I would suppose that he would suggest that even the Dictionary of Occupational Titles has a great many titles that are not really filled according to the labels that are presented there, and there may be a great many occupations that are not found in the Dictionary. He also emphasized, and I think quite properly, that the ultimate as well as the immediate goal is terribly important. And then one might question where the ultimate goal ought to be examined - whether the ultimate goal ought to be examined by the person who is teaching at the elementary or secondary level or where this practitioner can be found. And practitioners, I presume, includes anyone. He also emphasized, and I think quite properly, that you cannot ask the question in this way: "I want you to study what you are doing and to think of better ways in which to do it." He said this would lead to rather sterile kinds of questions being asked. And I think this is very, very appropriate. I think we have some good illustrations in modern industry to draw that this has been the approach by some industries and that it hasn't worked very well. The railroad industry was doing its best to restrict its own racket; to see how it could do a better job of carrying freight. It was trying to improve the schedules, trying to make rounder wheels and so forth, and in so doing they completely forgot that the airlines business was doing something else. And now, the airline business has stolen the railroad's passengers. There was a different school of practitioners operating at some other institutional level. And you've heard the old saw about how to improve illumination. It would have been quite

possible for the manufacturers of lamps to make wider wicks, bigger globes, and larger lamps, and if this had been the only effort the light bulb would never have been discovered. There is a different level of practitioning going on and it seems that in the field of vocational education, one needs to harness up all the energy available, wherever it is and at any level of innovation. Joos emphasized this; also, a need for establishing an appropriate theory, and here he agrees with Knox.

He said that there appears to be a system and a moving system; in other words, you cannot drive two stakes to see where this is going, because in a moving system the stakes are also moving as well as the system. Theory is important and merely doing better is not sufficient until you define what is meant by doing better. He mentioned the fact that one of the ways to stimulate research is to attack the "sacred cows" and he said that this would provoke people. Here perhaps is another place where I could come back to his avoidance of colleges and universities and even state departments of education. Maybe it would be quite appropriate to examine "sacred cows" wherever you find them. I have a personal feeling that many of the courses in colleges of education that are entitled measurement, measurement in education, should be re-labeled. These are incorrect labels. They should be called "Measurements of Psychological Variables in Education" and then admit that there is no course that teaches people how to measure sociological variables, or economics variables, or cultural variables. To be thus more honest to use a limiting label rather than a general one. And, there may be some advantage in this for vocational education, because it is possible that the difficulty (for example, the difficulties of getting even the poverty program,at least its educational aspects off the ground) is the fact that we are measuring the wrong thing. Or at least maybe we have no way of measuring the right thing? This is a personal bias of mine that we might discuss later. At any rate, it seems to me that a great many of the variables that need measurement, we can't measure--we only categorize. This is no criticism of the area of educational psychology because there they can measure; primarily because the instrumentation has had more work. There are many areas of education where instrumentation is not in good taste for the kinds of problems we want to deal with. It does seem to me that the development of instrumentation would be a good role for research coordinating units--if they can stimulate this kind of work. And I also have the feeling that the practitioner in this case is located in a different institutional arrangement.

He also gave some attention to the role of categories and labels. And here he moved back to the discussion of theory, or to the game we're playing. As a matter of fact, it's possible I think, when we're talking about labels and categories to say it's almost impossible to talk about education itself without talking about only the forms of education, in the same way that it's almost impossible to talk about religion, whether it's the gospel according to Knox or Joos, etc. In religion we talk about the forms of religion and it's almost impossible to talk about religion without talking about

its forms; and labeling thus, merely identifies the particular form we're discussing at the moment. While it's true that maybe some of the labels ought to be renewed from time to time, they are a deterrent but also an asset and they can work both ways. We hope they are descriptive, but they're not always descriptive. Some of the labels that we think are most descriptive are not descriptive at all; some that we accept so fully and completely. We are on the campus of a "Land Grant University." Try some time to translate that term into another language; yet we seem to know what it means when we use the label. Try translating it into Spanish or French or some other language that you know.

This is about all of the comments that I have to say except that Dr. Joos did emphasize the high level of competence needed and this was an emphasis which I hope will continue in the RCU efforts. And he did not end up by saying something about hard money versus soft money. This is an administrative question, that I think is exceedingly important. I don't know whether we should get into this here or not, but I do believe that it is terribly important to learn how to use soft money as though it were hard. That it's impossible to have a very sizable research program on only soft money if your operational program is on hard money. This puts the whole thing out of balance and I will agree with him completely that too much can be risky--the risks of success in getting money can put high risks on research itself and I'll wind up by saying that maybe one of the most risky things that could happen to any RCU would be for all of them to be successful and each given a million dollars the next time they try; this could kill them off, because there probably isn't enough of the in-put kind of things that Dr. Knox was talking about to do a good job with the output that should be expected from that kind of resource.

ORGANIZING FOR IMPLEMENTING CHANGES IN EDUCATION; SOME IMPLICATIONS FROM AGRICULTURE AND DIFFUSION RESEARCH

by Herbert F. Lionberger*

This paper is directed to the broad problem of organizing effort for implemented change in education with inferences that may be drawn from organizational methods used in agriculture and from the various diffusion research traditions.[32,62]

Basically the problem to which we are addressing ourselves is little different from the one central to the operation of agricultural colleges in which rural sociologists have worked; namely, that of developing, validating, and disseminating scientific information to students and the public.[20]

Diffusion research, which I claim as my main area of specialization has been defined as "(1) acceptance (2) over time (3) of some specific item, idea of practice (4) by individuals, groups or other adopting units, linked (5) to specific channels of communication (6) to a social structure, (7) and a given system of values or culture."[31] The earliest research done in the agricultural diffusion research tradition was by the Cooperative Agricultural Extension Service, which was charged with the responsibility of disseminating accumulated scientific information from research sources to farmers who could make use of it. Rural sociologists became involved in the early 1940's after which several hundred studies have appeared, mostly of recent date.[63] Other diffusion research traditions developed somewhat simultaneously or later in anthropology, public health, education, and in business, with a tendency to corroboration of findings from the various traditions in recent years.[28,31]

Speaking primarily of the agricultural diffusion research tradition for which rural sociologists were primarily responsible, attention was directed mainly to the adoption of rather simple agricultural practices by individuals and to decisions of a rational, deliberate nature; also, to channels of communication and influence involved in the acceptance processes as well as to the way in which adoptions aggregated in localities. Before enumerating generalizations and concepts from this tradition which may have a bearing on the adoption of innovations in education, some basic differences

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between the two should be noted, both with immediate utility of findings on the one hand and organization of effort to enhance adaptibility of school systems in view.

Differences and Limitations

(1) In agriculture, individuals are the adoption units. Although in the final analysis individuals must decide, school systems are also in a sense adoption units.[27] The school superintendent or administrator has been the focal point of research with considerable difference of opinion expressed in regard to his potential role as a change agent.[25,74,11,23,62,16] Whatever this may turn out to be, he certainly is subject to more social pressures from outside influences than farmers who have been the focus of attention in diffusion research in agriculture. Yet, the administrator is the authority figure in the system, which means both he and the system can be highly instrumental in implementing change.[11,74,50]

(2) Rewards to farmers who adopt new practices are much more direct, easily ascertained, definite, and perhaps less subject to unanticipated consequences to the adopter than innovations in education. A farmer can save money, make more profits, save labor or time, or derive other benefits of direct and easily assessed benefit to him. Even worse, the teacher or administrator may become a victim of his own innovative effort. Pay increases and promotions are made mainly on the basis of years experience, college degrees and perhaps, on ability to keep things running smoothly, not on innovation. In fact, one study has shown that innovation is very little a part of a teacher's conception of what it takes to make a good teacher.[54] To moralize a little, it would be unfortunate if adaptive efforts in education are not favorably recognized and rewarded, considering the need for such innovative effort.

(3) Teachers and administrators may be more vulnerable to devaluation of existing skills than farmers and at least some professionals because of changing technology.[25] Furthermore, positive incentives for the acquisition of new skills may be quite lacking; also, the means of eliminating or even bringing effective pressures to bear on laggards. The farmer who is not alert to changes in farming and who does not adopt improved farm practices readily is likely to be eliminated. Negative sanctions do not operate to the same degree and manner in education as in agriculture; also, teachers may actually exert pressures on others not to adopt changes which will inconvenience them.[42]

(4) Most of the diffusion research in agriculture has been directed to relatively simple agricultural practices which can be adopted individually. However, those in education are often more complex, less visible, and more difficult to assess from a utilitarian point of view.[50,62]

(5) Organization for change is different. Many differences between implementing change in agriculture and in education stem from the way each is organized for that purpose. In agriculture, functions,

operation, and organization are highly institutionalized in contrast to education.[20] To be more specific, organization and testing of scientific farm information under field conditions and communicating it to users is a special function manned by specially trained professionals in an organization that is designed for that purpose. Passage of the Hatch Act in 1887 clearly moved the development of agricultural information from the realm of folk knowledge to the laboratory or experiment station where scientific methods are applied to developmental and testing efforts.* Passage of the Smith-Lever Act in 1914 establishing the Agricultural Extension Service clearly recognized that disseminating information and practices was a specialized business for which specially trained personnel, well-directed effort, and an appropriate organization was needed. In addition, many linkages with other systems** which assist in the information disseminating efforts were established. At the receiving end of the line, confidence has been developed in what is offered, a continuing expectation of new things to come, and habits of using facilities and information outlets from the central system.

Another unique feature is attention to application skills and provision of specially educated change agents. They appear to be regarded as essential to any substantial program of directed change, e.g., soil conservationists in soil conservation, county directors in extension education, community developers in community development, health educators in public health to mention only a few. Yet these functionaries would be almost useless without the supporting systems in which they operate and without perfection of their respective roles as intermediaries between systems which create scientific information on the one hand, and the potential users on the other.[56,76,77,19,7]

Whoever controls supplies can greatly influence innovative behavior. In this country, supplies for agriculture have been taken quite for granted with the free enterprise system quite adequate to provide what farmers need when they need it. In developing countries, this has generally been combined with the extension education function. However, in introducing new supplies to farmers, such as agricultural chemicals, experiment stations have often been used as legitimating devices. Thus, some commercially developed products are tested by the various experiment stations. Conceivably, supply systems operating quite independently from research and development can either facilitate

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*Wiles has suggested that similar shift took place in education about 1957 when innovation in school curricula was removed essentially from individual responsibility to a coordinated emphasis on directed change agents outside of school systems.[75]

**System is defined by Miles as "a bounded collection of interdependent parts devoted to the accomplishment of some goal or goals, with the parts maintained in a study state in relation to each other's and the environment by means of (1) standard modes of operation, and (2) feed-back from the environment about the consequences of the system actions." (48, p. 13)

or inhibit acceptance of innovations, e.g., textbooks can materially influence curricular offerings. Commercial agents may emphasize unique features to sell their products and in turn impede change by reinforcing decisions to retain the obsolete, a practice which has some utility for the user also.[50]

Some Implications from Agriculture for Organizing Implemented Change Efforts

The prior organizational situation organizationally is a consideration in developing plans for directed change in education as in anything else. In education there is no wealth of experience as in agriculture for organizing and directing such efforts, but neither is there a tradition to hamper new developments; this despite the diverse and complex organizational aspects of education in the United States.* Attention could be focused on the organizational requisites at this point, but consideration of the necessary functions probably would be more fruitful. Thus, four are chosen for consideration:

1. Originating and validating scientific information and innovations.

2. Disseminating innovations and information to potential users.

3. Teaching skills to change agents and potential adopters.

4. Legitimating innovations and information.

Some might add integration of innovations into the life patterns of adopters as a function.[23,62] I am subsuming this as a part of adoption.

1. Originating scientific information. The first concern is with the development of innovations. These derive generally from invention and borrowing. Certainly no opportunity should be lost to borrow but greatest reliance must be on invention. Some innovations might come from folk knowledge or practice. For a long time farmers insisted that one learned how to farm by farming, and that new developments in farming came from the same source. There is still some truth in this contention; also, the years are not long past when innovation

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*Miles has enumerated public and private school systems, a great variety of governmental, and private educational programs, regional educational associations, government agencies, commercial structures including vendors of educational materials, suppliers of building and equipment, knowledge producing and knowledge applying organizations and mass media, dozens of non-profit structures primarily devoted to educational improvement and change, and a host of special structures, all common in educational organization today.[48]

in education was left mainly to individuals and local school systems.[75] Surely some good ideas have been developed by ingenious educators and will continue to be. Thus, some means of innovation retrieval is needed even though education like farming has long passed the folk knowledge stage. Perhaps the kind of feed-back is more important as guides to needed research and testing than as sources of validated practice.

Another possible source is "experts" peripheral to education which, in this case, may include psychologists, sociologists, political scientists, and the like. Certainly such sources ought to be exploited, one method being conferences such as this one. Lippitt, at the University of Michigan, has formalized this procedure somewhat by arranging periodic conferences with likely contributors from the social sciences.[42] A weakness of these approaches is that potential contributors already have full schedules and thus may not be able to become sufficiently involved to realize their full potential.

A third way is to make innovation somebody's business, with an appropriate supporting organization. This recognizes that there is more to innovation in education than folk practice and the fleeting thoughts of professors including the diligent efforts of a productive few.

Just what the organization of effort should be in the future is probably open to question. Experimentation with a number of structural arrangements as a prelude to formalization may be advisable. In agriculture the resident teaching, research, and extension trio has worked well, but is only one of many alternatives. A number of others have been enumerated by Miles.[48]

The question of whether research and development should be lodged in existing school systems or in some kind of a peripheral one may eventually be resolved in favor of the latter. It is doubtful if schools experimenting on themselves with other major responsibilities assigned would be the best arrangement. Some means of bypassing vested interests, of protecting innovators, and rewarding their efforts, even though sometimes unproductive, are needed. This would be difficult in most school systems. Also, it would appear that objective testing and sustained experimental work may be more possible in autonomous or semi-autonomous systems. In fact, it has been suggested that the most innovations in education have developed in essentially peripheral organizations.[50]

However, external research and development systems pose problems of keeping in touch with the action world of reality and of keeping the research reasonably aligned with the developing needs of educators while reserving some resources for "basic" research. In the absence of effort directed to this end, linkage will likely not occur. Also, organizationally the advantage of associating educational research with resident teaching as a device for the education of teachers should not be overlooked. Undoubtedly this kind of arrangement in agricultural colleges has resulted in more realistic education of change agents on the one hand, and an enhanced competence in researchers on the other.

Another immediate need in research and development is a better means of collecting, analyzing, and collating research findings from an expanding source of supply. A system of indexing and abstracting adapted to IBM card processing now being used by Rogers in diffusion research and similar methods being developed in medical science may be helpful.*

Organizationally, the question of temporary vs. permanent structure may also be posed. There are pros and cons either way. Miles suggests that much energy in permanent organizations is often diverted to routine non-productive efforts in contrast to temporary systems which are alleged to enhance information exchange, hard work, team effort, and compulsive group action.[51]

Even though temporary structures may continue to be used for innovation in education more or less permanent organizations staffed with special research talent will surely be required to generate new ideas and to test them under field condition. Teachers and administrators must have field tested innovations upon which they can rely because costly mistakes must be avoided. There may be a question about the supply of such. Change agents in agriculture generally feel little obligation to argue the validity of the practices after they have been tested thoroughly in experiment stations and would generally have a plentiful supply of practices to recommend. Furthermore, it is very important that changes recommended to rank and file teachers and administrators be of essentially unquestioned merit, the assumption being that their innovative role should be largely confined to promoting carefully validated practices.

2. Disseminating information. After innovations have been developed and evaluated, knowledge about them and their utility must be disseminated to potential users. This constitutes the second functional requirement for implementing change which in turn entails a variety of specialized skills, specially educated functionaries, specialized technical information sources, and organized effort. Even though it may not be generally recognized, there is a specialized technology of implemented change quite aside from other specialized skills in education; this is attested to by the voluminous research and writing on the subject. Studies number well into the thousands and cut across the fields of sociology, psychology, social work, extension education, journalism, economics and political science, along with others.** With the body of knowledge implied by this

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*Rogers at the Department of Communications, College of Communications Arts at Michigan State University, is maintaining a continuing operation of abstracting and indexing diffusion studies from which studies of a particular type or subject matter can be obtained.[69]

**An estimated 5000 studies in one way or another relating to communication or implemented social change was abstracted by the National Project and Agricultural Communications, headquartered at Michigan State University.

research, it necessarily follows that acquiring proficiency as a change agent is in addition to and sometimes quite apart from acquisition of knowledge to be transmitted through the information disseminating system.

Also, a general belief prevails among agricultural college personnel that researchers are ordinarily not good extension people and the converse. In any case, the education accorded each is quite different, both at the graduate and undergraduate level.

Furthermore, the service, supplies, and support that an extension person needs to do his work almost requires that he be a part of a system which makes this possible. Research becomes a matter of direct concern to the degree and manner in which it enhances a better understanding of change processes and conditions.

In education as in agriculture, knowledge is sufficiently specialized to need continuing access to information specialists. The question of where to place them in the organizational framework naturally arises. Because specialists have professional reference group ties which may often be stronger than those to the information disseminating system, provision for a working relationship with their own profession is essential for recruiting and retaining them in change agent roles; also, for maintaining proficiency in their respective professional fields. In agricultural extension systems, the attachment problem is solved by allowing specialists to retain their departmental connections. With local agents in direct communication with people who are targets of change, they provide information feed-back about research needs which are in turn communicated to researchers.

An alternative to information disseminating system interposed between information originator and user as above described, is direct communication between scientist and consumer. Another alternative might be to place researchers and extension educators in a single unit charged with developing, directing, orienting, and evaluating educational efforts which under other circumstances has shown some promise.[22,68] Use of temporary systems for specific purposes offer another possibility but surely would be inadequate.[51]

3. Teaching skills to change agents and potential users. This is a third requirement for getting scientific information and innovations used. For change agents this is accomplished through resident teaching in the agricultural colleges and through continuing in-service education. Target individuals are taught application skills by a variety of extension education methods. This helps dispel fears and forestall failures which is particularly important for early adopters. The documented role of early adopters in communicating information to those who accept later and in convincing them to try new practices stands in evidence of this contention;[59,60] also, the disastrous results of misuse of perfectly good innovations in education.[50]

4. Legitimating innovations and scientific information. Legitimation of new ideas and practices is in some respects a system function and in other respects not, depending on what adopters require for own acceptance. For those who are willing to accept evidence direct from the scientist, legitimation is mainly a system function. For those who require local trial and advice it may be essentially a primary group function. Since several legitimation levels are required with trusted personal referents heavily involved, it is treated under Implications from Diffusion Research, which has contributed materially to knowledge on the subject.

Implications from Diffusion Research for Facilitating Changes in Education

Only superficial reference can be made to substantive findings. These are adequately summarized in other publications.* Whereas the focus of attention has been on organizational implications up to this point, implications from diffusion research relate mainly to the needs of individuals in accepting innovations. In one sense, individual requirements and conditions influencing individual decisions reflect the state of institutionalization of change promoting systems in agriculture, and in another sense, the functional requisites for enhancing adoptions. The procedure will be to briefly enumerate findings from selected substantial areas and to point out relevant implications.

1. The individual adoption process. The much used individual adoption process of awareness, interest, evaluation trial and adoption has greatly facilitated the conceptualization of functions involved in arriving at adoption decisions and in assessing the use of information sources at different stages.**[1,71,72] Mass media of little importance as a major reason for the adoption of farm practices determined by methods used in early diffusion studies[70] proved to be highly important in creating awareness and interest when the newer model was used. "Other farmers" are paramount at the evaluation stage.[14,60]

Perhaps demonstration that adoption is a process and not a unit act is also important. Mundane as this finding may appear, much early diffusion research and educational effort did not recognize this fundamental fact.[70] The process idea emphasizes both time and sequence of influence considerations, while in a sense stages represent functional requisites for arriving at decisions requiring thought and deliberation. The time dimension holds that people ordinarily do not adopt new ideas or practices as a result of a single influence or immediately upon hearing about them. Time is involved in both the sequence of stages

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*Among others, Lionberger (40) and Bohlen (4) have prepared papers on the subject while more complete treatments may be found in books by Rogers (60) and Lionberger (36).

**Limitations of the model, not unknown to the originators, have been ably pointed out by Hassinger (24), Mason (45), Campbell (8). For a description of the model and its implications, see Rogers (60).

that individuals go through in arriving at decisions and in the way in which adoptions aggregate in a given locality. The time span between awareness and adoption may be a matter of years, months, or possibly only days. Also the time required for maximum adoption in a given locality has been found to vary from a few months to 50 years or more.[66,67,9,54,13]

To the extent that stages represent functional requisites in arriving at decisions, they are useful in assessing the adequacy of information dissemination systems or partial systems. Thus Miles has used the stage construct to assess the adequacy of various structural arrangements for implementing educational innovations.[41] In regard to individual adoptions, Eicholz and Rogers suggest that the model can be used to classify adopters in terms of likely needs for facilitating the adoption process. Thus, they suggest that rejection for lack of knowledge is an awareness problem and by default or to maintain the status quo an interest problem.[21]

2. Functionaries in the individual adoption process. Individuals like information sources perform different roles in the individual adoption process. Some serve as innovators, some essentially as communicators, and others influentials or legitimators. Those first to adopt a new practice in a given locality (here referred to as innovators) perform a "local trial" function, help adapt innovations to local conditions, and assume risks that others cannot afford or are not willing to take even though they themselves may be relatively secure.[55] Since many farmers want to see a practice tried locally before they use it themselves, innovators play a very important role in influencing and educating others, thus a possible reason why innovators sometimes occur in clusters.[17,50]

Among those sought as sources of farm information, some are in more demand than others; also, still others may be sought for advice. Not all communicators of information are taken seriously or sought for advice; thus the distinction between communicators and legitimators.[41]

A Missouri study showed that the distinctive characteristic of communicators was social accessibility while influentials or legitimators seemed to be most characterized by respect for good judgment and management ability.[41] Both were distinctly more receptive of new ideas from outside of the immediate locality, had more such contacts, and were apparently more able to apply abstract knowledge to own situation than most other farmers. Thus, they provided avenues of ready access for change agents and acted as intermediaries between scientific sources of information and those who used it.

However, in situations where local norms dictate caution in trying the new, innovators may be watched but not followed, with influentials being somewhat less receptive to the new ideas being introduced. In this case, one educational approach might be needed for innovators who are highly receptive to new ideas and one for influentials who may need some convincing.

Certainly there is a need to determine who the special functionaries are in the adoption of educational changes and their characteristics pertinent to the diffusion processes, much as Carlson has done; and incidentally with important parallels in findings from agricultural diffusion research.[9]

3. Legitimation of ideas and information. Legitimation, of which we have already written, may be defined as the process by which fears are dispelled and acceptability of the new is achieved. This is conceptually different from mere acquisition of information.[28,67]

Since there are different adopter clienteles involved in the processes of disseminating scientific information from scientific source to ultimate consumer, legitimation requirements are likely to be different at different levels, e.g., between those required by change agents in agriculture and those imposed by farmers. Even among the latter, requirements are likely to vary for innovators, communicators, legitimators, and the average farmer.[59]

Change agents in agriculture are the products of the same institutions that develop much of the knowledge which they eventually disseminate to farmers. Through the resident teaching activities of these institutions, change agents learn to respect the method by which new ideas and practices are tested in the experiment station and for those responsible for the recommendations. Thus, after graduation, knowledge that new ideas have been tested in an experiment station and are pronounced satisfactory is usually sufficient.

Although a few farmers may accept something directly from the scientific laboratory[26,27] most will require more and indeed a different kind of proof.[38] Even those who serve as legitimators for other farmers, may want to see the innovation build locally before trying it themselves. Thus, local trial by fellow farmers with the requisite experience and reputation for good judgment may be required quite aside from what experimental results show or what agricultural specialists say. Brickel found much the same requirement imposed by teachers in New York state, in accepting innovations also, Barton and Wilder in the acceptance of reading instructional methods.[0,5]

From an action standpoint, these findings suggest the utility of capitalizing on the manner in which legitimation occurs; and from a research standpoint, determination of what the legitimation requirements are for change agents, intermediaries, and direct users of scientific information as well as the characteristics of each pertinent to the diffusion processes.

Teachers like farmers may be reluctent to accept innovations developed under conditions regarded as essentially artificial and thus also require advice and assurance from trusted others as a prerequiste for accepting educational innovations.[44]

4. The adoption curve. Much has been written and said about the S-shaped adoption curve, which is merely a graphic representation of the manner in which adoptions aggregate over time in localities

such as communities, states, or regions.[60,67,54] This curve has been characteristically derived from situations where adoptions have been successful. If failures or near failures had also been considered, the results would have been different. Thus, in a sense, the S-shaped curve is something of an ideal model for change agents but nevertheless one that they can realistically hope to achieve.

Significant features are for adoptions to start slowly, to increase at an increasing rate and finally decline. There is good reason to think that the accelerating pattern results from the interaction of people with people and the way in which they influence each other. Thus, part of the secret of getting quick adoptions is to facilitate these processes. This suggests the desirability of opportunities for teachers and administrators to exchange ideas, and compare notes on innovations which they have tried or expect to try.

Although innovators, communicators, and legitimators are involved throughout the diffusion processes, the intensity and nature of their involvement varies at different stages. Innovators by definition are most involved early in the diffusion processes. Influentials or legitimators are probably mainly responsible for the rapidly facilitating effect after the slow initial start.[60,18] Thus, when influentials and/or legitimators have adopted, others follow in rapid succession, because they are generally more socially accessible and more receptive to new ideas and information from outside sources, they can serve as change facilitators.[38,29,33] In fact, influentials (legitimators) may acquire information for the purpose of communicating it to others as a status enhancing device quite aside from other uses.[46]

The conformation of the adoption curve also has implications for the amount and kind of effort that needs to be exerted at different stages. The first adoptions are achieved only with considerable effort. This is recognized by county extension agents who quite habitually concentrate effort at the early stages of the diffusion process.[71] It is during this stage when new ideas and practices are being legitimated locally, that additional effort to convince local legitimators is warranted. After locally influential persons have adopted the new practices, perhaps the major change promoting problem is diffusing the locally legitimated innovation. Finally when a majority have adopted, reinforcement of decisions may become the main problem. Agricultural change agents have been little concerned with this because acceptance of the new in rapid succession is desired and promoted. Perhaps there is also an assumption that best evidence of continued utility of a practice is results on own farm. This in most cases is highly visible and may be best determined by the person using the practice. In education where results are not so readily visible and result feed-back is much more difficult, reinforcement of adoption decisions may be needed.

In recommending research directed to community adoption patterns, Coughenour has suggested a number of distinctive features; namely, the origin, the slope, average diffusion rate, and the level at which adoptions level off or the equilibrium level. A variety of adoption

patterns have emerged in diffusion research findings with some significant patterns if not trends. For example, in education, innovations are sometimes accepted in incredibly short periods of time compared to the past; also, an increasing number of adoption curves seem to show rapid acceleration almost from the start;[9,11,50] thus quite devoid of the slow initial start of those frequently seen in the past. This may suggest legitimation by direct means rather than by associates fortified by local trial or it may indicate rapid acceleration of personal interaction from the start, or the manner in which school systems and administrators are enlisted in the adoption processes as Wayland has suggested.[74,50] In any case it would be particularly appropriate to determine the conditions and means of legitimation which result in these unique patterns; also, other features and conditions which may explain early rapid acceleration.

Diffusion research from a number of traditions suggests the high intensity interaction explanation.[45,66,59,18] On the other hand, Lippitt in Michigan found that some teachers were reluctant to communicate information about own innovative efforts to others, at the same time implying that they thought administrators expected them to be their own innovators and that they consequently would lose status by borrowing ideas from others. Should this prove to be generally true, it would impose serious restrictions on any multiplying effect that personal interaction might have on adoptions.[41] Mort has also voiced a belief that lack of communicative exchange with change agents and peers may be an important factor in retarding adoption of innovations in education.[53] Lippitt also suggests that differential role perceptions of teachers and administrators as to whom should be innovators and for what in education may also be a deterrent; thus the need for role studies.

5. Change agent studies. In one sense, studies relating to change agents and their roles in the information innovation disseminating processes is not applicable to education because such are not an institutionalized part of educational systems. But in another sense they are because whether formally provided or not, intermediaries tend to develop between research sources and target audiences. Several studies show that persons occupying intermediate change agent positions between scientist and the information consuming public must work out effective ways of relating to both.[56,19]

At least one study has shown that those who resolve conflicts deriving from the position in favor of the local clientele are most successful in achieving adoptions but can easily alienate themselves from important people in the central system, and in so doing bring undesirable consequences to themselves.[19] Rogers has shown in Ohio that county agents get their information primarily from agricultural college related sources,[64] while Stone in Michigan study has demonstrated that county extension agents spend most of their time in rendering services to their adopter clienteles.[71]

6. The community. Finally mention should be made of studies which emphasize the importance of community factors, particularly the exercise of power which is likely to condition acceptance of

innovations. Quite aside from what every teacher and administrator knows about this fundamental fact, Mort and Cornell found that community factors were second only to expenditure per pupil as a conditioning factor in influencing the quality and rate at which changes in education were accepted.[54] At the same time, it has been found that changes were more readily accepted in relatively heterogeneous than homogenenous communities.

Certainly for some educational innovations involvement and support of people at the local community level is necessary. Whether the change targets are patrons, teachers, or administrators, involvement of them in the decision and planning processes makes them more receptive to and supportive of the changes being proposed.[12,78]

Also, involvement should be done in the light of the existing power structure of the community as Wayland, Bohlen, and others have stressed.[75,2,3] Both have offered suggestions for doing this while at the same time avoiding such common mistakes as assuming that high influence persons who occupy positions in formal organizations are persons of high power and influence and that they are always opposed to change.

These are a few findings, speculations, and possible implications of diffusion research in agriculture to implemented change in education.

"Reaction to Dr. Lionberger's Presentation"

by Dr. R. M. Worthington*

My congratulations to Professor Lionberger for a very scholarly presentation and also for his development of a specialty in the field of diffusion research. Too few educators can claim a research specialty of any kind, particularly vocational educators. There is such a shortage of competent researchers in Vocational Education throughout the nation that it is extremely doubtful if more than a handful could claim any research specialty.

The purpose of dissemination of research is obviously to put results into practice. The classroom teacher must be the instrument of change. He must put the results of research into practice. The administrator as the authority figure makes change possible. Change agents must be drawn from all levels of Vocational Education. Change must be effected cooperatively.

Dr. Lionberger, it is difficult to compare farm practice to educational practice; however, admittedly there are some parallels. I can recall my own experience, for example, as a youth on the farm 200 miles south of here in the Kentucky burley tobacco country where in 1935, as a farm boy, I raised a one-acre crop of burley tobacco. My yield per acre was 1000 lb. and the price per lb. averaged 12¢. In 1965 the same acre of tobacco would yield 3000 lb. at an average selling price of 70¢.

Research conducted by the Agricultural Extension Service at the University of Kentucky has had a great deal to do with the increased yield per acre. Of course, many other factors are involved in tobacco prices today. I use this as an example to point out that I recognize the outstanding contribution the Agricultural Extension Service has made to agriculture. However, it must be emphasized that in education we deal with human beings--with children--with youth--with adults. We do not deal with the impersonal farm problems such as better hybrid seed corn, more yield per acre or leaner pork bellies. The agriculture researcher has concentrated on benefits to farmers with emphasis on saving labor and money, making profits, and increasing benefits to farmers. Educational research must concern itself with the improvement of instruction! Unfortunately, in education, we have not yet found an effective way to award good teaching.

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We have the experience and the ability in educational circle to do an effective job in research. However, we do not as yet have the administrative structure and the necessary financing to carry it out effectively.

I agree with Professor Lionberger that we need to develop a diffusion system and I would put it this way: we need a diffusion system and a set of legitimation devices particular to the needs of Vocational-Technical Education. No doubt the Ohio State University Vocational Research Center and the 24 state research coordinating units are a start in this direction. Not only can these research coordinating units be innovators but also legitimators. Professor Lionberger's study of farmers in Northeast Missouri concerning diffusion of information in rural communities concluded that information "flows downhill in terms of prestige; the seekers seek information from those who have higher prestige ratings than either the seekers or the community average." As long as school systems recognize different prestige roles between teachers, supervisors, principals, and other administrators parallel conclusions might be observed in flow of information throughout school systems.

Prior to the passage of the Vocational Education Act of 1963, and the Elementary and Secondary Act of 1965, it was reported at a national research conference that 95% of the research funds made available through the United States Office of Education went to 10 major universities. Very little of this research filtered down to the practitioner. Because practitioners have not participated in research generally their image of research has not been good. It has been looked upon as a "mysterious" activity and something beyond the capabilities of a classroom teacher or school administrator. Speaking of the image of Vocational Education, I might also interject the fact the only three states in the nation, at the present time, employ persons in their State Divisions of Vocational Education with full-time responsibility for public information.

According to George C. Homan, "Research done in the last 20 years in the area of communications structure and influence flow has resulted in discarding the concepts of mass media and mass impact. The problems of civilization are the problems of the small group. Information is stepped down through groups leaders for <u>attention</u>, <u>consumption</u> and <u>use</u> by individuals in groups."

Neal E. Miller, in the NEA Publication on Graphic Communications, pointed out that in dissemination of research findings there must be established an "Innovator - Adopter Context." In this respect he stated that Miller's "Drive, Cue, Response, Reward Paradigm" has implications for research diffusion.

1. <u>Drive</u>: Adopter must want something.
2. <u>Cue</u>: Adopter must notice something.
3. <u>Response</u>: Adopter must do something.
4. <u>Reward</u>: Adopter must get something he wants.

Kurt Lewin, in the Journal of Social Issues, suggested that in order to get people to change we must move them through three behavioral steps, which he refers to as:

1. Unfreeze: Change to improve or avoid worse condition. Create dissatisfaction.
2. Move: Inducement or reward.
3. Refreeze: Equilibrium set at new behavioral level.

Art Gallaher, Jr., of the University of Kentucky and also Egon Guba and David Clark of Ohio State University, have suggested that education might very well adapt the methods of the Agricultural Extension Service.

Gallaher recommends the creation of an education extension service with functions of innovation, dissemination and integration. He asserts that the problems of educational change do not rest mainly with the administrator who is more often called upon to play the balancing role between school board, parents, teachers, students, and other administrators--than to provide the leadership for change!. This recommendation makes a lot of sense to me because the administrator must make it possible for the teacher to implement change!

The teacher is the key to all our effort! Teachers of Vocational Education make or break the program! They must be involved in research if research is to change practice. I agree with Dr. Lionberger that "Teachers may be reluctant to accept innovations regarded by them as artificial if they did not have a part in the innovating."

NEA's Association for Curriculum Development says that the action research idea has so much to commend it that we should strive for the time when a part of each teacher's day would be set aside for it as a part of their scheduled responsibility. Others particularly "University type" researchers have taken a dim view of action research--calling it "nothing more than qualified common sense rather than research." Action research is based on concrete practical problems in a real school situation.

It seems to me that one of the best ways to disseminate research results is through action research. Action research has been defined by Stephen Corey as "research undertaken by practitioners to improve their practices." By getting practitioners involved in research, evidence can be accumulated to define problems more sharply. The researcher can draw on experience available for action hypothesis enabling them to cope with day-to-day problems. Action research can test out promising procedures on-the-job and accumulate evidence immediately of their effectiveness. In action research factors being researched are studied as a part of the day-to-day activities and problems of the teacher. Action research studies problems and tests innovations in the classroom with the primary goal of improvement of instruction. Outcomes of action research are based on behavioral changes that occur in the teacher-researcher themselves. Practice does not change unless the teacher himself changes.

"Reaction to Dr. Lionberger's Presentation"

by Dr. Alan G. Robertson*

I think we have to differentiate in terms of diffusion--that which is content in vocational education and that which is methodology. I don't think we can use the same practices and the same methods to diffuse change in content in our areas of vocational education as we can in methodology. I think methodology is a lot more difficult. I don't think we can depend upon the illustrations of industrial practices or farming practices or new concepts in women's occupations to illustrate that content change is necessary and up-to-date. We can possibly show it by the changing job market.

With regard to classroom methods and techniques or the use of equipment, you always come across the vocational education teacher who says, and perhaps correctly, that kids are kids and no matter what you do with them they're the same, and, therefore, you may bend the methodology a bit but you teach the same. I think that in terms of diffusing new ideas in education we have a real problem in new techniques and methods.

In terms of adopting new ideas in an agricultural frame of reference, we are using cost analysis practices, primarily whether there is short-term gain or long-term gain and it's sometimes pretty difficult to determine. Sometimes you have to do a follow-up study twenty years later to determine the effectiveness and value of an educational change and the acceptance of that change. We don't have that immediate return of results upon which we can evaluate new practices. In regard to any suggestion that maybe we should take research and development in vocational education and by-pass the school system--by-passing the vested interest, by-pass this resistance to change. I don't think we can do it. If we try out new methods, try to adapt new techniques in a laboratory sense in a laboratory situation in a peripheral organization, whether its foundation or an equipment supplies facilities--as soon as you try to put that back into the school situation you're dealing with the problem suggested by Dr. Worthington where people will say this is an artificial situation--"I wasn't involved; it doesn't fit my local set of situations." You can't by-pass the local situations even though it may be negative; instead, you have to anticipate it and account for it. Therefore, I

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think we have to deal with the negative factors in change as much as we do with the positive factors. In other words, let's identify the barriers; let's identify the blocks. If we anticipate them, they won't trouble us quite as much when we come up against them in the diffusion of information. One of the blocks that I see is that we are dealing with a great multiplicity of potential change agents, whether they're the legitimizers, the communicators, the adapters, people on the local level. Let's see if we can enumerate some of them and I think this enumeration will illustrate why our problem is so different.

First of all, we have to reach the general public and get their acceptance of educational change. We have school-connected public, school-connected business, government organizations, branches of the legislature, the executive in terms of the governor's budget, the judicial in terms of cour decisions on things that we have been trying to do in education. We have local boards of education, county boards of education, state boards of education--all of which may have different ideas. We have manufacturers of school products, related practitioners, and professionals who have to be convinced, like lawyers, school public health officials, school architects, and you know what a problem that is in terms of new facilities, design and layout. We have all kinds of educational researchers that we have to see on change, too, both in the educational framework and in the social science framework. You deal with the professionals in education and here there are a whole gamut of different types--school teachers, school psychologists, pupil services, administrators, subject-matter supervisors, superintendents, college administrators, professors of education versus professors of content, and these two don't match very well sometimes, state education department and finally on top of the list we have the U. S. Office of Education. In trying to deal with all of these change agents in the complexity of public education, I think we have our work cut out for us. And, of course, the most important group, one not listed above, is the learners. We have the youth of different types as identified in Public Law 88-210: youth with special needs--again of many different kinds as we have recognized in our various states and, so, we have these potential barriers and this problem of trying to shift our approach in order to reach the right change receptor with the right change technique and instill the right attitudes. Some of those negative factors present are:

1. How pertinent is the information to me, that's one barrier.
2. How authentic is this information which is being diffused?
3. Who is the diffuser, a professor or a state education department bureaucrat?
4. What is the authority relationship of the diffuser? Is he my local principal--an "I do it because I have to" relationship? Is it a blanket order going out from the superintendent's office of a large city that all-day classes in trade and machine shop have to include these units and these practices?

5. Is this research information coming down to me isolated by itself or am I getting several different slants all pointed toward the same over-all goal; in other words, research information which converges from different sources and points up the same results very often has more status than something which is isolated by itself. It's been said that research information just as research information is a pretty weak "shaper of educational practices."

More utilization barriers, barriers that operate at all the above levels and with all the types of people, include the following:

1. What is the norm, what is the status quo?
2. What is going to try to counteract any change--the idea that for every action one way there is a reaction the other way--how do we identify this?
3. The overload barrier, the pressure on people to do too many things, so therefore the change is put in the bottom drawer or maybe worked on only after school.
4. What is the stress involved in the change? Is it a happy type change or is it something that upsets people?
5. Do I expect the costs of this change are going to outweigh the rewards? This can be a negative factor.
6. Are there rewards not connected with the change--such as financial gain, loss of power or prestige? Is there any conflict of interest on the local or any of the levels?
7. How does all this tie in with a research coordination staff operation?

I think we have to look at some different tacks in terms of dissemination. We have to develop techniques in funding proposals with state 4A money. Maybe we ought to build into our budget something like a "field tester" when we are funding a local innovation. Let's not cut it off with 225 copies of a written report into the state education department before we make the final payment. Instead, let's build in maybe a month's travel time and a substitute teacher's time for the change innovator to first go on the road to other school systems to observe, talk, discuss, and to invite others back to see the change. I think we would get a lot more mileage out of our local 4A projects if we did a little more dissemination that wasn't written.

In terms of the future, all the Research Coordination Units ought to concentrate on being quality control people--people who aren't hampered by federal report data in terms of their own operation, that have to get in by the first of July, that as quality control people we develop ways and means to deal with resistance to change and resistance to evaluation and that most important, we start training people in the field for research utilization. This in the long run may be our most important function.

DISSEMINATION OF RESEARCH AND DEVELOPMENT INFORMATION

by Harold Haswell*

ERIC - The Program of The Educational Research Information Center
U. S. Department of Health, Education and Welfare
Office of Education, Bureau of Research

ERIC's purpose is to make available to the educational community the valuable research and related material which might otherwise remain unknown to it.

I. ERIC - The General Need of the Education

As in the science world, it is necessary that the educator have access to the work of others in his field. He cannot afford to isolate himself or his work from that being done by his colleagues all over the country.

II. And the special need of the Office of Education

In addition to this general need, the Office of Education itself needs ERIC to help manage the great number of research projects the office itself supports. Since 1956 when the cooperative research act was passed, the Office of Education outlay for research has increased from $1 million to $100 million.

III. The two ERIC's

1. ERIC Central, which coordinates the national system.

2. The ERIC system of decentralized research clearinghouses. This means that, unlike most information dissemination systems, not all education research documents or specialists will be housed under one roof. The documents and specialists are left where they are.

Established collections of educational material are not disrupted; instead, they are built upon. Each clearinghouse specializes on a single research topic and seeks out the literature in the area of its specialty. Clearinghouse specialists identify, acquire, and select materials to be forwarded to ERIC Central.

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Note: This presentation focused upon a number of overhead visuals--hence the outline form has been used to show the primary content of the visuals.

Accepted documents are abstracted into 250 words and indexed. Those forwarded to ERIC Central are reviewed there, and if satisfactory, go into the national distribution network.

Documents are indexed by a system developed by ERIC Central--an important by-product of this system will be a thesaurus containing several thousand education terms.

The abstract and indexing are combined on a resume form. This becomes the basic description of the document and is copied on microfiche. Microfiche is a 4 x 6 inch sheet of film carrying five rows of 12 images for use in inexpensive microfich readers. The 50 pages of document No. ED001631, for example, is reporduced on one microfiche.

Documents are now retrieved by use of coincidence cards. A search for material on "curriculum" will produce a large number of documents. Superimposing qualifications--"curriculum in poverty area junior high schools in New York State," for example--will produce fewer more specific papers. As the system grows, a computer will be used.

Stored documents are announced in bulletins. Author, title, location of study, length, and a resume are listed. Requests are filled by reproduction on microfiche at a few cents a copy. Hard copies cost a little more.

IV. <u>ERIC's Initial Effort</u>

To supply documents on educating disadvantaged children. Nearly 1,800 documents were selected and disseminated. Four packets of material were mailed to 650 state and local education departments. These packets totaled:

1,750,000 resume forms
2,400 program descriptions
560,000 microfiche, representing nearly 30 million printed pages

Now the task of ERIC is to develop the decentralized information system, coordinating input from clearinghouses with needs of users.

V. <u>ERIC's Ultimate Goal</u>

A network that will link universities, professional organizations, school systems, boards of education--the entire educational community--to speed all research results to places where they are needed and when they are needed.

APPLICATIONS OF PERT TO EDUCATION

by Desmond L. Cook*

The title of this address is "Applications of PERT to Education." Perhaps it would be better to ask the question: Can or should the management information system known as PERT be applied to educational activities particularly research and development projects? An answer to this question lies in understanding three things. First, the purpose and nature of management. Second, the context within which PERT developed. Third, the similarity of the educational to the non-educational enterprise where PERT is used. I would like to discuss briefly each of these points, make on or two general comments on reasons for applying PERT to education, and then give you some of my thoughts for the future.

Management Process. The management process can be broken down into four or five steps depending on how you want to consolidate terms. The first of these is establishing the end objective of a particular project or program. The more clearly we identify the goal to be reached, the more likely is the project to be successful. After the final objective is identified, then we must plan and outline the work to be done to reach the goal. For any particular project, there are many plans one can follow to reach the goal. Eventually, one plan is established to start. After the plan is established the process of scheduling is begun. Scheduling permits us to begin organizing personnel, materials, and related items to accomplish the plan.

As the project moves along, progress is measured to note deviations from the plan. The project may be behind, ahead, or on schedule. Hopefully we will at least be on schedule. In those cases where the project is behind schedule, then some replanning must be done. The replanning process not only involves changing the plan but it also might cause us to establish new objectives or even to modify the original objectives.

To summarize the process of management, I would stress the two tasks of planning and controlling. Planning is outlining the work while controlling is noting deviation from the plan and making necessary corrections.

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If one examines many educational research and development activities, he will note that the several management steps are involved in the conducting of the work. The project director, therefore, becomes in effect a manager who makes decisions centering around the most optimal use of time and resources to achieve the projective objective.

PERT Development. Now let us look at the reasons for the development of PERT. The traditional and existing management systems appear to have not been adequate to do the job of planning and controlling in a new area--that of research and development. If the concern is with production or routine activities, the present systems prove quite adequate. But when we move into new areas such as those represented by high state-of-the-art involved in the research and development areas, there appears to be a need for a different system. Further, the magnitude of many military research and development projects put a tremendous stress on the coordination of the work of many subcontractors. These two conditions of inadequacy of traditional management systems and the magnitude of the research and development projects led primarily to the development of PERT. A secondary condition which facilitated PERT's development was the availability of high speed computers. If such equipment to provide information quickly and rapidly as demanded had not been available PERT might not have been so successful as it turned out to be.

Educational Research and Development Characteristics. Let us move now to the similarities between educational and noneducational research and development situations. First, let's look briefly at the characteristics of research and development projects and ask the question: Does the characteristic fit the industrial and military situation and does it also fit the educational situation?

The first characteristic of research and development projects is the fact that the end products are either single or few in number. It may be that we are producing a new curriculum which may consist of a teacher's guide and a student textbook. We have now two end items making up a total project. We may have on the other hand one product, such as the development of a new student registration system. Just as we had the development of a Polaris submarine system as a product, we also have the development of a registration system as a product.

A second characteristic is that to accomplish these end items, end products, or end objectives, the work to be done has to be ordered in terms of its sequence and dependency. One has to identify the many kinds of activities involved in establishing a new registration procedure or developing a new curriculum and determine their sequence and dependency.

A third characteristic is the degree of uncertainty existing as to both the nature of the activities we are going to undertake and the time involved to do them. This is true not only in the development of such items as rockets, missles, and even space shots but also it is true in the case of trying to develop both an achievement test which will have validity for a new curriculum and the evaluation of that particular curriculum.

Fourth, most research and development projects can be characterized as being "once-through" activities. The project is done only once. Once it is done, the chances are that nobody else will do it again. This condition has raised, by the way, an interesting question with regard to evaluating applications of PERT to projects. Someone has suggested that the way to conduct such an evaluation would be to come out with a statistical test of significant differences (by comparing one or some criteria) between a research and development project using PERT and one not using PERT. If one keeps in mind the concept of "once-through" plus the nature of research and development, how can you have two identical projects unless you purposely want to fund two for this purpose? Hence, the evaluation of PERT as a technique is going to be for some time somewhat on a subjective or non-statistical test basis.

Fifth, research and development projects require the coordination of many persons and agencies. I would just have you think of all the people who have been involved in preparing and conducting this workshop. The staff had to arrange for the physical facilities, speakers, assemble teaching aids, contact the publicity office, and many other activities. You can just imagine what it would be when dealing with a project such as Apollo or Polaris. One problem is to have some systematic way of communicating to the several agencies, the staff, and the other people what the project is all about, the flow of the work, the nature of the work, etc.

Looking at these five characteristics very quickly, one can apply them to a project like Polaris and then go from there and apply them to educational research and development. I think you will find they fit both situations. In my thinking about PERT's possible application to education, I start with the assumption that the characteristics of educational research and development projects are basically the same as the characteristics of research and development projects in government and industry.

Current Situation. Now let me comment briefly upon what I believe to be some current courses or factors operating in education which cause us to look at management information systems as a way of helping us do a better job in the research and development effort.

I think we are now entering a phase that industry and government entered years ago; that is, finding a new way to manage the research and development enterprise when traditional methods might no longer work. Both the government and industry were forced to pay attention to this problem. So must we! I don't think we have yet been forced to face this issue. I do believe that we are going to have to face it whether we want to or not. Why do I say this? Primarily because we are now receiving research support on a scale or a magnitude that most of us probably never dreamed would exist in the field of education. The Cooperative Research Program started in 1956 followed by the NDEA in 1958, the Vocational and Technical Education Act in 1963, and the Elementary and Secondary School Act in 1965.

Look at all the programs we now have! Look at all of the money we now have available to us! I don't think we have yet the experience or the know-how to really manage this tremendous amount of money. We're going to have to look at management systems to see if they can't help us do a better job. Our effort with PERT is really just a little one compared to what I think will become a total field before long.

I would advance as another reason why we have to face up to this problem is that our research and development projects are becoming more and more complex. You have now project teams with up to twenty-five people. They are all doing many kinds of things and may even be in different parts of the country. One project, for example, involves not only Ohio State University but also The University of Illinois and Cincinnati Public Schools. So you know that there is a tremendously large group of people on this project. We are now going after our problem more and more with a team approach. This condition forces the project director to become a manager as well as a doer of research. The fact is that he may do very little research. All he does is hire and fire and answer questions and make decisions, and all those aspects which come with the managerial position. You may say, "Well, you could turn these over to his assistant," but when you have the responsibilities that come with the spending of funds, you want to take a hand in what you are doing.

Another reason that I believe we have to look at the problem of research and development management in the field of education is that we are going through a time when innovation and change are being scheduled. We just can't wait any longer in many areas for things to come about by a process of osmosis or gradual transition. We are now deliberately sitting down and saying to ourselves in many areas of the educational world, "Now look, we want a new curriculum a year from now in this field. Let's get at it. Let's start developing it." Or the school board may say, "Starting September 1, 1966, we are going to implement SMSG, let us get organized to do so." These are the kinds of things we are now doing. The Board of Regents in Ohio plans to open a Cleveland State University within a year or two. Here is something brand new. What are all the steps involved? How do you handle it? These are the kinds of things I feel we are now faced with in this areas of innovation and change.

I think except for what might be called the profit motive, our concerns are very much like industry's. We want a kind of economic efficiency. What is the most efficient or wise use of a faculty member's time on the project? To what should he pay attention and what should he not? We don't want him to spend all of his life on the project nor all of his waking hours on the project. We want good planning on educational projects. We want them to be more realistic in terms of the time and resources needed, and more carefully explicated in the terms of the operational steps that one will have to go through. In this way, we can better evaluate and fund those projects which perhaps seem most economically efficient in all aspects.

I think we are also faced the same as industry is with the problem of decision making. There is a great emphasis on decision theory as some of you may know, but we are getting closer and closer to the problem. With many alternatives being available to us, which one are we going to decide upon? What is the best choice with regard to time and cost? These decisions keep occurring throughout the duration of the project. All you have to do is manager or direct one for a while and you will soon find out that time-cost trade-offs occur frequently. In summary, I am suggesting we don't have the experience yet in the management area to do adequately the job of managing the tremendous amount of money given to us in research and development efforts and we are obliged to do something about it.

Educational Applications. Turning quickly to some current PERT applications in education, I would like to start by raising a question. When or under what conditions should I implement PERT on my project? If you meet three conditions, then you probably have a project on which PERT could be applied. First, is there a schedule to be met? Has somebody given a date by which something must be done? Second, is the project relatively complex? Does it involve many types of jobs, many types of persons, many types of activities or is it a simple linear three or four activity task in its basic conceptualization? Third, how much uncertainty exists within the nature of the tasks and the timetable? If one can answer "yes" to these three questions, I would say that you have a situation to which you could apply PERT. In almost all cases, this covers the research and development projects being funded by various kinds of agencies.

We have encountered many applications to education. Let me present two or three. One is an application of PERT to the development of Cuyahoga Community College, a junior college in the Cleveland area, by Dr. Ellis Benson. Dean Benson has a staff that meets weekly. Their activity and direction is determined by the PERT output which they obtain almost weekly. With what kind of a task are they faced? This two-year community college started with about 6,000 students. Within another year they expect an enrollment of 14,000 students. They also have the land in an urban renewal area on which to build new buildings. They have to coordinate the building, the staff, the curriculum, and all other activities. We have also found that the Shoreline Public School District of Seattle, Washington, is using PERT in three situations. First, it is being used in the planning and establishing of a junior college. Second, it is being used in the development of a basic curriculum guide at the elementary and secondary level. Third, it is being used in the installation of IBM 260 series for this school district. Michigan State University has used a PERT network flow chart to move the library from an old building into a new one. We actually have a chart in our office for this move.

It doesn't take one too long to really think of the many kinds of educational problems to which PERT can be applied. For example, The Ohio State University is going to a GE 636 computer within a year or two. What are the steps to be involved in making the transition

from our present IBM 7094 system? I think PERT could be used on this. We are also developing plans to schedule students by computer. I think PERT could be used on the development of this project.

I would not be doing my job if I put any restrictions on the types of projects to which PERT could be applied. I think we have yet to find out. I don't think we have looked at this problem long enough in the field of education to say that PERT could be applied here and can't be applied there. I think it's still an open question.

I would also be amiss in my duty if I failed to point out that everybody is not as enthusiastic about PERT as I am. Many of my colleagues say that such applications are a bunch of nonsense. They state that once you begin to plan and control through such techniques, you begin to impinge a little bit on their academic freedom. You begin to force them into a kind of channel in which they don't want to go. It doesn't provide them with the opportunity to follow-up the opportunities they would like. We have also encountered a kind of resistance which I don't know how to describe adequately except to note that when you get people PERTing and they have to define activities in order to set up activity times, they are now forced to define the activity and many times they cannot do so. Such a situation becomes a little bit embarrassing to them.

Another prime objection is that PERT is fine for development projects and applied research but it just won't do for basic research. I would ask such persons to read an article from Harvard Business Review called "Fundamental Research Can be Planned."[1] The writer was using network theory in answering this objection by the insertion of decision points. In any kind of basic research, such a procedure would be involved. It is simply a matter of replanning after certain decision points are reached.

A management information system like PERT does not plan or control in and of itself. It only helps us to do these two jobs better. One of the observations the PERT staff has made in working with people on education projects, and talking with people around the country, is that when you mention the words planning and controlling, they begin to feel that the PERT technique is going to tell them what to do; that it will plan for them and it will control them. This is just not the case! The person who wants to use PERT is the person who makes out the plan. PERT doesn't set the plan for him. He will also do his own controlling. PERT will only give him certain types of information that management specialists think are needed in order to help make sound decisions and actions as the project moves along toward the end objectives.

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[1] Robert M. Cavanaugh and James B. Quinn, "Fundamental Research Can be Planned," Harvard Business Review, January-February, 1964, pp. 111-124.

Future Concerns. What about some forecasts and implications for the future? What do I see? I think you will find PERT applied increasingly both in the planning and controlling not only of educational research and development but also in other educational activities. Once administrators can begin to see the value of the technique they might want to teach their students about it as a way of getting project objectives accomplished. When we begin to get this kind of emphasis, this kind of interest, I think we will then begin to get this kind of usage of PERT which we need to study its value. People keep asking us, "Because you are studying PERT under funds from the Office of Education, are they going to make us PERT?" I cannot answer that question, but it is an interesting one as to whether or not it might help in the long run in securing better project management.

I think in the future we are not only going to have to have students who study research methods but who will also study the management of research and development. Research is getting too large to leave its administration to chance. We might well turn out at the doctor level research administrators and managers who are trained to handle the trmendous amount of money that we are going to receive for large team operations.

I think another condition here which is important to look at is that if we fail to produce results under the varied and numerous government programs because we don't know how to manage, to direct, or to administer projects then I think we are going to be hurting five or ten years from now. People will begin to evaluate us and our capabilities. They might say, "We gave you all that money and you appeared to use it unwisely and, therefore, if you can't handle it, why give it to you?" I think we are sort of obligated here to prove to people that we can handle the public's money efficiently.

Conclusion. A significant opportunity lies ahead of us to handle the increased research and development effort in a new way. Let us give attention to associated management problems in all their dimensions. Let us utilize PERT not from the traditional approach which generally imitates a new and respected technology coming in by a process of osmosis, but by a direct and immediate application to the field of education.

[A basic annotated PERT bibliography is included in the Appendix.]

RESEARCH COORDINATION--WHAT LIES AHEAD

by David L. Bushnell*

In its year and a half of activities, the Division of Adult and Vocational Research has had over 600 proposals reviewed and funded approximately one-third of these proposals. A good deal of our success, I think, is due to your (Research Coordinating Unit personnel) functioning and your assumption of responsibilities last June. We've been weighing very carefully the goals and scope of operation of the Research Coordinating Units. Through several discussions with our advisory committees, Dr. John Bean and I have tried to identify what we think to be some of the major activities, the kinds of thrusts that you should be getting into in your state programs. Let me just go through and provide a checklist of items that you may want to consider as appropriate, and here I shall lean heavily upon the original purposes and objectives laid down in our call for proposals last May. We listed some eight areas. What I plan to do is go through this list and pinpoint some of the activities that appear most relevant for the states to be involved in. In many cases these are projects or activities already underway. The first area and a very important one, of course, is:

I. <u>To stimulate and encourage occupational research activities.</u>

Without your communicating with relevant research groups in the state--the needs, the priorities, the objectives of our research program will not likely get the response they should. This means that we want to keep you advised on what research we have and you ought to keep us advised on your problems and interests and together we can work out a set of objectives, assuring the best utilization of the funds available. I think this also suggests that you will want to keep abreast of the literature in the field as best that you can. Think you will also want to keep up on new legislation being passed by Congress. Some of you may not know that in the Elementary and Secondary School Act, under Title V, there are monies available for summer institutes, summer regional institutes, that there are monies available under P.L. 480 for studies abroad, matching funds available

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*Director, Division of Adult and Vocational Research, U. S. Office of Education.

<u>Note</u>: This is not the complete text of Mr. Bushnell's presentation. A brief initial portion focused upon a set of visuals presenting a review of research funding activities by the Division of Adult and Vocational Research.

in foreign countries for study abroad. That under the OEO program, you can have access to basic adult literacy training--a fund to help set up and implement basic adult literacy programs within the state.

In addition, the National Defense Education Act has provisions for summer institutes as well. There are a whole host of legislative enactments which you ought to be attentive to so that you can advise personnel in your state how to go about getting such funds. This suggests that you also know where to go for such funding. I recognize that there is a maze in Washington and you may have to spend some of your time actually coming there, walking the streets and corridors trying to find out who are the right people to see. We will try as best we can to communicate to you any changes that take place in organizational structure.

II. The second major responsibility of the Research Coordinating Units is: To coordinate research inside and outside the state.

By that, I mean to circulate listings of on-going research projects which we provide and which you yourself may want to provide within the state. As a part of your activities, it would be useful to keep a listing of consultants within and outside the state who would be helpful to those wanting to conduct research studies, particularly at the local school district level. There they need to turn to someone to get the names of competent people who can be of help as consultants in structuring research or advising on on-going research. In regard to this function, it may be advisable to conduct periodic conferences. In Phoenix there was a regional conference by several states who came together to talk about state-wide planning for implementing state research coordinating units and the use of vocational education research funds.

III. To disseminate research information and findings as they become available.

We feel that it is of great importance to establish information centers on the great deal of materials--textbooks, films, tapes, video-tapes, other instructional materials you ought to have there for use by the local school districts.

IV. To review monetary and perhaps fundings research projects within your states.

Here we are completely dependent on you for your assistance. We do not have sufficient staff within the Office of Education to meet the demands for the many consultative services or draft proposals that come in. We have, we hope, been turning these people's attention to the RCU's in their state, asking for their assistance and thereby assuring a better quality of proposal before it comes to the Office of Education. We think this is a much more relevant and efficient way of handling draft proposals. We think too that there ought to be sources of funds within the state for research activities to meet state needs. Here of course we have 4A funds under the Vocational

Education Act as well as funds becoming available under Titles I, III, and V of the Elementary and Secondary School Acts. These funds could and should be spent in resolving problems unique to your state efforts. They might also be used to support pilot programs, planning projects, demonstration projects, etc., that could be built into a larger study; a larger proposal to be submitted for federal support. This suggests that you may want to take some time in thinking about your own set of priorities hopefully gearing them to the priorities we have established at the federal level.

V. To encourage and support pre-service and in-service training for research personnel in the state.

There is going to be and is now a definite shortage of qualified personnel. We think that the RCU's could be very helpful in supporting and identifying and in helping to locate competent research talent within the state.

There are Title IV monies under the Elementary and Secondary School Act for the purpose of training research personnel. We think that you people might very well work with your universities, and even yourself, in submitting a proposal for the conduct of new research training efforts. These proposals should be submitted to the Office of Education for funding. There is approximately 8 million dollars set aside for the training of research personnel at the post-graduate and under-graduate levels.

VI. Another interest you might have is that of maintaining an active list of graduate students and post-graduate students in the research field.

There are many universities trying to find such people. We, ourselves, would like very much to tap talented young people coming out of our universities and training programs.

Identifying and maintaining inventories of available occupational research and development resources--who in your state is capable of conducting good professional research in support of the vocational education field? You may want to conduct or contract for your own survey of your state resources for research.

VII. Another function, and one that we think is extremely important, and one that began receiving a great deal of attention because of the Research Coordinating Units now in existence is that of planning. A good deal of effort has been made to survey available data on employment opportunities, to identify the emerging occupational trends within the state and local regions, to work closely with the Bureaus of Employment Securities in your state departments and to assist in the translation of this available information into skill requirements and appropriate training programs.

We made a study, a non-random sample, of six state RCU's: Illinois, Michigan, Nebraska, Kentucky, New York, and Iowa, and asked them to what extent they were able to coordinate with and cooperate

with their state departments of employment security? All replies indicated that there was interest in developing a more unified co-operative program of job information and there were varying degrees of progress. I can't lend enough support to these kinds of co-ordinating activities to implement the kind of training needed for our emerging technology. I'm not necessarily suggesting that the RCU's become full-time research unemployment agencies--it should be your goal as catalyst in getting the right groups together, making sure the planning is carried out. That the information now available at either the federal level or that available through the Bureau of Labor Statistics or elsewhere is translated into terms that can be used by vocational educators in planning their local programs.

VIII. I think that you have a responsibility in helping your state directors develop the state plan for vocational education.

You should be involved in assessing the adequacy of facilities, teacher training programs, recruitment, availability of new and traditional training (as against the demand for such training). This ought to be your role as a chief planning agency for the state department of vocational education. We think too that in this role of planning that you ought to be able to relate the vocational education needs and interests to the broader state educational program.

What role should occupational education be playing in preparing the disadvantaged youth for not only a vocation, but for their role as adult citizens? I think it's time that you begin vocational education in general, begin taking the initiative of preparing youth for successful careers as adults in sub-professional occupation.

IX. Moving on to the next major area of emphasis, I want you to keep abreast of the kinds of funding the federal government is making available so that you will take the initiative at the state department of education level in seeing to it that these funds are put to good use. With vastly increased state aid, with the rising prestige of vocational and technical education, with the ties that vocational education has had traditionally with industry, and with the snow-balling support of community colleges and area vocational schools, we think there is going to be a definite coordinating function that the RCU's could play at the state level. If you are doing this job properly, you will be look ahead five or six years; you will be aware of the increasing demand for college attendance; and as students will not be able to get into a college of their choice, technical institutes, or any college for that matter, they're going to fall back on their community colleges. This rise in demand will certainly benefit and should be planned for in implementing proper vocational and technical education programs.

What are we planning to do at the federal level in support of Research Coordinating Units? I must say that it's been an exciting year, things have happened that we hadn't even dreamed would happen, and many of you have shown tremendous initiative in seeing that these changes were brought about. States like Connecticut and Oregon have

been very impressive in their finding of better occupational training to meet the kinds of needs that exist within their states; the effort Illinois has made in soliciting and supporting research on its own. In the states of Washington and New York, the RCU's fit within the state department research program as a whole and as a result they have made considerable headway in allocating funds, bringing about a better means of studying needs in vocational education.

We recognize that a few of you who have had staffing difficulties and we're impressed--in spite of that problem--by the speed of development and scope of your operation. I honestly believe that the funds invested in the RCU's will have a greater impact on vocational education in the long run than a comparable amount spent to finance civic projects. There is no question whatsoever as to the value or desirability for continuing our RCU's--the only question is one of finance. In the long run, it is our view that the necessary expense of interstate or intra-state research coordination should be borne by the individual states--I think that was made clear in the establishment of this program that in the long run we hoped to be able to phase out federal support and see these state units become entirely self-sufficient. However, in the short-run it is probably unrealistic to expect that adequate state commitments could be made in time to insure the continuing functioning of all the RCU operations. There are several reasons for this--we know that state departments and universities have already planned their 1967 activities and budgets, and that the level of activity in the RCU is such that they cannot expect to find sufficient state funds to carry those programs out. We know that in some states the ancillary 4a aid funds would be a logical resource to turn to, but they're, in many cases, not adequate to meet the demands. In North Dakota, for example, a commitment of the total 4a funds would cover only one-third of their RCU costs; thus time must be allowed for finding other sources of support. We know, too, that legislation will be required in many states if substantial expenditures are to be made for vocational research. Most of these state legislatures meet on a bi-annual basis and, therefore, could not possibly get together before 1967. In light of these facts, I am recommending to the Office of Education that they authorize and negotiate amendments to the existing RCU contracts to continue their operation for an additional 18 months, beyond next November. Beynnd that, however, we hope that there will be a phasing-out of our support and that there will be evidence of a continuing take-over of these units by the states. There are a couple of conditions that we've built into this possibility of re-funding and additional funding.

The first is that we are going to escalate the matching fund requirement from 10%, which we began with, to 15% as a minimum, realizing that many states can go well beyond that level. We're also interested in seeing that those states which have not received RCU's get some consideration. For that purpose, we have decided to ask all states interested in submitting proposals to do so on or before June 15th. Then we will have a chance to review those and pick the best from among them. It does not mean that we will fund

all proposals submitted. We are ear-marking about 2 million dollars of our 1967 fiscal year funds in support of RCU's. This means that on the average, we can only support 20 additional units. We may also, and I want to make this quite clear, decide to discontinue support of some already existing RCU's where they have not been able to fulfill their obligations. If there is evidence that they are not succeeding, there is no reason we should go on supporting them; instead, we should probably take this money and make it available to a state which now has or wants to establish an RCU program. We think we can see our way clear to continue support of most of the RCU's that are now in existence beyond November for an additional 18 months. We are asking that there be a minimum of matching 15% funds available and that some of the larger more affluent states go well beyond that minimal level. We are going to entertain additional proposals before June 15th and out of those we will select additional units to support.

I would like to close by emphasizing what I think to be one of the most important missions in vocational education, as well as in general education today; a mission in which you can be a very great help in implementing. I think it is important to recast some of our basic attitudes toward vocational education and general education. We should not see it as an obstacle course which is deliberately designed to eliminate a certain percentage of the participants in this course. Hopefully, it's rather a way to enrich the lives of all those who undertake to improve themselves in the game of education. There should be no losers--only winners. To achieve this kind of goal in our public education system, we have to gear our program in the largest percent possible to the individual needs of students and ways must be found to provide each student with the basic and occupational education at the time he will benefit from it most. In other words, we have to shift from being a "people oriented" education enclave to a "student oriented" effort. The failure of an individual to acquire the essentials of a basic and occupational education, I feel is not so much his failure as it is the failures of educators to devise an effective vocational education system. How to inaugurate such a program is not only our greatest challenge today, but yours as well.

A P P E N D I X E S

APPENDIX A

Functions and Definitions of Functions of a Research Proposal or Research Report

by David L. Clark, Egon G. Guba,* Gerald R. Smith

PROBLEM:

A. Establishing -- to establish the existence of a situation (e.g., an anomaly, a series of contradictory "facts," unverified findings, or an uncharted area) which suggests a problem.

B. Relating -- to relate the problem to its general antecedents (e.g., educational, scientific, societal, etc.).

C. Qualifying -- to qualify the problem in terms of the special conditions which tend to modify, restrict, or limit its study.

D. Justifying -- to justify the apparent utility, significance, or interest inherent in the investigation of the problem.

OBJECTIVES:

A. Proposing -- to propose the definite goals or ends which the investigator intends to achieve as a result of conducting the research.

B. Justifying -- to justify the selection of the specific objectives chosen for study by naming the criteria employed in making the choice and by showing how the objectives meet the criteria.

LOGICAL STRUCTURE OR THEORETICAL FRAMEWORK:

A. Expounding -- to expound the structure or framework within which the situation will be investigated, that is: (1) in the case of the logical structure, to provide a rationale for the perspective from which the investigator will examine the problem; or (2) in the case of the theoretical framework to conceptualize or state the theory in whose terms the investigator will examine the problem.

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*Reference was made to this outline in Dr. Guba's presentation. Dr. Guba on behalf of the co-authors has granted permission for its reproduction here.

Note: Dr. Guba's presentation based in part on a paper, Types of Educational Research, is not presented in this report. The paper, in its entirety, will appear as part of a published volume by another publisher.

B. Validating -- to validate the application of the particular logical structure or theoretical framework in the investigation of the problem in terms of its anticipated advantages and consequences.

HYPOTHESES OR QUESTIONS:

A. Proposing -- to propose the specific questions which will be answered or the hypotheses which will be tested in the investigation of the problem.

B. Validating -- to validate the fact that the questions can be inferred reasonably or the hypotheses can be derived directly from the logical structure or the theoretical framework.

RELATED SCIENCE, KNOWLEDGE, AND PRACTICE:

A. Describing -- to describe the studies and the writings pertinent to the substantive and methodological aspects of the investigation.

B. Critiqueing -- to critique the identified materials in terms of their strengths and weaknesses, as for example, limitations, validity, consistency, inclusiveness, and heuristic value.

C. Relating -- to relate the identified materials to the investigation by (a) showing how the methodology is based upon or differs from known design and measurement principles, and (b) placing the substantive aspects of the investigation in documented historical and scientific perspective.

EXPERIMENTAL DESIGN OR INVESTIGATORY PLAN:

A. Outlining -- to outline the over-all structure within which the investigation will be conducted including the variables which will be considered, the conditions which will be controlled, the processes by which the data will be gathered, the sample, and the sources of data.

B. Detailing -- to detail the design of the analytic procedures and the sample sufficiently to indicate that (a) the hypotheses are tested or the questions are answered unambiguously--the condition of internal validity; and (b) the findings are generalizable to the population or circumstances required by the hypotheses or questions being considered--the condition or external validity.

C. Operationalizing -- to make operational the variables or conditions in the investigation by specifying the instrumentation or the techniques of instrument development including the rationale supporting their selection or development.

D. Qualifying -- to qualify the conclusions or generalizations which can be drawn from the investigation in terms of any special conditions which are inherent in the analytic procedures, investigatory plan, sample, or instrumentation.

WORK SCHEDULE AND RESOURCES:

A. Describing -- to describe the time schedule on which the project work will proceed, the human and technical resources which will be devoted to the work, the physical arrangements which have been or will be made to carry on the work (as, for example, field arrangements for data gathering in school settings), and the fiscal requirements for the conduct of the investigation as described.

B. Justifying -- to justify the adequacy of the personnel and facilities to accomplish the described investigation and the rationale underlying any special conditions or arrangements which are necessary.

FINDINGS:

A. Presenting -- to present the data actually gathered in sufficient detail so that the reader can reconstruct the methodology of the research and assess the data gathered in relation to the plan of the investigation. At this point in the reporting process, the findings should be presented so that the actual data gathered are retained as fully as possible.

B. Examining -- to examine the data completely in accordance with the analytic procedures which have been proposed.

C. Summarizing -- to summarize the findings of the investigation so that all data relating to the hypotheses or questions are presented succinctly, accurately, and with proper qualifications.

APPENDIX B

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APPENDIX C

A Basic Annotated PERT Bibliography to Accompany Paper Presented by Dr. D. L. Cook

Blood, J. W., ed. PERT: A New Management Planning and Control Technique. New York, American Management Association, 1962. (Gabriel Stilian and others.)

A collection of 15 readings dealing with the relationship between management and PERT, PERT theory, practical experiences with PERT, and PERT variations.

Cook, Desmond L. An Introduction to PERT. Occasional Paper 64-156. Columbus, Ohio, The Bureau of Educational Research and Service, The Ohio State University, 1964.

An elementary discussion of the principles of PERT with particular reference to its use in educational research and development projects.

Dean, K. L. Fundamentals of Network Planning and Analysis. St. Paul, Minnesota, Military Department, UNIVAC Division of Sperry-Rand Corporation, January, 1962. (PX1842B)

A general outline of the principles of network underlying both PERT and CPM techniques. Special emphasis is given to the implementing of network techniques for persons unfamiliar with network planning and analysis.

MacCrimmon, K. R. and C. A. Ryavec. An Analytical Study of the PERT Assumptions. Memorandum RM-3408-PR. Santa Monica, California, The Rand Corporation, December, 1962.

Presents the results of a mathematical analysis of the basic assumptions used in PERT calculations and the direction and magnitude of errors introduced by these assumptions both for individual activities and the total network.

Malcolm, D. G., Roseboom, H. J., and C. E. Clark. "Application of a Technique for Research and Development Program Evaluation," Operations Research, v. 7:646-669, September-October, 1959.

One of the first papers to appear on PERT. Describes the development of the model, the initial preliminary extended application to the POLARIS program. Basic assumptions and limitations are presented.

Miller, Robert W., Schedule, Cost, and Profit Control With PERT, McGraw Hill Book Company, New York, 1965.

A comprehensive presentation of the origins of PERT; the problems and procedures involved in implementation; the relation of PERT to project definition, systems engineering, and configuration management; and the relation of PERT to management systems. Good discussion of network principles and construction.

Murray, John E. "Consideration of PERT Assumptions," IEEE Transactions of the Professional Technical Group on Engineering Management, v. EM 10, Number 3, September, 1963.

Analysis of the original PERT statistical assumptions in view of experience gained with the technique. Cites reasons for the establishment of original assumptions and suggests modifications designed to improve the statistical basis.

Phillips, C. R. Computer Programs for PERT and CPM, 2d. ed. rev. Technical Paper No. 13. Silver Springs, Maryland, Operations Research, Inc., October, 1963.

Discusses the features of the various computer programs developed for both CPM and PERT. Provides a listing and brief description of programs along with type of machine, resource to contact, etc.

PERT Fundamentals. Washington, D.C., PERT Orientation and Training Center, Bolling Air Force Base, 1964.

A three volume series in programmed instruction format covering the networking (volume 1), scheduling and planning (volume 2), and workbook plus final examination (volume 3).

PERT...Guide for Management Use. Washington, D.C., PERT coordinating Group, Office of the Secretary of Defense.

Description of PERT fundamentals so as to provide for a common means of communication between military, industrial, and governmental users of the technique.

PERT, Program Evaluation Research Task. Summary Report, Phase 1, Washington, D.C., Special Projects Office, Bureau of Naval Weapons, Department of the Navy, July, 1958.

Presents the first phase of the original development of PERT and its theoretical potential for management as developed by the project team of Navy Special Projects Office, Booz, Allen, and Hamilton, and Lockheed Missile Systems Division.

The Impossible, Please —AND HURRY!

RESEARCH showed the way for modern invention and production, for conveniences and engineering marvels. It was the making of great corporations

RESEARCH brought disease under a degree of control and prolonged the span of life.

RESEARCH put man into space. It will project him to the moon and the planets.

RESEARCH tackles complex mysteries that do not yield to man's reasoning and his accidental discoveries. Progress today comes largely because trained minds search for, and find, pertinent facts that otherwise elude us. In that process, barriers fall and what has been impossible comes to pass.

RESEARCH has no relation to magic. It is painstaking, costly, and slow. It requires scientists, money, and time. Unlike magic, it produces results -- but they cannot readily be guessed, willed, nor scheduled. For who can predict developments and their timing when exploring the unknown?

RESEARCH is neither all-powerful nor infallible, nor do its discoveries always pay off. A majority of industry's new products fail in the marketplace -- but those that succeed keep the firm in business.

RESEARCH may utilize complex equipment and methods, but is successful because of an attitude: seek evidence impartially, weigh it without bias and follow where it leads, welcoming what can be usefully regarded as truth -- but just as readily modifying views when further information broadens knowledge.

RESEARCH constitutes organized search for a better future. Its dividends grow with the scale and skill of research, and with alertness in putting findings to the test of practice.

RESEARCH holds no copyright on its basic philosophy, for we have worked up from the stone age by heeding good evidence. But man's progress is hindered by set ideas, often permitting years or generations to pass before useful knowledge is put to work.

TO HURRY today's obstacles out of the way, it is necessary to proceed in the spirit of research: forget rock-bound opinion, seek facts, and act on the best available information.

Anon.

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Report of a National Invitational Research Planning Conference on Trade and Industrial Teacher Education, May 23-27, 1966.

Cotrell, Calvin J.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

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EDRS Price MF-$0.27 HC-$7.88 197p.

*CONFERENCES, *TRADE AND INDUSTRIAL EDUCATION, *TEACHER EDUCATION, TRADE AND INDUSTRIAL TEACHERS, BIBLIOGRAPHIES, INSTRUCTIONAL MATERIALS, TEXTBOOKS, REFERENCE MATERIALS, *EDUCATIONAL RESEARCH, TEACHING SKILLS, TEXTBOOK SELECTION, VIDEO TAPE RECORDINGS, MICRO TEACHING, TELEVISION RESEARCH, INSTRUCTIONAL TELEVISION, TELEVISED INSTRUCTION, FLEXIBLE SCHEDULING, COMPUTER ASSISTED INSTRUCTION, INSTRUCTIONAL INNOVATION, EDUCATIONAL TRENDS,

California, Tennessee, Ohio,

National leaders were brought together to focus their attention on the generation of guidelines for research and development programs to expand and improve trade and industrial teacher education. To provide background information, and to stimulate thinking, several papers were commissioned and presented. These papers included -- (1) "A Review of Research in Trade and Industrial Teacher Education," by John L. O'Brian and Carl J. Shaefer, (2) "Report of Analysis of Sources of Trade and Industrial Teachers," by O. H. Beaty, (3) "Analysis of Trade and Industrial Teacher Education Professional Literature," by Edward K. Hankin, Durwin M. Hanson, and Gordon G. McMahon, (4) "Development of Technical Training, Teacher Training, and School Administration Procedures in the U. S. Navy," by James F. Peterman, (5) "Television Recordings -- A New Dimension in Teacher Education," by Dwight W. Allen, (7) "A Cursory Study of Innovations in Trade-Technical Teacher Education in the United States," by David Allen, (8) "Implications of Computerized Instruction," by George L. Brandon, (9) "The Development of Training Lessons for Pre-Service and Initial-In-Service Vocational Teacher Education Recorded and Presented Through Video Tape and Television with Seminar Sessions," by Howard F. Nelson, (10) "A Proposal for Pre-Service Training for Teachers of Vocational, Industrial, and Technical Education," by L. C. McDowell, and (11) "Projections for Trade and Industrial Teacher Education," by Melvin L. Barlow. (EM)

ED015348

REPORT OF

A National Invitational

RESEARCH PLANNING CONFERENCE

Trade and Industrial Teacher Education

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY / 980 KINNEAR RD./ COLUMBUS , OHIO 43212

VT COLLAPSE

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REPORT

OF

A NATIONAL INVITATIONAL RESEARCH PLANNING

CONFERENCE ON

TRADE AND INDUSTRIAL TEACHER EDUCATION

May 23-27, 1966

THE CENTER FOR RESEARCH AND LEADERSHIP

DEVELOPMENT IN VOCATIONAL AND

TECHNICAL EDUCATION

The Ohio State University

Columbus, Ohio

PREFACE

The National Invitational Research Planning Conference on Trade and Industrial Teacher Education was sponsored by The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University, to stimulate interest and effort in trade and industrial teacher education research and development. Specifically, the conference planning committee sought to bring together several national leaders in T. and I. teacher education and related areas to focus attention on the generation of guidelines for research and development programs to expand and improve T. and I. teacher education. The challenge that inspired this conference was the need to provide teachers to serve an increasing number of trade and industrial education programs throughout the nation.

To provide needed background for the conference, and to stimulate thinking, several papers were commissioned and presented to help conferees review the present status and project teacher education programs in this professional area. We are greatly indebted to the individuals whose presentations are contained in this publication. We are, also, grateful to the conference participants who labored enthusiastically in identifying future research and action programs, and especially to James R. D. Eddy, Dean of the Division of Extension, University of Texas, for his masterful leadership of this discussion.

Recognition is due the members of the planning committee who provided the suggestions for establishing the basic structure of the conference.

A special tribute goes to Dr. Calvin J. Cotrell who served as conference chairman and was responsible for the preparation of this report. Dr. Cotrell wishes to recognize the efforts of David Larimore, Research Associate, and Betty Diehl, Secretary, for assistance in the preparation of this report.

We trust that this report will be of assistance to others in the profession by encouraging them to engage in needed research and leadership development in trade and industrial teacher education. Further, we hope that the papers and other items included herein will stimulate further discussion and refinements as the profession moves ahead in this vital area.

Robert E. Taylor
Director

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PURPOSE OF THE CONFERENCE

The purpose of the conference was to stimulate interest and joint state and institutional efforts in trade and industrial teacher education research and development.

OBJECTIVES OF THE CONFERENCE

The specific objectives of the conference were:

1. To review previous research in T. and I. teacher education.
2. To review and analyze the professional literature for T. and I. teacher education.
3. To review innovations in general teacher education.
4. To review innovative programs and practices in T. and I. teacher education.
5. To review trade and technical teacher education in the military service.
6. To consider projections for T. and I. teacher education.
7. To develop guidelines for the improvement and expansion of T. and I. teacher education.
8. To identify research and development programs needed to improve and expand T. and I. teacher education.

CONFERENCE PLANNING COMMITTEE

Calvin J. Cotrell	Committee Co-chairman and Specialist in Trade and Industrial Education The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University Columbus, Ohio
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Allen, David	Supervisor, Trade and Technical Teacher Education, University of California Los Angeles, California
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PART I

INTRODUCTION

Editor's Note: Some of the papers presented in this report were prepared from tape recordings and are, therefore, subject to transcription error.

SUMMARY OF REMARKS
by
Merle E. Strong*

May I commend Dr. Taylor, Calvin Cotrell, and others associated with organizing this meeting. For some time, we in the Office, have seen a need to have an experienced group of leaders in trade and industrial teacher education brought together to share experiences and best thinking on where we should be heading in trade and industrial teacher education. The conference should provide the opportunity to share information on new practices, to become acquainted with research in the area, to react to new proposals or methods, to develop guidelines for expansion and improvement of teacher education programs, and last but not least, to suggest research or pilot programs that should be implemented. This group has been selected not only because you are experienced and are leaders in the field, but also because you are among the innovators.

We are greatly concerned in the Office about the means by which adequate numbers of teachers will be provided and about the problem of upgrading present teachers.

I am sure that this session will be fruitful in providing some of the answers needed.

---

*Dr. Strong is Assistant Director, Program Services Branch, Division of Vocational and Technical Education, U. S. Office of Education, Department of Health, Education, and Welfare, Washington, D. C.

PART II

REVIEW OF THE STATUS

A REVIEW OF RESEARCH IN TRADE AND INDUSTRIAL TEACHER EDUCATION

by

John L. O'Brian and Carl J. Schaefer[1]

This paper relates to a body of knowledge, represented by studies, writings, and reports, targeting on trade and industrial teacher education. The task of reviewing the conglomerated materials was complicated by their diversity in both definition and scope. So there will be no mistake about it, the report herein is limited to the discreet definition of trade and industrial education which is found in the American Vocational Association publication on definitions and states:

> . . . instruction which is planned to develop basic manipulative skills, safety judgment, technical knowledge, and related occupational information for the purpose of fitting persons for initial employment in industrial occupations and upgrading or retraining workers employed in industry.

The obvious dearth of actual studies (as evidenced by this review) necessitated delving into philosophical writings and reports. These latter categories, although not of research sophistication, provide a rationale of some import to the total picture of trade and industrial teacher education.

Admittedly, the review of literature has been broad, but even so, many relevant pieces probably have been omitted. The materials that were reviewed have been gathered from researchers themselves, library review, reports, and writings. In addition, credit should be given to Jerome Moss, Jr. (1965), who by virtue of his review of research in the winter issue of the Journal of Industrial Teacher Education, made significant contributions to this report both in style and content.

The review has been organized in the following categories for ease of reference and discussion: Recruitment; The Philosophy of Teacher Education; Teacher Competencies; Program Organization; In-Service Offerings; and The Picture.

Recruitment

There have been few attempts to study the problem of T. and I. teacher recruitment. Typically, the problem has been taken for granted. In his outstanding treatise, Man, Education and Work, Venn (1964) discussed the need for vocational and technical teachers. He states unequivocally that:

> One of the greatest handicaps to the improvement and expansion of vocational and technical education is the desperate shortage of qualified teachers and administrators.

---

[1]Dr. O'Brian is Associate Professor of Education, and Dr. Schaefer is Professor of Education and Chairman, Department of Vocational-Technical Education, Graduate School of Education, Rutgers - The State University.

> Except in vocational agriculture and home economics, there is a noticeable lack of teacher preparation and in-service training programs and also difficulty in recruiting well educated individuals with competency in a relevant occupational skill . . . . The kind of teacher preparation program needed for many vocational and technical programs has never been resolved . . . . For too long the educational community has misunderstood the nature of vocational and technical education; there is much more to it than the acquisition of certain skills through the duplication of work activities. Ultimately, vocational and technical education will be as good as those who teach it, and the preparation and continuing updating of teachers for it must become the responsibility of the colleges and universities with experience in teacher education and schools and departments in the relevant disciplines.

More specifically, Vezzani (1965) feels that the vocational teacher is the forgotten individual in our recent legislation pertaining to the preparation of persons for the world of work. Yet the success or failure of programs will depend to a large degree on teachers. He wants to know why those responsible for the Vocational Act of 1963 have failed to provide scholarship grants for the training or upgrading of teachers as was done for the science teachers, guidance counselors, and special education teachers. Schaefer (1963) has referred to the dilemma of recruiting competent T. and I. teachers. He states that we are using solutions based on yesterday's technology while we need a recruiting policy based on today's technology and today's needs. Giachino (1961) attacks the problem of selection by suggesting that there is a need for more realistic procedures available to administrators who must select new trade and industrial teachers. Teachers are often chosen by personal judgment as the exclusive dominating selection factor. There must be some form of relative measurement. In this respect, Giachino has composed a rating form to record the personal interview with the candidate; examination of applicant's scholastic record; administering standardized tests; and evaluating his physical qualities, mental equipment, habits of work, and emotional qualities.

The Office of Education (1966), in reporting on the manpower training program, points out that the initial cadre of teachers for the program came from the ranks of regular vocational education teachers, but just as the regular vocational education facilities became inadequate to hold the expanding volume of manpower trainees, so did the core of regular vocational education teachers. Therefore, they have been recruited by various means, among them the local employment service, universities which offer vocational-technical teacher training, newspaper advertising, and personal contacts in the education and business communities. Business and trade union groups as well as local advisory committees have also assisted.

Nor was the dialogue of recruitment ignored over a decade ago when

the Educational Policies Commission (1956) suggested sources of recruitment for teachers. The Commission suggested that married women, retirees, qualified persons from minority groups, and new groups of immigrants be considered. Moreover, in their discussion of manpower and education, the Commission recognized the need for extensive in-service training of teachers when recruited from these reservoirs of talent.

It must be admitted at this point that hard-type studies targeting on the recruitment problem have been almost totally ignored. Mellman's (1957) study in this respect stands as a bench mark.

It was the purpose of the Mellman Study to suggest a more effective T. and I. teacher recruitment program to encourage skilled tradesmen to enter vocational teacher training classes. Among other things, he found out by means of a questionnaire rated by teachers, administrators, and teacher-training personnel that teacher recruitment should begin with recruitment of able students into the vocational high school programs. The following ten steps were given as constituting an appropriate teacher recruiting program based on this philosophy. Trade and industrial teachers should: 1) visit junior high schools and explain their particular trade or related subject to ninth grade students; 2) should tell their students of the opportunities found in teaching vocational subjects; 3) should recommend the field to their better students; 4) should assist their students in locating jobs; 5) should encourage them to return to their teachers for help in solving problems; 6) should, in cooperation with the director or coordinator, maintain contact with their graduates through a yearly follow-up; 7) should maintain good relations with industry through personal visitations and helpfulness; 8) should encourage skilled tradesmen from industry to enter vocational teacher-training schools; 9) should belong to the local vocational and industrial arts teachers' association; and 10) should promote a "career day" where representatives from industry explain the requirements of their vocations. Moreover, it was concluded that: 1) teachers recognize the importance of recruitment practices but have demonstrated a negative professional attitude in their failure to accept many of the responsibilities outlined in the study; 2) it is possible to predict the teacher supply and demand, but the complete cooperation of all personnel is the first requisite for accurate predictions; and 3) the certification requirements for teachers of vocational trade subjects are believed to be adequate by the (Pennsylvania) personnel. It was recommended that the teacher recruitment practices outlined in the study should be used by the teachers and administrators in every local and vocational program; and that brochures, sound moving picture, slides and filmstrips should be prepared on the subject of vocational trade and industrial teaching for use in the guidance programs of the senior high schools.

Philosophy of Teacher Education

The rhetoric dealing with the philosophy of trade and industrial education has adorned the professional journals over the years. Barlow (1958) traced the history of trade and industrial teacher education

conferences and cites that the National Society for the Promotion of Industrial Education published a document in May of 1913 pointing up the problem. A revised edition was published following the passage of the Smith-Hughes Act, and the archives of the United States contain a record of the discussions conducted by the Federal Board for Vocational Education in 1917. In May, 1918, the National Society for Vocational Education published Bulletin No. 26 which outlined the problems of administering the Act. The first National Conference on Trade and Industrial Education was held in Minneapolis in 1921, and a second conference of note was held at Blueridge, North Carolina, in August, 1928. A third conference in Minneapolis in 1936 devoted much time to teacher education. Barlow felt that the 1958 Conference on teacher training would be a milestone in the progress of T. and I. teacher education. Wheeler (1958), in summarizing the conference, drew two general conclusions: 1) our foundations are sound, and the main body of industrial teacher education is good. Therefore, the approach is not one of making the bad good, but rather one of making the good better; and 2) the fact that teacher trainers themselves express some dissatisfaction indicates that they are educators in the finer sense. The desire for progress and improvement is always a compelling motive of such individuals; dissatisfaction with the status quo is characteristic. More specifically, Wheeler stated that there are some areas that will need the combined efforts of all. These include: 1) the selection of individuals for teacher training (pre-service); 2) the determination of the nature of the in-service needs of teachers and the order in which the training is needed; 3) teacher-training programs for teachers of trade and extension classes and short-unit Type C programs; 4) realistic certification requirements for teachers based on sound evaluative criteria; 5) the problems of teacher training posed by new trades and technical subjects; and 6) the effect of the increasing technical nature of trades on qualifications of teachers (trade experience, professional training, and technical knowledge). He further raised the question of, "What will the States do about it?" In answering his own question, these points were made: 1) we are looking to the Office of Education for leadership; 2) we are accepting our assigned responsibility; 3) each state will study its present teacher training program, first for improvements, second for change in structure; and 4) provisions for teacher training in new state plans will be more flexible.

At this moment in history, however, it should be quite clear (and I am not sure that it is) that there must be a difference between teacher preparation for trade and industrial education and for industrial arts. Conant (1959) in his study, The American High School Today, recognizes the indecisiveness between the two programs at the operational level which is naturally reflected in teacher preparation, when he states, "The line between the industrial arts program and the vocational shop program (trade and industrial)[2] for boys is not an easy one to draw."

An early philosophical debate, but one which must be mentioned in any review of the literature, took place in the 1950's. As a result of an

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[2]Author's insert.

experiment, Vezzani (1953) advocated among other things, that T. and I. teachers may not need to be tradesmen in the truest sense of the word. By careful screening (using performance exams, as well as oral and written exams) and subsequent follow-up of teachers thus selected, he found and contended that trade experience of X number of years might not itself assure trade competency. The challenge to this notion was quickly picked up by Leighbody (1954) who argued that both the Smith-Hughes Act and the 1948 edition of Bulletin No. 1 mandated that teacher education be reserved for ". . . persons who have had adequate vocational experience in the line of work for which they are preparing themselves or who are acquiring such experience." Diamond (1954) brought an end to this dialogue by relating:

> . . . there is the tendency on the part of some to take issue with an author to read into his article implications which have no place in his thinking, and which, by no stretch of the imagination appear in the text . . . . Nowhere in Bulletin No. 1 can we find that adequate experience or practical work experience must be obtained through a specified number of years in the trade. The problem is to select those who can qualify as being occupationally competent. Vezzani suggests that this be done by means of appropriate tests. Can you suggest a better way?

Feirer (1961), in a discussion of "content or method" also raised the question of whether or not in educating industrial teachers, the stress should be on what is taught or how to teach. He feels that the real answer lies in some middle ground between content and method, for both are important. In industrial education, a teacher must know not only how to perform the skills and how to present the information, but he must also have a thorough grasp of methodology before he can teach someone else.

Certification requirements lend to the philosophical framework, as stated by Barlow (1958):

> Teacher training and certification are elements in the same series and should not be considered as entirely separate entities. States which have the most effective teacher training programs have recognized the interdependent relationships of teacher training and certification and have provided for these relationships appropriately.

The National Society for the Promotion of Industrial Education appointed a committee on certification and training of teachers in 1913. The Committee agreed on the following six major items which even today have some validity: 1) the purpose of state certification is to select persons who possess considerable minimum qualifications; 2) certification attests to the general fitness of the candidates to teach their special subject or subjects; 3) control of certification should be in the hands of the state, and advisory committees of labor and management should assist the state in formulating standards; 4) examinations

should be conducted by experienced agents of the state who have some responsibility for supervision of industrial schools; 5) the personal interview is an indispensable device for testing personal and teaching qualifications; and 6) if the cost of certification is greater under this method, it should be understood that securing properly qualified teachers for industrial schools is absolutely necessary.

More recent words have been uttered in print by Swanson and Kramer (1965) in their consideration of professional training of all vocational teachers. They contend:

> Just as there is a need for a more comprehensive program for the preparation of individuals to enter the labor force, so it follows that the program of preparation for the vocational teacher must be more rigorous and often quite different from those now provided. Collegiate preparation of vocational teachers--earlier thought by many to be somewhat inconsistent with the basic vocational education philosophy--is becoming more and more accepted as logical and necessary. This is not to suggest that the vocational education teacher's need for successful work experience in the occupation in which he will be teaching is considered to be any less important.

And last but not least, Woodring (1960) reminds those really concerned about the preparation of teachers that a liberal education is needed for all teachers if a free nation is to survive and prosper. He feels that all citizens must, within the limits of their ability, also be liberally educated.

Teacher Competencies

Although not enough work has been done, some effort has been made to identify competencies needed by trade and industrial teachers. Methodology used has been in the most part a questionnaire technique or some modification of it. The judgmental procedure using a jury to validate a checklist of items, has served as the process to get at the teacher competencies needed. It is, therefore, somewhat surprising that more innovative procedures, especially those which stem from a belief in occupational analyses, have not been more extensively used. Moreover, it might be noted that the critical incident technique used by Flanagan could well serve the further study of T. and I. teacher competency.

A bench mark study, which will remain in the minds of many for some years to come is that of Walsh (1960). Although pointed toward the evaluation aspect of the teacher education endeavor, the Walsh study found its basis in teacher competency identification. In carrying out the study, the following seven steps were undertaken: 1) a list of identified competencies of trade and industrial teachers was developed and then refined by a national jury; 2) successful trade and

industrial teachers appraised the importance of the competencies identified; 3) teacher educators appraised the importance of the competencies identified, and a comparison was made of the appraisal of the two groups; 4) a composite rating of the competencies by teachers, supervisors, administrators, and teacher educators was made; 5) an evaluation of the proficiency and preparation of trade and industrial teachers was made; 6) an evaluation of the contribution of education and experience to teacher competency was made; and 7) a summary of findings and suggestions for additional research was made.

The findings of this study included, among others, at least eight significant points for this review: 1) teachers of trade and industrial education need many distinctive skills and abilities in addition to those required by regular classroom teachers; 2) a list of 107 teacher competencies was appraised as being valid; 3) there was a high degree of agreement between ratings given the 107 competencies by teachers, state and local supervisors, and teacher educators; 4) competencies in the category of teaching methods and techniques were most often rated high in importance, while competencies in the category of shop and classroom organization and management rated low on the scale; 5) the teachers considered "most important" and "very important" those competencies which expressed ability "to do" something rather than those indicating knowledge or understanding; 6) the three courses listed as contributing most to teacher success were: a) trade analysis and course construction, b) methods of teaching industrial subjects, and c) development of instructional materials; 7) supervised practice teaching, planned observation of teaching, and planned visits to industry were rated high by teachers and teacher educators; 8) teacher educators and state and local supervisors expressed dissatisfaction with the general level of preparation of trade and industrial teachers. Only 40 percent of this group indicated they were satisfied with the level of preparation.

Moeller (1961) took the tack that the aims and supporting principles for the direction of programs of industrial teacher education should be evaluated by representatives of labor and industry. Interviews with thirty-eight selected representatives of labor and industry were conducted. Although the sample was samll, the findings should be included in this report. The findings include: 1) well-defined competency levels, such as the commonly held concept of journeyman status for trade occupations, should be established for the several broad areas serviced by teachers of trade and technical subjects; 2) apprenticeship experience is essential for teaching the manipulative phases of trade occupations, but is not necessary for the theoretical or "related instruction" phases of an occupation. For more advanced levels of instruction, such as those necessary for upgrading programs in the skill trades and for preparing technicians, the cooperative work study program is tentatively the best approach; 3) an understanding of the social aspects as well as the technical processes of industry is essential for all teachers of industrial education and is best achieved through a balanced program of both academic orientation and actual work experience, neither of

which is adequate by itself; 4) all teachers of industrial education must be thoroughly competent in all phases of the professional aspects of teaching and should experience as broad a background in the liberal education phase of their preparation as teachers of other disciplines.

In an attempt to evaluate trade and industrial education in the State of Ohio, Reese (1954) studied the nature of the problems found by beginning trade teachers during their first four years of teaching. The sample for this study involved 275 T. and I. teachers of which 240 responded. The results of this study indicated that the list of factors dealing with 1) personal qualities, 2) teaching techniques, 3) class organization and management, 4) instructional materials, exhibits and visual aids, 5) instructor knowledge and activities, and 6) physical conditions of shop and related laboratory was a valid list to identify the beginning teacher problems. Reese concluded that: 1) teachers do not recognize as potential problems their own personal characteristics or qualities; 2) a major need of beginning T. and I. teachers involves problems concerned with techniques, practices, and resources to be used in providing instruction of students; 3) because of the wide diversity of problems encountered by beginning T. and I. teachers, an in-service teacher-training program composed of short units appears to be more feasible and practical than a program organized of courses which operate for a full school period; and 4) the T. and I. training program has failed to devote sufficient attention to those problems of beginning teachers which may result from personal characteristics.

Returning to Walsh (1960), his technique included the use of a committee of experts to identify basic groups of competencies which numbered 107; these were further refined by a national jury. The resulting competencies were then evaluated and appraised (rated as "very important," "important," "less important," "not important") by 514 successful teachers of T. and I., 228 state and local supervisors, and 120 T. and I. teacher educators.

Teacher educators rated eleven competencies as "most important"; these included: 1) a knowledge of objectives of vocational education; 2) how to analyze a trade; 3) the ability to motivate students; 4) how to demonstrate skills; 5) how to stimulate and maintain interest; 6) the teaching of safety; 7) a knowledge of principles of learning applied to teaching T. and I. subjects; 8) methods of teaching related subjects; 9) developing attitudes in students in regard to safety; 10) an understanding of how a learner acquires skill and knowledge; and 11) developing appreciation of good workmanship.

The relative importance of competencies of T. and I. teachers according to teachers themselves, state and local supervisors, and teacher educators was discovered to be: 1) the ability to develop student attitudes toward safe practices and safety consciousness in job performance; 2) the ability to demonstrate skills; 3) a knowledge of methods of teaching shop subjects; 4) an understanding of the objectives of T. and I.; 5) a knowledge of methods of teaching related

subjects; 6) the ability to arrange questions in instructional order; and 7) the ability to motivate students to acquire skill and knowledge.

Still reporting on the Walsh study, evaluations were made by 121 state supervisors of trade and industrial education, ninety-one local supervisors of T. and I., and 103 teacher educators of the competencies of recently trained T. and I. teachers. They expressed their degree of satisfaction in relationship to twenty-four aspects of the teacher-training program; they responded by grouping "yes," "no," or "undecided" answers. The respondents were generally satisfied with: 1) ability to demonstrate the skills of the trade; 2) ability to develop safe work habits; 3) experience in the skills of the trade (trade competency possessed); 4) understanding of objectives of vocational education; 5) tendency to teach at appropriate level; 6) ability to maintain discipline. Considerable dissatisfaction was shown for: 1) experience in developing instructional materials; 2) preparation in testing and evaluation; 3) orientation to total educational program of the community; 4) orientation to the types, locations, and services provided by community organizations concerned with industrial education. The same persons were asked to indicate their satisfaction with the general level of preparation of recently prepared T. and I. teachers. Forty percent were satisfied, 45 percent were dissatisfied, 15 percent were undecided. Breaking this down into discreet groups, it was found that 45 percent of local directors were satisfied, 39 percent were not, and 16 percent were undecided. Forty-one percent of state supervisors were satisfied and 35 percent of the teacher educators were satisfied with their trainees.

Three years later, Schaefer (1963) attempted a less ambitious study in relation to the development of an unfolding trade and industrial teacher education program. Responses to a questionnaire based on the Walsh listing of competencies included thirty local directors of vocational education and fifteen leading teacher trainers. The question asked was, "What makes the difference between a usual and a superior teacher?" It was noted that a high degree of correlation (.76) was found between the thinking of the two groups. High on the rank list of competencies was knowledge of subject matter (skill included); low on the list was an understanding of the history of education.

Lastly, writing a report for W. E. Upjohn Institute for Employment Research, Smith (1963) reminds us that:

> . . . the usual teacher education courses required for vocational and technical teachers should be confined to those that are relevant. The teacher institution must make arrangements with industry to provide the trainee with the practical instruction and experience needed in his chosen occupational skill . . . . Not enough is known yet about what makes the good vocational teacher. The conventional requirements for certification are quite inadequate. There is much to be learned before certification requirements for vocational education teachers should be rigidly fixed.

Program Organization

Studies of trade and industrial teacher education program organization have not been abundant. Walsh and Selden (1965) remind us that:

> The quality of any educational program is directly related to the quality of instruction. In vocational education, the first measure of quality is a level of competence of its shop, laboratory, and classroom teachers. Some of the competencies of vocational education teachers are the same as those required of all teachers, but the objectives, occupational structure and occupational pattern of vocational education call for a host of specialized abilities and understandings as well . . . . The instructional program is based on requirements and practices of occupations. And teachers must be equipped by practical experience and professional training to provide students with the occupational skills, knowledge, attitude, and appreciations they need to fulfill their aims . . . . Teachers must be skilled in 'how to teach' students with vocational goals as well as in 'what to teach' these potential workers. Teachers must not have only general understanding of the learning process but an understanding of how people learn in a vocational environment . . . . Teachers must be qualified to provide not only group instruction but individual instruction.

In the now heralded report of the Panel of Consultants (U. S. Department of Health, Education, and Welfare, 1963), a number of general observations relative to trade and industrial teacher education were made. Among them were the statistics that in 1960-61 there were 11,474 teaching positions in day schools representing eighty occupational fields, 16,280 teaching positions in evening programs, and 7,472 teaching positions in part-time programs. The report goes on to relate that occupational competency needed in so many fields precludes teacher education programs from incorporating occupational content in their curricula. Occupational competency is usually obtained through work experience. Teacher education for T. and I. is restricted to professional education and general education plus content courses for updating in-service teachers. For the most part, teacher preparation in T. and I. takes place after initial employment. The pattern of teacher education varies by states. About half of the states and territories have designated an institution of higher education to provide the teacher training; one-sixth have appointed teacher training staffs within the framework of the state education department; and one-third have assigned to their state supervisory staff the dual function of supervision and teacher education. Various patterns are used in teacher education programs: 1) full-time T. and I. programs resulting in baccalaureate degree; 2) part-time pre-employment training; and 3) in-service programs. Teacher training programs for related teachers differ from those for the shop teacher in some institutions with heavier emphasis on classroom and drafting room teaching methods.

The problem of obtaining teachers for T. and I. who have adequate occupational experience, good basic education, and professional training

might be solved by utilizing a cooperative-type training program. Teacher education programs for trade extension teachers have been limited or not provided at all. Some states use a program providing thirty to sixty clock hours of instruction among areas such as methods, demonstration, course organization and planning, and instructional aids. Other states use a correspondence course for this purpose according to the 1963 Panel of Consultants' Report. Walsh (1958), in an analysis of several studies in the field of trade and industrial teacher education, gathered data that showed three distinct patterns for the operation of teacher training programs: 50 percent of the states used the state college or university; 30 percent were using their state supervisory staff; and 17 percent were using a state staff of teacher trainers. Of those responding to the study, only 40 percent of state and local supervisory personnel expressed satisfaction with the preparation of trade and industrial teachers, 45 percent expressed dissatisfaction, and 15 percent remained undecided.

A recent report entitled, "Summary Report of Vocational-Technical Program Development by States" (U. S. Department of Health, Education, and Welfare, 1965) says little about the programs of teacher education, but twice mentions that states are concerned about the development of programs of in-service teacher preparation, summer workshops, and the need for more teachers to staff post-secondary programs.

Back in 1955, the National Association of Industrial Teacher Educators produced a brochure entitled, Report on Cooperative Teacher Education, which called attention to the use of cooperative programs to produce competent T. and I. teachers. This early work attempted to describe several successful patterns of operation. Lux (1959) undertook a study to find a method of providing the State of Illinois with an adequate number of trade and industrial teachers competent both in their trade and in the teaching profession. Among the conclusions that were reached, Lux recommended that the professional leadership should develop programs which combined the basic elements of cooperative teacher education. Also, state departments of education should re-evaluate their certification requirements for trade and industrial teachers. Ramp (1962) reported that some agreement concerning the cooperative approach to providing skilled training for T. and I. teachers emerged from the 1960 Trade and Industrial Education Branch of the U. S. Office of Education's Conference on "Quest for Quality." At least in Ramp's opinion, one possible approach towards supplying public schools with qualified vocational industrial teachers, who are also acceptable to the general faculty, is the cooperative trade and teacher training program. Those engaged in this program believe it is more desirable to train a young person whose original occupational choice is vocational industrial teaching. Ramp goes on to state that the plans approved in 1958 by the Illinois Board for Vocational Education require the prospective teacher to graduate from a two-year, post-high school vocational-technical institute curriculum offered by an approved school. Upon completion of this program, a student may transfer to the university's industrial education department. Here he takes the general education and teacher training courses required for university graduation. In addition to the course work, a student works twenty-four months in full-time

employment in his trade area.

Nor should programs of in-service teacher preparation be overlooked. Teufner (1961) emphasizes the fact that there is need for continuous education of the teacher. Rapid technological advances have forced industry to perfect its own formal education program, and there is a need for those in education to upgrade in-service offerings. Examples of concern for such offerings are given by Brown and Davis (1964), and by Kindred (1964) who reported on a recent institute held at the Miami-Dade Junior College. This latter reference illustrates the present emphasis being placed on in-service institutes by the Vocational and Adult Research Branch of the U. S. Office of Education. It is reported that during this year alone some twenty-six summer institutes will be funded. Federal funds in the amount of $200,000 have been approved for their operation. The need for physical facilities designed to meet the varying deamnds of all types of in-service programs cannot be ignored. Larson (1966) has studied these needs and has developed a unique design incorporating flexibility and maximum utilization. He recommends that a number of such centers be constructed at major institutions throughout the country.

The In-Service Offerings

Emerson (1958), a recognized authority for many years, alluded to the offerings of pre-service and in-service training of teachers by stating:

> Vocational-technical education has many implications for teacher trainers. We are in a state of change; but looking ahead does not necessarily mean that we should give up the teacher training programs we have been conducting, nor should we discontinue training teachers for some of the same areas we have trained them for in the past. We are still going to need many of these teachers. Changing conditions are demanding higher standards in many areas. We must take what we have been doing, pick the best elements, and use them.

More specifically, and in a discussion of improved teacher competency, Bowler (1958), Spence (1962), and others believe that successful teachers indicate that the most important area of a teacher training program is the supervision of practice teaching. An Office of Education teacher training study revealed that less than 10 percent of the teacher trainer's time is devoted to such supervising practices. Spence makes a case for more help for beginning teachers and suggests that sometimes advice from "old timers" can be damaging.

According to a study by Littrell (1965), there is a tendency to feel that cooperating teachers take advantage of student teachers and exploit them for personal gain. Assuming that there is some truth in this, is it necessarily bad? Some exploitation of student teachers seems

to be normal. The student teacher usually lacks confidence. He looks forward to working with an expert (the cooperating teacher) who will guide him in learning how to teach as well as in helping him to increase his knowledge of the subject matter. The results of several inquiries have led Littrell to conclude: 1) student teachers expect to be exploited; 2) student teachers do not want to be substitute teachers so that cooperating teachers can take a rest; 3) student teachers may not be exploited as much as college supervisors might suspect; 4) in areas where cooperating teachers are weak, student teachers are probably encouraged to make presentations; 5) student teachers want to have the experience of complete planning and control of a class; and 6) careful selection of cooperating teachers is necessary.

Price (1958) supports the notion that more supervision is needed of teachers who teach trade extension type programs.

A major function of trade and industrial teacher education has been recognized as in-service education. A true definition of the term implies (at least in other areas of education) that teachers are initially prepared and subsequently kept prepared through credit and non-credit offerings. In our use of the term, we are often misleading since we call anything related to teacher education in-service training whether the teacher is initially prepared to teach or not. That is to say that the new inexperienced individual, once being hired--whether or not he has had the first course in pedagogy--is immediately classified as an in-service teacher when actually he is probably receiving only pre-service content. Consequently, the true pricture of providing in-service or updating kinds of offerings is not as rosy as it may seem. Brown (1963) implies that retraining is needed in teacher education due to rapid technological advances. The following are part of the program used by the Phoenix, Arizona, schools to achieve this goal: 1) providing an orientation week for all teachers prior to the opening of the fall term; 2) offering instructional improvement half-days four times per year; 3) encouraging enrollment in college extension courses; 4) providing summer workshop opportunities. Brown concluded that the quality of new teachers has improved over the years. Micheels (1965) reminds us that we have reached that point in time when the quality of a total school program can be measured directly by the quality of the in-service education program. Moreover, any in-service programs should be geared toward change, and a major aim should be to create a positive attitude toward goals identified by the staff.

By the way of evaluation, two studies seem appropriate. Brantner (1962) conducted a study in Pennsylvania by means of a checklist to ascertain the attitudes of T. and I. teachers on the adequacy of the instruction they received. A majority of the teachers rated the instruction as adequate on 175 of the knowledges and abilities included in the checklist. There was significant relationship between the attitudes of the vocational administrators and teachers in rating the competency of application to teaching duties. A significant relationship between the adequacy of instruction and competency of application was evidenced. In

a similar manner, Ryan (1963) surveyed 174 North Carolina trade and industrial teachers with the result that 80 percent or more of the teachers experiencing problems in fifty-six items indicated that they had received help while more than 30 percent of the teachers experiencing problems on eleven items indicated they had received no help from their teacher training program.

The Connecticut Department of Education (1963) conducted a study to determine the activities of the teaching staff which tend to improve their effectiveness as teachers. The results show that over half of the teaching staff (252 out of 416) were engaged in some activity which provided them with additional knowledge and skill applicable to their teaching role. These activities consisted of formal courses, workshops, teaching and work experience. Many instructors participated in more than one activity, such as enrollment in courses and working in industry. Sixty-seven trade instructors or approximately 30 percent participated in trade workshops such as sponsored by the General Motors Corporation or were employed in trade related occupations, thus providing them with insights into the latest developments and techniques in their specialized field.

Ginther (1964) looked at the graduate offerings in industrial education in the United States. He studied the ways and the extent to which specialized technical competencies, teaching and administrative competencies, and provisions for general and liberal education were being provided. Among other things, he determined that: 1) the number of semester hours offered in graduate courses in industrial education ranged from twelve to 164 with a mean of approximately forty-nine per institution; 2) less than 40 percent of the respondents indicated that graduate students were required to take some technical courses, but about 70 percent indicated that technical courses were recommended; 3) industrial experience was not a general requirement; 4) the required areas of course work reported most frequently were history and philosophy, administration and organization, and curriculum content and organization; 5) about 30 percent of the master's programs, two-thirds of the specialist programs, and 80 percent of the doctoral programs required teaching experience ranging from one to three years; 6) relatively few graduate students were required to take specific courses in professional education other than in industrial education; 7) one-third of the respondents reported that general and liberal education courses were required, and two-thirds reported that such courses were recommended; and 8) the portion of time actually devoted to the development of specialized technical competencies in the master's and doctoral programs was considerably less than the time the respondents believed should be devoted to this purpose. Swanson (1964) made a similar evaluation of master degree level programs. He found that the programs were strongest in the area of professional education. Research and technical education ranked about the same. The weakest educational area was general education. There was divergence of opinion on the type of graduate program which should be pursued.

The Picture

To give some idea of the results of the effort, it is interesting to note that there is some improvement in the degrees earned in trade and industrial education as reported in the Department of Health, Education, and Welfare's Summary Reports (1962-1963 and 1965). The following table shows the earned degrees conferred for the academic years 1961-62, 1962-63, and 1963-64.

	1961-1962	1962-1963	1963-1964
Bachelor	620	657	704
Master	211	186	210
Doctorate	11	7	13

Included in the above were data concerning degrees earned by women in trade and industrial education. These data are listed below:

	1961-1962	1962-1963	1963-1964
Bachelor	17	25	13
Master	14	27	22
Doctorate	0	0	0

Summary

No attempt will be made to summarize the report just presented as at best it is a summary in itself.

A word does appear appropriate, however, relative to the lack of hard-type studies that have been obvious by their absence. It is apparent that little has been done during the past decade to take a hard look at trade and industrial teacher education. It might be rationalized that we are just too busy, the challenge too great, and the time too short. But the fact remains, more studies of the sophisticated type and less of pure conjecture need to be undertaken. Answers to questions of where we are, and where we should be going cannot be found until we do just that.

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REPORT OF ANALYSIS OF SOURCES
OF TRADE AND INDUSTRIAL TEACHERS
by
O. H. Beaty*

At the suggestion of Dr. Cotrell, I made a survey. A questionnaire was sent to all of the state supervisors of trade and industrial education throughout the country. In the interest of getting a little bit of additional information, we also surveyed the supervisors of technical education throughout the country.

At this time, we have received answers from thirty-five state supervisors of trade and industrial education (See Table 1) and thirty-four supervisors of technical education. Since preparing the report, three additional replies have been received, only two of which could be used, because the third turned in the answers in terms of percentages instead of numbers.

To consider the sources of T. and I. teachers, your attention is called to the T. and I. columns labeled "high school" and "post-high school." In these columns, you will see the information which we received from the state supervisors with respect to the number of beginning teachers for the current year. Incidentally, we hope that those responding interpreted this correctly.

You will notice that last year the high schools employed (in thirty-five states reporting) 621 instructors from industrial employment and 302 in the post-high school programs from this source.

For the high schools, 122 were employed from non-vocational teaching positions, and for post-high school positions, 103. We are presuming that prior to their employment as T. and I. teachers, these were industrial arts teachers, science teachers, or mathematics teachers. As an example, when I filled out one of these forms myself, I went down our list of teachers, and as I came to the name of a teacher who was new this year, I said to myself, "From what previous category did he enter this teaching position?" So, I placed the tally on the sheet in the appropriate place. If he were a science teacher the year before last and was presently teaching related instruction in the vocational program, I placed him in Item 2 as having come from a non-vocational teaching position.

Incidentally, in this survey, we were primarily concerned about the sources of the new teachers; consequently, in filling out the questionnaire myself, I included the cooperative program teacher-coordinators (what you call ICT, DCT, or DO) as well as teachers for other T. and I. programs. It has been my observation that practically all of these teacher-coordnators have a background of non-vocational teaching experience.

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Table 1
Sources of Beginning T & I and Technical Teachers
for the 1965-66 School Year

Sources of Teachers	Number of Teachers Employed*			
	T & I		Technical	
	H.S.	Post H.S.	H.S.	Post H.S.
1. Industrial employment	621	302	51	101
2. Non-vocational teaching	122	103	3	5
3. The military services	27	10		6
4. Full-time college or university preparation	103	50	5	52
5. Full-time employment and part-time degree program	33	8	1	2
6. Part-time employment and part-time degree program	11	2		39
7. Private vocational school	1			
8. Industrial employment (hold Industrial Education Degrees)	2			
9. Evening instructors		60		
10. MDTA teacher & adult teacher		2		
11. Industrial employment (Engineering Degrees)				2
Totals	920	537	60	207

* The number of teachers employed is based upon reports from 35 state supervisors of T & I and 32 state supervisors of technical education.

I have called this a survey, not research. We do not have a perfect picture, but, at least, we have shown the trend, and I think we can go from there. You know the distribution with respect to those who have come from military service, that is Item 3, and from Item 4, full-time college or university preparation.

In Item 5, we have the full-time employment and part-time degree program. You notice, there were not very many in that category.

Item 6 indicates there were not very many from part-time employment and the part-time degree programs.

Items 7, 8, 9, 10, and 11 on the questionnaire sheet were listed as "Others." Consequently, all we did was tabulate the comments. In 7, somebody said that he had one from a private school vocational program. In 8, two people said that they had employed two teachers from industrial employment who held industrial education degrees. A number of schools said that teachers were recruited from the evening instruction staff. In Item 10, a couple of schools said they had recruited some from the Manpower Development and Training programs, but there were none from this source in the T. and I. area.

We asked each state supervisor to report any surveys or studies of sources of teachers within the state. We found that the supervisors did not acknowledge such studies. At least, it was not coordinated with the state supervisor if it had been made. I think this is as much the fault of the state supervisor for not keeping his nose into the business of the teacher training job as it is of the teacher trainers not reporting it to the state supervisors.

Does the picture here look the same as you expected it to be in terms of most of the teachers coming from industrial employment?

As nearly as I can see, this gives you a trend with respect to the source of our teachers.

ANALYSIS OF TRADE AND INDUSTRIAL TEACHER EDUCATION PROFESSIONAL LITERATURE: INSTRUCTIONAL METHODS, INSTRUCTIONAL AIDS, TEST CONSTRUCTION, SHOP MANAGEMENT AND SAFETY

by
Edward K. Hankin*

This investigation sought to identify and assemble in bibliographical form the textbooks, reference books, and other published materials relevant to instructional procedures used in trade and industrial teacher education. It further sought assessments of these publications as to their suitability in terms of the competencies to be developed and as to needed revision or replacement. Efforts were also made to identify areas of instruction for which suitable publications are not available but are needed.

Basic data were gathered by sending inquiries to the head trade and industrial teacher educators in all states as identified in the directory published by the U. S. Office of Education. Twenty-six responses, representing twenty-three states, were received prior to the preparation of this report. A copy of the inquiry letter and a listing of the respondents are appended to this report. Because of time limitations and the abundance of material received from the respondents, no follow-up procedure was employed.

Most of the responses were in the form of bibliographies, some of which were specifically identified with areas of instructional procedures. Others covered the whole field of trade and industrial education. Several of the respondents identified useful publications which needed revision or updating, and some suggested areas for which suitable published materials were not available.

In only a few instances were specific volumes identified as "textbooks." For the most part, the bibliographies were in the form of reference listings, presumably implying a common practice of employing library or bookshelf references for collateral reading as opposed to the purchase of textbooks by each student.

There are several possible explanations of this situation. First, the courses taught in trade and industrial teacher education programs vary widely in scope and content. If the references employed are used as a basis of comparison, these variations derive from two different characteristics of teacher education programs. The first difference has to do with the way in which the instruction is structured. In some places, omnibus courses are taught covering all aspects of instructional procedures from "how to give a demonstration" to "how to construct test items." In other places, two or more courses are given pertaining to aspects of instructional procedures under such headings as "Test Construction, Testing and Evaluation," "Construction and Use of Instructional Aids," Teaching Methods," and "Shop Management."

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There also appears to be wide dispersion in the way this area of teacher education is approached. At one extreme is the "kit of tools" approach to teaching methods. Little attention is given to the psychology of learning and other underlying principles for instructional procedures. Heavy emphasis is given to the "how to" mechanics of teaching methodology with minimum attention to understandings of the learner and the learning process. On the other extreme, there is heavy emphasis on the underlying principles with less attention to the mechanics of teaching; presumably on the assumption that with such a foundation the instructor can creatively devise his methodology to suit varying situations. Most of the submitted reference lists suggest approaches to T and I teacher education somewhere in a continuum between these extremes.

There is a possible third explanation of why textbooks are not more generally employed in T and I teacher education. This is the bias of long standing among many T and I teacher educators against "textbook teaching." Because they try to instill in their students an avoidance of "teaching from the book," with all that this implies as "bad" in some academic teaching, they hesitate to use textbooks themselves for fear of poisoning their own wells. Even if suitable textbooks are available, such a bias would inhibit their adoption.

Under these circumstances, authors and publishers have great difficulty in coming up with volumes which would satisfactorily serve as "textbooks" for such a wide range of approaches to teacher education. To the extent that they can not--or do not--do this, textbooks are not adopted and the market for publications is so limited as to discourage authors and publishers from making the investments required.

On the other hand, when teacher educators are unable to find volumes which are up-to-date and which cover the scope and content of the particular courses they teach, they are reluctant to require their students to purchase several volumes each of which only partly relates to the course. Therefore, they designate no textbook to be purchased by each student and resort to the apparently widespread practice of library or bookshelf references for collateral reading.

Summary of Findings

The following bibliographic information is listed under four descriptive headings (Office of Education, 1960, pp. 17-21): (1) General Instructional Procedures; (2) Construction and Use of Instructional Aids; (3) Test Construction, Testing and Evaluation; and (4) Shop Management and Safety. Under each of these headings is given a brief description of the scope of the area of instruction and a listing of the teacher competencies to be developed. These competencies were extracted from the report on Walsh's study, Teacher Competencies in Trade and Industrial Education, using his listing of these competencies in rank order of importance. The number preceding each competency indicates its rank as reported.

Following the listing of competencies in each section are the volumes identified as "textbooks" by the respondents. The remainder of the volumes and other published materials listed under each category were reported as references by the respondents. Each reference reported by the respondents for a particular instructional area is listed as reported. No effort was made to question the suitability of the respondents' classifications. In several instances the reported references were in incomplete bibliographic form. Where possible additional information was included as required by good bibliographic practice. In some cases such needed information could not be obtained up to the time this report was prepared. Some volumes were reported in more than one category because of the breadth of coverage of the volume. A classic example is Struck's, Creative Teaching, portions of which relate to each of the four course areas.

Course Area One--General Instructional Procedures. Understanding the learner and the learning process. Understanding and appropriate use of instructional procedures.

Competencies

2. The ability to stimulate and maintain interest throughout the instructional process.

5. The ability to demonstrate the skills of the trade.

6. A knowledge or understanding of methods and/or techniques of teaching shop subjects.

8. A knowledge or understanding of methods and/or techniques of teaching related information.

10. The ability to motivate students to acquire skill and knowledge.

14. The ability to recognize the individual differences in physical, mental, and social traits of each student and to make provisions for them.

16. A knowledge or understanding of individual differences in the learning process.

20. The ability to assist students in identifying and resolving problems.

27. The ability to place emphasis on student learning rather than subject matter.

28. A knowledge or understanding of the principles of learning applied to teaching trade and industrial subjects.

31. A knowledge or understanding of how a learner acquires skill and knowledge.

35. The ability to use a wide range of techniques, materials, and methods in teaching.

37. The ability to utilize effective questioning as a teaching tool.

38. The ability to teach related information and/or manipulative operations using the 4-step plan of instruction.

42. The ability to make provision for individual differences in the instructional plan.

57. The ability to teach a group of students having wide chronological and mental age ranges.

58. The ability to lead a group discussion.

66. A knowledge or understanding of the sensory aspects of learning.

83. The ability to organize material for directed study.

92. The ability to present information graphically.

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Competencies

33. The ability to select and use instructional materials and references suited to the student's level and interest.

63. A knowledge or understanding of sources of procurement and methods of using special educational material, audio-visual aid, and other devices for increasing teaching efficiency and appeal.

65. The ability to utilize audio-visual aids effectively in the shop or classroom.

67. The ability to evaluate the effectiveness of teaching aids and adjust them to the demand of the teaching situation.

79. A knowledge or understanding of the types of teaching aids, their utilization and limitations.

104. A knowledge or understanding of techniques for proper maintenance and storage of teaching aids and audio-visual equipment.

107. A knowledge or understanding of the important features and maintenance requirements of projection and duplicating equipment.

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Course Area Three--Test Construction, Testing and Evaluation. Preparing and administering written, oral and performance tests and rating scales. Appropriate use of published tests, related statistics, interpretation of test results, and assignment of mark.

Competencies

41. A knowledge or understanding of procedures for evaluating and recording student achievement.

54. The ability to maintain progress charts and records of individual student achievement.

69. The ability to construct objective tests to measure student achievement.

81. The ability to devise instruments for the evaluation of instruction.

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Wortham, A. W., and Smith, T. E. Practical Statistics in Experimental Design. Columbus, Ohio: Charles E. Merrill Books, Inc., 1959.

Course Area Four--Shop Management and Safety. Personnel organization. Administrative activities relative to supplies, tools, and equipment. Housekeeping and shop layout. Provisions for student safety and safety instruction.

Competencies

1. The ability to develop student attitudes toward safe practices and safety consciousness in job performance.

3. A knowledge or understanding of safe practices in teaching and operation of industrial equipment.

4. The ability to develop appreciation of good workmanship.

13. The ability to develop student attitudes for the care and conservation of equipment and materials.

15. A knowledge or understanding of acceptable standards of workmanship for trade entrance.

19. The ability to establish and maintain acceptable standards of discipline.

29. The ability to assemble the necessary tools, materials, and information for the teaching process.

40. A knowledge or understanding of principles of school shop management.

61. A knowledge or understanding of the mechanics of class organization and student personnel management.

68. The ability to organize procedures for the maintenance of tools and equipment.

73. A knowledge or understanding of the procedures for the storage and control of tools, supplies, and materials.

74. The ability to plan a shop layout for efficient instruction.

96. The ability to select and order special materials, supplies, and equipment.

97. The ability to maintain proper business records and accounts.

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SUMMARY AND EVALUATIONS

Copies of the foregoing published materials were not obtained and examined as a part of this investigation. Limitations of time and funds did not permit the acquisition of volumes used in other places which were not available at the center where the study was made. Furthermore, a number of volumes are out of print and not readily available under any circumstances.

The respondents were asked to identify volumes which needed revision or updating and the needs which they recognized for new books in these areas of instruction. Many of the responses included such information. In a few instances attention was directed to certain recent publications which merited recognition.

The following volumes were specifically identified as needing revision and updating:

Friese, John F. Course Making in Industrial Education. Peoria, Illinois: Charles A. Bennett Company, 1958.

Micheel, William J., and Karnes, M. Ray. Measuring Educational Achievement. New York: McGraw-Hill Book Company, Inc., 1950.

Selvidge, R. W., and Fryklund, Verne C. Principles of Trade and Industrial Teaching. Peoria, Illinois: Charles A. Bennett Company, 1946.

Silvius, G. Harold., and Curry, Estell H. Teaching Successfully the Industrial Arts and Vocational Subjects. Bloomington, Illinois: McKnight and McKnight Publishing Co., 1953.

(Dr. Silvius advises that a major rewrite and redevelopment of this book has been made. It is now in press and will be available about September 1.)

Struck, Theodore F. Creative Teaching. New York: John Wiley and Sons, Inc., 1938.

Weaver, Gilbert G. Shop Organization and Management. New York: Pitman Publishing Corporation, 1955.

Weaver, Gilbert G., and Bollinger, Elroy W. Visual Aids. New York: D. Van Nostrand Company, Inc., 1949.

Several of the responses were more general in that they did not refer to specific volumes. Some did refer to specific instructional areas. The following are some paraphrased quotes of this nature:

"We need a new textbook for shop organization and management."

"I know of no field in T & I teacher education that is in greater need of analysis than that concerning teaching methods."

"Texts now available for instructional methods in shop management and safety are inadequate."

"Struck's Creative Teaching, one of the best in scope and treatment, is out of date and out of print. If this could be revised, we in T & I teacher education would be extremely grateful."

"We need a new book on occupational analysis and a new text on developing instructional materials."

"We feel that revised and updated materials are needed in all of these areas."

"The books we have listed are all that we know of that are available. Because of their non suitability (sic) we have many pass-out sheets and outlines of our own that we use."

"The best manual in concise form is that produced by the U. S. Office of Education titled Preparation of Occupational Instructors. It seems that a similar manual with more detail for initial courses would serve a good purpose."

One last observation can be made on the basis of the responses to the survey used in this investigation. Practially all of the respondents indicated an interest and great concern with respect to publications available for use in their teacher education classes. Most of them requested a copy of the findings of this investigation and applauded the activity.

Much more needs to be done on this task than has been done thus far. It is hoped that staff with suitable resources will be made available to more carefully analyze the actual materials listed and to evaluate them in terms of the competencies to be developed. In this process, materials which are out of print or otherwise unavailable should be deleted from the listings and more specific recommendations made as to new volumes which should be written. Since the market for such new volumes is limited, it may be that public or foundation funds will be needed to subsidize both the writing and the publication of such new works. Certainly the important values of such endeavors would justify their pursuit.

ANALYSIS OF TRADE AND INDUSTRIAL TEACHER EDUCATION PROFESSIONAL LITERATURE: TRADE ANALYSIS, COURSE CONSTRUCTION, AND CURRICULUM MATERIALS DEVELOPMENT

by
Durwin M. Hanson[1]

The quality of trade and industrial education is directly related to the level of competence of its shop, laboratory and classroom teachers. Skills, knowledge, attitudes, and appreciations acquired by students arise from the teacher's influence; therefore, the first measure of quality in trade and industrial education must be at the instructor level.

Teachers of trade and industrial subjects are recruited from the ranks of journeymen and foremen of proven ability in their occupational field. The extent of their occupational experience and training provides the technical content for their teaching. However, for a skilled worker to reproduce his skills and knowledge in others, he must acquire certain essential teaching skills. He must be able to teach as well as to do. Teacher competencies must be developed through effective teacher-training programs.[2]

No doubt, the study of Teacher Competencies by Dr. John Walsh has been invaluable as a guide in revising the T. and I. teacher education curriculum. A review of catalogs from colleges and universities offering trade and industrial teacher education reveals changes in course titles and the addition of a number of new courses during the past ten years. One of the major items of concern to the T. and I. teacher educator is the selection of adequate textbooks and instructional materials to assist in the development of teachers in the categories of trade analysis, course construction, teaching methods, shop, laboratory, and classroom management, etc.

In an attempt to assay the needs for professional literature in trade and industrial teacher education in selected areas, a questionnaire was sent to a sampling of forty-seven T. and I. teacher educators. The reported results are based on the returns of thirty-six respondents. The areas of concern included Trade Analysis and/or Course Construction, Development of Instructional Materials and Vocational Curriculum Construction. For purposes of reporting, Trade Analysis is listed separately from Course Construction since a number of teacher trainers reported that these were separate courses for their given state.

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[1]Dr. Hanson is Professor and Head, Industrial Education Department, School of Education, North Carolina State University, Raleigh.

[2]Walsh, John P. Teacher Competencies in Trade and Industrial Education. Washington, D. C.: U. S. Government Printing Office, 1960.

Trade Analysis

Thirty-two representatives indicated a course was available under this given title or similar title such as Trade Analysis and Course Construction, and that the textbook generally used was:

> Fryklund, V. C. Analysis Techniques for Instructors, Bruce Publishing Company, Milwaukee, Wisconsin.

This particular text designed for the purpose of assisting new teachers in analyzing an occupation for instructional purposes (22, 32), has been well recognized since the original publication in 1942 which brought up to date, techniques from publications by C. R. Allen, M. W. Haynes, W. B. Jones, and R. W. Selvidge. The book also has value in developing competencies relative to arranging operations in an instructional order (9), organization of subject matter into instructional units (12), selection of appropriate jobs and other learning activities as vehicles of instruction (17), and related instruction (21). The above mentioned competencies are identified in Table 4 of Walsh's report by the number represented in parentheses.[3] The text is reported to be of some assistance in developing competence in combining jobs, operations, and related information into a course of study (26). A reported weakness is in developing in teachers the ability to prepare instruction, assignment, and information sheets (45); the main criticism is lack of examples and formats for instructional sheets.

Other textbooks used in trade analysis courses included the following, either as the basic text or reference material:

> Bollinger, E. W. and Weaver, G. G. Trade Analysis and Course Construction, Pitman Publishing Corporation, New York.

Several respondents indicated that this book was used as a required text along with Fryklund's book. A number of trade and industrial education teacher educators stated that this text offered beginning instructors another approach to trade analysis and also provided introduction in course development and organization. It was interesting to note that this book was used as a reference book or required text by all thirty-six respondents. This book was stated as having value relative to the competencies identified with Fryklund's book plus some assistance to new instructors in preparing progress charts and recording student achievement (54).

> Allen, Charles R. The Instructor, The Man and The Job, J. P. Lippincott Company, Chicago, Philadelphia, New York.

This book was listed as being used as a reference book by five respondents. One respondent stated, "The book is very limited in trade analysis but is used as a reference to provide an introduction to lesson planning."

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[3]Ibid., pp. 17-24.

Selvidge, R. W. How to Teach a Trade, Manual Arts Press, Peoria, Illinois.

Listed as a reference book by one respondent.

Friese, J. F. Course Making in Industrial Education, Charles Bennett Company, Peoria, Illinois.

Two respondents indicated use of this book as a reference. It was stated that this book was of value in the particular course in which trade analysis is taught with course construction. The book does make an introducation to objectives of trade and industrial education (7), although not as extensive as found in other vocational books. This book also includes a chapter on Class Organization and Shop Management which serves as a reasonable introduction to Competency Number 40--knowledge or understanding of school shop management. A chapter on Correlations in Courses of Study partially introduces the reader to information regarding relationship between vocational trade and industrial education and other phases of the educational program (39), particularly industrial arts.

Staton, Thomas F. How to Instruct Successfully, McGraw-Hill Book Company, New York.

Two T. and I. teacher educators indicated they were using this publication as a reference book. One teacher educator stated the book was of assistance in the Trade Analysis course "to acquaint students with principles of learning and teaching techniques as they develop trade analyses."

Rose, Homer C. The Instructor and His Job, American Technical Society, Chicago.

Two respondents indicated this book was included for reference use in their trade analysis courses. The main use of the book in a trade analysis course was cited as being helpful in understanding analysis and as an introduction to making a course of study including lesson plans.

Jackey, D. F. and Barlow, M. L. The Craftsman Prepares to Teach, The MacMillan Company, New York.

Three respondents indicated use of this book as a reference. One teacher educator indicated the value of this book was in the examples presented and in the assistance to T. and I. teachers in developing objectives.

Course Construction

Giachino, J. W. and Gallington, R. O. Course Construction in Industrial Arts and Vocational Education, American Technical Society, Chicago.

Six respondents indicated that this book was being used as the basic textbook and sixteen reported use of the publication as a reference book

for this course. This particular book was reported as helpful to T. and I. teachers in development of competencies listed in rank order in Walsh's Table 4 as follows: 7, 9, 12, 21, 22, 26, 30, 34, 39, 44, and 45.

Bollinger, E. W. and Weaver, G. G. Trade Analysis and Course Construction, Pitman Publishing Company, New York.

Four T. and I. teacher educators indicated this book was used as the basic text and twenty-one included the publication as a reference book. Although this book was reported as being employed as the text for Trade Analysis in a number of states, it has been reported as a valuable book for course construction, particularly in assisting new teachers in organization of course material and preparation of instructional sheets and lesson plans.

Leighbody, G. B. and Kidd, D. M. Methods of Teaching Shop and Related Subjects, Delmar Publishers, Inc., Albany, New York.

Two respondents indicated this book was used as the basic text for this particular course. This book is widely used as a reference and has been reported as having particular value in assisting teachers in preparing lesson plans, instructional sheets, insight as to questioning, acquaintance with methods of testing, and recording and reporting student progress.

Rose, Homer C. The Instructor and His Job. American Technical Society, Chicago, Illinois.

Two T. and I. teacher educators listed this book as the basic text, and twelve indicated its use as a reference. This book, reported in the section on Trade Analysis, has been reported as being useful in preparing courses of study and lesson plans and of considerable assistance in developing an understanding of testing in trade and industrial education.

Silvius, G. H. and Bohn, R. P. Organizing Course Materials for Industrial Education, McKnight Publishing Company, Bloomington, Illinois.

Eighteen T. and I. teacher educators reported using this book as a reference text for Course Construction. Useful from viewpoint of formats and organization of material.

Friese, J. F. Course Making in Industrial Education, Manual Arts Press, Peoria, Illinois.

Thirteen listed this publication as useful as a reference book. Chapter on Related Content was identified as helpful.

Other publications, other than U. S. Office of Education Bulletins, reported by twelve respondents as being used as references included:

Barlow and Jackey. The Craftsman Prepares to Teach.

Allen. The Instructor, The Man and The Job.

Fryklund. Analysis Techniques for Instructors.

Selvidge. How to Teach a Trade.

Selvidge. Individualized Instruction Sheets.

Staton. How to Instruct Successfully.

Development of Instructional Materials

Dale, Edgar. Audio-Visual Methods in Teaching, Dryden Press, New York.

Three teacher educators indicated this book was used as the regular text, and twelve classified the publication as a reference book for this course or area of instruction. Comments included value of the book in assisting teachers in the use of audio-visual equipment and information concerning the range of community resources and instructional aids adaptable for use in T. and I. education. With reference to identification with the competencies listed in Walsh's Table 4, it is reported that the book is of some value in the development of competencies 33, 35, 63, 65, 66, 67, 79, 82, 92, 104, and 107.

Leighbody and Kidd. Methods of Teaching Shop and Related Subjects, Delmar Publishers, Inc., Albany, New York.

Two respondents indicated this as the basic text, and eleven reported its use as a reference book.

Giachino, J. W. and Gallington. Course Construction in Industrial Arts and Vocational Education, American Technical Society, Chicago.

Two reported this as the text, and five indicated it was used as a reference book.

The following publications were reported by fourteen respondents as being used as reference books:

Allen. The Instructor, The Man and The Job.

Anderson. Teaching Apprentices.

Association for Supervision and Curriculum Development, Individualized Instruction, NEA.

Bass. Fifty Hints for Teachers of Vocational Subjects.

Bollinger. Trade Analysis and Course Construction.

Bollinger and Weaver. Visual Aids.

Brown, J. W. AV Instructional Materials Manual.

DeKieffer, R. E. Manual of A-V Techniques.

Emerson, Lynn. How to Prepare Training Manuals. (This book was identified as being extremely helpful in reviewing formats for use in developing instructional materials and illustrations.)

Haas, Packer and Kuhn. Preparation and Use of Audio-Visual Aids.

Hill and Ewing. Materials and Methods for Vocational Training.

Proctor and Grufzu. T-N-T for Teachers.

Kinder. A-V Materials and Techniques.

Liberman, Irving. The Backbone of Curriculum Development and Implementation: Instructional Materials.

Minor. Simplified Techniques for Preparing Visual Instructional Materials.

Note: The consolidated bibliography includes those additional publications indicated for use in this category as reference book(s) by at least one respondent.

Vocational Curriculum Construction

None of the thirty-six respondents indicated the use of a basic text in this area of instruction. Publications identified for use as reference materials are included in the consolidated bibliography.

Summary

Typical comments by T. and I. teacher trainers regarding some of the available publications included:

"There isn't a single book for 'co-op training'."

"Old as the hills. Out of date."

"Most texts for trade analysis need revision--include more examples."

"Very few curriculum texts are of aid to trade teachers."

"Too much mixture of disciplines in curriculum books."

"Doesn't anyone revise T. and I. books?"

"We use our State Department prepared materials."

"Authors try to cover too much ground and, in so doing, the books on course construction lack depth."

"Examples in books for industrial education include too much industrial arts."

"We don't regularly use 'textbooks' in courses in these areas."

Most teacher educators agree that a textbook is necessary or essential for each course, and in the absence of "a" book to employ as the text, the next best solution is to present a list of references. The development of teacher training materials by a number of states, i.e., Ohio, New York, Texas, Missouri, etc., is a fair indication of the need for updated books, particularly for course construction and curriculum development. The U. S. Office of Health, Education, and Welfare has done a commendable job through the Division of Vocational and Technical Education of attempting to assist T. and I. teacher educators and teachers by providing bulletins such as the Automotive Service Specialist Suggested Guide OE-87015.

A question has been raised on a number of occasions as to the need for a trade analysis course since materials are readily available . . . "Why rediscover America again?" has been expressed by several individuals. The foregoing statement may, in part, account for the combination or merger of trade analysis and course construction into a single course by several T. and I. teacher education departments. In addition to reviewing and suggesting revisions of books in T. and I. education, perhaps it is also important that we study the specialized teacher preparation courses currently being offered, determine what publications are available to fit these needs, what publications need revision, and then identify areas where new materials must be developed.

It has also been suggested that a critical study be made of the 107 teacher competencies listed by Dr. Walsh to determine the items (competencies) that may be developed through general education and/or psychology courses and those competencies requiring specialized trade and industrial education and/or vocational education courses.

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ANALYSIS OF TRADE AND INDUSTRIAL TEACHER EDUCATION PROFESSIONAL LITERATURE: HISTORY AND PHILOSOPHY, SHOP PLANNING, AND INDUSTRIAL AND PUBLIC RELATIONS

by
Gordon G. McMahon

The invitation to present this paper has provided the necessary impetus to compel me to set down in some organized form, thoughts which have been troubling me since I first entered the field of teacher preparation for trade and industrial education. We are, in the long view, Johnny-come-lately to the public schools. Yet fifty years have passed since ours became a legally constituted area of instruction. This should have been sufficient time to give T and I an established place in the broad curriculum. The fact is that through most of these years, all of vocational education has been engaged in a struggle for recognition. In many instances, little more than a holding action has been possible in a battle for continued existence. Under such circumstances, we might be excused for our greatest failure--the failure to produce a body of literature specifically prepared for our field and adequate to sustain our pretensions to being a unique area in the broad field of education.

That no such body of literature exists today may reflect a basic difference between the life of the vocational educator and that of the professor of the humanities or the sciences. Where the latter has, as a rule, a carefully assigned number of student contact hours, with limited office hours and a generous measure of time set aside for research, study, and writing, all of us here today know the plight of the vocational man. He may be the itinerant teacher-trainer, traveling daily to counsel with teachers on the job, and teaching extension courses in whatever remote hamlet the need may arise. Or he may be a professor of vocational education, putting in a full working day at the office, teaching classes on campus, answering endless letters, counseling with all comers, and then driving off into the sunset to conduct another evening class for employed teachers. If he is a department chairman or the supervisor in the state office, he may spend most of his day planning, promising, promoting, and pleading to ensure that the department or the division retains its status and has reasonable hope of securing the funds necessary to its existence. In our field, eternal vigilance may quite literally be the price of life.

Unlike our colleagues in liberal arts, we have no quarter off to allow us time for the broadening effects of travel or an uninterrupted period for writing or study. As summer approaches, we are involved in the hectic last-minute arrangements for the summer session and girding for the influx of large numbers of adult students--a category quite unlike any other. No day is long enough to accommodate the stream of counselees who have learned, as few younger students ever do, the art of using their major professors as resource persons for every aspect of their lives. If the college teacher survives the summer and is not involved in a post-session, he may be able to find four consecutive weeks for his promised vacation;

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unless, of course, he has succumbed to the blandishments of some distant colleague and has already used his vacation teaching for someone else.

Facetious though this description may sound, it is painfully true that the nature of our work has made it extremely difficult for many of us to find that combination of time and inclination which is a necessary prerequisite to writing. Precisely how any of us can change this pattern is an individual matter. A few have managed to do it in the past. More must do it in the near future.

The Need

The "student" body in the teacher-training division of Trade and Industrial education is unlike any other. The members are, ideally, masters of a skilled trade, a condition resulting from years of work experience. They may be relatively young; they are more often quite mature adults. They may have had some formal education beyond the high school, but they also may have entered the teaching field with only a high school diploma or its equivalent. Above all, they are individuals, accustomed to rely upon their own skills and abilities for any success which they have achieved. In many cases, they are basically non-verbal, pragmatic, practical, and determined to secure the greatest possible amount of usable material from the education for which they are paying.

While this description is by no means universally applicable, it suggests some of the problems which face us in the analysis of existing literature and the projection of needed additions and changes.

Existing Literature

A casual glance at the well-stocked shelves in vocational departmental offices or in the library sections devoted to vocational education is reassuring. There are hundreds of volumes, many with comfortably familiar titles and with authors whose names are household words in T. and I. A closer view would be shocking to anyone who had not, long ago, become aware of the painful inadequacy of our libraries.

Most of the "standard" texts are old by modern measurement. Even the public schools in many states are encouraged to re-evaluate textbooks every five years with a view to replacing them. If we evaluated our available literature on the basis of copyright dates, we would be compelled to replace most of what we are now using, which would lead to an even more troublesome problem--that of finding replacements. Age alone, of course, is not necessarily a valid criticism. Some literary works are timeless; but in our field, where change has been almost constant in the last few years, a recent copyright date has become an important criterion.

Books written as late as 1957 or even 1960 must omit the most important advances in legislation since 1917. They cannot include the developments of ARA, MDTA, EOA, and the Appalachia Bill with their challenge to vocational education; nor can they tell of the vast changes made possible

by the passage of the Vocational Education Act of 1963. The terms of that bill, with its possibilities for cooperative efforts by the different services and its challenge to creative thinking on the part of vocational education administrators and teachers, are the life blood of T and I today. A student directed to use a text written in the 40's or 50's might well be excused for wondering if he had chosen well when he entered a field in which nothing had happened in the last ten years worthy of being recorded.

There is no intent here to suggest that these books should be banned because of age. Among them are the classics in our field -- written by men who lived and formed vocational education. Their eye witness accounts are irreplaceable; but as text books for teacher education classes, they have drawbacks which cannot be ignored. They are verbose, lengthy, and repetitive of each other.

As I suggested earlier, while we have students with a variety of educational background, we can generalize that they are impatient of people and books which seem to be unnecessarily wordy. A book of 656 pages, for instance, is understandably a formidable obstacle in the eyes of our students.

A further criticism can be drawn from the fact that research in vocational education is still in its formative stages, with researchers groping for pertinent problems (or since 1963 grasping for available money). Research-based literature in T and I has not yet appeared. The generalizations in our older books may very well have been valid at the time of writing; but we must look at them very critically if we are to continue to offer this material to our present students. Statements about numbers and types of programs, placement of graduates, success on the job, teacher competencies, preferred methods of presenting necessary learnings may not even agree with our present limited knowledge. Worse yet, the research findings of the next few years may very well contradict a substantial number of our own most cherished beliefs.

The unfortunate tendency on the part of some people to lump together vocational education with industrial arts, possibly to render T and I academically respectable by association, is mirrored in the titles and text of some of our most respected literature. Industrial arts is an area of general education which merits respect for what it is. But it is no proper bedfellow for T and I. Our philosophy, when properly enunciated, stresses the very real difference between the two disciplines. The use of textual material which reassociates them is a contradiction which reflects poorly upon our judgment.

One of the most damning features of our libraries is the presence of very substantial numbers of "borrowed" books. The areas of methodology, public and industrial relations, guidance, industrial psychology, and others must rely upon literature specifically prepared for use in other educational fields. If we insist upon a definition of T and I

education as an area of learning with problems and practices which are peculiar to it, we must accept the accompanying truth that texts not written to accommodate and explain these peculiarities cannot properly be considered adequate for our purposes.

There can be no argument with the use of outside material when the T and I teacher is taking courses in other departments in line with the generally accepted practice of requiring certain courses in the humanities and in general education. There, our "borrowed" books are on home ground and are being properly used for instruction in the areas for which they were written.

Vocational education offices have shelves and boxes full of state-prepared curriculum and other instructional materials. Many of these materials are well-written and valuable for their stated purposes. Many of them are sold outside their own states; but since so much of teacher preparation at the college level is conducted with students who either are or may become instructors in other states, we do well to choose carefully among these materials. Vocational education is not organized on the same bases in different states. Publications which may be extremely valuable in one state may have little relevance in another.

An interesting development has recently appeared in the line of revision and updating. One of the best known of our pioneer authors, now deceased, is being revised. Another has had several chapters lifted from a very lengthy text and reissued in attractive form. Authors who are still active have made revisions in their own work and undoubtedly many more are in progress. While this trend may serve us well as a stop-gap measure, it is disquieting for many of us to realize that it should be necessary.

One hopeful note is the appearance of numerous articles in leading journals and yearbooks. Probably the best modern writing on vocational education has appeared in these articles. As resource materials they are extremely valuable. Coupled with articles attacking or downgrading vocational education they make excellent reading for comparative studies.

While they hopefully wait for someone else to supply their textual needs, many professors of vocational education are forced to fall back upon personal experiences and upon the philosophy which they have developed through the years. While we hold that there is no substitute for experience, an entire course based upon anecdote can be both boring and ineffective.

Needed Research

One paragraph from a widely-read recent publication of the American Council on Education furnishes the key to the mystery of what kind of research needs to be done in T and I. After generalizing about the low status of our programs, the inadequacy of our teachers,

the misguided system of training for particular jobs since technological advances negate this training, and after making various other statements which revealed the fragmentary nature of his information, the author remarked that these generalizations were admittedly unfair to the several outstanding vocational and technical programs in this country.

While we have little hope for reshaping the thinking of men who generalize on the basis of such limited knowledge, we can at least provide ourselves with research-based "facts" to use in our own generalizing. Whether we propose to quote statistics in writing on history, practice new or improved programs, or on methods of teaching, our basic research problems are the same. We need facts to bolster our beliefs. All evidence which is in to date suggests that we have been on even firmer ground than many of us believed. But we need proof to support continuation of present methods of change where it is indicated. We will not have this proof until the results of a great deal of research are in our hands. So many proposals have been processed through so many agencies since substantial research funds recently became available that it would be impossible to say without making an independent survey just what areas of interest to us are already being covered. At the risk, then, of including areas already under study, I propose that the following problems are of the type which needs attention.

1. Traditionally we have analyzed the content of a trade or technical area on the basis of industrial practice. With content established, we have endeavored to teach the trade with method copied from the academic area. Finally, we have evaluated our work in terms of successful student placement.

We need studies which analyze and define the pedagogy being applied in these classes. With controlled groups, we should set up programs to study whether these or other methods best accomplish our aims.

2. In applying our analysis of content in various trade areas to curriculum, we have tended to make our course content as broad as possible to avoid important omissions. In so doing we may have extended our offering beyond the content required by the worker in a specific area. We need to make studies in depth to determine as precisely as possible what is really needed and to tailor our courses accordingly.

3. We have cooperated in many ways with industry in an effort to establish curriculum and course content that is in accord with industry's needs. But we have not yet learned how to measure the effectiveness of our training as it is reflected in the work of our graduates. Instruments should be devised which would enable us to test our programs against the evaluation of industrial supervisors.

4. Programmed learning should be given some attention with a view to determining whether parts of all specific courses might bene-

fit by programming. The possibilities here for training, re-training, home study, or as a supplement to speed up the process of training should be investigated.

5. The wide variation in work-experience requirements for T and I instructors in different states suggests the need for study to determine whether the instructor with nine years work experience is a better teacher than the one with three.

6. For those of us who have been involved in the training of boys in the use of basic machinery, the constantly reiterated criticism that automation and industrial change have made this a senseless procedure is particularly galling. However, if we are to be able to refute these claims, we need more than our own knowledge of the nature of machines. We need studies which will prove or disprove our contention that the man trained in the structure, operation, and maintenance of machinery is adaptable to change.

7. For years we have attempted to side-step responsibility for training the academically handicapped. Our traditional courses have not been suited to their needs. We find ourselves now firmly committed to this group. Yet we have no research basis for determining what areas or course content would be best suited to their potential as students and workers. The programs provided for this group must be "special" but not necessarily in the area of "special education." Neither should they necessarily be of high-school graduate level. These are problems which would ideally have been solved before we opened our first classes for this group. We will be on uncertain ground until we have some statistics to support whatever action we decide to take.

Additionally, the teacher to be used with the academically handicapped will need special qualifications which are still unknown.

Our need then is clearly two-fold. We need broad studies to support or refute the generalizing which is popular among both our own people and our detractors. We need depth studies of specific problems, many of which are peculiar to only one of the vocational education services. We need studies of programs and of people.

Recommendations

It should be clear from what has been said that it is my opinion that there is no facet of Trade and Industrial education which is adequately covered by existing literature. Even if one or more books in each area suitable for use as texts in teacher education courses were in process of publication at this moment, the supply would not be adequate. With this in mind, I make the following recommendations.

1. Texts for use in the areas of vocational philosophy, industrial and public relations, coordination, and cooperative training

should be written by men who are a part of vocational education. In the last twenty or thirty years a whole new generation of men have made vocational education the focal point of their lives. Many of them have come up through the ranks, with experience at every important level. Many of them are literate and articulate. All of them are extremely busy. Some means must be found to encourage this group to produce the books which they are peculiarly fitted to write.

2. Texts should be short, direct, and confined to one topic. Something in the nature of a monograph in form and physical size probably would be the most useful. If the course is philosophy, we need books whose subject matter is philosophy, not history, practice, and method combined in one enormous volume. Incidentally, space could well be saved by a gentleman's agreement that each new book would not open with a hundred page repetition of the story of manual training and the development of the vocational movement in the United States. Let us propose to any interested publishers that the readers of our new books already know this story or will acquire it from volumes specifically designed to convey these aspects of the story.

3. Our texts should be completely divorced from industrial arts. The vocational education movement is not an outgrowth of industrial arts. The two areas have no practical connection. They are based upon separate philosophies. It should no longer be necessary even to explain these facts in our literature.

4. Once we have acquired a body of newly-written literature, we must keep it up to date wherever up-dating is applicable. Nothing is so suspect to the student as a text that is too old to include developments whose effects can already be seen.

5. Ours if a field large enough to support more than one new text in each area. There are thousands of T and I teachers constantly under training in colleges and universities, in branches, and in extension centers. We could guarantee a fair market for authoritative works.

Summary

A good textbook furnishes a focal point for discussion. It sharpens the appetite of the student for further study and insight into the possible applications of the principles which the book sets forth. It provides the teacher with an outside authority to support or contradict the theories which he is advancing. It is no substitute for wide-range reading on the part of the student or for study of his own problems; but there is no substitute for a really good text.

Having produced no books of my own, I now find myself in the position of the professor who, introducing his course with an apology for the shortcomings of the prescribed text, remarks, "This text isn't very good, but we'll just have to use it until <u>my</u> book is published."

BIBLIOGRAPHY

With a few exceptions, the books on the Ohio reference list relating to the areas covered in this paper were examined with a view to determining copyright date, qualification of authors to write on vocational education, pertinency of textual material, length, style and clarity of writing. Additionally, such effort as was possible in this short period of time was made to discover any new publications. Publishers were not contacted. This may be considered a serious weakness if a substantial number of new titles are in process of publication or have not yet reached any of the vocational education offices which were consulted. Most T and I people merely shook their heads when asked to recommend new nationally distributed materials.

Works with copyright dates previous to 1940 were excluded from this list as were works in general education or those specifically written for the industrial field.

Principles, Practices, History, Philosophy

Current or Revised

U. S. Department of Health, Education, and Welfare. Education for a Changing World of Work. Report of the Panel of Consultants on Vocational Education. Washington, D. C.: U. S. Government Printing Office, 1963.

Invaluable source material for any course in T and I. It might be hoped that the statistical material contained in the report would be kept up to date by revisions.

Hawkins, Layton S., Prosser, Charles A., and Wright, John C. Development of Federal Legislation for Vocational Education. Compiled by J. Chester Swanson. Prepared for the Panel of Consultants on Vocational Education, U. S. Department of Health, Education, and Welfare. Chicago: American Technical Society, 1962.

An effective course in federal legislation does not have to be dull or dry. It can be tremendously exciting to students to be led to see the possibilities for program development under the laws. This book, with the addition of a concise chapter on developments since 1962, will do well as a source book and has been used by many of us as the only available text. It may be that the subject is so topical that no interpretive text could ever be kept up to date, but an effort should be made to produce one.

Roberts, Roy W. Vocational and Practical Arts Education. New York: Harper and Row, 1965.

While this book is attractive in form and well written, it is typical of the omnibus type of book which has had to serve us for so many years.

Venn, Grant. Man, Education, and Work. Post Secondary Vocational and Technical Education. Washington, D. C.: American Council on Education, 1964.

Following some heady praise for the idea of vocational education, the author reduces the high school T and I programs to somewhat less than nothing with sweeping generalizations about their inadequacies. A very frustrating book. Certainly not suitable as a text, but good source material in part.

National Society for Secondary Education. Vocational Education. The 64th Yearbook of the National Society for the Study of Education. Part I. Edited by Melvin L. Barlow. Chicago: National Society for Secondary Education, 1965.

An excellent source book of articles relating to principles and philosophy of vocational education. Most of the contributors are active and nationally known. Those in other fields are reasonably-to-well informed. Most of the articles could be profitably used in various courses in vocational education.

Note: A study of bibliography in new or revised books is enlightening. Those references which are in our field are largely the old books, journal articles, and government publications.

Classic But Out-Of-Date

Hawkins, Layton S., Prosser, Charles A., Wright, John C. Development of Vocational Education. Chicago: American Technical Society, 1951.

These three men were "involved" with the development of vocational education as none of us have been privileged to be. Their personal knowledge, added to extensive research, has made this book a classic which anyone would be foolish to try to reproduce.

A volume devoted to a complete but more general history of vocational education might provide a better text, with this book reserved for reference for details.

McCarthy, John A. Vocational Education: America's Greatest Resource. Chicago: American Technical Society, 1950.

Chapters 1-6 are useful although repetitive of some of the other histories. Chapter 6, "What Constitutes a Good Program," is excellent. The book is too long and too old.

Mays, Arthur B. Principles and Practices of Vocational Education. New York: McGraw-Hill Book Company, Inc., 1948.

This book attempted to cover "all vocational education," including the highest skill professions. Both its age and this approach lessen its value for the public school vocational educator.

Prosser, Charles A., and Quigley, Thomas H. Vocational Education in a Democracy. Chicago: American Technical Society, 1949.

Our older books have a common weakness -- they must refer to vocational education as it was at the date of writing. Much still-pertinent generalizing is done; but it is done on the basis of the pre-1949 situation.

Struck, F. Theodore. Vocational Education for a Changing World. New York: John Wiley and Sons, Inc., 1945.
Classic and out of date.

Others

Byram, Harold and Wenrich, Ralph. Vocational Education and Practical Arts in the Community School. New York: The Macmillan Company, 1956.
As the title indicates, this book mixes the two areas of vocational education and industrial arts. There is some good material on inter-service cooperation, cooperative programs, and community participation. The print is small. The book is lengthy.

National Manpower Council. A Policy for Skilled Manpower. New York: Columbia University Press, 1954.
Chapter VI, "Issues in Vocational Education," is well worth reading by potential teachers. It, of course, reflects the thinking of the 1954 period.

National Manpower Council. Improving the Work Skills of the Nation. New York: Columbia University Press, 1955.
This book is included for the controversial nature of Chapters 3 and 5. Chapter 5, a conference discussion, will enlighten students on the conflicting ideas about vocational education expressed by many people outside the field, who base their opinions upon knowledge - or lack thereof - of local situations.

Shop Planning

A text for shop planning needs to start with curriculum planning and with determination of current needs or requirements of industry. When these preliminary decisions have been made, we need to plan a facility which will make it possible to offer the training required, concentrating upon the basics of the trade. Curriculum planning must precede shop planning.

The only materials widely available are the shop-planning manuals, which should be used in the last portion of a shop-planning course, if they are used at all. It is not our function as shop teachers or vocational education administrators to draw plans for the physical plant. We need to prepare educational specifications as a guide to the architect. There are numerous manuals, state-level and nationally circulated, all of which follow the format of presenting shop diagrams and equipment lists. None of them could serve as a text for an adequate course in shop planning.

William K. Dunton, well-known in the field, has a book in process of publication.

Prakken Publications, Inc. Modern School Shop Planning. Ann Arbor: Prakken Publications, Inc., 1961.

Walker Turner. School Shop Planning Manual.
There are manuals available like this Walker Turner manual which have templates to be cut out and used for planning.

The University of Texas. School Shop Layouts and Equipment. Austin: Division of Extension, Industrial Education Department.
Equipment lists and shop layout designs. Limited application to a good course.

Weaver, Gilbert C. Shop Organization and Management for Vocational and Industrial Arts Teachers. New York: Pitman Publishing Corporation, 1955.
A sound little book, somewhat uninteresting in format, with many pages of lists, which the author says stimulate thinking. He includes the idea of curriculum planning as prerequisite to space and equipment planning, but puts no stress on it. Not recommended as a text. Possible reference.

Public and Industrial Relations

The areas of "Public and Industrial Relations" in vocational education badly need definition. Courses in these areas are taught under the guise of everything from how to make a speech to how to negotiate with a labor union. We are all aware of the tremendous volume of material available for use in the training of public relations and industrial and labor relations specialists. But to my knowledge, there is no written text for T & I about the problems encountered by local directors, coordinators, and teachers. Most of the histories and general works, plus many of the books on method, have chapters or sections devoted to good publicity and to community relations. None is adequate as a text.

DEVELOPMENT OF TECHNICAL TRAINING,
TEACHER TRAINING,
AND SCHOOL ADMINISTRATION PROCEDURES
IN THE U. S. NAVY

by

James F. Peterman*

Before I begin to tell you of the evolution of procedures bringing about current practices in technical training, teacher training, and school administration in the Navy, I would like to thank you all for the opportunity to address you. It has been quite some time since I have had the privilege to hear as many fine presentations, covering as broad a scope, with the varying philosophies, as I have heard here in the last several days. While our work in the Navy does not exactly parallel that in college, university, and vocational teacher training institutions, our end objective of highly qualified training personnel is the same.

To begin the development of present day procedures, I'd like to take you back to 1939. The world was in turmoil; Hitler was beginning his take-over of countries in eastern Europe; fortifications were being built by nations not yet involved in the coming great conflict; the United States was coming out of the great depression of the thirties, and the United States Navy was a rather dormant, obsolete, and thinly deployed force of about 325,000 officers and men who were doing the best they could with equipment and ships built mostly during and shortly after World War I.

I won't dwell long on the rapid developments of the years between 1939 and 1942. In 1942, however, the Navy and the other armed forces of the United States, as well as most nations of the world, were involved in the second war to end all wars. The rapid build-up of manpower and the tremendous output of our production machine provided the Navy with many thousands of ships and planes of all shapes and sizes. All these ships and planes had to be manned with trained personnel capable of doing a job against an enemy who was, perhaps in the early stages of the conflict, better prepared.

Prior to World War II, the Navy had seen its formal technical schools diminish in size. Most training took place aboard ship or on stations in an on-the-job training situation. Promotions and advancement in rating were desperately slow. Trained teachers, for formal classroom or laboratory instruction, to teach all the required subjects, were not available in the nucleus of 325,000 experienced sailors in the now 2,000,000 man Navy. American ingenuity, imagination, and use of all facilities available met the challenge and provided the basic knowledges and skills in adequate numbers of men, to man and maintain the battle equipment of growing technical complexity.

I am certain that my own experiences during the immediate pre-war

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period closely parallel those of some of you in this group. For several reasons I had taken a teaching position in a Wisconsin community prior to graduation from college. I was running short of money for education, had received about all the help available from home, and there was even at that time, a shortage of technically trained industrial arts teachers. When a job opportunity presented itself--I took it. This experience lasted for about a year during which time the attack on Pearl Harbor and our entry into World War II took place. In January, 1942, the State Board of Vocational Education in Illinois was hiring qualified sheet metal and welding instructors to work at the Navy Pier in Chicago. I was interested, applied, and was accepted. This was a rather typical situation in which qualified instructors were hired by an activity to provide Navy training in leased or rented facilities on a contract basis. Few regular Navy personnel participated in these training programs. Most participants were civilians and Naval Reserves with a smattering of recalled fleet reservists to advise and supervise. Curricula, instructional materials, training aids and objectives during the early stages were largely locally prepared with little coordination with other areas related to accomplishing a similar job or training similar skills.

One instructor-supervisor relationship I experienced seemed routine for the time and rather reflected our organizational preparation and capacity. As an aviation metalsmith, I was teaching aircraft maintenance and repair skills involving some of the recently developed metals used in aircraft construction. I had a student ask a question I couldn't answer and decided to ask my supervising chief, a recalled fleet reserve, for help. When I arrived in his office, he was seated, as usual, in his swivel chair. I asked the question; he leaned back and replied in a very blunt manner, "Son, go look it up in a book like I'd have to do." While this was perhaps not a universal situation, supervisory practices left much to be desired, most teacher improvement was self-improvement, and much initial instruction was by trial and error. Some of the educators in positions of responsibility recognized shortcomings and communicated with management bureau personnel concerning these shortcomings. These communications and other recommendations over the next several years led to the establishment of a Training Branch in the Bureau of Naval Personnel. Some of the individuals who were planners during the war remained as civilians in the Training Division after the war.

One of the greatest problems encountered during the war was to get qualified instructors in the required quantity. The job requirements of specific ratings were not precisely enough documented, and the newly created ratings were growing like "Topsy" with the continuing technological development of equipment. In many cases, there was no civilian counterpart. The Navy's solutions to these problems were achieved through a series of developments immediately following World War II.

A research contract was let to determine the most advantageous

organization for the Training Division of the Bureau of Naval Personnel. Qualified individuals with fitting abilities were hired to fill the established billets and to make the Navy's training effort more efficient. Fact finding and problem solving committees determined that several elements were required: teachers had to be trained; rating responsibilities had to be defined; men had to be trained in technical skills, and advancement in rating had to be timely and equitable.

Between 1947 and 1949, the Manual of Qualifications for Advancement in Rating, NAVPERS 18068, was prepared. This manual specifically lists all the military and professional knowledges and skills required for qualification and advancement to each of the respective pay grades in all of the Navy ratings. Promulgation of this manual provided the ground rules for the effort of the Naval Examining Center which was established in Norfolk, Virginia, in early 1949.

The mission of the Naval Examining Center is to prepare discriminating advancement examinations for all enlisted personnel in the Navy. For the first time, the Navy was able to select with some validity those men to be advanced in rating. Throughout World War II, control of men in various ratings and pay grades created a very serious problem. No Navy-wide system of advancement was in being. Each unit under its commanding officer had an allowance by numbers and pay grade. When a chief petty officer was transferred and no chief was on board or ordered in as a replacement, the created vacancy was filled from within the ranks. When only one man was available to fill the vacancy, a locally prepared test would be administered, the individual certified as qualified, and a new chief petty officer would be rated. Generally this was but a formality and seldom did an individual fail to pass the test. If he did, a reexamination would take place after a short time was allowed for intensive directed study. If more than one individual was eligible for the created vacancy, a problem existed that had to be resolved at the Command level. Occasionally favoritism crept into the selection of the individual. As a result of advancements of this type, at the end of World War II, the Navy was top heavy with high rated petty officers. A pyramid of pay grades in many ratings did not exist. During the latter forties, the numbers of petty officers required in each pay was determined. A period of slow promotion and selection of only the most highly qualified people in limited numbers, as determined by Navy-wide competitive examinations, was a source of frustration for many fine technicians. But a pyramid was developed within the allowance and rating structure for each of the Navy's ratings with the most qualified people finally assuming their rightful position at the top.

Another large stride in the training effort was taken in 1948 when the first of three BUPERS managed Instructor Training Schools was established at the Service School Command, San Diego, California. A second Instructor Training School was established at the Naval Station, Norfolk, Virginia, in 1949, at the same time that the Naval Examining Center was going through the throes of development across the street. The objectives of the BUPERS Instructor Training Schools were to unify an

instructor training effort begun earlier at local command and district levels, and to provide schools with qualified instructors possessing more known and practiced teaching skills and techniques. The aforementioned Manual of Qualifications for Advancement in Rating provides the Navy with a huge advantage over a civilian teacher training activity in that the knowledge and skill of an individual in any given pay grade in any rating can be very accurately estimated. To provide highly qualified instructors, the Navy does not need to train individuals in subject matter but may stress techniques and methods. Too frequently, even today after the strides taken by public and private education during the last decade, instructors/teachers are not masters of their subject matter. Navy petty officers by being masters of subject matter at given levels according to pay grade, can be trained to be highly effective instructors during our basic four-week course. Granted four weeks is a short time to prepare an instructor, but the spirit of competition is keen, and the motivation for instructor duty is generally high, since a tour of duty as an instructor usually means a three-year tour of shore duty.

Shortly after the achievement of the objectives of establishing a system of equitable advancement, and after implementing a uniform course of instructor training, the Navy again experienced an opportunity to put these recent implementations to the test. This came during the military build-up during the Korean conflict. At least now the Navy was more self-reliant in providing qualified instructors to teach courses of growing complexity. During this period, I had the opportunity to serve as a battalion commander, and finally as a technical training officer in Recruit Training Command at Great Lakes, Illinois.

It was obvious from the number of ships reactivated and from the number of men trained that the Navy had taken advantage of the years between conflicts to grow and improve in the training area. Though the manpower build-up was not as remarkable as during World War II, a sizable requirement for trained personnel was created. This requirement was met almost entirely by training conducted in Navy schools with Navy instructors and administrators. The level of training, however, wasn't markedly different from that provided five years earlier.

After cessation of hostilities in Korea in 1953, the Navy during the next decade, probably made the most significant technological advancements in its history. Nuclear power was harnessed for propulsion; guided missiles were developed and installed on newly designed and built men-o-war; the Polaris program was conceived and completed with the deployment of a number of Polaris submarines; and a submarine cruised under the Polar ice cap for the first time. These revolutionary developments had their ramifications throughout the Navy. A training requirement for more and greater skills than ever before now existed.

The opportunity for a young man to grow into the knowledge required to perform the tasks of his technical specialty no longer existed. In 1943 for instance, a young seaman or third class petty officer who

operated and maintained an SO-1 radar set could learn his job in several months. The old SO-1 radar was installed perhaps on a majority of ships in the fleet. As technology advanced, these men that enlisted when the first radar was developed, had the opportunity to grow in knowledge and experience along with the complexity of design of the equipment they maintained. Now in 1966, most of the young men who enlisted in 1942 to 1946 and had this growth opportunity throughout their careers are retired petty officers and officers. A young man now undertaking a career as a technician is confronted with not one radar set but many different types for many different purposes. His challenge is greater and his requirement for deeper understanding more immediate.

As a solution to the problem of increasing technological complexity, in the middle fifties the Navy once again set out to improve the training program. The plateau of the latter forties and early fifties was no longer adequate. Instruction had to be improved. Areas in training which could most likely be improved that were not yet fully exploited were classroom supervision and school administration. As a result of this effort, a School Administrator's course and strengthened in-service training programs to improve both instructor competence and technical ability were implemented. At about this time, a strong program of school evaluation to examine local procedures in the areas of management, supervision and teaching techniques, was instituted at the Service School Command, Great Lakes, Illinois. This program was planned and executed by our three civilians. Mr. O. P. Baker, Mr. T. S. Holmes, and I would personally evaluate each of our 400 classroom instructors and discuss management and supervisory practices with each of our Officers in Charge in each of the twenty some schools. Results of these evaluations pointed up areas that required attention. Written reports were submitted and recommendations and comments listed. Implementation of recommendations, however, was another matter. The climate was not quite right for a strong program of administrative evaluation. As one of my bosses once told me during the early stages of this evaluation effort, "Missionary work is slow." Despite frustrations from lack of ability in implementing recommended action, annual evaluations were continued. Rapport was developed, confidence built, and continuing recommendations were made. Eventually, when more highly trained administrators were functioning in management roles, gradual implementation of recommendations began to pay dividends. Instructional materials were more uniformly prepared, proofread, and reproduced. Curricula were periodically screened, reviewed, and updated. Tests were standardized, difficulty and discrimination qualities of items were determined, and the entire training program took on more uniformity and sophistication. In time, classroom as well as general school evaluations were anticipated and welcomed. The teachers taught better, the supervisors supervised more, and a feeling of greater accomplishment and more personal satisfaction became more evident in day to day school operation.

After these refinements were incorporated, a closed circuit television system was installed for teaching selected subjects in basic electricity and electronics; research studies were performed to determine the best methods of instruction; and several teaching machines

with simple programs were tested for effectiveness. Programmed instruction was now upon us, and a writing team was established to produce written programs in selected areas.

This is the present state of the art in our Command at Great Lakes. The future no doubt will have Computer Assisted Instruction and other innovations yet to be developed. Regardless of the impact of increasing technical complexity, I believe that initiative, imagination, and a strong and continuing program to train better instructors, more qualified supervisors, and capable school administrators will enable us in technical training to meet the needs of our Navy. It is our belief at Service School Command, Great Lakes, that the success of our training depends on the success and output of our Instructor Training School.

This concludes a general overview of Navy training evolution. In the time remaining, I'd like to tell you more specifically about the Service School Command, Great Lakes, Illinois, and where we fit into the total Navy training picture.

I have known the Service School Command, Great Lakes, Illinois, intimately since January, 1955. It is one of three Service School Commands presently managed by our parent bureau. Our management boss is the Assistant Chief of Naval Personnel for Education and Training. Other Service School Commands are located in San Diego, California, and Bainbridge, Maryland. Naval School Commands, so-called because of a different administrative organization, are located at Treasure Island, San Francisco, California, Norfolk, Virginia, and at Newport, Rhode Island. Our Command at Great Lakes is the largest and most diversified. It provides approximately 25 percent of all enlisted technical training in the surface ratings under the control of our management bureau.

The mission of Service School Command is: "To administer those schools assigned to the Service School Command by the Chief of Naval Personnel which train selected officer and enlisted personnel, including the Naval Reserve, in order to prepare them for early usefulness afloat in their designated specialty and to supplement training afloat by providing advanced and/or specialized training when such training can be more advantageously given ashore."

In carrying out its mission, the Service School Command performs the following functional tasks:

1. Establishes, organizes, and administers within the Command, those schools and courses prescribed by the Chief of Naval Personnel.

2. Provides existing courses or specially tailored adaptations thereof as directed by the Chief of Naval Personnel, to meet the training requirements of the Navy, and to the degree necessary, of the Marine Corps, Army, Air Force, and Coast Guard personnel, and of foreign nationals under the Military Assistance Program.

3. Furnishes suitable instruction for Naval Reservists on annual training duty, with particular emphasis on the accomplishment of practical factor qualifications for advancement in rating.

4. Implements and administers the prescribed curricula and evaluates such curricula in the light of experience and new developments, and recommends changes to the Chief of Naval Personnel in accordance with the changing requirements of the Navy.

5. Provides through continuous guidance and in-service training, a program to improve the methods and standards of instruction in the Service School Command.

6. Conducts a continuous program of evaluation of classroom instruction to assist instructors in achieving the greatest possible effectiveness in their teaching.

7. Maintains close contact with modern educational methods and techniques for the purpose of utilizing those which are adaptable to the schools of the Service School Command.

8. Promotes and practices maximum economy of funds and personnel consistent with the accomplishment of the assigned mission.

9. Maintains close liaison with those activities responsible for furnishing logistic and operational support for the various schools and departments of the Service School Command.

10. Refers requests of special project, study, or service nature to the Chief of Naval Personnel for prior approval.

At the present time, our Command consists of twenty-three different Class "A," "B," "C," and Officers' Schools offering approximately ninety courses. Definitions of schools are as follows:

"A" School: Provides the basic technical knowledges and skills required to prepare for the lower petty officer rates.

"B" School: Provides the advanced technical knowledges and skills required for qualification and advancement to first class and chief petty officer.

"C" School: Provides training in a particular skill or on a particular equipment.

To perform instructional tasks, we have a staff of about 920 instructors, including sixty officer instructors, 800 enlisted petty officer instructors, and sixty civil service instructors that teach in our electronics technicians Class "A" school.

Annually we produce about 21,000 graduates from courses varying in length from two to forty-eight weeks. The average course length is fifteen weeks. On an annual basis, we provide 320,000 student weeks of instruction. Each student week involves a minimum of thirty contact hours of technical classroom or laboratory instruction per week. If our trainees attended classes on a college student basis of sixteen hours per week for thirty-six weeks per year, we would provide training equivalent to an institution with over 16,000 full-time students. Our daily population, however, averages around 8,000 full-time students.

Each Monday a new group of 480 trainees is convened in class, and each Friday a group of 430 graduates is sent to ships or stations throughout the Navy establishment. Attrition for all purposes during the fiscal year 1965 was 9.1 percent. This includes scholastic failures, disciplinary drops, discharges, deaths, etc.

For many of these young men, graduation from a Navy Service School marks their first substantial scholastic accomplishment. Up until recently, only a little over 60 percent of our student input had graduated from high school, and a rather good percentage of these, I believe, were social graduates.

It is my personal belief that the Navy in its training programs is providing at a reasonable cost to us as taxpayers, one of the greatest vocational training opportunities available to young men of our country today. Each year BUPERS managed training programs produce about 60,000 graduates. If these young men who are school graduates, remain in the Navy, they will enjoy a rewarding career. If on the other hand, they decide to return to civilian life, they will perhaps have vocations they can pursue without retraining. They can immediately become contributing members to a society that is already plagued with enough juvenile problems.

We do have the advantage of a military situation. School attendance during the work-week is of course mandatory. A failing student is repeated as long as his attitude is healthy and within reason, until his grades improve. Our philosophy is that we must take maximum advantage of the opportunity to train our most important resource--manpower. Failing students have compulsory night study. Marginal students may take advantage of voluntary night study where lessons of the day are retaught by qualified instructors.

All in all, being a part of the Navy training program is a gratifying experience. We have many fine dedicated people doing an important job for the welfare and defense of our country. If any of you are ever in the Great Lakes area, please give me a call, be my guest, and visit our schools. You'll enjoy it. Thank you.

PART III

INNOVATIVE PROGRAMS AND PRACTICES

TELEVISION RECORDINGS
A NEW DIMENSION IN TEACHER EDUCATION

by
Dwight W. Allen and David B. Young*

The use of television recordings has added a new dimension to the preparation of secondary school teachers at Stanford. Video recordings made in teachers' classrooms and in micro-teaching sessions at the university provide both supervisors and teachers with a common frame of reference for discussing teaching performance.

Development

Several methods have been previously employed to capture a teaching performance so that it could be recreated for the teacher and the supervisor during a critique; audio recordings, 35mm. time lapse photography and motion picture film. Each has served a purpose but does not combine the unique features of video tape.

Prior to the general marketing of portable television recorders in mid-1962, Stanford began tests with pre-production models of the first portable videotape recorders. Preliminary work with the recorder indicated that the equipment could be utilized, and in February 1963, the first portable video recorder delivered to a customer was put into service at Stanford as a part of the experimental teacher education program supported by the Ford Foundation.

The first application of videotape was in a demonstration teaching lesson where a teacher taught a lesson and was able to view it immediately upon completion of her teaching. During the Spring Quarter of 1963 both teacher-interns and experienced teachers were recorded to further test the feasibility of using the recording equipment in the classroom.

Interviews with both the experienced and inexperienced teachers following the preliminary use of video recorders led to the tentative conclusion that the opportunity for teachers to view their own performance was of significant value to them. It also demonstrated that one man could operate the apparatus and that its presence in the class was relatively unobtrusive.

Based on this experience the School of Education was successful in obtaining systematic support for the development of micro-teaching from the Kettering Foundation. Concomitant learning experiments were also begun under grant support from the U. S. Office of Education.

Current Use of Television Recordings

The Stanford program for preparing secondary school teachers consists of paid internships in cooperating schools. In addition to a part-time

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teaching assignment, interns are enrolled in both academic and professional education courses.

The internship is a 12-month program, which begins the summer prior to the regular academic year. The summer program consists of intensive course study and the Micro-Teaching Clinic. Micro-teaching is a scaled teaching encounter in which interns have the opportunity to gain experience in specific technical skills of teaching under intensive supervision. About half of the micro-teaching sessions are videotaped.

Pre-Service Micro-Teaching

An intern's first experience with videotape occurs on the initial day of the Summer Quarter. In the past year, one hundred forty-four interns taught five-minute diagnostic lessons which were recorded on videotape for future comparison. The lesson was chosen by the intern from his own teaching field and taught to a group of four high school students. Immediately following the recording the intern viewed his performance with his supervisor. The supervisory remarks during the diagnostic session are primarily of an encouraging nature. The students also rate teacher performance on a brief teacher competence appraisal form.

During the first three weeks of the micro-teaching clinic interns teach two lessons per week, one of which is recorded on videotape. The intern teaches a lesson and then views the recording with his supervisor. Following this critique period the intern reteaches the lesson which is again recorded, played back, and critiqued. Each time, the intern teaches a different group of students who, in turn, give the teacher feedback in the form of ratings or comments. The last three weeks, interns are grouped as to subject matter areas and cooperatively plan 20-minute lessons. Each intern teaches six of these lessons.

During the last week of the clinic all interns are recorded again following the same procedure as in the diagnostic lesson for comparison with the first-day diagnostic recordings and for future comparison with recordings in their classrooms.

An intern has about fifteen lessons recorded and played back during the summer.

Field Recordings

During September all interns are recorded for the first time in their classrooms in the cooperating schools. Throughout the year a total of eight to fifteen classroom performances and several micro-teaching sessions are recorded. The teachers are advised in advance of the recording and are instructed to proceed with their normal lesson (but to avoid scheduling films or tests on this day).

A single operator rolls the cart into the classroom and places it in the rear of the room during the passing period between classes and readies the equipment for recording. The operator will then record a 20-minute

segment of the lesson which has been predetermined by either the teacher or the design for a study. Early in the use of videotape longer recordings were made, but it was found that little additional information was obtained from the relatively longer time, effort and expense required.

Central to the classroom recording procedure is an effort to be unobtrusive to the class and the teacher. This is accomplished by the simplicity of the equipment and the casual operation by a single person as contrasted with a cameraman peering through a view-finder, elaborate microphone set-ups and lighting, multiple cameras and noisy remote controls. Teachers report that the cameraman and equipment are no more disturbing than an observer seated at the rear of the room.

Supervisory Techniques

"I didn't know that I leaned on the blackboard so much." "I'll never put my hands in my pockets again." These are typical remarks following a teacher's first viewing of his performance. However, these "cosmetic" considerations quickly give way to matters of relevance to the teaching act once the teacher has had the opportunity to view himself the second time.

Stanford research finds that various supervisory styles, ranging from a direct to a more heuristic non-directive approach have all resulted in changes in teaching behavior when accompanied by television recordings. The videotape medium offers the supervisor the opportunity to reinforce desirable teaching behavior by simply offering such comments as "That is a good thought-provoking question," "You developed that point particularly well," or he may begin, "Did that point develop as well as you had planned?" To this the intern might reply, "No, the students didn't seem to follow my example on the board." The supervisor would then say, "Let's stop the tape at this point and return to where you first introduced the subject and take a second look at the way you developed it, and at the same time consider how the presentation might be revised."

Keith Acheson, the first coordinator of videotaping at Stanford, concluded in his study of supervisory techniques, with and without the use of videotape, that the addition of television recordings to both direct and indirect styles of supervisory conferences increased the supervisor's ability to change specific teacher behavior as observed in a subsequent recording.

Current Television Recording Studies

Through a grant from the U. S. Office of Education, several studies are currently underway to determine training effects of feedback and modeling procedures in teaching performance.

Data are now being analyzed from a study of the effectiveness of various degrees of supervision. In this study, supervision varied from

a teacher viewing his own performance alone to a teacher's viewing his own performance with full supervision. More specifically the treatments were as follows:

1. Teachers viewed their performance alone without specific instructions.

2. Teachers viewed their performance alone but were given detailed written observation procedures and specific suggestions on how to improve their skills.

3. Teachers viewed their performance and received the same written material as above but in addition a supervisor viewed the playback with the teacher, verbally reinforcing them when the recording indicated that they were using the desired teaching behavior.

4. Teachers viewed their performance with the supervisor who was free to use any methods he saw fit in bringing about the desired teaching behavior.

The procedure consisted of a diagnostic recording followed by three consecutive recordings with intervening training sessions using supervisory treatments outlined above.

The second study has been conducted to determine the effect of immediate feedback as compared with delayed playback and accompanying training sessions. All teachers were recorded four times. One group saw their playback the same day they were recorded and were again taped the following day. Another group saw their recording the same day but were not recorded again until seven days later. Still another group did not see their recordings until one week after they were recorded and then were recorded the day following their viewing of the playback. The fourth group was recorded and saw the playback on alternate weeks. All groups were recorded seven weeks from the date of the first recording as a post-test.

A third study was designed to determine the effect on teacher behavior of viewing a model performance on videotape.

Six groups were identified. Teachers in all groups taught three lessons with two training sessions intervening. With two groups as controls, the remaining groups represented various combinations of viewing model performance and their own performance with and without supervision.

The results of the studies will soon be available.

Pilot Programs

Teacher Employment

With the cooperation of the Fremont Union High School District, Sunnyvale, California, Stanford is attempting to determine if a more reliable method can be found to select teachers. Applicants for positions in the district were required to teach a five-minute micro-lesson which was recorded on videotape and rated by high school students and Stanford supervisory personnel. The teacher had the alternative of teaching more than one lesson and indicating which one he would prefer to have as the official record of his performance. Micro-teaching ratings were not used as criteria for employment but will be compared with the normal ratings of the performance of the teachers (employed by conventional methods) at the end of the school year. In this way the use of television recordings and student ratings as selection devices can be contrasted with conventional methods.

Supervision Training

The Campbell Union High School District, San Jose, California, cooperated with Stanford in an appraisal of television recordings as a part of a supervisory training program for the supervision of experienced teachers. Principals in each of the schools of the district selected teachers with whom they wished to work. Twenty-minute recordings were made and played back for the teacher and the principal, and a supervisory conference immediately followed the class. The principal followed up on this supervisory conference with a later visit to the classroom to assess the results. Concurrently, seminars were held at which time personnel from Stanford demonstrated techniques of using television recordings and discussed with the supervisory staff methods of effective appraisal of teacher competence.

Principals and other seminar participants were enthusiastic about the possibilities for using television recordings in supervision as well as for orientation activities and instructional purposes.

The Campbell district has recently purchased a video recording unit and plans to use the equipment in a manner similar to that in the pilot study.

Selected Other Uses of Television Recorders

There are many ways in which television recording equipment can be utilized. New applications are constantly being identified. The following projected uses appear to have considerable merit.

Substitute Teachers

Teachers and administrators alike have expressed dissatisfaction with their experience with substitute teachers. Either too few teachers are available or many of those who are, cannot capably handle a class.

It is proposed that supplemental lessons in each subject matter field be prepared by regular teachers and recorded on videotape. These lessons could then be presented to the class in case of an absenteeism in that particular department. The lesson would probably be 20-30 minutes in length and could be open-ended in nature or end with a specific assignment for which students could do independent research. In either case, a paraprofessional could handle the arrangements and maintain order. The video recordings are quite feasible and the same recordings might be used over a period of several years.

The Stanford School of Education has already made use of this method to pre-record lectures in advance in order that they may be presented to the class on days when professors must be absent from the campus.

Inter and Intra-visitation

Writers on in-service education encourage administrators to provide teachers the opportunity to observe other teachers' performances. However, logistics and other problems have impeded the widespread adoption of such visitations. Also, there exists a question of whether teachers will receive optimum benefit from the experience if they are not directed in their observation. The use of television recordings solves logistics problems and in addition provides the opportunity for a supervisor to view the recording with the teacher and to focus his attention on the desirable teaching behavior.

Instructional

The possibilities for using television as an instructional aid are far too extensive to be discussed in this report. However, portable equipment such as that developed at Stanford, permits the bringing of a "field trip" or an outstanding authority to the classroom with relative ease. The same equipment can be utilized to project demonstrations in biology or chemistry through large monitors so that each member of the class has a front-row seat. The videotape medium has also been used effectively in group and individual counseling.

Senior Staff Supervision

Senior professors do not find time to supervise teachers in training. Such supervision is typically relegated to the most junior members of the staff or to graduate students. Due to more efficient use of staff time by bringing a teacher's performance to the university via videotape, one professor can now critique the performances of several teachers in less time than he could have spent traveling to even one school. In addition a professor might view at one time a series of taped performances of a teacher over several months duration, commenting on relative progress, in addition to regular supervisory comments.

Supervisor Training

The video record is a good stimulus for the training of supervisors. It enables a large group of supervisors to view the same performance and to arrive at a common frame of reference for its evaluation. When disagreement occurs, there is the advantage of being able to replay the episode in question.

A library of video tapes of teaching performances of varying ability in the different disciplines has proven to be valuable in training the novice supervisor.

The long standing difficulty of differences in philosophy between university supervisors and resident supervisors in the local schools where practice teaching or internship takes place can be confronted and at least partially resolved through common viewing of video excerpts. Where differences remain, supervisors can still view the same teaching performances on video tape and arrive at some consensus on how to interpret and use a list of criteria.

Model Teaching Performances

Model teaching performances can be recorded on videotape and viewed by teachers in training. This provides the opportunity to reinforce desirable teaching behaviors as they occur. As it becomes possible to identify more precise behaviors to model, it will be possible to design experiments to test varying uses of models. Such recordings can then be used to demonstrate for novice teachers various technical skills of teaching.

Remote Supervision

The concept of remote supervision permits teachers located in schools remote from supervisors to receive supervision assistance from senior staff. A teacher can have a recording made of his performance and send the tape to the university, state department of education, or district office. A senior supervisor can then view the recording and add supervisory comments on a second sound track of the videotape without erasing the original information. The tape would be returned to the teacher for his viewing and review of the comments.

Other Uses

Plans are currently being formed to use Micro-Teaching Clinic procedures and videotape in the induction of novice college instructors. A split screen which shows simultaneously the teacher closeup from the student point of view and the students from the teacher's view point is currently being developed.

Experience with television recording has indicated its uses are limited only by the educator's imagination and ingenuity.

APPENDIX I

A Description and Cost of Television Recording Equipment as Employed in the Stanford Teacher Education Program

The following criteria governed the development of the portable recording units currently in use at Stanford:

1. The unit must be of such size, weight, and simplicity as to be moveable and operable by a college undergraduate alone and could be placed in the rear of the classroom without moving the furniture in the room.

2. The unit must have the capability to be readied for recording within the customary five-minute class intermission.

3. The operation and set-up of the equipment must be unobtrusive in the classroom.

The equipment is installed in a 30" x 20" x 46" plywood cart mounted on 4" rubber casters. All wiring and connections between the components are completed within the cart. A patch panel is located on the operator's side of the cart to facilitate connections to external components such as microphones and monitors. The front side of the cart (the side facing the teacher) is kept free of any kind of apparatus. The cart is also equipped with a pull-out drawer for extension cords and other supplies. The microphone stand is carried in the cart. All electronic components are secured to the cart and the recorder is mounted on shock absorbers.

Cost of the cart (materials only) $ 200.00

A MVR 15 video recorder is installed in all of the portable carts. The recorders are manufactured and marketed by Machtronics, Inc., (MVR) Mountain View, California. The MVR 15 records on 1" video tape which passes over the heads at 7-1/2 ips. The recorder has broadcast capabilities and a dual sound track to provide for sound dubbing of supervisory comments if so desired.

Cost of the Recorder $11,350.00

A General Electric TE 15 vidicon camera is mounted on a manual pan and tilt head, which is in turn mounted on a removable board attached to the top of the cart by the means of two thumb screws.

Cost of the camera $ 1,650.00
Cost of the pan and tilt head $ 145.00

The video information is monitored via a Sony Micro-TV Model PVJ 305 RU equipped with a JCO-1 jeep connector which is mounted in the top of the cart. The same unit can also be used to record regular broadcast programs. The monitor is so positioned as to permit the operator to casually follow the camera coverage versus the use of a view finder.

Cost of the Monitor	$ 260.00

A single Shure 546 uni-directional microphone fitted with a snap-on attachment is used on a folding microphone stand. This microphone is placed either in the front corner of the room or directly in front of the teacher's desk so that it receives the sound directly from the students and indirectly (off the rear wall) from the teacher.

Cost of the microphone and stand	$ 120.00

In order to record teachers in a laboratory or outdoors (for example, chemistry and physical education) the cart is equipped with a Vega wireless lavalier microphone and receiver.

Cost of the Vega wireless	$ 550.00

A microphone mixer and pre-amplifier is necessary when using the wireless microphone and a stand microphone simultaneously. An Altec 1567A is mounted in the top of the cart for this purpose.

Cost of the Mixer	$ 375.00

During the recording sound is monitored by Telex earphones Model No. HFY 91

Cost of the earphones	$ 7.50

Playback Equipment

A 25" Conrac monitor (CEA 25/Y) is used for the playback. A monitor of this size is adequate for presentation to large groups as well as for the supervisory conferences. The monitors are mounted in a cart which is designed to lower the monitor to a transport position or raise it for small group viewing.

Cost of the monitor	$ 430.00
Cost of the cart	$ 75.00

The sound is amplified by an Ampex 622 speaker-amplifier which is incorporated in the same cart as the monitor. A remote volume control is located on the cart containing the recorder.

Cost of the speaker $ 189.50

We are currently using Memorex 1" video tape No. 75 P BGL-726 in 2400' lengths with a recording time of 60 minutes. The tape may be used repeatedly.

Cost of tape per roll $ 62.35

The equipment is transported in small trailers built for this purpose. They are equipped with a hinged top and five foot ramp to facilitate loading. The recording and monitor carts are strapped to the front of the trailer during transport.

Cost of the trailer (material only) $ 150.00

The carts are moved up stairs with the aid of a three-wheeled revolving-caster dolly. Due to the "walking" action of the dolly one man can move the carts to upper-floor classrooms.

Cost of the dolly $ 45.00

Recently, a compact van was purchased which is intended primarily for the purpose of transporting the carts and providing transportation for undergraduate operators without automobiles. Also, the truck can be utilized as a playback station by installing a small monitor in the dashboard.

APPENDIX II

Description and Cost of Different Kinds of Television Recording Equipment Employed in the Stanford Teacher Education Program

The advent of lower-cost recorders now makes it possible to develop recording systems for as little $1,300 for micro-teaching, and $2,000 for field recordings. The advantages of television recordings can now be obtained by school districts and colleges without ready access to funds.

Stanford personnel are currently developing two, lower-cost recording systems and appraising their feasibility for teacher education.

Low-Cost System ($2,000)

The Sony TCV 2010 recorder and monitor are the basic components for this system. The home recorder comes equipped with a nine-inch monitor and a camera for $1,295. Cameras other than the Sony camera can be used with minor modifications to both the camera and the recorder. An individual dynamic microphone and preamplifier will complete the system. (See detailed list below.)

Current use of the unit indicates that the quality is acceptable for supervisory sessions between a supervisor and an intern. There is some quality depreciation when attempting to use larger monitors.

Sony Corporation has just recently announced an educational version of the above recorder (SV 300) which will have conventional receptacles and specifications to use regular closed-circuit television components. The recorder will be in a 45-pound case of its own, and the camera and other components can be transported in another case. A similar transportation system is being developed at Stanford by modifying the home recorders.

Plans are being made to develop a low cart which will roll into a station wagon. This unit will also feature an elevator column for the camera and a facility for leaving the camera mounted during transport.

Low-Cost Recording System - Equipment List

Sony TCV 2010 Recorder and Monitor or SV 300 for $1,250	$ 995.00
HV 13 Shibaden TV Camera (modified for Sync from recorder) This camera is also usable with conventional systems.	450.00
GBC Zoom lens 22.5 mm to 90 mm.	295.00
Bogen MX6A Mixer-Preamplifier	40.00
Samson Elevator (7301) and Head (7201)	115.00
Cart and Materials (or suit cases) material only	60.00
Microphone - Electrovoice Cardioid Dynamic-664	60.00
Atlas CS-1 Microphone Stand	22.00

Medium-Priced System

Stanford is also developing a medium priced recording system using a Sony EV 200 1-inch educational recorder. This unit will include an elevator column in the cart for instructional purposes. The height dimension will be decreased to provide for leaving the camera mounted on the cart during transport.

The technical quality produced by the medium-priced system is excellent and nears that of the broadcast equipment. The major difference is that it does not meet broadcast specifications.

Medium-Priced Recording System - Equipment List

Sony EV 200 (Stop and Slow motion + $250)	$3,950.00
General Electric TE 20A Camera	1,595.00
Angenieux Lens 150 mm. to 15 mm. Zoom	800.00
Hercules Elevator and Head	305.00
Cart-materials only	250.00
Sony 5-inch monitor PVJ 3030	215.00
Altec Mixer-Amplifier 1567A	300.00
Altec Compressor Amplifier 436C	165.00
Shure 546 Microphone	135.00
Atlas CS-1 Stand for Microphone	22.50
Telex Headphone	7.50
Sony CR-5 Wireless Microphone	365.00
23" Setchell Carlson Monitor - Receiver - Speaker	250.00
Monitor Cart - Pixmobile TV Table	65.00

Split-Screen Technique

Stanford is currently studying the efficacy of showing both pupils and teacher on the screen simultaneously. A closeup of the teacher is shown in one corner as the pupils view him, and the pupils (entire class) is shown from the teacher's view on the remainder of the screen.

Originally, the split-screen effect was achieved by masking off alternate portions of the front of the vidicon tube of two cameras with common sync. The latter was accomplished by driving the second camera with the first.

Recently, a special effects generator has been purchased to study further in a more sophisticated manner this technique in teacher education. The special effect generator provides the opportunity to split the screen vertically and horizontally and to vary the dimensions of the halves electronically. It is also possible to use the corner inset and vary the size electronically during the recording as in the split half configurations.

It is not advocated that the split-screen recording replace the conventional method as depicted in the body of this paper. This special technique has been developed as a supplement. Pilot work has been done in studying the attending behavior of the class and individual pupils in the

context of the total class. With the split screen the attending behavior changes can be related to the performance of the teacher at any time throughout the class period. It should also be noted that with the split-screen technique several levels of information are available with one initial set-up taking approximately seven minutes. For example, show students only - no sound; students only with sound; teacher and students; teacher only, etc. These variations can be achieved either by recording on the tape as listed or by recording all the information on the tape and covering a portion of the monitor as desired during playback.

FLEXIBLE SCHEDULING

by

Dwight W. Allen*

Our Flexible Scheduling Project started about seven years ago when we were trying to make some curriculum innovations. Every time we would attempt some innovation, people would say, "That idea is very fine, but you can't schedule it." We heard that answer so often we finally got mad and said, "Well, okay, what can be done to schedules?" We began to do some fine things. We went down to IBM and said, "Can you schedule things of this type for us on a computer?" A man was sent to work with us, and he told us they could schedule by computer as soon as they were told exactly what we wanted scheduled, and therein lies a story.

We went to the Naval Postgraduate School where they had been doing some computer scheduling research for about three years. Then it got into a "cloak and dagger" kind of story. We heard that someone in Tennessee had solved a scheduling problem, but as soon as he had solved it, he went into the C. I. A. and had not been heard from since. Then we heard that IBM in England had solved the problem. We wrote to them, and they wrote back and said, "Yes, we have solved the time-tabling problem (as they called it), and we will soon put you in touch with the person in our office who has solved it." About six months later, they wrote that everybody thought everyone else had solved it and that they really had nothing new. About that time, Austin, French, and Hull, who had written an authoritative book on school administration, came out with a new edition saying that computer scheduling was impossible; therefore, there was no reason to talk about it. This was not very encouraging to our project, but due to the creativity of an industrial engineer, Bob Oakford, with whom we had been working, we were able to get a school scheduling system by computer to work. The first year we scheduled four schools, and the second year we scheduled twenty schools. This year we are scheduling thirty-three schools, and next year we will have about fifty-five schools. We could have several times that number at each stage of the way, but our staff has not been large enough to provide service at that level.

Two years ago, we began looking at applications of the scheduling technology to various specific subject area fields. For example, this next weekend we will have a conference at Stanford on flexibility in foreign languages and implications of flexible scheduling for foreign languages. We have been looking at various subject fields in this way. Recently, we decided to see if we could make major applications of the scheduling technology to the problems of vocational education. Vocational education has been both the darling and the devil of school scheduling, at least in our experience, since many people have looked longingly

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at that three-hour time block which it has. Other people, of course, look at it with daggers in their eyes because of what it does to the rest of the school program. Since we had a rather substantially different approach to the construction of a school program, it seemed to us that vocational education is a very important area in which to focus, to ask some questions, and to seek some alternatives that had not been considered before. Again, we frankly admitted that at that time we were complete novices in the area of vocational education. I must confess that when I first started, I did not know the difference between vocational education and industrial arts, and this was something I got straightened out in a hurry. But there is a great deal that I do not know about vocational education which is a real disadvantage. On the other hand, there are some aspects of this which have led us to be a little bit rash in ways that we were talking about. I hope that over a period of time this will result in progress in terms of defining and re-defining some of the major elements of vocational education insofar as the scheduling is concerned.

Let me take some time to discuss some of the basic notions of our flexible scheduling project--not only as they apply to vocational education, but also as they apply to the total curriculum. I want to focus on the total curriculum in my brief statement this morning because I want to make it clear that the embarrassing questions I ask are not asked just of vocational education. You may become misled if I raise questions only about vocational education because that would simply sound like a conventional diatribe. I will be more generous in my comments than to talk exclusively about vocational education. Instead, I will try to keep vocational education in proper context in my remarks.

We start in this matter of flexible scheduling with what we call a performance curriculum. This is nothing new to you. Vocational education has, perhaps, been ahead of the other areas in the school curriculum in terms of its concern for performance elements and precise performance definitions. A performance curriculum is simply organized so that the task to be learned is defined in terms of levels of achievement. Again, this is nothing new because achievement is like mother, apple pie, and the flag--everybody is in favor of it. You will not find anyone disagreeing on the desirability of achievement. These discreet levels of achievement are time independent, and here is where vocational education comes back to some of the same difficulties that we have in other parts of the curriculum. I would submit that time, like teachers or materials or facilities, is a performance resource that should not in itself be considered as a measure of achievement. In other words, just because he sat through a certain number of hours of a training program, it does not mean that a teacher automatically has certain kinds of competence, or that he has achieved a certain amount. It is that achievement is so hard to define that we sometimes retreat to an easily countable kind of thing to substitute for a more precise knowledge of achievement. If you think of it this way, a performance curriculum provides a comprehensive rationale for innovation.

There are many things on the horizon--team teaching, flexible scheduling, programmed learning, and non-graded programs--which run the gamut

of educational innovation. In fact, innovation is the watchword; it is the darling of the educational profession; everybody wants to innovate. It seems to me that the difficulty is that innovation per se is neither good, bad, nor indifferent; and furthermore, no one type of innovation is monolithic in terms of being good, bad, or indifferent. In other words, I could show you team teaching that is great, and I could show you team teaching that is atrocious. I can show you team teaching that is successful in everything except learning. Problems arise when teachers do not get along with each other. I do not care how competent the teachers are, or whether the time that they have is right, or the facilities are right--if they do not get along, they are not going to provide much opportunity for learning. We do tend to think of these things in terms of monolithics, that is, one is in favor of team teaching, or he is against it.

On second thought, this may not be a desirable approach to this subject. Probably we should continue to clarify the concept of performance curriculum and get a firmer understanding of what we are trying to accomplish by way of performance. Then we can come back and say, "What kind of team teaching arrangements might be scheduled to fit this situation, and how might programmed learning contribute?"

I think it is important to look at the process of innovation itself. As we have viewed the process of innovation in education, we have tended, by and large, to think of single-step innovation. We go "plunk," and say, "I have had my innovation like I have had my dose of salts!" You see this in the SMSG program and in the new science curriculum; you see this this coming up in projects in English; you see this in the thinking of principals who say, "I have team teaching in my school," and usually it is only a little innoculation that tends to make them immune. Most of the principals really do not have much programmed instruction at all, but they have enough so that they think they have it. This same notion is true in team teaching because principals think they have already tried it. This is a great temptation and one of the most severe limitations to innovation. It is not the person who says, "I reject it," that you have to worry about--it is the person who says, "Oh, that is just the same old thing we have been doing for twenty years, there is nothing new there." The latter is the really critical situation which keeps innovation from getting very far because people look at something and try to interpret it in terms of the familiar terms. I heard a little bit of that yesterday, if you will excuse my saying so. When I introduced the notion of differentiated staff, you said, "Well, this guy is like the student foreman, and this guy is like this, and this guy is like that." I do not disagree--it may be like that; but it also may be that there are some different notions in there too, or some additional notions. Do you see the point that I am trying to make? It is not that I am trying to say that everything that comes along the pike is brand new, but I think we have to be very careful not to dismiss something too easily, simply because there are elements in it that look like something which is old and tried, or that look like something else.

Innovation is a very important thing, and in education we tend to think of single-step innovation. Whereas we have had an innovation, it

seems to me that innovation has to be thought of as an open-ended process. We can never look forward to "The Innovation," but we can think of the current range of alternatives as being unimportant. I sincerely mean it when I say it really does not make any difference whether someone is working on flexible scheduling, team teaching, some non-graded programs, or any of the other specific innovations. The critical question to ask is, "Is your staff prepared to deal with new alternatives as they are identified?" In other words, if something new comes along the road, is this something that can be routinely considered, implemented, tested, tried, and discarded or replaced; or is this something that is a "big deal?" When an innovation comes along, if it is a "big deal" to get it tried, this is the critical flap as far as I am concerned. It is much more critical than whether you have or do not have any one of the current brains. By and large, I think in education (in the whole structure of the schools, in teacher training, and in the whole business), this is our critical lack--we are not tooled up to look at new things as they come along, to try them out routinely and take them in our stride. I have seen, time and time again, educational organizations going through a big ordeal for some dizzy little jump that actually comes out at the other end. Let me be non-charitable and say that too often we do the same little things with a new sign over the door. I think the critical thing we have to decide here is, "Are we prepared to deal with alternatives as they are identified?"

If I may borrow an analogy with the airline industry, we are somewhat in the situation of a DC-3 curriculum, with DC-3 teachers and DC-3 facilities. As I go around to various schools and talk about new facilities, I find some terrible things happening. For example, conversations usually start off with, "We would like the most modern and fantastic facility you can turn out for us, but it must be immediately convertible to a traditional program if these new things do not work." That is like the airlines saying, "We want the finest, most modern, up-to-date, supersonic jet, but it must be immediately convertible to a DC-3 if it does not pan out."

We are building school facilities that are basically like those of the Nineteenth Century, and we just play with the chrome. For example, if the school was built in the forties, it most likely has a skylight in the roof somewhere because that was the big rage in the forties. Unfortunately, they are still building some schools with skylights, and it has been demonstrated that they may give you more problems than benefits. If your school was built in the fifties, there will be some moveable walls somewhere because moveable partitions are the spirit of the fifties. If it is built in the sixties, it must have a carpet on the floor because no self-respecting school is complete without carpeting. However, we still have basically the same "chicken hawk" eighth grade approach to the school--that is, we have some very strange things.

Let me interrupt myself to tell you a story. When I taught mathematics and social studies in high school, I went to the principal one day and said, "I would like to have one of these double blackboards--the ones

that go up and down." I thought that this type of blackboard would be helpful to me in trying some of the things I wanted to do. Incidentally, this was about ten years ago. The principal said, "You cannot have one of those blackboards." When I asked, "Why?", he said, "Because they are science blackboards." I said, "I think it would be quite useful." He showed me the catalog, and they were called "science blackboards," double ones that go up and down. In the modern school where the ceiling is not high enough for them to go up and down, they go sideways. I always wondered why these were called "science blackboards." I could not see anything about a double blackboard that made it more useful for a chemistry teacher than for a mathematics teacher. I finally found that this idea could be traced back to Leadville, Colorado. In 1899, Dr. Elliott was Superintendent in Leadville and was a friend of Cubberley, who was teaching at Stanford. This was back in the days when Leadville had one of the show place school districts in the country. Dr. Elliott was very interested in science, so he designed a science complex. It was a double classroom, and in this double classroom was a "viewhood" arrangement. In the front of the "viewhood" and facing each classroom was a double blackboard. You could get behind the blackboard and the "viewhood" for demonstrations in the chemistry room. This idea got widely copied. If the school district was a poor school district and the school could not have two chemistry rooms, they could have one room with a "viewhood" behind it. There was a whole generation of chemistry teachers all over the country who grew up knowing about the Leadville science room. Soon they moved the "viewhood" to another place, but by this time, we had science teachers all over the country who had gotten used to the idea of having a double blackboard and liking it. So the "viewhood" was left, but the double blackboard stayed, and now we have double blackboards all over the country, but in schools where they never thought of putting a viewhood behind it. It is called a science blackboard, and there is no reason for it--it is just there. We have this kind of thing in our facilities all the way through. We also have this kind of thing in our staffing, and consequently, I would like to expose some of the biases that we have looked at as we have investigated the program and tried to consider some alternatives.

For example, for a moment, think of the problem of assessing achievement, and assessing achievement is certainly important. I submit that in a typical high school program, we use time, not achievement, as our basic criterion. You ask someone, "Do you speak French?" or, "Do you know French?", and the answer is, "I have had four years." That is the way we think of it now; that is the way we talk it. The answer is, "I have had so many years." The criterion is how long you have kept the seat warm.

As another example, we will consider ninth grade English. How do you know when the student comes to the end of ninth grade English? There is only one way to tell, and that is by following the calendar since some students come into ninth grade English knowing more than other students who successfully finish ninth grade English. If you have ever sat in on any English department discussion, you know the battle of the bulges that go on there, in terms of deciding whether "To Build a Fire" is going to be taught in the ninth grade or the tenth grade. Woe be unto the ninth grade

teacher who lets students read "To Build a Fire" because that has been designated as part of the tenth grade curriculum. This time notion is sheer nonsense because English has never been very well analysed in terms of what in the world students should be taught. We have retreated to the idea that you just sit there. If you sit there for thirty-six weeks, that is one unit of credit. We have given an example of a time criterion instead of an achievement criterion.

If we want to use performance as a measure of achievement, we would say, "How well do you know French?", and the person should be able to say, "I can read a French newspaper and understand about 80 percent of what is going on." Or, "If I speak to a Frenchman and he speaks slowly, I can get the gist of the conversation." That is a performance criterion, and it does not make any difference whether it takes six weeks, six months, or six years. I want to know how well a person can read, in terms of a reading rate, and in terms of a comprehension rate. I want to know how well he can write, and how effectively he can write. I want to know how well he can type and what is his error rate. These are performance criteria, but these criteria are hard to find in schools. There are elements of performance criteria that are much more carefully defined in some subject areas than in others. Those in the foreign language field are doing a good job in developing language level criteria.

In vocational education, you have a semblance of performance criteria in many different places, but just when someone is about ready to pin a gold star on your paper, you go back to the three-hour argument. The final resort so far has been to throw away the performance criteria and go back to, "It must be three hours for so many years." Again, you are no worse than anybody else in doing this, but perhaps we are asking the basic question--"Is there some way we can reorganize and restructure the educational program so we can identify performance criteria rather than time criteria?" That is really the essence of what we are asking. Please note that this is a curriculum question, not simply an organizational, "gimmicky" kind of question. I couldn't care less whether we have something called modules, or large groups, or small groups, or long, or short, or anything similar to them.

I am not trying to erode away the requirements, and I am not trying to compromise what you are trying to accomplish in a vocational educational program. I am perfectly willing to accept the findings that would say <u>you need more time</u>, as well as the findings that would say <u>you need less time</u>. I think the questions are going to be concerned with how do we restructure the time, how do we focus it, and how do we get more time for some students and less time for other students? These are the critical questions.

This is not a modest goal that we have undertaken. It is a very immodest goal, and this is why Dr. Barlow is absolutely right when he says that whether or not it is going to work has not been demonstrated. However, let me just go through some of the issues in innovation that we are seeking to answer in our flexible scheduling project. We want to look at staff utilization. I mentioned, previously, some of the things we were

talking about in terms of the differentiated staff. We are trying to re-think the whole notion of staffing and the whole idea that there should be different kinds of staffing in terms of technical and support personnel, in addition to teaching personnel. I always run into the standard recommendation that in a vocational class, the top end of it should be twenty-four. In theory, it might be better to have a vocational area which is able to handle sixty, seventy, eighty, or ninety students, and which utilizes several staff members with different competencies and different kinds of preparation. That is, if you have a really professional teacher, why should that professional teacher have to collect papers and grade them, or take attendance, or keep a shop inventory, or handle these kinds of things? It does not take four to six years of college education to do these things, and neither does it take four to six years of college education to provide the specialized understanding in the T. and I. sense, of experience in a trade. We can identify a number of different functions that go on in an instructional situation. It seems to me that maybe we are going to be able to do a better job as a whole, if we stop arguing about whether or not a person should have practical experience on the job and accept the idea that some teacher preparation versus job experience should be the basic program of teacher preparation. Maybe the answer is that we need several different kinds of people in the teaching complex. Some of them might come from one kind of background, and some of them might come from other kinds of backgrounds; some of them may be full-time and some may be part-time. These are the kinds of considerations that are basic. I am not trying to simply increase the teacher load by saying that maybe we should have classes of fifty, sixty, or seventy students. I am trying to say that I think we have to go behind the basic assumptions we have been making and ask if there are alternatives. One of the biggest considerations here is staff utilization.

The use of time is the villain in the whole piece because time has been the sine qua non of achievement in the curriculum. I think we have to look at some alternatives in the matter of time. Right now we have somewhat of a general purpose approach. We have only one decision to make. In academic subjects, it is, "Do we want five hours, a week, or nothing?" That is our choice. In a full-fledged program of vocational education, the question is, "Do we want fifteen hours a week or nothing?" It seems to me that there is not much of a choice or much of a rationale for this. I would rather identify certain performance criteria I want a person to be able to meet at a certain stage of the game, and then work for a program which will develop these performance criteria. For example, we have laboratories designed as multi-useful spaces. They are designed in such a way that if I am instructing people in a class situation, the laboratory remains empty, and if students are working in the laboratory, the instructional space remains empty. The instructional space is for twenty-four people, and the laboratory space is for twenty-four people.

Before I proceed, I want to go back and identify certain kinds of functions, and for certain kinds of functions, a large group of 200 is fine. Why should I have to repeat certain kinds of basic presentations to twenty-four students at a time, over and over again. Perhaps I can

schedule a large group of 200, and maybe this will meet for a half-hour a week. Maybe one of these presentations a week is enough, or maybe two. Again, I am not proposing any particular format; I am only proposing alternatives, or possible alternatives.

Another question is, "What need do I have for small group instruction when I may have eight or ten students?" We could have arguments about what number there should be for small group instruction. We are really shifting over here to curriculum and organization considerations. People tend to think of small-group instruction as a special skill. I was reading, for example, the book to which you referred earlier as the Eddy document. There is a lesson in it on questioning. The types of things that are in it are fairly good, only it would leave someone with the notion that questioning is a total monolithic concept. However, I can think of at least 200 different premises for questioning, and for some of the purposes of questioning, the things that are mentioned in that volume are actually wrong. For example, there is a general statement that, "You should always ask a student a question to get him to think." Sometimes I, as a teacher, want to ask him a question to find out that he does not know the answer, or that he does know the answer. Sometimes I want to ask a question that is a question of sheer fact, to get this sheer fact straightened out, and then go on from there. This does not detract from the basic idea that the problem is that most of the teachers are going to ask too many questions which are simply at the factual level, and the purpose of the manual is to get teachers to go beyond that very simplistic kind of question to something a little more basic and a little more important. I am not disagreeing, but the point is that this manual leaves people with the concept that something called questioning is a particular something, rather than dozens and dozens of different somethings.

We also tend to think of small-group instruction as a something, and small-group instruction is not a basic something at all. For some purposes, I want student-led groups; for other purposes I want short-term groups. Some groups are what I would call production-oriented groups; other groups are analytical groups. Maybe, I do not want a group to produce a project; I might want them to exchange ideas in order to learn. Again, this area is complex, but the question is, "Do I want to have some small-group experience scheduled here?" Sometimes it is a talking kind of experience. I do not know enough about the area to say when, and, or even if; all I know is that if I ask this kind of question, it ought to be something people have thought about. This is as far as we can go.

I think I would like to have something called "open" laboratory. Perhaps this is one of the most powerful devices of flexible scheduling which can be applied to a vocational program. We could have the total structure of the school set up as we do in some of our experimental schools--there a student has approximately 40 percent of his time to devote to his individual study and is free to go wherever he pleases. "Wherever he pleases" is usually defined as maybe five, six, eight, or ten different study areas, of which the "open" laboratory is one. If he has 40 percent of his time free from formal scheduling like this, then notice the kinds of things that can be done. I can say, "Johnny, you go to the laboratory,

and your responsibility is to be in that laboratory until you accomplish 'X.'" One student may take two hours, one student may take three hours, and another student may take four hours, but they all know that they are not finished until they have accomplished "X." You should get that kind of acceptability. In some instances, you may have some short projects; in other instances, you may have long projects; and so one day a student might have a short laboratory assignment, and another time he might have a long laboratory or shop assignment.

Also, I can have different kinds of laboratory experiences. Now a student is either assigned to the laboratory for this course, or he is not assigned. Under a more flexible program, I can have all the different shop areas and all the different laboratory areas available to students at different times, depending on the curriculum they are to meet. If I want to send a student to the physics laboratory, I can send him; and if the physics laboratory is an "open" laboratory, the physics teacher can work with him on that particular type of project and that particular competence. In this way, the total facilities of the school become available to the total student body. It means much more coordinating, but we are asking, "Is there any room for an open laboratory?" Might this be an alternative to consider?

As far as the curriculum is concerned, it is in a sad state of disrepair. We are still back at the point where we are adding chapters to the textbook at the end of every presidential administration. The curriculum is changing faster than that. The question is, "Does knowledge double every five years or every eight years?" However, we are still adding chapters at the end of the textbooks, and it just is not going to work like that any more. Another problem is illustrated by the fact that in social studies, Columbus sails in the fifth grade, he sails in the eighth grade, and he sails in the eleventh, and he never gets anywhere. This is organizational nonsense, and we cannot defend it because, just like "Topsy," it grew.

We can go through the school curriculum; and if I had to nominate the single worst curriculum in the whole high school program, I would nominate the mathematics curriculum. If you look at the mathematics curriculum, in Grade Seven, we have five hours a week of something called review. In Grade Eight, we have another five hours of something called review. The brightest students escape to algebra at the eighth grade. This is still viewed with grave suspicion in many parts of the country and in many schools, but most of the students have review. Then in Grade Nine, the college preparatory students go on to algebra, and on to geometry, but the average students take something called general mathematics. General mathematics, as you know, is review. What we do is hit them over the head and hit them over the head again, and then hit them over the head again, to make sure that they hate mathematics for the rest of their lives. This is the way it comes out. Mathematics is one of the most thoroughly hated subjects in the whole curriculum even though it is one of the most useful subjects; and yet this is the place where we do one of the least effective jobs. It gets worse instead of better with the average student, because in Grades Ten through Twelve, there isn't any mathematics.

Yet, if you look at the syllabus that is filed at the central office, I guarantee that whatever else is there, there is something about building and maintaining certain kinds of computational skills. Where is the maintaining part found in this kind of curriculum? In former years, Grade Twelve had something called senior arithmetic, but we discontinued it because it was so unsatisfactory, both for the students and the teachers. Now, we have moved that back to the ninth grade and just do not bother to see how unsatisfactory is is there. How do we defend this curriculum? How can there be any educational rationale? Under our flexible scheduling program, I can guarantee you that if I give students only two hours or only twelve hours over the six years, I can give you a better job of building and maintaining arithmetic and mathematical skills with twelve hours of curriculum than fifteen. I would be even happier if you would let me take away hours as a criterion and substitute performance criteria. For some students, maybe a half hour a week, in terms of some skill maintenance activity, makes sense with different patterns at different times.

As long as we are confined within a structure where the organization says one-hour blocks, we do not decide what we want to teach; rather we decide what can we teach within a one-hour block, or within a three-hour block. I am absolutely convinced it is just as ridiculous to think that all T. and I. subjects demand exactly three hours a day, five days a week, as it is to think that all academic subjects demand exactly one hour a day, five days a week. I think the viable source of this ridiculous assumption is that it was obvious that the one-hour pattern that was typical for academic areas simply would not fit here. I am in thorough agreement, but the remedy is the wrong remedy because we do not go to an extreme orthodoxy to overcome another orthodoxy. If you do this, you need to have the availability of scheduling for all different sizes, shapes, and pieces, and this is where the computer comes in.

I think another issue is the issue of objectives, and we got quite close to this yesterday when we started philosophizing about cost of occupational preparation versus specific preparation. Some of these things are just plain unanswerable. It is like that bandsaw reference you started out with yesterday; but, on the other hand, I think some of these things are subject to a look and a different frame of reference. It would be good if all of us could stop being defensive, and I am not just talking about vocational education; I am talking about all of us because, for example, the English teachers are about as defensive as any group of teachers I have ever met in my life. Their curriculum is one of the worst because they just do not pretend to do the job they need to do. They have students in something they call remedial classes, but remedial does not mean that at all. Remedial means that you can get over something, but they do not mean remedial. These are the students they consider lost causes. If you show me the student who ever got out of a remedial English class and went back into a regular one, I'll retract my statement. You do not find young people who get over being classed as remedial. This is just a euphemism to make people feel good, and I think that is foolish. There are certain types of things that could be remedied if you look at them specifically. Most English teachers are not really English teachers at all--they are

literature teachers, and they have come from a background of literature in college. They just automatically transmit that background. Starting with the English situation, we can turn to all sorts of other things that are happening in the curriculum which are equally indefensible. You start getting vocational programs that start back-filling against an inadequate English program until you get vocational programs trying to teach English. I cannot defend that, but that is really not your fault; it is the fault of the teachers who do not do their work properly earlier in school.

Let me go directly to the heart of the matter and try to get back to students and look at something we call academic merit. By academic merit, I mean merit in terms of the way the students get along in school. I am perfectly willing to call vocational education as academic as anything else. As far as I am concerned, if it is taught in school, it is academic; and to spend a long time arguing over what is academic and what is not, I think, is a fruitless argument. However, I think we have to realize success in school comes from, first of all, such things as home environment and support; and as much as we wish it were not true, this still is a very important factor. We have to realize this factor and build our programs to take it into consideration.

One of the biggest issues in scheduling is whether or not we ask the students to do homework. You are better off than most academic areas because homework is prejudicial against students who come from certain home environments and backgrounds. The very student who has the roughest deal at home is the one who needs to do homework the most and who has the least opportunity to do it. The organization and the structure of the school is actually prejudicial against the very students who need the work the most. We need to look at them and examine their situation. This is, again, where flexible scheduling can come in and make a self-contained day, to get rid of the leverage on the prejudice. They already have a hard enough time because of their previous learning experience and background. That is, a student who comes from a home where, "Ain't we done good?" is the standard of English, has a different learning job than the student who comes from a home where effective English is spoken. We have the problem concerning ability to learn, which is well-documented. This is something people do not argue about any more, but verbal agility is one which is not so well recognized as a rule. The student who speaks up and is very verbal always rates higher on teacher liking than the student who is not verbal. It turns out that grades are more highly correlated with teacher liking than they are with student ability. This is verified time and time again. Teachers get very defensive and they say, "Well, I like the students because they do well," but I think that is moot.

Also, we do not know when we need to look at study habits, and in this respect, we, in the profession, are absolutely irresponsible. I do not know enough about T. and I. to know whether you are as bad as the academicians, but I know the academicians are absolutely irresponsible because the only time they worry about a student's study habits is when he does not get the job done. If Johnny has the homework to hand in on Tuesday, then as far as the teacher is concerned, that is the end of it. The teacher

never bothers to find out whether Johnny spent ten hours doing something that should have taken two. We have this kind of approach to mediocrity where, if you meet certain formal criteria, then the teachers are uninterested. The teacher has as much responsibility to find out if Johnny is spending too much time on an assignment as the teacher has responsibility to find out if Johnny is spending too little time. Again, I do not know enough about T. and I. to know whether this is your problem or not, but I suspect that there might be some equivalents here or some parallels.

Then we must consider the idea of creativity. Once again, creativity is like mother, apple pie and the flag--everybody is in favor of creativity; but you get into school and creativity is not rewarded at all. Cooperation and conformity are rewarded. Suppose the English teachers ask for a theme and the student writes a poem. How far do you think the student will get? We do not reward creativity. A certain amount of cooperation and conformity is necessary if the school is to survive as an institution. It becomes critical to identify when we need cooperation and conformity, and when will we tolerate creativity. Just generally being piously hopeful about creativity yields nothing; we need to recognize when we need cooperation and conformity and get it, and then recognize when we can tolerate creativity.

The final ingredient is attitude toward learning in school and teachers, and these attitudes become very critical. Many students have enough capacity to achieve success, but because of their attitude toward learning and school, they are inevitably defeated. Even this is only half the story because the other half of the story is the personal merit of the student. Personal merit comes from such things as responsibility, congeniality, activity, maturity, loyalty, concern, and consideration, as well as academic competence and academic merit. The point is that too often teachers get threatened because the student is not learning academically, and then they "take it out" on the student personally. Because the student does not do well in class, he is telling the teacher that he is not teaching correctly. The teacher says to himself, "If Johnny could go away, my day would be complete." You have these little "brats," and you say, "If only he would not come to school today, this would be the best present anyone could give me." We need to consciously remember what we already know--that there is distinction between the personal merit of the student and the academic merit. It means that somehow or other we have to be able to look Johnny right in the eye and say, "Look, you and I both know you may never be able to operate a lathe, but that has nothing to do with how good a person you are." The teacher has to be comfortable and confident enough so the lack of academic merit does not get transferred to the personal merit of the student. That is really, I guess, where I would like to leave this subject because what we are after in terms of our flexible scheduling program is to look at alternatives.

Again, we do not have answers, but the kinds of questions we are asking are probably important questions to ask; at least we are betting a great deal and investing--well, I am investing a good portion of my career in betting this way. The U. S. Office of Education at this juncture is

betting on us that this is an important question. Dr. Barlow is investing time, and the rest of the members of our Advisory Committee are investing a lot of time. We think it is important to try to get some of these things connected and coordinated.

A CURSORY STUDY OF INNOVATIONS IN TRADE-TECHNICAL TEACHER EDUCATION IN THE UNITED STATES

by
David Allen[1]

Introduction

In his annual report to Congress in 1843, Henry L. Ellsworth, first United States Commissioner of Patenss, wrote: "The advancement of the arts from year to year taxes our credulity and seems to presage the arrival of that period when human improvement must end."[2]

This statement is thought to be the origin of the story that a Patent Office official once resigned because, as he said, "Everything has been invented." Fortunately, we in trade-technical teacher education have not reached the conclusion that all there is to know in teacher education is known. Rather we have continually endeavored to improve teacher education by integrating the newest research findings into the trade-technical teacher education programs.

Regrettably, little information is exchanged between states concerning the varying efforts they are making to increase the effectiveness of their trade-technical teacher education programs. Hence this study, which is being presented as an initial exploration of the programs of various states to determine the extent of innovations being used. This limited study was undertaken at the suggestion of The Center for Vocational and Technical Education of The Ohio State University.

The Problem

This study has three objectives. The first is the identification and comparison of changes in recruitment and selection of teachers, education curriculum structure, sequence and content of education courses, methods of presenting teacher education instruction, and methods of evaluating the teacher education programs. The second is identification and comparison of teaching certification requirements in various states. The third is identification and comparison of the type and amount of professional teacher education preparation required by various states.

Limitations

The major limitation to this study is its lack of a point of reference that would, if contained herein, permit a clear-cut comparison

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[2]Henry L. Ellsworth, Annual Report of the Commissioner of Patents for the Year 1843, Document 177, Twenty-eighth Congress, First Session, House of Representatives. Washington, D.C.: Blair and Rives Printers, 1844. p. 5.

of currently acceptable practices in trade-technical teacher education and of innovations that exceed the standards of even the better programs of trade-technical teacher education. This lack makes difficult any discrimination between changes that have been made to materially advance teacher education and changes that have been made simply to raise a program to a level of minimal acceptability. However, it was felt that sufficient information was gained from the respondent trade-technical teacher educators to provide some indication of changes currently being made in trade-technical teacher education.

The Questionnaire

A one-page questionnaire was developed as the survey instrument and was mailed to many leaders in trade-technical teacher education in the United States and Puerto Rico. (The questionnaire is shown in Table 1.)

Table 1

Example of Questionnaire Form

	1 Slight Change	2 Moderate Change	3 Extensive Change	4 Revolutionary Change
Teacher Recruitment				
Teacher Selection				
Teacher Education Curriculum				
Teacher Education Courses (sequence and content)				
Teacher Education Instructional Program (methods of presentation)				
Evaluation of Teacher Education Program				

Each educator was asked to make additional comments or attach appropriate materials related to any one of the six areas of inquiry for which he was checking either the third or fourth column. Two further inquiries were made. The first concerned teacher certification requirements and the second concerned professional teacher education requirements.

In an introductory statement to the questionnaire, each respondent was asked to indicate innovations that had been incorporated into his teacher education program during the past five years.

The Findings

The questionnaire was mailed to trade-technical teacher educators in all fifty states, in the District of Columbia, and in Puerto Rico. Responses were received from thirty-eight states, the District of Columbia, and Puerto Rico. Twelve states did not respond. Several of the states sent more than one response, apparently because the responsibility for trade-technical teacher education is carried by more than a single agency in some states. California also completed a questionnaire, thus bringing the total to fifty responses.

Of the fifty respondents, eleven indicated that "Extensive change" or "Revolutionary change" had occurred in one or more of the six areas of inquiry (teacher recruitment, teacher selection, and so forth). The number of states reporting "Slight change" ranged from thirteen to twenty-three. Table 2 shows the number of responses and percent of change.

Table 2

Tabulated Results of Responses to Questionnaire

Areas of Inquiry	Slight Change		Moderate Change		Extensive Change		Revolutionary Change		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Teacher Recruitment	23	46	20	40	6	12	1	2	50	100
Teacher Selection	22	44	23	46	5	10	0	0	50	100
Teacher Education Curriculum	18	36	15	30	15	30	2	4	50	100
Teacher Education Courses (sequence and content)	15	30	20	40	14	28	1	2	50	100

Table 2 (contd.)

Areas of Inquiry	Slight Change		Moderate Change		Extensive Change		Revolutionary Change		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Teacher Education Instructional Programs (methods of presentation)	13	26	23	46	10	20	4	8	50	100
Evaluation of Teacher Education Program	22	44	19	38	7	14	2	4	50	100

It appears that methods of instructional presentation show the greatest change; areas of teacher recruitment, teacher selection, and teacher education courses (sequence and content) show the least change. It should be stated again that it is difficult to identify from the responses the degree to which a revolutionary change has increased the effectiveness of a program, unless the point from which a change is made known. However, attachments and written statements indicate that those states reporting radical changes in general are ahead of those reporting only slight changes.

In identifying teaching requirements in certain states, it was found that thirty respondents, including the District of Columbia and Puerto Rico, had certification systems and trade-technical teacher preparation requirements. Two of the respondents that indicated the college requirements did not state the number of units required. Others indicated unit credit requirements that ranged from four units to 130 units. Table 3 gives a breakdown of number of units required by the respondents to the questionnaire. Two of the states requiring certification also require both college units and workshops. One of these states provides annual workshops; the other provides periodic workshops.

Three states do not require certification or college units. They do provide teacher training through annual workshops. Five additional states do not have certification, college units, or workshop requirements; however, they do conduct activities for trade-technical teacher education, such as state conferences and teacher meetings.

Table 3

Number of College Units Required for Teaching Certification N=30

Frequency of Responses	Number of Required Units								
	Not Responding	4	6	8	9	10	12	15	16
1		x		x	x	x		x	x
2	x								
3			x						
4							x		

Table 3 (contd.)

Frequency of Responses	Number of Required Units								
	18	20	21	22	24	30	42	128	130
1			x	x			x	x	x
2		x				x			
3	x				x				
4									

Discussion

It appears from this limited examination that a wide diversity of trade-technical teacher education practices exists throughout the thirty-eight states, the District of Columbia, and Puerto Rico. Most states that responded to the study had teacher certification requirements and teacher preparation standards that must be met by individuals preparing to become trade-technical teachers. All respondents indicated slight changes in their programs. Eleven respondents indicated extensive changes or revolutionary changes. Although it is difficult to identify how far these changes may have advanced their programs, evidence is shown that change is taking place in trade-technical teacher education.

The problem of identifying innovations is not a new one to those in the field of trade-technical teacher education, who have long been occupied with the task of distinguishing a genuine change in teacher education from one that has been in use in one form or another for some length of time. According to the latest study written on innovations, prepared under the auspices of Phi Delta Kappa, some 628 abstracts concerning educational innovation have been compiled.[3] In reviewing this book, one finds difficulty in identifying innovation from current practice. In actuality, a practice that is new to one teacher education program may be an old technique to another. The difficulty in making a discrimination between the two is occasioned in many instances by two factors: first, by a certain lack of communication between trade-technical educators in regard to their program activities, and second, by the lack of a point of reference upon which to base minimum standards for trade-technical teacher education.

It is hoped that the major contribution this study will make is to help emphasize the need for the establishment of a reference point that will enable measurement of the progress of trade-technical teacher education programs throughout the nation. It is suggested that this point could be established through identification and consensus of what are the more effective practices in trade-technical teacher education. These practices could then be set as the minimal parameter of acceptability. States whose trade-technical teacher education programs do not meet this parameter would be encouraged to advance to the agreed upon standard. States whose programs are developed beyond the minimal parameter of acceptability could be rated in degrees of innovation. Thus a more adequate system could be created for correlating similarities and differences between the states, and at the same time, standards could be established for the total improvement of trade-technical teacher education in the United States.

Summary

Upon the suggestion of The Center for Vocational and Technical Education of The Ohio State University, a limited study was initiated to attempt to identify innovative practices in trade-technical teacher education in the United States. A questionnaire was developed and mailed to trade-technical teacher educators conducting trade-technical teacher education programs in the fifty states, the District of Columbia, and Puerto Rico. Fifty individuals representing thirty-eight states, the District of Columbia, and Puerto Rico responded to the questionnaire. Eleven respondents indicated "Extensive" or "Revolutionary" change in their teacher education programs. Because of a lack of a reference point for establishing the degree that these changes exceeded the better trade-technical teacher education practices in the nation, it was difficult to determine the amount of true innovation these changes represented. Written statements from those responding to the questionnaire made clear in some measure how extensive these changes were.

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[3]Berlie J. Fallon, ed., Educational Innovation in the United States. Bloomington: Phi Delta Kappa Press, 1966. pp. 1-248.

It is strongly recommended that minimum parameters be established for trade-technical teacher education based on practices generally considered to be best. These parameters could assist in the improvement of weak programs and encourage development of many other programs beyond the established parameters.

IMPLICATIONS OF COMPUTERIZED INSTRUCTION

by

George L. Brandon*

I have some preliminary statements to make or at least some limitations, on this particular topic, "Implications of Computerized Instruction." At Dr. Cotrell's first approach to me in terms of a topic of participation, I denied everything. About a week ago, he called me up and caught me in a weak moment. Would I talk a little bit about computerized instruction? I said, "Yes, but I prefer to have the group really discuss it, particularly in terms of its implications." Frankly, there's hardly a day goes by when I don't wonder what the implications really may be, and I feel, selfishly, that perhaps you may share some of your ideas about it. Certainly at your institutions, you are around a computer of some sort. In fact, you may be around an installation that is doing something about computerized instruction. I set myself up neither as a computer scientist nor as a research specialist. I think that the problem, as I see it, is the joint administration of the project which we have in C. A. I.--computer assisted instruction. You will recall that the first term that was coined for this purpose was "computer-based instruction." Our staff has simply shortened it to C. A. I. If the biggest problem is the administration of the project (I don't mean to be pessimistic about it), I'm wondering, however, how we administer a team effort devoted to both research about C. A. I., and to one of our old pressing problems, namely curriculum construction. We must zero in on both problems. Out particular project is four years in length and grosses out at about $1,116,000. We do become concerned about the team effort of thirty to forty people working in this research, and frankly, I wonder how we can get our specialists in curriculum to work with the research designers, the educational psychologists, and the areas of specialization as it is in our staffing--for instance, a designer, a specialist in new media, a specialist in tests and measurements, a specialist in verbal learning or verbal communication. Some of these positions are not staffed now. In a sense, we are faced with an inter-disciplinary problem, and related to some of this morning's discussions, how do we work together? Sometimes I feel that the research side of the staff couldn't care less whether it is experimenting with a curriculum in T. and I., or science, or literature or anything else, as long as it is a curriculum; maybe it's my challenge to say, "Well, the basic nature of our research is learning in <u>technical education</u>. To what extent, if any is it distinctive?"

C. A. I. is simply one medium. If we work with it long enough, we risk some kind of enchantment, and before long we have its capability inflated to a quite unrealistic point. This fact means that we need to look at each medium to find out what its unique and real asset may be. Essentially, C. A. I., as I use the term at Penn State, is a tutor. Our final success, and I'm guessing on this, may be as we place this tutor in relationship to many other media. This fact does not simplify the problem. As I look back on some of our old study guides, I can see there may come a day when C. A. I. can be an implement in related self-study.

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To put all of our eggs in the C. A. I. basket is, of course, ridiculous. Let me emphasize again, look at C. A. I. as a tutor.

Again as we talked about some of our problems this morning, particularly with staying on top of our literature, I think that we have an equally staggering problem in staying on top of all of the new media. The number and nature of new media are building up into an enormous profit-making industry; C. A. I. is no exception to this. C. A. I. is also related to the discussion yesterday as we thought about a different delegation of labor and a ranking of instructional staff from a lower echelon of teacher aide to a top ranking professional or professor. A hierarchy of this nature can be related intimately to C. A. I. with team teaching and team research.

No doubt, the central problem bothering psychologists these days is the matter of individual differences. When Pressey and Skinner first advocated the use of teaching machines, there was a good deal said about the fact that these gadgets could go a long way in meeting individual differences. There seems to be considerable disagreement on this fact, and people who have been associated with C. A. I. over at least the first generation of computers are suggesting that we sharpen up our specifications about individual differences as they are related to the computer and the courses that go into it. These specifications become "idiomorphic," and include such things as personalities of students, aptitudes, test scores, the whole battery of evidence, experience, and make-up that you and I commonly consider individual differences in people. It's going to be quite a job for a computer to adjust courses and branch instruction to accommodate this whole range of individual differences. Finally, the point was very well made by Dwight Allen yesterday that our problem is one of teaching people to know what they don't know. The computer may help here.

Our problems can be put under three large headings: first, the so-called technical. Here we are dealing with the hardware--the electronic, the mechanics, configurations, the computer as a communication tool, refinements of it, types of them. As usual in education, we're lagging far behind the technical capability. You already suspect this in terms of our ability to detect if people are really learning. The lag is painfully obvious as one of our staff reports some preliminary results on the reactions of students to C. A. I. His report, almost a year old now, includes some of his concerns which no longer exist. The hardware has been developed to the point where these weaknesses are overcome simply by technical adjustment. There is a brief paragraph in his report that may illustrate my point:

> A profile of the mean ratings on twelve attitude scales was constructed for the total group and separately for each course. An examination of the high points on the profile on student attitudes toward C. A. I. indicates that students found the experience highly interesting, good, fair, valuable, and active and that the students reported being able to give the machine more attention than a traditional classroom lecture.

That students react favorably to a new and novel instructional technique such as C. A. I. is reassuring but not particularly surprising. The low points in the profile of student reactions may be of greater importance in pointing the way to improvement in the instructional system and toward new instructional strategies. The three lowest points in the profile indicated that the students reported being relatively tense as opposed to relaxed. They reported the program to be inflexible, and that they missed opportunities for discussion. These were three rather negative or low spots. Fifty-four of the sample reported being slightly tense during the first session of C. A. I. We have no decisive data at present to indicate that the reported tension had a positive or negative effect on student achievement and retention. It appears that some students are simply motivated to do well in the course while others get flustered by the machinery.

The technical development of C. A. I., then, far outstrips us. Our first variety of computer, I suppose the 1050, would not accept capital letters or punctuation. The student would put them in. The answer would come back "incorrect." "Try again." The capability is no longer missing; our modern computer now compensates for all this, edits the answers, does partial processing, so that technically many of these things have been corrected.

Our second problem is quite different--a semantic problem. A semantic problem--asking how precisely the transmitted signals convey the desired meanings--is concerned with the identity, or satisfactorily close approximation, of the interpretation of meaning by the receiver as compared with the intended meaning of the sender. For C. A. I., this is the problem of writing instructional programs. Writing programs is a troublesome spot. Most of us as college professors have difficulty in writing a C. A. I. course, largely for the reason that we cannot anticipate student questions and answers. I suppose that if we examine our traditional pattern of lecturing, perhaps as college professors we do not try to anticipate student reactions. Lack of this anticipation is fatal in C. A. I. Here again, the technical hardware can make many compensations, but, by and large, the computer is a stupid ox, and we will get back what we put in without any magic about it.

The third problem is one to which I briefly alluded in individual differences and the effectiveness of learning. We're talking now of creating a model--a student model after which we should pattern ourselves. Most of our problems we can put around this three-point complex.

It should be pointed out that C. A. I. is expensive. It has been pointed out repeatedly that the present costs of C. A. I. are prohibitive for all uses except research. One of our clues we can take from this fact. Current C. A. I. systems across the United States are concerned with more than "pure" research. Indeed, it is clearly implied that these systems are expected to be operable in the near future. To keep costs down, the suggestion is made that a computer could be used during normal

school hours for instruction for large numbers of students, counseling, and displays for teachers and administrators. At night, the same machine could perform routine processing of payrolls, attendance records, cost accounts, and other administrative duties.

More important obstacles than cost must be surmounted, however. One of these is the negative or insecure attitude of many teachers toward programmed instruction. You notice, I said programmed instruction, not necessarily C. A. I. Although it is almost a cliche that teachers will not be replaced by programmed instruction but that they will be elevated to having a motivating function, the teacher's point of view should be considered for a moment. We encountered interesting teacher attitudes in our efforts to install two of our terminals at Williamsport and two of our terminals at Altoona. It is interesting to watch teachers' attitudes as they back off or are enthusiastic as they think of this "monster" as being around the school for a while. Many feel a little insecure. Many are quite uncertain and don't know quite what to make of it. We do a lot of reassuring usually around the question, "What can C. A. I. do for you?" In a few months, we shall be placing trial students at the two terminals in each city. One city, Williamsport, in technical education is pretty well geared to the so-called industrial technician or what you and I call the vocational type or variety. This is quite the reverse in Altoona where the students largely are attending a Commonwealth Campus whose rationale is on the basis of the engineering technician. It will be interesting to observe these students and their encounters with C. A. I., their achievements, and teacher and student attitudes. That's our next step.

In terms of implications, think with me for a moment. Obviously, implications are many and important. Going back to what I think Merle Strong said yesterday, and bordering on the fact that we need some kind of action program that's characterized by crash, short-range, pretty-quick solutions, this is the appeal of C. A. I. to me. Undoubtedly, it has strong implications for crash effects and crash programs. The organization in most of our systems of teacher training in our field, which is linked up very closely between state agencies or state departments and institutions, suggests that it may be relatively easy to couple up entire state programs in a system of terminals and computers if we had the courses programmed. Thus, part-time teachers and full-time personnel could have ready access to C. A. I. We should think of it, however, not in terms of C. A. I.'s being sufficient to the complete instructional task. It will have to be backed up by materials, references, study guides, correspondence courses, and so on.

Obviously, it may have a similar application for direct teaching in the classroom, not considering here, teacher education. We're using our same hardware at Penn State for vocational guidance. This effort is not to simulate the guidance process, but it does try to profile some rather common jobs and student characteristics and achieve a match through the computer. Our guinea pigs here will be ninth and tenth graders who are initially exploring some jobs. Soon our typewriter terminals and random

access slide projections and tape recorders will be piped into a Penn State 360 computer instead of tele-processing as we do now between University Park and Yorktown Heights, New York. You can see that our technical problems are quickly overcome.

I remind myself, and yet technically I do not know enough about it, to suspect a strong implication for our old curriculum construction problem. I have to defer judgment on this implication to a technician who may know the hardware and capability better than I. Possible we could create a model or matrix to accommodate job analysis and curriculum content. The rapidity with which jobs are changing and the lag in our curriculum suggest that we need an agent similar to a computer.

C. A. I. is saying something to us, as the micro-teaching did to me yesterday, about our whole process of competency testing. We have few measurement specialists working with our C. A. I. up to this point, but the little discussion I have heard of C. A. I. as related to tests and measurements is very encouraging.

We should seek ways of involving our teachers as occupational specialists in C. A. I. course writing as we sometimes do in writing instructional materials. In our original research proposal, we had planned to do this--to bring in eight or ten shop teachers and train them in course writer language for course writing for C. A. I. This plan was shot down and eliminated as it was not acceptable to the funders; but in the terms of our making crash programs and haste in progress, I'm quite sure that we must use our own trade and occupational specialists.

Our big problem at the moment is staffing, and unfortunately, staffing of personnel with vocational and technical backgrounds. Many graduate assistantships and full-time continuing positions are available. I am concerned that if the curriculum research team members get fewer and weaker and their psychological teammates become more and specialized, we will be very unbalanced. This condition and problem is neither novel nor new--we need teamwork in all of our efforts and operations.

SUMMARY OF REMARKS CONCERNING
USE OF EDUCATIONAL TELEVISION FOR
TEACHER TRAINING IN NORTH CAROLINA

by
Durwin M. Hanson*

One of the problems common to most T. and I. teacher trainers is how to provide adequate teacher training courses for all personnel in the state. Although off-campus classes assist in reaching large numbers, there still remains a segment within a state whereby T. and I. teachers are unable to attend class due to the distances involved or problems of class scheduling. In an attempt to maximize the use of our faculty at North Carolina State University, it was decided to present one of our courses via the educational television network.

Several years ago, the North Carolina General Assembly authorized the establishment of a statewide educational television network with provisions to enable colleges and universities to offer college credit courses via this medium. At the time of planning to offer a course, it was anticipated that six stations would be in operation to afford adequate coverage of the state. However, a few weeks prior to telecasting, it was learned that only three stations would be available and that only one of these would be located in an area not currently covered by off-campus classes. Thus, it was planned to tape the telecasts and make the course available at a later date to the newly established stations.

The course, Education 100--Introduction to Industrial Education (2 semester hours credit), was presented during the spring semester, 1966. The instructors from the Industrial and Technical Education Department, N. C. State University, were Mr. Robert A. Mullen and Mr. Willis Parker. A topical outline is included in this report as a review of the areas presented. The total television series included twenty-four one-hour presentations, available on Tuesdays and Thursdays at 4:00 p.m. In addition to the telecasts, the students (T. and I. teachers) assembled on campus for two scheduled meetings during the course to discuss items concerning the material covered, review assignment papers (reports) which had been mailed to Mr. Parker, and to critique the television presentations. The final examination was given on campus at the close of the television presentation, and at this meeting, the students were required to give a final appraisal of the course as offered by television. A total of thirty-five instructors enrolled in the course for credit. An additional 252 people indicated that they viewed the program, and it was gratifying to know that the majority of this viewing group from industry had requested additional information concerning secondary and post-secondary vocational education in North Carolina.

In the evaluation of the course as presented over television, the students were impressed with the fact that Mr. Mullen and Mr. Parker included

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interviews, panels, and presentations by vocational leaders from the N. C. State Department of Public Instruction, such as: Mr. Bullard, State Director, Division of Vocational Education; Mr. Charles Bates, State T. and I. Supervisor and his staff; Dr. Ready, Director of the Department of Community Colleges and his staff; representation from the State Board of Education; and Mr. Oleson from the Vocational Curriculum Materials Laboratory. In addition to the State Department personnel, a number of industrialists, apprentices, and former vocational industrial education graduates were interviewed during the course to reinf ce the values of vocational education. As to the effectiveness of the television program compared to attending class, 52 percent of the group stated the ETV program was as effective as regular class attendance. The main criticism was that in many instances the speed of presentation did not permit sufficient time to take notes. Seventy-five percent reported that the visuals (charts, graphs, transparencies, etc.) were very effective and requested that additional use of visuals would greatly assist in providing time to take notes since copies of the visual material were sent to each student prior to telecasting the information. Additional favorable comments from students included the following:

> "convenience of having course 'at home' or 'at school'"
>
> "extreme value in seeing as well as hearing from State Vocational Education Director and others"
>
> "time of presentation and length of program did not interrupt school schedule"

The following comments were representative of unfavorable reaction to the ETV presentation:

> "Outside of contacts during the regular scheduled group meetings on campus, there was no opportunity for free exchange of ideas or discussion."
>
> "noisy and snowy TV reception in fringe areas"
>
> "novelty of ETV wore off"
>
> "need to develop new study habits regarding ETV courses"

In general, it was generally agreed that using authorities such as the State Vocational Education Director, State T. and I. Supervisor, etc., to discuss particular phases of the total N. C. vocational program, far outweighed the negative aspects of the television course.

Although it was originally thought that the ETV would maximize the efforts of our faculty, it was generally accepted that for each one-hour television presentation, on the average, eight hours of preparation were required. The (WUNC-TV) station prepared all the visuals and assisted in the preparation of the script which would greatly add to the instructor's

release time if he were to prepare his own visuals. In addition to the release time of Mr. Parker and Mr. Mullen, the only cost to the department was the purchase of tapes.

As to future plans, it is our intention to follow-up ED 100--Introduction to Industrial Education, with a credit course in History and Philosophy in Vocational and Technical Education, if the statewide television network develops to the stage whereby we may reach areas not now served by off-campus classes.

Topical Outline

I. Introduction

Preview of the course.

The need for education for work.

Definitions and vocabulary.

Education of Man for the World of Work

II. The relationship between man, education, and work.[12]

The problem.

The new technology.

The relationship between man and work.

The relationship between work and education.

The relationship between man and education.

Where we now stand.

III. The development of practical arts, vocational, and technical education.

The development of practical arts education.[3,9]

The development of vocational education.[12]

The development of technical education.[12]

IV. Vocational and technical education at the secondary level.

The total picture.[12]

The North Carolina program.[2]

V. Vocational and Technical Education at the Post-secondary level.

The total picture.[11c, 12]

The North Carolina program.[2]

VI. Other opportunities for occupational training.[12]

Continuing education in the public schools.

Higher education.

Business and industry.

Apprenticeship.

On-the-job training.

Proprietory schools.

Business schools.

Organized labor

The armed forces.

VII. Federal legislation aiding vocational education.[11b, 12]

The Smith-Hughes Act.

The George-Barden Act.

The National Defense Education Act.

The Area Redevelopment Act.

The Manpower Development and Training Act.

The Vocational Act of 1963.

Higher Education Facilities Act of 1963.

VIII. Administration of the Federally Aided Program.

Organization for vocational education.[11b]

Federal, State, and local relationships.[7, 11b]

State plans.[7, 10]

Supervision of instruction.[7, 10]

Teacher education.[7, 10]

Finance.[7, 10]

IX. Manpower needs, present and future.[12]

Population, the labor force, and mobility.

Manpower requirements.

Education and Manpower.

X. Major issues in vocational and technical education.

Education and social status.

Single purpose vs. comprehensive institutions.

Learning and education.

Higher education for the average student.

Occupational guidance, placement and follow-up.

Continuing occupational education.

Teachers for vocational and technical education.

Technology, planning, and leadership.

National policies and occupational education.

Competencies Needed to Educate Man for Work

XI. Types of competencies needed.

General understandings.

Personal qualities.

Teaching techniques.

Class organization and management.

Technical knowledge and instructor activities.

Physical condition of shop and laboratory.

Relationships.

XII. Development of the desired competencies.

Work experience.

College courses.

Supervised teaching experience.

Institutes, workshops, and company schools.

Personal self-study and improvement.

XIII. Summary: Review of the course.

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    a. "Summary Report"
    b. "Report of the Panel of Consultants"
    c. "Appendix I, Technical Training in the United States"

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THE DEVELOPMENT OF TRAINING LESSONS FOR PRE-SERVICE AND INITIAL IN-SERVICE VOCATIONAL TEACHER EDUCATION RECORDED AND PRESENTED THROUGH VIDEO TAPE AND TELEVISION WITH SEMINAR SESSIONS

by
Howard F. Nelson*

In making this presentation to you today, I have been asked by Dr. Cotrell to describe our television project for the pre- and in-service vocational teacher education program currently being conducted in Minnesota. I have, therefore, given you the complete title of the project since it was underwritten by Federal monies through the Special Grants portion of the Section 4(c) of the Vocational Education Act of 1963. For purposes of this presentation, I shall simply describe our project as the vocational teacher education program through the use of educational television.

Minnesota has nineteen Area Vocational Schools now in operation and approval has been given for six more new schools for a total of twenty-five. These area schools are strategically located throughout the State so that no person need travel more than thirty-five miles in order to attend them. As is also true in every other State, there has been a heavy demand for the expansion of vocational offerings in our State. Consequently, there has been a concurrent demand for the identification and training of sufficient new teachers to man these positions in the new schools and also cover the vacancies which normally occur through retirement.

Traditionally, the vocational schools of Minnesota have depended upon the recruiting of trade competent, highly skilled craftsmen and technicians from business and industry for their teaching staffs. When these people leave their work in business or industry to enter upon the new vocation of teaching in a vocational school, they are in immediate need of pre-service teacher preparation. In my State, these individuals may teach in the evening extension program after having been given a minimum of six clock hours of instruction. This amount of preparation will allow him to have a temporary certificate. However, if this teacher is to work in the all-day programs, he must have a minimum of one hundred and ninety-two clock hours of preparation.

While a teacher may begin teaching with the minimum of six clock hours mentioned earlier, an additional eighteen clock hours of instruction must be provided as quickly as possible for him. Thus, the initial training for first certification amounts to twenty-four clock hours. Responsibility for providing the eighteen additional clock hours of preparation rests with the Department of Industrial Education of the

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Dr. Nelson is Professor and Chairman, Department of Industrial Education, University of Minnesota.

Now, if we translate these circumstances into action as the number of area schools multiply in my state, you will immediately see that with the expansion of all programs and the addition of new schools, there is a very real need for the identification and preparation of new instructors. At the same time, those instructors who have obtained the initial twenty-four clock hours must be provided with further instruction until they have met the 192 clock hour requirement.

With this rather sketchy background of the over-all problem, it will become clear that we faced a situation in which the competencies of the teacher-training staff of the University had to be multiplied in some manner. The pilot program of this proposal being described was an attempt to use video tape recordings and television transmission as one device to provide pre-service and in-service teacher training instruction. The program was envisioned as one method of expanding the efficiency and effectiveness of the Industrial Education Department staff in order to meet the unprecedented demand for these services to the twenty-five area vocational schools.

A fairly careful review of the literature dealing with vocational teacher education research and development programs in progress does not reveal any on-going, state-wide use of modern mass media such as television to extend the services of teacher training simultaneously to all schools of a state. So far as we were able to learn, no attempt has been made to evaluate the possible benefits which might accrue from using centralized instruction as a supplement to the local teacher trainer.

And, before someone concludes prematurely that the twenty-four clock hours of instruction which I am describing today is a limited and narrow project, I must hasten to add that it is in fact part of a much broader project planned for the development, refinement and evaluation of alternative methods of providing effective teacher instruction to large and diversified groups of vocational teachers located at several area centers. If there were time, I would show a chart which illustrates the significance of this initial project in an over-all plan.

Ultimately, we expect to develop teaching guides and activity instruction sheets to cover the same content as the tapes. In addition, we expect to develop programmed instruction materials with a home study activity unit. Finally, we expect to run a comparative analysis and evaluation of the effectiveness and efficiency of learning and the relative costs of three-dimensional methods between (1) video tape and television transmission, (2) regular teacher educator presentation with activity instruction sheets, and (3) programmed instruction with home study activity.

Since the teacher educators from the University have for many years provided initial in-service, vocational teacher preparation in units of twenty-four clock hours, it seemed quite natural to adopt this same unit of time in developing the television tapes. Since the television station specified transmission time for each of the units at thirty minutes as the most appropriate exposure for this kind of presentation, we reached

the decision to develop twelve, half-hour lessons. These half-hour presentations, followed immediately with a ninety-minute seminar for the participants, seemed to be the best possible arrangement. Since all tapes were made in advance, this plan allowed the presenter to be present at one seminar gathering following his lesson. In the first running of the series, provisions were made to televise to four cities where seminars were also set up for the participants. Since the presenter could attend only one seminar, it became necessary for all presenters to cooperate in covering the seminars by serving as leaders.

The task of determining appropriate course content for the twelve half-hour lessons was of crucial importance for several reasons: (1) the first evaluation of video tapes and the final evaluation of this method against other instructional methods in later activities of the project made this very important; (2) the development of outlines and script by the teacher educators responsible for the tapes had to start from the same base; (3) plans for the seminar discussions were based upon the selected content; (4) the writing of programmed instructional materials in a later project could not be accomplished without carefully selected content as a foundation. In actual practice, the course content finally selected was validated by personnel from the Department of Industrial Education, the State Department - Vocational Division, and the Area School directors and coordinators.

Prior to the final adoption of units of instruction, considerable time was devoted to the identification of basic objectives for the entire series. These are always of utmost importance in the development of instructional materials and are considered worthy of restating here at this time. As a result of having participated in the television sessions, a student should:

1. Understand and be able to use vocational and educational terminology as needed by the beginning vocational or technical school instructor.

2. Develop initial appreciations of the power and efficiency of sound educational practices and principles with regard to vocational and technical school teaching.

3. Understand the place and nature of vocational and technical school programs in the total program of public education.

4. Know the basic elements of an instructional analysis and be able to make an analysis of work and technical information.

5. Understand the principles underlying organization of content for teaching.

6. Understand the first principles involved in selected vocational-technical school teaching methods.

7. Know the principles and procedures involved in making a daily lesson plan.

8. Understand the kinds and types of audio and visual instructional aids and their place in a teaching method.

9. Understand the techniques involved in making and using projected instructional aids.

10. Know the common kinds of instruction sheets and their uses in the teaching process.

11. Know the common types of tests used to measure cognitive learnings.

12. Understand the nature and type of evaluative instruments suitable for the measurement of skill and affective behavior.

13. Understand and be able to judge techniques for laboratory and classroom management.

14. Be able to plan a program of self-evaluation and self-improvement for vocational and technical school teaching as a career.

Having adopted the above basic objectives, the next step involved decisions concerning the instructional units themselves. This could not be done until each of the objectives had been fully and completely clarified by writing behavioral change statements or descriptions of expected growth in competency. Having done this, it became relatively easy to determine what the separate instructional units had to be in order to cover the objectives. Thus, the following twelve television lessons were adopted. For this presentation today, I am going to list them and name the staff member who was responsible for their preparation and presentation.

Unit 1	Teaching in Vocational-Technical Schools	Howard F. Nelson
Unit 2	Analyzing for Instruction	William A. Kavanaugh
Unit 3	Organizing Course Components	William A. Kavanaugh
Unit 4	Planning the Lesson	Jerome Moss, Jr.
Unit 5	Teaching for Understanding	Jerome Moss, Jr.
Unit 6	Teaching for Motor Skill Development	David J. Pucel
Unit 7	Teaching with Instructional Aids	Neville P. Pearson

Unit 8	Developing Instructional Aids	Neville P. Pearson
Unit 9	Evaluating Instructional Outcomes	Robert R. Randleman
Unit 10	Developing Evaluative Materials	Robert R. Randleman
Unit 11	Managing Teaching-Learning Facilities	Robert R. Randleman
Unit 12	Planning Your Teaching Career	Howard F. Nelson

Since I have brought along copies of two of the above units and will show them if time permits, I shall not go into detail for any one. For the most part, the titles themselves seem quite self-explanatory, especially for anyone who has been involved in vocational teacher preparation.

In conjunction with each of the instructional units, the presenters developed a twenty-item, multiple choice test covering the content of the lesson. At the same time, materials were put together for the seminar discussion leader to use even though he was provisioned with copies of the television presentation. Each presenter also developed an outline parallel to his script which specified the subtitles to his main unit. These were in terms of what the student will understand, what he will be able to do, and descriptions of the ways in which the student will behave, act or change in attitudes or appreciations.

Upon completion of the first run of the television presentations, the video tapes were made into sixteen millimeter sound films so that any one or all of the twelve could be used in any of the Area schools as needed. If the series were to prove truly helpful, the project manager felt that the series on film had to be made available to qualified persons in the local school situation for use as needed with new instructors.

Now before showing the two video tapes which I have brought with me, may I make some broad observations of this technique for use in initial teacher education. All of the school directors were most enthusiastic about the series and were anxious to get copies of the films for their own schools.

Among the eighty students who participated in the series at the four centers used for the initial broadcast purposes, the student motivation was extremely high -- even despite poor transmission in one or two cases and in view of the poor broadcast time of 5:30 to 6:00 p.m. Attendance at the seminars held at nearly one hundred percent for the twelve sessions, and this, in spite of Minnesota winters, was most gratifying.

In a more specific manner, I wish to list for you some of the advantages and disadvantages as these were observed during and after the television series.

Advantages:

1. The television programs served as an excellent recruiting device and if they had no other value, the series brought out some excellent people about whom we might otherwise have never learned.

2. The use of television in this instance seemed to have an unusually strong motivating element to it. If requests for a repeat of the series are any indication, there are a great many more well qualified people who would want to be participants.

3. The use of television in this manner makes it possible for key people among the teacher educators to make an impact on the participants.

4. Obviously, the video presentations served to multiply the efforts of specialists among the teacher educators.

5. Through the use of television, it would become possible to reach the isolated person or the small group located in the rural areas of the state. This is an important consideration when taken within the framework of the University's responsibility for vocational teacher education in Minnesota.

6. Video tapes, and now the sound films, appeal to the local directors of schools who must provide the initial six clock hours of preparation or provide it otherwise. The series has been developed into a kit form which can be used by qualified persons.

Disadvantages:

1. There were several instances when interference or other malfunction resulted in poor reception in one or two centers.

2. When using regular television, these materials must be shown when the station schedule permits. One cannot select the "most desirable" hour for the broadcast since what we might want usually turned out to be "prime time" wanted by everyone.

3. While the initial showing went only to four centers, if the training were to be projected state-wide, there would be a heavy demand for well prepared seminar leaders. Under no conditions could this charge be carried by University staff since educational television covers over 80 percent of the state.

4. As most of the presenters would agree, there is great need for expert video performers to handle the separate lessons.

5. For anyone who has been on television as a performer, the lack of inter-action and reactions from students raises serious questions about its use in teacher education.

In conclusion, I have raised several important questions about which we need more information. When the staff of Industrial Education has completed a thorough evaluation and study of the television work against other kinds of teacher education plans, we may be in a better position to decide that this has been a profitable experience for all concerned. At the same time, we may conclude that what we have done is simply one more way of conducting this work and should be part of the total package of best ways and means of handling this work. Time and research will tell.

In the meantime, the films and all supporting materials necessary to the conduct of the series are in the possession of the Vocational Division of the State Department of Education. Their office is located in the Centennial Building, St. Paul, where interested persons may obtain information about obtaining copies of these materials. We understand that complete copies will be made available for use throughout Minnesota and I would assume that there will also be additional copies made. In any event, if there is anything of interest which I can provide to those of you in attendance at this seminar, I hope that you will let me know. I will do my best to assist you.

THE CONTEMPORARY TRADE-TECHNICAL TEACHER EDUCATION PROGRAM IN CALIFORNIA

by

David Allen[1]

Introduction

Among the many varied programs for trade-technical teacher preparation developed in several states, the successful pattern emerging in California is one that compares favorably with other innovated teacher education programs in the nation. The continued success of trade-technical education in California is dependent upon obtaining and developing competent trade-technical teachers. This is a task that involves careful selection of appropriate educational experiences for new teachers, as well as a continual in-service program to maintain the subject matter and teaching proficiency for those who have been teaching for a number of years. The teacher education program in California has kept pace with the phenomenal growth of trade-technical education programs within the public schools of the state and has at the same time been in the vanguard in providing teacher education programs to meet new requirements for teachers. Continual research conducted in methods for improving the trade-technical teacher education program is concerned with the on-going program. Research is also directed toward making probes into the future to make certain that the trade-technical programs of instruction are kept current with occupational needs.

Certification Standards

To make clear the trade-technical teacher education program in California, a brief description of the requirements for teacher certification is necessary. An individual may become a full-time teacher in California by one of three methods. But regardless of which of these he uses to enter teaching, he must have a combined total of seven years of occupational preparation and experience. Three of the years must have been in the advanced aspects of his occupation. One of the years of work experience must have occurred within the three years just preceding the date the teaching credential is issued. The three ways that may be used are: 1) possession of an engineering degree or registration as a professional engineer in the State of California, plus three years of engineering work experience; 2) possession of a baccalaureate degree, plus three years of work experience consonant with the major, industrial chemistry or nursing, for instance; or 3) occupational preparation such as trade schools, apprenticeship, or equivalent training, plus a minimum of three years of advanced occupational experience. The individual who will teach on a part-time basis has a choice of four ways in which to satisfy teacher certification requirements. Three of them are the same as those a full-time teacher must fulfill. The fourth

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method of becoming a part-time teacher is the accumulation of five years' work experience, one year of which must have occurred within the three years just preceding issuance of the credential.

Professional teacher preparation will be discussed later in the paper. However, to qualify for eventual certification, it should be noted that the full-time teacher must have completed twenty-two units beyond those required to earn an Associate in Arts degree; the part-time instructor must have completed sixty clock-hours of teacher training. Both of these types of teachers may begin teaching before initiating their professional preparation course work. The full-time teacher must complete twelve units every two years, and the part-time teacher must complete the sixty-hour teacher training program during the first year he teaches. When the teacher has completed his professional preparation requirements, he is issued a credential for life.

Teacher Profile

A profile of beginning trade-technical teachers shows them to have a median work experience of eleven years and to be at a median age of thirty-nine. However, the mode for their work experience is eight years and for their age, thirty-two years. Thirty-nine percent of those entering trade-technical teacher education hold at least a Bachelor's degree, and of these, 10 percent hold higher degrees. An additional 7 percent hold AA degrees. Under the new credentialling regulations, the AA degree is one of the teacher preparation requirements. Statistics indicate that over 80 percent of those who lack a baccalaureate degree when they become teachers, subsequently enroll in a program leading toward this degree. In addition, 38 percent of those receiving their initial trade-technical credential already hold some other teaching credential.

Although more than 50 percent of those first entering trade-technical teaching lack formal college education, their maturity and experience aid them in obtaining higher degrees within a relatively short period of time. Hence, their high degree of subject-matter proficiency, their years of learning through practical experience, and their intense desire for self-improvement make up for their initial lack in formal college education. The result is a group of teachers equal to the best in the teaching profession.

Design of the Program

The primary objective of the trade-technical teacher education program in California is development of the technical instructor and promotion of the growth of the vocational educator. During the past five years, the program has continually undergone revision so that current developments applicable to trade-technical teacher education could be utilized. This effort has resulted in a program that is not a static but rather a dynamic program that makes use of team teaching, varying group activities, and constant evaluation. No textbook exists for this class; because of its dynamic nature, new instructional media for the

class is constantly being developed for the instruction. The result is an ever evolving workbook. The program is designed to encourage teaching specialists, master teachers, and other supporting staff to make enriching contributions to the instruction.

The Model

To describe the concepts underlying the trade-technical teacher education program, a model has been developed. The model may be described as three vector forces pressing down on a plane opposed by a resultant vector force balancing the plane from the opposite side. This concept is shown in Figure 1.

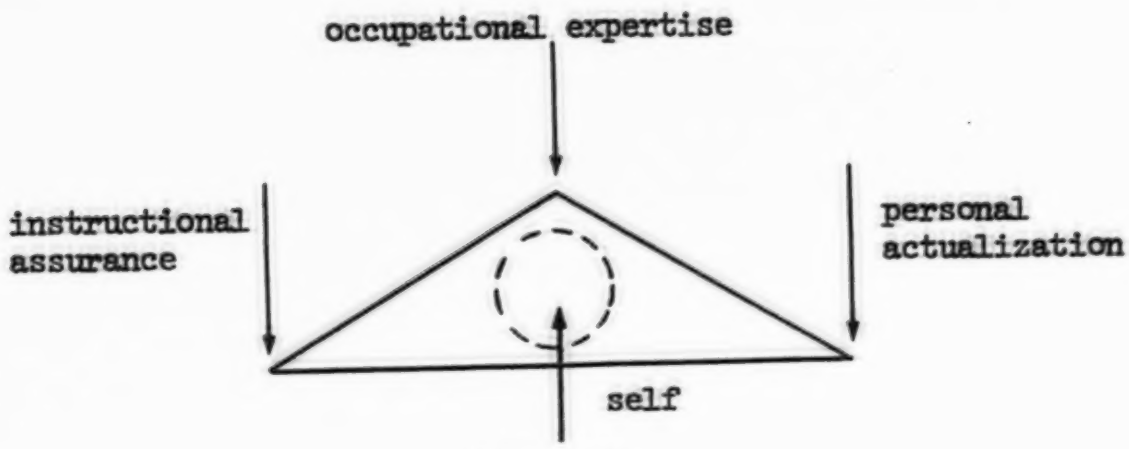

Figure 1

The vector forces that push down on the plane are identified as "occupational expertise," "instructional assurance," and "personal actualization." The resultant vector is the "self," those things which the instructor as an individual brings into the total interaction of these forces. It should be noted that a circle drawn on the plane indicates the parameter within which the resultant force may vary to balance the opposing three forces. This parameter identifies the acceptable instructor characteristics that are developed through practice. These acceptable characteristics vary from school district to school district and from instructor to instructor; however, the parameter indicates limits within which these variants may occur and still fall within acceptable limits. Each individual entering trade-technical teacher education possesses these vector forces in varying degrees. The teacher education program is designed to then provide an opportunity for realization of the full potential of the four forces and still maintain the resultant push within acceptable limits. It should be pointed out that these forces are not increased in magnitude and direction equally, they increase continually for as long as the resultant opposing force can balance these forces within the prescribed limits.

The force of occupational expertise is the occupational proficiency that the individual preparing to become a teacher brings with him from

industry. This force has a minimum acceptable magnitude and direction when the teacher is first selected and recruited. As the teacher progresses through his life as a teacher, this force is continually strengthened by in-service workshops, work experience programs, seminars, and institutes.

This force is the initial determination in the statewide testing program that maintains a standard for subject-matter proficiency. The tests assure that teachers entering trade-technical teaching have occupational competency and are professionally trained in the subject which they will teach. This testing program consists of both written and performance examinations. In hiring new teachers, many school administrators rely to a great extent on the results of these tests.

The force of instructional assurance is concerned with the degree to which the teacher can guarantee that learning is taking place in his classroom and the conscientious effort he makes to continually improve the learning situation. It includes his communication of his instruction, his sensitivity to how well the students are learning, his establishment of a feedback system to the students, his evaluation of his instruction, his maintenance of the instructional occupational environment, and his ability to make his instruction concurrent with the occupation for which his students are preparing to work. Because the force of instructional assurance may be very weak in the beginning, it is this area where much of teacher education focuses its initial attention.

The force of personal actualization, according to English and English, represents "the processes of developing one's capacities and talents, of understanding and accepting oneself, of harmonizing or integrating one's motives. . ."[2] Teachers are encouraged to achieve personal actualization in many ways. During their experiences in the teacher education program, they develop skills for self-evaluation and are encouraged to develop their own programs for professional growth. Through legislative action, trade-technical teachers in California may earn college units for work experience and for personal accomplishments. These units assist them greatly in obtaining a baccalaureate degree. Such experiences help them achieve their goals, their needs, and their interests, thus further assisting them in continuing to achieve full professional development as teachers. The resultant force is the "self," the counterbalance that the individual brings into this entire configuration of the model.

Program Dynamics

Continuous action research is utilized to create a dynamic trade-technical teacher education program that is current with the evolving trade-technical education in California. As the teacher education program is analyzed and areas needing improvement are identified, various

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[2]Horace B. English and Ava C. English, A Comprehensive Dictionary of Psychological and Psychoanalytical Terms. New York: Longmans, Green and Company, Inc., 1958. P. 485.

solutions are attempted and evaluated. Results of these evaluations are brought to a teacher education program advisory committee that reviews the activities and makes suggestions for further improvement. This committee meets for a number of days at a time so that they can give adequate study to the problems. Additional research is conducted through experimental programs in various junior colleges in the state so that innovations may be brought into the program. For example, an experimental program now in operation utilizes slide photographs taken of a teacher in the classroom at thirty second intervals and an audio tape recording made of the instruction at the same time. When the instructor has completed his presentation, he is given the opportunity of reviewing his efforts. Similar experiments have been conducted with video tape recorders. These types of activities are evaluated and, when found appropriate, are integrated into the teacher education programs.

Program Operation

Except for the elective courses, all other courses use the team teaching technique. A team teacher cannot work as an individual, as can the teacher who instructs a class by himself. He must work as part of a unit so that he can successfully relate his instruction to the material the other members of the team present. He must be present during an entire period of instruction being taught by the team so that he will be able to integrate his instruction with the joint presentations. Unlike many teacher education programs in which an instructor is brought from the outside to teach one or several classes and is left to determine his own instructional content, team teachers attend planning meetings prior to teaching their assignments, meetings at which they discuss in detail what they will teach and ways in which to best present their instruction.

The instructional material is multi-media. It includes workbooks, notes, instructional sheets, audio tapes, and programmed books. No textbook is used with the course, which thus necessitates the continual development of instructional materials designed to meet the ever changing program requirements. Closed circuit T.V. and video tapes are used, and technical subject specialists are brought into the programs to make presentations when their specialities are needed.

Evaluation of the programs is made by the teacher educators, who make their own critiques of each teaching session. They also review the student critiques at the end of each course. In addition, discussion is held with supervisors in various districts to see how well the teacher education program has prepared the teachers on their staffs. Levels of expectancy are being developed so that at varying points throughout the teacher education program, measurable behavioral changes that should occur within the teachers enrolled in the teacher education program can be measured.

Anatomy of the Program

The full-time teacher preparation program may be divided into three parts. These parts are: 1) supervised teaching; 2) a two-summer,

contiguous, spiralled subject program; and 3) elective courses specifically designed to aid in further development of the trade-technical teacher.

Supervised Teaching

The supervised teaching classes are designed for those already teaching. The course provides for individual differences by dividing the class into three groups. Placement within each group is determined through past teacher education and teaching experiences. By this arrangement, specific assignments may be made to each of the groups so that teachers with varying backgrounds may all benefit from the course. Those teachers who have had a portion of the summer session program and no teaching experience are placed in one group; those who have taught and have had summer session preparation are placed in a second group; and those teachers who have no teaching experience and no summer session courses are placed in a third group.

Activities provided for each of the groups are designed to best meet each group's requirements. The teachers are visited in their classrooms, and they in turn are required to visit master teachers and make objective observation reports of the master teachers' performances. Each group has workbooks from which assignments are made. The members attend organized meetings planned to increase their teaching ability. Special meetings are held at locations away from the teachers' daily environments, for example, at the University of California Lake Arrowhead Conference Center. These meetings provide instruction in ways to eliminate communication barriers and increase sensitivity to others. In addition, on assigned days, subject groups and special problem groups meet with master teachers. The teachers taking the course teach before video tape cameras and review their performances through critiques provided by the teacher educators.

Summer Session

The summer session programs for the preparation of trade-technical teachers consist of twenty-four sessions spaced over a two-summer period. Twelve sessions are conducted the first summer and twelve the second. The program is so designed that subject content and activities are introduced and spiralled throughout the program to give a continuity and to emphasize the development of effective trade-technical teachers. Considerable emphasis is given to small group interaction and individual performance throughout the entire summer session program. Group sessions vary in size from groups of 180 persons, intermediate groups of thirty, and small groups of twelve or six. As many as thirty-two modern air-conditioned rooms are in use for one class at the same time. The instruction in the summer session classes is designed so that those enrolled experience learning from both a student's and teacher's point of view. The enrollees take tests and discuss the results. They also review test scores of fellow enrollees. They perform tasks such as presenting a one-hour practice lesson and are critiqued; then they critique the presentation

of another enrollee who performs a similar task. They are taught to think on an analysis level so that they can analyze what they will teach. They do this by developing measurable teaching objectives and by identifying pertinent instructional activities that provide for student feedback and thus identify learning. This activity leads to development of instructional packages that contain concise statements of material that will be presented and activities that will provide feedback to the teacher. In addition, these packages contain instructional materials for both the student and the teacher. Through the use of examination analysis sheets, the summer session enrollees develop skills that ensure they test on what they taught and at the same time, develop questions that discriminate between the good and poor students.

Many other activities are included in the summer session program. Those enrolled learn how to prepare programmed instruction. They develop skills for maintaining currency of their instructional programs with the occupation for which they are preparing the student. They also develop an overall understanding of and philosophy for vocational education.

Electives

Ten units of elective work required by the credential regulations are mapped out cooperatively by the teacher education office, the school administrator responsible for supervising the teacher, and the individual teacher. The teacher educators identify areas in which teachers may need help. These areas are designated as technical subject content, oral and written communications, professional preparation, and professional education courses. A letter sent to the school administrator indicates the areas in which it appears the teacher needs assistance. The administrator then makes his recommendations and the teacher educator selects a tentative program for the trade-technical teacher. Through discussion with the teacher, a final program aimed at the full development of the trade-technical teacher is established.

Enrollment in these courses may be at the state colleges, the universities of the state, or through university extension. The courses are not offered through the trade-technical teacher education offices.

In-Service Programs

Continuous in-service programs keep instructors abreast of the rapid technological changes in their occupations. These workshop programs vary in length from one day to an entire summer. Various combinations have been employed in the operation of the workshops, from work experience to lectures. Through the in-service program, instructors are provided not only with information and experiences in the technical portions of their subject, but also with experiences leading to the updating of their instruction. Workshops have been offered for teachers in such varied fields as automatic controls, auto mechanics, carpentry, cosmetology, dental assisting, electricity, electronics, lathing, and numerical control.

Plans for the Future

Those working in a dynamic trade-technical teacher education program must adhere to the old adage that says, "Nothing ventured, nothing gained." An ever evolving program is characterized by continual planning and by evaluation of results.

With the advent of newly appropriated federal financial support for vocational education, new programs are being provided in public schools at an increasing rate. New teachers, supervisors, and administrators are being required to staff the new programs. Methods of accommodating larger groups of beginning teachers are continually being studied and evaluated. Greater emphasis is being placed on the preparation of supervisory and administrative staff. Cooperative efforts are being studied to help new supervisors lead their new teachers in improving their instruction and maintaining their currency with occupations and skills.

Plans for the future indicate a program operating in select geographic areas throughout the state under the control of the trade-technical teacher educators at the university. These satellite programs will utilize home study assignments incorporating film strips, workbooks, and programmed instruction. There will be planned discussion sessions where the learning from the home study efforts will be tested and further amplified. These discussion sessions will introduce and develop other pertinent teacher education learnings. In addition, teachers will present three one-hour lessons in their own classrooms at which time, closely sequenced slides of their activities will be made. The method used for the slide presentations will be an improved version of the experiment now going on at a selected junior college. There will also be combined total group meetings at the university.

A program for the development of supervisors for trade-technical education is also evolving. This program will use both formal instruction and internship assignments for field work experience. An experimental program is now in operation and is being tested to see how well formal instruction and field work experiences can best be coordinated. Those participating in this program are involved with instructional supervision and activities related to maintaining currency of their curriculum with occupational needs. They are required to use existing information gathered from the occupational community in which is located the school at which they are serving their internships. It is planned that the activities experienced in this program will facilitate the transition from classroom teaching to effective supervision with relative ease.

These are some of the plans for the future. However, these plans are subject to change as we continue to develop our trade-technical teacher education program in California. It is through a continual effort toward excellence in trade-technical teacher education that an ever adaptable program must be directed.

A PROPOSAL FOR PRE-SERVICE TRAINING FOR TEACHERS OF VOCATIONAL INDUSTRIAL AND TECHNICAL EDUCATION

by
L. C. McDowell*

The only aspect of agreement among the states on teacher education for vocational industrial teachers is disagreement. This can be considered confusion to the extent that the problem is understood--if confusion doesn't exist in this matter, the problem is not understood. Search is continuous for ways of obtaining teachers of trade and technical subjects who will achieve the highest degree of success in occupational teaching. Some states require pre-service training before their teachers are permitted to teach--others do not. Some require, at least, a high school diploma--some do not. Work experience requirements probably would vary from one to ten years.

Apparently, the problem that confronts all states is the staffing of shops and laboratories with teachers who possess, what seem to be, incompatible qualifications--that is, people who have occupational competency and, at the same time, have academic respectability coupled with professional preparation. In most states, it's a rare teacher who is a journeyman machinist, a college graduate, and a professionally trained teacher.

To obtain teachers for the thousands who now await the services of vocational education, compromises are made that will enable the <u>most likely</u> successful individual to step into the teaching position. It is these compromises that bring about the myriad of qualifications which the various states require for teacher certification. It is a very likely truth that no state is satisfied with its requirements for vocational industrial education teachers.

Kentucky has attacked this mounting problem of staffing through sheer necessity. As in most periods of dire circumstances, unorthodox decisions are made in an effort to solve immediate problems. The problem with which this state is immediately faced is the staffing of twenty new area schools (extension centers from its current system of area schools) and expansion of ten of its thirteen present area schools. This $17,500,000 expansion program will require an additional 300-350 teachers within the next two years. While this may not seem an extremely large increase in some states, for the Bluegrass State, the need has caused no little concern. The need is not only for <u>more</u> teachers but <u>effective</u> teachers.

Foreseeing this need, vocational education administrators in the Commonwealth appointed a committee to study the problem and make recommendations which it believed would not only help solve the forthcoming problem but upgrade those presently teaching. The committee, consisting of persons from an area vocational school, teacher education, Division of Teacher

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Certification in the State Department of Education, and a dean from a state university spent many hours in producing what it considered to be a glimmer of light. Another working committee was appointed to enlarge upon the general idea which originated in the first committee.

The working committee was composed of representatives of four of the state universities, a director of an area vocational school, and a trade and industrial teacher educator. This group brought forth a proposal that would provide an associate degree and a baccalaureate degree in vocational industrial education. Specifically, answers to three problems were being sought.

1. How can a person who has a limited degree of occupational competency best be prepared for teaching?

2. What practical method can be used to upgrade present teachers in both academic and technical areas?

3. How can an individual with no occupational competency best be prepared for teaching?

The first two questions were to be answered by an associate degree program while the third question would necessitate a baccalaureate program.

Surely there is nothing unique about degree programs in vocational industrial education. However, such programs for industrial arts departments are probably not carried on in too many states. Maybe a more valid statement would be that they will be headed by people who qualify as T. and I. teacher educators in industrial arts teacher education institutions which use certain industrial arts courses that are applicable to the needs of T. and I. teachers. Practical work experience, as a requisite for successful T. and I. teaching, has not been overlooked in the plan.

It is probable that the proposed training program would encounter too many difficulties to be successful in some states. Certain requisites must be present if success is to be achieved. Some of these necessary conditions would be: harmony between persons in industrial arts and vocational industrial education; mutual understanding of the objectives and philosophy of vocational education; adequate facilities in the industrial arts teacher training institution; a strong teaching staff in the industrial arts programs; a qualified T. and I. teacher educator assigned to the program who will be responsible for coordination of the program with various industries and who will be involved in the teaching of professional teacher education courses; and freedom for this individual to carry out the duties for which he is responsible. Certainly, the administrative personnel at the industrial arts teacher education institutions must be receptive to providing such programs.

Vocational education administrators in Kentucky firmly believe that the use of certain aspects of industrial arts teacher education programs

will produce a good T. and I. teacher--one who has a potentiality for growth, not only for teaching, but for supervision and administration. Persons in positions of vocational education leadership must consider the long-run effects of its teacher education programs as well as provide for immediate teaching needs. The plan which Kentucky is proposing to launch will do much to meet these more remote requirements.

The Associate Degree Program.--Persons who will be admitted to this curriculum will be those who have already achieved a degree of occupational competence in the occupation which they propose to teach. They may be graduates of two-year post-high school vocational programs; veterans who have technical training and experience in the armed forces; or they may have acquired occupational competence through practical work experience. In any event, they will not be beginners in their proposed teaching major.

The curriculum consists of the following courses:

Course	Semester Hours
English and/or Communication	6
Science and/or Mathematics	8
Social Science and/or Humanities	6
Psychology	3
Professional Industrial Education (including student teaching) 4 semester hours, Student Teaching 3 semester hours, Methods in Industrial Education 2 semester hours, Principles of Trade and Industrial Teaching 2 semester hours, Occupational Analysis 2 semester hours, Instructional Materials	13
Technical Education (9 hours maximum permitted through proficiency examination)	18
Electives with approval of advisor (3 hours may be given for supervised work experience	10
Total	64

A graduate of the associate degree program must have a minimum of three years of approved occupational experience in the occupation which he plans to teach (present certification requirements in Kentucky) or a minimum of 1400 clock hours of planned and supervised occupational

experience in the occupation which he plans to teach. This experience (completed during summer months or by some other prearranged schedule) will be coordinated by the approved T. and I. teacher educator located in the industrial arts teacher education institution.

Student teaching will be done in the student's chosen occupation and will be performed in one of the state's approved area vocational schools under an approved cooperating shop teacher. The supervising teacher from the university in which the student teacher is enrolled will be a qualified vocational industrial teacher educator and will teach the professional methods course (or courses) in industrial education.

The Baccalaureate Degree Program.--For the person who has no occupational competency, a four-year degree program is being undertaken. This curriculum will consist of the same kinds of courses as those included in the associate degree program except for the fact that, being more in number, the student would get greater depth.

The forty-eight semester hour block in the area which he plans to teach would not be a proliferation of courses but would be in work pointed directly at his occupational competency needs. The possibility exists that the student may enroll in technical courses outside his institution in order to satisfy part of this requirement.

The baccalaureate curriculum would consist of the following courses:

Course	Semester Hours
English and/or Communications	12
Science and/or Mathematics	12
Social Science	12
Psychology (General Psychology--3) (Industrial Psychology--3)	6
Professional-Industrial Education (including 8 hours student teaching) Methods in Industrial Education Principles of Trade and Industrial Teaching Trade and Job Analysis Instructional Materials	18
Technical-Industrial Education (laboratory courses in the area in which the individual proposes to teach) (18 semester hours maximum may be allowed by proficiency examination; 6 semester hours maximum may be allowed for supervised work experience)	48

Course	Semester Hours
Health and Physical Education	3
Humanities	6
Elective	11
Total	128

A graduate of this curriculum will be required to have a minimum of 2000 hours of planned and coordinated practical work experience in the occupation which he plans to teach. This requirement will be satisfied by work during the summer months (between regular semesters) and the summer following completion of the student's course work.

As in the associate degree curriculum, student teaching (consisting of eight semester hours and included in the professional education block) will be done in the occupation which the individual plans to teach, in an approved state area vocational school, and under an approved cooperating shop teacher. Likewise, the supervising teacher from the university in which the student teacher is enrolled will be a qualified vocational industrial teacher educator and will teach the professional methods course (or courses) in industrial education.

For the person who has received the associate degree in this area and then wishes to complete requirements for the baccalaureate degree, he may do so by applying his associate degree hours to his baccalaureate requirements. Thus, it is hoped that the baccalaureate degree program will not appear so formidable once the associate degree has been attained.

The committee which has proposed this plan for pre-service teacher education foresees many problems that will need answers before the plan can achieve its optimum fulfillment. However, the problems are not insurmountable. There must be coordination among the four regional universities that will be implementing the plan and current teacher education activities being carried on at the University of Kentucky; there should be similar content in professional teacher education courses; occupational proficiency examinations will need to be provided for giving credit for certain courses; a planned program of teacher recruitment will need to be inaugurated; contacts will need to be established with various industrial concerns for practical work experience for enrollees in the program, etc.

In helping the committee make its decisions relative to the plausibility of using aspects of industrial arts teacher education, a survey was made of existing vocational education personnel in the Commonwealth. It was found that of those holding degrees, 38 percent were industrial arts degrees; seven of the thirteen area vocational school directors were graduates in industrial arts, as were three of the four T. and I. teacher educators, two of the assistant state supervisors in industrial vocational education, and the State Supervisor of Trade and Industrial Education.

It was concluded that if there were any success or merit in vocational industrial education in Kentucky, then surely some of it can be traced to some facets of industrial arts. It must be added, however, that all of these people had trade experience. (It is very likely that industrial arts backgrounds are characteristic of the backgrounds of many persons in vocational education in the various states.)

Kentucky will continue to recruit teachers from industry as well as continue its traditional program of teacher education for these people. To discard this practice would be folly as many excellent teachers have been developed through this method. Additionally, for many trade teachers (chefs, cosmetologists, watch makers, business and office machine repairmen, etc.), the new plan for pre-service teacher education would probably never be feasible.

In the near future, all teachers in the state will need to make satisfactory scores on occupational proficiency examinations (informational and performance) before certification is granted. If it can be shown that teachers of various occupations may receive training through institutional means that will enable them to attain occupational competency as shown by valid examination, it is felt that a great step will be made in dispelling the traditional debate of how much trade experience is required before an individual is considered qualified, occupationally.

The enactment of this proposal should do much to upgrade present teaching staffs, both in academic and technical competencies. Many of those currently teaching have completed their requirements in professional teacher education courses (24 semester hours) and hesitate to continue in other study. The associate degree (as well as the baccalaureate degree) would allow credit for this work already completed as well as make it possible for the individual to be given credit for a portion of the technical course requirements. These allowances should permit the present teacher to readily see that the attainment of an associate degree is not a possibility so remote as to be impossible. In addition to academic and technical upgrading, which should result in teaching efficiency, he would receive a feeling of academic respectability which, very likely, some may not possess.

There is an awareness that many problems will arise which are not now seen. However, most plans will succeed when those involved want them to succeed, and the desire for success for the plan just presented is such that little doubt remains as to its ultimate outcome.

THE UNIVERSITY OF TENNESSEE
VOCATIONAL-TECHNICAL
INDUSTRIAL
TEACHER TRAINING INSTITUTE

by
Joe L. Reed*

The Project

In an effort to meet the demand for an increasing number of up-to-date industrial vocational technical teachers, the University of Tennessee proposed to join hands with industry in a joint use of educational and industrial facilities to meet this need.

Joint Sponsorship

The Institute is a summer program undertaken jointly by the University of Tennessee, Oak Ridge Associated Universities, and the Oak Ridge Y-12 Plant. The University of Tennessee is the official state university and federal land-grant institution of the State of Tennessee. The University's Industrial Education Department of the College of Education has been designated by the Tennessee State Department of Education and approved as the teacher training institution for industrial-vocational education. For many years this institution has conducted educational programs leading to bachelor's and master's degrees in industrial education.

Oak Ridge Associated Universities (ORAU) is a nonprofit corporation of forty southern universities engaged in widely diversified programs relating to education, training, and research. Major programs have been conducted under contract with the U.S. Atomic Energy Commission, National Aeronautics and Space Administration, National Science Foundation, National Institutes of Health, and the U.S. Department of Labor. ORAU will coordinate the experimentation and research activities associated with the Industrial Teacher Training Institute.

The Oak Ridge Y-12 Plant is a government-owned facility operated by Union Carbide Corporation, Nuclear Division, and has approximately 4400 employees. Y-12, one of the largest and most versatile of the U.S. Atomic Energy Commission's facilities, carries out production and development programs vital to the nation's nuclear energy and space programs. Y-12 will provide the physical facilities and instruction for the technical content for the industrial teacher training institute.

Location

The main campus of the University of Tennessee is located in Knoxville, approximate population 200,000. Airline, bus, and railroad

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services in addition to highways connect Knoxville to all points of the South. Oak Ridge, population about 30,000, is located twenty miles from Knoxville, and is easily accessible to the University campus.

Y-12 Facilities

The Y-12 Plant is located on a 500-acre tract near the center of the Oak Ridge area. The plant has in operation over 1000 machine tools located in various shops. Many shops provide humidity and temperature controls, while others also meet exacting cleanliness standards.

Staff

UT will furnish administrative, teaching, and guidance personnel for the teacher-education courses as well as joint supervision for all college credit courses. The Y-12 Plant will provide an experienced training staff composed of engineers, scientists, industrial supervisors, and skilled craftsmen for the shop, laboratory, and related technology courses.

Admission Requirements

Instructors and prospective instructors in technical institutes, junior colleges, and area vocational technical schools, including those teaching apprentice and trade extension classes, as well as high school instructors of industrial vocational subjects, will be considered for admission.

These instructors must be presently certified or eligible for certification in their technical field upon completion of this summer program. The applicant will be recommended by the State Supervisor of the technical area in which he is to teach.

This is an Equal Educational Opportunity Program. It is open to all qualified persons without regard to race, creed, color, or national origin.

Application and Registration

Registration and all courses will be provided at Oak Ridge. Tuition and fees will be waived for all enrollees.

Applications will be distributed to teachers through the various Vocational Divisions of the State Departments of Education with a request that they recommend at least six instructors with two each from each of the three areas in which training is to be given.

The ten participating states in the project are Kentucky, West Virginia, Virginia, North and South Carolina, Florida, Georgia, Alabama, Mississippi and Tennessee.

A screening committee composed of representatives from the State Department of Education of Tennessee, The University of Tennessee, ORAU and Y-12 Plant of Union Carbide Corporation, Nuclear Division, will screen the applicants.

Selected instructors will be notified by telegram with a request that they respond by return wire.

UT Courses and Credit

Teachers who satisfactorily complete this summer program will be eligible for 12 quarter hours of college graduate or undergraduate credit which are transferable through the courses that have been scheduled for this project.

The program will encompass three occupational areas:

1. Mechanical Technology and Drafting--including machine and tool design, physical testing, and part programming.

2. Industrial Electronics Technology and Maintenance--including instruments, numerical control, calibration, and printed circuits.

3. Machine Shop and Fabrication--including machining, inspection, numerical control, welding and maintenance.

During the school day, each enrollee will spend two hours in methodology courses, one hour in seminar, and three and one-half hours in shop and related courses in theory and technology. In addition, one period for independent study will be provided.

Financial Assistance

Each enrolled participant will be paid a subsistance allowance of $75 per week. Consideration also will be given to an additional allowance for dependents.

Housing

A large number of furnished and unfurnished apartments, dormitories, rooms and houses are available in Oak Ridge. Apartment rentals range from less than $50 per month upward, depending upon individual preference.

Extra-Curricular Activities

East Tennessee is noted for its many beautiful lakes, rivers, and mountains. Fishing, boating, and swimming are favorite pastimes. The Great Smoky Mountains National Park, sixty miles from Oak Ridge, offers excellent opportunities for camping, hiking, or picnicking. Golf

courses, tennis courts, ball fields, bowling lanes, library facilities, and Oak Ridge's large municipal swimming pool provide ample opportunities for varied recreational activities.

Scope of The Program

The teacher training experimental demonstration will be conducted in three cycles. The first cycle will be summer vocational-technical industrial teacher training institute, July 27 - August 26, 1966. Sixty teachers will participate in this institute.

The second cycle will be conducted during the 1966-67 and 1967-68 school years for thirty prospective vocational-technical instructors who will be given technical trade training at the Oak Ridge Y-12 Plant as well as regular general education and teacher training on the campus.

The plan is to select individuals with sufficient industrial and educational backgrounds that will enable them to complete a bachelor's or master's degree in two years and at the same time acquire enough additional trade training in the Y-12 Plant to meet vocational certification requirements for teaching.

The third cycle of the program consists of a second summer industrial institute for one hundred certified instructors from ten southeastern states. They will be selected for training in areas where vocational-technical instructors are needed most.

Unique Features of The Program

This program is innovative and unique in many ways, in that it combines the use of facilities and personnel of industry and education in teacher training. At the same time it embodies some of the basic philosophy of vocational industrial education that has served as guides down through the years of its growth and existence.

It contains bona fide up-to-date technical trade training in an industrial atmosphere on the latest types of equipment and materials. At the same time it contains contemporary methodology for teaching. It will provide opportunity for updating in both teaching content and teaching techniques.

Probably the most unique feature of the project is that the University of Tennessee, which is one of the leading universities of the nation, recognizes the urgent need for vocational-technical teachers and is willing to conduct a program and give graduate and undergraduate credit for all phases of the program in the training of these teachers.

It is planned and hoped that this experimental research demonstration project will develop into a permanent program for the training of much needed teachers in all types of industrial vocational-technical education.

TRADE AND INDUSTRIAL TEACHER EDUCATION IN OHIO

by
Robert M. Reese*

It is evident that the committee wishes to become acquainted with the various types of teacher training used today in the various states. I would like at this time to explain Ohio's program. First, however, I would like to present a brief history of what was found when I returned to Ohio as State Supervisor of Trade and Industrial Education in 1945.

Ohio had been using a system dependent upon six required courses which had been in existence since 1918. These were: 1) trade analysis; 2) course outline writing; 3) instruction sheet writing; 4) shop organization and management; 5) conference method of teaching; and 6) tests and measurements.

I have become satisfied in my own mind that when these six courses were originally organized, they could be offered in proper sequence to the large numbers of teachers who were coming out of industry. Teacher educators had an important task to perform, and no doubt they could provide a reasonable program for the beginning teacher by means of these courses. I shall never forget, however, as long as I live, walking into a situation in which one of our teacher trainers was meeting with a class composed of teachers ranging from first year beginners to those with eight years or more of teaching experience. The majority of the teachers in this center needed the course, "tests and measurements," or number six, so we found two new instructors, one in machine trades and one in welding, sitting in that room listening to a lecture on tests and measurements. It so happened that on this particular evening the presentation was on standard deviation. These new teachers had absolutely no idea of what was going on. Neither did the class. But the element that really caused me to hit the ceiling was that the teacher educator used data from a series of English tests to show them how to compute standard deviation. This was one of the situations when we first felt a change was needed in the teacher training plan.

The second activity which strengthened this decision occurred when the Assistant State Supervisor and I took time to visit every program in the state. Among others, the two key questions asked of every teacher in the state of Ohio was, "What did you get out of your teacher training?" It was extremely embarrassing, especially if one were to add up the funds that Ohio had spent over the years for teacher education, not to have at least one teacher say, "I took it because it would improve my teaching ability." Every teacher stated he took teacher training because certification required it. It is easy to understand this because they were taking courses that weren't appropriate to the individual needs of the teacher.

To make a long story short, we immediately brought our teacher training staff together to discuss the problem. One of our teacher educators was asked to take on the task of analyzing a vocational teacher's job,

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both the shop and the related instruction.

After a series of meetings with our teacher training staff, it was determined that we needed the help of our cooperating college deans if any proposed change could be implemented. Therefore, the deans of the three cooperating colleges which were providing teacher training at that time were brought together. The nature of the average Trade and Industrial teacher and the problem of developing skillful teachers from occupationally competent mature individuals was presented, and we asked their help in developing a practical yet effective teacher education program. Our task was very specific, namely to develop teachers who could prepare students to become employable and able to advance in their chosen occupations. Interestingly enough, these deans proposed almost the same program we have had since 1947. The end result of all this effort was that we changed almost completely from collegiate courses to study units and in-service teacher training. We subdivided the usual course content into units which could be assigned the teacher on the basis of his individual need. The next question was how could we give college credit for this type of teacher training work. It was found, however, that since the college deans helped develop the plan, they were willing to be flexible in terms of college credit for work completed.

The only justification that exists for teacher education service is its ability to improve the quality of instruction in trade and industrial programs, and to prepare, through pre-service and in-service training, effective teachers. We have found that the problems of a beginning teacher are not limited to the content of any one particular organized course, but they may involve content from several. Thus, if one had a number of five, ten, or fifteen hour units covering specific problems, it would help him work with the teacher in terms of his particular weaknesses and teach him how to handle a particular teaching situation. As teacher educators, we should be able to help the teacher with the problems he has at any particular time.

You can observe, therefore, that the next step was to bring our teacher education staff together again, report the results of the deans' conference, and plan for implementing a new approach to teacher education. The entire staff went to work, first to develop the details of the overall plan, and second to prepare the instructional materials in unit or study guide form.

Ohio has a program of temporary certification which really means a trial period for both the school and the teacher. When a tradesman comes in, we want to see if he really likes teaching and if he can teach. Local school authorities do their best to carefully select good personnel, then start them off the first year with a temporary vocational certificate. Each new teacher then attends a one-week, pre-service workshop before his school starts. This is a basic orientation program concerned mainly with how to: a) plan and teach a lesson; b) use the four step method of teaching; c) get and hold student interest; and d) manage classrooms and shops. In addition to the pre-service workshop, our teacher educators work with

each teacher one half-day every two weeks on an in-service program. The year's activity credits the teacher with fifty clock-hours which will renew his temporary certificate. This plan is used for four years or a total of 200 clock-hours. At this point, the teacher receives a four-year provisional certificate which in Ohio is similar to that received by any other teacher with a degree. To move from the four-year provisional certificate to an eight year professional certificate requires eighteen additional semester hours--half of it in vocational education and half of it outside. We hope that each teacher may obtain enough college credit hours so that he will be encouraged to work on a degree. All of our universities also provide credit for occupational proficiency.

This explains how our certification pattern works and has worked since 1947 with very few adjustments. We have had a great deal of favorable comment from administrators, principals, and from teachers on our present system. I suppose we still have a few teachers who say, "I take teacher training for certification." But gentlemen, there is not one teacher who hesitates to call his teacher educator if he has a question because he feels he can depend on help from his relationship with a master teacher--his teacher educator.

Within the first two years of in-service work, teacher trainees' time is divided between observation, conference, and assignment. After the first two years, due to the expansion in the number of teachers, we have had to alternate between the individualized approach (observation, conference, and assignment) and the seminar approach on a monthly basis. In this plan, teachers travel to a central location where a seminar on teaching problems and techniques are held. All of the technical and practical nurse teachers are handled on the seminar approach. Most of these come to us with some professional background which may range from two years of college to Masters' degrees, and even in some cases, Ph.D. degrees. These teachers must take teacher training, but only for two years.

In previous years, we might have up to twenty new teachers a year. Four years ago, for example, we had about 400 full-time vocational teachers. Now we have 715. Next year we may have as many as 200 more, so you can see the teacher training problem that exists.

We have one more useful item in which you may be interested, that was developed to help plan each teacher's program. It is called the Vocational Instruction Analysis Chart and is used at the end of each school year. The teacher trainer, the teacher, and his immediate superior, whether it be high school principal or local supervisor, take time to review the teacher's strengths and weaknesses by using the items on this analysis chart.

For 1966 we have developed a new teacher education three-ring notebook so that each beginning teacher can keep his teacher education work organized and available for use by the teacher educator, at least until he obtains his four-year certificate.

That's the Ohio story. We are confident that the evidence supports the fact that this system helps the occupationally competent person become a successful teacher. We hold to the philosophy that the responsibility for each teacher's advancement is the responsibility of the local supervisor. Some of them accept the responsibility--some do not. Regardless of whether or not the local supervisor accepts his responsibility, the task of the teacher education program is to develop each person with whom we work into the best possible teacher.

PART IV

PROJECTIONS

PROJECTIONS FOR TRADE AND INDUSTRIAL TEACHER EDUCATION

by
Melvin L. Barlow*

Thinking about the future has always held a fascination for man. He is intrigued with the opportunity to imagine what things will be like in the years ahead. He wants to know so he can plan and be ready for the challenges and rewards held in trust for his arrival on that distant date. The future portends a better day. The drive to look into the future must be related somewhat to the drive to see what is on the other side of the hill--it is part and parcel of man's adventurous nature.

We have had the future out in front of us for a long time. The hours, days, months, and years roll by now much as they always have--but it is different somehow. There is an air of acceleration around us. We are a mite uncomfortable in the new pace. A truth discovered at sunrise may be discredited by nightfall. A five-year plan needs revision in six months. We are reminded continuously of the new dimensions in our everyday life from science and technology. It was about thirty years ago that my physics professor wrote some equations on the board and told us how man could escape the earth's gravitational effect and sail off into space. He made a flat statement that during his lifetime someone would go to the moon. We listened sceptically, but it looks as if his prediction will come true.

Some predictions have not fared so well. The world did not turn out to be flat; the automobile did replace the horse; and Bishop Wright, who claimed that man could never fly, had trouble in his own household. His sons, Orville and Wilber, put little stock in their father's prediction.

So, now, trade and industrial teacher educators want to look into the future and make some predictions. Why? Probably there is an element of that irresistible force of adventure, but it is quite possible that they see also a golden opportunity to junk a few white elephants. What better excuse could one have than to be driven by the panic of technology and the pressure of change, to walk away from a tiresome, dreary routine, and into a new day. This is our opportunity to make our own mistakes, which is a much greater challenge than living with the mistakes of others. But probably most important it is simply inventory time again. The items that sold well will be reordered but with a ribbon tied on as an extra. We will provide room for a little expansion. We will set some items in reserve--now and then a customer really wants an oil lamp--and some of the general merchandise will be swept up and tossed out.

In order to be reasonably safe in our projections we must line up the milestones of the past with an assessment of the present. Through these points we draw a straight line. At some future point we could determine where we would be on this straight line projection. But we must add an "ignorance factor" and move our projected point above the

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straight line because the tempo of the times dictates that our progress is non-linear.

The Past Is Prologue

The vocational education movement is based on a foundation of teacher education. It was intended to be the "quality control" for vocational education. The idea that the program could be no better than its teachers was a fundamental motivating force during the formative years of the vocational education movement. Because of the special work experience requirements upon trade and industrial teachers, it was believed that ordinary teacher education procedures (the Normal School in this case) was not satisfactory, and that special preparation was required. Committees of the National Society for the Promotion of Industrial Education studied the problem of teacher education thoroughly during the years 1912-13. They gave attention to standards, certification, and examinations. The Society's Bulletin No. 19, (1914) established the framework for teacher education and was the strong influence in establishing trade and industrial teacher education in the states after the Smith-Hughes Act was passed.

The task was to establish unity in the matter of teacher education but without control. During the early years, the Federal Board for Vocational Education stressed repeatedly that: (1) the trade teacher must know his trade; (2) he must know how to teach; and (3) the states should not consider the problem of teacher education lightly. Because there were no strict detailed item-by-item, hour-by-hour, directions, we developed 48 different approaches to teacher education. This was perfectly acceptable because it protected the right of the states to be different, which is a fundamental American democratic ideal. The NSPIE and the Federal Board were concerned only that the states didn't adopt some "wild scheme" that did not actually train the teachers.

By and large the early teacher education programs consisted of some kind of (1) craft or trade analysis, (2) methods of teaching, (3) class management, (4) theory and history of vocational education, and (5) supplemental subjects. Some states managed as much as 200 clock hours of instruction conducted during the summer, or spread out over a school year, or both. Innovations popped up all over--the work of James McKinney in Illinois, J. C. Spofford in New Jersey, the Regents of the State of New York, and others. The idea of using occupational tests in trade and industrial teacher selection developed in the spring of 1919.

Bulletins issued by the Federal Board and by the NSPIE (NSVE, 1918-1924; AVA after 1925), brought ideas to the states about the content and direction of teacher education. A few national conferences were held to promote interest and concern for teacher education and to exchange ideas about method and content. There was no question whatsoever but that the Federal Board desired a "super teacher" of many talents.

Before leaving this brief look into the past, it may be valuable for us to recall the attitudes of NSPIE (NSPIE, Bulletin 19, 1914, pp. 23-24) about the topic of "Who is going to teach the teachers?" This was a matter of great concern to the early leaders. As you read the following quotation remember that it was written more than a half-century ago and that we are today thinking about the problem of "projections into the future."

> The leader for the teacher's training class should be a man who brings to the work more than a knowledge of general psychology and the established teaching methods of traditional schools. He should have first hand and thoroughgoing knowledge of the social, economic, industrial and educational problems of the industrial and trade school; he should be thoroughly familiar with its methods of organization and administration and with its teaching practice. A fair measure of the special equipment which such a leader must have in order to conduct successfully such a training course for prospective teachers would be his ability to serve as an acceptable leader in the practical discussion of their problems before a training class for the teachers of an industrial or trade school already in service. A glance at the suggested contents of the course of training which is later recommended as indicative of the kind of preparation for teaching which the student qualifying for service in industrial and trade schools must have, will show at once that the requirements for the leader of the training class as outlined above are certainly none too great and probably entirely too meagre.
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> No one can successfully induct others into experience he has never had himself. It is obvious that only those who have themselves served as teachers or directors of such schools would be able to measure up to the standard. The few rare leaders of this kind who are available for training purposes are not sufficient to meet the present need and demand rapidly coming upon us. This will make it necessary to employ, to a considerable extent at least, as such leaders, those who have added to all other necessary qualifications for the task, an intimate familiarity, through close contact with the practice and the problems of the schools for which they undertake to prepare teachers.

There could be no question about the importance of selecting the right kind of teacher educator--the "cut of his jib" was designed from the beginning.

Contemporary Issues and Trends

That trade and industrial teacher educators must be influenced by contemporary environment is obvious. That the contemporary environment is expanding and changing at the same time forces the teacher educator

into becoming much better acquainted with the nature of this expanding, changing environment. The ability of the teacher educator to adapt to conditions is directly related to his understanding of them. Let's identify some of the factors which projections must take into account.

Labor Force

By 1975 our population of 195 million people will increase to 226 million. Presumably we will need to keep our customary 42 percent of the population at work in order to provide the goods and services required. This means that our labor force will increase from about 78 million now to roughly 94 million in 1975. Obviously the increase will not be uniform in all occupations, and employment of certain age groups will increase more rapidly than others.

Education will be an even more important factor as a determinant of employment. As Grant Venn suggests--education stands squarely between man and his job. Unemployment will continue to fall heaviest upon those with the least education. The motto suggested for the next decade for youth of "Stay in School," appears to be sound.

Details of labor force projections are identified in the publications of the Bureau of Labor Statistics, U. S. Department of Labor, and are likely to continue to represent source data for teacher educators. One thing for certain--work is not going out of style. The recent scare concerning automation is no longer the ominous monster it appeared to be. We can return to our previous pattern of living with it--as in truth we have been doing since man invented the wheel. But there is no doubt about the impact of automation on the labor force; it cannot be ignored.

Economic Growth

Economic growth is comparatively recent in origin. It was only about 200 years ago that the average man began to live above the bare subsistence level. Even more recently we have discovered what a great difference a small change in the rate of economic growth can make. Closing the gap between our actual GNP and our potential GNP has become an item of national policy. Maintaining a high utilization of capacity makes it possible to devote a larger percentage of our GNP into investment, which in time produces capital--the primary ingredient by which technology is translated into production. Because of the recent concern of economists, we have developed much better means of statistical measurements of our growth rate.

The largest single factor to account for our past growth in labor productivity (according to recent studies) is the increased educational level of the labor force. Continuing to improve the educational level of the labor force is essential for economic growth. This accounts in part for the recent support and leadership given to education by the Federal Government.

Sociological Concerns

We are well aware that trade and industrial education has many dimensions--it is a social process, for the purpose of serving a social function. In order to understand the social process involving trade and industrial education we need to know about the nature of the social function it performs. More specifically our concerns are directed toward the role of the teacher in relationship to these social functions.

Sociological data concerning trade and industrial teachers evidently does not exist. A few theses and dissertations have touched the problem tangentially; but, by and large, the "state of the art" appears to be near zero.

Assessment of the situation of sociology and trade and industrial teacher education in the contemporary scene is that this issue has been largely ignored both by the sociologist and the teacher educator. What values might accrue from such studies is purely speculative. However, it does seem reasonable that the social posture of the teacher is important enough to warrant an extensive review. The teacher's efforts bear directly upon the standard of living of a family unit--this in turn has sociological and economic dimensions.

The Educational Mind

The "educational mind" of America has had a permissive attitude about vocational education rather than a wholehearted endorsement. Why this should be true is difficult to understand, particularly in view of the contemporary emphasis upon the role of education in the social and economic development of the nation. The evidence is clear that the people of America are demanding a new role for vocational education.

Let me digress for a moment and report some views that suggest the need for some sweeping changes in educational thought. When the vocational education bill was being discussed in the House of Representatives, Congressman Silvio O. Conte (Massachusetts) spoke about his experience (Congressional Record, 1963, p. 13481) as a student in vocational education classes and cited that this experience was essential to his future success. In the debate in the Senate we see many other examples of broad-gauge views citing intrinsic values in vocational education. Senator Morse (Oregon), Senator Ribicoff (Connecticut), and Senator Clark (Pennsylvania), were quite pointed in their remarks (Congressional Record, 1963, pp. 17842, 17843, 17850) about the values to be obtained from vocational education. We could turn to other sources for additional supporting evidence of the attitude of members of the public at large.

An educational revolution is in the making--well, reorganization and adjustment, at least--in which trade and industrial education emerges in its larger educational significance. This can happen, however, only when the "educational mind" becomes concerned with competencies that are actually achieved rather than with years,

semesters, or units of confinement to the study of a particular subject. We know--and this may be largely a feeling rather than a conclusion based on objective evidence--that many trade and industrial classes can teach a great deal of the mathematics, science, social relationships, and other subject matter values needed by the vast majority of the population. It is also a fact, however, that trade and industrial education has done little to provide the evidence that the essence of many of the subject matter values are inherently a part of trade and industrial education. I have long held to the point of view that vocational education can make many of the common learnings of education valuable in the educational experience of many students, but we have been blocked by two forces--(1) the prevailing educational mind, and (2) our own initiative in moving aggressively in this direction.

There Are More Issues

Mindful that many other issues and problems can be shown to be representative of the contemporary scene, we can let the case rest on these four examples. However, two related points deserve attention.

First, a vast amount of research has been conducted on the learning process and the nature of teaching. This resource should not go unnoticed in projections into the future. Much of the research will need adaptation to trade and industrial teacher education, particularly if the research was carried on in another area of education. The principles, however, ought not to change.

Second, in order for trade and industrial teacher educators to reach new achievements in the dynamic future, it is essential that they become more fully aware of the heritage of industrial education--not the factual data alone, but the rationale behind the idea. Teacher educators must become students of the principles of industrial education before they can establish solid foundation materials for the members of their classes.

The Future

It is traditional in predicting the future to point out that the conclusions are based on at least two assumptions: first, that the economy will continue to grow; second, that we will be free from major social upsets. If a war or an economic depression occurs, all bets are off. I don't know why this logical point of view needs to be brought into the discussion, but this much of tradition is safe, at least. Now let's turn our attention to the teacher of trade and industrial education classes.

Occupational Experience for Teachers

It will be a long time before we give up the concept of "occupational experience" as a prime ingredient in the background of trade and industrial teachers. This is a foundation principle of trade and

industrial education, and I believe that the idea behind the principle is sound and enduring. Our methods of interpreting the principle will change, and change radically, but the principle itself will be retained.

From the very beginning of trade and industrial education, the ideal teacher has been cast in the role of a master craftsman. Prosser's idea of the master craftsman exceeded by far the achievement of skillful manipulation of tools, equipment, and materials. Prosser's ideal teacher had the ability to adjust to changing environment. He was a self-starter, and he became a lifelong student of the art of teaching. He had "a reach beyond his grasp." He was inventive and creative, and he was well aware of his social obligations to the world of work. These criteria will fit any age.

Our craftsman-teacher of the future will of necessity be a much better scientist than his predecessors. In this there is no choice--we are merely adjusting to the environment, and the environment is definitely scientifically oriented. This point of view does not represent change in the sense that we have abandoned earlier principles. All we are doing is maintaining a relationship to contemporary requirements, but this relationship is never static. Rousseau wanted Emile to become a carpenter, not just an ordinary carpenter but to reach what Rousseau called "the state of a carpenter." I imagine Rousseau had in mind performance which was a "cut above" that which was ordinarily satisfactory. Let us leave this point temporarily and return later; there are unresolved issues that must be faced.

Educational Achievement of Teachers

In 1917 we were quite content with educational achievement at the eighth grade level for trade and industrial teachers. Natural progression has moved the level upward to high school graduation and beyond as a minimum. It is obvious that our trade and industrial teacher of the future will of necessity be required to reach high pre-service educational levels. College degrees for trade teachers? This question no longer has a place in the doubtful area. However, in my own experience, I have been chastised severely by a trade school principal (who had completed an MA degree) for encouraging one of his teachers to continue his work at the college level. The principal held the view that a college degree would ruin the trade teacher. The time is rapidly approaching when differences in educational achievement of trade and industrial teachers, as compared with teachers in general, will be nonexistent. The sooner that time arrives the better. Writers have appraised the present situation as a race between education and catastrophe, and with some feeling that catastrophe has a leading edge. This fits our situation like a hand in a glove--failure on our part to recognize the imperative necessity of boosting educational levels can result in a very difficult situation if not catastrophe.

Finding a Tenable View--Occupational Experience and Educational Achievement

At this point I have cited as imperative in the future a teacher who

. is a master craftsman
. is a scientist
. has an educational achievement parallel with other teachers.

Now, how can we meet the challenge?

The idea is to hang on to the gains we have made and not lose anything in the transition period. To do this requires skillful analysis, imaginative planning, and a creative environment.

As a general rule, we have searched for a potential teacher when we have some assurance that one is needed. We go to the job and find the master craftsman. In California we make him prove his craftsmanship by a performance examination and his understanding of the theoretical side of his occupation by a written examination. Representatives of labor and management assist in the process. But we do this only when teacher needs are present.

Our task in the future is to plan ahead and have available for assignment to trade and industrial instruction a person who matches rather well the ideals previously cited. Let me illustrate this point by reference to only one means of achieving this goal. Obviously there are others.

One of my colleagues has advanced the idea that the "outstanding apprentice" graduate is a prime candidate for trade and industrial teaching. We have largely ignored this suggestion over the years because when we open the office each morning we have a line of people waiting to become teachers.

My colleague points out that some of these outstanding apprentice graduates also receive their AA degrees from the junior college at the same time they are advanced to journeyman status. Why not get a line on them now, put them on the roll as future teachers, follow their progress on the job, urge them to continue their education? At some appropriate place along the line involve them in the "teacher training" requirements for certification. Before you know it you have on hand people who meet the ideal conditions, and they are ready to go to work as teachers.

The point I am making is that it is possible to select teachers, to plan ahead (raise the teacher from a pup, so to speak) and thereby improve the general quality of teachers in trade and industrial education. I am firmly convinced that this is a teacher educator's responsibility and that it is an essential element in the future.

Professional Teacher Training

The National Society for the Promotion of Industrial Education set guide lines for teacher training so that by 1917 states had a pattern to adopt in response to the requirement of the Smith-Hughes Act. The program was sterotyped, mechanical, and routine but better by a long shot than no plan at all. Over the years some focus has been given to improvements and change. Eighteen years ago about twenty teacher educators met in Washington, D.C., to reconsider our progress and to make a revolutionary plan. We exchanged syllabi. Each proved the merits of his own plan, and we came out of the encounter with a highly organized series of packages of material "every teacher needs to know." I am sure this was an improvement. I doubt its value today, and it would be insane to think it had value in the future--the plan ignored completely the "primacy of the person" in teacher education. Trade and Industrial Teacher Educators could profit by an occasional reading of: Keller, F. J., Principles of Vocational Education, Boston: D. C. Heath and Company, 1948. The theme of the book is "the primacy of the person."

Our highly organized content-oriented teacher training program has tended to change--and must change in the future--to a process-oriented program of teacher education. (Note the sophistication, teacher training to teacher education.) The content isn't very important actually. How the teacher educator uses the content with the prospective teacher is important. Teachers in training must become "active participants" rather than "passive learners." The program of teacher education of the future, involving team teaching, programmed learning, large and small group processes, must be directed toward motivation of teachers. The extent to which we can be successful depends entirely upon the creative imagination of teacher educators.

The idea is entirely in keeping with the concepts of flexibility inherent in the evolving program of vocational education. I am positive that the content-oriented program of the past has no place in the future--its values are definitely suspect.

Built into the future we must have a system of sharing of ideas about process in teacher education. Annually--at least bi-annually--national and/or regional meetings of teacher educators must be organized in order that teacher educators may describe and demonstrate the processes they have used. This is the crucible for the generation of new ideas. This is the source of professional growth for teacher educators. The future demands that it not be considered lightly.

(Note: A related problem exists that cannot be delineated in detail here, but it can be acknowledged. Some states, because of size of program alone, will not in the immediate future be able to develop a full-scale professional program of teacher education. They should have an opportunity to share in the teacher education resources of states that do have fully developed programs of teacher education. There is no excuse in the future

that can condone poorly prepared teachers any place. Financial resources of the Vocational Education Act of 1963 can be devoted to this problem. The problem can be solved, and it is urgent.)

Part-Time Teachers

Potential growth of the part-time program of trade and industrial education can reach proportions that stagger our imagination. The combined effects of automation, need for retraining, necessity of upgrading and updating, and the emerging patterns of lifelong learning related to occupations, will produce significant increases in the enrollment in the area of the trade-industrial-technical extension program. This means more teachers.

The assumption generally made that this group of teachers has been largely ignored in teacher education does have some foundation. The facts in the case are neither well known nor readily available. Hence, the contemporary status of teacher education for part-time instructors cannot be treated objectively. Nevertheless the future portends that this area be removed from its uncertainty and treated on a professional basis. The idea that occupational competency does not in itself predict teacher competency is evidently sound. However, like the proposals for the future of teacher education for full-time teachers, the part-time teacher education program must be strongly process oriented.

The old idea of assigning the responsibilities of teacher education for part-time teachers to a local coordinator, supervisor, or director, has had its day. Such evidence as I have seen across the nation of the value of teacher education conducted under this arrangement has not led me to believe that it was a howling success. I still believe that supervision is related to improvement of instruction, but I believe that the pre-service phase of teacher education for part-time teachers is the proper province of teacher educators and this will loom large in the future as part of the professional obligation of teacher educators.

The In-Service Teacher Education Problem

We have been successful in ignoring the problem of in-service teacher education but it won't go away. It is a demanding issue in the contemporary scene, an imperative issue in the future.

The problem has two dimensions: (1) knowledge-skill upgrading and updating; and (2) professional upgrading in instructional matters. I doubt that the relationship is 50-50, probably more like 75-25; certainly the evidence suggests an emphasis on the first part.

In the past we have left the matter of keeping up with his occupation entirely up to the teacher. Some pressure was exerted to get him "to return to the trade" for a summer once in three to five years. Many teachers performed this task voluntarily as a means of supplementing teacher salary. Contemporary and future projections suggest that this

casual approach is not satisfactory and that some positive action is necessary. I believe that planning, organizing, conducting, and reporting this phase of in-service training is a responsibility of teacher education. Programs such as "cosmetology workshop," "numerical control of machine tools seminar," and similar programs can cater to the technical needs of specific groups of teachers. Programs should tend to be short-unit affairs conducted throughout the year. All programs should be planned with the aid of a representative committee of instructors for whom the program is intended. Preparation should be complete with all kinds of resource material available for the particular subject.

Some part of each program should be devoted to the professional instructional aspects. "How can we teach this new technical content?" is representative of the questions answered in the professional instructional phase.

It is imperative that teacher educators begin immediately to assess the need for such programs in each state. Potentially, every occupational area represented should be provided for. Obviously some occupational areas will have so few instructors that a special program would not be feasible. This brings into view the necessity of regional and national programs. Special workshops or seminars for instructors of "Inhalation Technology" would need to be national in scope. Whereas programs for electronics instructors could assume state or regional dimensions. Knowledge generated, conclusions reached, recommendations made at these meetings should be reported to every teacher of the subject in the United States, and copies lodged with central depositories. Cooperative planning on a national basis should generate a series of in-service programs throughout the United States--some national, some regional, and many state-wide or regional within a state.

This problem is far too complex to work out in detail in this paper. However, in-service teacher education is unquestionably of major proportions in the projections in the future.

Research in Teacher Education

Vocational education has been research-starved for fifty years. The problem is no better in trade and industrial teacher education and is perhaps even more critical. We can almost close our eyes, move in any direction and still be on target as far as research needs are concerned. Independent, uncoordinated research activity in teacher education will compound the chaos long before it will provide significant information of universal value. The need of the future is a program of teacher education research planned so that in total it advances knowledge in areas of significant need. Our research needs occur throughout the entire continuum of research from the immediately useful information to that which cannot be pegged in a time sequence in relation to its practical need.

Some part of the teacher education activity in every institution having responsibility for trade and industrial teacher education must be devoted to research in teacher education in 1966-67 and in the following years. The secret of success is centralized coordination so that we have different projects under study rather than multiple projects on the same topic. Inherent in the process of conducting research in teacher education is the necessity to produce trade and industrial educators who are competent to plan and conduct significant research projects. Although the research responsibility has doctoral and post-doctoral implications, such goals should be only incidental to the task of understanding the teacher and his environment so that teacher educators can become increasingly effective in their relationships with prospective teachers.

Three Issues--Four Responsibilities

A critical review of the projections will cause one to raise a question about the adequacy of the projections in terms of new frontiers and dynamic change. The projections do not show a dramatic burst into a new environment. In no way have the projections been cast into a future role that breaks completely with the past. My justification is based on the conviction that we have developed many facets of teacher education over the years that are sound to the point of resistance to change. The major adjustment appears to be a movement away from being slavishly devoted to a content orientation to an emphasis upon a process orientation. Only in this way can we actually achieve active participation among student teachers.

The three foundation issues that set the stage for trade and industrial teacher education are: (1) occupational experience requirements; (2) educational achievement requirements; and (3) a tenable arrangement of the two. When these issues are resolved into some semblance of stability, teacher educators can pursue their four responsibilities: (1) professional training for full-time teachers; (2) professional training for part-time teachers; (3) in-service training; and (4) research in teacher education.

Within the framework of the three issues and four responsibilities, the projections of trade and industrial teacher education for the future can be located. No attempt has been made to identify purely operational problems because of the transient nature of such problems.

The International View

The International Vocational Training Information and Research Center (CIRF), Geneva, Switzerland, issued a monograph on the training of vocational teachers in September 1964 (CIRF Monographs, 1964, pp. 10-12). The general conclusions provide an opportunity to check agreement and/or differences with the projections proposed above. In order not to distort the stated conclusions I have chosen to quote rather than paraphrase.

It may be said that there is a wide measure of agreement between countries as regards teacher training standards for general education.

There is no such agreement in vocational teacher training practices. The range of existing variations is too wide to be acceptable: recruitment at skilled worker, technician or university levels; one week, four weeks, three months, four years of special training. If vocational training and education, which are catering for more than one-half of all young persons in industrially advanced countries, are to acquire the desirable intellectual standards and social status, then vocational teacher training will have to be developed to ensure that the teachers themselves get the appropriate experience and competence.

Vocational training and education of high standards requires a permanent establishment of highly qualified teachers--teachers with a sound educational background, in close touch with developments in industrial as well as other fields of economic activity.

There is a general awareness of this need; and during the past few years, most countries have made adjustments in their recruitment and training policies for vocational teachers. Some of them are also planning to introduce further reforms. The main impression is therefore one of continuing change.

Do the changes go far enough? Even after recent improvements, many countries do not reach the minimum levels internationally accepted in the 1962 ILO and UNESCO recommendations on the subject . . . . The OECD Seminar in Frankfurt, whose recommendations are given below (not included with this quotation), suggested gradual improvement under a long-term plan of development.

Do all the changes constitute improvements? Many of them have been inspired by the existing acute shortages; they are mere expedients courting the risk of lowering accepted standards.

Are the standards always observed? Opportunities for further training are sometimes nullified by the inability of the schools to release their teachers for any length of time. A disquieting number of vocational schools are operating with teachers whose qualifications do not satisfy the national standards.

Three types of action are needed. The first is relatively short-termed: the gaps in the existing systems of vocational teacher training must be filled.

The second entails a long-term and comprehensive planning with a view to raising the over-all level of vocational training and education.

Thirdly, facilities for further training and updating of knowledge and practical experience must be expanded.

Thus, in the international view, some of the problems and some of the recommended solutions are closely related to our own projections.

Postscript

Trade and industrial education's most formidable opponent is the "educational mind" of America that does not understand the values of trade and industrial education. Maximum progress in the future will be retarded as long as the set of the "educational mind" retains its present characteristics.

Despite this extremely difficult situation, teacher educators can move into the future with increasingly effective programs of process-oriented teacher education for full-time and part-time teachers. A substantial increase in the scope of in-service training must be a supporting adjunct to the basic programs of teacher education. I don't know if the teacher education group is the most important group to be involved in changing the attitudes of American educators--but it is most certainly a critical group. In the long run, what happens in the classroom and the shop, and later on the job, depends greatly upon the teacher. How well the teacher performs his task is a direct reflection of teacher education.

Persons involved directly in the task of teacher education must be in a position to exchange ideas frequently and to brainstorm as a group all facets of teacher education. Every trade and industrial teacher educator in the nation must become intimately acquainted with processes of teacher education wherever it is conducted. The means whereby this can be achieved must be discovered.

Parallel to the actual program of teacher education is the need for a substantial program of research. I do not know what research is under way in trade and industrial teacher education throughout the nation, but I do know that there is little or no coordinated effort. We must begin immediately, through a coordinating group of trade and industrial teacher educators, to assign research projects to every institution maintaining a concern for research and having a teacher education responsibility. Many teacher educators must have a part in the research in teacher education, but the parts must all fit together.

Anyone fortunate enough to be involved in trade and industrial teacher education, and its associated research activity during the next decade, will be fortunate indeed. Without quality of performance in teacher education no other progress is possible.

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PART V

GUIDELINES

RESEARCH AND DEVELOPMENT SUGGESTIONS

Following the presentations designed to review the research, the professional literature, and the innovative programs and practices, the conference participants directed their attention to the development of guidelines for improving and expanding trade and industrial teacher education. The problem was attacked by first developing a set of principles for sound T. and I. teacher education. The next step was to analyze each of the principles for implications for needed research or action programs.

In approaching the problem in the manner described, it was assumed that the proposed principles would need the support which might be provided by additional research or that the statements would have implications for needed developmental projects.

Admittedly, the participants did not exhaust all possibilities in listing principles of trade and industrial teacher education, and they suggested the statements be further refined. It was their desire to have the proposed principles sent to all T. and I. state supervisors and teacher educators for review and reaction prior to the publication of a monograph devoted solely to this subject. Consequently, the principles will not be incorporated in this report but will appear in a separate publication. Because of the immediate value of the papers presented at the conference, however, it was decided that the publication of this report should not be delayed to incorporate the guidelines. The research and development priorities generated by the conference activity are reported.

Research and Development Priorities*

During the discussion on research and development priorities, twenty-one needs were cited as having high priority. Several participants expressed personal interest in developing projects that might result from the various suggestions which were listed. It was agreed that The Center at The Ohio State University and the appropriate bureaus of the U. S. Office of Education should pursue a follow-up of the conference to encourage implementation of the project suggestions.

Without reference to an order of priority, the research and development suggestions were the following:

1. Identify and evaluate practices of pre-service and in-service trade and industrial teacher education in the nation.

2. Prepare monographs to fill voids in the professional literature for T. and I. teacher education.

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*The Center staff wishes to remind the reader that the research priorities listed are those developed by the conference participants and should not be confused with the priorities established by the U. S. Office of Education or other research sponsoring agencies.

3. Evaluate the teacher education principles developed during the planning conference.

4. Identify the unique features of T. and I. and technical teacher education and the elements common to all vocational and technical teacher education programs.

5. Conduct a study to establish minimum standards for teacher education for a state.

6. Evaluate micro-teaching for teaching manipulative skills.

7. Determine occupational competencies needed by T. and I. teachers.

8. Determine the kinds of institutes needed to upgrade T. and I. teachers.

9. Study the activities (assignment and actual performance) of T. and I. teacher educators.

10. Determine the needs and present practices of special teachers (MDTA, disadvantaged, etc.) and how to meet these needs.

11. Conduct a comprehensive study of the part-time T. and I. teachers and how their needs are being met.

12. Conduct a study which would demonstrate the value of teacher education.

13. Determine the need for on-the-job training types of teacher education programs.

14. Conduct a national study to assist in projecting the needs for new and replacement T. and I. teachers.

15. Study the profiles of teacher educators to determine what makes a good teacher educator.

16. Investigate the concept of the "good teacher" in T. and I. education.

17. Study the effects of student feedback upon teaching behavior.

18. Evaluate the effectiveness of new educational media which may be used in T. and I. education.

19. Develop a model for each state to use in a system of continual evaluation of the process and product of T. and I. teacher education.

20. Plan and conduct a series of national, regional, and state institutes and workshops for T. and I. teacher educators and supervisors on problems such as teacher recruitment, selection, and training, and the development of research competency.

21. Determine the teacher competencies that should be specified in certification requirements for T. and I. teachers.

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Attitudes of Public School Personnel Towards the Introduction to Vocations Program in North Carolina. (Research Series in Occupational Education, no. 2).

Clary, Joseph Ray

North Carolina Res Coordg Unit in Occup Educ, Raleigh

North Carolina State Dep. of Public Instr., Raleigh

North Carolina State Univ., Raleigh. School of Educ.

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EDRS Price MF-$0.18 HC-$3.48 87p.

*OCCUPATIONAL GUIDANCE, VOCATIONAL EDUCATION, GRADE 9, OPINIONS, QUESTIONNAIRES, *ADMINISTRATOR ATTITUDES, TEACHER ATTITUDES, PROGRAM IMPROVEMENT, EDUCATIONAL OBJECTIVES, *PROGRAM EVALUATION, *OCCUPATIONAL INFORMATION, PRINCIPALS, SUPERINTENDENTS, VOCATIONAL DIRECTORS, TEACHERS, *OCCUPATIONAL CHOICE,

North Carolina,

In 1963-64, North Carolina schools introduced a ninth grade course which provided occupational information as a basis for vocational planning. After four years, 366 teachers and administrators who had at least one year's experience with the program were surveyed by questionnaires. Eighty percent responded. Areas covered were need for the course, appropriateness of objectives and the extent to which they were met, relationship to other courses, appropriateness of content and grade level, required teacher qualifications, most effective teaching methods, and suggestions for and barriers to improvement. Some conclusions were -- (1) Such a course is needed, (2) The objectives are satisfactorily attained in most schools, (3) The students' decisions should determine later course offerings, (4) Successful completion of the course should result in fewer dropouts, (5) More study is needed to learn if the course should be required or elective, (6) Both boys and girls should take the course, (7) Resource persons and field trips should be used extensively, (8) There should be adequate teaching materials, supplies, and equipment, (9) More attention should be given to teacher preparation, and (10) More adequate budgets should be provided. (MS)

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ATTITUDES OF PUBLIC SCHOOL PERSONNEL TOWARD THE INTRODUCTION TO VOCATIONS PROGRAM IN NORTH CAROLINA

By

JOSEPH RAY CLARY

1967

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ATTITUDES OF PUBLIC SCHOOL PERSONNEL TOWARD THE INTRODUCTION TO VOCATIONS PROGRAM IN NORTH CAROLINA

Joseph Ray Clary

1967

Research Series in Occupational Education - No. 2
A report of research conducted by Joseph Ray Clary, School of Education, North Carolina State University, Raleigh, Publication and dissemination of research findings is in cooperation with the North Carolina Research Coordinating Unit in Occupational Education.

FOREWORD

This study has been a cooperative effort between the Introduction to Vocations Section of the Division of Vocational Education, North Carolina Department of Public Instruction and the School of Education, North Carolina State University.

The writer wishes to express his deep appreciation to the following persons who have contributed to this effort:

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To the teachers of Introduction to Vocations, principals, superintendents, and local directors of vocational education who reacted to the instrument and wrote in comments and suggestions.

This publication and others to follow are a result of the partial fulfillment of the commitment of the North Carolina Research Coordinating Unit to:

(a) Stimulate research in occupational education

(b) Identify problems for research.

(c) Develop a system by which national, state and local data may be organized and made available.

(d) Maintain communication between people who are working in occupational education and research workers.

(e) Assist in conducting training programs on activities involved in the research-action continuum.

(f) Provide consultant services in state, local and area research developmental activities.

Joe R. Clary

Joe R. Clary
Director

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SECTION I - THE NATURE OF THE STUDY

Introduction

The justification for a vocational education course at the early high school level is associated with the needs of this age group. Youth at the early high school age have rather specific characteristics which in turn suggest certain needs. For example they lack first-hand knowledge of the world of work; therefore, they need experiences which will supply this knowledge both directly and vicariously. They have not had opportunities to explore their capacities in various areas under a variety of situations; therefore they need opportunities to self-appraise their emerging potentials. This age group also is characterized by a lack of self-confidence; a need then is for experiences which tend to build self-assurance into the developing personality.

There is considerable research which indicates that youth tend to make occupational choices in stages. Perhaps more than any other, the work of Super[1] and his associates has received attention from vocational educators. Super's findings were used extensively in establishing the framework for the course studied in this project. It seems important to summarize two of these findings:

1. Vocational development is a process of growth and learning which includes all phases of vocational behavior related to work. It begins with orientation to work and ends with retirement. Between these extremes a worker makes choices, enters, leaves or otherwise adjusts as necessary in his occupation(s).

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[1] Super, Donald E. The Vocational Maturity of Ninth Grade Boys. New York: Bureau of Publications, Teachers College, Columbia University, 1960.

An individual passes through a number of stages in making occupational choices. Most ninth grade boys have progressed only to the tentative stage of occupational choice.

2. The vocational maturity of ninth grade boys is defined as behavior in preparation for vocational choices. Thus, we could say that vocational education at this stage of development could be defined as planning and looking ahead toward an occupational choice. At this level we see that educational programs need not, in fact should not, emphasize the selection of one's occupation for life or preparing oneself directly for work in a specific occupation. Planfulness is the key word.

In other words, a person doesn't reach an ultimate vocational decision at a single moment in time, but through a series of decisions over a period of many years. Yet, youth are required to make a number of educational decisions at about the ninth grade level which have an important influence on their later occupational lives. For example, many of the high schools in North Carolina are so organized that students must select one of several educational routes at the beginning of the ninth grade. Other decisions must be made, such as whether or not to continue in school beyond the age of 16, and, if so, what course to take, and whether to look forward to continuing formal education beyond high school. The decisions students make at this point influence greatly their eventual vocational careers by either limiting or increasing their future educational and vocational choices.

Students enrolling in vocational education courses are required to have an occupational objective. What criteria do early high school students have for making such decisions? Many vocational programs in the public schools require a substantial amount of the student's instructional time. A wrong decision in terms of interests and aptitudes for a vocation

in which training he enrolls can have serious consequences for the student. He has almost no chance for error. And yet, he may almost totally lack information and background experiences upon which to make a decision.

With such considerations in mind, there was established in the public school curriculum in North Carolina a course designed to help students prepare to make the choices which are called for as they move through school toward an ultimate vocation. Instruction is designed to provide some of the information and background experiences necessary to help early high school students make choices which are satisfying and productive for both themselves and the society of which they are a part.

History

In 1963, through the efforts of interested members of the North Carolina State Legislature, an Act, known as the Clark-Long Bill, established funds for instituting in the public schools of North Carolina, a program of "Comprehensive and Diversified Vocational Education." One part of this program developed into a course called Introduction to Vocational Education. The course was concerned with providing occupational information for ninth grade boys and girls as a basis for making decisions concerning their vocational futures and educational requirements and opportunities associated with these vocational choices.

Forty-five schools, 45 teachers of Introduction to Vocational Education and 2,410 students were involved in the program during the 1963-64 school year. In the 1964-65 school year, 94 schools,

104 teachers and 4,715 students participated in the program and its official name was changed to Introduction to Vocations.

The experimental phase of the program as authorized by the Clark-Long Bill ended on June 30, 1965. On July 1, 1965, the Introduction to Vocations program became a federally reimbursed vocational education program. In the 1965-66 school year, there were 208 schools involved with 207 teachers teaching Introduction to Vocations to 13,554 students. The 1966-67 figures indicate that approximately 250 schools are participating in the program using 236 teachers with an enrollment of between 16,000 and 18,000 students.

These figures represent an increase of over 700 per cent in terms of student enrollment in a four-year period. Inasmuch as the course is not required to be taught in the schools and enrollment is voluntary and generally limited to ninth graders, this increase appears to be indicative of the high regard for the course held by students, school administrators, teachers and parents of the students.

Course Objectives

The over-all objective of the course might be stated as follows: "To help students develop plans regarding their occupational and educational futures."

Purposes of the Course

1. To help students appraise their own interests, aptitudes, personalities, and skills in relation to a variety of vocational opportunities.

2. To help students gain a first-hand knowledge, understanding, and appreciation of the changing employment patterns and opportunities in the North Carolina world of work.

3. To help students understand the basic processes of production, processing, and distribution in the American work economy and the importance of human relations and ingenuity in these processes.

4. To acquaint students with the major occupational fields, including economic structure, organizational structure, specializations, relationships to other occupational areas, kinds of work involved, and educational and other training requirements.

Institutional Objectives

1. To explore and to evaluate selected methods of orienting students regarding vocational opportunities.

2. To broaden the base for vocational and technical education offerings in the public schools of North Carolina.

Relationship to Subsequent Vocational Education Programs

The diagram on the following page illustrates the relationship of the Introduction to Vocations program to subsequent vocational education offerings in the public schools of North Carolina.

Evaluation to Date

An evaluation of the program during the first year of operation was directed by Dr. Norman Chansky, Associate Professor of Education and Psychology, North Carolina State University.

"The Chansky Study"[2] was made at a time when the program was in the developmental stages, the teachers lacked clear insight into

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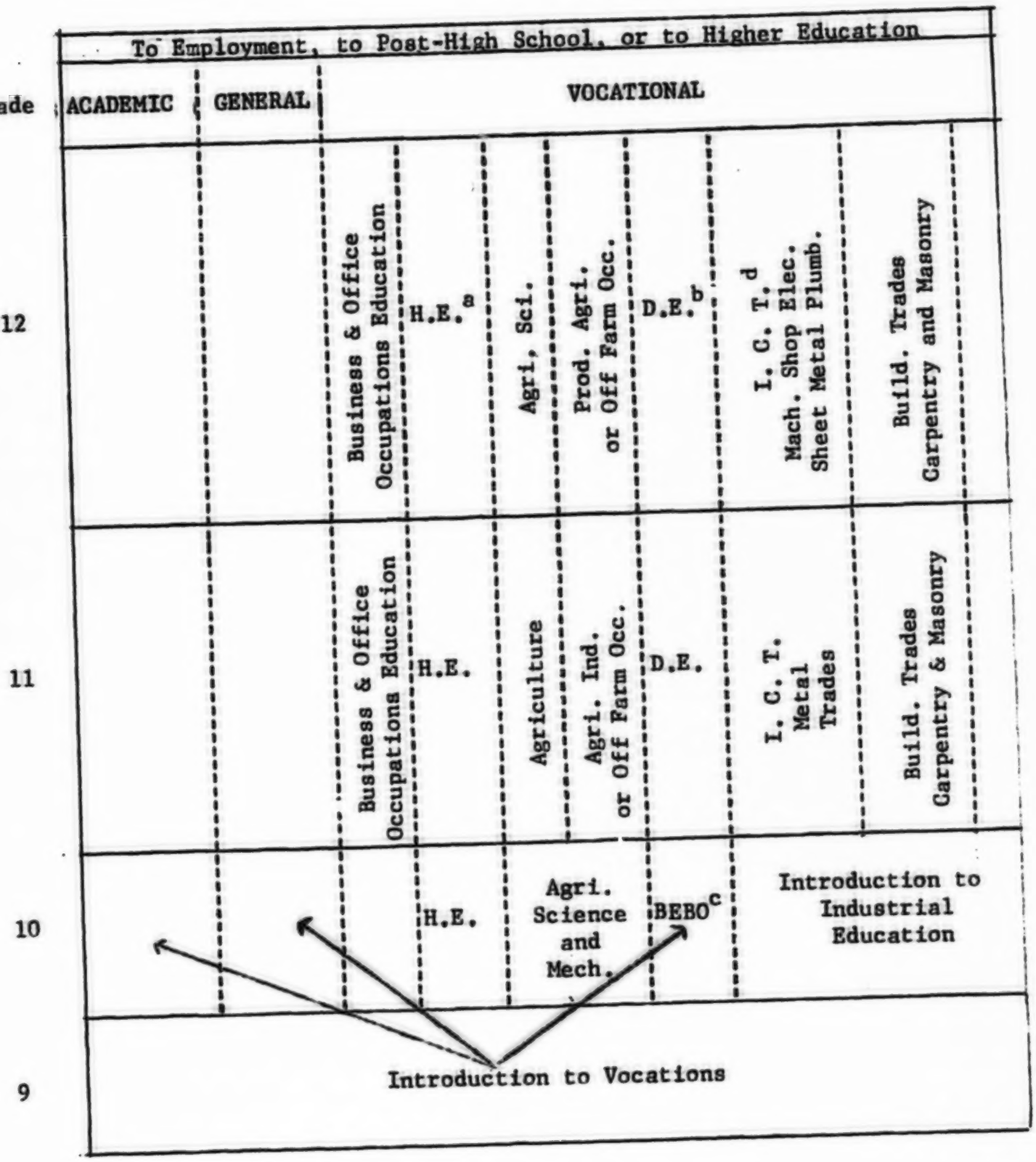
[2]Chansky, Norman M. The Introduction to Vocations Course: An Evaluation, Unpublished research report, School of Education, North Carolina State University, Raleigh, 1964.

A SUGGESTED PATTERN THAT INTRODUCTION TO VOCATIONS STUDENTS CAN FOLLOW IN THE PUBLIC SCHOOLS OF NORTH CAROLINA



[a]Home Economics
[b]Distributive Education
[c]Basic Economics for Business Occupation
[d]Industrial Cooperative Training

direction for the program, few curriculum materials were available, and little in-service education or supervisory help was given to the teachers - at least from the State level. It was not surprising, therefore, that many of the hypotheses set up for the study could not be accepted on the basis of data obtained. These statements are not made to criticize the Chansky Study but to indicate that many of these conditions have been corrected and that the Chansky Study is no longer valid for the program as it is presently being conducted.

Some tentative conclusions, based on both subjective and objective evidence acquired during that first year of operation, did indicated that:

1. Few differences, from objective data, were noted between the team and individual approach. The team teachers, however, were most enthusiastic over this approach and strongly recommended that it be continued.

2. The outlook of most students toward the vocations grew in depth and maturity during the course.

3. Students involved in the course reacted very favorably, 93 per cent indicating they would recommend it to their friends.

4. Parents of students enrolled in the course endorsed it wholeheartedly. Every parent formally evaluating the course for the research team recommended that it remain in the curriculum for ninth-grade students.

5. School administrators were pleased with the course and have urged its continuation and expansion.

6. The classes that were student-centered and offered a wide variety of learning experiences resulted in greater student interest and depth of understanding than did teacher-dominated, lecture-type classes.

7. Students completing the course acquired a better basis for selecting later high school courses and a deeper appreciation concerning the value of these courses.

8. Efforts should be made to find and/or to prepare additional course material adjusted to the reading and comprehension levels of ninth-grade students.

Duncan[3] studied the reasons for turnover of Introduction to Vocations teachers and found that reassignment to other teaching duties in the same administrative unit or school system was the largest single reason for the turnover. Marriage, promotions, leaving the teaching field entirely, not feeling adequately prepared to teach the course and lack of sufficient materials were involved in several of the decisions. Duncan concluded that, although negative criticism was made by several of the respondents, the level of acceptance of the philosophy and implementation of the Introduction to Vocations program was high for both groups of respondents (Superintendents of schools and former Introduction to Vocations teachers).

Several additional research projects in the area of Introduction to Vocations are in the planning stages.

Major Purpose of the Study

The major purpose of this study was to determine the opinions of Introduction to Vocations teachers, principals, superintendents and local directors of vocational education concerning the Introduction to Vocations program in the schools of North Carolina.

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[3]Duncan, Jack A. "Survey of Reasons for Turnover of Introduction to Vocations Teachers as Reported by Superintendents of Schools and Former Introduction to Vocations Teachers," Unpublished study, School of Education, North Carolina State University, Raleigh, 1966.

Objectives of the Study

The following specific objectives were identified to guide the direction of this study:

1. To determine the extent to which these groups see the need for a course in the public school curriculum which is designed to help students prepare to make occupational and educational choices.

2. To determine the extent to which the course objectives for Introduction to Vocations are seen as realistic and worthwhile objectives.

3. To determine the extent to which the present Introduction to Vocations course is meeting these objectives.

4. To determine the views of Introduction to Vocations teachers, principals, superintendents and local directors of vocational education in regard to:

    a. Grade level placement of the course.

    b. Students to be served by the course.

    c. Relationship of course to other academic and vocational offerings.

    d. Qualifications needed by the teacher.

    e. Appropriateness of course content.

    f. Effect on the dropout problem.

    g. Ways the program might be improved.

5. To identify the most serious barriers to improving the effectiveness of the course.

6. To identify teaching procedures, techniques or aids appearing to be most effective for the course.

7. To identify plans for improving the Introduction to Vocations Program over the next three years.

Scope of the Study

This study was limited to those Introductions to Vocations teachers, principals, and superintendents with a minimum of one year's experience as a teacher or an administrator of an Introduction to Vocations program. Ten local directors of vocational education were invited to participate in the study. The experience qualification criterion was not applied to them.

Methodology Used

The following steps describe the procedure used in making this study:

All research projects having been completed on the Introduction to Vocations program were carefully reviewed.

The research proposal was developed by the writer. It was reviewed and modified by the Introduction to Vocations Staff, Division of Vocational Education, North Carolina Department of Public Instruction, Mr. Robert A. Mullen, Associate Director, Division of Vocational Education, North Carolina Department of Public Instruction, and Dr. Bert Westbrook, Assistant Professor, School of Education, North Carolina State University.

An instrument to secure the desired data was prepared. A copy of this instrument is located in the Appendix section of this report.

It was initially proposed that the population for the study be a sample of Introduction to Vocations teachers, principals and superintendents with at least one year of experience with the program. Further investigation proved the feasibility of including all those who

qualified according to the experience criterion. Ten local directors of vocational education were included in the study.

The instrument was mailed to each person included in the population for the study along with a cover letter soliciting their help. A copy of the cover letter is included in the Appendix section of this report.

One follow-up was made on non-respondents to the first request. A copy of the follow-up letter is included in the Appendix section of this report.

SECTION II - PRESENTATION OF DATA

Introduction

This section of the report is devoted to a presentation of the data gathered from the Introduction to Vocations teachers, principals, superintendents and local directors of vocational education participating in this study. The data will be presented in table form. Each table will be briefly described and representative comments from each of the four groups of respondents will be presented in the discussion. In those areas of the study where the responses do not lend themselves to tabulation, a discussion with representative comments from the respondents will be made.

Table 1 is concerned with the number of Introduction to Vocations teachers, principals, superintendents and local directors included in the population for the study and the number and percentage returns from each group.

Table 1. The number of introduction to vocations teachers, principals, superintendents, and local directors of vocational education included in the population for the study and the number and percentage returns from each group.

Groups in Population	Number in Population	Number of Responses by Group	Percentage Returns
Introduction to Vocations Teachers	123	108	87.8
Principals	157	122	77.7

Table 1. (Continued)

Groups in Population	Number in Population	Number of Responses by Group	Percentage Returns
Superintendents	76	59	77.6
Local Directors of Vocational Education	10	6	60.0
Total	366	295	80.6

Those Introduction to Vocations teachers, principals and superintendents with at least one full year of experience with an Introduction to Vocations program were invited to participate in the study. In some schools, due to personnel changes, this meant that either the principal or teacher might qualify as a respondent while the other one would not. In checking the responses it was found that in a few cases the survey instrument had been completed by the one not qualified to do so according to the criteria set up for respondents in the planning stages of the study. These responses were eliminated.

When an instrument was sent to a superintendent and the response was from one of his assistant superintendents, the response was included in the study. Responses from other staff members in lieu of a response from the superintendent were eliminated.

The number of full-time local directors of vocational education in North Carolina is very small. Ten of the local directors were invited to participate in the study.

Table 1 shows that 366 persons were invited to participate in the study and 295 of these returned usable responses for a percentage return

of 80.6. Introduction to Vocations teachers had the highest percentage response with the principals and superintendents having an almost identical percentage response.

The percentage returns for this study with only one follow-up are excellent. Travers reported that returns from mailed questionnaires rarely exceed 40 per cent.[1] Borg suggested that with an 80 per cent return the question of how the results would have been changed if all subjects had returned the questionnaire is not critical.[2]

Need for a Course

Three statements on the survey instrument used in this study dealt with the need for a course in the public school curriculum designed to help prepare students to make occupational and educational choices. Table 2 summarizes the responses by respondent group to these three statements.

Introduction to Vocations teachers, principals and superintendents generally agreed rather strongly that there are important educational decisions to be made by students at about the ninth grade level which have an important influence on their later occupational lives. Local directors as a group were more neutral on this question, however, it should be pointed out that one "Strongly Disagree" response in a small number of respondents caused the mean response to be high and, therefore,

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[1] Travers, Robert M. W. An Introduction to Education Research, Second Edition, the MacMillan Company, New York, 1964.

[2] Borg, Walter R. Educational Research, An Introduction, David McKay Company, Inc., New York, 1963.

Table 2. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education to statements concerning the need for a course in the public school curriculum designed to help prepare students to make occupational and educational choices.

Statements	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
1. Youth are required to make a number of educational decisions at about the ninth grade level which have an important influence on their later occupational lives.	T	108	58	45	2	3	0	1.54
	P	122	54	58	2	7	1	1.71
	S	59	26	31	1	1	0	1.61
	LD	5	0	4	0	0	1	2.50
2. Adequate training is provided at the elementary school level for students to make the educational decisions required of them at the ninth grade level.	T	108	2	5	7	59	35	4.13
	P	120	5	7	11	69	38	3.90
	S	59	2	3	2	36	16	4.03
	LD	6	0	0	0	5	1	4.16
4. Students entering the ninth grade lack a first-hand knowledge, understanding, and appreciation of the changing employment patterns and opportunities in the world of work.	T	108	74	31	1	0	2	1.39
	P	122	75	41	2	2	1	1.47
	S	59	32	25	1	1	0	1.51
	LD	6	3	3	0	0	0	1.50

[a]Category of Respondents (T - Introduction to Vocation Teachers; P - Principals; S - Superintendents; LD - Local Directors of Vocational Education)

[b]Number of Respondents by Category

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

the "mean response" for this group for this question might be misleading and not representative of their beliefs as a group.

Responses to statement 2 indicated that all four groups of respondents thought that the elementary school training schedule was inadequate to enable the students to effectively make the educational decisions required of them at the ninth grade level. Attention of the reader is called to the fact that a high mean response to this question is in line with the low mean responses on statements 1 and 3.

Strong agreement by all four groups to the fact that students entering the ninth grade lack a first-hand knowledge, understanding and appreciation of the changing employment patterns and opportunities in the world of work is reflected in the mean response to statement 3 in the table above.

Few comments were made by the respondents to the three statements in Table 2. One principal generally agreed with statement 1 but did not feel that definite decisions should be required at the ninth grade level. At any rate he did not feel that the students' progress would necessarily be endangered by waiting until the 10th grade for some of these decisions. One superintendent thought that the educational decisions to be made in the eighth grade were more critical.

Course Objectives for Introduction to Vocations

Table 3 describes responses from Introduction to Vocations teachers, principals, superintendents and local directors to statements built around the course objectives of the Introduction to Vocations course and the extent to which these are seen as realistic and worthwhile objectives.

Table 3. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education to statements concerning the extent to which course objectives for introduction to vocations are seen as realistic and worthwhile objectives

Statements	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
3. The over-all objective of the Introduction to Vocations course - "To help students develop plans regarding their occupational and educational futures" - is appropriate for a ninth grade level course.	T	107	43	57	4	3	0	1.69
	P	122	46	66	7	2	1	1.74
	S	58	17	38	2	1	0	1.77
	LD	5	2	2	0	1	0	2.00
4. Students entering the ninth grade lack a first-hand knowledge, understanding, and appreciation of the changing employment patterns and opportunities in the world of work.	T	108	74	31	1	0	2	1.39
	P	122	75	41	2	2	1	1.47
	S	59	32	25	1	1	0	1.51
	LD	6	3	3	0	0	0	1.50
5. Students entering the ninth grade need help in learning to appraise their own interests, aptitudes, personalities, and skills in relation to a variety of vocational opportunities.	T	108	74	33	1	0	0	1.35
	P	122	81	40	0	1	0	1.35
	S	59	32	27	0	0	0	1.46
	LD	6	3	3	0	0	0	1.50
6. Students entering the ninth grade need help in understanding the basic processes of production, processing, and distribution in a "free enterprise" economy.	T	108	52	54	2	0	0	1.54
	P	122	53	65	3	1	0	1.61
	S	59	28	31	0	0	0	1.52
	LD	5	1	3	1	0	0	2.00
7. Students entering the ninth grade need to become acquainted with the major occupational fields (including organizational structure, jobs, kinds of								

Table 3. (Continued)

Statements	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
work involved, and educational and other training requirements for entry and advancement in these major occupational fields).	T	108	53	52	2	1	0	1.55
	P	122	60	58	3	1	0	1.55
	S	59	29	30	0	0	0	1.51
	LD	6	2	3	1	0	0	1.83

[a]Category of Respondents (T - Introduction to Vocations Teachers; P - Principals; S - Superintendents; LD - Local Directors of Vocational Education)

[b]Number of Respondents by Category

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

All four groups agreed very strongly with each of the five statements included in this table. It is interesting to note that, almost without exception, mean responses to statements concerning the specific objectives were higher than mean responses to the statement of the over-all objective.

In the comments one principal thought the over-all objective should be expanded.

Extent to Which Objectives are Being Met

Respondents were asked to give some appraisal of how well the needs suggested in objectives for the course were being met in their schools. Table 4 summarizes these responses.

Table 4. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education to a statement concerning the extent to which the needs of the students as reflected in the objectives are being met.

Statement	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
8. The Introduction to Vocations program as currently being taught in my local school(s) is adequately meeting the needs suggested in statements 4, 5, 6, and 7 above.	T	98	10	74	10	3	1	2.09
	P	107	17	73	9	8	0	2.07
	S	56	3	39	8	5	1	2.32
	LD	5	0	4	0	1	0	2.40

[a]Category of Respondents (T - Introduction to Vocations Teachers; P - Principals; S - Superintendents; LD - Local Directors of Vocational Education)

[b]Number of Respondents by Category

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

All respondents generally agreed that the objectives were being met. There were some who disagreed and even strongly disagreed to this general statement. It should be noted that few respondents strongly agreed with the general statement.

Respondents were allowed to respond to the general statement but list specific exceptions. A number of exceptions by all groups were made.

Exceptions listed by teachers would indicate that in 11 schools the objective suggested in statement 4 of Table 3 is not being adequately

met. In 7 schools the objective suggested in statement 5 is not being adequately met. This is also true in 10 schools for the objective suggested in statement 6 and in 8 schools for the objective suggested in statement 7. Other teachers commented that they hoped they were adequately meeting the objectives or were trying to do so.

The principals had few exceptions. They made one exception for statement 4, five exceptions for statement 5, two exceptions for statement 6 and two exceptions for statement 7. Other comments included:

"We are doing our best but results will need to be measured."

"The teacher is doing her part. I do not know how much is a absorbed."

"For those students taking the course."

"I think we will meet their needs eventually."

"Need to improve in all areas."

Superintendents made four exceptions for statement 4, seven exceptions for statement 5, five exceptions for statement 6 and four exceptions for statement 7. One superintendent commented that, "Question No. 4, 5, 6, and 7 are difficult to achieve in one single class. In my opinion, to accomplish the needs outlined in these questions will take more time, organization, and effort than can be expended in any one class or course of 180 hours." Another superintendent commented, "We need to strive to do a better job in all areas. No. 5 represents the greater challenge."

The local directors did not make any exceptions although one stated, "We have room for improvement in all statements."

Relationship to Other Academic and Vocational Offerings

The Introduction to Vocations teachers, principals, superintendents and local directors were asked to respond to statements concerning the relationship the Introduction to Vocations course should have to other academic and vocational offerings in the school. Their responses are shown in Table 5.

Table 5. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education to statements concerning the relationship introduction to vocations should have to other academic and vocational offerings in the school.

Statements	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
9. Introduction to Vocations should have a close relationship to and help students make decisions concerning vocational education offerings in the school.	T	108	47	56	3	2	0	1.63
	P	122	49	51	1	0	1	1.63
	S	58	25	29	2	1	1	1.69
	LD	6	4	2	0	0	0	1.33
10. Introduction to Vocations should have a close relationship to and help students make decisions concerning other academic offerings in the school.	T	108	50	48	9	1	0	1.64
	P	122	48	65	7	2	0	1.70
	S	59	23	30	2	3	1	1.80
	LD	5	2	2	0	0	1	2.20
11. Vocational interests in students identified or sharpened during the Introduction to Vocations course should influence the nature of vocational offerings at the upper high school level.	T	108	41	56	8	2	1	1.76
	P	122	49	63	9	1	0	1.69
	S	58	21	34	1	2	0	1.72
	LD	6	0	5	1	0	0	2.17

[a]Category of Respondents (T - Introduction to Vocations Teachers; P - Principals; S - Superintendents; LD - Local Directors of Vocational Education)

[b]Number of Respondents by Category

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

It was agreed that the Introduction to Vocations course should help students with decisions concerning both vocational and academic offerings in the school. Very few were in disagreement with either statement although more were in a neutral position concerning the relationship to academic offerings.

There was also general concensus that the nature of the vocational offerings at the upper high school level should be influenced by vocational interests of students identified or sharpened during the Introduction to Vocations course. Two comments by principals are reprinted here to indicate that they recognized other factors and influences affecting upper high school vocational offerings.

> "This is only partly true. The curriculum of a school can be changed only slowly and must be geared to world and community needs as well as to students' wants."

> "If a majority of students take I. V. during the ninth grade."

Appropriateness of Course Content

An effort was made in this study to determine the extent to which the respondents believe the course content as outlined in the Teacher's Guide is appropriate for meeting the course objectives.

Most of the respondents agreed that the course content was appropriate. There were some respondents who disagreed and several who were neutral.

Table 6. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education to a statement concerning the appropriateness of course content for the introduction to vocations course.

Statement	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
12. Course content as outlined in the Teacher's Guide for the Introduction to Vocations course is appropriate for meeting the course objectives	T	101	13	65	14	9	0	2.19
	P	114	13	87	10	4	0	2.04
	S	55	6	38	9	2	0	2.13
	LD	5	1	3	1	0	0	2.00

[a]Category of Respondents (T - Introduction to Vocations Teachers; P - Principals; S - Superintendents; LD - Local Directors of Vocational Education)

[b]Number of Respondents by Category

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

Several of the comments made by the respondents are appropriate for inclusion at this point.

Selected Comments of Introduction to Vocations Teachers

"It is appropriate, but sometimes it doesn't meet the varying needs. The Economics Unit needs additional materials to assist the teacher planning. I've never had a business course except typing. The basketball, football, and you name it coach was the teacher for my 9th grade civics course. I can't balance my check book, let alone figure all these other business things for a class of students to understand. I feel helpless. Thank goodness for eager outside speakers."

"Much of the 'economics' that is outlined in our guide is 'too advanced' for our students in the I. V. Program."

"This agreement that the information in the red-book is appropriate is considering the fact that you told us that the book will be revised giving a new listing of materials, films, etc."

"This will vary according to the type of students a teacher has -- low, high, etc. I question that Unit I should come at the first of the year."

"Easily adapted to meet need of each group."

"There may be a need for revising unit on economics."

"The Teacher's Guide is adequate for teaching but occasionally it leaves room for repetition of subject and discussion. I believe that it should also include more information about N. C. and jobs with definite futures here."

Selected Comments of Principals

"Area on self-analysis needs to be beefed up more. After all, self evaluation should be and is the most important phase of the course."

Selected Comments of Superintendents

"Have to admit haven't studied the guide."

"Too general. Not enough practical meat. Lack many opportunities to explore."

"Could be broadened and revised."

"Self evaluation materials are too thin."

"Needs some revision."

"For present."

Effect on Dropouts

Table 7 shows the responses of Introduction to Vocations teachers, principals, superintendents and local directors to a request for them to react to a statement about a possible result for students successfully completing the course -- that of fewer dropouts.

Table 7. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education to whether the introduction to vocations course might possibly result in fewer students dropping out of school

Statement	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
13. The Introduction to Vocations course should result in fewer dropouts from students successfully completing it.	T	107	46	48	12	1	0	1.70
	P	122	47	65	10	0	0	1.70
	S	58	20	33	5	0	0	1.74
	LD	5	2	2	1	0	0	1.80

[a]Category of Respondents (T - Introduction to Vocations Teachers; P - Principals; S - Superintendents; LD - Local Directors of Vocational Education)

[b]Number of Respondents by Category

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

Most respondents agreed with this statement. There were several neutral responses. Only one person, a teacher, disagreed with the statement.

One teacher made the following comment concerning the statement:

> "There are so many variables concerning dropouts that I don't think the course should be judged by its retention power. I think it is just as important for potential dropouts to take the course as it is for other students. (More so in some cases). Various situations occur, over which I. V. can have no control, causing dropouts. There are other cases in which leaving school is the best solution to a problem. Nevertheless, regardless of the

reason for leaving school, I hope my I. V. students will be better dropouts (if they do so) and face life as well as the world of work more realistically."

Elective Nature of the Course

Should a course like Introduction to Vocations be strictly an elective course or should it be required of all students? Table 8 summarizes the responses of the four groups included in the study to a statement designed to get reaction from them to this question.

Table 8. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education to a statement concerning the elective nature of introduction to vocations

Statement	C[a]	N[b]	Distribution of Responses[c] SA	A	N	D	SD	Mean Responses
14. The Introduction to Vocations course should be an elective (as opposed to a required) course.	T	107	21	31	9	27	19	2.93
	P	121	33	37	12	31	8	2.54
	S	58	17	27	5	7	2	2.14
	LD	4	0	2	0	1	1	3.25

[a]Category of Respondents (T - Introduction to Vocations Teachers; P - Principals; S - Superintendents; LD - Local Directors of Vocational Education)

[b]Number of Respondents by Category

[c]Scale:

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

Table 8 indicates considerable disagreement among all four groups to this question. Teachers were almost equally divided in their

responses. Principals and superintendents were somewhat more in favor of the course being elective.

One principal suggested that, "It should be required for non-college ability students."

Grade Level Placement

Respondents were given an opportunity to indicate the grade level at which the Introduction to Vocations course should be placed. Table 9 shows their responses.

Table 9. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education concerning the grade level placement of the introduction to vocations course

Grade Level	Introduction to Vocations Teachers	Principals	Superintendents	Local Directors	Total[a]
Seventh Grade	0	0	1	0	1
Eighth Grade	18	15	10	4	47
Ninth Grade	87	103	49	4	243
Tenth Grade	12	8	2	1	23
Eleventh Grade	3	2	1	1	7
Twelfth Grade	4	0	0	0	4

[a]Table entries add to more than the total number of respondents since some respondents suggested that the course be offered at more than one grade level and all suggestions were tabulated

Table 9 indicates that most Introduction to Vocations teachers, principals, superintendents, and local directors of vocational education believe that the course is correctly placed. It should be noted that

the next high suggestion is for the eighth grade. It should also be noted that several respondents indicated more than one grade which would be appropriate for the course.

Some selected comments from each of the four groups of respondents are given below.

Selected Comments of Introduction to Vocations Teachers

"Tenth, eleventh and twelfth grades in special cases."

"I think I. V., as it is outlined now, is best for the ninth grade level student but I think students from the 2nd grade up should be introduced to the world of work specifically. It should be elevated each year so that when the child reaches the ninth grade it won't be so difficult to show him that in America, people work for a living and that is his ultimate goal regardless of how much or how little of the world's goods and services he now enjoys without working for it. He will know that work is human, just, and not only a way of life but it is life itself. I must admit that it is difficult to sell the world of work to a student in the 9th grade for the first time. To them or some of them automation means nothing."

"I think we should consider the eighth grade also."

"Perhaps one class of upperclassmen for those who feel the need."

Selected Comments of Principals

"Non-graded through eleventh."

"I overview unit in eighth grade."

"Some 10, 11, & 12 grade students should be allowed to take I. V. if they couldn't schedule it in grade 9."

Selected Comments of Superintendents

"I would not exclude 10th and 11th."

"2-3 week course in 9th grade."

"I would suggest 9-12."

Selected Comments of Local Directors of Vocational Education

"Eighth or ninth grades."

"With modifications in grades 10 and 11."

Ability Levels of Students to be Served

Table 10 indicates little question from any group concerning the ability levels of students to be served by the course.

Table 10. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education concerning ability levels of students to be served by the introduction to vocations course.

Ability Levels	Introduction to Vocations Teachers	Princi-pals	Superin-tendents	Local Directors	Total
Above average ability	2	0	0	0	2
Below average ability	0	0	1	0	1
All ability levels	102	119	57	6	284
Other	0	2	0	0	2

Respondents apparently felt very strongly about this statement because very few respondents qualified their selection in any way.

Others emphasized their selection of "All ability levels" by checking it and then writing it in as well.

Sexes of Students to be Served

Table 11 shows that nearly all respondents thought that the Introduction to Vocations course should serve both boys and girls equally.

Table 11. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education concerning the sexes of students to be served by the introduction to vocations course

Sex	Introduction to Vocations Teachers	Principals	Superintendents	Local Directors	Total
Boys only	1	0	0	1	2
Girls only	0	0	0	0	0
Both sexes equally	102	114	55	5	276
Other	0	0	0	0	0

Only one teacher and one local director thought the course should be for boys only. No respondent thought the course should serve only girls.

Teaching Procedures, Techniques and Aids

A number of teaching procedures, techniques or aids which might be used in the course were listed. Spaces were provided to add others. Repondents were asked to select the five they considered to be most effective for the course. Table 12 shows how they responded.

Table 12. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education concerning teaching procedures, techniques or aids appearing to be most effective for the course

Procedures, techniques or Aids	Introduction to Vocations Teachers	Principals	Superintendents	Local Directors	Total
Resource person come into classroom	72	94	47	4	217
Field trips	84	89	39	2	214
General discussion	66	82	35	3	186
Movies	75	69	20	2	166
Projects	33	48	29	0	110
On-the-job interviews	38	43	22	2	105
Oral reports	43	40	17	2	102
Committee work	20	39	26	1	86
Keep notebooks	39	17	3	2	61
Individual observation	17	17	15	0	49
Collect want ads	11	5	5	0	21
Theme writing	6	5	3	1	15
Other	6	6	3	0	15

The two most effective techniques were "resource person come into classroom" and "field trips". The teachers rated field trips as number 1 while the principals, superintendents, and local directors placed resource persons higher. The order of ranking according to score by group was very similar.

The few comments and added techniques did not present any type of pattern and would not change the list except to add items with one or two scores for each. Debates, role playing, occupational games, contests, and group projects were among the additional techniques listed.

Teacher Qualifications

Teachers who are enthusiastic and creative make the best Introduction to Vocations teachers according to Table 13 which deals with the most important qualifications of a teacher. Respondents were able to select five from the seven listed and allowed to list additional ones.

Table 13. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education concerning the most important qualifications for a teacher of introduction to vocations

Qualifications	Introduction to Vocations Teachers	Principals	Superintendents	Local Directors	Total
Enthusiasm	104	116	54	5	279
Creativity	82	101	45	5	233
Ability to do individual and small group instruction	57	87	38	4	186
Ability to work well with other teachers	70	74	37	2	183
Trained in guidance	59	68	32	4	163
Above average abilities in public relations	57	62	35	1	155

Table 13. (Continued)

Qualifications	Introduction to Vocations Teachers	Principals	Superintendents	Local Directors	Total
Industrial or business experience	45	59	20	3	127
Other	37	20	14	2	73

All four groups pretty generally responded the same way. Teachers saw "ability to work well with other teachers" as being more important than "ability to do individual and small group instruction". The other three groups of respondents saw these in reverse order.

Some selected comments from the four groups of respondents follow.

Selected Comments of Introduction to Vocations Teachers

"The ability to detect special work abilities of students."

"Strong feet, good nervous system, intestinal fortitude, mild temper, 'guts'."

"Initiative."

"Believes in goals of I. V."

"Patience."

"Dynamic personality."

"Genuine interest in helping students develop plans for their futures."

"Ability to analyze and understand people."

"Sincere desire to help children."

"A broad knowledge of the world of work."

"A wide range of interests and abilities."

Selected Comments of Principals

"Should have some training in guidance."

"Patience to work with individuals."

"Wide experience and knowledge of the world of work."

"Ability to motivate students to the point they are able to look ahead to the future."

"Good common sense - ability to organize."

"Above average interest in the individual."

"Training in occupational guidance."

"A love for the course."

"Ability to understand the limited experiences of children being served."

"Dedicated to the task."

"In this specific kind of course it would appear to me that the instructor would need high organizational talent, in addition to keeping himself well versed in the ever-changing trends relative to vocational opportunities. Any time we are dealing with and specifically relating instruction to individual interests, we need to offer instruction that will appeal to the individual rather than the group. Good organization is essential in reaching objectives in this type of course. It is essential that up-to-date information be offered in this course. This requires the effective instructor to be continually re-educating himself on an individual in-service basis. We must have the initiative to individually take on this responsibility."

Selected Comments of Superintendents

"Plain hard eight hour work day."

"Likes to teach."

"Ability to get others to respond."

"Knowledge of many vocations."

"Understanding."

"Willing to work and adapt--dedicated to teaching."

"Genuine concern for youngsters."

"Interest in professional growth."

Selected Comments of Local Directors of Vocational Education

"Interest in students."

"Actual work experience in vocations."

Barriers to Further Improvement

Respondents were asked to indicate the three most serious barriers to further improvement of the course in their administrative unit or school. A list of possible barriers was made from which they were to choose and/or add additional ones from which to make their selection of the three most serious ones. Table 14 shows how they responded.

Table 14. Summary of responses of introduction to vocations teachers, principals, superintendents, and local directors of vocational education concerning the three most serious barriers to further improvement of introduction to vocations programs in local administrative units and schools.

Barriers	Introduction to Vocations Teachers	Principals	Superintendents	Local Directors	Total
Inadequate teaching materials	47	54	15	0	116
Equipment - supplies	38	49	13	0	100
Plant - space - housing	34	41	18	0	93
Lack of textbook	28	21	3	0	52
Scheduling	16	18	14	0	48

Table 14. (Continued)

Barriers	Introduction to Vocations Teachers	Principals	Superintendents	Local Directors	Total
Enrollment - attendance	16	17	13	1	47
Lack of available teachers	7	18	18	3	46
Cannot arrange field trips	18	22	4	0	44
Teacher overload	27	13	3	0	43
Professional preparation of teacher	8	14	17	2	41
Lack of student interest	7	14	13	0	34
Level of teaching materials too high	10	2	1	0	13
Lack of teacher interest	3	0	5	2	10
Administrative support	7	0	0	0	7
Other	20	14	3	3	40

Inadequate teaching materials appears as the most serious barrier. Perhaps this has some connection with the fourth most serious barrier--the lack of a textbook. The third most serious barrier, plant - space - housing, is perhaps a reflection of unsatisfactory makeshift, temporary, or "floating" classrooms assigned to Introduction to Vocations teachers. A "floating" classroom refers to a situation where the teacher may find himself in a different room each period of the day.

Some other barriers listed were in the areas of caliber of students, availability of funds, location of school, understanding by other teachers and general public, transportation, resource speakers, graduation requirements, imminence of consolidation, certification requirements, teacher allotment, and length of teacher employment.

Improving Introduction to Vocations Programs

Respondents were asked for suggestions for improving Introduction to Vocations programs and also asked to indicate what specific plans they had for improving the program(s) over the next three years. The writer, after reading their comments, made a judgment as to whether these constituted suggestions for improving the course and specific plans for improving the course. Table 15 summarizes the number of each according to judgments made by the writer.

Table 15. The extent to which introduction to vocations teachers, principals, superintendents, and local directors of vocational education have suggestions for improving introduction to vocations programs and/or have specific plans for improving the program over the next three years.

Category of Respondents	Having Suggestions		Having Specific Plans	
	Yes	No	Yes	No
Introduction to Vocations Teachers	89	19	90	18
Principals	91[a]	30[a]	89[a]	32[a]
Superintendents	43[a]	14[a]	47[a]	10[a]
Local Directors	6	0	6	0

Table 15. (Continued)

[a]Does not add up to total number of respondents because of error in instrument or in putting instrument together resulted in inability of respondent to reply to these questions.

Over three-fourths of the respondents in this study had one or more suggestions for improving the program. Almost four-fifths of the respondents listed at least one specific plan for improving their program(s) over the next three years. Some of these suggestions and plans are listed on the next several pages.

Improving Introduction to Vocations Programs at the State Level

Respondents were asked for their suggestions for improving the Introduction to Vocations program at the State level. This was an open-ended question and the responses do not lend themselves to summarization in a table. Examples of suggestions were selected from each group and listed below.

Selected Suggestions of Introduction to Vocations Teachers

"Workshops more meaningful."

"Fight for longer employment for teachers. Work closer with school administrative personnel."

"Better teacher preparation."

"Continue the 'selling' of this program throughout the state."

"Continuing of Regional I. V. teachers' meeting to exchange ideas and techniques."

"Clearing house for materials and ideas."

"Send us as much up-to-date material as possible."

"Offer a workshop for teachers--taking them into different types of industry."

"A textbook should be provided for the course."

"Conferences and workshops for teachers."

"Teacher's workshop yearly for all teachers (2 weeks)."

"If at all possible, I believe the program would be more effective with team teaching."

"More state money available."

"More extensive teacher training; 10 months salary."

"State Supervisors should give more information to superintendents and principals about I. V. Program."

"Spell out the requirements for a good I. V. class and visitation."

"Employ I. V. teachers for 10 months so time would be available for making plans, getting materials typed, and mimeographed for another term. I am so much happier in my work and planning this year due to the fact I was at school this past summer and remained in the afternoon (about 3 per week) to work on my I. V. materials. I know what I can do some time in advance now for I have materials ready for every student through unit five."

"More training for leaders in business, economics, sales and public work."

"More detailed news letter."

"Encourage the establishment of an equipped department or special I. V. room where a full-time teacher is employed."

Selected Suggestions of Principals

"More area workshops."

"More individual school visits by State supervisors."

"Increased In-Service Training Programs for Teachers and Administrators."

"A basic textbook, state film and filmstrip library."

"Extend employment to ten months."

"Help us to get more teaching material."

"More workshops during the school year at Community Colleges."

"Certification should have more latitude."

"More teaching material."

"Help in informing the public about the program."

"Expanded program of teacher training. More supervision from the State level until the program is well established."

"Stabilize leadership."

"Set up a central place for a library to allow film and filmstrip services."

"Provide I. V. teacher for 4 periods teacher load and 2 planning periods."

Selected Suggestions of Superintendents

"Teacher training and money."

"Adequate teacher training."

"More financial support."

"Supervision."

"More supervisors for work in the field."

"More money for teaching materials and equipment at least on a matching basis."

"Reorganize program to include more shop training."

"More frequent visits for encouragement and giving helpful suggestions."

"Re-evaluate course content."

"10 months employment."

"Allow teachers to use some time for guidance."

"Turn out better qualified teachers."

"Workshop for administrators with total up-to-date explanation of program."

Selected Suggestions of Local Directors of Vocational Education

"Better preparation of teachers."

"Keep us informed at the county level as you develop the program."

"Teacher training workshops, teaching materials, equipment."

"Materials."

"Continue with the workshops and individual supervision."

Improving Introduction to Vocations Programs at the Administrative Unit Level

Comments have been selected by the writer for inclusion here as representative of the types of suggestions made by the respondents as ways to improve Introduction to Vocations programs at the administrative unit level.

Selected Suggestions of Introduction to Vocations Teachers

"Less 'red tape' in getting field trips."

"Give more financial support."

"Travel expense should be allowed all I. V. teachers so they may visit all parents and communities."

"A definite stand to be taken on vocational education and then a vigorous campaign to fulfill this stand."

"Give us more equipment to work with."

"I. V. teachers schedule should be arranged so students can be taken on field trips."

"Providing transportation for field trips."

"The Board of Education should either purchase a bus or provide funds for field trips."

"More visits to appraise or criticize, give suggestions."

"Should become acquainted with work we're doing--visit us."

"The administrators should provide a decent classroom for this course. Also, there should be ample shelves and storage cabinets for the protection of the materials used in I. V. Provisions should be made so that an instructor has blackout shades and proper electrical outlets in the room for showing films."

"A full-time teacher and more audio-visual aids."

"Provide an established I. V. Dept. or room with needed equipment and tools, storage and work space as for other Voc. courses--science, etc."

Selected Suggestions of Principals

"More money in budget for supplies and field trips."

"Appropriate money for more trips."

"Space, materials, and equipment. (Much of this will soon be available)."

"Become better acquainted with the work in I. V."

"Better arrangements for field trips."

"More guidance and orientation at 8th grade level on what I. V. is and can mean to students."

"Encouragement should be given to all ability levels to take this course."

"Supervision - more adequate facilities."

"Monthly meeting of I. V. teachers with Director of Guidance and Counseling."

"Recognition of importance of course by providing adequate instructional materials."

"Exchange of ideas and instructional techniques as well as overall planning between schools and local business and industrial concerns."

"Provide more and better space for normal creative thinking and evaluating."

"More training for teachers."

Selected Suggestions of Superintendents

"A better understanding of the objectives and potentialities of I. V."

"Provide more equipment and teaching materials."

"More supervision."

"Money at local level to help pay cost of programs."

"Some orientation to upper elementary grades; more guidance in elementary schools."

"Emphasis on a constructive, exploratory laboratory program."

"Better informed principals, and superintendents."

"Closer contact to know what is going on in order to give more help."

"Learn more about programs - budget more funds."

"More observation and support."

"Encourage teachers to continue professional training."

"Better coordination of all personnel and program."

"It must be sold to the principals."

"Increased budget - better teaching facilities."

"More housing space."

Selected Suggestions of Local Directors of Vocational Education

"Provide necessary funds for teaching aids."

"Supervision, teaching materials, equipment."

"Textbooks, manuals, etc."

"I need to do more supervision, but there is never enough time to do this."

Improving Introduction to Vocations Programs at the School Level

Among suggestions made for improving Introduction to Vocations programs at the school level are the following ones selected from the responses in the study.

Selected Suggestions of Introduction to Vocations Teachers

"Better plant facilities."

"More even balance in student number."

"More time for field trips."

"Need to see people actually at work more to observe."

"Improved scheduling--need a cross section of all students."

"More information and guidance given to students on I. V. and vocational education (a concerted effort of each school staff)."

"Explaining the advantages of the I. V. program to others."

"Limit course to 9th grade students. About half of my class are seniors--some taking D. E."

"School administration should supply cabinets, tables and give I. V. Department a small budget for ordering supplies."

"Adequate space for program."

"Need teaching material."

"Many teachers feel this is a course for students who can't pass anything else and smart students shouldn't take it."

"Teacher visitation--(school to school)."

"Reworking of schedule to allow both boys and girls the equal opportunity to take I. V."

"I'd like to share material--films--pamphlets--with upper classmen and teachers."

"Arrangement of time and transportation for field trips."

"Have a classroom--where I can keep all my materials in one place and also meet in that room."

"Education of all teachers and elementary students concerning I. V."

"More publicity."

"Establish guidance kits, etc. at each school (relative to the number of students)."

Selected Suggestions of Principals

"More encouragement to take the course."

"More equipment and supplies."

"More flexible scheduling to allow for field trips, etc."

"Improve schedule."

"Provide a more flexible classroom."

"Would like to see it offered in 8th grade."

"Smaller class size and a room set up as a single laboratory."

"Should have an exact budget."

"Greater correlation with overall curriculum."

"Acquaint more rising 9th graders of the program."

"More active interest from the administration."

"Additional teaching staff needed."

"Emphasis on coordinating I. V. with academic classes."

"Provide more space and a form of lab for surveying the different areas of work."

"Principal needs to be more actively involved in program."

"Seek to improve student interest - should be sufficient pupils to demand a full-time teacher."

"Use of community as a resource area and getting parent 'involved' in the program."

"Allow only ninth graders to take I. V."

"Reach all boys and girls in 9th grade--provide more guidance. Give more aptitude and interest tests."

"To be able to visit more places of interest."

"Provide for more vocational courses after I. V. is completed."

"Curriculum arrangement for more students."

"Make available all supplementary books and materials for students to explore in order to help each student find himself."

Selected Suggestions of Superintendents

"More cooperation of all teachers in promoting I. V. objectives."

"Work on selling the course to students."

"Scheduling."

"12 months contract."

"Better qualified teachers."

"Keep all classes in the same instructional area if possible; publicize projects of I. V."

"More financial support."

"More teaching materials."

"More coordination with other departments."

"Encourage more students to register for course."

"More information to all other teachers about the importance of the program."

"Improved schedule."

"Develop philosophy which concurs with curriculum and schedule accordingly."

"Proper room, materials."

"Improve registration - scheduling procedures - staff orientation regarding I. V."

Selected Suggestions of Local Directors of Vocational Education

"Eliminate scheduling problems."

"Student grouping."

"An even break on students with ability - not potential dropouts."

"A continuing selling job needs to be done on the principals."

"Constant review."

Improving Introduction to Vocations Programs at the Classroom Level

A number of suggestions for improving Introduction to Vocations programs at the classroom level were made by all four groups. Selected ones are reprinted below.

Selected Suggestions of Introduction to Vocations Teachers

"Regular classroom for all periods."

"I plan to do more research in order to improve my program."

"Continued use of a variety of teaching methods."

"Try for smaller classes."

"More materials and more field trips."

"Better understanding of student problems."

"Need more space and equipment to work with."

"Secure a full-time Introduction to Vocations teacher."

"To arrange my program of work in order to get more field trips into my schedule and have more resource persons to use my classroom."

"Spend more time in planning course of study."

"Spend more time with individual students."

"Resource material."

"More pupil participation in planning orientation program for incoming 9th graders."

"More activities to involve students directly."

"Teaching aids, visual material for all units."

"More long-range planning--more exploratory experiences."

"Grouping of classes according to ability of students."

"More organization needed on my part."

"Provoke more interest getting technique in the subject matter."

"Provision for more student activities."

"Provide more challenging experiences for the students."

Selected Suggestions of Principals

"Better teaching."

"Creativity."

"More materials."

"More equipment and supplies."

"More emphasis placed on the practical and functional aspects of the program."

"More committee and project work."

"More time on teacher's part to schedule field trips and interviews."

"Room space, resource materials."

"There should be more joint planning between teacher, parents and students."

"Stress trades more than the professions."

"Follow-up of students--work with dropouts."

"More preparation--may be too much emphasis on pupils individual contributions."

"Get community more involved."

"To motivate a desire in the students to learn of the world of work, and to constantly provide situations so that this desire may be satisfied."

"A larger variety of activities."

"Building a resource center."

"More enthusiasm on the part of the teacher."

"Possibly more shop work."

"Provide a student textbook for course."

"To have more space and working materials so as to create more enthusiasm."

"Provide more classroom space and planning time for teacher."

"Enthusiasm for teaching."

"Allow teacher freedom to organize and plan work so that students may derive the greatest amount of good."

Selected Suggestions of Superintendents

"More opportunities for inter-visitation to see how others do the job."

"More resource people."

"More training methods."

"This is one of the most difficult courses to teach in the curriculum. Continued assistance must be given to teachers to plan, assemble and prepare materials for student use."

"Vitalize instruction; let students have a part in planning; use many different methods or techniques in teaching."

"Improve the team of teachers."

"Keeping in close touch with community agencies."

"More use of resource people."

"Continual work on the program and subject materials and on methods of presentation."

"More business leaders for discussion groups."

"Developing multi-level and diversity of materials."

"A dynamic teacher and an interested group of youngsters."

"Provision for individual differences, with special emphasis on the slow student."

"Increase opportunities for increased contact with vocations through field trips, etc."

"Less time, not enough material to justify a years work."

"An enthusiastic, alert teacher."

"Permanent classroom, increased supplies, stationery equipment."

"To use the resources more."

Selected Suggestions of Local Directors of Vocational Education

"Better use of teaching aids and materials."

"Student grouping - public relations."

"Too many students for seats and space available."

"We need more teachers who really believe in I. V. and are willing to put in the extra time it takes to get the job done."

Specific Plans for Improving Introduction to Vocations Programs

A large number of specific plans for improving Introduction to Vocations courses were listed by the respondents. Some of these are listed below.

Selected Specific Plans of Introduction to Vocations Teachers

"Making it required for all students."

"Not having to 'float' from room to room."

"I plan to do more research in order to improve my program."

"Work for additional visual aids material."

"I plan to learn more about teaching economics. I plan to develop some projects to create more interest. I plan to invite a former I. V. student to speak to our class."

"Build adequate teaching aids if possible or obtain them. Have more bulletin board space in class and out of class. Obtain tests and aptitude tests to evaluate the students."

"To possibly visit eighth grades of schools, taking a couple of I. V. students along as helpers and to tell the incoming people about the course and giving these people an opportunity to talk with students who are taking I. V."

"I try to evaluate my teaching periodically taking into account changing vocational, educational and social patterns of our society."

"I plan to set up a better filing system in respect to my students in order that my guidance may be more effective throughout high school."

"Have more field trips, reorganize the material teaching. More material and a larger variety, more student activities."

"New school, better library, development of vocational library."

"I want to refine my teaching plans and make the course more profitable to each student."

"Continued training, strengthen the program, enroll more students in the course, involve more parents, follow-up of former I. V. students and sell the program to the community."

"School improvement project sponsored by I. V. Club. Take more field trips--spend more time on Unit III with slower students."

"Trying to convince the administration to offer I. V. to all 9th grade students."

"(a) Acquisition of materials. (b) Enlargement of program. (c) Provision for more class activities such as field trips, etc."

"Work toward the team teaching method."

"Search for material for students to use that is interesting and on their reading level. Collect novels pertaining to the course."

"Plan, carry out more field trips: individual, small group, large group."

"Add audio-visual equipment--build up supply of general materials and equipment--experiment with means for developing more student curiosity."

"Clarify the fact that I. V. is for all ability levels. More resource persons from industry and business. More cooperative effort with community college."

"I plan to work up a supply of teaching materials that really work with the caliber of students that I am working with."

"Additional publicity - more free material to be distributed - purchase additional material and equipment."

"Build up a better supply of material (newspaper clippings, magazine articles and booklets)."

"Purchase: Occupational Outline (sic) Handbooks, Guidance Kits, filmstrips, etc; D. O. T. filing and index for materials; I. V. Club; standardize I. V. activities to seasons of the year."

"I believe that parents should take a more active part in I. V. work on a community wide basis. This will create more interest on the part of the students."

"1. By trying to impress more thoroughly the importance of staying in school. 2. Becoming more aware of what the world of work is and how they fit into it."

"I plan to look at the records of my students and use them as follow-ups to see if there is mass improvement in the study habits, grades and interest in school. I also plan to develop better community relationships so that the public will better understand the program."

<u>Selected Specific Plans of Principals</u>

"Try to get teacher to improve teaching procedures."

"Field trips---Additional instructional materials."

"We are attempting to arrange more field trips and to provide transportation. Increasing our supplies and equipment, getting more students involved."

"Provide supplementary books, expand on our field trip schedule, increase the number of outside speakers."

"We hope to get it scheduled in a more suitable classroom than we currently have. We will increase the amount of materials and supplies available to our teachers."

"To provide more audio-visual materials and build up a good Introduction to Vocations Library in the classroom."

"Find a better classroom--provide more teaching materials."

"a. The acquisition of more materials. b. Enlarging program. c. Provision for more class activities."

"We intend to counsel more students into the course. We hope our enrollment will reach a point that will justify a full-time teacher at this school."

"Continue a program of information to elementary grades. Continue a project in manufacturing--distribution--economics. Integrate program with the vocational program offered in this school and use IVE to better advantage in planning our future vocational courses."

"1. Reduce class size. 2. Provide a complete laboratory for the program with all materials needed to carry out an effective program."

"We hope to be able to have field trips to such places as technical institutes, factories, hospitals, etc."

"Continue efforts to broaden contact with work-world and motivate individual concern."

"Would like to have an additional teacher."

"Attempt to get pupils of a higher capacity to elect the subject."

"Sell the program to the elementary school--pupils, teachers, principal."

"We are attempting to build a library of suitable materials for student use."

"Improve teacher qualifications, gather teaching materials, try to improve 'standing' of course in the eyes of the students."

"We feel this can be one of the most important courses in school. We plan more field trips and more resource persons to come speak with the classes."

"Improved guidance program for 8th graders."

"Encouraging additional training for I. V. instructors. Coordinating activities with local business and industrial concern on a long-range basis. Seeking support and enthusiasm from parents for the objectives of the program."

"Acquire supplementary books for text."

"We plan to encourage more pupils to enroll so that we might double the number of students now being taught. This also would require the preparation of another teacher."

Selected Specific Plans of Superintendents

"Plan to endeavor to use more field trips."

"To provide every possible teaching tool and to improve teacher qualification."

"Hope to obtain a supervisor."

"We plan to add more vocational classes to enable us to have vocational courses available at each grade level in high school."

"Providing more materials - getting all classes at 9th grade level."

"Better equip I. V. classroom. Expand our program (more) in some schools."

"More financial support. More publicity of program."

"Set up an allowance for I. V. teacher for the purchase of supplies. Try and retain the present staff so that we may gain from her experiences and evaluation."

"Encourage more students to take the course. We now have a full-time counselor. We need to better coordinate the program between teacher-counselor and subject teachers with special emphasis on use of the library services. Will probably need to add I. V. teachers."

"We are planning to acquaint more effectively students with program and broaden number participating."

"Continued evaluation of the program to determine needs for expansion or revision, provision of necessary equipment and materials, increasing awareness of regular staff on value of the program."

"Put courses (I. V.) in as many schools as possible. Encourage teachers to get more training. Encourage more and more students to take the course."

"Greater variety of materials. Add 1 more teacher in another school if allocation is available."

"Better scheduling. More I. V. personnel. Better housing. More equipment and supplies."

"Make available to more youngsters. Acquire additional positions. Better orient youngsters to advantages of this opportunity. Supplement store of equipment and materials."

"We hope to improve the Introduction to Vocations Program by providing more financial assistance, more supervision and a greater use of resource people."

"Encouraging increase in enrollment. Addition of positions as needed."

Selected Specific Plans of Local Directors of Vocational Education

"Including I. V. in the curriculum of 2 consolidated schools."

"Try to enlist more students."

"Try to get guidance department to expand testing program. And have this material available when school opens."

"Inform various schools what I. V. is."

Other Comments

Respondents were provided space on the survey instrument to make other comments concerning the program. The following comments were selected for inclusion in this report.

Selected Comments from Introduction to Vocations Teachers

"I enjoy the program very much and hope to improve my teaching abilities as time progresses."

"I feel that the Introduction to Vocations program is the answer to many student's occupational futures. It enables them to explore the world of work and to make the right decision, when the time comes, about their life's work."

"I feel the I. V. Program is meeting the needs of a great number of students and is gradually becoming better known to administrators, students and the general public."

"I think the material we have to teach is very interesting. Small classes makes it possible to give students more individual attention, which some of mine need badly."

"I have enjoyed teaching Introduction to Vocations, because I think it is meeting one of the most urgent needs of our young people."

"I feel that the program is invaluable for girls and boys who are so in need of information that will help them plan for the future. Every ninth grade boy should have access to this course."

"This is just my second year of teaching I. V. I am enjoying it more this year than last. I know more about where I'm--students--are going."

"Would like to see a full-time I. V. teacher in the school. I have a feeling all, or more than 25-30 students, should have the opportunity to enroll in the I. V. course. Concerning the grade level placement I checked twelfth. There are many advantages in so far as the ninth grade is concerned but what about the stability of a 14 year old when he comes to choosing an occupation?"

"I think the basic set-up for study in I. V. is good. There is a variety of knowledge plus freedom in presenting the knowledge. Many visual aids are available to make the class more interesting than it would be just reading from a book. I enjoy teaching I. V. It is a good basic vocational information course."

"We have a most enthusiastic and efficient leadership in this new program. Exchange of workable ideas is fine and I like the informal atmosphere of our group meeting. All teachers seem to be for all teachers and the supervisors lead in the same degree of helpfulness, enthusiasm and understanding. It seem to me a valuable program is in the making on a sound footing."

"We need more teaching references in multiple copies (one for each student). Someone might try and write a textbook."

"The material (printed units) we have received from the State Department are very good. My problem is finding time and paper for reproducing these to use in my classroom. I'd like to use these--especially those concerning Economics."

"The I. V. program at our school is proving to be one of the best for learning experiences. There is much interest on the part of all students taking the course. My hope is that it will become a required course for ninth grade students."

"Personally, I feel the I. V. staff is doing a good job providing us with all the information they can which has been a great help. More Pathfinders--one each month."

Selected Comments from Principals

"I feel the competency of the teacher sets the tone of the program."

"Put a good book or handbook on the textbook or supplementary book list."

"I like the program as it now operates but we need more field trips."

"The program is progressing nicely. The students and teachers have become more aware of the merit of the program and are putting forth special efforts to strengthen and improve the program. More emphasis is being placed on live projects."

"The teacher of I. V. needs some training in guidance and testing. The program has done much in helping students to understand themselves and their peers. In turn it has helped the dropout problem."

"Our instructor of I. V. is doing an excellent job. She is so very creative and holds the attention of all of her students. I am very pleased with her work."

"We are proud of our I. V. program this year. The teacher is doing an excellent job. I just hope that this program is never dropped from our curriculum offerings. It is a most vital one."

"Excellent program."

"I hope that we can in the future offer more shop courses such as mechanics, industrial arts, furniture manufacturing and others which will make our I. V. really the first step in a four year program."

"I have been well pleased with the program. This is our second year with it and we are beginning to draw a good cross section of the boys into the course. We hope to be able to bring more girls in also."

"It is a very good program."

"I feel that the union of guidance and Introduction to Vocations positions could well be a goal of the program. This would give adequate follow-up program incentive. If a school needed a full-time counselor, split the position and have two part-time I. V. teachers and two part-time counselors. If the course were required this would insure that the counselor knew the student, his capabilities and ambitions."

"State supervisors have been most helpful in getting resource materials and supervising the program."

"We feel that the I. V. program as currently organized and planned offer great possibilities for our students and community."

"The Introduction to Vocations program is performing a vital service in our school. We believe that this program, as all programs, can be improved; but we are well pleased with I. V. as it is now structured."

"We are in need of a full-time I. V. teacher."

"It would be an excellent idea if the State Department would conduct an institute or workshop for principals on the I. V. program."

"The I. V. program is operating successfully in our school. Although it is an elective course, it is very popular with our pupils. Our guidance department cooperates fully with the instructors in this area."

"This program is one that has been needed for a long time. The disseminating of information to students so that they may be more appreciative of the world of work is indeed a necessity that needs constant implementing. It is the general consensus by all involved that it is paying off in handsome dividends."

"One of the finest programs for youth in our school."

Selected Comments from Superintendents

"Teachers are difficult to find. We were forced to drop the program in one school because of the lack of a qualified teacher."

"More industrial and business concepts needed by teachers."

"The I. V. Program has been a valuable addition to our curriculum. We believe there is a need for such a course in schools. There is some indication that it might be valuable for Seniors that had not had it as freshmen, however, we feel that as now set up it is best at ninth grade level, especially since it should be helpful to students in planning their high school curriculum."

"Very fine program - excellent help from State Department - we have a very good teacher. I feel sure we have something going."

"I would like to see a 'hybrid' course developed for students of very low ability - a cross between I. V. and I. C. T. The course should be available to potential drop-outs and others of low ability at any grade level. We have tried this on an experimental basis and I think it has merit."

"We like it and think it has great possibilities."

"The I. V. program is helping to meet a need present in many of our pupils. The program can be improved through better coordinated from center to circumference, through more adequate teacher training courses or programs, more teacher and pupil interest and more concern expressed by all involved."

Selected Comments from Local Directors of Vocational Education

"Very effective when taught by a qualified, interested instructor."

"We have I. V. in three of our four high schools. One of the schools has it as a required subject and the program is going real well. One of the schools has it as a requirement (almost) for college and the third treats it as an elective for the lower level of the ninth grade. As I said before, I hope we can make I. V. a required subject for all ninth grade students."

SECTION III - SUMMARY, CONCLUSIONS AND IMPLICATIONS

Summary

This study has been concerned with the opinions of Introduction to Vocations teachers, principals, superintendents and local directors of vocational education concerning the Introduction to Vocations program in the public schools of North Carolina.

Areas included for study were: need for such a course; extent to which course objectives are realistic and worthwhile; extent to which the course is presently meeting the objectives; grade level placement of the course; students to be served; relationship of the course to other academic and vocational offerings; qualifications needed by the teacher; elective nature of the course; barriers to improvement; most effective teaching procedures, techniques or aids; and plans for improving the course.

All Introduction to Vocations teachers, principals, and superintendents with as much as one year of experience in the program were invited to participate in the study. Ten local directors of vocational education were also invited to participate.

An instrument was prepared to determine opinions of the respondents and mailed with a cover letter in November, 1966. One follow-up letter was used. This resulted in slightly more than 80 per cent usable returns.

The data were analyzed and put into tables for this report.

Conclusions

The following conclusions seem to be justified from the results of this study:

1. There is definite need at the ninth grade level for a course designed to help students make the educational decisions required of them at about this grade level. These decisions have an important influence on their later occupational lives. Earlier training and experiences of these students generally have not been sufficient for them to effectively make these decisions.

2. The objectives of the Introduction to Vocations course in the public schools of North Carolina are appropriate, realistic and worthwhile objectives.

3. The objectives of the program are being satisfactorily attained in most schools in North Carolina. Additional emphasis should be given to increased methods of more effectively reaching the objectives. Some teachers will need to concentrate on improvement in their recognized weak areas.

4. Introduction to Vocations programs should have a close relationship to and help students make decisions concerning enrollment in vocational education and academic offerings in the school.

5. Vocational offerings at the upper high school level should be influenced by vocational interests of students identified or sharpened during the Introduction to Vocations course.

6. The suggested course content for the Introduction to Vocations course is appropriate for meeting the course objectives.

Continued attention should be given to making the course content even more appropriate.

7. Successful completion of the Introduction to Vocations course should result in fewer students dropping out of school.

8. More study, research and experience is needed before a final decision is made concerning whether the course should be an elective or required course.

9. The course should be offered at the ninth grade level. An introductory unit should be developed and made available for use at the eighth grade level. Materials selected or developed in the course should be made available for use by upper-class students, other teachers and guidance counselors.

10. Ability levels of students should neither require them nor prevent them from electing the course. Students of all ability levels should be served.

11. Both boys and girls should be served by the Introduction to Vocations course.

12. Extensive use of resource persons coming into the classroom and field trips for the students should be made in teaching the course.

13. Enthusiastic and creative teachers who have the ability to do individual and small group instruction and to work well with other teachers appear to be well suited for working in Introduction to Vocations programs.

14. Special attention needs to be given to making more adequate provision of teaching materials, supplies and equipment. More

adequate, attractive and permanent teaching stations should be provided.

15. Teachers, principals, superintendents and local directors are aware of many areas in which program improvement is needed and are making specific plans for this improvement.

16. More attention at the state level should be given to teacher preparation, securing funds for more teaching positions, extended length of employment of teachers, matching local equipment and teaching materials money, publicity for the program, teaching materials and in-service programs for both teachers and administrators.

17. At the administrative unit level attention should be given to more adequate budgets for Introduction to Vocations programs, more housing space, a closer acquaintanceship with the program, more supervision and better coordination of personnel and programs.

18. At the local school level attention should be given to securing better facilities, improving scheduling to allow for greater selectivity by students, more field trips and better balanced classes, helping all teachers and students to understand and appreciate the objectives of the course, greater correlation with the over-all curriculum, more effective orientation program for elementary teachers and students, more active involvement of the principal with the course, and providing additional planning time for the teacher.

19. Improvements at the classroom level can be made through better planning, more efforts to make effective field trips and use resource persons, using a larger variety of activities, professional improvement of the teacher, working closely with other vocational

and academic teachers and the guidance counselor, keeping in close touch with the businesses, industries and various agencies of the community and making better use of teaching aids and materials.

20. Plans for improvement over the next 3 years will concentrate in the areas of space, funds, scheduling, field trips, orientation of teachers and students, teaching materials and equipment, and making the course elective for both boys and girls of all ability levels.

21. The course is seen by local school officials as a valuable addition to the public school curriculum.

Implications

The following implications have been drawn by the writer from this study:

1. Vocational education, guidance and elementary school personnel (perhaps beginning in the State Department of Public Instruction) should join together to determine effective methods for use at the elementary school level to help students learn to make some of the educational decisions required of them as they enter their high school years.

2. Course content and instructional methods and techniques for the Introduction to Vocations course should be continuously evaluated and changed as necessary.

3. Teachers of Introduction to Vocations should emphasize the relationship of the Introduction to Vocations course to other vocational and academic courses in the school. Suggestions for doing this should be incorporated in the Teacher's Guide. Information

about both vocational and academic opportunities in the local school should be stressed by the Introduction to Vocations teacher.

4. Students who have characteristics of potential dropouts should be encouraged to take Introduction to Vocations. This must not be interpreted to mean that the course is only for special groups of students but that the nature of the course lends itself to helping students see the value of continuing their education and helping them to relate high school courses to their occupational futures.

5. Much further study is needed concerning the elective vs. possibly required nature of the course. There may be some students for whom the course should be required. How do we identify these students?

6. An introductory unit for optional use at the elementary school level should be prepared.

7. Continuous efforts must be made to assure that the course is made available to both boys and girls at all ability levels.

8. Local school officials should review their scheduling patterns to provide possibilities for effective field trips. The Introduction to Vocations Section in the State Department of Public Instruction should take the leadership in surveying ways this problem has been solved over the State and issue a bulletin outlining some of those for local consideration.

9. Incentive funds (on a matching basis) should be allocated by the State Board of Education for additional teaching materials and equipment for the program.

10. Local school officials should allocate a minimum of one period per day to the Introduction to Vocations teacher for planning, arranging for resource persons or field trips and individual help for students. Absolutely no administrative or supervisory duties should be assigned to this teacher during this period.

11. The State Board of Education should allocate funds to support at least one strong teacher education program in Introduction to Vocations. This would include both undergraduate, graduate and in-service programs. Other institutions should offer courses which might be used for certificate renewal purposes.

12. Each Introduction to Vocations teacher should be assigned classroom space where all Introduction to Vocations classes the teacher teaches each day would be held. "Floating" from classroom to classroom should be minimized and at best regarded as a temporary measure for one year only.

13. Periodic professional group meetings of Introduction to Vocations teachers should continue (and perhaps be expanded) under the leadership of the Introduction to Vocations section of the State Department of Public Instruction.

14. A strong research program should be developed for Introduction to Vocations programs. Leadership for this program should come from the North Carolina Research Coordinating Unit in Occupational Education, the State Department of Public Instruction and teacher education institutions.

15. Attempts should be made at all levels to increase public understanding of and appreciation for the course and its objectives.

APPENDIX

DEPARTMENT OF PUBLIC INSTRUCTION

STATE OF NORTH CAROLINA RALEIGH

November 28, 1966

TO: Certain School Administrators and Introduction to Vocations Teachers

FROM: Tommie N. Stephens, State Supervisor, Introduction to Vocations

Joe R. Clary, Assistant Professor, North Carolina State University

SUBJECT: Request for Introduction to Vocations Data

The response to our request of November 2, 1966 for information on and reaction to the Introduction to Vocations program(s) in your local school or unit has been very good. The reactions and suggestions are proving most helpful to us as we evaluate our activities and plan ways in which we might be more helpful in working with you to improve your local Introduction to Vocations program(s).

Unfortunately, we have not yet received your response, which we are sure will add greatly to the value of this effort. Realizing the fact that you are extremely busy and may have misplaced the first instrument, we are enclosing another. (By the way, a few of you completed the instrument and returned it to us but failed to provide enough information at the top of the form to enable us to specifically identify your return. This will account for your receiving a second request after complying with the earlier one. Please help us by completing it again. While all replies will be kept confidential, it is important that we be able to identify each reply.) Would you take just a few minutes today and let us have the benefit of your thoughts on the points raised? Also, would it be possible for you to return the completed instrument by December 2?

In the event you have mailed your completed form to us in the last day or two, let us use this letter as an expression of our thanks.

Thank you very much.

TNS:JRC:pt

Enclosure

Name _____

Position _____

PLEASE COMPLETE and RETURN in enclosed envelope not later than November 11, 1966.

I. Listed below are a number of statements, some of which concern the nature and needs of students entering the ninth grade and others concerning the Introduction to Vocations course being taught in the public schools of North Carolina. Please read each of the statements carefully and indicate your reaction according to the following scale by placing a 1, 2, 3, 4, or 5 in the blank to the left of the statement.

Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	2	3	4	5

_____1. Youth are required to make a number of educational decisions at about the ninth grade level which have an important influence on their later occupational lives.

_____2. Adequate training is provided at the elementary school level for students to make the educational decisions required of them at the ninth grade level.

_____3. The over-all objective of the Introduction to Vocations course - "To help students develop plans regarding their occupational and educational futures" - is appropriate for a ninth grade level course.

_____4. Students entering the ninth grade lack a first-hand knowledge, understanding, and appreciation of the changing employment patterns and opportunities in the world of work.

_____5. Students entering the ninth grade need help in learning to appraise their own interests, aptitudes, personalities, and skills in relation to a variety of vocational opportunities.

_____6. Students entering the ninth grade need help in understanding the basic processes of production, processing, and distribution in a "free enterprise" economy.

_____7. Students entering the ninth grade need to become acquainted with the major occupational fields (including organizational structure, jobs, kinds of work involved, and educational and other training reguirements for entry and advancement in these major occupational fields).

_____8. The Introduction to Vocations program as currently being taught in my local school(s) is adequately meeting the needs suggested in statements 4, 5, 6, and 7 above (except for statements _____, _____, _____, and _____).

_____9. Introduction to Vocations should have a close relationship to and help students make decisions concerning vocational education offerings in the school.

____10. Introduction to Vocations should have a close relationship to and help students make decisions concerning other academic offerings in the school.

____11. Vocational interests of students identified or sharpened during the Introduction to Vocations course should influence the nature of vocational offerings at the upper high school level.

____12. Course content as outlined in the Teacher's Guide for the Introduction to Vocations course is appropriate for meeting the course objectives (Note: Please note exceptions and suggestions on the back of this page).

____13. The Introduction to Vocations course should result in fewer dropouts from students successfully completing it.

____14. The Introduction to Vocations course should be an elective (as opposed to a required) course.

II. Grade level placement of the Introduction to Vocations course should be: (Check (✓) the one selected)

_____Eighth grade.
_____Ninth grade.
_____Tenth grade.
_____Eleventh grade.
_____Twelfth grade.
_____ _____

III. The course should serve (Check (✓) the one selected for A and the one selected for B):

A. _____Above average ability students
_____Below average ability students
_____All ability levels equally
_____ _____

B. _____Boys only
_____Girls only
_____Both sexes equally
_____ _____

IV. What five teaching procedures, techniques or aids appear to be most effective for this course? (Select from list below, or add additional ones, and encircle the letter of each of the five chosen.)

a. On-the-job interviews
b. Theme writing
c. General discussion
d. Committee work
e. Oral reports
f. Field trips
g. Movies
h. Collect want ads
i. Individual observation
j. Resource person come into classroom
k. Projects
l. Keep notebooks
m. _____
n. _____
o. _____
p. _____
q. _____

V. What are the five most important qualifications for a teacher of Introduction to Vocations? (Select from list below, or add additional ones, and encircle the letter of each of the five chosen.)

a. Enthusiasm
b. Creative
c. Trained in guidance
d. Ability to do individual and small group instruction
e. Industrial or business work experience
f. Above average abilities in public relations
g. Ability to work well with other teachers
h. _____
i. _____
j. _____
k. _____
l. _____

VI. What are the 3 most serious barriers to further improvement of the Introduction to Vocations program in your administrative unit or school? (Select from the list below and encircle the letter of each of the three chosen.)

a. Plant - space - housing
b. Equipment - supplies
c. Inadequate teaching materials
d. Enrollment - attendance
e. Teacher overload
f. Scheduling
g. Lack of textbook
h. Lack of teacher interest
i. Lack of student interest
j. Administrative support
k. Professional preparation of teacher
l. Cannot arrange field trips
m. Level of teaching materials too high
n. Lack of available teachers
o. _____
p. _____
q. _____
r. _____

VII. What suggestion do you have for improving the Introduction to Vocations program:

a. At the State level (Supervision, teacher training, etc.): _____

b. At the administrative unit level: _____

c. At the school level: _____

d. At the classroom level: _____

VIII. What specific plans do you have for improving the Introduction to Vocations program over the next three years?

_____

_____

_____

IX. Other comments concerning the program:

DEPARTMENT OF PUBLIC INSTRUCTION

STATE OF NORTH CAROLINA RALEIGH

November 2, 1966

TO: Certain Selected Public School Administrators and Teachers of Introduction to Vocations

FROM: Tommie N. Stephens, State Supervisor, Introduction to Vocations
Joe R. Clary, Assistant Professor, North Carolina State University

SUBJECT: A Request for Some Help

We need your help!

A few months ago, several of you were asked to give us your opinion of the Introduction to Vocations program and to make some projections to help us more realistically prepare our budget request for the next biennium. You responded with promptness and we are deeply grateful. Your comments concerning the Introduction to Vocations program were most gratifying. Most of these were rather general, however, and rightly so, because that is how they were requested.

We now are greatly in need of your more specific reactions and suggestions for the program. We have tried to categorize in the attached instrument some specific types of reaction and information we need to plan more effectively and carry out our roles in supervision and teacher education.

Would you please take a few minutes today to complete and return to us the attached instrument? Your individual replies will be held in confidence and not identified in reports resulting from this study. We will be happy to share the results with you as soon as possible.

Your cooperation in this study is deeply appreciated.

TNS:JRC:pt

Enclosure

VT 001 546

VT 001 546 ED

Research and Development in Vocational and Technical Education, Non-Metropolitan Areas. (Final report, Project no. ERD 255).

Thomas, Robert W.

Iowa State Univ. of Science and Technology, Ames.

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*VOCATIONAL EDUCATION, *TECHNICAL EDUCATION, *RESEARCH PROBLEMS, HUMAN RESOURCES, EMPLOYMENT OPPORTUNITIES, EDUCATIONAL RESOURCES, SCHOOL POLICY, EDUCATIONAL NEEDS, *RURAL AREAS, PREDICTION, FAMILY INFLUENCE, PSYCHOLOGY, *INTERDISCIPLINARY APPROACH, AGRICULTURAL OCCUPATIONS, OCCUPATIONAL CHOICE, LEGAL PROBLEMS, RURAL DROPOUTS, RURAL YOUTH, PROGRAM DEVELOPMENT, SOCIOECONOMIC INFLUENCES,

Iowa,

An organization was established to undertake interdisciplinary studies of problems associated with vocational and technical education in nonmetropolitan areas. The Strategic Intelligence Unit identified and conceptualized components of problem areas and recommended research activities. The Research Activities Unit conducted research on -- (1) the decision-making process of school districts as it relates to vocational and technical education, (2) occupational problems and vocational training needs of high school dropouts in rural Iowa, (3) the interrelationship of home environment and employment, (4) manpower requirements and demand in agriculture, (5) the problems of predicting rural labor market changes, (6) possible contributions of psychology to interdisciplinary research, (7) determinants of post high school education and vocational choices of rural boys, and (8) legal and political problems and the strategies necessary to implement programs under the Vocational Education Act of 1963. (JM)

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FINAL REPORT
Project No. ERD 255
Contract No. O. E. 5-85-108

RESEARCH AND DEVELOPMENT IN VOCATIONAL AND TECHNICAL EDUCATION: NON-METROPOLITAN AREAS

November 1966

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

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Robert W. Thomas

November 1966

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1/ Robert W. Thomas, Associate Professor of Economics, Department of Economics, Iowa State University, Ames, Iowa; and Chairman, Strategic Intelligence Unit of the Project for Research and Development in Vocational and Technical Education: Non-metropolitan Areas.

I. INTRODUCTION

This final report from the project for research and development in vocational and technical education for non-metropolitan areas has been prepared as a synthesis of the total project which had two main components: (1) the Strategic Intelligence Unit, and (2) the Research Activities Unit composed of eight research activities.

Work of the two principal components appear as significant divisions of this report.

A. Problem

A multitude of political, social, and economic changes are affecting the United States population, including non-metropolitan areas. Problems of vocational and technical education in non-metropolitan areas deserve special attention. Certain problems are magnified in non-metropolitan areas. Some of these are unique. For example, many non-metropolitan areas are poor in productive resources. Financing education becomes a burden difficult to bear. Also, problems arise because of rural migration.

Non-metropolitan area citizens need educational help to interpret changes of which they are a part. Residents capable of profiting from it need vocational and technical training and retraining to face the changing world of work.

Among rural changes to be interpreted are losses of population.

To illustrate how migration has occurred, the farm labor force itself has declined by 45 per cent or 4½ million over the past 25 years (13).

Projections indicate only one farm boy out of every 15 can actually be employed in farming during the next 20 years (14). Research suggests that 40 per cent of farm operators must find off-farm employment opportunities over the next 20 years (14). While 40 per cent of the males in agriculture will leave agriculture in the next decade, the rate is projected to be as high as 75 per cent for those in the 15-24 age group and as low as 1 per cent for those in the 45-65 age group (14). Unless important retraining programs can be created for such persons, many will be trapped in farming at low incomes. Under-employment is higher and human productivity much lower in agriculture than in industry (14).

Further, in towns dependent upon primary agriculture, the major portion of the labor force fares no better than the farm families.

Though the land in farms does not decrease appreciably, the number of farms does. Between 1940 and 1960, the number of farms declined 39 per cent. A further 67 per cent decline is expected by 1980 (14). Moreover, the skills required to operate a farm in the future will differ greatly from those of the past.

Business, services, and social institutions in the rural community are having to make changes of the magnitude as those taking place in farming. The exodus of the farm population leaves fewer customers to be served by the merchants and institutions of the rural town; consequently fewer workers are needed in the rural towns. Moreover, economic growth and the substitution of capital for labor affect the rural town and rural social institutions as well as the outlying farms. The same forces which have led to larger and fewer farms, economic growth and a decline in the price of capital relative to labor, call for larger and fewer business establishments servicing the farming industries as well as larger and fewer public institutions, and larger and fewer firms servicing rural communities.

People in the non-metropolitan areas must make great occupational and geographic adjustments to national economic growth and change. This forced adjustment can be expected to continue in rural America over future decades. Further, in undergoing this adjustment these people have a great present disadvantage in vocational and technical education, and frequently in general education as well. The number of high school dropouts from non-metropolitan areas is high (22). Financial support for training was found to be weak. Local on-the-job training facilities were scarce. And employment opportunities were few in number in these non-metropolitan areas (22).

Rapid economic growth is making obsolete the rural community as it once existed. It will become progressively more obsolete when more and more jobs are taken over by machines and automated production schemes in larger cities. Rural areas are becoming over-equipped with towns, local governments, churches and businesses as they are with laborers. Technological change and economic growth have given rise to economics in large scale operations. As a result the town business and community institution have been affected as well as the farm. Thus the business, educational, governmental, and other communities must be spread over much more space and serve more people if they are to be economically viable in the next 30 years. These redirections all

bring changing requirements with respect to employment opportunities and training needs. Yet, until recently, this non-metropolitan sector of the economy was almost untouched by national efforts to upgrade its socio-economic opportunity.

B. Purpose

The purpose of this project was to establish an organization of two principal components to undertake inter-disciplinary studies of problems associated with vocational and technical education in non-metropolitan areas. The two components for inter-disciplinary studies of vocational and technical education problems were the Strategic Intelligence Unit and the Research Activities Unit. Through these two structures this project engaged in examination and analysis of priority problems of vocational and technical education in non-metropolitan areas of the United States.

A Standard Metropolitan Statistical Area (SMSA) is defined by the Bureau of the Census as follows: A county or group of contiguous counties (except in New England) which contains at least one central city of 50,000 inhabitants or more or "twin" cities with a combined population of at least 50,000. In addition to the county, or counties, containing such a city or cities, contiguous counties are included in an SMSA if, according to certain criteria, they are essentially metropolitan in character and are socially and economically integrated with the central city. In New England, towns and cities are the units used in defining SMSA's (32).

C. Objectives

The objectives of this project were to analyze problems surrounding vocational and technical education in non-metropolitan United States by means of two related organizational forms: (1) the Strategic Intelligence Unit, and (2) the Research Activities Unit.

II. METHOD

Methods of operation within the project varied between principal organizational components.

Under the Research Activities Unit was undertaken interdisciplinary research in vocational and technical educational problems in non-metropolitan areas.

Under the Strategic Intelligence Unit inter-disciplinary "brain-storming" sessions and special work sessions were used for creative conceptualization of problems associated with vocational and technical education for non-metropolitan area people.

During the contract period from June 1, 1965 through November 30, 1966, this project focused upon priority problems within the setting surrounding vocational and technical education for non-metropolitan areas. The Strategic Intelligence Unit worked on the problem setting. The Research Activities Unit undertook eight specific activities.

Problems arising within the non-metropolitan town-rural complex of the United States were the main concern, with emphasis placed upon Midwest non-metropolitan areas.

III. RESULTS

A. Strategic Intelligence Unit

1. Inter-disciplinary Interaction. The Strategic Intelligence Unit began inter-disciplinary analysis of vocational and technical education, studying society-wide justifications for training for the world of work in order to establish fundamental concepts useful to discussion and research.

This Unit, listed in Table 1, interacted with its membership and with the consultants to gain inter-disciplinary understanding of vocational and technical educational problems.

2. Problem Conceptualization. To aid conceptualization of problems and evaluation of preparation for the world of work, examining man's realized and unrealized social, economic, legal, and educational goals together with philosophies from which they sprung was considered an important part of the group's work. Through this broad approach it was believed new applications of current theory and alternative solutions to present training problems could emerge.

Generation of a set of concepts and a framework for continuous and long-term study was begun. These concepts and the framework could be used in future analysis of problems of vocational and technical education for non-metropolitan areas.

Taking the necessary broad view in the beginning of analysis and conceptualization reminds one that in dealing with the fundamental development of human beings over time, space, and socio-economic class, one must recognize existence of numerous complex

Table 1. STRATEGIC INTELLIGENCE UNIT, Iowa State University, Ames, Iowa

MEMBER	IOWA STATE UNIVERSITY POSITION
Dr. Ernest Anderson	Distinguished Professor & Head - Aerospace Engineering
Dr. George Beal	Professor - Sociology
Dr. Donald Boles	Professor - History, Government & Philosophy
Dr. George Browning	Associate Director - Agriculture & Home Economics Experiment Station
Dr. Ray Bryan	Professor & Head - Education
Mr. Clarence Bundy	Professor - Education
Dr. Lowell Carver	Professor - Education
Dr. Earl Heady	Distinguished Professor - Economics
Dr. Trevor Howe	Associate Professor - Education
Dr. Virgil Lagomarcino	Professor & Director - Teacher Education
Dr. Edwin Lewis	Associate Professor - Psychology
Dr. John Mahlstede	Assistant Director - Agriculture & Home Economics Experiment Station
Dr. Marguerite Scruggs	Assistant Dean - Home Economics Administration
Mr. William Stucky (Sec.)	Education Leader - Center for Agricultural and Economic Development
Dr. Robert Thomas (Chr.)	Associate Professor - Economics

variables: (1) the human population, (2) the existing physical constraints, (3) the existing societal constraints, (4) the interaction of each of these with the other, and (5) the interaction of the first three.

At the start, one recognizes: (1) the human variable, (2) the geographic variable, and (3) the cultural and social variable. Each of these complex variables contains within it certain fixed and variable attributes depending upon the time period one allows for analysis. The long-run would see no fixed attributes. For example, an individual has an inherited set of attributes not clearly known and specifically specified at this particular time, but inherited attributes nontheless. Quite possibly these are changeable with research and development of human beings over time. This is one illustration of the importance of time to the analysis.

In beginning an exploratory model for vocational and technical education problems (problems which are, of course, a part of the total set of social problems), one would consider the human resources with their inherited attributes and their social constraints, the geographic or physical constraints, the cultural and social milieu as constraints, and then time. One could conceive of four general and broad variables in the original conceptual model.

Continuing with this approach one can recognize a "function", and an "organization." Hence, for the concept education, and for vocational and technical education, one can discuss concepts of "functionalism" and of "institutionalism".

Within the functional and institutional concepts, one can characterize education as change in the human being which is brought about by his interaction over time with (1) the structure, (2) other human resources, (3) the social milieu, and (4) the geography of his environment. This change through interaction may be of a formal or of an informal nature. It may be quite direct and obvious or quite subtle and not easily noticed.

The function of education is development of human beings. This function can be formal, informal, insidious, subtle, direct, obvious, "good", or "bad." In a changing society such as ours the ends, goals, and objectives of "functional" education or of "institutional" education may be evaluated as "good" in one period and "bad" in another, depending upon the evaluator, the situation, or the priorities assigned to different attributes of an education.

The ingredients of a conceptual model over time consist, then, of (1) the human resources, (2) the geographic attributes, (3) the social and cultural attributes, (4) the "functioning" educational process for the "civilization" of the human input (a "civilization" defined in terms of dominant societal goals and needs within the existing social and institutional structure).

Take just the first variable, the human resource alone. It has a direct impact upon the social systems, the institutions, the dominant societal goals, and the needs of society. Given the characteristics and socio-economic classes of people, the human resource may act directly or it may act indirectly (through modifying variables) upon these four items. Between human resources, social systems, and social goals exist, with varying significance over class, certain intervening variables which further modify the impact of a given human resource upon a given social system, order, or structure.

Then, in turn, the social systems, orders, structures, and institutions perform certain functions for and against sub-sets of the human resource. Certain indirect and direct modifications arise.

With the permissiveness of modern United States society and the constant change of the 20th century, dominant societal goals and needs are shifting. This needs to be recognized in a dynamic model dealing with the total "functionalism" and "institutionalism" of education of which vocational and technical education is a part.

A model for analysis of vocational and technical educational development may be started in the following manner (based on committee work adopted by the Strategic Intelligence Unit.)

Vocational-technical educational development may be thought of as a dependent variable, "Y". Each of the following may be symbolized, and are variables affecting "Y": human resources (X_1), social systems and institutions (X_2), dominant societal goals and needs (X_3), together with intervening variables, between human resources and social systems (X_4), and between social systems and dominant societal goals (X_5).

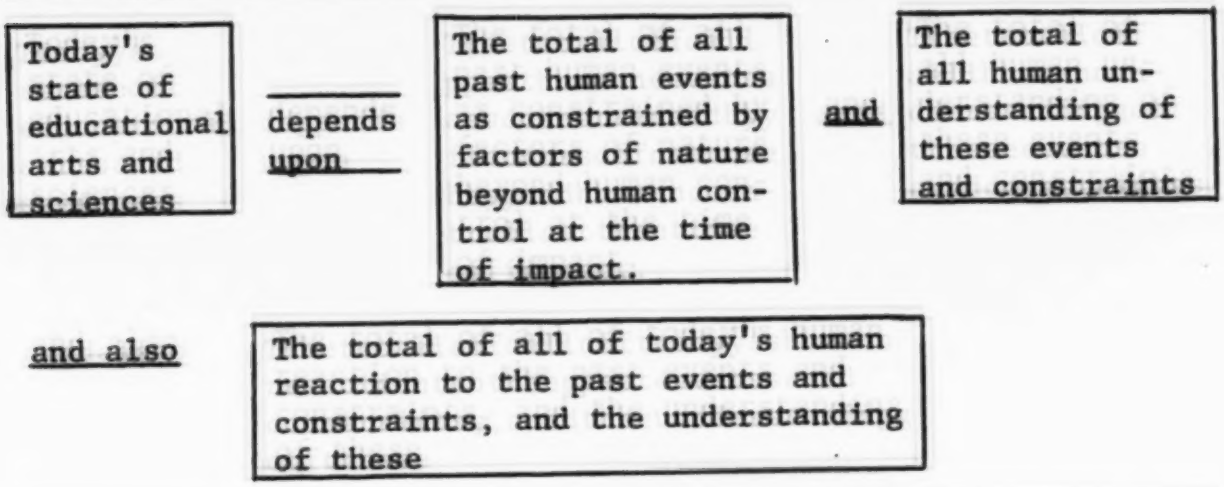
Then the following formal statement is conceived:

$$Y=f(X_1, X_2, X_3, X_4, X_5).$$

Many variables modify the characteristics of the human resources (X_1) and the functions of the social systems (X_2). Also the intervening variables between the human resources and the social systems (X_4) create another set of conditions. Between systems and goals (X_5) are yet more modifiers of the training process. Further, these variables possess reciprocal influence on each other. Finally, external "constraints" influence the whole system.

Figure 1 is a concept of relationships affecting today's education. This concept symbolizes today's state of educational arts and sciences. These are taken as the dependent variable, dependent upon the total of all past human events as constrained by factors of nature beyond human control at the time of impact, the second variable which is considered to be the total of all human understanding of these events and constraints, and a third variable which is the total of all of today's human reactions to the past events, to their constraints and to understanding of these constraints.

Figure 1. A Concept of Factors Affecting Today's Education



This concept given in Figure 1 emphasizes the total of past events and physical constraints beyond human power, total accumulation of knowledge and understanding about these, and the collective human reaction in the present period to the accumulated knowledge and the events. What this does is emphasize three aspects which are significant in any given time period or any given educational flow or system.

Though problem concepts of factors affecting today's education as discussed above and as shown in Figure 1 may be useful beginnings, these do little to alter immediate educational problems of the present. Hence this level of abstraction needs to be brought closer to present reality.

The process of relation to present reality could follow from the following considerations.

At any given time there exists a set of human resources which display collective and individual human reactions to past events and to present and past constraints. This set of human resources has beliefs and understandings of its collective self and of constraints. These are shown through social systems and institutions established and tolerated. These understandings and beliefs are shown by the kinds of dominant societal goals and needs which this human resource says it should seek.

In a dynamic sense one might say that educational development, including vocational and technical educational development, is a function of the human resources, the social systems and institutions and the dominant societal goals and needs as these are constrained by the external forces of the moment.

Taking this approach causes one to be concerned about past events, understanding of these events, and reaction to these events under three sub-groupings: (1) reaction and interaction with present human resources, (2) reaction and interaction with present social systems and institutions, and (3) reaction and interaction with dominant societal goals and needs of the present period.

Seeking to develop conceptualizations of problem areas surrounding vocational and technical education involves expanding materials discussed in such ways that priority areas of concern to people and leaders can be analyzed.

To lay aside confusion, the first step is to recognize that education has, in its broadest sense, two aspects: (1) a function and (2) an institutional structure. Looking at education in its functional sense, one can say that by defining education as "change with choice" is adequate. That is to say, the dynamic processes of life and matter over which man may exercise no control are beyond the range of this definition of education. However, within the definition are those processes which are at anytime affected by human beings and over which choice may be exercised. This choice may be regarding ones own activity or activities of others. This choice may involve changing the environment, changing an individual, or changing a group of individuals.

The function of education would be bringing about change, at rates and in areas, according to man's choosing. This includes the studying of how these changes occur to develop information which will expand man's range and choice. In other words, man may choose to study, act or do neither. The act of choosing is based upon a state of knowledge. This state of knowledge is a stock on which education draws. The flow, or dynamism, is the functionalism of education and is the process by which change is made by choice.

In dealing with human resources and modifying variables, problems of development of training programs lie in (1) considerations of personal and social significance of work, (2) adult and continuing education, (3) occupational information, (4) career choices, (5) program evaluation, (6) curriculum experimentation, (7) personnel recruitment and development, and (8) program organization and administration.

Success and failure elements of various kinds lie within these priority areas. For example, ways in which human needs for adult and continuing education would be organized by use of

curriculum experimentation and program evaluation would contain success or failure elements depending upon goals and objectives of the society or sub-cultural group upon whom the activity is to be performed and for whom the activity is to be done.

Hence, the final need in the conceptual structure is a model for public policy which would permit relating the human resources to publicly acceptable and achieveable goals through media of social organization and informal, ad hoc gatherings. Therefore, each given sub-cultural group which is organized as a part of the total cultural system must have its objectives specified so that they are obtainable by the non-policy workers, or the technicians of the system. Furthermore, since sub-cultural social groups have multiple goals, and each goal has multiple alternatives for achievement, feasible means of achieving alternatives and explicit goals would be part of a model containing public policy objectives.

The preceding discussed generalized conceptual models which can form a background for serious examination of problems of vocational and technical education. Although the background and the variables within the generalized conceptual model are complex and numerous, it is urged that this not detract from an attempt to examine education, its functions, and its institutionalization. It is strongly recommended that the total and broad view be taken at the beginning so that there will be fewer piecemeal and ad hoc attempts to "solve" problems of vocational and technical education. Somehow examiners must come to grips with the total framework surrounding education in such a manner as to grip the functional and structural vocational and technical educational needs of our society.

If one takes a specified category of human resources (with their characteristic interests, attributes and aspirations) which may be oriented towards vocational and technical education (which is presumed here to be a non-baccalaurate goal), one can take this cluster of resources and move it through a vocational and technical educational structure designed to perform certain functions and which is adapted to the achievement of certain ends and objectives. These ends may or may not be specifically aligned with those of the resource input. However, the ends are certainly aligned with those of the decision makers for the structure. One may hope that the decision makers for the structure and the aspirations of the cluster of human inputs into the structure might be similar. If this is the case, and if adequate analysis of a cost-benefit nature can be performed, optimum development of work abilities could be generated.

Though elements of conceptual models may interact and influence other elements, it does not occur all at the same time. The time path of action and reaction presumably could be traced. A dynamic model suggests a means of seeing relationships of vocational and technical education to related components of society.

3. Group Activities. The role of the Strategic Intelligence Unit was creative analytic thinking about the problem setting for vocational and technical education for non-metropolitan areas. To attack these problems, the inter-disciplinary Strategic Intelligence Unit of 15 members sought outside assistance and interacted with its own membership to achieve an inter-disciplinary structure under which vocational and technical education could be examined.

This group held bi-monthly seminars and devoted its efforts to defining problem areas, and identifying relevant research activities.

The group noted the problem setting for vocational and technical education as consisting of four principal components: (1) unrealized human, social, and economic goals; (2) existing laws, programs and educational philosophies; (3) past and current theory in research findings; and (4) alternative solutions.

The Unit analyzed in depth problems of vocational and technical education in non-metropolitan areas, thinking creatively in this analysis about the problem framework, the problem context, and the analytic framework.

In performance of its role, the Unit interacted informally to develop a spirit and rapport which would make possible a free flow of inter-disciplinary discussion regarding problems of vocational and technical education. Because of the nature of the training of the membership and the customary orientation toward a discipline approach, an inter-disciplinary approach was achieved, but not readily achieved. Considerable effort on the part of the group was necessary in order to achieve an effective inter-disciplinary consideration of problems surrounding vocational-technical education and problems of specific vocational and technical educational needs.

Work of the members during and between meetings brought the following results. The Strategic Intelligence Unit, received, reviewed and discussed: (1) materials from the United States Office of Education, (2) materials relating to priority needs for research and exploration, (3) materials related to definitions of terms and work areas under the Vocational and Technical Education Act of 1963, (4) reports on definitions of terms, (5) reports

dealing with priority areas for research and development, (6) items on research and development activities, (7) analyses of the total problem context for vocational and technical education, and (8) statements of purposes of adult and vocational educational training.

Definitions of parameters of the Unit work under the vocational and technical educational problem were discussed. The Unit's problem was defined as two-fold: (1) to suggest kinds of training opportunities now needed and not available, and (2) to seek to arrange in priority fashion the kinds of trainings which would have the highest payoffs to society. To assist in understanding these two tasks, speakers were arranged.

Dr. Selz Mayo, North Carolina State University, Raleigh, North Carolina discussed problems of occupational training and organizing centers of study. Ways in which regional and national work could be developed were discussed.

A discussion of vocational educational needs in agriculture, needs in agricultural education,was led by Mr. Clarence Bundy. Mr. Bundy discussed (1) Iowa's survey of farmer replacement needs for Iowa, (2) factors related to the occupations of Iowa farm male high school graduates, and (3) competencies in agriculture needed by males employed in retail farm machinery distribution. Qustions regarding the rigidity of training within vocational education arose. A further problem included relationships of colleges to junior colleges and to vocational school programs to be developed in area vocational schools. Questions were raised on who is going to provide adult educational training and informal educational assistance needed by the farmer of tomorrow.

Dr. Trevor Howe and Dr. Robert Thomas attended meetings in Minneapolis, Minnesota to discuss occupational education problems, to review research and development resources available, to consider how a regional educational laboratory can contribute to research and development activities, and to make recommendations on programs and functions.

Dr. Donald Boles reported on governmental implications of area vocational-technical schools in the state of Iowa. The crucial variable identified in the governmental framework was the implementing strategy. Questions of who made decisions for vocational and technical schools on their programs were discussed.

Mr. Waldo Wegner, director of the Center for Industrial Research and Service, Iowa State University, Ames, Iowa, discussed demands for vocational and technical education skills within

the state of Iowa, particularly those demands of smaller companies for workers in categories such as machinists, draftsmen, welders, and supervisory personnel. Smaller companies are unable to embark on their own training programs. These firms would like to be able to cooperate with schools on training programs. Union rules of apprenticeship create certain conditions regarding free entry and easy access to certain technical activities. Five areas of training were discussed: (1) training to achieve individual and initial productivity, (2) training for renewal, (3) training for professional improvement and for promotion in professional activities, (4) adult education which enables institutional reform to develop, and (5) training of the retarded.

Dr. Neal Gross discussed problems involving developing policies relevant to vocational and technical training. Focusing on the non-metropolitan areas he believed to be important. Hopefully, the vocational and technical educational research will provide meaningful education for the disadvantaged of the population. Questions of job realism of intensity of study and of interest were raised. Urban youth frequently have very low occupational realism. This may be true of rural youth. Though young people are eventually going to migrate from agriculture, little knowledge is held of what the jobs will be like or of where the jobs are.

Dr. Harold Ellis, Director of the Technical Institute, Iowa State University, Ames, Iowa, discussed vocational-technical needs from the standpoint of the institute. Problems discussed included: (1) programs of study, (2) automation, (3) intermediate and long run values of programs, (4) the individual's ability and achievement, (5) the questions of family background, and (6) the impact this has on individual motivation.

Dr. Murphy, discussed problems associated with vocational and technical education and the measurement of educational programs. Dr. Murphy, who is operations research analyst, National Bureau of Standards, Washington, D.C. discussed her work dealing with the effect of technology on manpower development and utilization.

Dr. Murphy, in her particular work, surveyed counsellors in six cities to see what they considered to be the needs of forecasting and the uses of technological information forecasting. Counsellors were eager to receive the information, but not certain how it might be applied or used by students. Differences among students and their need for different time perspectives became part of the discussion.

Dean Helen LeBaron discussed problems of vocational and technical education based on her experience. Discussion included: (1) continuation school for young people who ordinarily do not go to school or would go only part of a day and work the balance of the day, (2) upgrading vocational and technical education, and (3) technical institutes developing around the country.

Problems of gaining concensus were discussed. Where schools for vocational and technical education should be located, and how they should be administered were discussed.

The United States has had problems in being successful with vocational programs. In general, students who are attracted to vocational and technical educational programs have not had a great deal of success in typical tradition academic programs. Some changes have occurred which partly arise from the change in philosophy regarding vocational and technical education. The Job Corps has been developed. Programs for people who do not go to college have been developed. However, prestige of the training is a problem factor in these. Problems of women (who seem to be the forgotten group) in vocational and technical education were discussed.

Mrs. Barbara Rougvie and Dr. Alberta Hill, acting for Dr. Scruggs, reported on their study of vocational and technical education. Discussed were differences of opinion on meanings of vocational and technical education, and how different pieces of federal legislation affected vocational and technical training.

Major group activities and their results are summarized in Table 2.

B. Research Activities Unit

The Research Activities Unit carried out research on problems related to vocational and technical education for non-metropolitan areas in the following categories: (1) human resources development, (2) occupational opportunities assessment, and (3) educational resources development and training. Table 3 lists research activities and leaders.

The Research Activities Unit was organized and placed under the direction of Professor John P. Mahlstede. Results of the research activities funded under this project are reported by activities.

Each of the eight research activities has a detailed and separate report in the appendix. Within this portion of the

Table 2. CHRONOLOGY OF STRATEGIC INTELLIGENCE UNIT ACTIVITIES

WHAT	WHEN
1. 14 member Strategic Intelligence Unit formed by Drs. George Browning and Virgil Lagomarcino.	Between July 1, 1965 and September 30, 1965
2. Selection of Dr. Robert W. Thomas as Unit Chairman.	October 10, 1965
3. First meeting This meeting acquainted individuals with the general purpose of the Strategic Intelligence Unit: to analyze in depth, and in an unstructured fashion (creatively and imaginatively) the total problem context surrounding vocational and technical education.	October 15, 1965
4. Second meeting This meeting discussed what would be natural problem clusters and a framework for problem clusters, separating various components of the vocational and technical educational problem. The Unit decided to seek definitions and parameters to the problem context of vocational and technical education.	October 29, 1965
5. Third meeting This meeting with Selz Mayo discussed work at North Carolina State University, Raleigh, North Carolina, taking up organizational structure as well as research and development programs.	November 5, 1965
6. Fourth meeting This meeting dealt with problems of specifying research goals in vocational and technical education.	November 19, 1965

Table 2. (continued)

WHAT	WHEN
7. Fifth meeting This meeting dealt with vocational and technical educational roles, definitions, and philosophies.	December 14, 1965
8. Sixth meeting This meeting dealt with research and development needs in vocational and technical education, discussing the possibility of certain members preparing supplementary reports.	January 14, 1966
9. Seventh meeting This meeting continued discussion of supplementary reports on problems in vocational and technical education.	January 28, 1966
10. Eighth meeting This meeting heard the first report from Mr. Clarence Bundy on vocational and technical educational problems in vocational agriculture.	February 11, 1966
11. Ninth meeting This meeting heard a report from Dr. Alberta Hill regarding concepts and problems in vocational and technical educational research.	February 25, 1966
12. Tenth meeting This meeting received a report from Professor Donald E. Boles, professor of political science, who discussed political science considerations in development of the new area vocational school districts of Iowa.	March 11, 1966

Table 2. (continued)

WHAT	WHEN
13. Eleventh meeting This meeting heard a report from Mr. Walter Wegner, Director of CIRAS, Center for Industrial Research and Service, Iowa State University, Ames, Iowa, on the problems faced by industry in the State of Iowa pertinent to vocational and technical educational needs.	March 25, 1966
14. Special meeting This special meeting heard a report from Professor Neal Gross, Professor of Sociology, Harvard University, Cambridge, Massachussetts, on problems of vocational and technical educational development based on his research and experience. General problems of concern: (1) migratory characteristics of agricultural youth, (2) the critical stages for decision making by youth, (3) job awareness, (4) job realism, (5) the home environment, (6) the counsellors and their state of knowledge, and (7) the willingness of the parent group to provide environment for the development of the youth.	April 6, 1966
15. Twelfth meeting This meeting heard a report from Dr. Harold Ellis, Director of the Technical Institute of Iowa State University, Ames, Iowa, explaining vocational-technical educational needs in his program as he sees them for the two year sub-baccalurate people interested in becoming skilled	April 8, 1966

Table 2. (continued)

WHAT	WHEN
technicians in engineering and allied areas. Problems pointed out were (1) concepts of vagueness in and about training programs, (2) problems of automation, (3) inability to measure one's creative as well as one's intellectual capabilities, (4) problems of family background and (5) job awareness on the part of the family and the student.	
16. Special meetings	March & April, 1966
These special meetings between Chairman Thomas and Dr. Edward Jakubauskas, Dr. Vaughn Manley, and Mr. Allen Jensen, all of the Iowa State Manpower Development Council, Des Moines, Iowa, dealt with problems in development of vocational and technical education, and relationships which might develop between the Iowa Manpower Development Council and the Strategic Intelligence Unit. Also raised were ideas on developing working relationships between the Strategic Intelligence Unit and the Industrial Relations Center, Iowa State University, Ames, Iowa, to be under the direction of Dr. Jakubauskas upon his return from Des Moines to the campus in Ames. Chairman Thomas discussed with Dr. Russell Mahan, Sociologist specializing in human relations, Iowa State University, Ames, Iowa, ways in which conferences with action agencies might be integrated with the work of the Strategic Intelligence Unit.	

Table 2. (continued)

WHAT	WHEN
17. Thirteenth meeting This meeting discussed with Dr. Evelyn Murphy her work on the effects of technology on manpower development and how it is related to vocational and technical education. Dr. Murphy, Operations Research Analyst for the Institute of Applied Technology, National Bureau of Standards, Washington, D.C., is concerned with forecasting technological innovation, developing processes of forecasting and concerned with socio-political consequences of technological change. She seeks ways in which the forecasting work can be related to school counseling and student problems. Occupational choice is a process of remaking and unmaking decisions, and technological forecasting can be of assistance in indicating what is likely in the labor market.	April 29, 1966
18. Fourteenth meeting This meeting discussed with Dean Helen LeBaron the problems and possibilities of vocational and technical education. The grade level placement of vocational and technical education is a problem. Technical institutes are blossoming and imagination regarding new approaches is needed. Isolation of skill clusters common to several jobs is needed. Special emphasis on women (a forgotten group) is needed in vocational and technical education.	May 6, 1966

Table 2. (continued)

WHAT	WHEN
19. Fifteenth meeting This meeting heard a report from Dr. Alberta Hill and Mrs. Barbara Rougvie dealing with developments, problems, and definitions of vocational and technical education. Polar positions in educational philosophy were stated. From these could be seen problems of access, problems of focus and emphasis, problems of development, and problems of implementation.	May 20, 1966
20. Sixteenth meeting This meeting discussed development of research reports for the United States Office of Education. Plans for the continuance of the work of the Unit were discussed.	September 2, 1966
21. Seventeenth meeting This meeting outlined reports due the United States Office of Education under contract O.E. 5-85-108.	September 20, 1966
22. Eighteenth meetimg This meeting heard from W. G. Stucky on the structure and future development of the Strategic Intelligence Unit.	October 7, 1966
23. Nineteenth meeting This meeting heard from Dr. Ernest Anderson on some problems of conceptualization of education and vocational and technical training as viewed by a special faculty	October 21, 1966

Table 2. (continued)

WHAT	WHEN
committee of Iowa State University faculty members.	
24. Twentieth meeting	November 4, 1966
This meeting continued discussion of the material of the nineteenth meeting.	

project final report, certain significant results from each research activity are given.

1. Activity 1. This activity dealt with the decision-making process of school districts regarding vocational education and training programs. It examined the nature and scope of school bond elections requesting funds for vocational and technical educational purposes.

Results of this research showed a complex process to exist for proposing and implementing school bond issues. The process involved many different actions and consultations with many different groups. Techniques and strategies varied widely and apparently depended upon the differences in specific target audiences.

Results of the analysis were based on percentage figures with per cent of affirmative vote chosen as the dependent variable. Results were obtained by analysis of voter turn-out and of interviews. Relationships were obtained through multiple regression analysis.

Among variables found significantly related to per cent of affirmative votes were: (1) the perceived importance of the citizens' advisory committees in planning and publicizing the bond issue campaign, (2) the perceived value of the parent-teacher association in the bond issue campaign, and the responsibility assumed by the superintendent and the Board of Education.

2. Activity 2. This activity dealt with occupational problems and vocational training needs of high school dropouts in rural Iowa.

Table 3. ACTIVITIES UNDER THE RESEARCH ACTIVITIES UNIT

Project Activity Number	Iowa State University Account Number	Research Activity Title	Principal Investigator (s)
1.	431-13-40	The Decision Making Process of School Districts Regarding Vocational Education and Training Programs	Virgil Lagomarcino George Beal
2.	431-13-41	Occupational Problems and Vocational Training Needs of High School Drop-outs from Rural Areas in Iowa	Trevor Howe
3.	431-13-42	Interrelationship of Home Environment and Employment	Marguerite Scruggs
4.	431-13-45	Manpower Requirements and Demand in Agriculture by Regions and Nationally, with Estimation of Vocational Training and Educational Needs and Productivity	Earl Heady
5.	431-13-43	Predicting Change in Technology, Jobs and Vocational Training Needs in Rural (Nonmetropolitan) Labor Markets	Phillip Baumel Karl Fox
6.	431-13-46	The Potential Contribution of Psychology to Inter-disciplinary Research in Vocational and Technical Education	Edwin Lewis

Table 3: (continued)

Project Activity Number	Iowa State University Account Number	Research Activity Title	Principal Investigator (s)
7.	431-13-47	Determinants of the Post-High School Educational and Occupational Choices of Iowa Farm Boys	Donald Kaldor
8.	431-13-48	An Analysis of Legal and Political Problems and the Strategy Necessary for Implementing Programs Under the Vocational Education Act of 1963	Donald Boles Charles Wiggins

Results indicated that only in a few cases was the decision to leave school a spontaneous one for the dropout. For this reason dropping out has been sometimes referred to as the "dropping out process." Because of the necessity to identify the potential dropout before withdrawal, increasing attention has been placed upon identifying characteristics common to most dropouts. Most dropouts came from families of a low socio-economic class.

3. Activity 3. This research activity dealt with the interrelationship of home environment and employment for 40 workers within an Iowa community.

Results indicated such employment characteristics as seniority on the job, moving about or job mobility, and absenteeism all were related to home environment.

Within the home environment, the characteristics of the spouse, the nutritional level, the social patterns, the authority patterns, and the household management abilities displayed were also found to be related to employment patterns of the workers.

4. Activity 4. This research activity dealt with manpower requirements and demand in agriculture by regions and nationally,

with estimation of vocational training and educational needs and productivity.

This continuing activity deals with estimation of labor and manpower developments in agriculture and the related agri-business sector of the nation for as many as 144 regions of the country. The activity points toward changes in agriculture and vocational and technical requirements for this activity and for farm people over the next 15 years. Much of the analysis relates to estimation of the structure of the agricultural work force and its skill requirements at future points in time.

Results indicated that inter-sector economic and labor flows, and the dependencies of these sectors upon agriculture and labor could be, analyzed through an input-output model. Within this model agriculture was divided into regions and commodities to determine flows and inter-dependencies.

Results from this model showed major regional changes to be in store for agriculture and its manpower requirements over the next 10-15 years. While the greatest number of the 144 regions were shown to be intensifying their production, they were also shown to be specializing by putting more emphasis on technology.

5. Activity 5. This research activity examined problems of predicting change in technology, jobs, and vocational training needs in rural (non-metropolitan) labor markets.

To date results of aspects of this study for two functional economic areas are available.

Results of statistical analyses led to the following hypotheses being accepted: (1) there was no difference in dollar food sales between or among location centers within two functional economic areas examined, (2) after adjusting dollar food sales with number of services, there remained no difference in dollar food sales between the two areas or among the location centers within these areas, (3) there was no difference in dollar feed sales per employee between the two areas or among the location centers within these areas, (4) there was no difference in per cent of total business in food between the two areas or among the location centers within these areas, (5) there was no difference in per cent of total food sold within 10 miles driving distance between the two areas or among the location centers within these areas, (6) there was no difference in miles to the most distant customer between the two areas or among the location centers within these areas, and (7) there was no difference in food prices between the two areas or among the location centers within these areas.

6. Activity 6. This research dealt with the potential contribution of psychology to inter-disciplinary research in vocational-technical education.

Results from this work have shown that psychological research dealing with the aspiration level of high school students is fairly extensive. This work indicates that aspiration levels may be considered as important to success in vocational and technical education.

Studies dealing with the influence of the high school teacher upon student aspiration stress that the educator, as a model for student performance, has significance for appropriate goal settings. Psychology research also indicates that areas of student interest have implications for success in vocational and technical education.

7. Activity 7. This research activity dealt with determinants of the post-high school educational and occupational choices of Iowa farm boys.

Results to date include data collection and some analysis.

Data were collected in a series of state wide surveys covering a sample of 790 farm boys who graduated from Iowa non-metropolitan high schools. These data have been coded and put on IBM cards for analysis.

This activity is aimed at increasing the stock of knowledge of (1) the determinants of educational and occupational choices of farm boys, (2) factors that restrain post-high school investment in education, and (3) amounts of under-investment or over-investment in training for farm boys.

8. Activity 8. An analysis of legal and political problems and the strategy necessary for implementing programs under the Vocational Educational Act of 1963 was the subject matter of this research activity.

Research results include: (1) a study of the process of program evolution for area vocational schools in Iowa, (2) a bibliography of studies dealing with vocational and technical education by state and federal agencies, and (3) a study of congressional hearings held regarding the Vocational Education Act of 1963 and related measures.

C. Project Results

Aggregate project results from the Strategic Intelligence Unit and the Research Activities Unit under this contract indicated the multi-dimensional nature of the problem structure surrounding vocational and technical education and the need for creative and novel approaches in research and development, including inter-disciplinary research.

An inter-disciplinary attack upon problems of non-metropolitan area citizens is required for several important reasons shown in the results of this work.

First, people in the town-rural complex were found to be buffeted by a multitude of political, social and economic changes. These changes, largely created by forces beyond their control, affected these town and rural residents very significantly and subtly.

These affects were shown in changes relating to job opportunities, school tax burdens, and forced occupation and geographic migration. Decline in non-metropolitan area service business and in population age 18 to 40 sharpened the problem.

Results showed that with national economic growth and the resultant technological development calling for substitution of capital equipment for labor on the farm and in other basic industries, the farm labor force and the rural-town labor force has declined drastically in the last 25 years. Farming opportunities for rural youth dropped off tremendously giving rise to needs for non-agricultural vocational education.

National economic growth has resulted in large scale economic operations, but has forced great social and economic adjustments on non-metropolitan area citizens. Small towns and rural areas have now become over supplied with social institutions designed for less mobile, more agrarian, and more populous areas of the not too distant historical past.

Results have shown that questions are being raised about the need for consolidation of local governments, local churches, local businesses, local educational structures, and other local community services whether public, quasi-public, or private. This has been forced because of money and resource constraints. Consequently, non-metropolitan area social, political, and economic institutions are being forced to spread over greater and greater space and serve people at greater distances.

IV. DISCUSSION

Discussion of results will be divided by major project components.

A. Strategic Intelligence Unit

Early in the project work, Strategic Intelligence Unit members started taking a very broad view of research and development problems.

The current dissension, confusion, and disorganization existing in the collective mind of society regarding educational activity, demands the broad and general beginning.

Defining the functional aspect of education as change with choice gives a collective starting point from which to move and emphasizes interaction over time and within time among the individual's environment. This state of knowledge within the individual and states of knowledge in the collective minds at hand interact to give education or change with choice.

This general approach to problem setting for vocational and technical education concerned itself with present and past unrealized human, social, and economic goals, alternative ways to fulfillment, and how these were constrained within existing laws, programs, educational philosophies, and beliefs in the minds of leaders.

Research concerns could be built around constraints upon goals, goals themselves, and interaction between these two in the dynamic process of functional education. Also, research could be concerned with theories of past and present and hypotheses from these. Generating testable hypotheses regarding the process of education using existing research techniques could be a primary concern of educational research. Beyond this could be a concern, also, for the way in which results of these statistical tests altered or fail to alter educational practice.

The following research and development problem clusters were accepted by the Strategic Intelligence Unit: (1) human resources, (2) social institutions, and (3) societal organizations and goals.

This clustering resulted from examining problems which had social, political, economical, educational and technical characteristics.

Work of the Strategic Intelligence Unit resulted in suggestions for manageable research projects which would be concerned for definitions of parameters constraining vocational and technical education within the general social framework.

The Unit also established general areas in which research work for non-metropolitan areas might be directed. These were: (1) training opportunities in growth industries for those without proper skills so that these non-metropolitan area people could enter growth areas of the United States economy, and (2) training having highest payoffs to society.

Present problems include finding training systems with the highest payoff for those trained and for society, too. This payoff can be evaluated in terms of increased productivity, maintenance of income stability within the economy, escalation of income for the individual, social impacts of training on individuals and families mobility for higher income, social impacts upon a given community, or social results of a high degree of mobility.

Further research concerns could deal with social innovations for institutional change. Social institutions are lagging behind technological change. Questions about the present adequacy of educational systems for an industrialized society can be raised and are fundamental. What are the implications of a shorter work week for this educational system, particularly the vocational and technical aspects of the system? What is the social responsibility to improve the individual as a member of the social order? Does an occupational schooling need to have its status changed so that it is considered to be equal to a college preparatory program within a high school? Is there need for a larger degree of in-service training? Are needs present for schools which are intermittent and available for short periods of time for itinerant workers, their off-spring, and older adults beyond the usual high school age? Is it possible to use laymen or non-professionals as teachers? Does a governmental structure or a business organization have a responsibility to teach migrants? Have needs arisen for special schools for migrants and non-assimilated nationals? Is there a need for organizational structures within vocational and technical education to aid in horizontal mobility across jobs as well as vertical mobility within jobs?

Beyond the questions above, questions for research might be raised to deal with vocational-technical educational structure and its characteristic decision-making framework.

Unit members discussed material received by the Research Coordinating Unit directed by Dr. Trevor Howe. Publications prepared, and in the process of being prepared, on work areas covered by vocational and technical education were examined.

In developing research needs in vocational and technical education, the Unit believed one might distinguish within the human resources category the needs of youth specifically, and then the needs of society specifically. How youth is prepared for societal life and work in today's industrial society and today's labor markets is highly significant if society is to sustain the ability to increase productivity and fight inflation as well as unemployment. To sustain adaptability of the changing economy within this society is of great importance.

Societal needs and individual needs may differ. Therefore, separate examination and joint examination is needed. The process of formulating and acquiring a suitable training system for youth needs examining. Goals and objectives arising from policy-makers, concepts and from philosophies may not be specifically adapted to the reality of today's industrialized economy.

The training needs of youth as suggested by W. G. Stucky include: (1) training which is career-oriented and gains youth initial access to the job market and equips him for initial responsibilities in society; (2) programs designed specifically to enable youth to earn while learning or learn while earning; (3) inservice-training to assist youth who have become part of the new labor force and to assist older workers who desire more complex skills, or more responsibility in their "Nth career" preparation; (4) information which enlarges youth's perception of the economy, the societal order of the nation, the future job market, and the alternative income-increasing choices available to him; (5) ungraded intermittent training schools for youth who are migrant workers and children of migrant workers, and (6) special schools for immigrants (youth and adults) and for citizens who have had only intermittent success in school.

The training needs of society as outlined by W. G. Stucky include: (1) information on which an adequate understanding can be built of the broad range of educational needs of a highly industrialized society which makes massive public and private investments in science in order to produce new technology; (2) an educational philosophy which fosters development of a system of (in-service) training by "Nth career schools" operating as a perquisite to working by those employed in sub-professional occupations especially; (3) information to improve understanding of

the changing job structure, rates of employment and windfall in income gains and losses from changes in technology; and (4) information which would enlarge understanding of the need for mechanisms to continuously appraise the nature of problems concerning the formation of human capital and which would aid in formulation of alternative innovations in institutions.

Pertinent to developing more research areas would be an overview or survey of the history and philosophy of education in the nation, particularily the role of vocational and technical education in a democratic society. Administrative policies for vocational and technical education would also be an aspect of this study. Pointing up agreements, disagreements, and alternatives which have been developed for vocational and technical education would be significant.

Developmental research could take the following pattern. A number of individuals could each write a report, not a detailed research activity. This report could include feelings and conclusions regarding vocational and technical education. These could give a focus on problems, not techniques. The Unit could use these to discuss kinds of educational systems needed.

Mr. Clarence Bundy led the Strategic Intelligence Unit through an examination of the history of vocational agriculture, its recent research problems, current legislation, and its possibilities for training for farming and for non-farming activity.

In a recent study (7) 63% of graduates were found to go into farming after graduation.

From the discussion with Mr. Bundy, three pertinent problem areas appeared to exist for post-high school programs: (1) academic credit for vocational agricultural courses, (2) timing for entry into vocational and technical agricultural courses, and (3) the point of entry.

For vocational and technical education, training of teachers presents problem areas because: (1) vocational agriculture is more than just a preparation for farming (recent studies (6,7) show 200 new employees will be needed each year in the farm implement business and in feed and fertilizer businesses 2000-3000 people will be needed in two to three years), (2) sixty per cent of students who enroll in agriculture courses at Iowa State University have had vocational agriculture, and (3) because the outlook of farming is much better than it was, there could be increased demands on vocational agricultural programs and its staff.

Major issues and concerns for vocational and technical educational training were indicated by President Kennedy's panel on vocational and technical education (7). Services of vocational education were believed to be too rigid. Too much concern was shown for jurisdiction over providing given activities. Suggestions for change were made. To overcome rigid institutionalism in favor of functionalism, use of advisory committees on employers' needs might be developed. Willingness to give to private industry funds for research operations in vocational and technical education was mentioned.

It appears possible from Strategic Intelligence Unit work to imagine a framework in which educators are in communication and constant touch with the activators in vocations and technical services even under conditions of dynamic economic change as it now exists. Continuing education of teachers and of citizens could be a logical outcome of this particular pattern.

Quite probably vocational and technical education can be devised for what has been considered low levels of abilities. Questions of below average capability and retardation need more exploration. Some myths have been exploded.

Concern for all regardless of their IQ scores needs to be more in evidence. Training for good citizenship is important. There are at least these steps in retraining: (1) high school level skills, (2) incentives to rise in the vocation, and (3) generalized training for social living and adaptation to a changing world.

A core of knowledge may be found essential to many jobs. In examining these questions, labor force attitudes could be examined for conflicting pressures, and for special interests.

On a national basis, no boundaries and no limits have been set on the demands made upon vocational and technical education. Limits and priorities must be recognized. Research and development should help by providing materials, ideas on philosophy fitting to vocational training for educational purposes, and ideas on how to organize.

Schools should think of identifying students earlier than at the junior or senior year for future vocational and technical training. Students as well as schools and teachers should be prepared to locate sources of reliable information on future manpower needs.

Certain research has shown youth in urban areas to have very low occupational realism.

Many youngsters in agriculture are going to migrate to get jobs. These people haven't been around industry so they have not formed models. This means they don't have a realistic conception of the occupational world.

Research work indicates critical stages at which job decisions are made. It also indicates young people engage in fantasy.

Junior high school is a critical point for job decisions because individuals must decide on which curriculum to follow: college, general, or non-college.

Problems and questions arise about differences between basic and applied research, and how money and time should be allocated between each. The quality and quantity of research in vocational-technical education depends on this allocational choice. In general, both types of research seem to be needed: (1) basic research for new theories and insights and (2) exploratory studies to determine what the on going situation actually is surrounding vocational and technical education.

The term "vocational" is an extremely broad word and people use it in various ways. It has become extremely vague in its uses today and has caused some disagreements which are rather unnecessary.

Young people 18, 19 and 20 years of age are economic creatures for the most part, They are motivated to a greater degree if they can see where they are going and how they benefit directly from their education. The best motivation to a student is a clear objective.

Automation is creating more and better jobs all the time, but these take people who can understand the methods. It's up to educational institutions to do the preparing properly. When courses are tied to immediate values and these values are possibly phased out in the near future, an argument arises for putting more emphasis on theory and basic understanding.

Serious research is needed to help high school counseling. By using statistical methods in research,one can tell much more about popular wants, needs, interests, and abilities. At the present time, test results allow us to be <u>certain</u> of very little about any one specific individual. This is because there are far too many variables to handle readily. Ignorance exists regarding interaction between these many variables.

A number of qualities need examining. These include: (1) mental dexterity, (2) interests and aptitudes, (3)available energy, (4) physical dexterity, (5) perceptual acuity, and (6) emotional stability.

Possibly too much faith is placed in current test results. These results may explore too narrow a concept of human character and quality. Current tests may examine mental efficiency without looking into the means by which the human system communicates and how it manages the tools that it has to express ideas and to perform creative activities.

Judicious use is needed of the present theories, analytic tools, and scientific methods of testing hypotheses regarding human resources. Training capabilities and needs, organizational structure, present systems of development, and how the human resources react to these aspects of vocational and technical training can be objectively examined.

Inter-disciplinary creativity can be used for new conceptualizations of old problems and for novel approaches to these.

B. Research Activities Unit

The eight research activities or projects undertaken within this contract dealt with several aspects of problems of vocational and technical education and were divided as follows: (1) decision-making processes regarding capital investments, (2) drop-out problems of high school youth, (3) interrelationships between home and work, (4) labor requirements within agriculture and agri-related industries, (5) relationships between technological change and labor markets, (6) psychological research capabilities to deal with vocational and technical education, (7) determinants of post-high school educational and occupational choices, and (8) examination of vocational and technical training structures, law, and implementation.

These eight dealt with socio-economic forces affecting vocational and technical training as constrained by statute and by subtle political forces. The research possessed functional and institutional aspects, fitting the following logical pattern: (1) discussion of attitudes, markets, and training of the human resource needing help, (2) discussion of techniques for establishing a legal framework within which community capital investment decisions can be made by popular will under structured leadership, (3) discussion of existing structured training processes and drop-outs, and (4) discussion of processes to alter the human resource to be trained, the training process and the final results.

Research on the capital investment decision-making process was exploratory, attempting to establish and to quantify dimensions of the problem and to provide a basis for more rigorous conceptualization later.

Analysis of the data collected in this activity indicated no discernible pattern to be followed which would assure success in passing a school bond election for vocational-technical educational facilities. Few significant differences among the multitude of variables were found when successful districts were compared with unsuccessful districts.

The largest differences were among correlations between communications media usage and election outcomes. Most communications media were negatively related to bond election success. A community tradition of passing or failing a bond election appeared for many districts.

Simple research frameworks and methodology normally employed in survey research techniques did not provide the hoped for insights into the dynamic process of school bond election decision-making.

In considering the Iowa school dropout problem, the following discussion is helpful.

In general the dropouts interviewed were cooperative. Interviewers were careful to stress the importance of the study without identifying it as a dropout study. Women especially were quite helpful. Male dropouts tended to be a bit skeptical about giving up a half hour of time.

Difficulty was encountered in locating some dropouts. In locating dropouts, it was discovered that many had parents who were tenant farmers.

Of 140 dropouts, twelve had moved out of state, thirteen had moved and left no forwarding address, two had been evicted from their dwellings, and one was in the state penal institution in Fort Madison, Iowa.

Two dropouts were not called upon because of warnings by the State Board of Health and by the police and postal authorities. Only two would not cooperate.

Thirty-nine males and 63 females were interviewed for a total of 102 of the original 140. A greater number of completed schedules for females than males was due mostly to unavailability of the males during the working day. Nearly all of the completed schedules for the male dropouts resulted from evening calls.

The fact that many of the dropouts were of a lower than average socio-economic class became apparent as interviewing progressed. Most of the dropouts came from large families. Many had parents who had not graduated from high school and had brothers and sisters who also had dropped out. Most of the parents were farmers or laborers; few had parents in the professions, management, or sales.

For the dropouts themselves only two were employed in management or sales, the rest being farmers or laborers. A number of the dropouts were untidy in their personal appearance.

Perhaps one of the most remembered facets of interviewing was the appearance of their housing. Scarcely any of the dropouts lived in what could be classified as the nicer areas of town. In fact, interviewers could frequently identify the dropouts' dwellings by unkept front lawns, porches in need of repair, or housing with an old, shabby appearance.

Generally, the problem of dropouts seemed to continue after leaving school.

In the study which dealt with interrelationships between home environment and employment, problems of grouping workers by home environment and other characteristics arose. These problems included worker and spouse age differences, differences in socio-economic strata, driving distance differences, educational differences, and differences in amount of work done on other jobs such as farming.

Although the number of children in families was similar, the proportion of children in different age groups varied.

These problems were resolved as best they could be, giving significant and interesting differences to be noted.

Among these differences were wages, mobility patterns, spouse's role and absenteeism. These seemed related to home environment.

Positive and significant relationships were found between seniority on the job (a stability or non-mobility index) home environment; also, between absenteeism and the number of children in the family.

Research on manpower requirements and demand in agricultural regions and attendant training needs shows that specification

of the optimum amounts, forms and facilities of vocational education and technical training can be done only if we know or can project certain information. This includes the number of farms, the degree of specialization in the industry and the extent to which farming is organized around large-scale units with one manager and several skilled laborers, the capital/labor ratio of the industry and the number of workers in each labor category, the scientific and management orientation of the industry, and related phenomena. A basic analysis of training needs for the future, with respect to labor and its skills and types of regions, products and tasks in farming, requires prediction and projection of the structure of agriculture itself.

A prediction of the structure is required because it is expressed in various types of the capital items that farming uses. On the one hand, these capital items substitute for labor, thus helping to determine how many laborers there will be. Also, the capital items determine the size and number of farms that will exist. This information is needed to determine how many farms there will be, and how specialized and how large they will become in terms of managerial resources and work force. For example, we are projecting the number of two and three-man farms for the future. This will help to determine (a) the proportion of the farm work force for whom the main educational and vocational training needs are to emphasize managerial abilities, (b) the proportion who will operate the machines, equipment and enterprises and thus need skills training rather than managerial training, and (c) the proportion who will serve purely as laborers and need a different background.

In investigating technology as it related to labor markets, recursive linear programming was used. Each functional economic area was divided into eight hypothetical types of townships, each type having a different minimum cost objective function.

Four different types of food retailers were defined.

Problems arose as follows: (1) different levels of technology could not be clearly identified because most firms were using more than one level of technology for the different activities performed; (2) cost identification problems appeared because a lack of uniform bookkeeping prevented obtaining really comparable cost data.

A more direct approach was taken. A survey of 66 food retailers in three location centers within the two functional economic areas was made. The numerical data obtained was tested in seven different categories: (1) 1965 dollar good sales,

(2) sales per employee, (3) per cent of total business in food, (4) per cent of total business within a 10 mile driving distance, (5) miles to most distant customer, (6) number of food services offered, and (7) food prices.

The relationships between these seven variables and the different levels of technology used in retailing were not found to be of any great significance.

The report dealing with psychological studies relative to vocational-technical education showed that recent advances in psychology have produced concepts and information of considerable value to vocational and technical education.

These current developments can be explored for full educational implications and directly related to the needs of vocational and technical education. If gaps in developments are found, new research could be conducted to fill these.

Research on determinants affecting job decisions of farm youth has found technological and economic forces to be reducing opportunities for farm boys to enter farming and earn incomes comparable to those offered by non-farm occupations. As a result, many youth have been leaving the farm. Large numbers will continue to seek employment in farm related and urban oriented industries in the future. If farm boys are to compete on equal terms in the competition for non-farm jobs, many will have to prepare themselves better for the future jobs than for the past ones. For this to happen there must be adequate opportunities for post-high school training, and farm boys must take advantage of these opportunities.

Knowledge of the job choice process and determinants associated with it are important. Post-high school educational and occupational choices of farm boys need examining, and obstacles to achievement need examining. Possibly the need is for further investment in training and education.

In the research dealing with analysis of legal and political problems and the strategy necessary for implementing programs under the Vocational Education Act of 1963, no definite statements or conclusions can yet be made regarding criteria to use when selecting geographic areas for intensive study of strategy and problems. Preliminary analysis did, however indicate seven factors to be employed in this selection process: (1) regionalism, (2) state effort, (3) participation, (4) program emphasis, (5) administrative structure, (6) centralism versus localism, and (7) program quality.

501 to 95

State vocational programs tend to vary by region. Southern states have programs which generally differ in significant ways with those of states in other regions of the United States.

States tend to vary in the amount of financial support given to vocational education. Per capita expenditures by states for such training is one measure of effort.

Although related to state support, the proportion of individuals eligible for vocational programs and who are actually enrolled in such programs varies from state to state. This may be a factor of significant importance. The continuance of state vocational agencies and programs may be affected by the participation ratio.

State programs vary in emphasis placed upon alternate types of training. Some states emphasize agricultural and home economics training. Others strongly encourage trade and industrial training.

It would appear that general differences exist among groups of states in structures used to administer vocational education. For example, institutions of higher learning have the primary responsibility for program administration in some states. Elsewhere state boards of education have major responsibilities.

In some states, educational policy and decision-making powers are centralized in a state agency having full administrative responsibility. In other states, the state administrative agency merely sets down general policy guidelines. This, in effect, allows local educational agencies nearly complete autonomy in making program decisions within the local community.

Finally, program quality varies among states. Although unable to define specific factors to be employed in determining variations in program quality, some states are said to have high quality vocational education programs while others seem to have programs which are not of high quality.

C. Project Discussion

Compared to the other areas, non-metropolitan area communities are at a great disadvantage in availability of opportunities for general education, vocational education, local employment, on-the-job training, and similar amenities. Facilities for vocational training of the female labor force are entirely inadequate. Thus, in general, women must migrate to find jobs. They face a limited selection of vocational education opportunities relative

to the occupations which exist, and relative to current and prospective demand for their services.

But vocational training for boys from farms and towns in rural communities is equally limited. It places them in a disadvantaged competitive position in the economy. In entire states such as Iowa, Kansas, Georgia, Mississippi, Nebraska, and North Dakota no more than 32 per cent of vocational education funds are allocated to trades and industries (7). The remainder was devoted to vocational agriculture and home economics (7).

Not only are farm boys who must leave agriculture penalized in economic opportunity by these allocations, but also youths in villages and towns who are excluded from opportunities for training and employment freely available in metropolitan areas.

In addition, rural communities generally lack the breadth and quality of education available in urban areas. The range of offerings in adult education programs and short courses is narrow; the opportunities for employment in various plants and establishments which lead to an upgrading and accumulation of skills are extremely limited.

The thinning of the population and the relative decline in buildings and taxable property generally are reducing the tax base for supporting local education including vocational education. In addition, the selective migration taking place causes the "left behind" population to be older and to have a lessened interest in those educational investments which pay off over the long run and in other geographic locations.

In 1965, approximately 55 per cent of 459 Iowa high schools offered vocational agriculture and 45 per cent offered home economics, while only 7 per cent offered distributive education and 7 per cent offered trade and industrial programs (7).

According to the 1960 United States Census, only about 25 per cent of the working force in Iowa were employed in farming whereas, about 12 per cent were employed in clerical and sales positions, 16 per cent in crafts and industrial positions and 16 per cent as operatives. While many Iowa youth entering the latter occupations may need competencies in agriculture or home economics, a large majority do not presently have opportunity for vocational education that meet their needs.

According to unpublished data gathered by the State of Iowa Department of Public Instruction nearly 16,000 Iowa girls were

enrolled in homemaking and 10,500 boys in agriculture in 1965. By contrast, only 1,490 pupils were enrolled in distributive and office education programs, and only 1,675 high school pupils were enrolled in schools with enrollments of 300 or more pupils. High schools with enrollments of less than 300 pupils offer little vocational education other than agriculture and homemaking, and these offerings do not meet the needs of most youths who will migrate to jobs in metropolitan areas.

These data further indicated that of the 33,044 Iowa high school seniors who were graduated in the spring of 1964, 33 per cent were enrolled in four-year colleges the following fall, 10 per cent in junior colleges, 10 per cent in business, trade and technical schools, and 3.5 per cent in apprentice training programs. The other 43 per cent of the 1964 graduates were not continuing their instruction following high school. Undoubtedly, many of the graduates who started in college will not continue and graduate. The apparent need for a strengthened program of vocational education at the high school and post-high school level is evidenced. Similar data may be presented for other states.

Also, of 6,000 farm boys who were graduated from high school during the 1950-54 period only 35 per cent were still farming in 1963 and 15 per cent were in occupations related to agriculture (6). These data emphasize the fact that vocational agriculture in high school provides vocational training for only about 50 per cent of the graduates. It is possible that many of the graduates who were enrolled in vocational agriculture would have enrolled in other types of programs had they been available.

V. CONCLUSIONS AND IMPLICATIONS

Conclusions and implications relevant to this portion of the final report will be given for each major component of the project.

A. Strategic Intelligence Unit

Numerous conclusions and implications for vocational and technical education can be drawn from the work of the Strategic Intelligence Unit.

In examining discussions held by the Unit on the problems of vocational and technical education, the role of such training in the total educational systems was found to be confused and unclear.

This confusion implied a need for a working, functioning rationale for vocational and technical education. This working rationale could be drawn from a philosophy for education in a democratic society. This statement could be based on why the U.S. educates, on the present adequacy of existing education, on how the education is structured and changed, how its worth is to be measured, and how it adapts programs to new developments. Within this framework, a working rationale for research and development could arise. This would identify divergencies of thought out of which could come conferences on new ideas. Then theories specifically dealing with vocational education and its legal setting for a state and nation might be developed. Discussion and analysis could follow of administrative definitions of laws and their implementation within the legal, socio-economic, and political framework affecting workers and training for the world of work.

Purpose, function, clientele, organizational structure, administrative authority, and teacher training are all to fit within the general rationale.

Training problems are still confronting the unemployable, particularly those in depressed areas like the agricultural deep south, the upper peninsula of Michigan, and Appalachia, where lack of training, wrong location, wrong work habits, and poor attitudes are primary problems. Programs run into trouble with managerial personnel who cannot supply the needed vision. Programs for urban areas are only part of the solution to problems of unemployment, unfilled available jobs, and inflation of wage rates. Nation-wide human renewal must be the goal with use of imagination, brains, money, and organizing talent. Programs for human resource development can be emphasized to get a person off government welfare roles and into government taxpaying columns as a return on any investment in human resources at any governmental level.

Studies of United States economic problems today are spreading and broadening their dimensions. Attributes of socio-psychological problems of the unemployed are being included. Trained research personnel can help human resource development programs in five specific ways: (1) provide technical assistance to action agencies concerned with human resources development; (2) institute programs of information on research developments and evaluations of existing programs; (3) provide training orientation programs; (4) provide human resources training in curricula for students who expect to be working in human resource development fields; and (5) provide research programs dealing with resource

development policy.

An inter-connection exists between job training programs and a balanced economy. This inter-connection must be recognized to forestall the likelihood of another serious imbalance. The balanced growth of an economy gives economic security and national well-being by providing customers who have a steady demand for goods and services, and by providing people with a psychological sense of achievement.

Trained research personnel can further aid vocational and technical education by examination of processes for decision-making on educational policy. Further, deciding what part of the educational system ought to be left to industry is another concern.

Psychologists can help in concern for problems surrounding skill development. Some psycho-motor skills are basic to many occupations. Not much research on common characteristics has been done. These common features include attitudes, habits, degress of maturity and value systems.

Clusters of possessed skills as well as psychological, sociological and economic factors influence people's opportunity and willingness to pursue education necessary for personal and economic development. The United States' economic and educational systems have not developed a capacity to utilize innovation.

Certain concerns among problems of vocational and technical education can be analyzed from the standpoint of political science. The Strategic Intelligence Unit, in interaction with one of its members, Professor Donald Boles, explored government implications involved in development of Iowa's area vocational schools. For political scientists a critical area to examine are the fundamentals of vocational education in any state. These are crucial governmental and political considerations involving the development of an educational program and its implementation. Iowa's vocational schools create new governmental structures and new problems will emerge from this new structure.

These new Iowa schools might help meet demands which the Strategic Intelligence Unit membership and consultants have found to exist.

A labor demand in Iowa industries exists for machinists, draftsmen, engineer draftsmen, machine tool design welders, technical engineers, management and research people, chemists, printers, mechanical engineers, sales personnel, welders and supervisory people.

Smaller companies would like to train people in their own factories but cannot afford to do so. Therefore, they would like to cooperate with schools on this problem. Certain problems do arise. Some of these are related to union rules regulating apprenticeships.

The Strategic Intelligence Unit membership found problems arose because of confusion about the placement of vocational education. What educational level should have primary responsibility for a given training? As a result of not answering this question, vocational education may be repeated.

Two points need to be kept in mind: (1) possibly the need is for a basic change in the philosophy of vocational education, and (2) possibly the need is for clear preparation for work entry or for added programs which lead to it.

Women are a forgotten group in vocational education. There has to be some way of placing them and creating a demand for them in an area. There could be specialized home services, skilled tailoring and custom dress-making. The fundamental question is, should vocational education take responsibility in stimulating these opportunities.

The confusions and lags noted in program development may in part be due to the value systems of non-metropolitan communities. The psychological, sociological, and economic barriers to seeking education may be far more formidable for members of these areas. For example the dropout rate of students in rural areas is about 50 per cent greater than that of urban areas(7,8). Further, rural community youth drop out with less schooling than do urban youth. More than half of the rural area dropouts leave school before reaching high school age, while only one-third of the urban dropouts leave school that early. Nationally, the educational achievement of rural youth is less than that of urban youth; rural youth scored 15 per cent lower on reading, spelling, arithmetic, and social studies and 25 per cent lower on science and grammar than urban youth. Also a smaller percentage of youth from rural communities attend college.

Obviously, investing in more and different kinds of education alone will not solve all deep-seated problems of vocational education, manpower development, and economic opportunity in non-metropolitan communities. However, without planned programs to enable these youth and adults to participate more in existing and improved education, their handicaps will continue and multiply. Illustartive of this tendency are differentials in earnings related to education.

Compared to urban parents, a high proportion of rural community parents have comparatively little education. Many rural community parents are in low-status occupations. Sometimes these communities tend to be indifferent to the problem of educational opportunities for youth. Such problems can be overcome only with careful planning and pilot projects to test the worth of educational innovations.

Since many problems pertinent to vocational and technical education arise from rapidly changing demands for workers, and since this demand is in large part affected by technological change within the economy, the Strategic Intelligence Unit in conference with Dr. Evelyn Murphy as consultant established a conceptual framework for examining problems of forecasting industrial technology in the United States as shown in Figure 2. Concern would be shown for the effect of technology upon manpower development with special interest in research related to forecasting national manpower changes and the impacts of these shifts. Research is needed in forecasting technological innovations. How these stimulate economic progress is a big problem, but not the only problem. Concern also exists for social and political consequences of technological change. The possibility of relating all these changes can be explored.

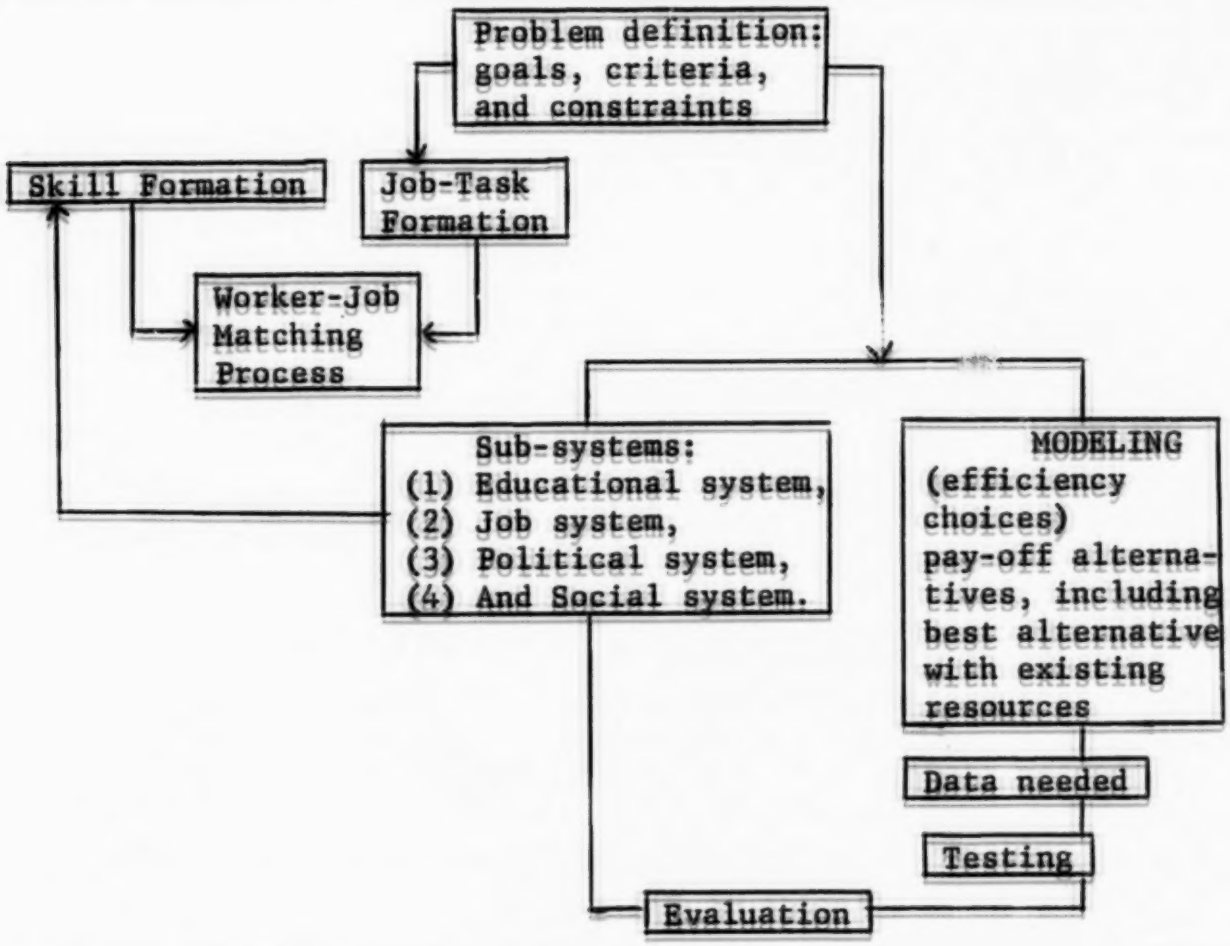
Use of forecasting information by school counselors is another concern. Different students need different information and different time perspectives on their information. Occupational choice is a process of making and re-making decisions. Knowing of possible technical changes before they come is highly desired in guidance of the labor force.

B. Research Activities Unit

Conclusions and implications to be drawn from the eight research activities can be discussed collectively.

In research dealing specifically with decision-making on vocational-technical education bond issues, an analysis of data

Figure 2. Problems of Forecasting Technological Change



collected in the study indicated no discernable pattern to be followed to assure success in passing a school bond election. The purpose for which the election was held did not appear to be associated with the outcome of the election. There was a lack of consistency or pattern in the techniques employed in the campaign strategies promoting these school bond elections. As a result, many of the correlations obtained in this study were not related to the percentage affirmative vote, hence not to the outcome. In addition, many correlations were not in the expected direction. In view of the review of the literature for this project, it was not anticipated that most communications variables (as measured in this study) would be negatively related to election success or conversely that the traditional techniques of election communication strategy would correlate highly with the unsuccessful districts.

The size of the issue, per cent eligible voting in the election and traditionally asserted causes of election defeats were not to be found operative in these Iowa school bond elections.

These unanticipated findings led to the consideration of an alternative hypothesis, that different strategies may be used when the outcome is expected to be close. Data related to the latter point were examined.

When a general lack of association between the outcome of the election and the variables used in this study was found, the hypothesis that "closely contested" issues would differ from the remaining elections was advanced. Closely contested issues were defined as those receiving from 50.0 per cent to 69.9 per cent favorable vote. Districts that received large majorities and those that received less than one-half of the vote were defined as outside the closely contested issues. This resulted in 89 of the 195 districts being classified as "closely contested." The rationale was that if the outcome was predicted to be very much in doubt, different strategies might be used to attempt to secure a favorable vote on the bond issue.

Clearly, this was not apparent in the elections classified as contested. The correlations were quite similar to those for all bond issues. There were no significant differences in the demographic, economic, election history or communications variables. This finding was not consistent with the rationale for examining issues in this vote range. It was assumed that different relationships would be found. They were not.

There were limitations in this study. These data represent the recalled knowledge and attitudes of the superintendents for the most part. As such, they are subject to the usual "decay factor" over an extended time dimension. Some of the elections had been held 5 years prior to the survey. In addition some of the data are second order cognitions, and are subject to the usual criticism of attributed knowledge and attitudes as perceived by a second person. In most cases, the data are quantitative, not qualitative, e.g. data on using or not using lay committees, not on composition, quality and procedures used by the lay committee. Even with these shortcomings, the researchers are not aware of an equally exhaustive study of data collected at the election source. Many dimensions of the problem has been established and much has been learned to apply to future studies of school bond elections which are currently underway.

In studying certain Iowa public school dropouts, it was seen that most of the dropouts came from large families and frequently had brothers and sisters who also had dropped out.

Many had parents who had not finished high school. Approximately 30% of the dropouts' fathers were farmers, occupations for the rest being nearly evenly distributed among the major census classifications of managers, craftsmen, operative, and laborers.

Each dropout interviewed was asked to rate high school course areas he had taken. The males rated industrial arts and driver's education highest in both importance and interest. English was rated lower in interest than any other course taken by the male dropouts. Sociology and psychology, home economics, and driver's education rated highest for the females in both interest and importance. The traditional core courses of English, mathematics, history, and science were rated least interesting and most difficult by both the males and females.

Several additional factors contributing to dropping out were examined. They included lack of extra-curricular interests, owning a car, missing school for employment or work at home, low academic standing, influence of parents and friends, reported lack of interest and individual help given by teachers, dislike of teachers or school officials, unpleasant experiences with teachers or other students, an unhappy home life, and a record of previous dismissals or withdrawals from school.

The most common reason for dropping out was loss of interest or dislike of school and courses for the males and marriage or pregnancy for the females.

Thirty-eight of the male dropouts and twenty-three of the females reacted favorably about having an advisor from outside the school system. A number commented such a program might have kept them in school.

Some of the dropouts' suggestions for school improvement included curriculum expansion to include various types of vocational-technical education, special teachers, and classes for slow learners, more individual help, and better counseling.

Results indicated that only in a few cases was the decision to leave school a spontaneous one for the dropout. For this reason, dropping out has been sometimes referred to as the "dropping out process." Because of the necessity to identify the potential dropout before withdrawal, increasing attention has been placed upon identifying characteristics common to most dropouts. Most dropouts came from families of

a low socio-economic class. The dropouts themselves often showed a marked disinterest in school and related activities.

Based on these findings, the following recommendations might be made: (1) expanded curriculum offering to include additional vocational or technical courses; (2) to utilize information on characteristics of potential dropouts for early identification and corrective action; (3) special assistance to pupils having difficulty especially in core curriculum courses; (4) to provide expanded guidance services; (5) utilizing high school co-operative programs when vocational courses cannot be offered; (6) to provide an opportunity for the development of interest and motivation; (7) to make adult or correspondence courses leading to a high school certificate available especially to girls who had dropped out of school because of marriage; and (8) follow-up and assistance to dropouts in securing employment or additional training.

A number of characteristics of the home environment of skilled, semi-skilled and unskilled workers appear related to the employment record of the husband. Based on the intercorrelations among variables, clusters of characteristics of home environment and employment were tentatively identified. Further studies should include the formation of clusters of related variables after data are obtained from a sample larger than the one on the present study.

Characteristics of the home environment that appeared positively related to the interrelated employment variables, criterion group or wage group at time of the study, mobility, wages, and seniority, were psychological characteristics of the wife, number of suggestions for house improvement, type of clothing worn by the man to work, preference of the wife for a fourteen dollar dress over two seven dollar dresses and knowledge of food and nutrition on the part of the wife. Knowledge of textiles and clothing by the wife was positively related to seniority; attitude of the wife toward the job of the husband, to wage group; extent to which the husband selected his own clothing, to wage group and seniority; and management of resources, to wages.

Three of the home-environment variables correlated positively with suggestions to the company. These included management of resources, psychological characteristics of the wife and number of suggestions for house improvement.

Number of children in the family and geographic mobility of the family correlated positively, and regularity of saving by the family correlated negatively with absenteeism. Absences due to illness correlated negatively with the housing cluster and management of resources and positively with extent to which the family was patriarchal in authority pattern.

It is recommended that the relationships identified in this study be investigated further in a survey of employees in industrial, distributive and service jobs for which vocational and technical education provide training. A number of the measures of the variables need refining to provide for increased reliability.

The method of defining a population and sampling employees of a co-operating company was efficient in terms of locating employees and their homes, obtaining reliable and valid data regarding employment, and gaining the cooperation of the interviewees. It is recommended that a similar procedure be used in studying employees of a number of firms.

The following null hypotheses are also proposed for testing. There is no relationship between a cluster of employment variables including wage group, mobility, wages and seniority and the following differentiating variables for family units: psychological characteristics of the wife, aspirations of the family relating to housing and clothing, type of clothing worn by the employee, knowledge of aspects of homemaking, attitude of the wife toward the job of the husband, quality of housing, quality of clothing, social participation index of the family, management of resources and dietary intakes of the husband and wife. There is no relationship between suggestions to the company and educational level of the husband and wife, management of resources and psychological characteristics of the wife. There is no relationship between absenteeism and number of children, quality of housing, geographic mobility and roles assumed by family members.

Translation of labor demand and manpower requirements into amounts and kinds of vocational education and technical training will be completed after final synthesis is made of several sets of quantitative data. Similarly, specification of organization and policy for this education in the rural community, directed towards both the farm and agri-business sectors, will be completed after synthesis of quantitative results has been achieved. However, several alternatives to the present structure of vocational and technical training have been examined.

Quantitative results to date pose several hypotheses for the future structuring of vocational educational training for agriculture. The results of one model, the programming results explaining the inter-regional shifts and specialization of agriculture, can be used as an example. This model indicates some major shifts among regions, some shifting from crops to more extensive production with still fewer farms and a smaller labor force. Other regions would concentrate on a more intensive, but highly scientific and specialized agriculture.

In a preliminary analysis, used as a guide and model to be followed in determining the amount and quantity of labor and hence, training required in those regions shifting their agriculture to a less intensive basis, it was found that vocational training units to provide the range and depth of skills required, would entail fewer vocational training departments devoted solely to farming. However, these shifts in farming and training structure also would require, in each of these units or departments, more than one specialist so that the expected and necessary subject matter can be covered. In addition, a smaller number of high schools covering a wider territory could be used for an advanced third year directed towards the managerial-oriented segment of the farm labor force.

In contrast to these regions expected to shift from more intensive to extensive farming, other regions are projected to maintain the same product mix, but to increase the volume. However, the skill requirements in farming are stepped up to require more scientific knowledge, and attempt is being made to synthesize the knowledge requirements for managerial, vocational and technical training. Finally, a new model of training, related to the concept of the input-output matrix or resource flows, is being developed to provide estimates for the knowledge and skill requirements for the regional or local agribusiness sectors to serve agriculture.

In examining non-metropolitan labor market changes under changes in technology, few conventional beliefs were supportable.

Further studies should be made of the labor markets examined in this study. A selected industry might be one that has obvious economies of scale, markets a single product, or markets a product for which price is relatively important.

Work under the project which dealt with possibilities for inter-disciplinary research involving psychology and vocational-

technical education began because of encouragement by the Strategic Intelligence Unit. Because the study would have a short period of operation under this contract, the purpose of the study was to survey relevant literature on psychological contributions to vocational and technical education. The activity undertaken to date has dealt with psychological variables affecting levels of aspiration and levels of student interest as these affect educational achievement.

Work on the determinants of post-high school educational and occupational choices of Iowa farm boys has begun by drawing a sample of 790 farm boys graduated from Iowa non-metropolitan high schools. This work plans to seek (1) determinants of educational and occupational choices, (2) factors which restrain post-high school educational investment, and (3) amounts of investment in advanced training among farm boys.

The crux of the work on legal and political problems and strategy necessary for implementing programs under the Vocational Education Act of 1963 is involved with seeking to know, understand and analyze the elements inhibiting and encouraging development of vocational education locally and on the state level. This concerns programs pertinent to socio-economic needs based on regional demands as well as to national employment goals. Primarily, the work considers the rural or non-metropolitan populations as its focus of immediate attention. Therefore, four states whose population can be so categorized will be selected for legislative and administrative analysis of existing vocational education programs. Constructive policy evaluation may be evident from this comparative research of regional development. A thorough study of the Vocational Education Act of 1963 and of Congressional hearings is underway, with special attention given to statistical data found in the hearings.

C. Project Conclusions and Implications

This project for research and development in vocational and technical education for non-metropolitan areas in the United States dealt with the problem framework by means of group examination and individual research.

Educational problems examined included those which affected educational definitions, educational inputs, models of analysis and conceptualization, training and development programs, and policies.

In considering inter-temporal problems for human resource development, overall models need to recognize development of

social institutions, possible goals and objectives, variety in societal forms, and ranges in social orders which could give objectives ranging from absolutism to nihilism.

However, for the project's problems one may presume people seek to approach democracy with its implications of equality for all individuals. This appears at least as the stated objective of the present United States social order. The degree of willingness to pursue this objective or ideal varies tremendously across areas and socio-economic groups. Further, even if there is behavioral agreement upon the social objective, the time path to follow and the interval of time to allow before fulfillment of the goal varies tremendously.

Problem examination can lead to research and development to provide information for adequate perception of the present situation and of prospective changes over time in the general social order.

Different influences upon the institutional structure could be recognized in the problem situation and the impact upon vocational and technical education could be discussed.

VI. SUMMARY

In this summary a brief description of problems and focus of this project will be discussed. The main project components were the Strategic Intelligence Unit and the Research Activities Unit, so the summary deals with these major divisions.

A. Strategic Intelligence Unit

In summary, the Strategic Intelligence Unit was designed to explore the broad dimensions of problems of vocational and technical education in non-metropolitan areas. In pursuit of this objective the Unit saw certain research areas which might be immediately explored and recommended certain activities be started.

The report of the Strategic Intelligence Unit shows that the Unit began its work by seeking to determine whether or not interdisciplinary discussions could be developed and carried forward. The Unit succeeded in developing a sound basis for inter-disciplinary examination of problems associated with vocational and technical education.

Recommendations were developed for educational research, for educational programs, and for possible integration of these.

First, educational programs might be integrated from the cradle to the grave with opportunity for work entry and re-entry at key points along the span of human life if the ideal of democratic education is to be pursued effectively. Second, vocational and technical education might be made an integral part of this total process. Third, policy makers and decision makers for the educational system and its structure need to be so selected that they are complementing the objectives and goals which society has for the institutional structure which performs the function of education for the individuals in this democratic society.

From these recommendations one recognizes major components of problems of conceptualizing education both as a democratic institution and as a democratic function. Logically, one needs an explicit policy which has multiple goals because of the variety of variables.

The Unit explored ways to integrate relevant findings with institutionalized vocational and technical education for innovation and program development and decided that working through Research Coordinating Units, State Departments of Public Instruction, and governmental and private agencies for action and for dissemination of information would be the future course to follow as specific findings were available.

The Strategic Intelligence Unit developed a background of conceptualization of problems of education with emphasis on the problem domain of vocational and technical education. With much effort and energy the Unit worked in an inter-disciplinary fashion across disciplines and as a group, not as a collection of individuals each charged with a specifically delimited disciplinary area. Objectives of vocational and technical educational activity, problems of achieving objectives, and alternatives to achieving objectives were developed in varying detail by the Unit and its committees. Unit membership encouraged the beginning of certain research.

With its conceptualization of the total problem area surrounding vocational and technical education, and its focus on vocational and technical education, together with emphasis placed on certain research areas to be explored, the Strategic Intelligence Unit fulfilled the task set before it by this project.

B. Research Activities Unit

The Research Activities Unit contained several interdisciplinary studies of problems of vocational and technical education in non-metropolitan areas.

One project dealt with the decision-making process of school districts regarding bond issues for vocational education and training programs. Since vocational education and training programs are of no value unless accepted and implemented by school districts, and since little is known about the process of local school district decision making regarding bond issues and the crucial variables that determine final decisions regarding implementation of training programs, this project explored the decision making process.

The objectives of the study were to (1) analyze the decision making process of the school districts regarding vocational education training programs; (2) to determine crucial variables related to the "success-failure" continuum of proposed vocational education and training programs of school districts, and (3) to make recommendations on the strategies for social action to secure positive decisions by school districts on recommended vocational education and training programs.

The procedure was to develop a conceptual model, and operational measures necessary for the field work. This was followed by collection of data from school districts submitting bond issues to the public in the past five years.

Data obtained from 195 school bond issues in Iowa during the past five years was analyzed in two ways: (1) data on all variables which were conceptualized as being potentially related to the passing or failing of a school bond issue were coded and analyzed. These variables were tested and analyzed for significant differences.

Also examined were occupational problems and vocational training needs of high school dropouts from rural areas in Iowa. This project (1) identified several factors and combinations of factors responsible for dropouts; (2) identified some job skill deficiencies in training needs for dropouts, and (3) used this and other information to suggest a basis for curriculum adjustment, improved guidance, and other changes.

Interrelationships of home environment and employment were studies.

The objectives here were to identify characteristics of home environment related to successful employment of skilled or semi-skilled workers.

The procedure used was to interview selected employers

including foremen, personnel officers, union officials, representatives of the Employment Security Commission, and welfare workers to seek identification of home environment characteristics needed in successful employment of skilled and semi-skilled workers. The sample was limited to male workers. Individuals were selected who were married, who had one to four children and who were residents of non-metropolitan areas.

Interviews with wives of workers were held to obtain data on home environment.

Manpower requirements and demand in agriculture by regions and nationally, with estimation of vocational training and educational needs and productivity was taken up by a group of research personnel.

In estimating the work force and skill requirements in agriculture, the study must also estimate the future migration of labor and of population from agriculture and the manner in which vocational and technical education of the rural community can be adapted so that this education serves both those who stay on the farms and those who leave. Though technical and vocational needs have changed rapidly in the past, the next 15 years will see more rapid change. The skill and knowledge needs of agriculture will change greatly because the number of farms will shrink almost by one-half in the next decade and because the farming industry will become more highly specialized. Managers will be engaged in scientific decision-making in a highly technical and precise farming process. Skilled workers will serve as hired help, but will need technical abilities beyond the requirements of the typical farm operator-laborer of the previous generation. With a rapidly growing scientific orientation of farming in the period ahead, persons in the agri-business sector of the rural community will need much greater and more sophisticated scientific and technical training for farming. These people will be called upon to aid and assist the farmer and hence, must have a highly specialized training.

Examination of ways to predict change in technology, jobs and vocational training needs in non-metropolitan labor markets was undertaken. Objectives of this study were to design a model to predict changes in job opportunities and vocational training needs in rural labor markets which would fit the framework of a functional economic area. Short run demands for labor, the shifts in demand, and vocational training needs were the principal concerns. This study used a questionnaire to get at the demands and training requirements.

An examination of potential contributions of psychology to inter-disciplinary research in vocational and technical education was started. The objectives of this study were (1) to determine the role of psychologists in inter-disciplinary research in vocational and technical education; (2) to formulate a basic conception of the role of the psychologist in an interdisciplinary research program in vocational and technical education for non-metropolitan areas, and (3) to work with staff members in the development of specific research proposals to coordinate efforts for maximum efficiency.

The procedure followed was first a review of literature concerning psychological research related to vocational-technical education. This was followed by delineation of specific aspects of vocational and technical education on which psychologists and their research efforts might be focused.

Exploration began on determinants of the post-high school educational and occupational choices of Iowa farm boys. This study was designed (1) to add knowledge of the process and of the determinants of post-high school educational and occupational choices of farm boys; (2) to find the obstacles which prevent further investment in training and education; (3) to analyze variables determining these plans, and (4) to relate these plans to past experiences.

Research which analyzed legal and political problems and the strategy necessary for implementing programs under the Vocational Education Act of 1963 was also started. This project sought answers to questions regarding how any government allocates its limited resources with respect to education and questions of why resources are allocated as they are. The initial institutional focus would be upon the state law and legislative process. To be examined were present laws and administration of vocational-technical educational programs, their leadership, and their organization.

C. Project Summary

The Strategic Intelligence Unit and the Research Activities Unit were the two main components funded under this project for research and development in problems of vocational and technical education for non-metropolitan areas. Problem conceptualizations and inter-disciplinary research were the activities of these project components.

The primary function of the Strategic Intelligence Unit

was to provide information regarding vocational and technical education for adequate perception of the present situation and of prospective changes for the future. For this are needed estimates of the present and future environment and problem situations into which vocational and technical education in the United States is now cast and into which it will move. This perception of the present and future is believed to be required in order to alleviate crises in the near future.

The Strategic Intelligence Unit of this project was concerned with perception, assessment, and articulation of the existing social milieu as it impinges upon vocational and technical education.

The Research Activities Unit was designed to carry out significant research on problems related to vocational and technical education for non-metropolitan areas. This research activity was conducted primarily in three research areas: (1) human resource development, (2) occupational opportunities assessment, and (3) educational resources development and training. This Unit, headed by Dr. John P. Mahlstede, consisted of eight research activities concerned with human resources development, occupational opportunities, and educational resources development and training needs.

The Strategic Intelligence Unit, which conceptualized components of problem areas surrounding vocational-technical education, and the Research Activities Unit, which conducted eight research activities, formed the organizational structure and working mechanism of this project for research and development in vocational and technical education for non-metropolitan areas.

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This final project report is a composite of work done in two units, the Strategic Intelligence Unit and the Research Activities Unit, both funded under contract O.E. 5-85-108 between the U.S. Office of Education and Iowa State University.

The Strategic Intelligence Unit was charged with two tasks: (1) to think creatively about problems associated with research and development in vocational and technical education, particularly those problems found within non-metropolitan areas, and (2) to conceptualize problems surrounding vocational and technical education so that logical models of the total problem structure might be created.

The Research Activities Unit conducted eight research studies dealing with research and development problems associated with vocational and technical education for non-metropolitan areas. These eight activities dealt with: (1) the school district decision-making process affecting vocational and technical education programs; (2) occupational problems and vocational training needs of Iowa high school dropouts; (3) interrelationships between home environment and employment; (4) manpower requirements (by geographic regions) in agriculture and in agri-business and training needs for these requirements; (5) problems of predicting change in technology, jobs and vocational training in non-metropolitan labor markets; (6) contributions of psychology to inter-disciplinary research in problems of vocational and technical education; (7) determinants of post-high school educational and occupational choices of Iowa farm boys, and (8) an analysis of legal and political problems and strategy necessary for implementing programs under the Vocational Education Act of 1963.

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A survey of research was made to identify the vocational needs of individuals with special problems. Completed studies, research-in-progress, and current proposals were included. Topics covered in this summary are -- (1) Aging, (2) Continuation Education, (3) The Culturally Deprived, (4) Delinquency, (5) Dropout, (6) Emotional Disturbance, (7) Low Ability, (8) Mental Retardation, (9) Minority Racial Groups, (10) Physically Handicapped Students, (11) Small Schools, (12) Socioeconomic Studies, (13) Underachievers, and (14) Work Opportunities. A bibliography is included. (MS)

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Vocational Education for Persons with Special Needs

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PREFACE

As technological advancements have placed demands on business and industry for workers with changing and increasing occupational skills and highly technical competencies, an added burden has been placed on those individuals with special problems - physical or mental abnormalities, racial origin, aging, socioeconomic and cultural disadvantages, and inadequate schooling - and upon those responsible for their training. Because of the importance of identifying and studying the needs of these groups to whom occupational opportunities have been limited and of developing training programs by which their needs can be met, the Research Coordinating Unit, Vocational Education Section, State Department of Education, has made a survey of studies completed in this area. Also included in this review are reports of related studies currently underway, project proposals that have been funded by the United States Office of Education under Section 4(c) of P. L. 88-210, reports found in current journals, and dissertation abstracts. Completion dates for 4(c) projects have been provided to enable persons who are interested in specific projects to determine the approximate date of their availability. Although it is felt that this review is representative of recent research concerning the vocational needs of special groups, it is not intended to be considered as a comprehensive coverage.

The areas of concern of this report have been presented alphabetically and not on the basis of relative importance. Projects or studies marked with an asterisk (*) have been conducted in California or are currently being conducted in California.

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VOCATIONAL EDUCATION FOR PERSONS WITH SPECIAL NEEDS

A G I N G

Problems surrounding aging have been compounded in recent years by declining retirement age, forced retirement policies, and employer attitudes, while medical advancements have increased the expected life span. These facts, coupled with changing technology, suggest a need for increased interest in the problems of aging.

Two studies concerning the social psychology of aging in industry were conducted by Meltzer (1965). He points out several factors that would lead to improved mental health of all workers: social acceptance of facts about senior citizens, the replacement of stereotypes of the elderly, a need for planned change of activity, and gradual withdrawal of the everyday job routine in line with realities in a given situation. A change in the attitudes of employers is considered more important than a change in employee attitudes. The programs Meltzer suggests to fulfill the needs discussed in the study are:

1) counseling people over 40 years of age while they are still on the job

2) discontinuance of the practice of not hiring people over 40

3) a planned program for acceptance of change

4) organizing labor-management mental-health programs that provide relevant and adoptive services, particularly for people who are not reared by middle-class values

Disabled

When an aging person is disabled, his problems are compounded. A 50-month project involving 835 persons and the cooperative efforts of several agencies, was conducted by Rusalem (1963a) in New York City. Individualized vocational rehabilitation was provided for each disabled

persons 55 years of age or older, and one or more of the following services was offered: case-finding, intake, vocational counseling, vocational diagnosis, workshop diagnosis, psychological testing, personal adjustment and vocational training, placement in competitive industry, placement in a special sheltered workshop, follow-up and research. About 87 percent of all clients who entered the project completed their program, and 75 percent were provided with suitable employment. In a follow-up of 101 clients who were placed on jobs, nearly 50 percent reported the major project contribution had been in elevating their self-confidence, morale, and status.

Rusalem (1963b) also conducted an experimental study involving 118 aged disabled clients. The experimental group had a mean age of 72.7 years with no client under 70 years of age, and the control group had a mean age of 63.4 and no client over 69 years of age. The people in the group over 70 were found to be less limited by their physical and intellectual limitations, were more realistic in their vocational plans, and were rated more favorably on employability variables by project counselors. In follow-up they were found to have achieved as much employment success as the younger group had achieved. Hence it was concluded that those older persons who persist in the labor market, despite advanced age and retirement pressures, are a select and relatively competent group.

CONTINUATION EDUCATION

Hickman (1964)* conducted a study with dropouts who returned to school for a summer program to determine if it were possible for the dropout to gain better self-insight in addition to raising

achievement in math, English, and reading. Findings of the program were as follows:

1) dropouts valued an education

2) there was a measured intellectual gain, with the mean I.Q. increasing from 92 to 99

3) there were phenomenal gains made in occupational awareness as demonstrated by choice-making

4) a noticeable growth in self-confidence took place

5) the program's success in part was attributed to the ability of the counselors and teachers to work together as a team

THE CULTURALLY DEPRIVED

Aspirations

A federally funded project to examine the relationship between academic and vocational aspirations of culturally deprived students is being conducted by Dales and Walters. The beginning date was June 1, 1965, and the expected completion date is May 31, 1969. Both white and Negro students from low economic areas will be studied pertaining to aspirations, school continuation, self-concepts, and school, family, and friendship patterns.

Basic Skills

A project to develop an effective method of imparting necessary literacy skills to adults was conducted by Heding (1966). An experimental project involving a learning laboratory for imparting basic skills prior to vocational school entrance is being conducted by Borota in an effort to compare performance of vocational school students who have had the advantage of a learning laboratory with those

who have not. The project had a beginning date of May 1, 1965 and an ending date of June 30, 1968.

A Comparative Study

A project has been funded through the Vocational Education Act of 1963 to compare techniques in the United States with those used in Great Britain as solutions to the educational-vocational problems of disadvantaged youth. The project began December 1, 1965, and is scheduled for a completion date of August 31, 1966. It is being conducted by Robert Gibson.

Teacher Preparation

The establishment of two centers for the development of a new program to prepare teachers of the culturally disadvantaged is underway by the California State Department of Education, The University of California at Berkeley, Fresno State College, and the California State College at Hayward. This project is under the direction of Paul Lawrence (1966)*. The completion date is scheduled for February 1969. The project has been named "Operation Fair Chance". Centers are located at California State College at Hayward and Fresno State College.

Identification

In an attempt to identify culturally deprived children, Larson and Olsen (1963) used tests to provide information pertaining to language development, self-concept, social skills, and cultural differences. The four areas provide a theoretical structure for differentiating the culturally deprived at the kindergarten level.

D E L I N Q U E N C Y

A definite void appears in the literature relative to work of a vocational nature for boys showing delinquent behavior. A study was conducted in the Boston area by Massimo and Shore (1963) with 20 adolescent boys who had records of antisocial activities. An experimental group was given vocationally oriented psychotherapy, with the result that a significant improvement was shown by this group over the control group.

Mandell and Sullivan are exploring the degree to which vocational education and guidance during incarceration, combined with supportive and placement services following release, may serve to restore youthful offenders to the community as functioning, useful citizens. This project began June 1, 1965, and was scheduled for completion May 31, 1966.

D R O P O U T S

The dropout who lacks the education considered to be an effective weapon against unemployment and inadequate training has been labeled a source of problems in our society. Much work is being done to identify potential dropouts and to provide programs of education that will reduce this waste of human resource.

Evaluation

An evaluation of a work-study program was made by Fram (1966), who found that the following objectives of work-study programs had been achieved:

1) to enable the student to relate working situations to his

academic instruction

2) to enable the student to obtain earnings to help finance his education

3) to afford cooperating companies the opportunity to evaluate the student for full-time employment after graduation

4) to enable the student to refine and evaluate his occupational goals

The following objectives were found not to have been achieved by the work-study program:

1) to enable the student to observe business and/or industrial techniques and principles in operation

2) to improve the status of the academic program in the eyes of employers

3) to enable the students to understand through practical experience how to get along with others in a working situation

It was not possible to evaluate the following objectives of the work-study program:

1) to help the student mature

2) to motivate the student toward academic work

3) to enable the student to make professional contacts with potential employers

An evaluation of curricular offerings as causative factors for students dropping out of high school prior to graduation was made by Handy (1965). Through the use of a descriptive survey questionnaire, he found that curricular offerings had an effect upon the school's holding power of the student. Traditional academic subjects did not appeal to the majority of the dropouts who were involved in the study. A majority of the dropouts reported that their counselors were not helpful. A majority of the dropouts reported that school subjects they had taken had not adequately prepared them for the world of work.

Two major reasons were given by male dropouts for dropping out of school. One was a lack of interest in school, and the other was unsatisfactory curricular offerings. Female dropouts gave marriage and pregnancy as the major reasons for dropping out of school. Most of the dropouts who participated in this study reported that they were bored with school but indicated that they would return to school if they could choose the courses they wanted to take. Most of the parents of dropouts wanted their youngsters to continue their education.

Identification

A graduate study to develop and test a model for identification of high school dropouts was completed by Stevens (1965). Findings include the following:

1) more dropouts than graduates were retarded in grade

2) the mean average for graduates was significantly higher than for dropouts in grade average, mental ability, achievement level, and reading level

3) graduates were significantly higher than dropouts in school attendance, occupational level of principal wage-earner in family, educational level of family members, and peer group friends

4) a significantly higher percentage of graduates than of dropouts participated in extra-curricular activities

5) graduates tended to have peer group friends

6) home and employment experiences were not significant in decision to drop out of school

7) the author concluded that at his school the potential dropout can be distinguished from the graduate

Differences in mental health characteristics between dropouts and non-dropouts were studied by Walton (1965) to determine if potential

dropouts could be identified. Findings were given for white, Mexican-American, and Negro pupils. The following table has been provided to show the results:

TABLE I

MENTAL HEALTH MEASURES ON WHICH SIGNIFICANTLY DIFFERENT RESULTS WERE OBTAINED BETWEEN DROPOUTS AND NON-DROPOUTS ACCORDING TO SEX AND ETHNIC BACKGROUND

	RACIAL GROUP AND SEX					
	White		Mexican-American		Negro	
MENTAL HEALTH MEASURE	Male	Female	Male	Female	Male	Female
1. Close personal relationships	x	x			x	x
2. Satisfying work and recreation	x	x				x
3. Adequate outlook and goals	x					
4. Behavioral immaturity	x					
5. Emotional instability	x	x	x			
6. Feelings of inadequacy	x	x				
7. Concern for physical defects	x					
8. Nervous manifestations	x	x	x	x		x
9. Total assets	x	x				x
10. Total liabilities	x	x				
11. Total characteristics	x	x			x	x
12. Inter-personal skills		x				
13. Social participation		x				

Thirteen mental health measures were used, and it may be noted in Table I that white male potential dropouts different from non-dropouts in 11 of the 13 measures, and females differed in 10 of the 13 measures.

The table also shows that significant differences between dropout and non-dropout mental health measure scores occured far less frequently for Mexican-American and Negro pupils. These results indicate that additional reasons for dropping out of school exist among the Negro and Mexican-American students that are not found among white students.

Speer (1965) conducted a causal-comparative study of dropouts and non-dropouts of vocational high school students and concluded that there is a common attitudinal factor which can be measured to differentiate significantly the potential dropout from the non-dropout.

A comparative analysis of the achievement and training success of high school dropouts who had reentered a training program was made by Roberts (1965). He found that:

1) participants who came from stable homes were more likely to complete training than participants from unstable homes

2) female participants were more likely to complete training than males

3) participants 20 years of age and over were more likely to complete training than younger participants

4) the program had greater holding power for white participants than for non-white participants

5) cultural background was not a significant influence as a holding power

6) family mobility was not found to be significant

7) cultural background was not found to significantly influence training success of participants

8) no significant differences were found in terms of academic achievement

9) no significant differences were found in vocational achievement between subgroups of cultural background, mobility, and age

A study was conducted by Reigel (1961) to determine the character-

istics of students who withdrew from school prior to graduation but returned for evening course work. He found that courses most often selected were of value for job entry or advancement on the job. The subjects judged as most valuable by the students who returned for evening school were typing, business, English, shorthand, bookkeeping, and business math. Those who had left school early indicated that they had not made use of the school's occupational guidance facilities while in school. Unemployment was listed as a serious problem with the group. The reasons given for not being able to find a job were not having the necessary job qualifications and not having a high school diploma.

"Preparation of the Disadvantaged for Vocational Training" is the title of a project started by Jeffery on September 1, 1965. This is an experimental project and is intended to prepare high school dropouts for vocational training through a basic education curriculum with special efforts to re-orient their social attitudes. Participants with delinquency records will be used. The program will be evaluated on the basis of social and academic progress of participants. The project completion date is August 31, 1967.

Predictive Studies

A study was conducted by Young (1964) entitled "Community Predictors of School Holding Powers". The purpose of the study was to determine the extent to which community variables can be used as predictors of high school holding power. The study included the formulation of a prediction equation. Significant positive correlations with "holding power" were found for six variables. The variables were as follows:

Median monthly rents in the community, mean income, median school grade reached by adults, the percentage of professionals in the population, and the median teacher salary. A negative correlation with "holding power" was obtained with the variable, percentage of overcrowded dwelling units. The investigator suggests that school programs should raise the socioeconomic aspirations of both adults and students if school holding power is to be increased.

Work-study programs for potential dropouts have been developed on the asumption that work improves adolescent motivation and adjustment. Freedman (1963) stated that recently completed research on urban early school leavers raises serious questions concerning these assumptions. The assumptions underlying work-study for potential dropouts and the need to refine criteria for judging the effectiveness of such programs are discussed in this research.

Prevention

An experimental study involving 75 potential dropouts was conducted by Longstreth (1964). The experimental program consisted of:

1) a small stable pupil-teacher ratio
2) a vocational curriculum
3) a counselor immediately available
4) afternoon jobs for pay and school credit

Evaluation was based on:

1) dropout rates
2) police contact rates
3) attitudes assessed by using before and after interviews with counselors

The control group consisted of an equal number of potential dropouts enrolled in the regular school program.

The program was successful in altering school dropout behavior. The aggressive subjects improved more than did passive subjects in attitude toward school. The data obtained indicated that the work-study program had a beneficial affect on school attitudes. In terms of the main evaluative criteria, dropout rates, the program was not successful. In addition, it did not reduce police contacts.

Taber (1963) provides information concerning a program carried out in Philadelphia for reducing school dropouts. He lists some of the methods used in this program as:

1) school-work program
2) the occupational practice shop
3) an approach to the improvement of education of children of limited background
4) a reading clinic

Summaries of Proposed Projects

"Analysis of Dropout Statistics in Selected Colorado School Districts" was the title of a project that was completed under the direction of Burrows. The project dates were from May 1, 1965, to August 1, 1965. The analysis was oriented toward two primary objectives:

1) to provide specific descriptive and comparative data for use in identifying potential dropouts
2) to establish a basis for the evaluation of action programs

The principal investigator of a demonstration training program for potential school dropouts was Sorenson. The project dates were from June 1, 1965 to May 31, 1966. The objectives were:

1) to provide a pre-vocational work laboratory in order to evaluate students' work habits, attitudes, vocational adjustments, appearance, and performance

2) to provide motivation for staying in school for the dropout prone student

3) to encourage employers to hire students who have had training

An experimental program to compare the relative values of training and education for young school dropouts is a project under investigation by Kaufman. The project had a beginning date of July 9, 1965 and is scheduled to terminate on February 28, 1970. The objectives are:

1) to investigage whether it is better economically and psychologically to provide high school dropouts with the opportunity to earn a high school diploma, or

2) to provide them with extended training for entry into a specific occupation

Characteristics of vocationally oriented school dropouts and graduates are bing investigated by George Mallinson. The beginning date of the project was October 1, 1965, and the date on which it will terminate is June 30, 1967. The objectives are to study the characteristics of high school dropouts and graduates who:

1) enter technical training programs and who drop out

2) find employment immediately after completing high school

3) remain unemployed

Data concerning these students will be compared with information concerning students from the same high schools who entered institutions of higher education.

Indentification of potential dropouts has been studied by Ralph O. Gallington, beginning June 1965 and ending December 1965. The major purpose of this study was to identify potential high school dropouts and

to examine the fate of some teenagers who have already left school.

The principal investigator of a pilot project to develop a program of occupational training for alienated school youth is Harry A. Becker. The beginning date of the project is May 1, 1965, ending August 31, 1967. The objectives are:

1) to identify and enroll school-alienated youth for an occupational training program that will prepare them for entry into the labor market

2) to effect behavioral changes through guidance, counseling, occupational training, and instruction in basic education, which will enable the youth to acquire personal characteristics needed for their role as productive adults and responsible citizens

High ability secondary dropouts are bing investigated by Joseph H. French, beginning April 1965 and ending June 1966. In order to identify fields in which high school vocational programs should be developed, the initiator of this project will investigate the employment status, interest, and characteristics of recent secondary school dropouts with high ability.

EMOTIONAL DISTURBANCE

Quay, Morse, and Cutler (1966) conducted a study in which 441 public school children who were judged to be emotionally disturbed were rated by their teachers on a check list of problem behaviors. Three types of behavior which accounted for 76 percent of the variance were:

1) conduct problem or unsocialized aggression

2) inadequacy-immaturity

3) personality problems or neuroticism

The results suggest that differential programs for emotionally disturbed children will be necessary, depending upon their primary behavioral characteristics.

Gladis and Minton (1962) administered a job incentive form to hospitalized veterans, 138 of whom were considered to be emotionally disturbed and 128 who were hospitalized for reasons other than emotional disturbances. In ranking incentives in order of preference, both groups showed definite preferences for such incentives as job security, interesting work, and good working conditions, but showed little interest in job incentives concerned with authority, prestige, or the assumption of responsibility. There was a high degree of correspondence between the preferences of the two groups, with a rank order correlation of .95.

In a four-year project involving emotionally handicapped children in the elementary school, Jackson (1962) divided emotionally handicapped students into four groups. One group of children was placed in an adjustment class, and their parents attended weekly counseling sessions. A second experimental group remained in regular classes while mothers were given group counseling. The other two groups were control groups and remained in a regular school program. An advisory committee was established to make judgments about the program and improvement that resulted. In the judgment of the advisory committee, the case studies showed that programs for emotionally handicapped children could be successful in a public school. The adjustment group made significant improvement during the four-year program. Both experimental groups showed greater gain in achievement over the control groups. However, test findings for achievement were significant only for the adjustment

group. Both experimental groups showed significantly fewer problems on the teacher rating instrument at the end of the experimental period, and teachers observed significant positive behavioral changes in the children of the experimental groups.

A study by Gladfetler, Martin, Leon, and May (1963) evaluated the results of the Cornell Index on a population of 50 white married males who were dependent on community resources for economic support. The results of the Cornell Index and an interview indicated that well over one-half of these men had emotional disturbances which added to their incapacity to work and which operated against their vocational and psychiatric rehabilitiation by present modes.

A review of 145 studies has been conducted by Morse and Dyer (1963). They covered the following topics:

1) incidence
2) identification of dynamic factors in maladjustment
3) training of teachers
4) role of school
5) special class and related educational provisions
6) dynamic factors in therapeutic education
7) school consultation and liaison
8) therapies affecting learning

L O W - A B I L I T Y

A study of selected factors bearing on the persistence and academic performance of low-ability students in four California junior colleges was made by Berg (1965)*. In general, it was found that students made

educational and vocational choices with much less regard for their personal needs, interests, and abilities than for the pressures from and standards of the college peer group. Academic performance and persistence was related in a positive way to the students level of aspiration. These low-ability students reported that they were very dissatisfied with the counseling program of the colleges attended but were satisfied with instruction and very satisfied with the junior college as an educational institution. Even though students reported dissatisfaction with the counseling program, they recognized that such services were of great importance to their success in college.

In his study of American schools, Conant found inadequate counseling services resulted from an insufficient number of counselors.

Lodato and Sokoloff (1963) conducted a project to determine the effectiveness of group counseling for slow learners. Ten students were involved in the study and were given group counseling sessions three times per week. These sessions included group discussions, role playing, pantomimes, athletics, field trips, parties, dancing, and record playing. During the second half of the project, the counseling sessions were increased to five times per week. Three of the students of the original ten moved from the community prior to the completion of the project. One student became sufficiently adjusted during the first half of the program that she was returned to regular class sections. Of the six remaining students, it was a consensus of the counseling staff, classroom teachers, and administration that four had shown marked improvement in behavior, in their attitudes towards school work, and in their relationships with school personnel. One had shown no change while one appeared to be regressing.

A project under the direction of Elliot D. Beckon, entitled "Revised Instructional Programs for Slow Learners to Improve Their Job Placement Opportunities" has recently been completed. Project duration was from April 30, 1965, to March 31, 1966. The objectives of the project were:

1) to identify and analyze the gainful employment potential of slow learners in the Medford Oregon High School, and of youth in the district who have dropped out of school

2) to survey the industrial and business community for job possibilities and related training needs

3) to revise the high school curriculum to meet adequately the needs of slow learners and dropouts

4) to place students in jobs and evaluate their performance on the job

A project in progress entitled "The Development of Specialized Educational Programs for Poor Learners for Use in Non-Educational Settings" is under the direction of Robert A. Walker. The beginning date was January 1, 1966, and the anticipated completion date is June 30, 1967. The objective of this program is to develop multi-media instructional units in four selected occupations which can be used to provide training in non-educational settings. The units are to be made available to persons with special learning problems in order to assist them in becoming gainfully employed.

In a study of the effects on personal adjustment of combined counseling and vocational training, the Manson Evaluation Test was administered by Gavales (1966) to 85 students between 17 and 21 years of age both before and after the counseling and training. These students were characterized by previous failures in social, academic and vocational endeavors. The Manson Evaluation Test was designed originally to detect alcoholism. However, total scores can be used as

an estimate of overall personal adjustment. All students and classes received regular individual and group counseling by skilled counselors. Subjects were enrolled in the following vocational classes: clerk-typist, offset printing, cleaning and pressing, and meat cutting. Each student received one or more individual counseling sessions per month. The pre and post-test scores were found to show significant increase in measured personality adjustment. Out of 85 subjects, 61 showed improvement, 19 showed a negative change and 5 showed no change at all. The degree of change in the negative scores was considerably smaller than the magnitude of the change in the positive scores.

Three major factors seem to underlie the positive personality changes which were observed during this study. The following are in order of estimated importance:

1) intensive, individualized, and grouped counseling
2) acquisition of significant skills through vocational training
3) receiving financial assistance while in training

MENTAL RETARDATION

A pilot program to test the feasibility of modifying a standard groundsman-gardener program to accommodate students with an I.Q. of less than 80 is being conducted under the direction of Roy Nicolaysen. A report of this project should be available in the fall of 1966*.

Rotary pursuit performances of normal and mentally retarded boys were compared as a function of supplementary knowledge of results and practice by Boumeister (1966). The findings of the project were:

1) the normals were initially superior, but with practice, the retardates overtook them

2) supplementary knowledge of results benefited both groups about equally

3) comparable amounts of reminiscence were shown by normals and retardates

4) the defectives displayed more warm-up decrement

Job Placement

In a study to determine the receptivity of employers to the hiring of mentally retarded and ex-mental patients, Hartlage (1966) contacted employers using four different approaches. The approaches were:

1) disability-centered interview

2) problem-centered interview

3) disability-centered mailed questionnaire

4) problem-centered mailed questionnaire

There were no significant differences in receptivity among approaches but differences did appear among industries of different types and of different sizes. Receptivity to the employment of disabled persons increased with the size of the employer's work force. Education of the employer was not related to receptivity. Employment counselors were more receptive than were personnel managers, and were more receptive to the problem-centered approach.

Smith (1964) conducted a study to determine whether or not employment counselors in the Colorado State Employment Service had favorable attitudes toward the mentally retarded and what knowledge they had of this condition. It was concluded that all of the counselors had favorable attitudes toward the mentally retarded, but the majority of the counselors in the state were apparently not well informed about mental retardation.

Special Programs for Mentally Retarded Students

Warren (1962) conducted a study to determine the effectiveness of special classes for the educable mentally retarded as measured by changes that occur in achievement test scores. The results indicated that control subjects tended to show more improvement in intelligence than the experimental subjects but not to a significant degree. It was found that early placement of educable mentally retarded students in special programs brought about more success than placement at a later date after the child had begun to recognize his tendency to be a failure.

MINORITY RACIAL GROUPS

Mexican-American

A study of learning ability in Mexican-American and Anglo-American children was made by Jensen (1961). Fourth and sixth grade Mexican-American and Anglo-American children with I.Q. levels ranging from 60 to 120 were compared on a number of different learning tasks. The main finding was that on direct measures of learning ability, little differences in the groups are noted. The author found the majority of Mexican-Americans with low I.Q.'s quite normal in learning ability. It was concluded that since this group are not basically slow learners, they should not be placed, as they are now, in classes with Anglo-Americans of low I.Q. who are basically slow learners and therefore require different methods of teaching.

In a study of the dropout problem of Mexican-Americans in urban public schools, Sheldon (1961) found that Mexican-Americans were more likely to drop out than are students of other ethnic groups, and that differences between male and female dropout rates are not significant.

Sheldon found that students who dropped out tended to have unsatisfactory ratings by teachers on scales of behavior, and tended to come from families in which the parent had an occupation of low status. There was a greater turnover in schools where the population of the student body was dominantly Mexican-American. Mexican-Americans are more likely to remain in school in areas where other groups represent a majority.

A study in progress under the direction of Constance Amsden is entitled "Teaching Mexican-American Children to Read". This study began on September 1, 1965, and will end August 31, 1966. This project is an experiment to improve the reading ability of Mexican-American children of low socioeconomic status who have learning difficulties because of their bi-cultural and bilingual backgrounds.

Clayton L. Stouffer conducted a project intended to develop educational television programs in the San Francisco Bay Area to teach English to the Spanish-speaking people. The project was financed under Section 4(c) of P.L. 88-210, Vocational Education Act of 1963. The project was to include identification and encouragement of those who could profit from instruction and the development of workbooks and study guides to assist those who would take the television course. The project was completed September 30, 1965*, but did not include the actual production or transmission of a television course. Ideas were formulated which may be of value to others desiring to do work in this area.

Negro

A study was conducted by Chansky (1965) to determine relationships which might exist between vocational interests, aptitudes, and race. Negro and Caucasian ninth graders were matched on scores obtained from

the Multiple Aptitude Test. Significant differences were found in vocational interests between the Negro and Caucasian groups. The Negro student was interested in interpersonal, business, verbal, computational, and long-term training occupations, while the Caucasian was interested in occupations concerned with nature and machines. Low correlations between aptitude and interest tests were obtained, reaffirming the belief that vocational inclinations of ninth graders cannot, to any great extent, be explained on the basis of verbal-spatial or spatial proclivities. The author states, this study's findings seem to issue a warning as to the advisability of depending too heavily on aptitude and interest data in grading ninth graders. A particular caution is urged in using aptitude and interest data in placing students in tracks.

Several federally funded projects pertaining to the Negro have been carried out. One such project is an analysis and interpretation of data on the social characteristics of residents of Vine City, an urban Negro slum. It is being conducted by Marcia L. Halvorsen, beginning February 6, 1966, and ending August 31, 1966. The project involved analyzing data already collected concerning the characteristics of urban Negro slum residents of Vine City. The following areas were included in questioning;

1) family structure
2) marital patterns
3) housing
4) education
5) health
6) budget and spending patterns
7) income and employment
8) political behavior and attitudes toward authority
9) leisure activities
10) deviant behavior and attitudes
11) class identification and awareness

Aims of the analysis are:

1) to determine objectively what patterns of these special characteristics are found in this particular segment of our nation's poor

2) to determine what differences and similarities exist between these patterns and those assumed in the literature to be characteristic of the poor in general

Another project underway is "Family Influence on the Achievement and Attitudes of Urban Negro Americans". The principal investigator is Edgar G. Epps, and the beginning date of the project was September 1, 1965, and the anticipated en ng date is August 31, 1967. The objectives are as follows:

1) to study the achievements, motives, values, and behavior of Negro high school students in the North and in the South

2) to examine the social and economic status, family social structure, and community pressures on the development of achievement motives and values in Negro subgroups

3) to provide answers to questions about motivation and social status which result in academic and occupational failure

Lawrence W. Littig has recently conducted a project entitled "Personality Characteristics and Occupational Aspirations of Negro College Students". This project, carried out between July 1, 1965 and July 31, 1965, had the following objectives:

1) to compare students who are potential dropouts on the basis of personality differences and occupational aspirations

2) to compile exploratory data on the study population and develop ideas for future occupational research on problems of disadvantaged youth

Wallace A. Kennedy conducted a study of Negro intelligence and achievement between April 28, 1965 and December 31, 1965. The objectives of this study were:

1) to study the stability of Negro intelligence as measured by standard intelligence tests

2) to study the rate of achievement growth on a standardized achievement test

3) to study the nature of school dropouts in this population

4) to determine any special characteristics of the children who drop out and their work and living situations

PHYSICALLY HANDICAPPED STUDENTS

It has long been recognized that employer prejudice has been a deterrent in securing employment for workers with disabilities. Advertising by Government and private agencies has been aimed at employers to assist the disabled worker in securing employment. A study was conducted by Rickard (1962) to determine prejudices against the employment of individuals with different types of disabilities for positions as third grade teachers and as accountants. It was found that competence was the most important factor governing the decision of employers. An Index of Employer Prejudice was designed to measure prejudice toward any disability group.

Jones, Gottfried and Owens (1966) conducted a study in which 186 high school students completed a paired comparisons questionnaire involving 12 exceptionalities and 7 interpersonal dimensions. The results revealed that acceptance of certain exceptionalities were sometimes related to interpersonal situations. Most frequently, however, the severely mentally retarded occupied the unfavorable end of the acceptance continuum and the gifted occupied the favorable end. Exceptionalities such as hard of hearing and partially seeing were most often near the favorable end of the acceptance continuum.

A study was conducted by Vogelson (1962) to compare selected variables related to work of a group of physically handicapped individuals and a group of psychiatrically handicapped individuals, both seeking selective placement assistance. The Bell Adjustment Inventory was administered to each subject to measure the four areas of personal adjustment: home, health, social and emotional.

The two groups differed significantly in home and emotional adjustment but not in social and health adjustment. The two groups did not differ in work attitude. The differences observed were wholly explained by the differences in home and emotional adjustment. The two groups differed significantly in both aspects of work history. The physically handicapped tended to be employed for a greater portion of their period of employability and also held jobs for longer periods of time than did the psychiatrically handicapped. There were statistically significant correlations for the physically handicapped group between work attitude and emotional, home, and social adjustment. For the psychiatrically handicapped group, there were statistically significant correlations between work attitude and emotional, home, health, and social adjustment. There were no statistically significant correlations between work attitude and the measured aspects of work history. For the physically handicapped there was a statistically significant correlation between the average length per job and emotional, home, and health adjustment, but not between the percentage of time employed and any aspect of adjustment. Neither aspect of work history was significantly related to any aspect of adjustment for the psychiatrically handicapped group.

A study by Block (1962) investigated the relationships between the independent variables of need for achievement, self-acceptance, and job satisfaction, and the dependent variables of attendance and supervisory ratings of quality and quantity of production of physically disabled male employees. The findings included the following:

1) need for achievement was positively correlated with industrial performance

2) the project did not support a hypothesis that self-acceptance was positively correlated with industrial performance

3) aspects of job satisfaction referred to as "satisfiers" showed

greater relationships with measures of industrial performance than did "dissatisfiers"

4) subjects high in both need for achievement and self-acceptance performed at a higher level than did subjects low in both, and the combined effects of these measures showed a greater relation to industrial performance than did either measure alone

5) no evidence was found to support the "hope of success" or "fear of failure" orientation in need for achievement

6) job satisfaction was less closely related to job performance for persons either high in both need for achievement and self-acceptance or persons low in both variables than it was for persons high in one and low in the other variable

S M A L L S C H O O L S

A funded research project entitled "Conference of Key Small School Administrators of the Northwest to Develop Vocational Education Programs for Small Isolated School Districts" has been conducted by Kenneth Ertel. Project dates were July 1, 1965, to August 31, 1965. The objectives were:

1) to stimulate administrators of small schools to assess the vocational training needs of their students

2) to orient administrators to trends and opportunities in vocational education

3) to develop cooperatively administrative solutions to small problems in offering vocational education programs

S O C I O E C O N O M I C

Several projects recently completed or underway appear in the project summaries of the United States Department of Health, Education, and Welfare. One is entitled "Production of a Motion Picture for the Training of Teachers in Programs of Human Relations in Teaching the Socially and Economically Disadvantaged". The principal investigator was Henry S.

Breitrose. Completion date was April 14, 1966. The objectives were:

1) to develop a motion picture for use by teachers, counselors, and school principals in working with disadvantaged youth, which will show the relationship between teachers' attitudes, expectations, and behavior and those of their students

2) to reveal the conscious and unconscious negative attitudes of teachers, counselors, and principals toward their work and their students

3) to show examples of positive attitudes

4) to show the satisfactions and rewards which may be gained from working with these students

Another study entitled "Anomie and Socioeconomic Status Among Adolescents" is under the direction of Sara Blackwell. The completion date is scheduled for December 31, 1966. The project has the following objectives:

1) to investigate the effects of anxiety, disorientation, and isolation in youth relative upon their success or vocational goals, and the relationship of these factors to the family and friendship patterns and their effect on the vocational planning of youth

2) to provide a degree of validity for the assumption that anxiety, etc. is related to failure

3) to develop tests for measuring these factors

4) to determine the incidence of anxiety, etc. within the high school population of upper New York State

An experimental project for "The Development and Evaluation of Educational Systems Packages for the Occupational Training of Depressed Area Students in Five Basic Subject Areas" received funding and the first phase was completed February 28, 1966. The project was under the direction of Don Bushnell and was to test the hypothesis that learning results are increased when instructional materials have been modified during tutorial sessions. Instructional units were developed for five basic subject areas: arithmetic, reading, writing, speech, and

manipulative skills.

Otis D. Duncan is the principal investigator for a project entitled "Socioeconomic Background and Occupational Achievement Extension of a Basic Model". The project began on June 1, 1965, and will end November 30, 1967. The objectives of the project are to determine the relationship that exists between factors such as education, first-job status, father's education, father's occupational status, and such social and psychological factors as ability, motivation, aspirations, primary-group and peer-group inter-reactions, and ethnic and environmental factors that govern access to opportunities.

Lloyd J. Phipps was principal investigator for a project entitled "A Study in Communication Between High School Teachers of Vocational Agriculture and Socioeconomically Disadvantaged Youth by the Use of the Symatic Differential". The project, to be completed August 31, 1966, had for its objective the measurement and comparison of the connotative meanings of a list of selected concepts for teachers of vocational agriculture and socioeconomically disadvantaged youth. An object of the study was to ascertain the degree to which the teacher of agriculture understands the values and meanings of concepts held by socioeconomically disadvantaged youth.

A project underway entitled "Teaching Preschool Children from Poor Families to Read and the Effect of This Training on School Success" is under the direction of Evan R. Keislar. The beginning date of the project was June 1, 1965, and the ending date will be May 31, 1970*. The following are objectives of the project:

1) to determine the principles of language instruction that will increase the ability of socially and economically handicapped children to use language

2) to test the hypothesis that special instruction and the use of language with such children will result in improved language ability and more rapid academic progress during the first year of school

3) to discover the best ways of developing and using programmed instruction with language handicapped young children

A socioeconomic study involving children from lower class, upper-lower class, and middle class was conducted by John (1963). It was found that middle class children surpassed lower class children of the same chronological age in that they possess a larger vocabulary and a higher non-verbal I.Q. Group differences are less striking when comparing level of language ability. The middle class child has an advantage over the lower class child in tasks requiring precise and somewhat abstract language. The acquisition of more abstract and integrative language seems to be hampered by the living conditions in the homes of the lower class children. Opportunities for learning to categorize and integrate are rare in the lives of all young children. This type of learning requires specific feedback or tutoring, and such attention is far less available to the lower class child. Whatever their genesis, consistent class differences in language skills have here been shown to emerge between groups of children from the same subculture but of different socioeconomic classes. By systematically examining features of the preschool lives of the young children and clarifying their relationship to performance on language and conceptual tasks, it may be possible to facilitate the acquisition of these skills and thus improve educational methods for children of any class.

Gunderson and Nelson (1965) conducted a study to determine the relationship of parents' socioeconomic status to occupations of Navy personnel in Antarctica. A family socioeconomic status index was

derived from father's occupation and father's and mother's education. The enlisted ratings were divided into two groups that appear to correspond with civilian white collar and blue collar occupations. The results have indicated a significant relationship between parental socioeconomic status and occupational assignment in the Navy. Families with socioeconomic status involving parents who have not completed high school and holding blue collar jobs were associated with entry into Navy occupations that corresponded to the blue collar trades. The authors believe that the relationships which exist between socioeconomic status and occupational specialty would be even more pronounced in the Navy population at large than was the sample of Antarctica volunteers.

A study of group differences between upper and lower socioeconomic status gifted children was conducted by Frierson (1965). Group differences between various socioeconomic levels were found to exist and the findings emphasize the importance of controlling for socioeconomic status in studies where gifted and nongifted children are compared.

An exploratory study of social class and its effect on lower class children was conducted by Allen (1965). The major purpose was to describe social class awareness, self-identification, preferences, and perceptions of adult preferences in the age group from 3 to 12. All age groups manifested social class awareness, which increased as the children's age increased, showing the most significant increase in the age group first entering school. Social class self-identification was manifested by lower class children at all age levels covered by the study, and it tended to decrease as the children's age increased. Social class preference was manifested by the lower class children for middle-upper class appearance variables, and this preference tended to increase as the children's age increased. Lower class children tended

to perceive the social class preferences of authorities in the home environment as being different from the social class preferences of authorities in the school and community environment, and this difference tended to increase with increasing age. It was concluded that rejecting experiences provided in the middle class school help to reinforce the lack of self-respect in lower class children as reflected in their social class perceptions.

A four-phase program entitled "Improvement of Youth Through Vocationally Oriented Educational Programs for Disadvantaged Families in Depressed Rural Areas" is being conducted under the directorship of Lloyd Phipps. The phases will include a descriptive study of a depressed rural community, development and application of a "model" program, and an evaluation phase. Completion date is scheduled for May 31, 1970.

A project under the direction of Lassar G. Gotkin entitled "The Development of a Beginning Reading Skills Program" was begun July 9, 1965, with an anticipated completion date of October 31, 1966. The project objective was to develop a series of lessons to teach visual, auditory, and conceptual skills to basic beginning reading students. The lessons were particularly appropriate for the socially disadvantaged child.

U N D E R A C H I E V E R S

A funded project under the direction of John J. Shea entitled "Program for Recovering and Extending Potential for High School Underachievers Seeking Entrance at a Regional Community College" has recently been completed. The project began July 1, 1965, and ended

June 30, 1966. The project had as its objectives:

1) to determine if a planned summer remedial program can prepare identified high school graduate underachievers for success in a two-year terminal program

2) to determine whether personal vocational counseling will have a differentiating effect on student goal achievement

3) to determine through follow-up procedures the degree to which both the remedial program and the underachievers succeed

WORK OPPORTUNITIES

"A Project Study of a Work Opportunity Center" under the direction of Raymond V. Nord has been funded, beginning June 1, 1965, and ending June 30, 1968. Its general objectives are to provide short-term skill training, job orientation, and instruction in related subjects to find out whether these experiences can lead toward a job and high school graduation for youth from one depressed urban area.

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Report of a Five-State Occupational Education Research and Development Planning Conference.

Moss, Jerome, Jr.

Minnesota Res Coord Unit in Occup Educ, Minneapolis

Jan67

EDRS Price MF-$0.09 HC-$0.52 13p.

*EDUCATIONAL RESEARCH, CONFERENCES, REGIONAL PLANNING, *RESEARCH PROBLEMS, *COOPERATIVE PLANNING, *VOCATIONAL EDUCATION, PROGRAM EVALUATION, EDUCATIONAL PROBLEMS, RESEARCH COORDINATING UNITS,

In November 1966 a conference was held to -- (1) exchange information about ongoing and planned research and development activities in Iowa, Minnesota, North Dakota, South Dakota, and Wisconsin, (2) explore opportunities for coordinating activities, (3) develop a priority list of current significant problems in the region, (4) select a high-priority occupational education problem for a regionwide cooperative research and development project, and (5) appoint a planning advisory committee. Developing the economic, sociological, and psychological criteria for evaluating the success of vocational programs was the problem chosen. In order to insure that the study would have immediate applicability to operating vocational programs, it was decided to utilize it in an actual evaluation of vocational programs. A list of 27 priority problems is included. (MS)

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REPORT OF A FIVE-STATE OCCUPATIONAL EDUCATION RESEARCH AND DEVELOPMENT PLANNING CONFERENCE

ED015348

Jerome Moss, Jr.
Conference Chairman

Minnesota

University of Minnesota, Minneapolis, Minnesota

The Conference reported herein was supported by a grant from the Upper Midwest Regional Educational Laboratory, St. Paul, Minnesota.

The Minnesota Research Coordination Unit in Occupational Education is partially supported by the U. S. Office of Education, Division of Adult and Vocational Research.

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REPORT OF A

FIVE-STATE OCCUPATIONAL EDUCATION

RESEARCH AND DEVELOPMENT PLANNING CONFERENCE

Jerome Moss, Jr.
Conference Chairman

Minnesota Research Coordination Unit in Occupational Education

University of Minnesota

Minneapolis, Minnesota

January, 1967

BACKGROUND OF THE CONFERENCE

With the recent general recognition of the importance of occupational education to the social and economic growth of the nation, there has come a substantial increase in the availability of funds for research to improve the quality of vocational programs. Federal funds have been used to encourage studies with national import and to create research and development centers with nation-wide concerns. State coordinating units have been formed to stimulate and facilitate projects and to disseminate findings pertinent to the state. However, until the passage of legislation permitting the development of regional educational centers, there has been a serious gap in the availability of funds for, and the mechanism necessary to coordinate, research and development projects with special region-wide value. This deficiency has been aggravated by a lack of voluntary coordination among occupational education researchers and research organizations.

The creation of the Upper Midwest Regional Educational Laboratory provided both the incentive and the opportunity for an initial act of cooperative planning among occupational education research and development agencies in the region. At the invitation of the Director of the Planning Study for UMREL, occupational educators representing research organizations in four states of the region met in March, 1966 to formulate recommendations concerning potential Laboratory functions, programs and structure. Concomitant, but very significant, outcomes of that meeting included the identification of a considerable number of problem areas of mutual concern to the states represented, and a recognition of the desirability and feasibility of cooperative activities to serve common ends.

Consequently, in the Summer of 1966, the Minnesota Research Coordination Unit in Occupational Education submitted a proposal to the newly-established Upper Midwest Regional Educational Laboratory requesting funds to carry out the following activities in three-phases:

Phase I. Convene selected representatives of the five-state region's major resources for research and development in occupational education (November, 1966) for the purposes of:

A. exchanging information about ongoing and planned R & D activities within each state

B. exploring opportunities for coordinating existing and planned R & D activities within each state

C. developing a priority list of current, significant occupational education problems in the Upper Midwest Region

D. selecting and examining a high priority occupational education problem in the Region suitable for planning a region-wide, cooperative R & D project

E. appointing a Planning Advisory Committee

Phase II. Under the direction of a Planning Project Director,[1] with the advice of the Planning Advisory Committee, develop a complete, written proposal for a cooperative, region-wide study of the problem selected at the November conference (December-April, 1966-67).

Phase III. Reconvene the members of the November conference, supplemented by representatives from other appropriate organizations, to review, revise and approve the written proposal, and to recommend appropriate sources for funding the conduct of the proposed study (April, 1967).

The total project was approved by UMREL in October, 1966, and on November 28 and 29 the following sixteen persons met in Minneapolis, Minnesota to carry out Phase I:

Iowa

Trevor G. Howe, Associate Professor of Education, Iowa State University, and formerly Director, Occupational Research and Development Coordination Unit

Robert W. Thomas, Associate Professor of Economics, and Chairman, Strategic Intelligence Unit, Iowa State University

Kenneth M. Wold, Director, Occupational Research and Development Coordination Unit, Division of Vocational Education, State Department of Public Instruction

Minnesota

Jerome Moss, Jr., Professor of Industrial Education, and Co-director, Minnesota Research Coordination Unit in Occupational Education, University of Minnesota

Howard F. Nelson, Professor and Chairman of Industrial Education, and Co-director, Minnesota Research Coordination Unit in Occupational Education, University of Minnesota

Robert R. Randleman, Assistant Professor of Industrial Education, and Planning Project Director, University of Minnesota

Howard C. Rosenwinkel, State Supervisor for Program Development, Vocational Division, State Department of Education

North Dakota

Clifton H. Matz, Assistant Director, Center for Research in Vocational and Technical Education, University of North Dakota

Elywn H. Nagel, Director, Center for Research in Vocational and Technical Education, University of North Dakota

South Dakota

Donald Lindahl, Director, Lake Area Vocational School

E. B. Oleson, State Director of Vocational Education, Division of Vocational Education, State Department of Public Instruction

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[1]Dr. Robert R. Randleman, Assistant Professor of Industrial Education, University of Minnesota.

South Dakota
Thomas C. Stone, Assistant Professor and Chairman, Division of Vocational and Industrial Education, Southern State College

Wisconsin
Roland Krogstad, Director, Research Coordinating Unit, State Board of Vocational and Adult Education

J. Kenneth Little, Professor of Educational Administration, and Co-director, Center for Studies in Vocational and Technical Education, University of Wisconsin

Robert Ristau, Program Administrator, Vocational Education, Department of Public Instruction

Richard W. Whinfield, Center for Studies in Vocational and Technical Education, University of Wisconsin

OUTCOMES OF THE CONFERENCE

The November, 1966 Conference (Phase I of the three-phase planning project funded by the Upper Midwest Regional Educational Laboratory) was held for the five purposes stated in the previous section of this report. The results of the conference are therefore organized and reported, below, in terms of those purposes.

A. Exchanging information about ongoing and planned R & D activities, and

B. Exploring opportunities for coordinating existing and planned R & D activities within each state

As a result of the exchange of information about completed, ongoing and planned activities within each state, it became evident that failure to communicate with each other could have proved costly. For example, studies that had been completed by some states were discovered to be directly useful to other states. Further, in at least one instance, completely unnecessary replication was being contemplated; three states were independently preparing to undertake identical studies, and that same study had just been completed in a fourth state. The participants agreed to keep each other more closely informed in the future through complete and prompt reporting of their ongoing and planned activities.

It was also decided that, in the future, serious consideration should be given to the conduct of regional, rather than statewide, curriculum development projects, occupational surveys, and mobility studies.

C. Developing a priority list of current, significant occupational education problems in the Upper Midwest Region

Since the list of problems to be developed was to apply to the region as a whole, it was decided that priorities should be dependent primarily upon the degree of mutual concern evidenced among the five states about each problem, and secondarily upon the relative critical value of problems within categories of mutual concern.

Consequently, the procedure adopted for developing a list of problems and assigning priorities was as follows:

(1) In advance of the November meeting, conferees submitted lists of current problems which they felt were sufficiently important in their respective states to justify the expenditure of research and development efforts and funds. Problems which were being given adequate attention, or which were not considered important, were not included on these lists. A master list was compiled from individual lists and reproduced before the conference. At the conference, the cumulated list was reviewed, revised, enlarged, and reorganized.

(2) Conferees from each of the states, caucusing as five separate groups, then decided by majority vote whether or not each problem listed was sufficiently important in their respective states to justify the current expenditure of research and development time and money. A roll call determined the number of states (0-5) that considered each problem "sufficiently important". Categories of 0-5, representing degree of mutual concern about each problem, were thus established.

(3) The conferees from each of the states, re-caucusing as five separate groups, then decided upon the relative importance to their states of problems <u>within</u> each category (0-5) of mutual concern; ranks were assigned by each state. A roll call of the five states yielded the average ranking for each problem within each category of mutual concern.

(4) All the problems in the total list were then re-ranked. Since degree of mutual concern was the primary basis for determining over-all priorities, problems which all states felt to be significant (category 5) received the highest priorities, problems which four states felt to be significant received the next lower level of priorities, etc.

Table 1, presented at the end of this report, lists the problem statements formulated by the conferees, the number of states that felt each problem to be sufficiently significant to warrant current attention, and the final priorities assigned to problems.

D. <u>Selecting and examining a high priority occupational education problem in the Region suitable for planning a region-wide, cooperative R & D project</u>

By majority vote, the conferees selected the first problem in Table 1 for study:

> What are the economic, sociological and psychological criteria for evaluating the success of vocational programs? (a) How can these be measured most validly and reliably? (b) What data collection system should be developed to permit continuous program evaluation? (c) Can criteria and instruments be developed to satisfy institutional self-study as well as "other agency" needs?

The above problem was tied for the highest priority rating; it was deemed suitable for a cooperative, regional investigation; and it has broad implications for

further research. However, in order to insure that the prospective study results have immediate applicability to operating vocational programs, the conferees decided that the problem should not be limited to developing criteria, measures, and methodology but that it should also require these outcomes to be utilized in an actual evaluation of certain aspects of vocational programs. It was, therefore, recommended that the Planning Project Director consider problems four, five and six (in Table 1) in selecting one or more vocational program variables to be evaluated on a regional basis.

E. Appointing a Planning Advisory Committee

The following conferees were selected to form the Planning Advisory Committee: Kenneth M. Wold (Iowa), Jerome Moss, Jr. (Minnesota), Clifton H. Matz (North Dakota), Thomas C. Stone (South Dakota), J. Kenneth Little (Wisconsin). The function of the Committee is to assist, guide and advise the Planning Project Director.

NEXT STEPS

It is now the Planning Project Director's responsibility to prepare a complete, written proposal for a study designed to solve the problem(s) selected by the conferees (Phase II). To accomplish this goal, the Director shall work closely with the Planning Advisory Committee, maintain liaison with the Upper Midwest Regional Educational Laboratory and other interested agencies in the region, and secure the cooperative administrative arrangements necessary to the conduct of a regional study. Funds have already been made available by UMREL for this phase of the project.

After a complete but tentative proposal has been developed, it shall be presented by the Planning Project Director to the reconvened members of the conference, supplemented by representatives of other appropriate organizations, for their approval. This meeting (Phase III) will be held no later than April, 1967. When relevant revisions have been incorporated into the proposal, it shall be submitted to a suitable agency for funding.

It is also hoped that the priority list of problems contained in this report will influence many researchers in the Upper Midwest Region in their selection of problems to study.

Table 1.

A PRIORITY LIST OF CURRENT OCCUPATIONAL EDUCATION PROBLEMS

IN THE UPPER MIDWEST REGION*

Problem Statements	Number of States in which significant	Priority
1. What are the economic, sociological, and psychological criteria for evaluating the success of vocational programs? (a) How can these be measured most validly and reliably? (b) What data collection system should be developed to permit continuous program evaluation? (c) Can criteria and instruments be developed to satisfy institutional self-study as well as "other agency" needs?	5	1.5
2. How and at what educational level(s) can we develop in the student: (a) appropriate work values, (b) receptive attitudes toward change, (c) awareness of personal abilities and interests and how they relate to the world of work, and (d) familiarity with occupations and careers which will provide a basis for making realistic career decisions when and as they need to be made?	5	1.5
3. What are the most satisfactory techniques for recruiting, selecting, preparing, updating and utilizing vocational instructors? (a) What occupational and professional competencies are needed by vocational instructors to perform satisfactorily? (b) How can individuals with occupational competence be encouraged to obtain the professional education needed to perform satisfactorily as teachers? (c) What are the direct and indirect values of requiring work experience, and how long should this experience be? (d) Can cooperative work-study experiences provide adequate occupational competence and values?	5	3
4. What types of vocational education should be provided at: (a) the secondary level, (b) the post-secondary level, and (c) how should these be articulated?	4	4
5. What is the relative effectiveness of different kinds of: (a) pre-vocational education, (b) work experience, and (c) vocational programs on subsequent occupational success and satisfaction?	4	5

*Problems which less then three states considered important were not assigned specific priorities. Where two states believed the problem to be significant it has been included on this list for completeness. Problems felt to be important by only one state have been excluded.

Problem Statements	Number of States in which significant	Priority
6. Are comprehensive post-secondary institutions more efficient organizations for providing vocational programs than specialized institutions?	4	6.5
7. What programs can best serve to recruit, select and train specialists in vocational education? (e.g. administrators, supervisors, researchers, counselors, etc.)	4	6.5
8. What are the current and predicted quantitative needs for occupational training in the region?	4	8
9. How can we standardize occupational curriculums? (a) what are the common elements within occupations and/or between occupations in the region? (b) what type of organization is needed to develop, organize, and disseminate standard curriculums for the region?	4	9
10. What levels and kinds of individual characteristics (e.g. interests, aptitudes, attitudes, etc.) which students bring to vocational programs lend themselves to: (a) efficient training for various occupational groupings, and (b) effective subsequent job performance in various occupational groupings?	4	10
11. What type of occupational education program can we develop in our relatively small secondary schools to prepare students that are low in ability, interest, and motivation for employment?	4	11
12. What programs should be offered to those who are "screened out" of existing vocational programs?	3	12
13. To what extent would controlled experiences in business and industry for counselors and non-vocational teachers assist them in helping youth make more realistic educational and vocational choices?	3	13
14. What factors influence labor force participation and the formation of career development patterns? (e.g. values, work experience, initial failure, formal guidance efforts, social class, education, family, etc.)	3	14.5
15. What changes are needed in vocational and technical education programs to help students who withdraw before completion to make better use of their education in obtaining employment?	3	14.5

Problem Statements	Number of States in which significant	Priority
16. How can dropouts from colleges and universities be helped to: (a) reassess their educational and vocational goals, and (b) enter the work world with marketable occupational skills?	3	16
17. What happens to persons not able to attend existing post-high school institutions?	3	17
18. What factors effect the geographical mobility of our potential trainees and graduates?	3	18
19. What part should the expressed occupational interest of potential students play in developing vocational programs?	2	
20. How can the nature and rate of emerging occupations, and major qualitative changes in existing occupations, be forecast?	2	
21. By what systems has the present work force gained job competencies? (e.g. apprenticeship, on-the-job, public schools, etc.)	2	
22. What methods can be devised to analyze occupations or occupational clusters to yield the technical, psychological and sociological requirements for job satisfaction and satisfactoriness?	2	
23. To what extent should content for immediate vs. long-range career goals be emphasized? At what level of generality should selected content be provided? What principles of content organization and arrangement maximizes its transfer value?	2	
24. What is the most efficient administrative pattern and organization within a school district for operating area vocational and technical schools?	2	
25. How can the economic return to society of training for a given occupation be computed?	2	
26. How effective are youth club organizations and activities?		
27. What is the most effective means for encouraging educational innovation based upon the results of research?	2	

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Michigan Vocational-Technical Education R and D Needs Survey. Final Report.

Vocat. Educ. Res. Coordinating Unit, Lansing, Mich.

66

EDRS Price MF-$0.09 HC-$0.76 19p.

*RESEARCH PROBLEMS, *VOCATIONAL EDUCATION, TEACHER EDUCATION, CURRICULUM DEVELOPMENT, STUDENT MOTIVATION, VOCATIONAL FOLLOWUP, DISADVANTAGED YOUTH, ADMINISTRATION, SURVEYS, HANDICAPPED, RESEARCHERS, COMMUNICATION (THOUGHT TRANSFER), VOCATIONAL GUIDANCE,

Michigan,

A survey was conducted to identify needed vocational and technical research and development activities and to determine priorities for these activities. A list of 83 items was developed from the Michigan Department of Education "Research Bulletin," no. 703, topics suggested at an Arizona conference, and personal contacts with vocational educators. The list was refined by the Division of Vocational Education staff to include 79 items. Local district vocational education directors, intermediate district research staffs, district research staffs, community college staffs and teacher educators returned 190 of 235 opinionnaires after rating each item on a 5-point scale. All 53 items ranked highly by these groups are included in the report in rank order under the categories -- (1) curriculum development, (2) communications, (3) motivation, (4) teacher education, (5) counseling, placement and followup, (6) persons with special needs, (7) administration and (8) general. Respondents identified 47 additional items considered by them as worthy of research or development. High priority items are being recommended for proposal development and funding. (JM)

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Final Report

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MICHIGAN VOCATIONAL - TECHNICAL EDUCATION

R& D NEEDS SURVEY

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MICHIGAN DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION
RESEARCH COORDINATING UNIT

MICHIGAN VOCATIONAL-TECHNICAL EDUCATION RESEARCH AND DEVELOPMENT NEEDS SURVEY

Vocational Education was challenged by the Vocational Education Act of 1963 to improve existing programs and to provide new programs of vocational-technical education. Valid and reliable data will aid in making decisions regarding needed improvement and new programs.

The need for such data was recognized by the Program Development Section of the Division of Vocational Education, Michigan Department of Education. The Research Coordinating Unit (RCU) of the Program Development Section therefore surveyed key vocational educators and research persons of the State to:

1. Identify Research and Development activities that would aid in improving existing vocational education programs and in providing new vocational-technical education programs in Michigan.

2. Determine what research and developmental activities should be given priority in Michigan.

A list of 83 items was developed from three principle sources; namely:

1. Research, Bulletin No. 703 (Revised), The Michigan Department of Education, Lansing, Michigan, 1965.

2. The list of 101 topics identified in October of 1965 at the statewide conference held in Arizona.

3. Personal contacts with vocational educators.

A trial run conducted with the Division of Vocational Education Staff, resulted in some revision and deletions and a final list of 79 items.

Approximately 235 opinionnaires were mailed to Local Directors for Vocational Education, Intermediate District Vocational Education Consultants, Intermediate District Research Staffs, K-12 District Research Staffs, Community College Research Staffs, and to Vocational Educators in Teacher Education Institutions.

A total of 190 opinionnaires (70%) were returned. The number of returns and the percent by group surveyed are shown in Table 1, columns 2 and 3.

Respondents were asked to indicate on a 5-point rating scale their opinion of the importance of each research or development item. Responses were weighted and an average obtained for each item. The average scores (weighted mean) by groups surveyed are shown in Table 1, column 4. The standard deviation of scores about the mean was computed and shown in column 5. This value was added to the mean (average score), giving the values shown in Table 1, column 6.

All items from the opinionnaire receiving a score above that shown in column 6 of Table 1 were noted. Those items thus singled out by three or more of the groups surveyed appear in Table 2. Appendix I contains a list of items which received an over-all average of 3.5 or above.

Writing of project proposals is being stimulated by the RCU for those R & D items which received the highest priority. The RCU Resource Committee, consisting of a representative from each of the Services of the Division of Vocational Education and selected vocational educators, is working with the RCU on proposals. Projects thus identified are being recommended for funding from appropriate sources. It is anticipated that one or more projects will begin from a planning grant from State funds with eventual requests for funds under Section 4(c) of the Vocational Education Act of 1963. Drafts of proposals have been prepared in the areas of teacher preparation, curriculum, and counseling.

Survey results should also be useful to persons in local schools and community colleges as they consider Research and Development activities and to university students when searching for a thesis topic.

The RCU staff was pleased to find that many respondents took the time to suggest additional topics for consideration (See Appendix II).

TABLE 1

1 Group	2 No. Returns	3 Percent Returns	4 Average* Score	5 Standard Deviation	6 Mean (average) plus 1 Standard Deviation
Vocational Education Division Staff	24	75%	3.25	.45	3.70
Local Directors and Intermediate District Consultants	54	93%	3.79	.42	4.21
Intermediate District Research Staffs	13	59%	3.87	.22	4.09
K-12 District Research Staffs	59	63%	3.69	.37	4.06
Community College Research Staffs	25	83%	3.42	.70	4.12
University & College Research Staffs	15	42%	3.57	.45	4.02

*Expected average score on a 5-point scale would be 3.0.

TABLE 2

No. of Groups Giving Item a High Priority	Category	Item
All 6 Groups	Teacher Education	a. To determine changes needed in teacher preparation that will keep pace with knowledge and skills needed by teachers.
	Counseling, Placement, & Follow-up	b. A developmental project to demonstrate improved techniques for providing improved vocational guidance for students.
5 Groups	Curriculum Development	a. To determine the specialized vocational education curriculum needed at the senior high school level.
		b. To determine the types of "pre-technical" education programs that should be offered at the secondary level in preparation for post-secondary programs.
		c. To determine the role of the area school and its relationship to the high schools of its service area and to the community college.
4 Groups	Curriculum Development	a. To determine the basic vocational and/or technical education (the broad, exploratory, pre-vocational instruction) curriculum needed at the junior and senior high school level.
		b. To determine specialized and technical education curricula needed in post-high school programs.
	Communications	c. A developmental project to establish improved methods of providing occupational information to counselors and to students.

TABLE 2--Continued

No. of Groups Giving Item a High Priority	Category	Item
4 Groups	Teacher Education	d. A developmental project to design teacher education programs for preparing teachers for emerging job cluster curricula concept.
3 Groups	Curriculum Development	a. To determine the role of business and industry in training for employment.
	Communications	b. A developmental project to demonstrate improved methods of communication between employers and educators.
	Motivation	c. An experimental project(s) to determine effective motivation of the disadvantaged.
	Administration	d. A study of needs to remove barriers to training program progress (laws, regulations, certification restrictions, tradition).
		e. A survey of other states to determine methods of allocating funds and to study the possibility of more effective methods for Michigan.
	General	f. The establishment of an instructional materials center for vocational-technical education.

APPENDIX I

LISTING OF ITEMS RECEIVING AN AVERAGE RATING OF 3.5 OR ABOVE FROM ALL RESPONDENTS

CURRICULUM DEVELOPMENT

1.	To determine the specialized vocational education curriculum needed at the senior high school level.	4.410
2.	To determine the role of business and industry in training for employment.	4.305
3.	To determine the basic vocational and/or technical education (the broad, exploratory, pre-vocational instruction) curriculum needed at the junior and senior high school level.	4.297
4.	To determine the types of "pre-technical" education programs that should be offered at the secondary level in preparation for post-secondary programs.	4.267
5.	To determine specialized and technical education curricula needed in post-high school programs.	4.248
6.	To determine the role of the area school and its relationship to the high schools of its service area and to the community college.	4.209
7.	A developmental study to determine the types of industrial education needed.	3.987
8.	A research project of sufficient scope to combine in one large project the determination of roles of the various levels of education for employment.	3.848
9.	A series of developmental studies on how to provide various types of distributive education and office occupation education effectively on an area basis.	3.820
10.	A developmental project to demonstrate the need for and the effectiveness of a combined program of business education, home economics, and trade and industrial education for occupational preparation in the food service area.	3.817
11.	A developmental study on how to provide education for health related occupations an an area basis.	3.815
12.	To determine the pre-vocational and exploratory information and experiences needed at the junior high school level.	3.790

CURRICULUM DEVELOPMENT--Continued

13. A developmental project to establish a core of courses which will serve several specified job classifications.	3.771
14. A developmental study on how to provide education for wage-earning occupations related to home economics on an area basis.	3.769
15. A developmental project to initiate new and improved programs of health education.	3.727
16. To determine the role of the junior high school in education for employment.	3.682
17. A study to determine interest and need for wage-earning courses based on home economics knowledge and skills.	3.550
18. To determine curricula needed at the elementary level to provide an introduction to occupational information and to emphasize the importance of work.	3.517

COMMUNICATIONS

1. A developmental project to establish improved methods of providing occupational information to counselors to students.	4.273
2. A developmental project to demonstrate improved methods of communication between employers and educators.	3.982

MOTIVATION

1. A study to explore ways of finding out and meeting the wide range of abilities, interests, and needs of high school students.	3.961
2. An experimental project(s) to determine effective motivation of the disadvantaged.	3.857
3. A study of motivational factors confronting the disadvantaged.	3.798
4. A study to explore effective ways of moving from a teaching situation in which students look to the teacher to initiate and direct their learning experiences to one in which each student is becoming a self-directive person in all aspects of his work.	3.675

MOTIVATION--Continued

5.	A study of motivational factors affecting adults and their decision to continue education.	3.670
6.	A study to explore effective ways of increasing the emphasis on learning by doing rather than on subject matter.	3.664
7.	A study to explore effective ways of increasing the emphasis on what is being learned rather than on what is being done and of relating new learning to accepted values and goals.	3.611

TEACHER EDUCATION

1.	To determine changes needed in teacher preparation that will keep pace with knowledge and skills needed by teachers.	4.482
2.	A developmental project to design teacher education programs for preparing teachers for the emerging job cluster curricula concept.	4.141
3.	A study to determine effective means for bringing technicians and other trade persons into the classroom to relieve the teacher shortage.	4.047
4.	A developmental project to provide in-service education needed by former trades persons who are now teaching.	3.871
5.	A developmental program to encourage youth to become teachers.	3.854
6.	A study to determine ways to finance and provide refresher programs to retrain teachers.	3.696
7.	A study of relative effectiveness of teachers with various levels of educational training and occupational experience.	3.560
8.	A study of technical skills which vocational teachers possess in relationship to the skills needed.	3.557
9.	A project designed to recruit and provide teacher education for students enrolled in two-year associate degree programs in community colleges.	3.512

COUNSELING, PLACEMENT, & FOLLOW-UP

1.	A developmental project to demonstrate improved techniques for providing improved vocational guidance for students.	4.343
2.	A developmental project to determine effective incentives for encouraging teachers and counselors to secure additional occupational experience.	3.982
3.	A research project to determine the relative effectiveness of actual work experience and simulated work experience for teachers and counselors.	3.850
4.	A developmental project to provide a mobile vocational counseling unit for schools in sparsely settled areas.	3.691

PERSONS WITH SPECIAL NEEDS

1.	A study of deprived youth to determine factors responsible for a syndrome of failure and methods of alleviating this self-concept obstacle in the selection and pursuit of vocational-technical education.	3.898
2.	A study to identify the needs of the socio-economic handicapped for job preparation and upgrading.	3.753
3.	A developmental project for the mentally and/or physically handicapped for which the regular vocational-technical education program is inadequate for job preparation.	3.736
4.	A study of the needs of persons with special needs identified from Title I project of the Elementary-Secondary Education Act having implications for vocational-technical education.	3.524

ADMINISTRATION

1.	A study of needs to remove barriers to training program progress (laws, regulations, certification restrictions, tradition).	4.018
2.	A survey of other states to determine methods of allocating funds and to study the possibility of more effective methods for Michigan.	3.950
3.	A task force to update vocational-technical education goals and objectives and determine evaluative criteria in preparation for the January 1968 Evaluation Report to Congress and the President.	3.903

ADMINISTRATION--Continued

4.	An evaluation of vocational-technical education in Michigan with completion date January 1, 1968.	3.858

GENERAL

1.	The establishment of an instructional materials center for vocational-technical education.	4.163
2.	A survey to determine the effectiveness of the work-study program in reducing the number of dropouts.	3.872
3.	A developmental project to demonstrate effective utilization of the technical resources available in an area.	3.653
4.	A study to determine whether occupational interests and aspirations of student match with job projections to 1980 to come from the Battelle project.	3.511

APPENDIX II

ITEMS ADDED BY RESPONDENTS

CURRICULUM DEVELOPMENT

A project to determine the relative value of related instruction versus shop work.

A study to determine ways and means of improving the "image" of vocational education among students, parents, and educators.

Develop means for assembling, organizing, and disseminating related information to directors, coordinators, teachers, and others (publications, research, etc.).

To determine the job skills and related information to each job cluster.

A project to determine the probability of combining the various vocational education fields into one operation (business situation--work flow type with each dependent on the other for their work and achievement.

To determine the role of the junior high school, the high school, and the community college in the area of vocational education.

Study to determine more valuable use of free time.

The high school's part in pre-technical training.

How to make better use of high school time for students not going on to a four-year college.

Further study of parental needs and attitudes toward their children entering vocational-technical education programs.

A study to determine the occupational opportunities (job clusters) by type of community.

Find ways to educate the community and state legislatures of the need for money to construct vocational schools as many states are doing.

To determine the feasibility of extending school year in regular day school vocational programs.

A study to determine role of advisory committees in curriculum development at all levels of education.

COMMUNICATIONS

A project to demonstrate methods of communication between employers and students by-passing educators.

Improve utilization of available information by counselors and students.

A project designed to establish better communication and articulation in vocational education (K through community college).

A project to establish better communication methods between public and private schools.

A developmental and demonstration project relating to the most effective use of local (area) news media in the establishing and maintaining of area schools.

A study of the effect that an intense public information (on vocational needs and opportunities) program has on student motivation.

TEACHER EDUCATION

A study to demonstrate what the local school district should do in order to attract good teachers in technical areas.

A study to determine what should be done to encourage young people to become teachers in technical areas.

How can colleges and universities prepare prospective teachers for technical programs?

What effect does salary and facilities have on a prospective teacher's decision to accept employment with a particular school system?

A study to determine the entrance requirements of Michigan colleges and universities for high school graduates wishing to major in Trade, Industrial, and Technical Teaching and/or Administration.

A study to determine what constitutes an acceptable program of teacher education for vocational teachers--industry and business.

A study to develop minimum standards for facilities for accreditation as an institution to prepare vocational, industrial arts, and business education teachers.

Having more college or in-service programs which teachers can apply directly to their work.

Study preparation needed by the junior high exploratory shop teacher as well as the high school pre-vocational teacher.

TEACHER EDUCATION--Continued

What effect does participation in research have on the effectiveness of instruction?

A project to determine or demonstrate the need for teacher preparation in the field of reading at the secondary level.

Reguire all academic educators including counselors to take courses in vocational education (1) Philosophy of Vocational Education (2) Occupational Analysis.

PERSONS WITH SPECIAL NEEDS

Develop a pilot project to adjust curriculum to the needs of the early identified potential school leavers.

COUNSELING, PLACEMENT, & FOLLOW-UP

A method of counselor training in career background.

To establish a meaningful criteria by which to evaluate the standards and requirements of the vocational education program as related to the occupational objectives of the students.

A developmental project to establish improved methods of providing occupational information to the parents of students and to other adults of an area.

A project to establish improved methods of providing occupational information to parents.

A project designed to emphasize the dignity of no degree occupations for counselors.

Use of vocational educators as counselors.

A study to explore ways of inspiring people to develop their full potential as a human being.

Communication of occasional information to parents--to destroy the concept that "the only road to success is a college education."

ADMINISTRATION

A complete study to re-write labor laws.

Determine how to obtain enough funds to provide adequate facilities for education.

ADMINISTRATION--Continued

A study to determine better ways to finance education so that all areas of the State may have the means of providing the same educational advantages of the regular comprehensive high school and technical school.

A study of ways to change the fundamental financing of public schools from property taxes to some other more equitable tax.

To determine union responsibility in promoting or inhibiting occupational training programs.

A research project to determine a possible program of vocational training to fit needs of inmates at State Correction Department institutions such as Camp Pugsley (16-21 years).

VT 001 564

VT 001 564 ED 011 549

Western Regional RCU Conference in Vocational Research Funding, Phoenix, Arizona, December 15-16, 1966. Summary Report.

Arizona Occup. Res. Coordinating Unit, Phoenix

66

EDRS Price MF-$0.09 HC-$0.76 19p.

CONFERENCES, *VOCATIONAL EDUCATION, *RESEARCH COORDINATING UNITS, *EDUCATIONAL RESEARCH, *FINANCIAL SUPPORT, REGIONAL LABORATORIES, *EDUCATIONAL LEGISLATION, FEDERAL AID, STATE AID,

Vocational Education Act of 1963, Elementary and Secondary Education Act, Manpower Development and Training Act, Economic

Opportunity Act,

Research Coordinating Unit personnel met to consider the funding of vocational research. The purpose was to explore alternate sources of funds because of decreased appropriations. Participants represented logical state and federal sources of research funding and USOE. Questions considered were -- (1) How much money will be available for research this year and next, (2) How will it be distributed, (3) What procedures should be followed in requesting funds, (4) What criteria will be used in evaluating requests, (5) What procedures will be followed in processing requests, and (6) How may these funds be used. The session topics were -- (1) Directed Research under Title IV(c) of the Vocational Education Act, (2) Research Funds Administered by the States, (3) Small Grants from Research Development under Title IV(c) of the Vocational Education Act, (4) Coordination of Title III Programs under the Elementary and Secondary Education Act with State Research Coordinating Units, (5) Coordinating Vocational Research with the Regional Experimental Laboratories, (6) Research Funding Available under the Economic Opportunity Program, and (7) Funding Research under Title I of the Manpower Development and Training Act. (MS)

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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WESTERN REGIONAL RCU CONFERENCE ON VOCATIONAL RESEARCH FUNDING

Phoenix, Arizona
December 15-16, 1966

Summary Report

Sponsored By
Arizona Research Coordinating Unit
Northern Arizona University

VT 015 564

SUMMARY REPORT

Purpose of the Conference

A conference of RCU personnel from the Western States was held in Flagstaff, Arizona in November, 1965, nearly six months after the initial RCU's were established. At that time mutual interests were discussed and communications established which have proven beneficial. At the meeting of the RCU directors in Washington, D. C. in September, 1966 several of the Western States directors felt that another regional meeting was needed. The Arizona RCU again agreed to sponsor this conference. After consulting with the Division of Adult and Vocational Research and other RCU directors it was decided that the conference should deal specifically with vocational research funding. Congress had reduced the 4(c) appropriations for vocational research, and at the same time the Elementary and Secondary Education Act had provided additional research programs which might be of assistance to vocational education. The purpose of this conference, therefore, was to explore alternate sources of funding vocational research.

Program participants were selected to represent each of the logical sources of research funding, both at the federal and state levels. These included the Adult and Vocational Research Division of the Office of Education; regional offices of vocational education; state departments of vocational education; the regional laboratories at Denver, Salt Lake City, Albuquerque and Los Angeles under the Elementary and Secondary Education Act; the Title III program under the Elementary and Secondary Education Act; the Economic Opportunity Act; and the Labor Department. Letters addressed to the participants requested in as far as possible information in response to the following questions:

How much money will be available for research this year? Next year?

How will these funds be distributed?

What procedures are to be followed in requesting these funds?

What criteria will be used in evaluating requests?

What procedures will be followed in processing requests?

For what purposes may these funds be used?

The specific purposes of the conference thus were to assess the availability of research funds from the most logical sources; the procedures to be followed in gaining access to such funds; and the best ways to coordinate the activities of the RCU's in developing vocational research with other state and federal programs.

Procedures

The conference consisted of seven general sessions: two luncheons, an informal evening discussion session and a wrap-up session. Each of the general sessions lasted one hour and fifteen minutes, with the time divided between presentations by speakers and discussion from the floor. An RCU director acted as a recorder

for each of the general sessions. The wrap-up session consisted of the recorders' summaries presented to the conference, and these were adopted in final form to constitute a document containing the essential information brought out by the speakers and other participants in the conference. The body of this report is that document. A list of the participants and the agenda of the conference are included at the end of the report.

Action by the Conference

Following adoption of the summary report, a motion was made, seconded and passed unanimously that the Research Coordinating Units in the Western States meet in a regional conference each year at approximately this time. A national meeting of RCU personnel has been scheduled each of the past two years in the summer months, and the regional meetings would thus bring the directors and other personnel together for matters of common concern at six month intervals.

A second motion was made, seconded and passed recommending that our next regional meeting be held in January, 1968 in Honolulu. In the discussion of this motion three supporting facts were brought out: mutual benefits will result for the Hawaiian RCU and the other Western State RCU's through this opportunity for closer association; the current war effort with its increasing demands upon military technical training can be observed with unique advantages at Pearl Harbor and the Honolulu area; transportation costs to Honolulu are little more, if any, for Western States personnel than to meetings on the East coast.

A final suggestion by the moderator of the conference is that the Western States RCU's be organized as an association at the next national meeting in Washington. The Association of Western States Research Coordinating Units would thus be in a position to continue coordinating their efforts and maintaining close communications throughout their common geographic area during the period of increasing state responsibility for these activities. The suggested region would include all states west of and including the Great Plains from North Dakota to Texas.

Session I: DIRECTED RESEARCH UNDER TITLE 4(c) OF THE VOCATIONAL EDUCATION ACT

Speaker: Dr. John Bean, Division of Adult and Vocational Research, U. S. Office of Education

Recorder: Everett D. Edington, California RCU

The following major points were emphasized in this presentation:

1. A major purpose of RCU's in relation to funding is to encourage and obtain use of state and local funds for research. A state should go to the U. S. Government for funds only when the project is too large for a state to handle or it has national implications.

2. The major responsibility of RCU's is that of instrumentation and coordination and not of conducting research.

3. There will be no new 4(c) research projects this fiscal year and it is very likely that any additional funds for next year will not be available before September or October.

4. A small portion of the summer training institutes will be funded this year; $800,000.00 has been set aside for this purpose.

5. The RCU's were cut back less than other projects under 4(c); however, the vocational research program was cut back more than most educational research programs.

6. In many states the state government or university has taken up the slack made by the withdrawal of federal funds from the RCU's.

7. The RCU's should look to other sources for research funds in vocational education. Examples given were industry and private foundations.

Session II: RESEARCH FUNDS ADMINISTERED BY THE STATES: GROUP DISSCUSSION

Moderator: Dr. Arthur M. Lee, Director, Arizona RCU

Recorder: Fred Miner, Washington RCU

1. Directors of several RCU's report their involvement in selecting and evaluating research and development projects funded at the state level from title 4(a) funds. California, Arizona, Oregon, Oklahoma, New Mexico, Utah, and Texas all report significant numbers of vocational R. and D. projects under way with 4(a) funds. In addition they report the involvement of RCU's in this research activity.

2. One state (Utah) reports using earmarked state funds for support of graduate students and others engaged in research in vocational-technical education.

3. Several states use RCU funds matched by state and local funds for the support of R. and D. projects undertaken by local school districts.

4. California has used 4(a) funds for the support of vocational-technical education research seminars.

5. One state (Oklahoma) reports the use of funds received from the Oklahoma Economic Development Council, a state agency for research in Vocational-Technical Education.

   RCU personnel reported enthusiastic support of vocational research activities in states where state directors of vocational education, local school district personnel, and university research staff were all involved in the vocational research activity, and where state and local funds were committed to the support of this R. and D. effort.

Session III: SMALL GRANTS FOR RESEARCH DEVELOPMENT UNDER TITLE 4(c) OF THE VOCATIONAL EDUCATION ACT

Speaker: Howard B. Gundersen, Acting Regional Representative, Bureau of Adult and Vocational Education, HEW Regional Office, San Francisco.

Recorder: Gene Schrader, New Mexico RCU

The small project research program as outlined in the presentation by Mr. Gundersen seems to be one of token effort only. It is obvious from the total amount of $1.8 million that few projects from each state can be supported. The Western portion of the United States receives only $664,000. At a $10,000 maximum grant, less than 100 projects can be funded. One-half of the allocation is to be used to support small or medium sized institutions in their research efforts.

Several benefits of a program such as this are apparent:

1. Competition for research monies will be on a regional basis.

2. The turn around time should be much less than the present situation.

3. Projects may be supported that have less than national implications.

4. Readers should be more sympathetic, being regional rather than national.

The Educational Research Advisor (ERA) will have more than token power and every effort needs to be made in each region to insure employment of a person that is sympathetic to vocational education. Every effort needs to be made to obtain more funds in this program.

Only two regional offices are now operational--regions four and five. Other regions need to become operational soon, if the small project program is to be of benefit to the RCU. Until the other regional offices are in operation, proposals should continue to be submitted to Washington. The format for the small grant proposals is the same as for larger proposals.

The project concerning cooperative projects of small colleges and universities has a great deal of merit and should prove fruitful to the RCU. If we, as RCU directors are to adhere to the philosophy of the RCU, we will make every effort to coordinate activities under this program. Three year projects are supported at a maximum level of $50,000 per year. Detailed information concerning this project will be forthcoming from the office of Dr. John Bean.

Session IV: COORDINATION OF TITLE III PROGRAMS UNDER THE ELEMENTARY AND SECONDARY ACT WITH STATE RESEARCH COORDINATING UNITS.

Panel: Calvin Nichols, Program Management Officer on Area Desk V (Title III), San Francisco; James B. Ellingson, Oregon Title III Coordinator, and Wayne Taysom, Arizona Title III.

Recorder: T. A. Ryan, Oregon RCU

1. Federal role, Title III, ESEA
   Title III, ESEA, calls for cooperative program involving local districts, state agency, and federal government.

   A. Purpose of Title III, ESEA

      1. To improve quality of education

      2. To provide supplementary services, not supplanting and not duplicating existing services.

      3. To strengthen 8 areas defined in the act.

   B. Kinds of programs with vocational education implications:
      (Vocational education not mentioned directly)

      1. Projects in following areas:
         a. special education
         b. vocational guidance
         c. continuing education
         d. special programs in rural communities

      2. Cooperative programs involving
         a. regional labs, institutions of higher education, working with local districts on evaluation or demonstration projects, with funding to local district.

      3. Proposals submitted relating to vocational education:
         a. Planning an area vocational school
         b. Developing specifications for building
         c. Planning the curriculum for a new vocational demonstration school
         d. Designing a new program to provide occupational guidance.

C. Guidelines for proposals
Available from USOE, Washington D.C. or ESEA Title III Coordinator, State Department of Education

D. Procedure for proposal processing

1. Applicant

Must be local school district, or intermediate agency

2. Deadlines

January 15, 1967
July 1, 1967

3. Review process

a. Takes 3 months

b. Involves review by panel of experts at state level; final action by national advisory committee.

E. Funds

1. Allocated by states in varying amounts

2. For new projects in January, funds are practically nil.

3. Proposals now cannot get money for construction.

II State Role

A. Mechanics of funding at state level.

1. State does not administer funds.

2. State acts in advisory capacity, recommending proposal for funding and then submitting to Area Desk, Federal office.

3. Advisory committee sets guidelines for recommendation procedure.

B. Proposal processing

1. Proposal submitted simultaneously to state office and USOE

a. 20 copies to USOE

b. five to ten copies to state agency (Oregon, 5 copies - Arizona, 10 copies)

2. State has no funds for administration of Title III. Therefore, state office uses resource people for proposal review. Vocational education staff can be involved in this.

C. Suggestions for vocational education participation in Title III

1. Examples of vocational education programs funded under Title III in Oregon:

   a. Pre-vocational education program for junior high school

   b. Model program for vocational education, grades 7-12 and adults

2. Vocational education could develop programs in single subject matter areas. (USOE priority item)

III <u>Questions</u>

Q. Is it possible for more than one school to go together to conduct a project?

A. Yes. Multi-district participation is encouraged. One district has to be applicant and serve as fiscal agent.

Q. Can universities apply for Title III funds?

A. No. Applicants must be school districts or intermediate school agencies.

Q. Is there a priority list?

A. Yes. There is a state-wide priority list. There also is a district priority. The district must evaluate the priority order of need for the district. Projects proposed should be high on district and state priority lists.

Q. What is the chance of approval of a proposed program?

A. The rate of approval is one in four, with 25% of proposals approved. In Oregon 73 proposals were submitted, with 23 funded.

Q. Can Title III programs be integrated with research projects?

A. Yes. This is encouraged. Most Title III projects are approved on a 3-year basis. There is a good chance of testing research in the demonstration schools or programs. Suggest finding out Title III projects to see how research could tie in with these projects.

Q. How is dissemination accomplished?

A. At state level; there are state summaries which would be available from Coordinator. The proposal must outline the system by which dissemination will be done.

At national level, a publication, PACE, gives summaries of all projects approved under Title III.

When projects are completed, final reports will have to be prepared.

Session V: COORDINATING VOCATIONAL RESEARCH WITH THE REGIONAL EXPERIMENTAL LABORATORIES

Panel: James M. Thrasher, Rocky Mountain Laboratory, Denver; Helmut Hofmann, Rocky Mountain Laboratory, Salt Lake City; James Williams, Southwest Regional Laboratory, Los Angeles (Tempe Office); Paul Potty, Southwestern Laboratory, Albuquerque.

Recorder: John Stephens, Utah RCU

I. Legal Basis of Regional Labs

Title IV of Public Law 89-10 provides the legal basis for the establishment and operation of the Regional Labs.

II. Mission of the Regional Labs

A. General

1. The long-range objective of all the labs is to bring about improvement in elementary and secondary education.

2. A second objective is to expedite improvements in the educational system by reducing the time lag between the completion of research and implementation of the results.

B. Specific

1. The Southwestern Lab in Albuquerque
Priority assigned to articulated programs designed to improve education in the lower elementary grades. Indigenous projects have the lowest priority under present funding. Long-range plan introduces vocational programs at end of second year.

2. The Rocky Mountain Laboratory in Denver/Salt Lake
The Rocky Mountain Lab has five current projects designed to improve learning conditions for children in public schools.
   a. Pre-service teacher education
   b. In-service teacher training
   c. Curricula development for individualized instruction
   d. Development and testing of new instructional media
   e. Affective behavior investigation

3. The Southwest Regional Lab
The Southwest Lab is product oriented in four areas:
   a. Communications skills
   b. Problem solving
   c. Instructional technology
   d. Staff training

III. Difficulties (Problems) faced by Regional Labs

The problems faced by the regional labs can be categorized as follow:

A. Funding

Only unstable, short-term funding is provided. Funds have been greatly reduced from original plan.

B. Organization

Limited short-term funding makes hiring of qualified personnel difficult.

C. Territorial considerations

There has been competition between labs for territorial responsibility. This problem is diminishing.

D. Evaluation

No yardstick exists against which the accomplishments of the labs can be measured; therefore, future funding which is based on productivity becomes even more uncertain.

E. Programs

There are few specific guidelines which can be used by the individual labs in establishing priorities for implementing research programs.

IV. Relationship of labs with RCU's

The RCU's and labs should coordinate their activities to minimize duplication. The labs can offer limited support to the RCU's in such areas as research design; the RCU's can suggest areas for future research to the labs.

Session VI: RESEARCH FUNDING AVAILABLE UNDER THE ECONOMIC OPPORTUNITY PROGRAM

Speaker: Jerome S. Bernstein, Deputy Director, Manpower Division, Office of Economic Opportunity, Executive Office of the President, Washington, D. C.

Recorder: Ken Loudermilk, Idaho RCU

The following highlights were presented in Mr. Bernstein's address:

1. Research and Demonstration money was reduced by Congress. In Fiscal 1966, this amounted to 15% of total unearmarked money for community action programs. The last Congress reduced this to 5%, or $8.5 to $4.5 million.

2. Two reasons for the above fund cuts — (a) a 25% cut in community action programs over the country due to complex politics and (b) more and more community action money is being earmarked by Congress for specific programs - e.g. the Headstart program.

3. Research and Demonstration program, with $4.5 million, is about holding level with projects already planned, and only some $300,000 is available for initiating new programs. The Labor Department also was cut from $20 to $15 million. Mr. Bernstein suggests the Canadian Proverty Program or the Ford Foundation as sources of funds.

4. Congress has been very "vocal" on Research and Demonstration programs. R & D funds have been used for innovative purposes rather than for Research and Development per se. Consequently, Congress mandated that the R & D programs be more "pure" and also show an impact on poverty programs for the poor.

5. The Office of Economic Opportunity admittedly has a vested interest in the poor. OEO program established because existing institutions and programs were not doing a satisfactory job with the Hard-Core poor, especially.

6. An effort has been made to improve conditions of the poor, but success has been minimal. There is a real need to "turn off the faucet", and help schools and other institutions to stop turning out illiterate and untrained people.

7. Manpower Priorities were discussed, as follow:

   a. Rural Models: Rural poor people have not received too much help. Not much known about how to train them, or how to get them employed afterwards. Problems of geographic mobility also loom large and complex.

   b. Hard-Core Poor: Those who are functional illiterates, school dropouts before grade 6, etc. are difficult to work with. Training frequently results in menial jobs which still do not lift the person above the poverty line. Methods of training also need further development to be effective. Other programs (such as MDTA) do not effectively reach this group.

   c. Manpower Program Evaluation System: Evaluations of training programs usually have resulted in cursory, peripheral statistics only. Qualitative evidence is needed.

8. A need exists to coordinate Research and Demonstration activities of several Federal agencies, such as the OEO, Labor Department, Office of Education, etc.

9. The Greenleigh report was discussed - a comparative study of three types of teaching personnel using four systems of reading to instruct adults with less than 5th grade reading level. One result of note was that high school graduates with no college or teaching experience achieved significantly better results. This should be interpreted cautiously, and reports are available through Mr. Bernstein for our own examination and conclusions.

10. Question period. An effort will be made to improve dissemination of research reports. Hard-core poverty groups reached best through various motivational incentive systems, rather than through coercive programs. The problem with hand-core poverty groups may not be so much a lack of training know-how on the part of those working with these people as the problem of getting them into semi-skilled or higher jobs after training which will provide them suitable status, income, satisfaction, etc.

Session VII: FUNDING RESEARCH UNDER TITLE I OF THE MANPOWER DEVELOPMENT AND TRAINING ACT

Speaker: Sheridan Maitland, Office of Manpower Policy Evaluation and Research, U. S. Department of Labor, Washington, D. C.

Recorder: J. Clark Davis, Nevada RCU

There are four areas of research in this program. They are as follow:

1. Contractual Research. This is the largest of the four. Actually, research will be accepted which is relevant to any area of manpower. There is not a priority for research; however, the booklet "Manpower Research Projects" gives some good clues. Send in general ideas for review before developing a complete proposal. In general the accepted amount for proposals has been around $75,000, although the range is from $10,000 to $300,000. Approximately $2.6 has been set aside for this area of research.

2. Grants to Scholars in Universities. Research should be focused on a special interest to the scholar dealing with manpower. These grants are limited to $10,000.

3. Doctoral Dissertion Grants. Grants are given in this area up to $10,000.

4. Manpower Research Institutional Grants. According to Maitland, this is the area of greatest potential. Grants amounting to $75,000 per year are given to universities who develop programs of research to implement manpower in their regional area. At present grants are distributed partially on the basis of identifying small colleges that would benefit from grant funds in the area of manpower. Grant funds are committed for the next three years to seven projects.

Money available for all research in the four programs is about $3.0 million per year. Mr. Maitland mentioned that other funds are available for special manpower programs called "Experimental Demonstration Programs." Mr. Seymour Brandwine is the person to contact.

Other information concerning manpower projects is that from three to four months time should be allowed for approval.

Mr. Maitland brought with him for distribution the booklet, "Manpower Research Projects through June 30, 1966," sponsored by the U.S. Department of Labor, Manpower Administration. This booklet is valuable because of its description of on-going research. Also it contains a guide for developing proposals.

WESTERN REGIONAL CONFERENCE ON VOCATIONAL RESEARCH FUNDING
Phoenix, Arizona
December 15-16, 1966

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AGENDA
WESTERN REGIONAL CONFERENCE ON VOCATIONAL RESEARCH FUNDING
Los Olivos Lodge, Phoenix, Arizona
December 15-16, 1966

Thursday, December 15

8:30 - 9:00	REGISTRATION
9:00 - 10:15	DIRECTED RESEARCH UNDER TITLE 4(c) OF THE VOCATIONAL EDUCATION ACT Dr. John Bean, Division of Adult and Vocational Research, U. S. Office of Education
10:15 - 10:30	COFFEE
10:30 - 11:45	RESEARCH FUNDS ADMINISTERED BY THE STATES: GROUP DISCUSSION Moderator: Dr. Arthur M. Lee, Director, Arizona RCU
12:15 - 1:30	LUNCHEON Speaker: *Dr. Morrison Warren, Principal of Booker T. Washington School, and Phoenix City Councilman "THE DISADVANTAGED CHILD"
1:45 - 3:00	SMALL GRANTS FOR RESEARCH DEVELOPMENT UNDER TITLE 4(c) OF THE VOCATIONAL EDUCATION ACT Howard B. Gundersen, Acting Regional Representative Bureau of Adult and Vocational Education, HEW Regional Office, San Francisco
3:00 - 3:15	COFFEE
3:15 - 4:30	COORDINATION OF TITLE III PROGRAMS UNDER THE ELEMENTARY AND SECONDARY EDUCATION ACT WITH STATE RESEARCH COORDINATING UNITS Panel: Calvin Nichols, Program Management Officer on Area Desk V (Title III) Wayne Taysom, Title III Coordinator, Arizona State Department of Public Instruction James B. Ellingson, Title III Coordinator, Oregon State Department of Education
4:30 - 7:00	FREE TIME
7:00 - 10:00	INFORMAL DISCUSSION SESSION All Participants Invited

*Dr. Warren is a prominent Phoenix educator and civic leader, with a strong interest in vocational education for disadvantaged youth.

Friday, December 16, 1966

9:00 - 10:15	COORDINATING VOCATIONAL RESEARCH WITH THE REGIONAL EXPERIMENTAL LABORATORIES Panel: James M. Thrasher, Rocky Mountain Laboratory, Denver Helmut Hofmann, Rocky Mountain Lab., Salt Lake City James Williams, Southwest Regional Laboratory, Los Angeles (Tempe Office) Paul Petty, Southwestern Laboratory, Albuquerque
10:15 - 10:30	COFFEE
10:30 - 11:45	RESEARCH FUNDING AVAILABLE UNDER THE ECONOMIC OPPORTUNITY PROGRAM Jerome S. Bernstein, Deputy Director, Manpower Division, Office of Economic Opportunity, Executive Office of the President, Washington, D. C.
12:15 - 1:30	LUNCHEON Speaker: *Dr. Daniel E. Noble, Vice Chairman of the Board and Chief Technical Officer, Motorola, Inc.
1:45 - 3:00	FUNDING RESEARCH UNDER TITLE I OF THE MANPOWER DEVELOPMENT AND TRAINING ACT Sheridan Maitland, Office of Manpower Policy Evaluation and Research, U. S. Department of Labor, Washington, D. C.
3:00 - 3:15	COFFEE
3:15 - 4:30	SUMMARY REPORT OF THE SEVEN GENERAL SESSIONS Panel: Conference Recorders (Representatives from seven different RCU's)

*Dr. Noble has overall charge of four technical divisions of Motorola, which include the total operations in Arizona. He is an internationally known industrial leader, former educator, and outstanding public speaker.

VT 001 570

VT 001 570 ED 011 293

Research in Home Economics Gainful Employment, Five Pilot Projects in Mississippi, 1965-1966. (Preliminary Report, no. 15).

Witt, Mildred R., Comp.

Mississippi Res Coordinating Unit for Vocat-Tech Educ.

Mississippi State Dep of Educ., Div of Vocat-Tech Educ.

Dec65

EDRS Price MF-$0.09 HC-$1.40 35p.

*OCCUPATIONAL HOME ECONOMICS, *PILOT PROJECTS, *PROGRAM DEVELOPMENT, PROGRAM EVALUATION, RECORDS (FORMS),

Mississippi,

Projects for training persons for wage earning occupations requiring home economics competencies were conducted to obtain direction and guidelines for similar classes in Mississippi. Specific objectives were to -- (1) explore various procedures for organizing classes in local communities, (2) secure information on local employment opportunities, (3) explore possibilities for job placement and followup of trainees, (4) develop curriculum materials in child care, clothing, family, and food services, and (5) provide an opportunity for student teachers to observe these programs. Programs were offered in food services, clothing services, child care services, family services, and assistant homemaking services. They were sponsored by the five state colleges with teacher education programs in home economics. The 101 trainees were from 18 to 61 years of age, and included persons already employed but wanting to up-grade their skills. Curriculum materials were developed in 4 areas. The projects indicated that the program must be flexible, and qualified instructors are available. It was recommended that the classes be continued where needed. Job analysis should precede the classes, and work experience should be required. Other recommendations were made and guidelines were established. Forms used in the program are included. (MS)

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MISSISSIPPI STATE UNIVERSITY

SOCIAL SCIENCE RESEARCH CENTER

RESEARCH IN HOME ECONOMICS GAINFUL EMPLOYMENT: FIVE PILOT PROJECTS IN MISSISSIPPI -- 1965-1966

MILDRED R. WITT

JAMES E. WALL

Preliminary Report No. 15

In cooperation with The Division of Vocational-Technical Education, Mississippi State Department of Education, Jackson, Mississippi.

The information reported herein was partially supported by the U.S. Department of Health, Education and Welfare, Office of Education.

VT013 370

Preliminary Report No. 15 December, 1966

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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RESEARCH IN HOME ECONOMICS GAINFUL EMPLOYMENT:

FIVE PILOT PROJECTS IN MISSISSIPPI---1965-1966

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In cooperation with:

The Division of Vocational-Technical Education
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Jackson, Mississippi

and with partial support from:

The U.S. Department of Health, Education, and Welfare
Office of Education

PREFACE

The Social Science Research Center (SSRC) at Mississippi State University supports various projects in its program of research in OCCUPATIONAL EDUCATION AND MANPOWER DEVELOPMENT. Each of these projects is focused upon the derivation of information that will be useful in the development of human resources. Information derived thus far in this research program is included in the following publications:

1. Influential Factors Concerning Human Resources in Mississippi, by James E. Wall. Preliminary Report No. 11, Education Series No. 1.

2. Research in Home Economics Gainful Employment: Five Pilot Projects in Mississippi---1965-1966, by Mildred R. Witt and James E. Wall. Preliminary Report No. 15, Education Series No. 2.

The five pilot projects for training in wage-earning occupations requiring home economics competencies reported herein were conducted primarily to determine if such programs were really needed in Mississippi. Their success is mute testimony to support their continuation and expansion.

This report is aimed at bringing to the reader's attention some of the methods and techniques used in organizing and conducting home economics gainful employment training programs in local communities. The report might be used (1) by teachers who wish to conduct such programs for adults and out-of-school youth, (2) by teachers who wish to offer such training in their regular secondary school programs, and (3) by administrators and supervisors who are contemplating the implementation of such training in their local school systems.

A number of persons were involved in planning and conducting the five pilot projects reported herein. The following persons attended a two-day planning conference in September, 1965: Dr. Louise Burnette, Teacher Educator, University of Mississippi; Dr. June Cozine, Consultant, Oklahoma State University; Dr. Bertha Fritzsche, Teacher Educator, University of Southern Mississippi; Mrs. Linelle N. Grier, Teacher Educator, Alcorn A. & M. College; Dr. Phoebe T. Harris, Head of Home Economics Department, Mississippi State University; Dr. Marquita Irland, Head of Home Economics Education Department, Mississippi State College for Women; Dr. Harold F. Kaufman, Director of Social Science Research Center, Mississippi State University; Mrs. Katherine Leonard, Teacher in Adult Education, Mississippi State College for Women; Mrs. Allene McCormick, Head of Department of Home Economics, Delta State College; Mrs. Clara Merrifield, Teacher Educator, University of Mississippi; Mrs. Mary E. Pope, Teacher Educator, Mississippi State College for Women; Mr. A. G. Shepherd, Jr., Research Coordinator, Division of Vocational-Technical Education, Mississippi State Department of Education; Dr. James E. Wall, Director of Research Coordinating Unit, Mississippi State University; Miss Ruth Wallace, State Supervisor of Home Economics, Division of Vocational-Technical Education, Mississippi State Department of Education; and Dr. Mildred R. Witt, Teacher Educator, Mississippi State College for Women.

The two-day planning conference culminated in the establishment of project guidelines (see Appendix A) and the appointment of Dr. Mildred R. Witt as State Coordinator of the five pilot projects. The location, subject offered, sponsoring institution, and instructor for each project were:

1. Brookhaven, Food Services, Alcorn A. & M. College, Miss Nancy Joiner

2. Cleveland, Clothing Services, Delta State College, Mrs. Beulah Lewis

3. Columbus, Child Care Services, Mississippi State College for Women, Mrs. Katherine Leonard

4. Laurel, Family Services, University of Southern Mississippi, Mrs. Margaret Wilson

5. Tupelo, Assistant Homemaking Services, University of Mississippi, Mrs. Eleanor Weatherford

A special debt of gratitude is owed to Dr. June Cozine of Oklahoma State University who took time away from a very busy schedule to act as consultant in this program.

M.R.W.
J.E.W.

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INTRODUCTION AND STATEMENT OF PROBLEM

One of the most important trends in the composition of the labor force in Mississippi has been the large increase in women workers. According to the U.S. Bureau of the Census, in 1940 women composed only 24.3 percent of the labor force, whereas in 1960 the figure had reached 33.9 percent. Most of the increase was caused by the influx of white females. There was a 97.3 percent increase of white female workers from 1940 to 1960. The data in Table 1 show the composition over a 20-year period according to sex and race. Figures pertaining to the sex composition of the labor force after 1960 were unobtainable at the time this report was compiled.

The trend of more women entering the labor force is continuing. Most of these women are married, many with children under eighteen. Many seek only part-time employment, but more and more work outside the home except when they have young children to care for. Because most women marry young, they complete their families by their late twenties and have their youngest child in school by the age of thirty-five.

Table 1. Persons in Mississippi's Labor Force, by Sex and Color: 1940-1960 (In Thousands and Percent)

Population characteristics	1960	1950	1940	Percent change, 1940-60
Total population, 14 years old and over	1,439	1,481	1,520	- 5.3
White	893	852	792	12.8
Male	439	424	397	10.6
Female	454	428	395	14.9
Nonwhite	547	629	727	-24.8
Male	255	299	353	-27.8
Female	292	329	374	-21.9
Labor force	743	757	808	- 8.0
White	471	424	387	21.7
Male	326	331	314	3.8
Female	144	93	73	97.3
Nonwhite	272	332	421	-35.4
Male	171	238	298	-42.6
Female	101	94	123	-17.9

Source: Bureau of the Census.

Early marriage greatly increases the availability of women for work.

There are a number of reasons for the increase of women in the labor force. Women are better educated than formerly; they have improved skills; and they have a desire to employ these skills. More and more jobs are being automated; they require less manual work; thus women instead of men can fill many of them. The increased pressure of current high standards of living has caused more and more women to enter the labor force. Women feel they must help augment the family income. Thus, they assume dual responsibilities as homemakers and as wage-earners outside the home.

The tremendous influx of new industries into Mississippi, coupled with the rapid expansion of older industries, has created many new job opportunities for women because this industrial growth helped create a shortage of employable men. Frequently, women find jobs in the new and expanding industries. Other women find new employment opportunities that are created as a consequence of some women directly entering the industrial labor force. Many of these recently created opportunities have occurred in such fields as: food services, child care services, clothing services, family services, homemaking services, etc.

OBJECTIVES

The need for employees in the above areas prompted the conduct of the five pilot projects in home economics. The major purpose for conducting the projects was to obtain direction and guidelines for similar, more widespread home economics wage-earning classes in Mississippi.

The specific objectives for the pilot projects were:

1. To explore various procedures to use in organizing classes for gainful employment in local communities.

2. To secure information on employment opportunities at the local level.

3. To explore possibilities for job placement of trainees, evaluation of their work, and follow-up.

4. To develop curriculum materials in child care, clothing, family and food services.

5. To provide student teachers with the opportunities to see the role of wage-earning in the total home economics program.

PROCEDURE

Home economics teacher-educators from the sponsoring colleges and universities contacted superintendents in their local school areas to ask for cooperation in establishing the pilot projects.

The Mississippi state supervisor of home economics education, assistant state supervisors, and the coordinator of the projects met with local superintendents and county superintendents and explained the need for the pilot studies, the purposes of the project, and how the project would function.[1]

Instructors for the pilot projects were chosen at these meetings. Their first duties were to survey the community and/or talk to key leaders to determine the needs in the local community. The instructors made use of the advice given them by members of their previously appointed advisory committees. Recruitment of enrollees and the development of an instructional unit were additional responsibilities of the instructors. Publicity of the classes also was a task of the teachers.

At the first session of the class, pre-tests and check sheets were used to help determine the status of the enrollees and to indicate their interests.

The coordinator of the five projects and the assistant state supervisors kept in constant touch with the instructors and worked closely with them and the advisory councils. Members of the state department staff visited classes, participated in discussions and supplied information such as bibliographies, film catalogs, books, pamphlets, and other materials.

Two workshops were conducted for the instructors of the pilot projects. The second workshop focused on preparation for evaluation of the projects.

FINDINGS

The five instructors of the pilot projects indicated that the original objectives for the projects had been met to a highly satisfactory degree. Observations made by the supervisors and the coordinator affirm these indications. The objectives for each of the five projects are shown in Table 2.

There is always a serendipitous dimension in the conduct of any pilot project, and these five projects were no exception. In addition to meeting the original objectives, some of the instructors were greatly encouraged because additional ones were achieved. Some of these were: creation of desires for further study and self-improvement; provision of many types of work experiences that had not been foreseen at the outset; inclusion of extensive beneficial public relations aspects; acquisition of skills to enhance family meals as well as those served for the public; and initiation of closer working relationships among personnel in preschool centers in the community.

The guidelines for the pilot projects suggested that ten persons be enrolled in each class. Table 3 contains information showing the enrollment in the projects, the average attendance, and the number of persons who merited certificates upon completion of their respective classes.

---

1. See Appendix B for copy of Form used in Applying for a Pilot Project.

Table 2. Original Objectives for Five Pilot Projects in Wage-Earning in Home Economics in Mississippi

Location of Project	Objectives
Brookhaven (Food Services)	1. To provide an educational program for prospective food service workers and to enrich the knowledge, attitudes, and skills of those persons already employed. 2. To develop a tentative curriculum guide for gainful employment in food services. 3. To project implications for home economics wage-earning programs. 4. To provide an experience for student-teachers to see the role of gainful employment in the home economics program.
Cleveland (Clothing Services)	1. To exercise intelligent use and care of equipment. 2. To develop skill in performing maintenance procedures on clothing. 3. To develop an understanding of garment fit. 4. To develop skills in performing basic garment alterations. 5. To learn acceptable methods of clothing construction. 6. To gain basic understanding of textiles in relation to use and care. 7. To become skilled in garment laundering and cleaning procedures. 8. To learn to make special types of garments and household accessories.
Columbus (Child-Care Services)	1. To provide an educational program for prospective child-care workers and to enrich the knowledge, attitudes and skills of those persons already employed in child-care centers. 2. To develop a tentative curriculum guide for gainful employment in child-care services. 3. To determine implications of secondary home economics wage-earning programs from the pilot project. 4. To provide experiences for student-teachers to see the role of gainful employment in the home economics program.
Laurel (Family Services)	1. To provide an educational program for prospective employment in homes. 2. To help dignify employment in the area of family service. 3. To develop curriculum materials that can be released for use in the state. 4. To provide opportunities for student-teachers to observe and participate in gainful employment with the help of the public school.
Tupelo (Homemaker's Assistant)	1. To provide preparation in homemaking to help women become better homemaker's assistants or maids. 2. To upgrade standards of homemaking in the homes of the women enrolled. 3. To give each one a feeling of worth and self-confidence and a desire to better herself.

Certificates[2] were awarded to those persons who attended at least two-thirds of the scheduled class meetings. In Columbus there were two classes, and at the Eva Harris School in Brookhaven there were two classes. Only one class was held at each of the other three centers.

The only established over-all criterion for selecting enrollees in these projects was that the participant could not be enrolled in the regular school program; therefore, enrollees were either school dropouts or adults. At Tupelo, enrollees were required to indicate that they had the desire to improve their homemaking skills. Women enrolled in the classes at Columbus had indicated to one of the District Welfare Day-Care workers either that they needed help in improving their skills or that they were interested in preparing for work in a Day-Care center. To participate in the project at Cleveland, the women must have been enrolled in home economics clothing units or they must have had considerable experience in clothing construction. Women being prepared in the courses in food services were required to have a health certificate or planned to get one. No age limit was set for enrollees in any of the classes. The ages of the trainees ranged from 18 to 61 years.

The instructors in each project were asked to use their initiative in recruiting participants and advertising their classes. A compilation of the methods used by these five teachers follows:

Used records from the local employment agency.
Talked with personnel in county and district welfare departments.
Talked with local Red Cross personnel.
Talked with Salvation Army personnel.
Received information at Rehabilitation Center.
Studied dropout rolls from local schools.
Studied records from schools with needy children.
Made surveys.
Made door-to-door contacts.
Talked with Cooperative Extension home economists.
Placed announcement in local newspaper.
Used TV announcements.
Used radio announcements.
Had classes announced at school.
Had classes announced at local churches.
Used results of survey already made by regular home economics teachers.

Table 3. Enrollment in Pilot Program

Location	Enrollment	Attendance	Merit Certificate
Brookhaven (Food Services)	30	17	7
Cleveland (Clothing Services)	8	4	4
Columbus (Child-Care Services)	20	14	14
Laurel (Family Services)	18	9	7
Tupelo (Homemaker's Assistant)	25	12	13
Totals	101	66	45

2. See Appendix C for copy of certificate.

Instructors in the five pilot projects surveyed their local communities to determine needs, or talked with key personnel in the local communities, or used the results of surveys that were already available or a combination of these.

During the early development of the projects, members of the local advisory committees gave invaluable aid to the instructors. Members of the advisory committees came from a variety of professions. Some of their occupations were:

Superintendent of city schools.
County superintendent of education.
Asssistant superintendent of city school.
Principal of high school.
Director of instruction, city school.
Home economics teacher.
Nursery school director.
Kindergarten teacher.
Teacher educator in home economics.
President of school board, businessman.
Editor of newspaper.
Director of community development program.
Social worker.
Homemaker.
Minister.
Woman in business.
Industrial employer and manager of a business concern.
Member of Chamber of Commerce.
Lawyer.
Medical doctor.

Some of the functions of the Advisory Committees were:

1. Helped draft an instrument to make survey of occupational needs and opportunities in community.
2. Assisted in making a survey and compiling results.
3. Assisted in recruiting class members and in interpreting project objectives to others.
4. Gave suggestions for meeting place.
5. Gave suggestions for resource people to use in projects.
6. Helped decide what people should be invited to attend classes.
7. Made suggestions as to content to include in classes, and helped establish short- and long-term goals.
8. Provided advice, assistance, and encouragement in locating jobs for trainees.
9. Helped in public relations work by establishing rapport between people in industry-business and personnel in the educational system.
10. Made suggestions for expansion and improvement of projects and classes.

Guidelines for the pilot projects[3] suggested that a minimum of 45 hours of instruction be spread over a maximum of six months. Table 4

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3. See Appendix D.

has information which reveals the approximate number of hours spent in class.

In addition to these hours spent in class, provisions were made for field trips and observations. It was impossible to get an accurate estimate of the hours devoted to these experiences. Instructors at Brookhaven and at Cleveland devoted extra time to class members who missed classes because of illness or other unavoidable reasons. The nature of the courses helped determine the number of hours spent in lecture, demonstration or actual laboratory work.

The number of hours spent in each class per week varied in the different projects. The Tupelo project was begun in November, and it met once each week. The Homemaker's Service class in Laurel did not begin until March; so it was operated on a concentrated basis.

Instructors in the five projects submitted course outlines for their classes at the first workshop in Jackson in March. Since that time, curriculum materials have been developed for each area of home economics. These curriculum materials were developed and are available for duplication by the State Division.

Expenditures for the pilot projects are included in Table 5. In budgeting for future programs, the following items should be considered: salaries, travel, consultants, instruction materials and supplies, and communications and publicity.

Variations in instructors salaries depended upon qualifications and experiences of the individuals, the length of time they were employed, and the amount of time devoted to the pilot project. At the initial planning session, the consensus was that the instructors would be employed only part-time. Because of the difficulties involved in getting projects underway and in securing qualified instructors, some of the projects were organized on a full-time basis. The nature of the courses and the qualifications and experiences of the instructors helped to determine the amount of money that would be spent for consultants.

With one exception, Cleveland, stationery, paper and supplies were supplied by the local school. The telephone calls were taken care of locally in the Columbus program.

Table 4. Hours Spent in Class in Pilot Projects

Location of Project	Approximate Hours in Lecture and Demonstration	Hours in Demonstration	Hours in Laboratory	Total
Brookhaven	36	24	24	84
Cleveland	37	18	27	82
Columbus	69	--	--	69
Laurel	38	22	26	86
Tupelo	26	16	8	50

In all of the projects, student teachers from the sponsoring college or university visited the classes for observation and participation. When the student teachers first visited the projects, they participated informally in the classes. On other occasions they came to the classes prepared to participate in planned activities, such as: Giving demonstrations, preparing and presenting socio-dramas, introducing films, and leading in follow-up discussions.

In some instances they assisted in preparing materials for use in classes, typing materials, and getting equipment and supplies ready for the classes.

Three types of evaluation were used in these projects. First, the progress of the individual enrollee in each class was rated. The instructor in each project and the coordinator agreed that informal methods of evaluation should be used, because dropouts and adults might not respond too well to formal methods of evaluating. Data in Table 6 indicate some

Table 5. Expenditures for Pilot Projects

	Brook-haven	Cleveland	Columbus	Laurel	Tupelo	Total
Instructor Salary	2566.69	2800.00	1575.00	1466.00	1575.00	9982.69
Travel	102.20	19.45	56.37	60.00	-----	238.02
Resource People	-----	-----	115.00	10.00	90.00	215.00
Books	130.84	-----	86.46*	77.46	134.90	429.66
Pamphlets	-----	-----	-----	42.25	-----	42.25
Film Strips	15.75	-----	-----	22.50	3.25	41.50
Telephone	32.14	1.73	-----	1.66	4.00	39.53
Stationery	3.00	6.75	-----	-----	-----	9.75
Postage	5.00	4.50	-----	4.00	5.00	18.50
Local	8.00	-----	-----	20.00	10.53	38.53
Miscellaneous	-----	4.55	14.44	48.80	-----	67.79
Total	2863.62	2836.98	1847.27	1752.67	1822.68	11123.22

*This amount includes the books and pamphlets spent for the Columbus classes as well as those bought by the Coordinator of the five projects. It also includes the amount spent for the printing of the Gainful Employment Certificates.

informal ways in which class members were evaluated.

Two instructors reported tangible evidence of success in their evaluation of some individuals. Some enrollees received jobs before completing their class, and one enrollee changed positions to receive better pay and more satisfactory working hours.

A second type of evaluation encompassed an evaluation form[4] that was devised for evaluating each project. Portions of the information from these reports are included herein.

Table 6. Informal Methods of Evaluating Individuals in Pilot Projects

Location of Project	Methods of Evaluating
Brookhaven (food service)	Individual's participation in class discussion Actual performance in laboratory (observed by instructor) Actual performance on the job (observed by instructor) Actual performance at home (observed by instructor) Changes in personal appearance
Cleveland (clothing service)	Instructor evaluated changes in manipulative and judgmental skills as individual: a. constructed garments b. lined garments c. altered garments d. made curtains and draperies
Columbus (child care service)	Individual's participation in class discussion Individual's reactions to socio-dramas Individual's performance at work (observed by instructor) Changes in personal appearance
Laurel (family services)	Individual's participation in class Individual notebooks on home nursing Individual came to one class dressed for an interview Employer has spoken of improvement in attitude and personal appearance
Tupelo (homemaker's assistant)	Employers have told of change in appearance and performance Instructor observed change in posture, attitude and appearance Individual's participation in discussion and other class activities Instructor overheard conversation telling of change in health practices

4. See Appendix E.

Plans for follow-ups[5] to help determine the success of individuals and the projects as a whole include:

1. Visit places of work for observation of participant on the job and talk with employers about their performance.

2. Contact prospective employers to state qualifications of participants.

3. Leave names, addresses, and qualifications of project participants at local employment office.

4. Keep names and addresses of participants and permit them to phone instructors about possible job opportunities.

The final type of evaluation included an over-all look at all the projects, which has been one of the purposes of this report.

SUMMARY

Five pilot projects to prepare personnel for gainful employment in areas using skills in home economics were conducted during 1965-66 in Mississippi. These were sponsored by the five colleges and universities in the state that have teacher education programs in home economics.

The first of the pilot projects to help adults prepare for gainful employment began in Tupelo at the Carver High School. This project for Homemaker Assistants was taught by Mrs. Eleanor Weatherford. Mrs. Clara Merrifield, Home Economics Educator, University of Mississippi, assisted Mrs. Weatherford in getting this program off to a good start. Thirteen adults received certificates for attending at least two-thirds of the class sessions.

Two classes for personnel, already employed or interested in becoming employed, in child care centers were conducted in Columbus by Mrs. Katherine Leonard. This project was sponsored by the Home Economics Department at MSCW. Both classes met in federal housing centers. There were 20 enrollees in these two classes, and the average attendance was 14. One of the important incidental results of these classes was the development of a much closer working relationship of personnel in various types of preschool programs.

Mrs. Beulah Lewis, a former college clothing instructor, directed a class preparing personnel for employment in clothing services. This project in Cleveland was sponsored by Delta State College. Some of the participants in this class plan to work in alteration departments in downtown stores and dry cleaning establishments, and some are sewing for the public but remaining in their own homes.

The class sponsored by the University of Southern Mississippi was taught in Laurel by Mrs. Margaret Wilson. This family services class helped prepare adults for employment in homes where there is illness, aged individuals, or working mothers. Work experience was required.

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5. See Appendix F for follow-up form for trainees.

The fifth pilot project was in a county school, Eva Harris High, in Brookhaven. Miss Nancy Joiner, a recent graduate of Alcorn A. and M. College was the instructor. Approximately thirty enrollees in two classes in food services were given instruction to increase their knowledge and skills in food preparation so that they could find employment in restaurants, cafeterias, school lunch programs or other food establishments.

These projects were made possible by the Vocational and Technical Division of the State Department of Education in cooperation with the local school administration and county superintendents of education. Major purposes for conducting these projects were to explore procedures for organizing, conducting, and evaluating programs for preparation of personnel for gainful employment in home economics related fields; to develop tentative curriculum guides; and to provide programs for observation and participation of student teachers.

Members of the home economics teacher education staffs at the five colleges and universities have given full cooperation to these projects. They have worked with the individual instructors, have provided references and supplies, and have given moral support. Under their direction, student teachers have visited the projects and have had planned participations in the classes.

Instigators of these pilot projects realized that much time must be spent in carefully laying groundwork before these classes could begin. They also realized that the instructors would be challenged in planning and presenting the materials to the enrollees. Likewise, they did not underestimate the importance of the placement and follow-up of the accomplishments of the enrollees in the classes. Tentative plans have been made for a follow-up on participants in all five centers. A form has been devised for use in keeping a record of the advancement and placement of the trainees.

These projects have included participants who were already employed but who wanted to up-grade their skills and add to their knowledge in specific areas. Other participants enrolled so they could develop skills and increase their knowledge in specific areas in order that they might better find jobs in occupations using home economics skills.

CONCLUSIONS

The five pilot projects in home economics preparing personnel for gainful employment were, as a whole, successful. The following observations tend to verify their success.

1. Curriculum materials were developed in four of the subject matter areas.

2. These five pilot projects indicated that this type of program <u>must be</u> and <u>can be flexible</u>. Some classes met once a week, and others, twice. Some sessions lasted from one and a half to three hours, and others were three hours long. All classes did not meet in home economics departments. Some met in other class rooms in the schools, and others met at housing projects.

3. Qualified instructors for such programs are available. The instructors in these pilot projects had either had work experience in the areas they were teaching, or were willing to get work experience while on the job.

4. These classes either provided opportunities for the personnel enrolled to learn skills that would help them in finding a position using these particular skills in home economics or gave personnel already employed an opportunity to up-grade their skills in a particular area.

5. Attendance in the classes was good despite interruptions, such as bad weather, or agitation from out-siders who neither understood the true purposes of the projects, nor the sponsorship of them.

6. The opportunity for local home economics teachers, local administrators, members of the state department home economics staff, teacher educators and student teachers to work together in such projects was rewarding.

The pilot projects gave direction for planning future programs in wage earning for students enrolled in regular secondary classes and for dropouts and adults in special classes.

RECOMMENDATIONS

In order for the home economics program in wage earning for dropouts and adults in Mississippi to continue and to be most effective, the following recommendations should be given consideration.

1. The five schools cooperating in the pilot projects should continue programs in wage earning, provided a need for such in the local community is indicated.

2. Job analyses should be made before other classes are begun. This would help identify functions of the course, define the responsibilities of the job and point out competencies needed to enter and advance in the job.

3. Work experience in preparing for wage earning should be a required part of each class.

4. Local businessmen should be contacted to determine their willingness to cooperate in providing work experiences.

5. Local homemakers should be contacted to see if they would cooperate in providing work experiences in their homes in the areas of child care and homemaker services.

6. Some agreement should be reached with businessmen and homemakers as to payment or non-payment for work experience.

7. A workshop should be conducted for all instructors who will be involved in wage-earning programs.

8. Definite plans should be made for a follow-up study of the personnel in the five pilot projects.

9. Careful consideration should be given to the possibility of conducting a pilot study in wage earning in home economics at the junior college level.

10. Possibilities should be explored for cooperating with other vocational services, as well as other agencies, in providing courses for wage earning.

11. A state-wide study should be conducted to determine the most acute needs for such programs and to provide valid information as to areas of service most needed in a particular locality.

12. A state-wide Advisory Committee on Wage-Earning in Home Economics should be appointed.

13. Organizations at the local level should be designated to serve as a "clearing house" to help enrollees find suitable jobs, i.e., local employment offices, etc.

14. Responsibility of initiating a statewide plan for a continuing program in wage earning in home economics should be given to a specific person.

APPENDIX A

SOME GUIDELINES FOR PROPOSED PILOT PROJECTS IN HOME ECONOMICS

Developed at Mississippi State University, September 28, 1965 by representative teacher educators in home economics from Alcorn College, Delta State College, Mississippi State College for Women, University of Mississippi and University of Southern Mississippi.

1. Pilot projects would be 100% reimbursable.

2. Pilot projects would be designed for out-of-school persons (dropouts and/or adults).

3. Pilot projects would be conducted by schools that already have reimbursable vocational programs.

4. Teachers in these pilot projects should hold a B.S. degree and be certified at the time they are employed.

5. Teachers in the pilot projects would work in close cooperation with the home economics teacher(s) in the regular programs.

6. Some money should be allocated for the services of skilled resource personnel.

7. Each local project would have a local advisory committee.

8. Personnel from the teacher education staffs of the colleges and universities would be expected to lend support in organizing the classes, developing the curriculum and planning evaluation of the projects.

9. Personnel from the teacher education staffs would expect to use these pilot projects for both student observation and participation.

10. The coordinator of the pilot projects would work in close cooperation with the state supervisor of home economics and her assistants.

APPENDIX B

Form:
Special Vocational Education II

Submit original and one duplicate to State Office

Application
for
Pilot Projects in Home Economics for Educating Personnel for Wage Earning

1. School: Give name and address of local school

_____

_____Telephone No._____

2. Title of Project

3. Description of Pilot Project

4. Indicate how the proposed project differs from present program or procedures, and what may be accomplished that is not already in practice. Include instructional emphasis that will be used in the project.

5. Objectives: List specific objectives to be achieved in the proposed project. They should be clear and capable of being attained by the proposed project.

6. Administration: Describe the administrative structure and the use of advisory groups.

7. Participants: Describe the criteria for selecting students and give the approximate number of students to participate in the project. (The number of students per class should be at least 10.)

8. Evaluation: Describe the evaluative procedure to be employed in order to determine the extent to which the objectives of the project will be achieved.

9. Time Schedule: In chronological order, indicate the approximate length of time required for each aspect of the project. (Begin by November 1, 1965 and conclude by June 1, 1966. See communication dated October 5, 1965 from Miss Wallace to determine some of the policies regarding this and other instructions.)

10. Personnel: (List the name, training, and experience of each person to work with the project.)

11. Budget:

	Amount Required for Pilot Project	
	From State Board Funds	From Local Funds
Personnel: (list individually)		
Instructor of pilot project	(Salary not to exceed $1575)	None
Travel for above	(not to exceed $350)	(any above $350)
Resource Personnel	(maximum $150)	(any above $150)
Educational Materials: (attach itemized list; receipts must accompany this)	Maximum $200	Any above $200
Supplies: (such as groceries)	None	Must come from local funds
Others: (itemize)		
Communications	Maximum $50.00	Any above $50.00
Total		

12. Agreement: It is hereby agreed that this is a cooperative project between the local school named above and the Mississippi State Department of Education, Vocational Division. It is further agreed that both parties will work together to achieve specific objectives set forth in this application to the maximum extent possible.

Signed _____ Date _____
Local School Administrator

Signed _____ Date _____
State Director of Vocational Education

Signed _____ Date _____
State Supervisor of Home Economics Education

Date approved: _____

GAINFUL EMPLOYMENT CERTIFICATE

HOME ECONOMICS DIVISION

MISSISSIPPI DEPARTMENT OF EDUCATION

_____ and State Department of Education certify

that _____ has completed _____ hours

of instruction in _____.

_____ _____

State Supervisor Instructor

Home Economics Education

_____, 196__

APPENDIX D

October 5, 1966

TO: Heads of Home Economics Departments in reimbursed institutions

FROM: Ruth Wallace, State Supervisor, Home Economics Education, Box 771, Jackson, Mississippi

RE: Pilot Projects

You are hereby advised to get the pilot project for teaching wage earning to adults underway as was agreed on at the meeting at Mississippi State University recently and approved by our Director and staff this week.

The plan to be used is as follows:

University of Mississippi--Child Development or Family Service--Oxford, Tupelo

Delta State College--Family Services--Cleveland, Bolivar County

Alcorn A & M College--Food Services--Brookhaven or Vicksburg

University of Southern Mississippi--Homemaking or Family Services, Clothing Service, Child Care--Hattiesburg

Mississippi State College for Women--Child Development, Clothing Maintenance Services--Lowndes County and Columbus

1. The pilot project is to be confined to teaching adults or out-of-school groups.

2. The State Board will reimburse the difference on the Instructor's salary between what the vocational teacher qualifies for on the minimum foundation education program and the salary paid, provided the salary does not have a professional certificate, or the amount qualified for under the minimum foundation education program for those teachers who do have a professional license.

3. In addition, the reimbursement of 100% is to be allowed as follows:

   $5 maximum to be allowed instructor per month for travel

   $50 per year maximum for communication (telephone, telegraph, stamps)

$200 per year maximum for illustrative materials (booklets, phamplets, audio-visual aids, and exhibits)

$150 per year for resource persons with prior approval from State Office

4. The school will provide supplies for class use (groceries, etc.)

5. Minimum of ten enrolled, average of seven in attendance.

6. Minimum of 45 hours of instruction spread over a maximum of six months.

7. Project could be used by the institution in their student teaching program.

8. Handled through local public school where a reimbursed vocational Home Economics teacher is employed or through a certified and qualified teacher.

9. School must be in compliance with Civil Rights Act.

10. Consultants and skilled resource persons may or may not be holders of the B.S. Degree.

11. Should have a local advisory committee or council.

12. Persons employed to head projects should be qualified and certified and work closely with the local vocational Home Economics teacher in the high school.

13. Should set up a four week training program for persons who are involved in these pilot projects.

14. State Supervisors and Assistant Supervisors will be in charge of the itinerant teacher education.

15. Should obtain certain information about trainees prior to participating in the project and also a follow-up program.

16. We hope that the pilot projects can soon get underway. Please keep me advised as to the developments and progress.

APPENDIX E

Form H.E. P. P. 3
Home Economics
Pilot Programs

State Department of Education
Vocational Education Division
Box 771, Jackson, Miss. 39205

EVALUATION FOR PILOT PROJECT
IN HOME ECONOMICS

_____ School or college sponsoring this program.

_____ Instructor for program.

_____ Area of instruction.

General Information

1. Give original objectives for the project (these were on the form submitted for approval of the program).

2. Were these objectives met?
   If so, how?

   If not, why not?

3. Were additional objectives met in the project?
   If so, please list these.

4. How many enrollees did you have in your project?

5. How were your enrollees recruited?

6. What criteria were used in selecting participants?

   employed? special skills? amount of schooling?

   unemployed? specify skills? health certificate?

7. Range in age?

   Set age limit?

8. What was the average attendance for each class?

9. How many clock hours were spent in each class?

Divide this into number of hours lecture and discussion _____ and number of hours of laboratory or work experience _____.

10. If you were to teach this course again, would you change the number of hours you spent on lecture-discussion and/or work experience? Specify how you would use the time.

ADVISORY COUNCIL

11. Please give names, addresses and positions of members of your advisory council.

12. How many times did your advisory council meet?

13. What were the functions of your advisory council?

14. How did members of your advisory council help you evaluate the program?

15. If you were to select an advisory council again, would you choose the same people again? Why?

16. In what other ways might you have received help from members of your advisory council?

17. Should functions of the advisory council be formulated before the members are chosen?

BUDGET

18. Personnel	Amount allotted	Amount spent
A. Instructor's salary		
B. Instructor's travel		
C. Resource personnel (List each consultant individually and tell his qualifications, some of his work experience and the amount paid for his services. If his time and services were free, indicate this).		

19. Educational Materials	Amount allotted	Amount spent
Specify		
Books		
Pamphlets		
Film		
Filmstrips		
Other		

20. How much local money was used for supplies?

Itemize:

21. Communications:
    A. Telephone calls
    B. Stationery
    C. Postage

22. Were there any other expenditures?
    Specify:

23. What was the total amount of state funds spent?

24. What was the total amount of local funds spent?

25. If more than one course was taught, specify how much money was spent for each course.

MISCELLANEOUS

26. Please give the names and addresses of the enrollees in your course.

27. Indicate by each name above if the enrollee was employed prior to enrolling in the course. If she was, tell what she was doing.

28. Was there any change in employment status of each enrollee at the end of the course? If so, tell what the change was.

29. List the subjects covered in your course, the approximate time devoted to each of these.

30. What check have you already made on the enrollees?

32. If you continue with the program, what changes will you make or would you like to make for the improvement of the program? Why?

33. Did you use any on-the-job preparation?

34. Do you think the businesses or homes in your community would cooperate in providing on-the-job preparation? Why?

35. Have you talked to any members of your advisory council to learn if they think preparation on-the-job would be feasible?
Their response:

36. Have you talked to any employers about the possibility of on-the-job preparation?

37. Should they (trainees) be paid for this on-the-job preparation?

38. What provisions have been provided for finding employment for the enrollees in your class?

39. What aid would you like to receive from the state department if you continue in this program next year?

40. What aid did you receive from your college or university?

41. Did student teachers visit your classes? Approximately how many?

42. Did you have any student teachers participating in your classes?

43. If so, what were some of the things they did?

APPENDIX F

Form H.E.P.P.-1
Home Economics
Pilot Programs

State Department of Education
Vocational Education Division
Box 771, Jackson, Miss. 39205

PERSONAL DATA FOR HOME ECONOMICS PILOT PROGRAMS
FOR GAINFUL EMPLOYMENT

SCHOOL OR INSTITUTION: _____

TYPE OF PROGRAM:
Child Care Services ( ), Food Service ( ),
Family Service ( ), Clothing Service ( ),
Other (Specify) _____( )

ADDRESS: _____

NAME: _____, _____, _____ AGE: _____
(Last) (First) (Middle)

PRESENT ADDRESS: _____ PHONE: _____

PERMANENT ADDRESS (Next of Kin) _____

MARTIAL STATUS: Single ( ), Married ( ), Separated ( ), Divorced ( ), Widow ( )
(check one)

NO. OF CHILDRED: Boys_____ Ages _____
Girls_____ Ages _____

GAINFUL WORK EXPERIENCE PRIOR TO ENROLLING IN PROGRAM
(Begin with most recent job and work backward)

1. EMPLOYER: _____ _____
(Name of firm or business) (Address)

JOB TITLE: _____ PERIOD WORKED: FROM _____ TO_____

MAJOR DUTIES: _____

_____

WAGES AND/OR SALARY: Check figures that fit your salary or wage range.

Average beginning monthly salary (convert to monthly salary if paid by hour or week.)

(1) ____less than $200 (3) ____$250 to $299 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

After receiving instruction--Change in monthly salary or wage

(1) ____less than $200 (3) ____$250 to $299 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

Reason for terminating work: _____

2. EMPLOYER: _____ _____
(Name of firm or business) (Address)

JOB TITLE: _____ PERIOD WORKED: FROM _____ TO _____

MAJOR DUTIES: _____

_____

WAGES AND/OR SALARY: Check figures that fit your salary or wage range.

Average beginning monthly salary (convert to monthly salary if paid by hour or week.)

(1) ____less than $200 (3) ____$250 to $299 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

After receiving instruction--Change in monthly salary or wage

(1) ____less than $200 (3) ____$250 to $299 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

Reason for terminating work: _____

3. EMPLOYER: _____ _____
(Name of firm or business) (Address)

JOB TITLE: _____ PERIOD WORKED: FROM _____ TO _____

MAJOR DUTIES: _____

_____

WAGES AND/OR SALARY: Check figures that fit your salary or wage range.

Average beginning monthly salary (convert to monthly salary if paid by hour or week.)

(1) ____less than $200 (3) ____$250 to $299 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

After receiving instruction--Change in monthly salary or wage

(1) ____less than $200 (3) ____$250 to $299 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

Reason for terminating work: _____

GAINFUL WORK EXPERIENCE AFTER COMPLETING INSTRUCTION

1. EMPLOYER: _____ _____
(Name of firm or business) (Address)

JOB TITLE: _____ PERIOD WORKED: FROM _____ TO_____

MAJOR DUTIES: _____

_____

WAGES AND/OR SALARY: Check figures that fit your salary or wage range.

Average beginning monthly salary (convert to monthly salary if paid by hour or week.)

(1) ____less than $200 (3) ____$250 to $299 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

Reason for terminating work: _____

2. EMPLOYER: _____ _____
(Name of firm or business) (Address)

JOB TITLE: _____ PERIOD WORKED: FROM _____ TO_____

MAJOR DUTIES: _____

_____

WAGES AND/OR SALARY: Check figures that fit your salary or wage range.

Average beginning monthly salary (convert to monthly salary if paid by hour or week.)

(1) ____less than $200 (3) ____$250 to $300 (5) ____$350 to $400

(2) ____$200 to $249 (4) ____$300 to $349 (6) ____Over $400

Reason for terminating work: _____

FOLLOW-UP INFORMATION

NO. OF VISITS: _____

DATE OF FOLLOW-UP: _____ LENGTH OF TIME ON JOB _____

CHANGE IN MARITAL STATUS: _____ CHANGE IN NO. OF CHILDREN: _____

CHANGES IN EMPLOYMENT STATUS:

PROMOTIONS: _____

WAGE AND/OR SALARY CHANGE: _____

PROSPECTS FOR THE FUTURE:

PROMOTION: YES ____ NO ____

WAGE/SALARY UP: YES ____ NO ____

What parts of the course in employment were most valuable to you?

What parts of the course in employment were least valuable to you?

What would you like to have learned that was not included in the course?

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North Carolina,

The primary purposes of the study were -- (1) to describe and compare teachers' views and the teachers' perceptions of their principals' views toward vocational agriculture programs, supervised practice programs, and vocational education generally, and (2) to determine if there is a relationship between teachers' attutides and teacher adoption of a new concept of supervised practice. Data were obtained through personal interviews of 47 North Carolina teachers of vocational agriculture. Conclusions were -- (1) Attitudes of teachers were more positive toward vocational education than the views they perceived for their principals, (2) Viewpoints of principals were seen by teachers as very favorable toward vocational agriculture, supervised practice, and vocational education generally, and (3) There was no evidence that the differences in teacher-principal viewpoints are perceived by the teachers were associated with the levels of teacher adoption of the new concept of supervised practice. (PS)

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TEACHER PERCEPTION OF PRINCIPALS' VIEWS ON VOCATIONAL EDUCATION

By

TEXTON R. MILLER

1966

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TEACHER PERCEPTION OF PRINCIPALS' VIEWS ON VOCATIONAL EDUCATION

Texton R. Miller

1966

Research Series No. 1
A report of research conducted by Texton R. Miller, Department of Agricultural Education, North Carolina State University, Raleigh. Publication and dissemination of research findings is in cooperation with the North Carolina Coordinating Unit in Occupational Education.

FOREWORD

The North Carolina Research Coordinating Unit in Occupational Education is pleased to publish and disseminate this significant research by Dr. Texton R. Miller, Associate Professor, Agricultural Education, North Carolina State University, Raleigh, North Carolina.

Special attention is called to the "Conclusions and Implications" section of this report beginning on page 19. Perhaps equally as important as actual viewpoints of administrators are teachers' perceptions of these viewpoints.

This publication and others to follow are a result of the partial fulfillment of the commitment of the North Carolina Research Coordinating Unit to:

(a) Stimulate research in occupational education.

(b) Identify problems for research.

(c) Develop a system by which national, state and local data may be organized and made available.

(d) Maintain communication between people who are working in occupational education and research workers.

(e) Assist in conducting training programs on activities involved in the research-action continuum.

(f) Provide consultant services in state, local and area research and developmental activities.

Joe R. Clary
Director

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1. Score Differences Held by Teachers Compared with their Principals on Viewpoints toward 34 Items on Vocational Education as Perceived by Random Sample of 465 Teachers, 1965 16

Teacher Perception of Principals' Views on Vocational Education

This is a study of what teachers of agriculture perceive to be the viewpoints of their principals toward vocational education. The importance of this study rests with the assumptions (1) that teacher-administrator teamwork is a crucial element in the development of an effective local program of vocational agriculture, and (2) that the degree of cooperation possible is affected by the knowledge, understanding, and appreciation of the goals and processes of vocational agriculture by each of these leadership figures. Thus a comparison of the attitudes of these persons toward vocational education generally, and vocational agriculture in particular, should have implications for teacher educators and supervisors as they design or evaluate programs of inservice education.

Although there are many studies of attitudes of teachers and administrators, there are no studies which attempt to measure these attitudes as the other person "sees" them. Attitudes have been measured primarily as self-images. The question in this study is: How does the teacher perceive the attitude of his principal? In other words, this study sought to identify the principal's projected image--as the teacher sees it. The importance of the principal's projected attitude rests on the basis that the teacher can only react to what he believes the principal's attitude to be and not to what the principal may feel to be his own true viewpoint.

The data for this report were obtained during an interview-study of teacher adoption of a new concept of supervised practice in vocational agriculture.[1] In this report the new data used consist of the principals' viewpoints, as seen by their teachers. In the analysis of data, however, it was necessary to utilize the teacher viewpoints previously reported in the basic study. In addition, data concerning teacher adoption level of the new concept of supervised practice were also drawn from the original report.

Method

The basic study was conducted through personal interviews by the researcher. A random representative sample of 465 teachers of agriculture was drawn. Using a table of random numbers, a 10 per cent sample was selected from the listing of teachers in the 1964-65 Directory for Agricultural Education. The sample was taken separately for each of the three recognized geographical regions of the state. A total of forty-seven teachers were interviewed and complete data were secured from all teachers.

The major approach in this study was twofold, the first being to compare the viewpoints of the teachers with the viewpoints of their respective principals, as these viewpoints are perceived by the teachers. The data were expected to provide evidence on the following questions:

1. Is there a difference between teachers' viewpoints and teachers' perceptions of their principals' viewpoints on

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Miller, T.R., Teacher Adoption of a New Concept of Supervised Practice in Agriculture, Educational Research Series No. 4, Dept. of Agricultural Education, Raleigh, N. C., 1965.

vocational education generally?

2. More specifically, is there a difference in viewpoints toward (a) vocational agriculture? (b) or other vocational education? (c) or supervised practice?

3. If there a difference by geographical region in a comparison of teacher-principal viewpoints, as defined in No. 2 above?

The second aspect of this study was to determine whether teacher adoption-level of the new concept of supervised practice was a function of congruency of teacher-principal attitude. In other words, was the factor of agreement, or disagreement of teacher-principal viewpoints toward vocational education correlated with the adoption level reached by the teacher on the new concept of supervised practice? This analysis should provide an indication of the influence of the principals' views (as perceived by teachers) upon the adoption of the new concept of supervised practice.

Definitions

Supervised Practice. This refers only to those learning activities of students of vocational agriculture which are extended beyond school hours in order to provide appropriate occupational experience within a realistic, lifelike, employment environment.

The New Concept of Supervised Practice. This refers to three major propositions used in the original study, namely: (1) Supervised practice may include activities within off-farm agricultural occupations as well as production farming. (2) Opportunity is provided at the school for appropriate supervised practice opportunities. (3) Opportunities are provided for supervised practice in each major learning area taught in the vocational agricultural courses.

Attitude or Viewpoint. These words are used interchangeably, and refer to the extent of agreement or disagreement with a selected list of statements concerning vocational education.

Principal's Attitude or Viewpoint. This always refers in this report to the teacher's perception of his principal's attitude, which may or may not be the principal's own perception of his attitude.

Instruments Developed

Special instruments were devised in the original study to (1) determine the levels of acceptance of the new concept of supervised practice and (2) to inventory attitudes of teachers and teachers' perception of their principals' viewpoints toward vocational education. Both instruments were reviewed by three former teachers of agriculture and underwent trial runs with two employed teachers of agriculture with only slight modifications being made.*

Hypotheses

Two major hypotheses were tested. Each is the subject of one section of the report.

1. There is no difference between teachers' views and teachers' perceptions of their principals' views toward vocational education as tested in the following areas:

   A. Vocational agriculture program specifically

   B. Supervised practice program specifically

   C. Overall vocational education program

---

*Copies of instruments may be secured from the author for a small fee.

2. There is no difference in adoption level reached by teachers of agriculture on the new supervised practice concept as a function of teacher-principal congruence on overall viewpoints toward vocational education.

Presentation of Data - Section I

Comparison of Overall Attitudes

There was considerable difference in the viewpoints of the teachers on vocational education as compared to the viewpoints which these teachers ascribed to their principals. The data are presented in a series of tables showing differences based on (1) the attitude inventory as a whole, (2) each of three groupings of the inventory items (Vo Ag programs, "Other" Vo Education, and Supervised Practice), and (3) by selected individual items from the attitude inventory.

Considering the inventory as a whole, teachers saw themselves as more favorable to vocational education than they perceived their respective principals to be. This is shown in Table I which exhibits an overall average score of 4.14 by teachers for the 34 items on the inventory compared to the 3.82 perceived as their principals' average score.

Table I also presents a percentage distribution of teachers and principals along the five-point attitude scale. Here it is shown that 37% of teacher responses compared to 23% of principals' perceived views were categorized as "strongly agree". When the "SA" and "Agree" responses were grouped, there still remained a considerable margin (85% compared to 73%) indicating a more favorable viewpoint toward the inventory items by teachers than they perceived for their principals.

TABLE I

COMPARISON OF TEACHER-PRINCIPAL VIEWPOINTS TOWARD VOCATIONAL EDUCATION AS PERCEIVED BY RANDOM SAMPLE(1) OF 465 N. C. TEACHERS OF VOCATIONAL AGRICULTURE, 1965

	Percent of Responses by Scale(2) to 34 Items(3) on Vo Ed						
	SA	A	U	D	SD	Total	Ave. Score
**Teacher's Self Concept	37	48	7	7	1	100	4.14
**Teacher's Perception of Principal's Views	23	50	15	10	2	100	3.82

(1) Sample was 47 teachers; random representative of the 3 major geographical areas.

(2) Scale: SA=Strongly Agree; A=Agree; U=Undecided; D=Disagree; SD=Strongly Disagree

(3) Average Score basis: SA=5; A=4; U=3; D=2; SD=1

(4) For those items of the inventory which were stated negatively, scale scores were reversed to provide comparable responses for computation purposes.

** Difference significant at .01 level (t=7.28; N-1=46)

The "t" test was used to determine that the differences found between views expressed by the teachers and teachers' perceptions of their principals' views were statistically significant at the .01 level.

It should be noted that despite the highly significant difference indicated above that the average score attributed to principals' views was very high. The fact that administrators in general could not be expected to be as specialized in vocational education as vocational teachers would seem to classify as "very high" the point that 73% of the principals' views were seen as favorable to vocational education. Perhaps even more important is the fact that only 12% of views attributed

to principals were rated as unfavorable (10% in "D", and 2% in "SD"). This generally favorable perception of principals' views by teachers is alluded to later in this report when the relationship of attitudes and teacher adoption of a new concept is discussed.

Comparison by Sub Areas of Attitude Inventory

The attitude inventory contained a total of 34 items, of which 11 items pertained to vocational agriculture, 12 items dealt with other vocational education, and 11 items related specifically to supervised practice. In all three sub-areas the differences in viewpoints between teachers and principals, as perceived by teachers, were statistically highly significant at the .01 level as determined by the "t" test.

Table II compares teacher views on vocational agriculture with views they perceived for their principals. Although teachers saw themselves more favorable to vocational agriculture, they did not indicate that their principals as a group viewed it unfavorably. This is shown by the low percentage (15 per cent) of the principals' views that were placed in "Disagree" or "SD" categories. In fact, teachers indicated that 68 per cent of principal responses were at least favorable to vocational agriculture. In general it would seem that teachers have given their principals credit for a very positive viewpoint toward vocational agriculture.

TABLE II

ON VOCATIONAL AGRICULTURE - A COMPARISON OF TEACHER-PRINCIPAL VIEWPOINTS AS PERCEIVED BY RANDOM SAMPLE OF 465 N. C. TEACHERS OF VOCATIONAL AGRICULTURE, 1965

	Percentage Responses by Scale to 11 Items						
	SA	A	U	D	SD	Total	Ave. Score
**Teacher's Self Concept	45	38	5	10	2	100	4.13
**Teacher's Perception of Principal's Views	24	44	17	12	3	100	3.74

**t=5.73, significant at .01 level

In Table III, there is a comparison of teacher-principal viewpoints toward vocational education other than vocational agriculture. Again the teachers rated themselves higher but expressed a very high rating for their principals' views. In this case teachers saw 82 per cent of the responses attributed to principals as being favorable. Only 8 per cent of the responses for principals were seen in the "disagree" categories.

TABLE III

ON OTHER VOCATIONAL EDUCATION - A COMPARISON OF TEACHER-PRINCIPAL VIEWPOINTS AS PERCEIVED BY RANDOM SAMPLE OF 465 N. C. TEACHERS OF VOCATIONAL AGRICULTURE, 1965

	Percentage Responses by Scale to 12 Items						
	SA	A	U	D	SD	Total	Ave. Score
**Teacher's Self Concept	38	53	5	3	1	100	4.24
**Teacher's Perception of Principal's Views	25	57	10	7	1	100	3.96

**t=6.58

The third sub-area, supervised practice is shown in Table IV. The teachers indicated an average score for themselves of 4.00 for each item. This is less than their average score of 4.14 and 4.24 in the other sub-areas. There is also a smaller percentage of "strongly agree" responses, 30 per cent, compared to 45 and 38 per cent in the first and second sub areas. Yet overall, the average score for both the teacher and for the principal was high. There were no responses in this sub-area which were classified as "strongly disagree," either for teachers' views or those attributed to their principals. Further, 82 per cent of the teachers' and 69 per cent of the principals' views were found in the categories of "agree or "strongly agree" for the eleven items surveyed.

TABLE IV

ON SUPERVISED PRACTICE - A COMPARISON OF TEACHER-PRINCIPAL VIEWPOINTS AS PERCEIVED BY RANDOM SAMPLE OF 465 N. C. TEACHERS OF VOCATIONAL AGRICULTURE, 1965

	Percentage Responses by Scale on 11 Items						
	SA	A	U	D	SD	Total	Ave. Score
**Teacher's Self Concept	30	52	10	8	--	100	4.00
**Teacher's Perception of Principal's Views	19	50	19	12	--	100	3.80

**t=6.69

All of the data comparing teacher view and principal view seem to add up to these two points:

(1) Attitudes of teachers were more positive toward vocational education than the views they perceived for their principals.

(2) Viewpoints of principals were seen by teachers as very favorable toward vocational education in all three aspects tested (vocational agriculture, supervised practice, "other" vocational education).

The Ten Attitude Inventory Items With Greatest Diversity of Reactions

Of the 34 items in the attitude inventory, ten items showed a teacher-principal difference of at least .5 out of the maximum possible difference of four points. The comparison in Table V shows teacher responses by items as compared with the responses they perceived for their principals. Four of these ten items were classified in the sub-group of supervised practice (items 4, 7, 10, 11), while five items (23, 27, 29, 30, 31) were included in the sub-group of "vocational agriculture."

The responses in "Item "4" indicate that less than half of the teachers felt confident that their principals would be helpful in gaining school land for use with supervised practice. However, it is somewhat encouraging to note that less than one-fourth of the teachers saw their principals actually opposing the item. Perhaps the "undecided" column is most revealing of teacher views. This column contained nearly 32 per cent of the responses submitted for principals. Even for themselves, nearly one-fourth of the teachers put their responses in the "undecided" score, thus revealing considerable reservation for the item. Nevertheless, over 70 per cent of the teachers did favor the No. 4 item, and very few (6.4 per cent) were inclined to disagree with it.

TABLE V

A COMPARISON OF TEACHER-PRINCIPAL VIEWPOINTS ON 10 SELECTED ITEMS ON VOCATIONAL EDUCATION AS PERCEIVED BY RANDOM SAMPLE OF 465 N. C. TEACHERS OF AGRICULTURE, 1965

ITEM	STATEMENT		% Response by Scale					Ave. Score
			SA	A	U	D	SD	
4.	The local school has a responsibility to encourage and assist teachers in providing land to be used when needed to supplement supervised practice opportunities.	T.	23.4	46.8	23.4	6.4	--	3.9
		P.	8.5	36.2	31.9	23.4	--	3.3

(Table V Continued on Page 13.)

"Item 7" offers the point that the major function of the high school is to prepare students for college. Nearly 96 per cent of the teachers rejected this view, and they saw only about 15 per cent of the principals accepting the view. The major difference on this question seems to be in the "strongly disagree" category in which nearly 62 per cent of the teachers were found, compared to only 36 per cent of the principals.

"Item 10" is actually questioning the need for any supervised practice. One would expect the strong opposing view from the teachers (98 per cent in this study). The difference in average score for teachers (4.4) versus that for principals (3.9) seems to be largely accountable from the 24 per cent of the principals listed in the "undecided" scale box. On an item so basic to vocational agriculture as supervised practice, it also seems quite important to note that 25 per cent of the school principals are not seen as supporters for this phase.

Some consideration should be given to "Item 11" which implies that college bound students need less supervised practice than other students. About 70 per cent of the teachers and 47 per cent of the principals disagreed with this viewpoint. The important point seems to be that nearly 30 per cent of the teachers and almost 53 per cent of the principals did not seem to disagree with this item. The fact that a student is bound for college could logically influence the kind of supervised practice needed but not likely the amount of supervised practice.

The item indicating the greatest disparity in teacher-principal viewpoints was No. 13, which in effect stated that college calibre students should be guided away from vocational subjects. As expected, teachers were strongly opposed to this viewpoint and had an average score of 4.3 out of a possible 5.0 (after scale is reversed to produce the positive score). But the principals were seen with an average score of 3.4, which was .9 of a point below the teachers. Over half of the principals were seen as undecided or agreeing with Item 13. It is quite apparent that teachers see a lack of support from principals for enrolling a representative group of the high school student body in any vocational course.

(Table V Continued from Page 11.)

ITEM	STATEMENT		% Response by Scale SA	A	U	D	SD	Ave. Score
7.	The major function of the high school should be that of preparing students for college entrance.	T.	--	2.1	2.1	34.1	61.7	4.6
		P.	4.3	10.6	2.1	46.8	36.2	4.0
10.	There are sufficient learning opportunities in shop and classroom during normal school hours to make unnecessary any supervised practice in Vo. Ag.	T.	----	----	2.1	57.5	40.4	4.4
		P.	----	2.1	23.4	53.2	21.3	3.9
11.	A college bound student may not need supervised practice as much as other students.	T.	----	14.9	14.9	48.9	21.3	3.8
		P.	2.1	27.9	23.4	31.9	14.9	3.3
13.	The secondary school should guide away from courses in vocational education those pupils believed capable of success in college.	T.	----	----	10.6	44.7	44.7	4.3
		P.	4.3	23.4	23.4	29.8	19.1	3.4

(Table V Continued on Page 14.)

In Item 23, the proposition is stated that funds for vocational agriculture should be shifted to other vocational programs. Teachers reported that about one-third of the principals seemed in favor of this statement in contrast to the opposing view submitted by more than 80 per cent of the teachers. The positive side is that nearly 64 per cent of the principals were seen as also opposing the statement.

In both Items 27 and 29, there is considerable difference in teacher vs. principal views, but it seems to be primarily a result of the very high score which teachers have made on both items rather than any low score attributed to the principals. The same pattern seems generally true for Item 30, dealing with the work load of the teacher.

Item 31, on the need for future agricultural graduates, also shows considerable difference in teacher-principal views, but both viewpoints are again at a high level of approval.

(Table V Continued from Page 13.)

ITEM	STATEMENT		%Response by Scale SA	A	U	D	SD	Ave. Score
23.	Vo Ag programs should be reduced in number so that vocational programs which are more needed can be financed.	T.	2.1	10.6	6.4	44.7	36.2	4.0
		P.	6.4	14.9	14.9	48.9	14.9	3.5
27.	The summer employment period of Vo Ag teachers is necessary for an effective local program of Agricultural Education.	T.	80.9	19.1	----	----	----	4.8
		P.	36.2	44.7	19.1	----	----	4.2
29.	Vo Ag provides a desirable background for boys expecting to seek further agricultural training in college.	T.	76.6	21.3	0	2.1	0	4.7
		P.	38.3	44.7	12.8	4.2	0	4.2
30.	The daily work load of Vo Ag teachers is less than that of other teachers.	T.	----	----	----	29.8	70.2	4.7
		P.	2.1	8.5	14.9	42.6	31.9	3.9
31.	Since the number of farm operators will probably decrease in the next few years, fewer Vo Ag graduates will be needed.	T.	0	4.2	6.4	46.8	42.6	4.3
		P.	0	14.9	21.3	46.8	17.0	3.7

Viewpoint Differences Between Regions

The differences in teacher-principal viewpoints, as perceived by the teacher, held equally well for all three geographical regions of the state. The "t" test of significance of the difference between the means was used to compare the two groups of overall viewpoints on vocational education. The Coastal Region differences were first compared with the Piedmont and the Mountain Regions and then the Piedmont

with the Mountain Region. In all three tests, no significant differences were found, indicating that geographical region was not related to the differences in teacher-principal viewpoints as reported in this study.

Differences Within Geographical Regions

There was great variation by individual school between teacher and principal viewpoints toward vocational education overall, as shown in Figure 1. A more concise summary of this variation is exhibited in Table VI which points out the range extremes of -4 and +38, or a net of 42 points. Although over half (55.4 per cent) of the cases were grouped within a range of 12 points, it should be noted that nearly one-third (31.9 per cent) of the situations showed a difference greater than 17 points. Thus it appears that much of the state wide difference in teacher-principal views can be attributed to differences found in approximately one-third of the schools.

TABLE VI

SCORE DIFFERENCES HELD BY TEACHERS COMPARED WITH THEIR PRINCIPALS ON VIEWPOINTS TOWARD 34 ITEMS ON VOCATIONAL EDUCATION AS PERCEIVED BY RANDOM SAMPLE OF 465 TEACHERS OF AGRICULTURE, 1965

Score Differences Grouped	Teachers		Cumulative	
	No.	Per Cent	No.	Per Cent
-4 to 0	7	15.0	7	15.0
+1 to 8	19	40.4	26	55.4
+9 to 16	6	12.7	32	68.1
+17 to 24	10	21.3	42	89.4
+25 up to 38	5	10.6	47	100.0
TOTALS	47	100.0	47	100.0

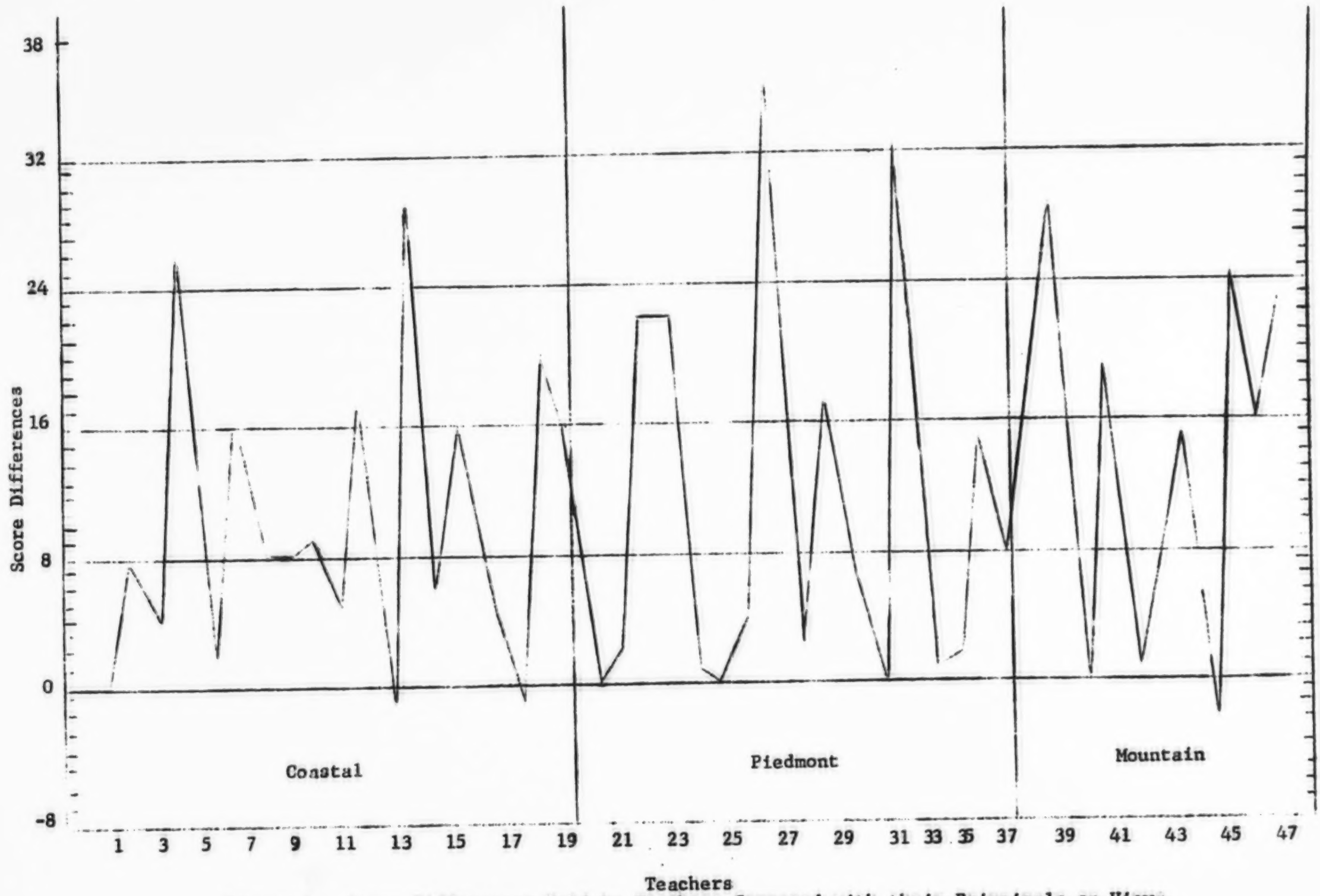

Figure 1. Score Differences Held by Teachers Compared with their Principals on Viewpoints toward 34 Items on Vocational Education as Perceived by Random Sample of 465 Teachers, 1965.

Presentation of Data - Section II

Relationship of Teacher-Principal Viewpoint Differences to Teacher Adoption of New Concept

Was teacher adoption level of the new concept of supervised practice a function of congruency of teacher-principal attitude? This study provided no evidence that the differences in teacher-principal viewpoints (as perceived by the teachers) were associated with the levels of teacher adoption of the new concept of supervised practice.

The Pearson product-moment coefficient of correlation was used to determine the relationship of attitudinal differences to teacher adoption level. The actual correlation figure of .02 was so small that one must say that teacher adoption level of the new concept was independent of teacher agreement or disagreement with the views they perceived for their principals toward vocational education overall.

The above lack of correlation seems contrary to logical expectations. Teacher-principal agreement on vocational education should have been helpful in promoting teacher adoption of the new concept of supervised practice. Likewise it could have been expected that teacher-principal disagreement on basic questions related to vocational education would have delayed or hindered teacher adoption of the new concept. Yet the evidence in this study does not indicate this relationship existed.

One positive viewpoint that could be seen from the above data is the indication by teachers that principals are not seen as adversely affecting the adoption of the new concept. This could be of considerable value to further adoption efforts by all those concerned.

Perhaps it should be noted here that at the time of this study a majority of teachers were in the "evaluation stages" of the adoption-level process. Only 17 per cent had achieved the upper two levels ("trial" or "adopted"). What correlation, if any, would be found when a majority of teachers have gained the upper adoption levels is still a moot question.

Summary of Data

The preceding presentation of data from this study may be summarized as follows:

1. On a state-wide basis, there was a considerable difference between teachers' expressed views and their perceptions of the viewpoints of their principals concerning 34 statements related to vocational education.
2. The above variations were statistically significant at the .01 level as determined by the "t" test of significance.
3. The difference in teacher-principal views was not significantly related to geographical region. State-wide differences held for each of the three regions.
4. Much of the state-wide differences in teacher-principal viewpoints could be attributed to the comparatively large differences perceived by approximately one-third of the teachers.
5. On ten of 24 attitudinal statements the average principal-teacher score difference amounted to .5 points or more out of a possible 4.0 points. Nevertheless, the average score assigned to principals' views was never below 3.3 on a 5 point scale. This is evidence that teachers generally, gave credit to

their principals for having an approving attitude toward vocational education.

6. There was no significant correlation between teacher-principal agreement (or disagreement) on attitudes toward vocational education and adoption level reached by teachers for a new concept of supervised practice.

Conclusions and Implications

This was a study of teacher-principal attitudes toward vocational education as these viewpoints were perceived by the teacher of agriculture for himself and his school principal. The primary purposes were to describe and compare the viewpoints of these two groups, and second, to determine whether there was a relationship of these attitudes to teacher adoption of a new concept of supervised practice.

It was concluded that despite the statistically significant differences between teacher viewpoints and the views they perceived for their principals, secondary school principals were seen to be favorable to vocational education, to vocational agriculture, and to supervised practice. Compared to a perfect average score of 5.0 for 34 items, the teachers averaged 4.14 and the principals were rated as 3.82. The fact that this study was based on teacher perceptions, rather than views as the principal saw himself, would seem to add value to the principals' scores. Statewide, there seems to be little question but that vocational education has the support of local school administrators.

Although the overall attitude of principals toward vocational education was seen by the teachers as favorable, there were four key items (No. 4, 11, 12, 23) which seem deserving of more attention in the

future because from 30 to 53 per cent of the administrators were seen as not supporting teacher viewpoints. These items related to (1) a school land laboratory - 30 per cent, (2) supervised practice for college-bound students in Vo Ag - 53 per cent, (3) guiding college-calibre students away from vocational courses - 51 per cent, and (4) gaining other vocational education at the expense of vocational agriculture - 36 per cent.

Finally, no relationship was found between the adoption level reached by teachers on the new concept of supervised practice, and the teacher-principal agreement (or disagreement) on viewpoints toward vocational education. It may be concluded that lack of congruency of teacher-principal attitudes was not a significant barrier to teachers in adopting the new supervised practice concept at least to the "evaluation" stage of adoption.

Implications

It is the opinion of the writer that the following future actions would be justified on the basis of this study.

For Teacher Education:

1. Preservice and inservice students should be made aware that vocational agriculture teachers generally are crediting their principals with a positive attitude toward vocational education, vocational agriculture, and supervised practice.
2. Preservice and inservice students should be provided the opportunity to develop understandings and appreciations for the philosophy underlying the ten key statements on which principals and teachers seem to see differently in this study.

For Supervision:

1. The results of this study should be given attention in their inservice group meetings and in their individual conferences with administrators as part of the effort to foster greater understanding and appreciation among administrators and teachers.
2. The results of this study should be of particular value to those teachers who have seen a wide gap in teacher-principal viewpoints and can now see themselves in relation to the majority.

For Research:

1. Additional studies should be conducted to find more evidence on the relationship between teacher-administrator viewpoints and teacher adoption of new concepts at the higher levels of adoption.
2. More attitude studies should be designed to measure attitudes as perceptions of "relevant others" rather than as self concepts of the study group involved.

For Teachers:

1. Teachers should utilize in conference with their principals, the viewpoint inventory included in this report as an aid in identifying those viewpoints toward vocational education which seem to require greater mutual understanding.
2. Teachers should utilize data from this study, showing the generally high regard of administrators for vocational education, as an aid in developing increased appreciation among teachers and guidance counselors of the purpose and process of vocational education.

VT 001 656

VT 001 656 ED

Characteristics of the Technical Education Student. (Speech to American Technical Education Association, Denver, Colorado, December 4, 1966).

Miller, Aaron J.

66

EDRS Price MF-$0.09 HC-$0.48 12p.

*TECHNICAL EDUCATION, *ADMISSION CRITERIA, *STUDENT CHARACTERISTICS, *DROPOUT CHARACTERISTICS, *SPEECHES,

The post high school trainee should be a high school graduate or the equivalent. A fair degree of proficiency in mathematics and science is required. It is reasonable to expect the completion of two years of high school mathematics and one year of high school science. Some background in drafting and shop is desirable. The student should be average or above in intelligence. Because of the nature and length of the technical curriculum, the student must be willing and able to commit himself to it immediately upon enrolling. If he transfers from another curriculum, his reasons should be positive rather than negative. Reading ability has been found to be the most significant academic success factor. A study by the author revealed that technical students came from significantly lower socioeconomic background than engineering students. The dropout tended to be an excessive conformist who had difficulty in disagreeing with others. He tended to be excessively dependent on others. (EM)

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CHARACTERISTICS OF THE TECHNICAL EDUCATION STUDENT

In discussing most any facet of technical education there seems to be one abiding problem. That problem is trying to specifically define technical education. I certainly don't intend to fall into that pit or to open any old wounds here this evening by rigidly classifying technician types of jobs. However, before we can identify certain general characteristics of the technical education student, we must set certain boundary conditions by briefly defining technical education. In other words, we need to identify the breed before we can discuss the animal.

Probably one of the best definitions of technical education is taken from a draft of the U. S. Office of Education's Cooperative Project for Standardization of Terminology. Paraphrased, that definition states: technical education is concerned with a planned and integrated sequence of classroom and laboratory experiences that prepare a student for a cluster of jobs in some field of technology. This program is generally of post-high school level and its curriculum is based on the knowledge of mathematics and science associated with that field of technology. The program prepares

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Presented at the American Technical Education Association, Denver, Colorado - December 4, 1966, by Dr. Aaron J. Miller, Research Specialist in Technical Education, The Center for Vocational and Technical Education, The Ohio State University.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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the technician who works between the professional employee and the skilled employee. Having structured our frame of reference, (or identified the breed) let's examine some of the characteristics of typically successful technical students.

Technician training programs are found at both the high school and post high school levels. Both levels of training are important parts of the total effort. However, because the majority of technician training programs in existence today are at the post high school level, and because the demands of the curriculum are at the college level, this discussion of the technical education student will be restricted to the post high school trainee.

As the kind of program we're talking about is college level, the technical student should be a high school graduate or equivalent. Equivalency, of course, varies with institutions, and is generally extablished by passing some type of high school equivalency examination.

Numerous studies, both formal and informal, have indicated the entering technical institute students' need for a fair degree of proficiency in mathematics and science. This is typically demonstrated by the significant relationship between success in a technical institute program and mathematics aptitude as was found to exist by Righthand (5) in his study of technical

institute students in Connecticut. This clearly established need for a minimum math-science competency level in entering technical institute students was earlier documented in such studies as the criteria document of the American Society for Engineering Education which was entitled Characteristics of Excellence in Engineering Technology Education (2). It therefore seems only reasonable that the entering technical student should have completed a minimum of two years (standard secondary units) of high school mathematics, preferably one year of algebra and one year of plane geometry. In addition, he should have completed one year of a laboratory science, preferably chemistry or physics. However, one unit of high school biology may be most helpful as a prerequisite for a biological science oriented technology. Successful completion of additional courses in mathematics and science in high school seems to greatly enhance the student's chance of success in most post-high school technical curricula. Some background in basic drafting and shop skills is highly desirable. These skills are frequently gained through industrial arts courses.

So far, the description of this technical student might be interpreted to include only the academically talented--the superior student. This, of course, is not the case. All of us would certainly prefer to have nothing

but "students" (in the academic sense) in our classes, but every facet of education seeks these people. However, the technical education student must be a reasonably capable youngster who is average or above average in intelligence. To enroll students who are either ill prepared for or do not have the basic cognitive skills for a technical level program will generally result in one of two outcomes; either the students will fail or the minimum standards of the instructional program will be lowered to accommodate the students. Neither of these alternatives should be acceptable.

It should be recognized, at this point, that because of improper motivation in high school a person's high school transcript does not always reflect his true potential as a technician. This person may even profess a disinterest in mathematics and science--at least the kind to which he may have been exposed in high school. However, one characteristic must be present in the student. He must have an intense interest in the specialized field of technology he wishes to pursue.

The reason for the absolute necessity of the technical student's interest in a specialized field of technology lies in the structure of the technical education program itself. For example, in most college level programs, it is not necessary for the student to declare a "major" until after the first year or sometimes the second year of study. In a professional engineering program,

it is many times possible for a person to complete his first two years of pre-engineering without making a final decision with regard to the specific field of engineering that he wishes to pursue. However, because of the highly specialized and accelerated nature of the two year technology program, a technical student must decide at the beginning of the program the kind of technology in which he wishes to specialize. He can't afford the luxury of delaying his decision for several years.

The successful technical student may be a transfer from some other college program or perhaps an engineering college dropout. Many of these kinds of students have had false starts because of improper counseling, lack of motivation, lack of maturity, or for any number of reasons. In many cases, the student who has not succeeded in a professional engineering program may do quite well in a technical education program. However, his reasons for transferring into a technical program should be positive reasons and not negative reasons. It may be that the student now realizes his limitations in the area of higher mathematics and the abstract cognitive skills necessary in a professional engineering or science program. It may be that he finds his interest is in the area of equipment fabrication and the manipulation of laboratory instruments. That is, he wants a more practical program which involves practical laboratory applications of

theory as is found in a technician training program.

There are certain intellective factors which must be present in the technical institute student for him to reasonably expect successful completion of a program. These factors, however, are not necessarily unique in technical institute students. The first important factor is a certain interest and ability in the application of both mathematics and science to the field of technology in which he finds his interest. After all, this is the foundation of a technical education program. Without this basic interest, this student should be counseled into a different type of academic pursuit.

Another essential ingredient is a basic minimal reading ability. The importance of reading ability has been verified in a number of studies which relate academic achievement at the post-high school level to reading ability. In one typical study by Brown (1), certain selected intellective factors such as abilities im mathematics, science and reading were related to success in a post-high school technical institute program. In this study, reading ability was found to be a far more significant predictor of success than any other single academic factor.

Let us now examine some of the personal characteristics that typify the successful technical institute student. A recent study of technical institute students and professional engineering students relative to social

class background was conducted at Oklahoma State University by Miller (4). In this study, social class background was based upon father's education, father's occupation, and family income. This investigation revealed that the technical institute students came from significantly lower socio-economic backgrounds than the engineering students. However, upon following the progress of these students in their respective programs, it was interesting to note that the factor of social class background became insignificant when related to successful completion of either a technical institute or engineering program. The difference in socio-economic backgrounds of the two groups could indicate that the choice of a four-year engineering program rather than a two-year technical institute program was influenced by the income of the parents, or more directly, the parents' ability to pay for two additional years of college.

Further study of these groups relative to psychological needs revealed a significantly greater expressed need for achievement in the engineering students. This, however, is not surprising as it reinforces the earlier research findings of Hyman (3) who showed that parents from higher socio-economic groups emphasize college training to their children to a much greater degree than parents from lower socio-economic groups; thus, it again appears that parents who are able to afford the expense of a college

program of greater duration, emphasize the importance of college training, and endeavor to motivate their children toward a baccalaureate degree program.

In this same investigation, the technical institute students were studied in terms of their personal values and non-intellective psychological factors to identify any significant differences in these personality variables among technical institute students who successfully completed their two year program and those technical institute students who dropped out of the program. In this study, the student who persisted in his program displayed nurturance type needs to a much lower degree than those technical institute students who dropped out. That is, the successful student was one who was detached from an excessive need for others. He relied primarily on his own interpretations of situations and not on the interpretations of others. He required a certain amount of privacy from others and was, to a large degree, independent of the feelings of others. This successful student might be described as "things" oriented rather than "people" oriented.

On the other hand, the technical institute dropout was one with an excess of nurturance type needs. That is, he tended to be an excessive conformist who had great difficulty in disagreeing with others. He tended

to be dependent on the help of others far in excess of necessity. This technical institute dropout might be described as "people" oriented rather than "things" oriented.

Technician training institutions vary with regard to stated philosophy, objectives, admission procedures; the technical students within institutions also vary. However, in trying to summarize some characteristics which generally typify successful technical institute students, I think we might all agree on these four essential factors:

(1) The technical student must be at least average in terms of academic ability.

(2) The technical student must have at least an average ability in mathematics and science with a genuine interest in the practical application of these skills to some specific field of technology.

(3) The technical student should have the maturity and personal characteristics which enable him to work for and with others.

(4) The technical student must be a person who can form judgments and function effectively without excessive reliance upon others.

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Distributive Education at Highlands High School, 1956-66.

Barnes, Bill

N. Mex Occup Res and Develop Coordinating Unit, Santa Fe

Feb67

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*DISTRIBUTIVE EDUCATION, *VOCATIONAL FOLLOWUP, *HIGH SCHOOLS, *HIGH SCHOOL GRADUATES,

Highlands High School, Albuquerque, New Mexico,

The general objective of the followup study was to determine how effectively distributive education had contributed to the occupational success of the 1956-66 graduates of Highlands High School. Sixty-one percent of the former distributive education students were contacted. The replies of 334 graduates are recorded in 12 tables. They rated business speech, general business, and bookkeeping high as supporting subjects. They rated office machines, accounting, and home economics very low. They felt that the most helpful units were salesmanship, customer relations, and getting and keeping a job. Approximately 40 percent had completed one or more years of college. (SL)

DISTRIBUTIVE EDUCATION AT HIGHLANDS HIGH SCHOOL

1956-66

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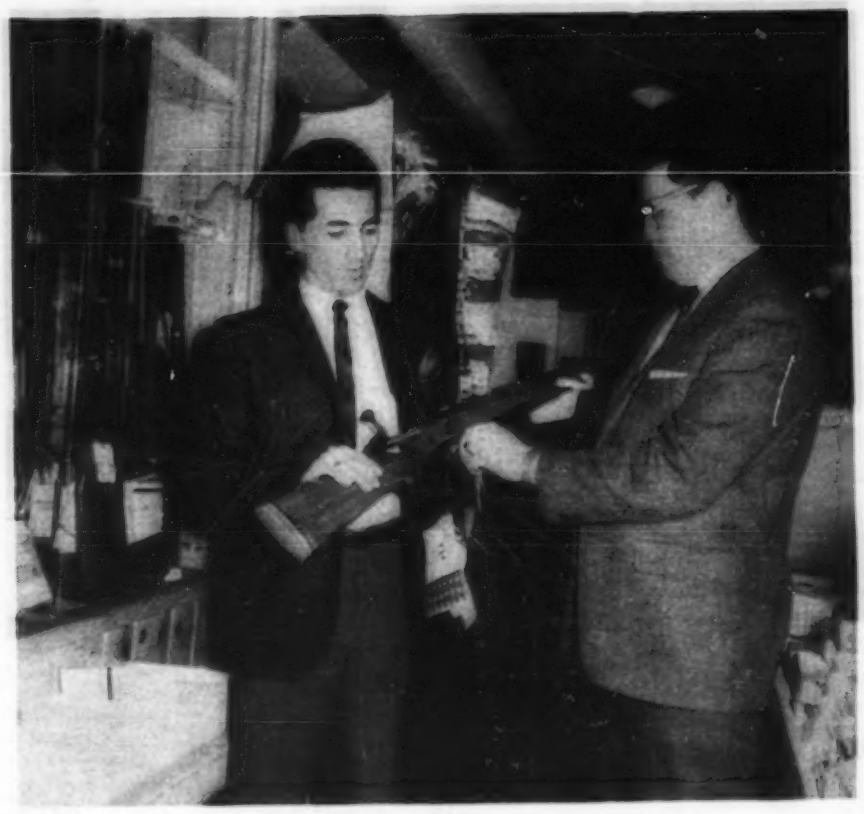

1967

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Santa Fe, New Mexico

Written by: Bill Barnes, Assistant Director
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February, 1967

CHAPTER I

INTRODUCTION

The increased demands upon education and the increased expectancies of today's populous society forces education to make a careful evaluation of existing educational programs. Vocational Education has a greater incentive to evaluate its programs because of the requirements of the Vocational Education Act of 1963. Specifically, Distributive Education is now required to make a one year follow-up study of cooperative part-time program graduates. Because of the limited time of this required follow-up, many projects have been initiated to follow these students for longer periods of time. These studies help in planning overall programs but, more specifically, additional answers are needed for each individual secondary Distributive Education project.

Every secondary school has certain characteristics that differentiate it from others. This individuality of schools necessitates individual follow-up studies for purposes of evaluation for individual schools.

I. THE PROBLEM

Statement of the problem. The problem was to evaluate the effectiveness of the Distributive Education Program as a factor in the Vocational success of graduates of Highlands High School from 1956 through 1966.

Purpose. The purpose of this study was to survey and compile information concerning Distributive Education graduates of Highlands High School for purposes of evaluation. This type of information was needed by the instructors to help develop curricula, and evaluate the existing Distributive Education Program.

Objectives. The general objective of the follow-up study was to determine how effectively Distributive Education at Highland High School has contributed to the occupational success of graduates. Specifically, the study will attempt to answer the following questions concerning the Highlands High School Distributive Education Program:

A. Why did students enroll in the program?

B. How did the students gain employment?

C. What parts of the Distributive Education curriculum were most helpful?

D. What related business courses would be helpful in contributing to a career in marketing?

E. Was there a relationship between class instruction and on-the-job experience?

F. How much education has been completed by students?

G. What changes do Distributive Education graduates believe should be made in the program to make it more effective?

H. What type of post-high school occupational classes need to be provided?

I. Does Distributive Education provide incentive to remain in school through graduation?

J. Did the Distributive Education Program prepare the student for useful employment?

K. How many students have remained in a distributive or related occupation?

II. METHOD OF INVESTIGATION

One hundred letters were mailed to Distributive Education supervisors and teacher-educators throughout the nation concerning survey instruments used in evaluation of local programs in their respective states. This letter resulted in 10 useful replies that were utilized in developing the original questionnaire.

An open-ended interview was prepared and used in a pretest of 50 students. Upon analysis of the pretest it was determined by the investigators that this type of questionnaire could not produce the desired results. The questionnaire was revised incorporating a closed answer type of question. A second pretest of 50 students was conducted, and an analysis of the second pretest indicated the desired results could be obtained from the revised questionnaire.

Mr. Lowry G. Kinzer, Distributive Education Coordinator of Highlands High School, Albuquerque, and Mr. John Stevenoski, Distributive Education Coordinator at Manzano High School, Albuquerque, were selected as principal investigators and served as interviewers throughout the project.

Various methods were utilized to make contact with the students. Telephone numbers were obtained from school records and the initial attempt to contact students was made through this media. If this attempt failed the coordinator checked the home address of the student. Neighbors, school friends, employers, and etc., were all contacted in an effort to locate the graduate.

Limitations: The study was limited to graduates of the Distributive Education curriculum who graduated between 1956 and 1966 from Highlands High School in Albuquerque, New Mexico.

CHAPTER III

Upon completion of the questionnaire it was determined that all students who could be located would be included in the sample. Highlands High School depends upon the military for approximately 10% of its student body. The average tour of duty for military personnel is approximately two years. This problem accounted for many of the failures encountered in contacting graduates. Other problems encountered included: marriage of girls, moving to other areas, deaths, graduates in the military, and etc. The mobility of the population seemed to be a major problem in attempting to locate these students.

Sixty-one percent of the students who had taken Distributive Education at Highlands High School between 1956 and 1966 were contacted. When the last 5 years are considered, 78% of the students were contacted by the interviewers. This is an indication of a problem encountered in many other surveys, the longer the period of time lapse between contacts the harder it is to make a follow-up contact.

A. Why did students enroll in the program?

The students were asked, what was the most important reason for enrolling in the Distributive Education Program? A compilation of the students' answers are as follows in table I.

Table I

The most important reason for enrolling in Distributive Education	%
Chance to earn 2 high school credits	36.83
Training in selling and marketing	29.94
To gain occupational work experience	12.57
Recommended by other Distributive Education students	2.69
Reason of financial need	2.69
Recommended by friends	2.40
Recommended by employers	1.80
To get out of school part of each day	1.80
Recommended by guidance counselors	1.20
Recommended by coordinator	.30
Other	7.78

Table I indicates that only 2.69% of the students took Distributive Education at Highlands because of financial need. This is a strong indication that finances are a small consideration of students who enroll in the Distributive Education Program. Six of the 334 students indicated they took Distributive Education to get out of school part of each day. Forty-two percent of the students listed training in selling and marketing and occupational work experience as the most important reason for enrolling in the program.

B. How did the students gain employment?

Table II

What helped the most in getting your first job	%
Own initiative	43.15
Relatives	19.05
Coordinator	15.48
Friends	11.31
Distributive Education Image	4.46
Newspaper Ads	0.00
Other	6.55

The above information indicates a large majority (73.51%) of the students obtained their first job through their relatives, friends or their own initiative. The lack of use of the newspaper was noticeable in its absence.

C. What parts of the Distributive Education curriculum were most helpful?

Table III

What helped the most in the Distributive Education Curriculum?	%
Salesmanship	35.33
Customer Relations	25.00
Getting and Keeping a Job	17.21
Advertising	6.44
Merchandising	5.85
Display	4.04
Store Problems	3.29
Store Arithmetic	2.84

Salesmanship, Customer Relations, and Getting and Keeping a Job accounted for more than seventy-five percent of the replies as to what was the most helpful part of the Distributive Education curriculum. Advertising, Merchandising, Display, and Store Problems were very close in the rating by the students but were very low compared to the top three.

D. What other High School courses should be taken by Distributive Education students?

Table IV

Courses that contribute to the Distributive Education curriculum	%
Business Speech	22.70
General Business	22.10
Bookkeeping	15.94
Business Math	12.48
Typing	9.02
Business Law	8.73
Office Machines	2.86
Art	1.65
Home Economics	.60
Other	3.92

Forty-four percent of the graduates indicated Business Speech and General Business would be helpful along with the Distributive Education course. Bookkeeping also rated high among the graduates interviewed. Office machines, Art, or Home Economics were selected as the most important courses by 34 of the 334 students interviewed. This might be an indication that these courses as now taught do not effectively support the Distributive Education curriculum.

E. Was there a relationship between class instruction and on-the-job experience?

Table V

Do you think the on-the-job "work experience" is a necessary part of the Distributive Education Program?

	Graduates	%
Yes	309	92.51
No	25	7.49

Over 90% of the students indicated that on-the-job "work experience" should be an integral part of the Distributive Education Program. Evidently, the graduates realized the importance of actually working in the marketing field.

G. What recommendations would you make for improving the Distributive Education Program?

Table VII

What should be done to improve Distributive Education curriculum	Graduates
Better selection of students	31
Field trips	19
Use of guest and guest speakers	18
Two-year program	17
More participation of students	16
More activities in classroom	10
More competition in class	10
More cooperation with employees, schools, community	10
Reduce class size	9
Retail classroom equipment and facilities	9
Promote student interest	9
More visual aids	7
Others	169
TOTAL	334

The addition of field trips and converting to a two-year program were given as areas needing improvement. A better selection of students was mentioned by more students than any other topic. More participation of students, more class activities, and more classroom competition were also major areas of concern to Distributive Education graduates.

H. What type of post-high school occupational classes need to be provided?

Table VIII

Post-high school classes Requested by Interviewees	Graduates
Bookkeeping	24
Auto Mechanics	22
Business English	22
Salesmanship	20
Typing	16
Electronics	16
Shorthand	14
Business Management	13
Drafting	13
Business Law	12
Advertising	12
General Business	12
No Answer	138
TOTAL	334

Bookkeeping, Business English, and Typing were considered very important by the students interviewed. Auto Mechanics was also listed near the top of the list. Shorthand, Business Management, Business Law, Advertising, and General Business were all listed by more than ten prospective students. These courses might be stressed more while students are still in high school.

I. Does Distributive Education provide incentive to remain in school through graduation?

Table IX

Did the Distributive Education Program provide incentive to remain in school?

	Graduates	%
Yes	137	41.02
No	197	58.98
	334	100%

Over half of the students replied that the Distributive Education Program did not provide incentive for them to remain in school. Forty percent of the students replied that Distributive Education did provide incentive for them to remain in school. This in itself could be a justification for the Distributive Education Program. With over 40% of the students replying that Distributive Education gave them incentive to remain in school and it is considered that the majority of these students are in the lower 1/3 of their classes scholastically, it seems as if Distributive Education is contributing to the holding power of the school.

J. Did the Distributive Education Program prepare the student for useful employment?

Table X

How well did the Distributive Education Program prepare you for useful employment?	Graduates	%
Very helpful	197	58.98
Somewhat helpful	113	33.83
Not very helpful	12	3.59
Of no help	12	3.59

To what extent did the cooperative Distributive Education Program help prepare you for useful employment? Fifty-eight percent of the interviewees replied that the program was very helpful for preparation for employment. Only 7.18% indicated the program was not very helpful or of no help in job preparation.

K. How many students have remained in a distributive or related occupation?

Table XI

Employed at Present time	%
Employed full time (non-Distributive Education)	22.76
Employed full time in Distributive Education	20.96
Enrolled in school full time	17.06
Employed part time in Distributive Education	11.38
Enrolled in school & working (part time)	7.49
Married and at home	6.29
Employed part time (non-Distributive Education)	4.19
Unemployed and seeking work	3.29
In Armed Forces	2.69
Other	3.89

At the time of the interview 32.34% of the interviewees were employed full or part-time in a Distributive Occupation. This may seem small, when considered by itself, but it includes half of the available working force. An additional 32% of the graduates were in school, unemployed, at home, or in the Armed Forces.

Table XII

Employment Upon Completing High School	%
Continued in Distributive Education job full time	31.00
Continued in full-time job (non-Distributive Education)	15.80
Worked summer, continued Education in the fall	14.07
Continued in Distributive Education part time	10.70
Joined Armed Forces	7.18
Stayed Home (unemployed)	6.28
Continued working part time (non-Distributive Education)	5.30
Other	8.98

Table XII shows 31% of the students interviewed continued in the Distributive Education job full time. Twenty-four percent of the students continued working in Distributive Education part time or worked during the summer and continued their education in the fall. Only 21% of the students went to work in non-Distributive Education Occupations upon completion of high school.

SUMMARY

The compilation indicated a large number of students take Distributive Education to obtain training and experience in Distributive Education. Actual financial need seemed to be an insignificant reason for enrolling in the Distributive Education Program.

How the students gained employment in the Distributive Education Program at Highlands High School seems to be an atypical situation. Most Distributive Education Coordinators select training stations for their students. The students at Highlands High School are required to locate their own jobs as part of the program. This is an area where the Distributive Education Program at Highlands High School differs from the average or typical program.

Salesmanship, customer relations, and getting and keeping a job were listed as being most helpful in the Distributive Education curriculum. Display, store problems and store arithmetic were listed as being most helpful by a very small percent of the graduates interviewed. This is an indication that these subjects in the Distributive Education curriculum as they are now taught at Highlands High School should be critically analyzed.

Graduates suggested that Business Speech, General Business and Bookkeeping would be good supporting subjects for Distributive Education. Office Machines, Accounting, and Home Economics were rated very low. This is an indication that the graduates felt that these courses as now taught would be of little help to a Distributive Education student.

The graduates positively indicated they felt on-the-job work experience was an integral part of the Distributive Education curriculum.

At the time of the interview, 40% of the Distributive Education graduates from Highlands High School had not completed any type of training beyond the high school level. A surprising number of the graduates of Distributive Education (approximately 40%) have completed one or more years of college. This is surprising when it is pointed out that 75% of the students in Distributive Education were in the lower one-third of their graduating class.

Post-high school classes requested by the graduates interviewed included Bookkeeping, Auto Mechanics, Business English, and Salesmanship. These courses might be stressed more as supporting courses in high school or stressed as post-high school courses.

Approximately 40% of the students indicated Distributive Education provided an incentive for them to remain in school. While 60% of the interviewees felt Distributive Education was very helpful in preparing them for employment.

At the time of the interview, over one-half of the available working force of Distributive Education graduates was employed in a Distributive Occupation. Thirty-two percent of the students were in school, unemployed, at home, or in the Armed Forces. Fifty-five percent of the graduates continued working in a Distributive Occupation, full or part-time, upon completion of high school.

PRINCIPAL INVESTIGATORS

Name:	Mr. John Stevenoski
Education:	B. A., University of Arizona, Tucson, 1961
Experience:	Teaching Bookkeeping, Amphitheater H. S., Tucson - 1 year Math, Young Junior H. S., Santa Fe - 1½ years Distributive Education, Manzano H. S., Albuquerque - 3 years

Name:	Mr. John Kinzer
Education:	B. A., University of New Mexico, 1950 M. B. A., University of New Mexico, 1958
Experience:	Purchasing Agent at Sandia Base, 1951-52 Distributive Education Coordinator, Highland High School, 1953-66
Publications:	Display World, 1965 Sales Management, 1951

TEN YEAR FOLLOW-UP STUDY OF HIGHLANDS HIGH SCHOOL
DISTRIBUTIVE EDUCATION GRADUATES, ALBUQUERQUE,
NEW MEXICO, 1956-66

Student Number: _____

Name of Student: _____ Address: _____ Phone: _____

Coop Student _____ Non-working student _____

1. Sex
   1. 227 Male
   2. 104 Female

2. Year of High School Graduation
   1. 24 1956
   2. 10 1957
   3. 20 1958
   4. 17 1959
   5. 25 1960
   6. 21 1961
   7. 36 1962
   8. 38 1963
   9. 36 1964
   10. 46 1965
   11. 61 1966

3. Present Marital Status
   1. 208 Single
   2. 113 Married
   3. 12 Divorced
   4. 1 Widowed
   5. 0 Separated

4. Rank in High School Class
   (From permanent record)
   1. 10 Upper third
   2. 72 Middle third
   3. 252 Lower third

5. Career objective while in high school
   (From permanent record)

   _____

6. Occupation of Father (or mother)
   (From high school permanent record)

   _____

EDUCATIONAL RECORD

7. Education beyond high school

   0. 22 Did not complete high school
   1. 61 One year of college
   2. 28 Two years of college
   3. 25 Three years of college
   4. 18 College graduate
   5. 18 Graduated from Vocational School (Business, Beauty, etc.)
   6. 134 Did not complete any training beyond high school
   7. 12 Dropped out of school-graduated from night school or GED.
   8. 16 Started post high school - did not complete program (business, college, trade).

8. Vocational training beyond high school - Check all schools attended.

   1. 19 Business
   2. 3 Nursing
   3. 4 Beauty College
   4. 2 Air Line Hostess
   5. 0 Hotel or Restaurant
   6. 4 Drafting
   7. 0 Chiropractor
   8. 0 Dental Hygienist
   9. 0 Commercial Art
   10. 6 IBM Machine Training
   11. 0 Barbering
   12. 10 Electronics
   13. 1 Radio and TV
   14. 1 Grocery Checkers
   15. 0 Modeling
   16. 9 Mechanics
   17. 28 Other: _____ (Specify)

9. Professional Training -- College or University
   If you attended College or University, check your major area of study

   1. 54 Business Administration
   2. 21 Education
   3. 16 Arts and Sciences
   4. 6 Fine Arts
   5. 7 Engineering
   6. 2 Pharmacy
   7. 0 Nursing
   8. 1 Law
   9. 1 Medicine
   10. 1 Dentistry
   11. 11 Other: _____ (Specify)

10. Further training in other ways

   1. 26 Adult classes
   2. 6 Albuquerque Vocational Institute
   3. 54 By employer
   4. 36 Other, list: _____

EMPLOYMENT RECORD

11. Upon completing High School (check one)

1. 105 Continued in DE job full time
2. 53 Continued working full time, but in non-DE job
3. 36 Continued in DE job part time
4. 18 Continued working part time but in non-DE position
5. 47 Was employed in Summer only; continued education in fall
6. 24 Joined Armed Forces
7. 21 Stayed home and was unemployed
8. 30 Other, list: _____

12. List the kind of work you did and check whether you were employed full time and/or part time, and the length of your employment.

Kind of Work	(1) Full Time	(2) Part Time	(3) Less than Six Months	(4) Six Months To One Year	(5) 1	(6) 2	(7) 3	(8) 4	(9) 5	(10) 6	(11) 7	(12) 8

13. At the present time what are you doing? (Check one)

1. 38 Employed part time in a Distributive Occupation
2. 70 Employed full time in a Distributive Occupation
3. 14 Employed part time in another type of work
4. 76 Employed FULL time in another type of work
   List type of job _____
5. 57 Enrolled in school full time, where: _____
6. 25 Enrolled in school part and working part time.
7. 21 Married and at home
8. 11 Unemployed and looking for work
9. 9 In Armed Forces
10. 13 Other, List: _____

14. IF working - what is your present wage per week?

1. 36 Less than $35
2. 39 $35-$60
3. 33 $60-$75
4. 33 $75-$90
5. 59 $90-$125
6. 29 $125-$200
7. 9 $200-$300
8. 1 Over $300
9. 95 No answer

15. IF WORKING -- Where are you located?

1. ____ Albuquerque Area
2. ____ Outside of Albuquerque area, but in New Mexico
3. ____ Outside of New Mexico

16. How many different jobs have you held since leaving high school?

0. 0 0
1. 202 1
2. 30 2
3. 27 3
4. 0 4
5. 0 5
6. 0 6
7. 0 7
8. 0 8
9. 35 No answer

THE DISTRIBUTIVE EDUCATION PROGRAM

17. How did you first hear about the DE program?

1. 183 Other students
2. 21 Relatives
3. 2 Businessmen
4. 12 Coordinator
5. 5 Advertisements
6. 31 School programs
7. 47 Counselors
8. 33 Other; what _____

18. What was the most important reason for enrolling in the DE program?

1. 9 Reason of financial need
2. 123 Chance to earn 2 high school credits
3. 100 Training in selling and marketing
4. 42 To gain occupational work experience
5. 8 Recommended by friends
6. 4 Recommended by guidance counselor
7. 1 Recommended by coordinator
8. 6 Recommended by employers
9. 9 Recommended by other DE students
10. 6 To get out of school part of each day
11. 26 Other, describe _____

19. Did you take DE because you definitely needed to earn money to stay in school?

1. 16 Yes
2. 318 No

Comments: _____

20. Who or what helped you the most in getting your first job when enrolled in the DE program? (Check one)

1. 52 Coordinator
2. 145 Own initiative
3. 38 Friends
4. 64 Relatives
5. 0 Newspaper ads
6. 15 DE image
7. 22 Other; what _____

21. How did your work experience during the DE program benefit you?

1. _____
2. _____
3. _____
4. _____

22. How did the Teacher-Coordinator and/or his coordination efforts assist you the most as a cooperative student learner? (Check one)

1. 39 Helped me get a job
2. 24 Helped me advance on the job
3. 176 Taught me business subjects that helped me on the job
4. 27 Helped me with employer-employee relationships
5. 4 Helped me decide to go on to school
6. 13 Helped me decide on career objective
7. 51 Other; explain _____

23. What helped you the most while in the DE program? (Check two)

1. 146 Coordinator
2. 161 Classroom activities
3. 119 On-the-job experience
4. 56 DECA Club activities
5. 23 My employer
6. 16 Money earned
7. 87 Development of personality
8. 40 Helped me decide on career objective
9. ____ Other (Specify): _____

24. What helped you the least?

1. 8 Coordinator
2. 25 Classroom activities
3. 24 On-the-job experience
4. 87 DECA Club activities
5. 48 My employer
6. 66 Money earned
7. 11 Development of personality
8. 49 Helped me decide on career objective
9. 16 Other; what _____

25. What part of the DE curriculum has helped you the most? (Check two)

1. 236 Salesmanship
2. 115 Getting and keeping a job
3. 167 Customer relations
4. 19 Store arithmetic
5. 43 Advertising
6. 27 Display
7. 22 Store problems
8. 39 Merchandising

26. Do you think the on-the-job "work experience" is a necessary part of the DE program?

1. 309 Yes
2. 25 No

Comments:

27. What other high school courses should be taken by DE students in order to get a better understanding of marketing and merchandising and to aid themselves while in the DE program? (Check two)

1. 60 Typing
2. 106 Bookkeeping
3. 58 Business law
4. 147 General Business
5. 4 Home economics
6. 154 Business speech
7. 83 Business math
8. 19 Office machines
9. 11 Art
10. 26 Other: _____

28. Do you think DE should be expanded to include courses at the Sophomore or Junior levels?

1. 237 Yes
2. 97 No

Comments:

29. Did you participate in DECA Club activities?

1. 270 Yes
2. 64 No

30. How did the DECA Club activities benefit you?

1. 53 Developed personality
2. 63 Showed spirit of competition
3. 11 Developed leadership
4. 57 Improved social activities
5. 17 Helped relationships with employer
6. 25 Learned how to take responsibility
7. 5 Made me conscious of civic affairs
8. 14 Won an award
9. 3 Received special recognition
10. 22 Other; explain _____

31. To what extent did DE assist you in making a decision on a long range career objective?

1. 90 Very helpful
2. 151 Somewhat helpful
3. 38 Not very helpful
4. 55 Of no help

32. To what extent did the cooperative DE program help prepare you for useful employment?

1. 197 Very helpful
2. 113 Somewhat helpful
3. 12 Not very helpful
4. 12 Of no help

33. Did the DE program provide any incentive for you to remain in school through graduation?

1. 137 Yes
2. 197 No Comments:

34. What adult level training (Occupational) classes would be helpful for you to take at the present time in a school such as The Albuquerque Vocational Technical Institute? LIST TITLE OR SUBJECTS

1.
2.
3.
4.

35. What recommendations would you make for improving the DE program?

1.
2.
3.
4.

INTERVIEWER: _____ DATE: _____

Investigators:
John Kinzer
John Stevenoski
(Albuquerque Public Schools)

Consultants:
Mr. Ralph Gleckler
State DE Supervisor
University of New Mexico

Mr. Gene Schrader
Coordinator of Research
State Department of Vocational Education
Santa Fe, New Mexico

PLEASE RETURN ALL FORMS AND INFORMATION TO:

Mr. John Kinzer
Highland High School
4700 Coal Avenue, S. E.
Albuquerque, New Mexico

Replies will be held strictly confidential.

VT 001 733

VT 001 733 ED 011 296

Vocational Core Program.

Manzanares, Jess * Barnes, Bill

New Mexico Occup. Res. and Develop. Coordinating Unit

Hobbs Municipal Schools, N. Mex.

66

EDRS Price MF-$0.09 HC-$0.80 20p.

*WORK EXPERIENCE PROGRAMS, JUNIOR HIGH SCHOOLS, *STUDENT REHABILITATION, SENIOR HIGH SCHOOLS, HIGH SCHOOL STUDENTS, ADMISSION CRITERIA, *DISADVANTAGED YOUTH, VOCATIONAL EDUCATION,

Hobbs Municipal Schools, New Mexico,

A 10-year old program for disadvantaged youths is described. Its objectives are to -- (1) meet the needs of students who have no interest in or ability to adapt to a regular school program, (2) relieve the classroom teacher of discipline problems which become time consuming to the point that other class members are penalized, and (3) establish a flexible school program which includes activities both in and out of the regular school day. Criteria for student selection are -- (1) poor general attitude, (2) lack of interest in the regular curriculum, (3) chronic misbehavior, (4) petty criminal activities, (5) incorrigible truancy, (6) inability to get along with other people, and (7) dropout potential. Scheduling is done on an individual basis by the vocational core teacher. Students are encouraged to participate in a work experience program and take courses which they want to take and in which they can succeed. The program operates at the junior and senior high school level. Junior high students receive credit as recommended by the vocational core teacher and at the senior high level, the principal cooperates in this recommendation. The student may transfer to the regular curriculum at will. Extensive individual counseling is done by the vocational core teacher. (EM)

APR 10 1967

ED015348

VOCATIONAL CORE PROGRAM

HOBBS MUNICIPAL SCHOOLS
HOBBS, NEW MEXICO

VT 01733

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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* * * * *

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HOBBS MUNICIPAL SCHOOLS

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INTRODUCTION

The following pages contain a comprehensive report on an outstanding program currently in operation at Hobbs Public Schools in Hobbs, New Mexico. The program is designed to challenge and to meet the complex needs of disadvantaged youths. The history, the operation, and the personnel involved in this program are items of extreme interest and fascination. This program has received state-wide acclaim and many visitations. Many attempts to copy it have been made. This program is over ten years old and was conceived by three dedicated teachers who were interested in salvaging and rehabilitating each disadvantaged student who could not meet the rigors of ordinary academic life. The program is referred to by several as: "The Spurlock Program" "Vocational Core Program," "Plan for Diversified Vocational Education," and "A Program for Problem Learners." Regardless of the title by which it is referred to, this program is a daring and logical approach to helping disadvantaged children. The success of this program, for boys and girls alike, has been remarkable. Although it cannot be measured in terms of dollars, results show up in terms of reduced dropouts, the acquisition of self-interest, and the successful graduation of many "problem" students. The prevailing theme of this program can be found in the following statements: "I can and I will help these children," "Students can be taught that work is honorable," "I can be important," and "We must give the unsuccessful student a feeling of importance and responsibility."

HOBBS, NEW MEXICO AND ITS SCHOOLS

Hobbs is located in the southeastern corner of New Mexico, five miles from the Texas line, 70 miles east of Carlsbad, New Mexico, and 250 miles northeast of El Paso, Texas. The city is located in the Permian Oil Basin and started with the oil development in 1929. The oil industry is the economic base of the Hobbs area.

With most of its schools, churches, business houses, homes and street improvements having been built since the war, Hobbs is more modern than most cities of its size.

The city has a population of nearly 31,000 and a surrounding rural population of approximately 5000, with a total school population of over 8,600 pupils. The school population is almost entirely English speaking and presents school problems no different from those of other towns of similar size.

Hobbs has a modern high school plant on a 45 acre site, three junior high schools and ten elementary schools. At present, all students are housed in modern brick buildings. Free textbooks and supplementary teaching aids such as reading materials and maps, are provided by the state.

EDUCATIONAL PHILOSOPHY

It is the responsibility of the Hobbs Municipal Schools to provide through continuous improvement a planned educational program that affords the opportunity for each student to realize maximum development as an individual and as a contributing member of the community and our democratic society. The schools should motivate and help each student to develop to his full capacity (1) a wholesome attitude toward our democratic government, in a republic, and family life, and an appreciation for the achievements of others, (2) a compliance with and respect for the rules and regulations of society, (3) the spiritual, moral, aesthetic values conducive to a full and rewarding life, (4) an understanding of the workaday world and his possibilities and responsibilities within it, (5) general knowledge and basic skills, (6) emotional stability, social adjustment, and physical health, and (7) creative, analytical thinking which will enable him to solve problems arising out of our changing world.

OPERATION OF THE VOCATIONAL CORE PROGRAM

Selection of Students

This program, based on what is commonly known as a flexible core curriculum, is one in which the subjects are designed to meet the needs, problems, and interest of adolescents selected from problem areas. The Hobbs School District made the assumption that the conventional educational program was not fulfilling the needs of many disadvantaged or special students. The Vocational Core Program is an attempt to design a flexible schedule for individual students who are not progressing adequately in the regular instructional program.

The program's method of operation is as unique as the total program. The method of operation was developed 12 years ago by three far-sighted teachers in Houston Junior High. This program has been used for 11 years and has been revised as needed. Over the years, the Vocational Core Program has developed an image of being a status program to all students. This was planned and maintained by keeping information concerning the program from the students and calling the class "Mr. Spurlock's class." The student is asked if he might like to participate in the class <u>if</u> they can get him in. Care was taken to make the student want in the program. The idea given the student is "If we can get Mr. Spurlock to take you, do you want in his class?"

Some students who do not need the program have attempted to get in. This was expected and the selection technique used politely did not accept them. Because of the tact used in initiating and continuing the program, the social stigma of a remedial or special class has not developed.

Students are selected for the Vocational Core Program by the building principal, teachers, counselors, and Vocational Core teachers on the following criteria:

1. Poor general attitude
2. Evidence of lack of interest in the regular program
3. Chronic misbehavior
4. Petty criminal activities
5. Incorrigible truancy
6. Inability to get along with other people
7. Potential dropout

Aims and Objectives

The aims of the Vocational Core Program are as follows:

I. To meet the needs of students who have no interest in or ability to adapt to a regular school program.

II. To relieve the classroom teacher of discipline problems that become time consuming to the point that other members of the class are penalized.

III. To establish such a flexible school program that will include activities both in and out of the regular school day.

The Vocational Core Program seeks to meet these aims through a program which is designed for each individual student. The Vocational Core teachers are allowed to develop individual students' schedules in any way that they feel will benefit the student. By developing a schedule that includes only subjects of interest to the student, he is encouraged to remain in school. On-the-job work experience for boys and girls at the junior high and high school levels plays an important part in the schedule of the student. At the secondary level, some students have the privilege of working at a steady job where their only connection with school is the Vocational Core teacher.

Following are the objectives formulated for the program. One, to help train the student to have some kind of trade or saleable skill. Students at the secondary level are given the opportunity of taking vocational classes and the Vocational Core teacher attempts to find part-time employment for his students. At the junior high level, the students in the program are given an opportunity to work as sack boys for the local grocery stores after they have received such preparation as advice on grooming, instruction on sacking procedures, and participating in group discussions on how to meet and work with people. Girls are given instruction in ironing, sewing, cooking, grooming, and social skills. These are only starts in the program. Later students branch out to various vocational pursuits which might include such occupations as welding, plumbing, fry cooking, or working in cleaners. Girls in Vocational Core classes gain work experience by working as teachers' aides for elementary or special education teachers, as office workers, as aides in non-profit institutions, or as maids in private homes.

An additional objective of the program is to help the student find a place in society. All junior high students are encouraged to take a social science class. The Vocational Core students are put in classes where the instructor is cognizant of the problems of the Vocational Core student and he prepares his lessons for the two levels of students in the class. Discussion on such topics as government, why we work, responsibilities to friends, teachers, parents, employers, and the community are conducted in the Vocational Core class or on an individual basis.

The third objective is to instill within the student the honor of being self-supporting and of making his contribution to society. All of the Vocational Core Programs give the student an opportunity to obtain a job outside of school. In connection with the employment is a savings program in which each employed boy at Houston Junior High must participate, subject to the discretion of the teacher in charge. Savings are deposited with the teacher who in turn deposits them to the account of each boy.

Girls in the junior high and senior high programs work at a variety of jobs. Some jobs which they participate in include teacher helpers at the elementary level, office aides, aides in non-profit institutions (hospitals, nursing homes), or private business.

High school boys work at various occupations, depending upon qualifications, or areas of interest in which they can secure employment. The Vocational Core instructor has the responsibility of placing students at his discretion. High school boys work at many different occupations with variable schedules for employment.

Work experience is an integral part of the program. All Vocational Core programs strive for work experience in the student's schedule. The junior high boys' program uses two chain stores in the community for its source of employment. Students work as sack boys on a schedule set up by the Vocational Core instructor. Junior high students may work a maximum of 3 hours per school day and may be excused from class for work experience.

The fourth objective of the Vocational Core Program is to develop character within the student. The Vocational Core Program approaches this objective through individual and group counseling, and work

experience. A concerted effort is made to see that the student is given a chance to excel in something.

Mr. Spurlock in an annual report stated: "Boys with the greater problems were specially encouraged to learn chess and were offered awards to beat the teacher. Usually they did, for one or 'another' reason. This created the desired relationship."

Personal interest and individual counseling seem to be large factors in the success of this objective.

Individual counseling takes place in an informal, no pressure atmosphere in the classroom, at the place of employment, in the home, or whenever interaction between student and instructor take place. Much counseling takes place over a game or activity such as chess or checkers.

The last objective is to guide the student back into the regular curriculum in as many areas as he will and can accept. Many students, after a period of individual counseling and help, return to the regular curriculum. Some students who are incapable, or unwilling, to enroll in the complete curriculum are encouraged to take the courses in which they have an interest. The Vocational Core instructor is careful not to let the student take any courses that would cause him to give up and drop out of school.

Scheduling

The schedule for each student is worked out by the principal, the Vocational Core instructor and the student. It should be understood that the schedule is developed for each individual and the interest and needs of the student are of primary consideration. Some students may be in the Vocational Core class for the majority

of the day while others may only have one period in the Vocational Core class. If the student is in the Vocational Core Program, the Vocational Core teacher and any other instructor who has the student in his class work together to establish a final grade. The Vocational Core teacher has the final job of entering grades for his students. The administration has given the Vocational Core teacher complete control over grades given students enrolled in his or her program. The abbreviation VC is entered on permanent record cards of the students in the program.

The progression of the student through school is an interesting matter. Those who are at junior high level receive credit and progress as recommended by the Vocational Core teacher. Progress at senior high level is based on the recommendation of the Vocational Core instructor and the principal.

Upon a student's request, he may be scheduled in regular classes part of the time, or all of the time, if he is able to convince the building principal he is sincere and deserves a chance. His class status is then determined at the office.

Procedures

Because of the flexibility of the schedule, there is no definite lesson plan for Vocational Core classes. Mr. Spurlock, who has been teaching in the program for 11 years, said, "I do not know what will be going on next period."

During class periods, students engage in a variety of activities set up to create good counseling situations.

An annual report states: "In our experience we have found typing to be a good front activity. "Everybody" wants to take typing. Our job, as we see it, is not to teach typing, but to let the activity discipline the student and give opportunity for counseling."

Incentive awards are given for the number of lessons completed. Jigsaw maps of New Mexico (cut into counties), the United States (divided into states), and continents (separated into nations), are used to teach geography, but, more significantly, to develop a sense of achievement within the student.

Chess and checkers are used in the classroom to create a counseling atmosphere just as adults "talk over coffee." This activity was used extensively for beginning students to develop lines of communication between the student and the instructor. Individual and group counseling sessions are carried on in an informal classroom atmosphere. The Vocational Core class has no standard curriculum nor does it necessarily observe regular school hours.

A partial list of suggested class topics follows:

1. A study of vocational subjects and commercial subjects both in the classroom and on-the-job training.

2. Citizenship training.

3. Physical education and sports activities.

4. Citizenship activities (community responsibilities; such as, activities worked out with community groups, art events, city facilities, etc.)

5. Some practical English for filing job applications, completing insurance forms, spelling, etc.

6. Some practical economics for money, banking, insurance, budgeting, saving, etc.

7. Social opportunities for formation of a club with parliamentary procedure, parties, banquets, socials, and assemblies.

8. To serve as an employment agency or bureau, in which the class participates.

Other activities include, typing, chess, checkers, ironing, cooking, shop work, sewing, and grooming. Many of these activities seem to be time fillers unless they are studied in depth.

Financial Support

Currently, Title I funds are being used to provide certain equipment and supplies for the Vocational Core classes. These disadvantaged youth would have no opportunity for certain projects without Title I. Title I funds were used to furnish materials for girls in the Vocational Core class to make dresses under guidance of women in the community. After completion of the projects a style show was held by the girls to display what they had accomplished.

Monies from the Vocational Education Act of 1963 have been used to support the program. The majority of the funds for the program are provided by Hobbs Public Schools.

Plans have been made to utilize work study monies in the Vocational Core Program when sufficient funds become available. The Vocational Core Program is a logical place to incorporate student work into public community services.

Evaluation

This type of program has been attempted at various locations outside of the Hobbs school system with varying degrees of success.

When the question was asked, "Why does the Vocational Core Program at Hobbs work?" various reasons were given. The philosophy and attitudes of the administration and staff were given as being the greatest contributors to the success of the program. The administration seemed to believe one of the important factors was the selection of the right personnel for the job.

Another contributing factor was the development of a privileged class attitude among the students. This attitude was planned and conceived at the beginning of the program. The program has not been downgraded or identified as apart from the regular curriculum. The flexibility of scheduling and the cooperation of Vocational Core instructors and the administration in individualizing each students program was considered as an important aspect in the success of the program.

The instructors felt that the administration giving them a free hand in designing the students schedule and the curriculum of the Vocational Core class was a necessity for the success of this program.

The question was asked, "What is the most common problem in the Vocational Core Program?"

All instructors said that scheduling was their largest problem to overcome. They were quick to explain that the full support of the administration minimized this difficulty.

The results of this program are impossible to state in terms of money, improvement in citizenship, or an improved self-value. Administrators and teachers are aware of a decrease in the number of dropouts. Many students have returned to the regular curriculum

after a semester or more in the Vocational Core. At the senicr high level, many of these students have received their diplomas. It should be remembered that one of the criteria for the selection of these students was because they were potential dropouts.

Many of the students have acquired noticeably better grooming habits while in the Vocational Core Program. At the junior high level, the boys have to meet acceptable grooming habits to be allowed to work. Grooming habits are hard to evaluate, but teachers and administrators indicate they have noticed improvement in the grooming habits of Vocational Core students.

The students develop a sense of accomplishment and status in the Vocational Core Program. The instructor seeks something that the student can do to insure this. Status for the student is gained through the reputation of the program, money earned, and sometimes the change in grooming habits.

NUMBERS OF STUDENTS PARTICIPATING IN VOCATIONAL CORE CLASSES

	56-57	57-58	58-59	59-60	60-61	61-62	62-63	63-64	64-65	65-66	66-67
Junior High Boys	69	107	101	86	99	119	110	124	118	116	
Junior High Girls				28	35*	35*	35*	35*	34	44	
High School Boys									46	50*	50+
High School Girls									35*	35*	33+

* estimates
\+ current enrollment will fluctuate

The above enrollment figures are misleading. At the start of the school year the Vocational Core teacher has no students assigned to his or her class. As students are referred to the class enrollment climbs. Enrollment fluctuates because of students returning to regular classes, new students entering, and various other reasons. An accurate count of students participating during a school year is difficult to obtain because of the flexibility of the program.

Facilities are provided for instruction and practice in sewing, ironing, and food preparation.

Mr. Omer Spurlock, Vocational Core instructor for 12 years at Houston Junior High works on his weekly student work schedule.

Mr. Joe Morgan, Vocational Core instructor at Hobbs High School supervises a VC student in the school shop.

Girls in the Vocational Core class at Houston Junior High preparing food in the kitchen provided Title I funds were used to provide kitchen utensils and supplies.

VT 001 734

VT 001 734

A Vocational-Technical Student Follow-Up System.

Mailey, Patrick J.

Washington Res. Coordg. Unit for Vocat. Educ., Olympia

Aug66

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*ADMINISTRATOR GUIDES, VOCATIONAL EDUCATION, *VOCATIONAL FOLLOWUP, METHODOLOGY, *QUESTIONNAIRES,

A system was designed -- (1) to generate a high percentage of responses, (2) to be easily administered, and (3) to capture necessary data for valid statistical reports and evaluation of vocational programs. Its key method is the "conditioning" of the student, while he is in school, to respond to future questionnaires. Suggestions for doing this are -- (1) Have the student fill out a sample questionnaire, (2) Remind the student that he will be expected to respond to questionnaires in the future, and (3) Publicize followup in campus newspapers. An unmistakable understanding of the positive nature of the followup should dispel distrust at response time. Flow charts illustrate the data processing and followup procedure. Detailed guidelines are given and sample questionnaires and data cards are included. (EM)

STATE OF WASHINGTON

ED015348

A FOLLOW-UP SYSTEM FOR VOCATIONAL-PREPARATORY STUDENTS FOR THE STATE OF WASHINGTON

01734

STATE BOARD FOR VOCATIONAL EDUCATION

OLYMPIA WASHINGTON

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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A VOCATIONAL-TECHNICAL STUDENT FOLLOW-UP SYSTEM

By

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FOREWORD

The State of Washington supports one of the most progressive and comprehensive Vocational Education programs in the nation. Aside from serving people by training them for gainful and useful employment, the diversification of vocational courses fills a serious job need in this State. However, a thorough study of the true effectiveness of these training courses has never been made on a state-wide approach.

The purpose of this research project was to develop a system which would efficiently follow students who have had vocational preparatory training. The results of this Vocational Student Follow-Up System would give federal, state, and local school administrators factual information on the productiveness of the many vocational courses. It would, above all, answer the question: Was the student employed in the occupation for which he was trained?

Data from this Vocational Student Follow-Up System would become available which would then make possible a close evaluation of the job being done in Vocational Education programs.

This Vocational Student Follow-Up System, then, would provide for the collecting and analyzing of information about the results of Vocational Education in the State of Washington.

The Vocational Student Follow-Up System would use electronic data processing techniques to facilitate the handling, computing, and summarization of data into meaningful reports.

My sincere appreciation must be extended to the many Vocational Education Research Coordinating Unit Directors across the nation who responded to my plea for Vocational Student Follow-Up System information in their States. Special thanks to Norman P. Mitby, Director, Madison Vocational, Technical and Adult Schools, Madison, Wisconsin, who diagramed a simplified approach to the problem and who convinced me that a follow-up study was practical and worthy of the effort.

To the many instructors, counselors, vocational directors, administrators, and supervisors across the State of Washington, I owe a debt of gratitude. Their contributions to this proposed system make it their custom design.

I am especially indebted to Dr. Alan Metcalf and Norm Gibson of the Research Department. These men not only served as resilient sounding boards but gave me invaluable assistance.

Dr. Fred V. Miner, the Research Coordinating Unit Coordinator, fostered the idea of a computerized Vocational Student Follow-Up System in this State and kept me from wandering too far astray from the task. My thanks to all.

PATRICK J. MAILEY, CDP

STUDENT FOLLOW-UP

THE SYSTEM:

The Follow-Up system is designed with three main considerations:

I. Generate a high percentage of response.
II. Ease of administering at the school and instructor levels.
III. Capture the necessary data with which to make valid statistical reports and studies on the effectiveness of vocational preparatory training.

I. Generate a High Percentage of Response:

The Follow-Up system is designed to use practical methods of encouraging voluntary response from the former student. These methods are both psychological and mechanical.

A. PSYCHOLOGICAL METHODS

Perhaps the key method in the entire system is the "conditioning" of the student, while he is in school, to respond to a future questionnaire. This can be done in several ways, some of which are:

(1) The instructor/student relationship is probably the more important method. Good instructors will be in contact with their former students. Perhaps all that is needed is a more conscious awareness on the part of instructor and student that Follow-Up will help the instructor maintain a current file on former students.

(2) Have student fill out a SAMPLE questionnaire, while he is in school, so that any misunderstandings on question interpretation can be cleared up at that time.

(3) Be certain the student is aware the system will locate him and, if necessary, a personal interview can be obtained, even though the student may have moved to a foreign country. This must be subtle in tone as voluntary response should be emphasized.

(4) Entry and exit reminders to the student that he will be expected to respond to a brief Follow-Up questionnaire in the future.

(5) Other miscellaneous methods of conditioning the student are:
Campus newspapers can promote "Follow-Up" through articles and advertisements. Lunchroom banners reminding the

student of "Follow-Up"; packets of "we have moved" cards, a percentage of which would be pre-addressed to the former students' instructor; radio, T.V., and the press could also provide public service announcements at response time; birthday cards provided for the instructors to send to their former students, if they wish, -- included, of course, could be a "Follow-Up" postal card which would provide space for any change in status of the student for updating existing records.

(6) The student should be completely educated to the purpose of "Follow-Up". The usefulness of the information to the people of the state should be emphasized as well as the personal interest the instructor has in the student's future. An unmistakable understanding of the positive nature of "Follow-Up" should dispel distrust at response time.

All of these methods should tend to "condition" the student to respond. These are, fundamentally, psychological methods.

B. MECHANICAL METHODS

Modern data processing techniques, using the computer, can greatly facilitate the uniform storing of standardized data, maintain control over the system, automatically generate response questionnaires, and, quickly and accurately identify the non-respondents for implementation of routines designed to acquire additional responses.

(1) By use of a standardized STUDENT EXIT FORM, filled out when the student exits from any vocational preparatory program, the data needed on the student can be captured. Examples of such data are: Social Security Number, Course Code, Birth Date, Type Student (Rehab., P.L. 815, etc.), Current Address, Current Employer (if any), Military Status, Exit Date, etc. THIS FORM MUST BE FILLED OUT FOR EVERY STUDENT WHO LEAVES A COURSE, WHETHER THIS IS A TRANSFER, EARLY DEPARTURE, OR GRADUATE. A space to indicate whether or not the student is employable at the time of departure will be provided on the form.

(2) The exit form will be batch assembled, with a control posted at the school on the number of forms assembled per batch, and, then, the batch mailed to Central Processing. At arrival they will be key punched/key verified, balanced to the controls and captured, by computer, on magnetic tape. THE INFORMATION WHICH IS ON THE EXIT FORM WILL NOW BE ON MAGNETIC TAPE FOR FUTURE PROCESSING. Each batch would contain not more than 100 Exit Forms and be transmitted to Central Processing upon reaching that approximate figure, excepting at close off time.

(3) At intervals of, perhaps, three months, the Computer will print out the Instructors Record. This record will show the current address and current employer of the student. It will also show the students military status and whether the student has continued his schooling full time. This Instructors Record will be printed on 24# weight paper; this is near-post-card weight for durability. It will provide space for the instructor to update any information he receives on his former student. It is hoped this record will be of considerable help to the instructors.

(4) The MAIL-OUT OF QUESTIONNAIRES would be next in the cycle. The Computer would generate these response questionnaires in the form of a pre-printed IBM card, i.e., the questions would be pre-printed on the card form. The card would then have the students name, social security number, course number and, school code prepunched into it. The card would be personalized as to school. If the Follow-Up procedure were adopted to begin this September (1966), the first mail-out would be approximately October 1, 1967. A study could then be made on those who had exited before July 31, 1967, and, on whom, an Exit Form was transmitted.

(5) The MAIL-OUT of questionnaire cards would be from the city of the school. They would be accompanied by a First Class Mail envelope, pre-addressed to Central Processing, and, pre-stamped. The former student would reply, place card in the envelope and mail within 10 days. After 10 days, a Reminder Questionnaire Card would be mailed out from Central Processing to those who have not responded to the first wave. After an additional 10 days, non-respondent lists would be mailed to the individual course instructors, accompanied by a Personalized Questionnaire Card. This card could be filled in by the instructor, if he definitely knows the answers to the questions asked, or, it could be referred to the non-responding student by the instructor. The importance of keeping an accurate Instructors Record is obvious at this point. The Address Unknowns would be searched by the Computer through the Employment Security Department and the Department of Licensing.

It is hoped that the three step sequence; Original mail-out, reminder card, and, instructor personalized response card, will result in an 85% response. If it does not, a non-respondent list can be given to the Retail Credit Co., an International Fact-Gathering Service, and they will use their system in locating and interviewing at least a random sampling of non-respondents. Experience of other Follow-Up studies indicates the Retail Credit Co. has a very effective system. The latter method would be used only as a reserve for economic reasons.

(6) The Change of Status form would be used to report to Central Processing any changes pertinent to the Follow-Up study. For example: change of address, employer, name, military status, position, schooling, etc. This form would be available to the schools and instructors to send in AS THE CHANGE IN STATUS occurs. These, then, would not be batch assembled or controlled. They are intended to be a convenient, standardized method of reporting to Central Processing. They would immediately cause an updating of the computer magnetic tape record on the student. The result would be a more current address and status file on the former student at response time.

This completes the Mechanical methods to be used in getting the response from the former students. Only a combination of the Psychological and Mechanical methods will insure maximum response. Both need to be studied carefully and implemented fully.

II. Ease of Administering at Schools and Instructor Levels

The Follow-Up System is designed to simplify the paperwork and actual Follow-Up activities at the schools. There are three basic clerical functions required:

(1) FILLING OUT THE EXIT FORM. The schools will be responsible for the accounting of each student who exits from a course, whether this is a transfer to another course or program, graduation, or departure from school for any reason. In some schools this has been loosely controlled, such that, students literally disappear from the scene. The formalization of exiting will need additional emphasis. Students absent from school, without notifying the office or instructor, will need to be contacted more frequently and at an early date in their absence. Students need to be impressed with the idea that leaving the school requires a formal procedure similar to that required at registration time. A few schools expect to include an "agreement" between the student and school at registration time, that he will formalize his exit from school and respond to future Follow-Up questionnaires.

(2) MAINTAINING THE INSTRUCTORS RECORD. The instructors record will be automatically produced by the Computer at Central Processing for the convenience of the instructor in maintaining a file on former students. It will be of durable weight paper, file size, and contain basic information on the student as captured by the EXIT Form. There will be ample space provided which can be used for updating the students post-course history. This form, while a convenience to the instructor, would be used as reference when the instructor receives his non-respondent list.

The non-respondent list would be mailed to the instructor ONLY after the second wave of questionnaires have been given sufficient time for reponse. The instructor would not be responsible for finding EVERYONE on the list, but those whom his records identify or who are relatively easy to contact. If he knows the information he may answer and mail-in a personalized response card himself. This would be the only burden on the instructors.

(3) THE CHANGE OF STATUS FORM. This form may be used by the school or instructor to note any pertinent change in status on a former student. No control would be maintained. It is hoped this would provide a convenient method of reporting to Central Processing any known changes in status of former students, so that, at response time the most current addresses, and other data will facilitate Follow-Up response.

III. Reporting the Result of the Follow-Up Study

The purpose of the Follow-Up study is to produce valid statistical reports on the effectiveness of vocational preparatory training: to answer the basic question -- Is the former student employed in the occupation for which he was trained?

Follow-Up has been designed to capture sufficient raw data with which to make a comprehensive analysis of state-wide and local courses of instruction. These reports would be produced on Electronic Data Processing equipment. The design of the reports would emphasize ease of reading and simplicity in presenting the data. It would not be necessary to refer to a code manual or interpretor in order to study these reports.

The reports can be as detailed as needed and/or in summary form. They can be run to satisfy the interests of state and federal administrators, local school administrators, department heads, instructors, and former students.

The report requirements must be outlined previously to an EDP Systems Programmer assigned to the study. He must be given precisely what it is the concerned individual needs to know. If it is within the source data, the report can be produced. However, the Systems Programmer must be given sufficient "lead time" to write, debug, and test his computer program. Anticipation of individual requirements from the Follow-Up survey must be made approximately six months before the questionnaires are mailed out. This planning will expedite the running of the reports on the Computer and the prompt distribution to the concerned responsible parties. It is expected that all reports will be run and distributed to the various recipients within two (2) months after the initial mailing of the Follow-Up questionnaire cards. (For example, if the response questionnaire cards were to be mailed on October 1, 1967 the final reports will be produced and distributed by December 1, 1967.)

In addition to the required reports, other studies may be made, but, if these are not planned for in advance by those who request them, there will

be delays of from two days to two months before they are received.

The reports would cover those courses pre-determined to be covered by the Follow-Up study. This determination would probably be made by State Supervisors, School Administrators, and Directors. Once this determination is made there must be no changes other than deletion of courses. Any additions would be included in a subsequent survey but not in the initial survey. The reason for this pre-determination is the maintenance of stability and control of the system.

Some of the questions which the Follow-Up study can answer are:

Is the former student working in the occupation for which he was trained?

Is he working in a related field?

What percentage of vocational preparatory students find employment in the occupation for which they were trained?

In related employment?

Is he in the Armed Forces?

Is he continuing his education full time?

Is he employed?

Was he hired because of his training?

Did his training contribute significantly to his progress on the job?

Did he seek employment in the occupation for which he was trained?

What was his beginning salary after training? Present?

Does the student feel his training was "worth it"?

Would he retrain in a vocational school?

What abilities or skills were needed on the job that were not included in his training?

Which courses, which schools, had the greatest percentage of response to the Follow-Up survey?

Are there strengths and weaknesses in vocational programs in certain areas within the State?

How are the Rehabilitation students succeeding as compared with the balance of the population of former students?

Are some courses too long? Too short?

Are there courses which need additional emphasis?

Are there courses which should be de-emphasized?

What are the employment figures for male, female? Age groups?

What is the mobility of the student, by school and course, before he becomes trained for a specific occupation?

Does a high turnover of students indicate poor or inadequate counseling? Instruction?

How many students drop from a given course before becoming employable in the occupation for which the course trains?

How many employable former students have remained in Washington State?

How many have moved to other States?

What is the average age of the vocational student?

What is the average income, by course, of students who are working in the job for which they were trained?

What are the employment figures by state; by school; by school and course; by course and school; by school, course, and type of student (Rehab, P.L. 815, etc.); by course and age; by course and sex; by age, sex, and course; by type of vocational program (Voc. Ag., T & I etc.); by type of vocational program and course; by school, type of vocational program, and course; by type of program and age; and many other combinations of statistical information.

The foregoing questions are but a sampling of some of the information which can be available after an effective Follow-Up survey in this State. Again, if the information has been captured in the source documents (the Exit form and Follow-Up Questionnaire card) then, it is available for reporting in any sequence desired by those needing the information.

THE FOLLOW-UP STUDY
OF
VOCATIONAL PREPARATORY STUDENTS

HOW IT CAN BE USED

The findings of this study will be of value only if they are used constructively. Following is a list of various ways in which the results of this study can be used.

1. Used to emphasize the primary objective of vocational education, "training for useful employment."

2. Used with local Boards of Education and State Board for Vocational Education to show evidence as to services provided to people by the vocational education program.

3. Used with members of legislature and legislative committees to show effectiveness of program of vocational education.

4. Used with consulting or advisory committees to show evidence of placement and need or lack of need for training.

5. Used with craft committees when it is desirable to bring about an improvement in the placement of graduates in those craft fields.

6. Used to upgrade the public image of vocational training.

7. Used for publicity purposes on state and/or local level.

8. Used at state-wide meetings of local directors and supervisors to focus attention on:

    a. Employment and placement trends
    b. Reasons for good or poor placement
    c. Courses with marginal values
    d. Causes for lack of completion of training

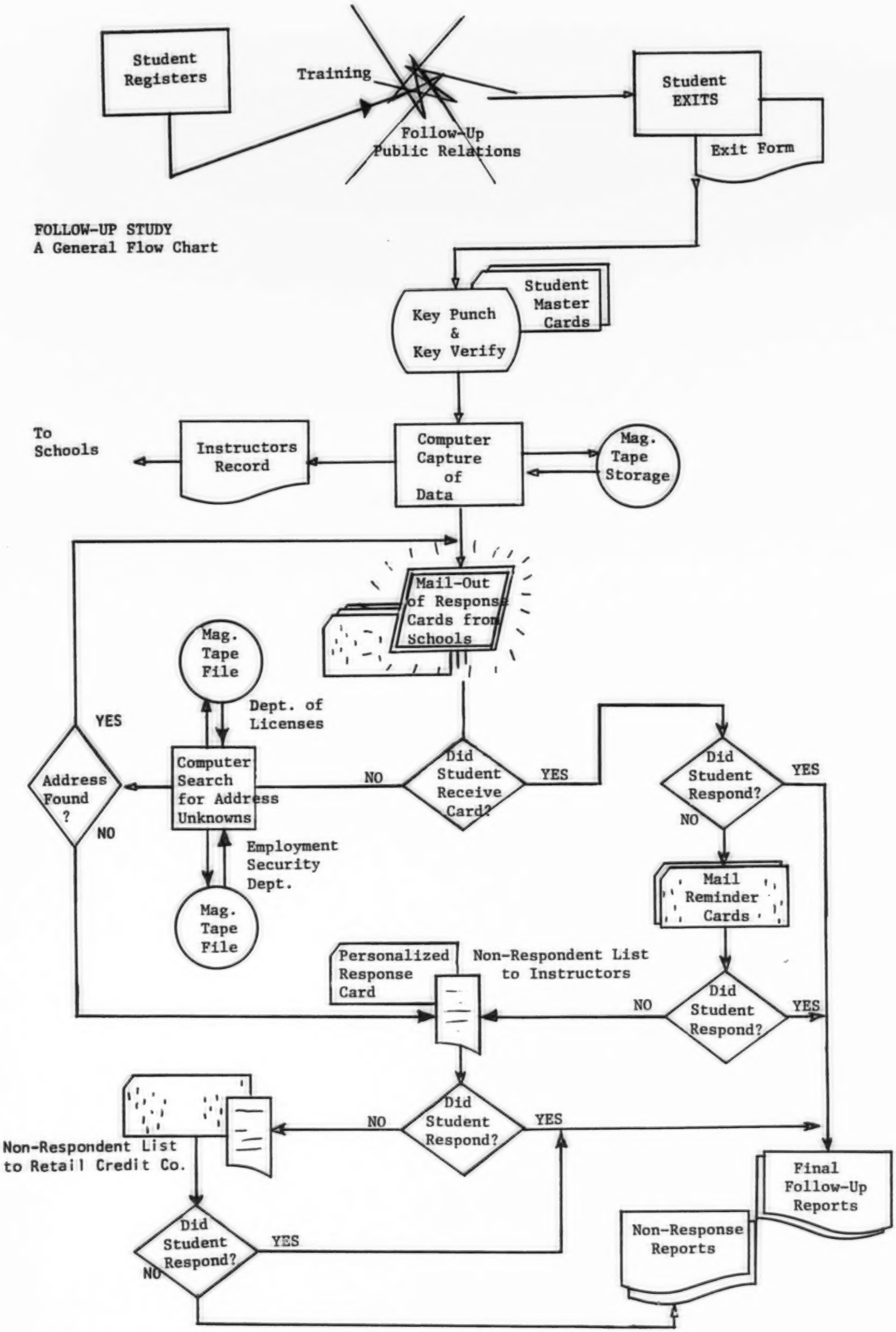
9. Used by state supervisors for consultation with local directors or supervisors to aid in recognizing need for establishment, consolidation, reorganization and/or elimination of training opportunities in certain course areas.

10. Used in working with planning committees when new schools are under construction or consideration as indication of variety of training opportunities available in area.

11. Used by guidance counselors when counseling students to indicate opportunities for employment in various fields.

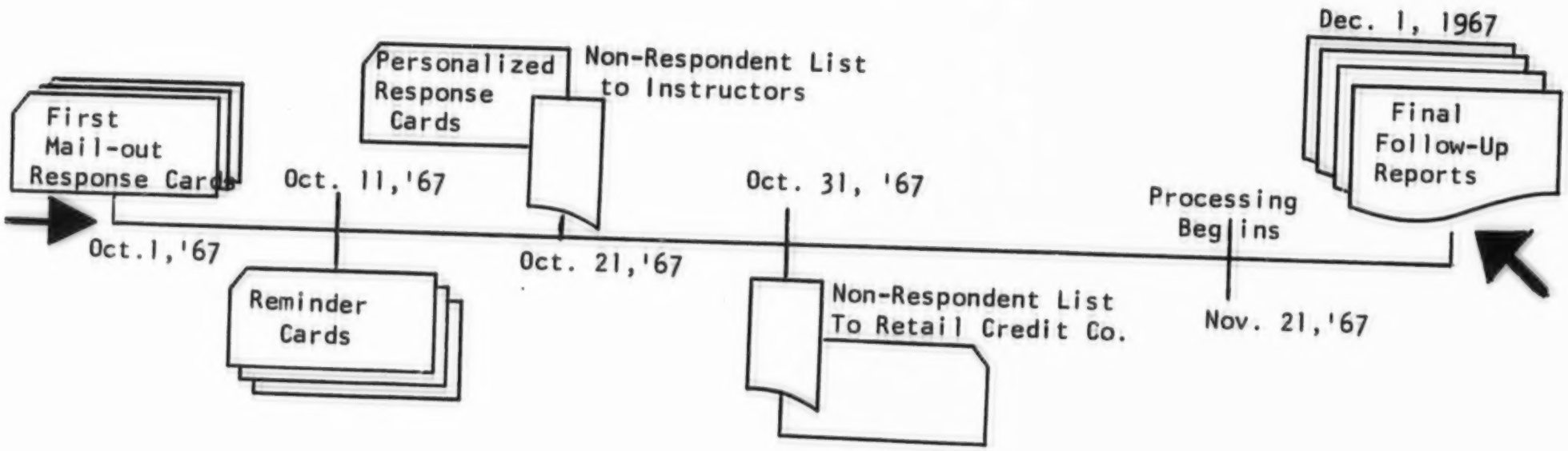
12. Used as a means of identifying strengths and weaknesses in local programs.

FOLLOW-UP STUDY
A General Flow Chart



Timetable of Follow-Up

EXECUTION



This is an example of the schedule which would be followed if the Follow-Up system were to be adopted. This schedule of Execution would include student exits from vocational preparatory courses between Oct. 1, 1966 and July 31, 1967.

CHANGE OF STATUS FORM

FOLLOW-UP

PLEASE PRINT OR TYPE

NO.

THIS FORM MUST BE USED WHENEVER THERE IS A KNOWN STA
CHANGE ON A FORMER STUDENT. FOR EXAMPLE: CHANGE
ADDRESS, NAME, EMPLOYER, OCCUPATION; OR NEW INFORMATI
OR DELETED INFORMATION.

ALWAYS INCLUDE STUDENT'S NAME, SOCIAL SECURITY NO., COURSE, CODE AND SCHOOL CODE

STUDENT NAME: LAST | FIRST | MIDDLE INITIAL | SOCIAL SECURITY NO. | COURSE CODE | SCHOOL CO

FILL IN BELOW ONLY INFORMATION THAT HAS CHANGED

ADDRESS

CITY & STATE

TELEPHONE NO.

EMPLOYER

ADDRESS

CITY & STATE

BUSINESS TELEPHONE NO. | JOB TITLE (NEW)

D.O.T. CODE | S.I.C. CODE

IS THIS OCCUPATION FOR WHICH TRAINED? YES ☐ NO ☐ RELATED ☐

FORM NO. FU-2

COURSE TITLE

IS STUDENT CONTINUING SCHOOL FULL TIME? ☐ YES ☐ NO

IF YES, IS STUDENT ENROLLED IN ☐ ACADEMIC ☐ VOCAT. PREP. ☐

STUDENT GOING ON ACTIVE DUTY IN ARMED FORCES ☐

STUDENT HAS RETURNED FROM ARMED FORCES ☐

OTHER CHANGES OR DELETIONS:

THIS FORM MAY BE USED TO CORRECT ERRONEOUS DAT

MAIL ORIGINAL TO: FOLLOW-UP
P. O. BOX 248, OLYMPIA, WASH.

STUDENT EXIT FORM

FOLLOW-UP

FORM NO. FU-1

MAIL ORIGINAL TO: FOLLOW-UP
P. O. BOX 248, OLYMPIA, WASH.

NO.

THE DATA ON THIS FORM WILL BE USED
IN VOCATIONAL FOLLOW-UP STUDIES

PLEASE PRINT AND COMPLETE IN FULL

STUDENT NAME: LAST | FIRST | MIDDLE INITIAL

ADDRESS

CITY & STATE

TELEPHONE NO. | DATE OF BIRTH: MONTH - DAY - YEAR | MALE | FEMALE

AT WHAT OTHER ADDRESS CAN WE CONTACT YOU?

CARE OF

ADDRESS

CITY & STATE

CURRENT EMPLOYER (IF ANY)

EMPLOYER'S ADDRESS

CITY AND STATE | IS THIS OCCUPATION FOR WHICH CURRENTLY TRAINED ☐ YES ☐ NO ☐ RE-LATED

BUSINESS TELEPHONE | JOB TITLE

SOCIAL SECURITY NO. | COURSE CODE | SCHOOL C

TYPE OF STUDENT CODE (REHAB. PL815 ETC.) | ADULT | HIGH SCH

COURSE IN WHICH ENROLLED

TOTAL COURSE HOURS | HOURS STUDENT COMPLETED | EXIT DATE: MONTH DAY YE

AT EXIT, IS STUDENT EMPLOYABLE IN OCCUPATION FOR WHICH TRAINED? ☐ YES ☐ NO

D.O.T. CODE | S.I.C. CODE

IS STUDENT CONTINUING SCHOOL FULL TIME? ☐ YES

IF YES, IS STUDENT ENROLLED IN ☐ ACADEMIC ☐ VOCAT. PREP.

STUDENT GOING ON ACTIVE DUTY IN ARMED FORCES ☐ YES

REASON STUDENT IS LEAVING (IF CONFIDENTIAL LEAVE BLANK)

INSTRUCTIONS

REFER TO CODE MANUAL FOR CORRECT CODES. CAREFULLY DC
CHECK THAT CORRECT CODE IS USED. BATCH ASSEMBLE AN
TABLISH CONTROL. TRANSMIT EVERY 10 DAYS TO FOLLO
P. O. BOX 248, OLYMPIA, WASHINGTON. PRINT ALL ENTRIES
COMPLETE IN FULL. IF NOT FILLED IN COMPLETELY IT WI
RETURNED FOR COMPLETION.

INSTRUCTOR'S COPY

FORM NO. FU-3

STUDENT FOLLOW-UP

INSTRUCTOR'S RECORD

SCHOOL _____

COURSE _____

DATE ISSUED _____ PAGE _____

STUDENT NAME & ADDRESS			EMPLOYER NAME & ADDRESS		USE THIS AREA FOR NOTES. NEW ADDRESSES OF STUDENT OR EMPLOYER
TELEPHONE	EXIT DATE		BUSINESS PHONE	POSITION	
BIRTH DATE	ARMED FORCES	CONTINUING SCHOOL	DATE HIRED	DATE LEFT	

STUDENT NAME & ADDRESS			EMPLOYER NAME & ADDRESS		USE THIS AREA FOR NOTES. NEW ADDRESSES OF STUDENT OR EMPLOYER
TELEPHONE	EXIT DATE		BUSINESS PHONE	POSITION	
BIRTH DATE	ARMED FORCES	CONTINUING SCHOOL	DATE HIRED	DATE LEFT	

STUDENT NAME & ADDRESS			EMPLOYER NAME & ADDRESS		USE THIS AREA FOR NOTES. NEW ADDRESSES OF STUDENT OR EMPLOYER
TELEPHONE	EXIT DATE		BUSINESS PHONE	POSITION	
BIRTH DATE	ARMED FORCES	CONTINUING SCHOOL	DATE HIRED	DATE LEFT	

STUDENT NAME & ADDRESS			EMPLOYER NAME & ADDRESS		USE THIS AREA FOR NOTES. NEW ADDRESSES OF STUDENT OR EMPLOYER
TELEPHONE	EXIT DATE		BUSINESS PHONE	POSITION	
BIRTH DATE	ARMED FORCES	CONTINUING SCHOOL	DATE HIRED	DATE LEFT	

STUDENT NAME & ADDRESS			EMPLOYER NAME & ADDRESS		USE THIS AREA FOR NOTES. NEW ADDRESSES OF STUDENT OR EMPLOYER
TELEPHONE	EXIT DATE		BUSINESS PHONE	POSITION	
BIRTH DATE	ARMED FORCES	CONTINUING SCHOOL	DATE HIRED	DATE LEFT	

STUDENT NAME & ADDRESS			EMPLOYER NAME & ADDRESS		USE THIS AREA FOR NOTES. NEW ADDRESSES OF STUDENT OR EMPLOYER
TELEPHONE	EXIT DATE		BUSINESS PHONE	POSITION	
BIRTH DATE	ARMED FORCES	CONTINUING SCHOOL	DATE HIRED	DATE LEFT	

OTHER NOTES. _____

PLEASE NOTIFY OFFICE IF THERE IS AN ERROR ON THIS REPORT OR ANY CHANGE IN STATUS OF THE FORMER STUDENT: SUCH AS CHANGE OF ADDRESS, NAME, EMPLOYER, MILITARY, ETC. USE CHANGE OF STATUS FORM FU-2 FOR ANY AND ALL CHANGES IN THE STATUS OF A STUDENT.

FOLLOW-UP

NAME OF FORMER STUDENT	SOCIAL SECURITY NUMBER	COURSE NO.	SCH. CODE	NAME OF COURSE

YOUR SCHOOL NAME

SEE REVERSE SIDE

FORMER STUDENT: THIS IS YOUR FOLLOW-UP QUESTIONNAIRE. PLEASE RESPOND & MAIL WITHIN 10 DAYS.

PLEASE ANSWER QUESTIONS TO THE BEST OF YOUR ABILITY. PLACE CARD IN ATTACHED ENVELOPE & MAIL WITHIN 10 DAYS.

PLEASE USE REVERSE SIDE FOR:

1. YOUR COMMENTS
2. YOUR CURRENT ADDRESS.
3. YOUR CURRENT EMPLOYER.

1. ARE YOU ON ACTIVE DUTY IN THE ARMED FORCES? ▶ YES ☐ NO ☐
   (PARENTS, WIVES, RELATIVES AND FRIENDS MAY REPLY IF ABOVE IS YES)
2. ARE YOU PRESENTLY ENROLLED FULL TIME IN ▶ COLLEGE–4 YR. ☐ 2 YR. ☐ VOC.-TECH. ☐
   (CHECK ONLY ONE BOX PLEASE)
3. ARE YOU EMPLOYED IN THE OCCUPATION FOR WHICH YOU WERE TRAINED?
   ▶ (CHECK ONLY ONE BOX) ▶ YES FULL TIME ☐ PART TIME ☐ NO ☐ RELATED FULL TIME ☐ PART TIME ☐
4. IF ANSWER TO QUESTION NO. 3 IS NO, THEN, ARE YOU EMPLOYED FOR WAGES? FULL TIME ☐ PART TIME ☐ NOT AT ALL ☐
5. DO YOU BELIEVE YOU WERE HIRED BECAUSE OF YOUR TRAINING? ▶ YES ☐ NO ☐
6. DO YOU FEEL YOUR TRAINING IS IMPORTANT TO YOUR JOB SUCCESS? ▶ YES ☐ NO ☐
7. WHAT WAS YOUR BEGINNING SALARY AFTER TRAINING? ▶ $_____ (MONTHLY RATE) PRESENT $_____ (MONTHLY RATE)
8. DID YOU SEEK EMPLOYMENT IN OCCUPATION FOR WHICH YOU WERE TRAINED ▶ YES ☐ NO ☐
9. DO YOU PLAN TO TAKE ADDITIONAL VOCATIONAL TRAINING? ▶ YES ☐ NO ☐

FOLLOW-UP QUESTIONNAIRE (REVERSE SIDE)

THE FOLLOWING TWO QUESTIONS ARE OPTIONAL:

10. WHAT IS YOUR PRESENT OCCUPATION? _____ (JOB TITLE)
11. WHAT ABILITIES OR SKILLS WERE NEEDED ON THE JOB THAT WERE NOT INCLUDED IN YOUR TRAINING? _____

YOUR PRESENT HOME ADDRESS (IF DIFFERENT THAN OUR RECORDS)

STREET OR BOX # _____

CITY, STATE _____

_____ ZIP _____

YOUR PRESENT EMPLOYER (IF CONFIDENTIAL, LEAVE BLANK)

FIRM NAME _____

ADDRESS _____

CITY & STATE _____ ZIP _____

YOUR COMMENTS (IF ANY) _____

THANK YOU. YOU HAVE PERFORMED A VALUABLE SERVICE TO YOUR INSTRUCTOR, SCHOOL, AND STATE.

PARENTS, WIVES, RELATIVES OR FRIENDS MAY REPLY IF ADDRESSEE IS IN ARMED FORCES OR INCAPACITATED.

YOUR PROMPTNESS IN RETURNING THIS QUESTIONNAIRE IS IMPORTANT. PLEASE ANSWER QUESTIONS AND MAIL IN ATTACHED ENVELOPE WITHIN 10 DAYS. THANK YOU.

VT 001 735

VT 001 735 ED 011 044

Guidelines for Cooperative Education and Selected Materials from the National Seminar Held August 1-5, 1966, A Manual for the Future Development of Cooperative Education.

Huffman, Harry

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

67

EDRS Price MF-$0.36 HC-$9.80 245p.

*GUIDELINES, COORDINATORS, *COOPERATIVE EDUCATION, *VOCATIONAL EDUCATION, HIGH SCHOOLS, BIBLIOGRAPHIES, HISTORICAL REVIEW, ON THE JOB TRAINING, EDUCATIONAL OBJECTIVES, ADVISORY COMMITTEES, BOARD OF EDUCATION POLICY, VOCATIONAL GUIDANCE, SCHOOL POLICY, *PROGRAM GUIDES, ADMISSION CRITERIA, EMPLOYERS, PSYCHOEDUCATIONAL PROCESSES, *SEMINARS, PROGRAM DEVELOPMENT, PUBLIC RELATION, PROGRAM EVALUATION, SOCIOECONOMIC INFLUENCES, AUDIOVISUAL AIDS,

Job Corps,

The objectives of the seminar were to promote the use of cooperative education in all vocational services and to explore the possibilities of inter-service training for occupations requiring knowledge and skills from several areas. It was attended by over 110 state leaders from 41 states. The guidelines are organized in five groups dealing with the school, the teacher-coordinator, the program, the student-trainee, and the employer. Seventeen papers include -- (1) "Impending Social, Economic, and Employment Changes that May Affect Cooperative Education," by Joseph W. Hines, (2) "Cooperative Education as a Policy of the National School Boards Association," by Joseph Ackerman, (3) "Establishment, Organization, and Operation of Cooperative Education," by Robert M. Worthington, and (4) "Some Questions that Need to be Answered About the Training of Coordinators," by Jeffrey R. Stewart, Jr. The appendix contains -- (1) speaker-consultant biographical sketches, (2) the seminar program, (3) forms for organizing the seminar, (4) a selected bibliography, (5) forms for administering cooperative education, (6) a roster of the 147 seminar participants, and (7) a questionnaire used to gather information from selected cooperative education programs. (EM)

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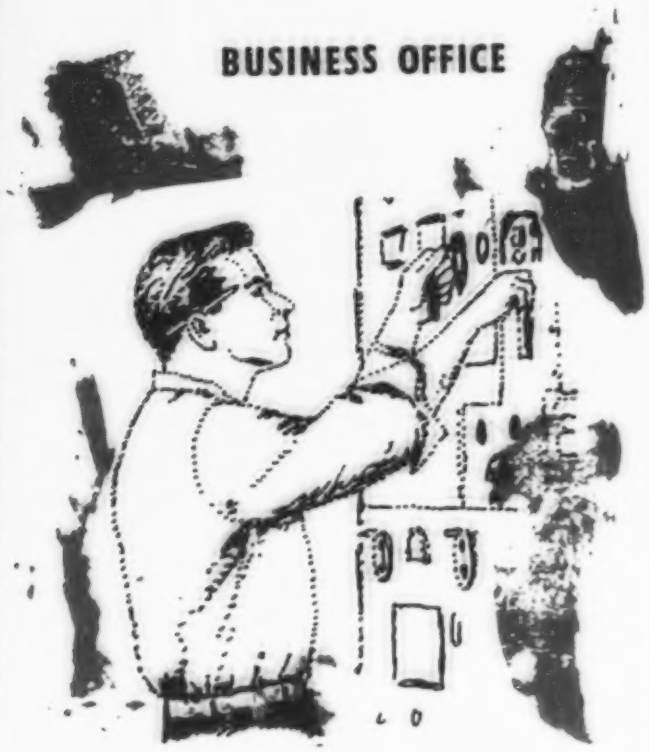
Guidelines in Cooperative Education

INTERRELATED EDUCATION EXPERIENCES

BUSINESS OFFICE



INDUSTRIAL AND TECHNICAL

OFF-FARM AGRICULTURE

SALES AND DISTRIBUTION

HOME ECONOMICS

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The Center for Vocational and Technical Education
The Ohio State University · 980 Kinnear Rd · Columbus Ohio 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

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GUIDELINES FOR COOPERATIVE EDUCATION AND SELECTED MATERIALS FROM THE NATIONAL SEMINAR HELD AUGUST 1-5, 1966.

A MANUAL FOR THE FURTHER DEVELOPMENT OF COOPERATIVE EDUCATION

Harry Huffman, Coordinator
Specialist in
Business and Office Education

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
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1967

PREFACE

The concept of cooperative education in vocational and technical education is certainly not new. However, recent trends in the world of work and in education provide compelling reasons for "sharpening" our concepts and broadening our perspective and application of this methodology to more occupational training areas and to different levels of preparation.

Toward this end and at the suggestions of state and national leaders, the National Seminar on Cooperative Education was planned for August 1 to 5, 1966, at The Center. The seminar was designed to prepare guidelines for encouraging, developing, improving, and expanding cooperative education programs for high school and post-high school youth. Personnel from the U. S. Office of Education, Division of Vocational and Technical Education, Center specialists in all of the service areas, state vocational education leaders, and other nationally recognized consultants contributed to its planning and execution. The seminar designed primarily for personnel in state leadership positions (e.g., supervision, teacher education, curriculum, research) in all of the service areas drew participants from 41 states.

This report is a distillation of the discussion, interaction, and conclusions that were drawn from the meeting. The contribution and suggestions made by seminar participants were particularly valuable. It is hoped that the report will provide material assistance to state staff members in improving and extending effective cooperative education programs in their states. A number of states have indicated plans for conducting state-wide workshops for personnel.

Special recognition is due Harry Huffman, Specialist in Business and Office Education at The Center, who served as Seminar Chairman; C. B. Hurst, Cooperative Education Consultant for The Center (formerly Director of Vocational Education, and Principal of Patterson Cooperative High School, Dayton, Ohio); and Franklin H. Dye, Research Associate in Business and Office Education at The Center.

The reviewers of the guidelines were E. Max Eddy, Professor and Chairman, Department of Industrial Education, School of Technology, Purdue University, Lafayette, Indiana; Ralph E. Mason, Chairman, Business and Distributive Education, Indiana State University, Terre Haute, Indiana; Calvin J. Cotrell, Specialist in Trade and Industrial Education, The Center for Vocational and Technical Education; and Neal E. Vivian, Specialist in Distributive Education, The Center for Vocational and Technical Education.

Robert E. Taylor
Director
The Center for Vocational and
Technical Education

FOREWORD

During the next five years there will be a tenfold increase in the number of youth involved in cooperative education. In view of this impending growth, The Center sponsored a national interdisciplinary seminar on cooperative education on August 1 to 5, 1966, for state directors and supervisors of vocational education and teacher education personnel.

The objectives of the seminar were to promote and expand the use of the principle of cooperative education by all the vocational services and through an inter-service effort to explore the possibilities of providing training for youth preparing for new and emerging occupations which require knowledge and skills from several vocational disciplines. Examples of new and emerging occupational areas include turf management, data processing, child care service, garden center management, pre-sold merchandising operations, nursing and rest home service, outdoor recreational service, supervisor of communications service, electromechanical service and repair, and automatic merchandising.

Speakers, small group discussions, and a specially prepared set of guidelines were used to achieve the objectives of the seminar.

The seminar focused on the cooperative education problems of all the vocational disciplines that are facing state vocational education staff, school administrators, the local community, business and industry, management, and unions.

A strong interest was exhibited by over 110 state leaders of vocational education from 41 states who braved the airline machinists' strike to attend the conference. The keynote banquet speaker was E. F. Laux, Vice President for Marketing of the Ford Motor Company. The presentations given at the conference are reproduced on the following pages. The biographical sketches of the speakers are included in the Appendix. Forms used for organizing the small groups discussions of the seminar are included in the Appendix to help state leaders plan similar conferences.

Several months before the conference a number of on-site school visits were made to gather pertinent data. Eight states were visited and the results are incorporated in the guidelines.

Harry Huffman
Seminar Chairman
The Center for Vocational and
Technical Education

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PART I INTRODUCTION

The Challenges Before Vocational and Technical Education

The most affluent society in the world, the United States, is facing the challenges of unemployment, underemployment, and poverty. Meeting these challenges, we have developed the most advanced technology known to man in the fields of agriculture, business, industry, and the home. But a paradox exists, not enough people are trained to operate, service, rebuild, and develop this mushrooming technology. In addition, there is a need for skilled people to supervise and manage employees. These employment needs combined with the demands of the military establishment present a major challenge to all agencies concerned with education and training of workers. In the October, 1964 issue of the N.E.A. Journal, J. Chester Swanson summarized the challenge to education: "Our political and social survival may depend to considerable extent upon our ability to provide for the adequate employment of our nation's youth. Although the unemployment problem is so big that it must be approached from all angles, vocational education can play a considerable part in providing a solution."

Dr. Swanson defined vocational education "as that part of a school curriculum or those on-the-job activities designed to provide the skills and knowledge which will enable the student to obtain employment or to become a more proficient worker in providing economic security for himself and his family."

Cooperative education can make a substantial contribution toward meeting this unemployment problem. Cooperative education can furnish our most promising hope for a substantial increase in occupational, vocational, and technical education at the secondary level.

Expanding Cooperative Education

Cooperative education in operation for over fifty years can be introduced into many more programs without a substantial outlay of local money. Realistic learning for thousands of young people now enrolled in comprehensive high schools, vocational-technical area schools, technical institutes, and community colleges can come through cooperative education. Its wide and favorable acceptance by leaders in education, business, and industry is based upon a constructive and functional educational philosophy. Finally, in-school instruction and on-the-job training in a cooperative program can lead to full-time employment for the student-trainee after graduation from high school. Federal funds, available through the Vocational Education Act of 1963, have prompted states and local communities to develop new programs and improve existing programs in cooperative education.

Cooperative education is a well-developed instructional program which requires a teacher-coordinator to organize the learning activities of student-trainees around their career interests and goals. He

coordinates classroom instruction with on-the-job experience. While on the job, student-trainees learn to work with adults and to develop the essential attitudes of respect and responsibility. School administrators, parents, and employers all know that cooperative education can help train young people in a wide variety of occupations. Even students realize the usefulness of cooperative education.

The number and the kinds of cooperative programs have increased in number in recent years. Yet, many communities have not utilized this practical learning approach. The educators in these communities should review the advantages of cooperative education for the student, school, employer, and community so that the educational needs of the young people can be met.

Plan for the Future

According to the Panel of Consultants on Vocational Education, eight out of ten youngsters now in grade schools will not complete college. This need for practical and meaningful programs to satisfy the educational requirements of those who do not complete college can be met by providing a wide range of learning opportunities for students in every ability level. When learning opportunities are increased the number of drop-outs should be reduced. Learning opportunities can be increased in a program which includes:

1. A complete guidance program which includes a survey of interests, counseling, testing, and adequate school records.

2. A solid foundation of general education to serve as the base for specialized instruction for an occupation or profession.

3. An adequate program of industrial arts, home economics, general business, and general agriculture to provide realistic exploratory experiences in all major fields of employment.

4. A complete program to develop the pre-employment skills required in the agricultural, home economics, office procedures, sales and service vocations, and industrial occupations.

5. An adequate cooperative education program to assist young people to enter productive employment.

It is obvious that we need an expansion of all types of "practical" education to meet the varied needs of young people. In most situations, it is not enough to have one or two cooperative programs in a comprehensive high school. We need a total vocational program in which the cooperative phase is only a part.

Interrelated Services Important

In the years ahead we should give more attention to the ways and means of utilizing all the vocational services to satisfy the educational needs of youths and adults. Attention should be given not only to the expansion of existing programs of agricultural, distributive, trade and industrial, office, and home economics education, but also to the development of new instructional patterns which can interrelate course content from two or more vocational disciplines. The emphasis, therefore, should be less on course content and more on the job needs of the student so that he can perform effectively on the job. For example, if a trade and industrial student learning the skills of automotive service needs instruction in selling, provision should be made to teach him the selling skills. If a distributive education student needs instruction in office operation, instruction in office skills should be provided. Numerous interrelationships exist between sales, service, production, and distribution. The principal ingredient needed to bring about a strong program of interrelated services is "cooperation" and a vital concern for the development of a functional program of vocational and technical education.

Investment in Individual Development

All education is an investment in the development of the whole individual. Better educated people make a substantial contribution to the work force because they:[1]

1. learn more and earn more;
2. produce more and achieve more;
3. require fewer tax supported public services;
4. have more information and facts upon which to base important decisions;
5. adapt more readily to new developments and new ideas and new methods;
6. appreciate and buy more new products and services;
7. have more faith in a free market economy and our competitive economic system;
8. participate more in representative government.

On the other hand, the uneducated are often dependent upon society for the bare necessities of life, which affects the economy of their community.

---

[1]Adapted from Special Supplement, Washington Report, August 24, 1962, Chamber of Commerce.

Description and Objectives of Cooperative Education

Distinction Between Work-Experience Programs and Cooperative Education

In the minds of some people cooperative education is not greatly distinguished from work-experience education. A fairly clear differentiation can be made.

Work-experience education has a number of diffuse, general objectives. For example, work experience has been introduced in a variety of worthwhile educational programs conducted for various purposes and in different forms. These programs would be individually defined according to their nature, purpose, procedures, and substance and range from efforts to propose new approaches to curricula.

The cooperative program, which also contains the element of work experience, is specifically defined. It is a program of vocational education developed jointly by the school and business or industry in which job skills and job adjustment are secured through an organized sequence of job experiences in paid part-time employment and through classroom experiences in related instruction.

Uniquely, cooperative education helps the student to:

1. Select an appropriate field of work or an occupation;

2. Learn skills of an occupation under actual conditions of an employment and production;

3. Gain technical and related information which will enable the learner to engage in the work of the chosen occupation intelligently, safely, and confidently;

4. Make adjustment to the real employment setting including responsibilities, relations with other workers, and acceptance of supervision;

5. Make optimal application of school learning to a vocation and of job learning to school work;

6. Learn to assume adult responsibilities in work, in relation to peers, and in his community.

Seven Types of Cooperative Programs

1. Cooperative Programs in Business and Office Education

Cooperative office programs provide classroom instruction and on-the-job training to develop vocational competency in office skills, knowledges, and understandings. These programs are intended to prepare the student for initial employment and for

advancement on the job. Given prior to the time of employment at a training station, the instruction includes courses such as typewriting, shorthand, transcription, bookkeeping, and machine operation. During the time of training-station employment, the student's classroom work includes directly related instruction such as office procedures, which includes clerical procedures; calculating, duplicating, and transcribing machines; filing; cashier, sales, purchases, payroll, and stockroom procedures; and business correspondence and other communications.

2. Cooperative Programs in Distributive Education

Cooperative programs in distributive education are designed to prepare students for entry occupations and for promotion to positions of increased responsibility in the various areas of marketing, including wholesaling, retailing, and service industries. The programs take several forms, but most commonly, the students are employed at training stations on a half-day basis during their senior year in high school. In some cases the necessary courses in marketing and salesmanship are completed in the junior year as pre-employment classes, followed by related instruction and on-the-job training in the senior year.

Senior high school programs primarily utilize retail store training placements. Post-high school and community college programs use wholesale businesses, big-ticket departments of retail stores, and direct sales placements.

3. Cooperative Programs in Home Economics

In home economics, increased emphasis is now being placed on program development specifically geared to preparing students for employment. Typical occupations for which cooperative home economics programs are used include the food service area, clothing maintenance, hotel and motel service, and child care. The main objectives of cooperative education efforts in home economics are: to prepare students to obtain specific jobs using the technical skills of home economics; to assist students in developing personal characteristics that are necessary in the world of work; to alert students to the possible job opportunities in the home economics field; and to help business and industry become aware of the assistance that the school can give through cooperative job training in home economics related occupations.

4. Cooperative Programs in Trade and Industrial Education

Cooperative programs in industrial education are designed to prepare students for entry jobs in the skilled trades or other skilled industrial occupations.

The in-school phase involves instruction in both general employment information common to all vocations and trade theory which is applicable to the occupation or trade in which the student is employed. The emphasis is on the acquisition of specialized skills and knowledge needed for trades which demand in-depth instruction. These programs are sometimes called Diversified Cooperative Training (D.C.T.) or Industrial Cooperative Training (I.C.T.) because the students in one class are employed in training stations representing several different trades.

In some large cities or in area schools, instruction may be organized according to trade areas or by occupational families, e.g., automotive, drafting, and printing. In these schools the teacher-coordinator may teach the pre-vocational (sometimes called pre-employment) classes or tenth grade shop and the related technical information for those who are employed on a cooperative job. Under this plan the vocational drafting teacher-coordinator would teach the tenth year pre-vocational students two or three periods and the eleventh or twelfth year employed students one period each day. An important part of the school day must be devoted to on-the-job coordination. Usually such programs follow the alternating plan where the student is in school one, two, or three weeks and on the cooperative job a similar period.

Cooperative programs in industrial education may be suggested for those who wish to pursue a college major in industrial education; those who plan to enroll in industrial or technical programs on the post-high school level; and those who want to work full time immediately following high school graduation.

5. Cooperative Off-Farm Agriculture Programs

There are many occupations in which agricultural competencies are needed in addition to farming. Examples include: elevator operations, farm equipment, feed and fertilizer sales, farm produce, and livestock brokerage operation. On-the-job, supervised occupational experience in conjunction with related classroom learning experiences can be one of the answers to providing competent people for their entry into agriculture-related off-farm occupations. Provisions of the Vocational Education Act of 1963 have increased the number of schools providing programs of this type; these can be developed for area schools and community colleges as well as local high schools.

6. Combination or Interrelated Cooperative Programs

In many communities, cooperative programs are in operation which involve students employed in several vocational fields, including the office, distributive, trade and industrial, off-farm agricultural, and home economics-oriented occupations. In some states these programs are called diversified vocational programs. In other states these are called cooperative occupational education programs. Programs of this type are best suited to small

high schools in rural areas where there are neither enough students nor enough acceptable training stations in single occupational areas to justify separate programs.

Although interrelated or diversified programs embody the basic principles common to all cooperative education programs, some special problems do exist. To operate a program that is truly vocational cooperative, directly related instruction in the classroom must be coordinated with the on-the-job experiences. The coordinator must be familiar with and have had work experience in several vocational fields. In addition there is the problem of developing and using the great variety of individualized instructional materials that must supplant the usual group methods used in specific or unit type programs.

7. Special Purpose Programs

As school administrators learn more about the advantages and the operating details of cooperative education, we will see more special purpose programs developed. An example of this type may be found in a specialized program organized to train gasoline station attendants. Such programs involve instruction from the trade and industrial field as well as sales and service. It is also advisable to include recordkeeping, typing, or similar business office skills.

"Special purpose" cooperative programs might be considered for physically handicapped, retarded, and inter-city youth.

Common Elements in All Cooperative Education

A major thesis of these guidelines for cooperative education is that a great commonality exists in vocational cooperative programs. The overriding purpose is to develop occupational competence through classroom work carefully coordinated with on-the-job experiences.

Many other concepts are an integral part of cooperative education. These include (1) paid employment whereby the student-employee experiences are that of a full-fledged employee rather than as an observer or aid, (2) the employment of a teacher-coordinator especially trained in coordination techniques with experiences in the vocational fields for which he is responsible for instructing and guiding a student-trainee, and (3) the use of consulting or advisory committees in order to bring joint thought and planning to bear on school and community problems.

Business and distributive fields are being combined with agriculture to develop many fine agricultural business cooperative programs. In several places around the country, home economics programs are being developed in connection with other service areas. This adheres to the "student centered" approach which is inherent in the Vocational Education Act of 1963 and can probably be the area in which cooperative education will make its greatest contribution to the further development of a total program of vocational and technical education.

Advantages of the Cooperative Plan to the Student, School, Employer, and Community

The Student

1. Provides a realistic learning setting in which the student may discover his true interests and abilities.

2. Develops a good understanding of employment opportunities and responsibilities through direct on-the-job experience.

3. Exposes students to basic information regarding business, industry, and off-farm agriculture needed for intelligent life choices.

4. Develops work habits and attitudes necessary for individual maturity and job competence.

5. Provides a laboratory for developing marketable skills.

6. Gives meaning and purpose to the theoretical and practice assignments presented in the school situation.

7. Provides first-hand experience with other employees which leads to a better understanding of the human factors in business and industry.

8. Provides financial rewards while learning employment skills and understanding.

9. Provides an opportunity to participate in and profit by two types of learning environment--school life and employment.

10. Provides an effective test of aptitude for chosen field of work.

The School

1. Enlarges the learning facilities available for students enrolled without a major expenditure for shop and laboratory equipment.

2. Brings business, industry, agriculture, and the school together in a training effort to develop a strong vocational program.

3. Brings to the school at a low per capita cost a wealth of social and technical information which may be used as the basis for effective instruction for the varied needs of the students.

4. Gives the school an effective means of evaluating its over-all instructional program.

5. Increases the holding power of the school by helping students clarify career goals and providing a practical means of reaching them.

The Employer

1. The employer becomes a partner in selecting, instructing, and training young workers in the skills and understandings needed for effective job performance.

2. The employer has the assistance of the school in instructing and counseling the cooperative student during the transition and adjustment period from school to the job.

3. As follow-up studies show, employers retain a large percent of cooperative students after graduation in positions of real responsibility and leadership.

4. Employers participate in keeping in-school and on-the-job instruction consistent with current practice in business, industry, and agriculture.

5. Employers are a source of new workers who are receptive to instruction.

6. Employers have the advantage of hiring workers with a basic understanding of the technology of the trade, including advanced mathematics and applied science, which give the worker the "know-why" as well as the "know-how."

7. Employers are supplied with selected and motivated workers who have chosen a career in keeping with their interests and aptitudes.

8. Employers are often relieved of some of their training problems.

9. Employers are provided an opportunity to render an important public service.

The Community

1. Provides an effective means of developing young people for productive citizenship in the community.

2. Increases the economic health of the community as companies are able to meet their needs for skilled workers.

3. Provides a method of introducing high school students to the local employment opportunities.

4. Provides an opportunity to develop a unified community training program.

5. Provides specialized training in a variety of occupations at a reasonable cost to the community.

6. Promotes closer cooperation and understanding between the community and its schools.

7. Encourages students to remain in the home community after graduation and promotes a more stable work force.

A Chronological History of Cooperative Education and Federal Legislation Affecting Cooperative Education

1906 - Cooperative education inaugurated at the University of Cincinnati by Dean Herman Schneider. The first program in engineering was a combination of work and study as integral parts of the educative process.

1909 - High school program of work experience education established at Fitchburg, Massachusetts, in cooperation with the General Electric Company.

1910 - High school cooperative courses established in the Cincinnati, Ohio public schools.

1911 - Experimental high school cooperative program established at York, Pennsylvania.

1912 - First retail cooperative training program in Boston, Massachusetts high schools organized by Mrs. Lucinda Wyman Prince.

1914 - High school cooperative instruction established at Dayton Cooperative High School, Dayton, Ohio.

1915 - High school cooperative programs established in ten New York City schools.

1917 - Passage of Smith-Hughes Act, Public Law 347, 64th Congress. Approved February 23, 1917, a month and a half before U. S. entered World War I. Provided approximately $7 million annually, as a permanent appropriation for vocational education in agriculture, trades and industry, home economics, and teacher training. The Federal Board of Vocational Education recognized cooperative courses and encouraged schools to establish these courses.

1921 - College plan of alternating study and work periods adopted by Antioch College, Yellow Springs, Ohio. This plan is currently in use at over 75 colleges.

1929 - Passage of George-Reed Act, Public Law 702, 70th Congress. Approved February 5, 1929. A temporary measure that authorized increase of $1 million annually for four years (1930-1934) to expand vocational education in agriculture and home economics.

1931 - Modification of policy for part-time cooperative courses by the Federal Board for Vocational Education.

1933 - Conference at Biloxi, Mississippi arranged by C. E. Rakestraw. From this conference, plans were developed for expanding part-time cooperative education programs.

1934 - Passage of George-Ellzey Act, Public Law 247, 73rd Congress. Replaced the George Reed Act of 1929. Approved May 21, 1934. Authorized an appropriation of $3 million annually for three years, to be apportioned equally for training in agriculture, home economics, and trades and industry.

1936 - Passage of George-Deen Act, Public Law 673, 74th Congress. Approved June 8, 1936. Authorized on a continuing basis an annual appropriation of approximately $14 million for vocational education in agriculture, home economics, trades and industry, and for the first time, distributive occupations.

1946 - Passage of George-Barden Act, Public Law 586, 79th Congress. Amended and superseded the George-Deen Act of 1936. Approved August 1, 1946. Authorized larger appropriation for vocational education than the superseded George-Deen Act of 1936, from $14 million to $29 million annually. Extended provisions of the Smith-Hughes Act and authorized increased annual appropriations to the States. Funds for vocational education were authorized for agriculture, home economics, trades and industry, and distributive occupations.

1957 - Conference on Cooperative Education and the Impending Educational Crisis held at Dayton, Ohio, on May 23 and 24. Conference was sponsored by the Thomas Alva Edison Foundation.

1963 - Passage of Vocational Education Act, Public Law 88-210, 88th Congress. The central purposes of the Act are as follows:[1]

1. To assist states to maintain, extend, and improve existing programs of vocational education.

2. To develop new programs of vocational education.

3. To provide part-time employment for youths who need such employment in order to continue their vocational training on a full-time basis.

4. To provide instruction so that persons of <u>all</u> ages in <u>all</u> communities will have ready access to vocational training or retraining which is of high quality, realistic in relation to employment, and suited to the needs, interests, and ability of the persons concerned. Such persons were identified: (a) those in high school, (b) those who have completed or discontinued formal education

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[1] <u>Vocational Education</u>, The Sixty-fourth Yearbook of the National Society for the Study of Education, Part I, Chicago: The National Society for the Study of Education (5835 Kimbark Avenue, Chicago, Illinois, 60637), p. 200.

and are preparing to enter the labor market, (c) those who have already entered the labor market and who need to upgrade their skills or learn new ones, and (d) those with educational handicaps.

The foregoing Federal acts contributed substantially to the philosophy, organization, and growth of vocational education which included cooperative education.

Definitions Relating to Cooperative Education*

The following definitions will help to clarify the meaning of terms relating to cooperative education:

ADVISORY COMMITTEE - a group of persons, usually outside the educational profession, selected for the purpose of offering advice and counsel to the school regarding the vocational program. Members are representatives of the people who are interested in the activities with which the vocational program is concerned. (See also Craft Advisory Committee.)

COOPERATIVE EDUCATION - a program for persons who are enrolled in a school and who, through a cooperative arrangement between the school and employers, receive part-time vocational instruction in the school and on-the-job training through part-time employment. It provides for alternation of study in school with a job in industry, agriculture, home economics related, or business, the two experiences being planned and supervised by school and employer so that each contributes definitely to the student's development in his chosen occupation. Work periods and school attendance may be on alternate days, weeks, or other periods of time, but the hours at work are during the school day and equal or exceed the hours spent in school during the regular school year. This plan of training is used extensively in various phases of vocational education.

COORDINATING TEACHER (TEACHER-COORDINATOR) - a member of the school staff who teaches the related and technical subject matter involved in work-experience programs and coordinates classroom instruction with on-the-job training.

COORDINATOR (COOPERATIVE EDUCATION) - a member of the school staff responsible for administering the school program and resolving all problems that arise between the school regulations and the on-the-job activities of the employed student. The coordinator acts as liaison between the school and employers in programs of cooperative education or other part-time job training.

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*Definitions are taken from Definitions of Terms in Vocational, Technical, and Practical Arts Education, an American Vocational Association publication.

CRAFT ADVISORY COMMITTEE - a group of local craftsmen, selected from a specific trade or occupation, appointed to advise the school on matters pertaining to teaching the particular occupation. Generally, the committee should include an equal number of representatives of labor and management.

DIVERSIFIED OCCUPATIONS PROGRAM - a high school course in which students are given supervised work experience in any one of a variety of occupations, combined with related classroom instruction. This type of program is suited especially to communities where the need for workers is too limited to justify separate courses for each occupation. This program is usually under the direction of the trade and industrial education division and supervised by a teacher-coordinator.

ON-THE-JOB TRAINING - instruction in the performance of a job given to an employed worker by the employer during the usual working hours of the occupation. Usually the minimum or beginning wage is paid.

WORK EXPERIENCE - employment undertaken by a student while attending school. The job may be designed to provide practical experience of a general characte in the work-a-day world.

WORK EXPERIENCE EDUCATION (OCCUPATIONAL EXPERIENCE) - employment undertaken as part of the requirements of a school and designed to provide planned experiences, in the chosen occupation, which are supervised by a teacher-coordinator and the employer.

WORK STUDY PROGRAM - administered by the local educational agency and made reasonably (to the extent of available funds) to all eligible youths in the area served by such agency. Employment under the program may be for the local educational agency or some other public agency or institution and will be furnished only to students who (a) have been accepted for enrollment as full-time students in an approved vocational education program, (b) need earnings to continue their vocational education, and (c) are at least 15 and less than 21 years of age. No student shall be employed under the program more than 15 hours in any class week or paid more than $45 in any month or $350 in any academic year, except in special cases.

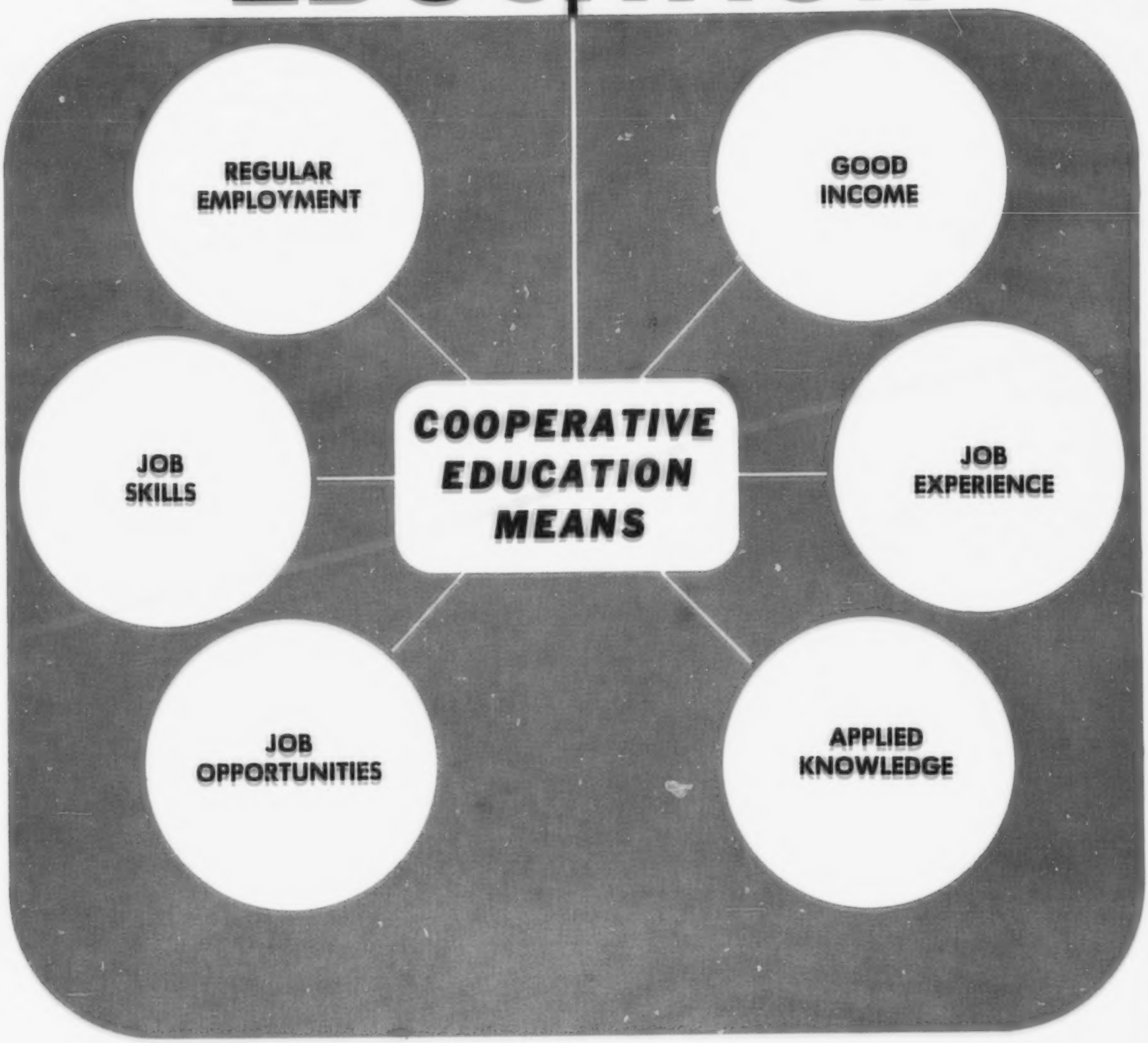
501 to 09

VISUAL AIDS EXPLAINING COOPERATIVE EDUCATION

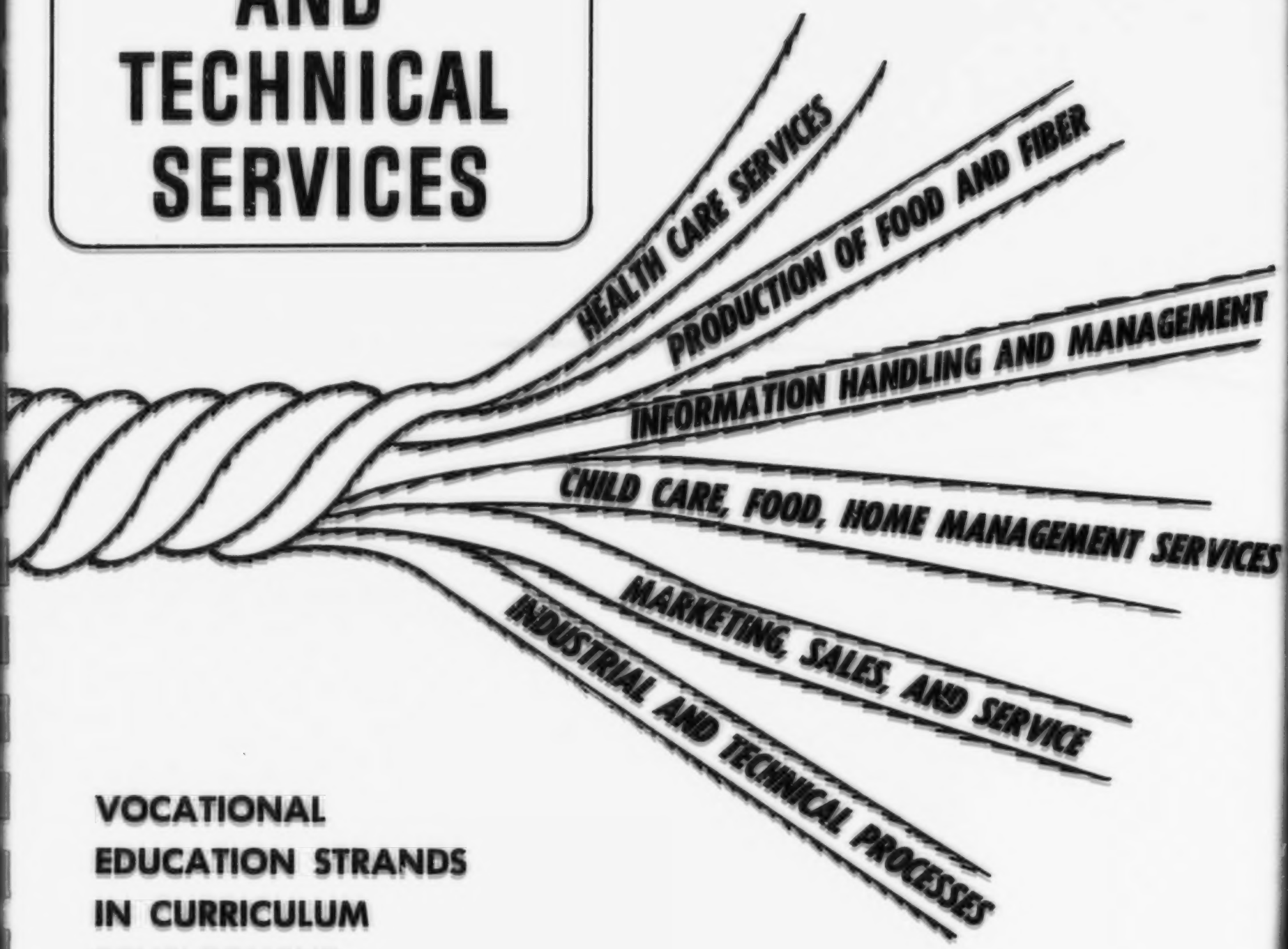
The following visual aids can be used to make transparencies for presenting major concepts about cooperative education.

1. Values of Cooperative Education
2. Vocational Education Strands in Curriculum Development
3. Student Growth through Cooperative Education
4. Alternate School-Work Plan
5. The Teacher-Coordinator in Cooperative Education
6. The Results of Good and Poor Coordination
7. Values of Vocational Experiences

VALUES OF COOPERATIVE EDUCATION



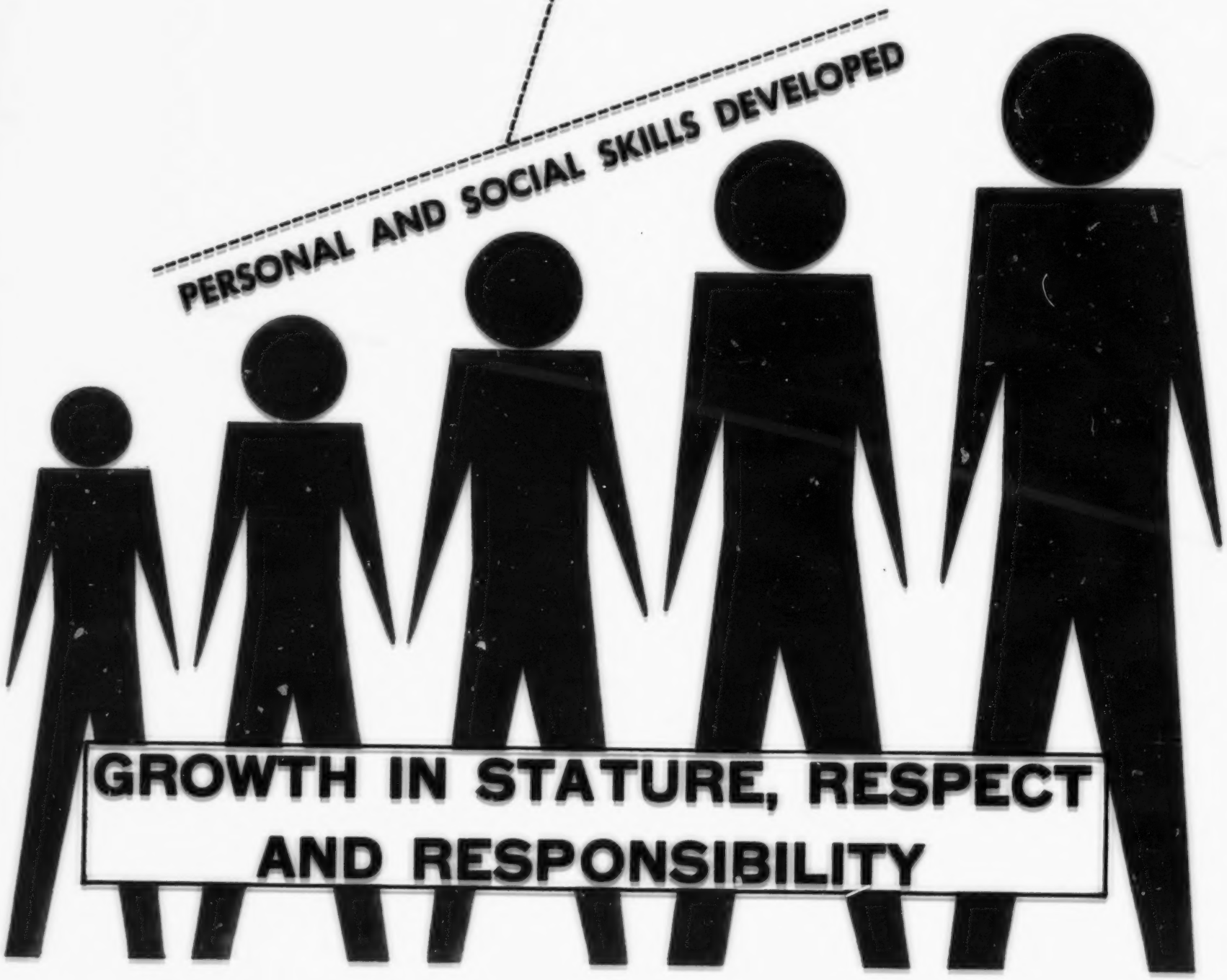
INTERRELATED VOCATIONAL AND TECHNICAL SERVICES



VOCATIONAL
EDUCATION STRANDS
IN CURRICULUM
DEVELOPMENT

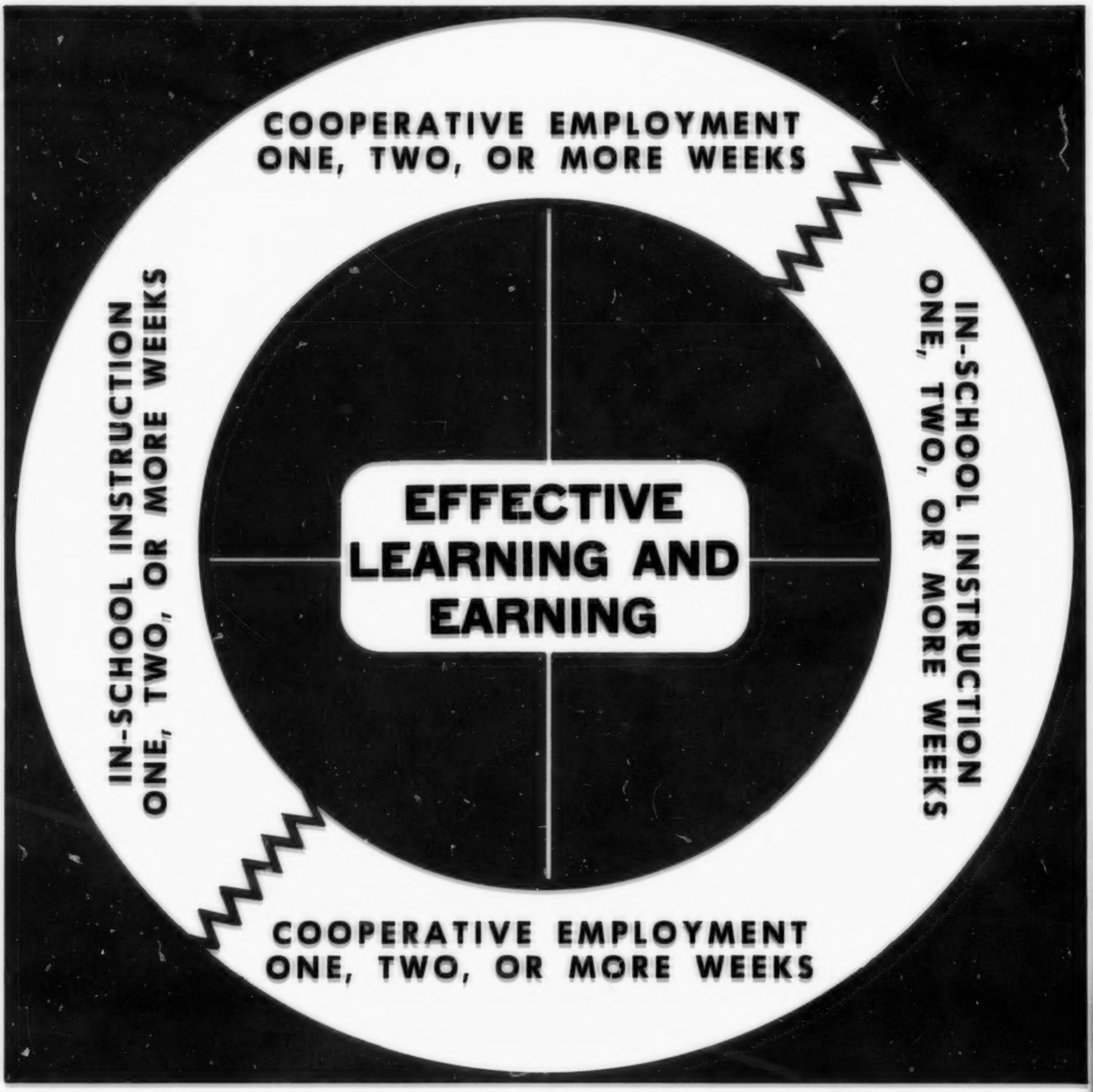
STUDENT GROWTH THROUGH COOPERATIVE EDUCATION

ENLARGING WORLD OF WORK



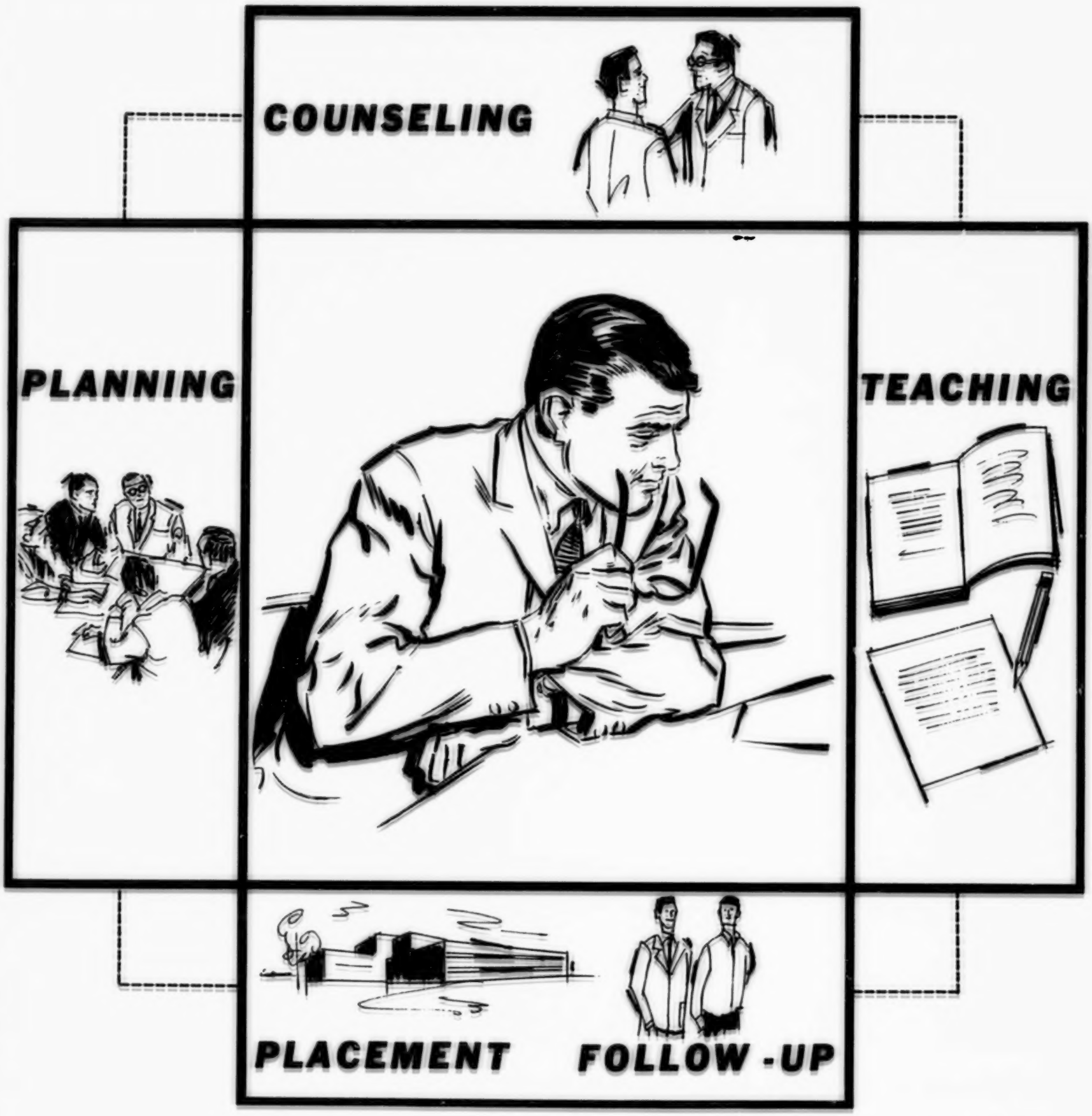
PERSONAL AND SOCIAL SKILLS DEVELOPED IN KEEPING WITH INTERESTS AND AMBITION

ALTERNATE SCHOOL -WORK PLAN

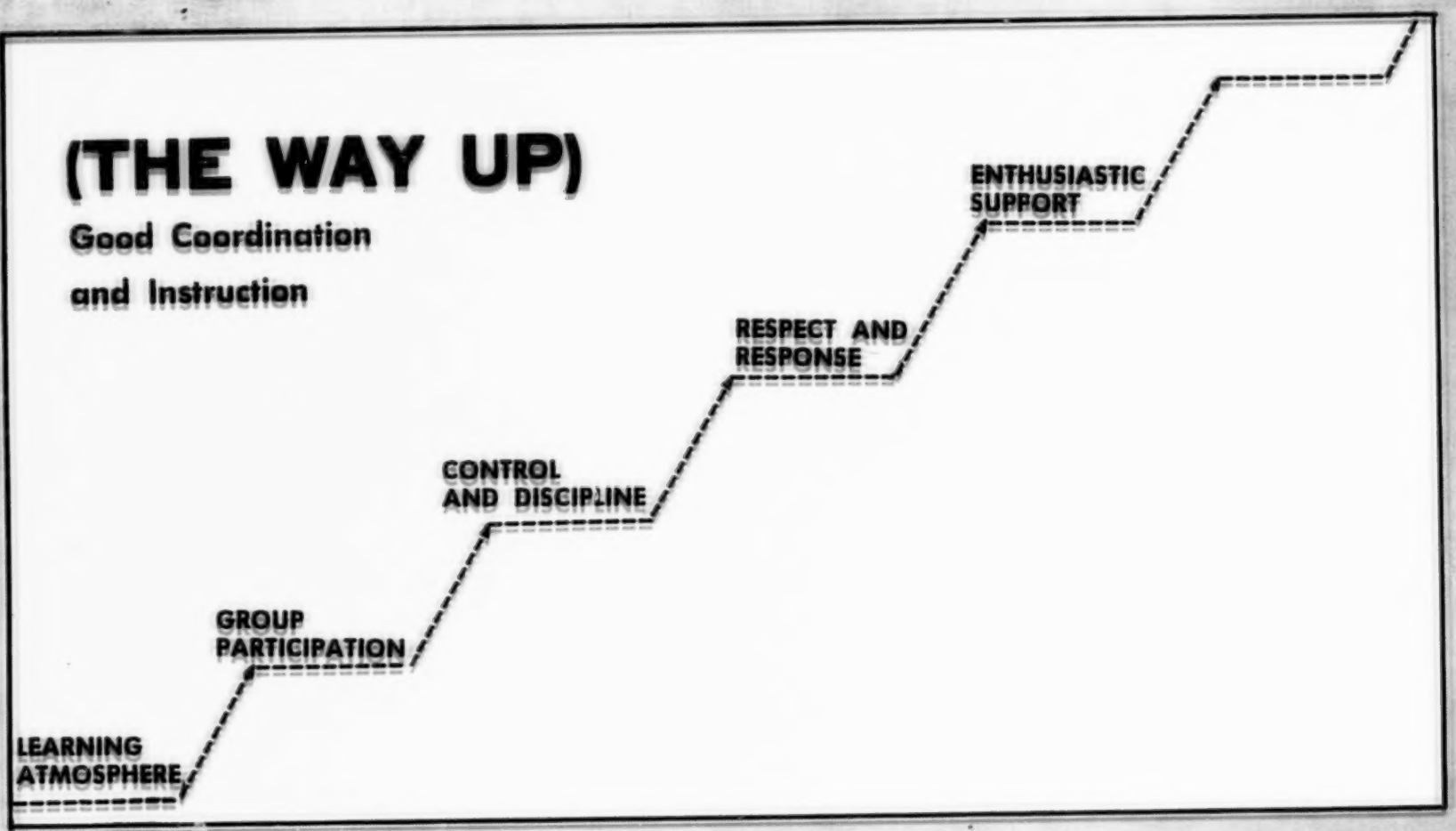


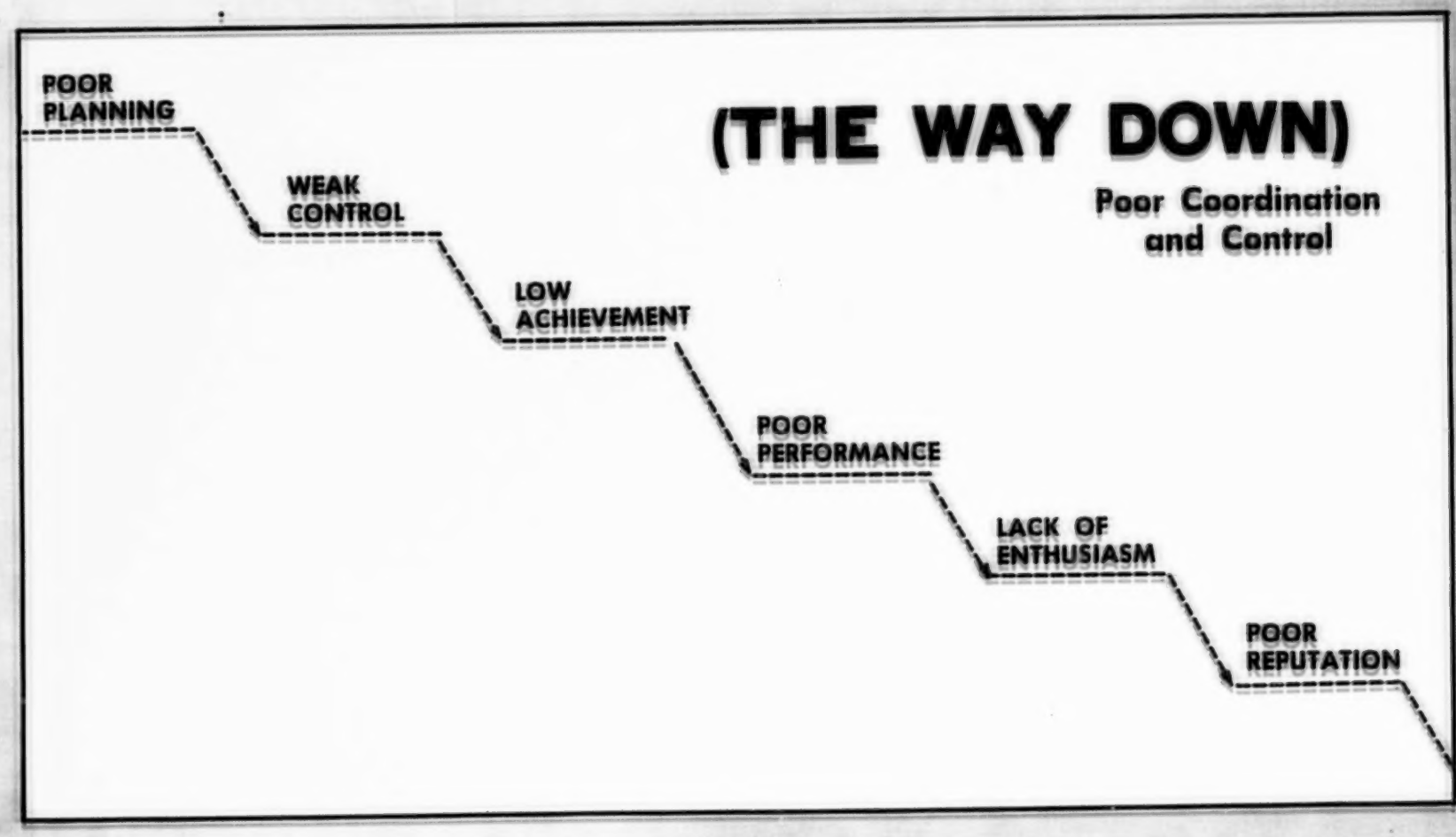
Balanced Learning In School and On-The-Job

The Teacher-Coordinator In COOPERATIVE EDUCATION



THE RESULTS OF GOOD AND POOR COORDINATION





VALUES OF VOCATIONAL EXPERIENCES

ADAPTED FROM "CONE OF EXPERIENCE" FROM AUDIO VISUAL METHODS OF TEACHING BY EDGAR DALE, USED WITH PERMISSION OF THE AUTHOR.

LECTURES ON VOCATIONS

DISCUSSING JOB INFORMATION

VOCATIONAL FILMS

VISITING BUSINESS AND INDUSTRIAL EXHIBITS

VISITING PLACES OF EMPLOYMENT

STUDY OF RELATED TECHNICAL INFORMATION

INSTRUCTION AND PRACTICE IN COMMON SKILLS

INSTRUCTION IN PRE-EMPLOYMENT SKILLS & KNOWLEDGE

DIRECT, PURPOSEFUL ON-THE-JOB EXPERIENCE

(DIRECT EXPERIENCE = GREATEST VALUE)

PART II GUIDELINES FOR COOPERATIVE PROGRAMS

The guidelines in this manual have been prepared to help state staff members define and discuss the place and function of cooperative education in the total school curriculum. They should also be of value to teacher-educators for the preparation of teacher-coordinators. The specific purposes of the guidelines are:

1. To define and clarify the common elements in all cooperative education programs

2. To serve as a guide for the further development of material needed by state staff members and area and local supervisors when they explain, define, and clarify the local plan of cooperative education

3. To encourage the further expansion of cooperative education in schools not being adequately served by vocational programs at the present time

4. To serve as a point of departure in organizing state and area conferences on cooperative education

5. To encourage the development of instructional materials which will strengthen existing cooperative education programs and furnish adequate instructional aids for new programs

6. To encourage the further development of interrelated cooperative programs and foster a close working relationship between all vocational services in expanding cooperative education

It is hoped that the materials of this manual can be useful for planning state workshops. There are no restrictions on duplicating this material.

The guidelines are organized in five sections as follows:

The School
The Teacher-Coordinator
The Program
The Student-Trainee
The Employer

GUIDELINES ABOUT THE SCHOOL

1. Guidance and Counseling Function of the School
2. Development of Student Personnel Records

GUIDELINE NO. 1

Guidance and Counseling Function of the School

Guideline

The guidance and counseling program should assist cooperative education students in choosing and following suitable training objectives.

Explanation

Guidance services are involved in nearly every phase of the cooperative education program. Although there should be cooperation between the guidance counselor and the teacher-coordinator, the primary responsibility of enrollment, placement, and follow-up rests with the teacher-coordinator. His effectiveness is evaluated in terms of successful training and adjustment of the students in his program.

Implementation

1. Effective Counseling--The guidance counselor and teacher-coordinator should help each student to recognize his special interests and aptitudes through an interpretation of his school records, background, and his inventory and test profile.

2. Selection of Students--The teacher-coordinator should work closely with the guidance counselor in the selection of students for the cooperative program.

3. Enrollment Procedure--The enrollment procedure should be well defined and understood by all concerned. They should know the factors which determine student selection and placement.

4. Parental Approval--The teacher-coordinator should confer with parents about the factors relating to vocational choice and career planning.

5. Periodic Counseling--The teacher-coordinator should review periodically with the students their (a) career objectives, (b) achievement in relationship to aptitude and ability, (c) personal and social development, and (d) job performance record.

6. Job Placement--The teacher-coordinator should maintain a current file of job opportunities available to graduates.

7. Follow-Up--The teacher-coordinator should maintain a follow-up file of the graduates from the cooperative education program.

GUIDELINE NO. 2

Development of Student Personnel Records

Guideline

The student personnel records should contain the kinds of information needed by the teacher-coordinator for conducting a cooperative education program.

Explanation

The personnel record is the central source of important information about the students. It contains personal data, scholastic information, test results, extra-curricular participation, career objectives, and job training experience. It is of great value to the school administration in planning a school program that will meet the needs of the students enrolled; to the teacher-coordinator who assumes the multiple roles as teacher, counselor, placement director, and employment supervisor; and to the guidance counselor who will need data to assist in effective counseling.

Implementation

1. Personal Data--Personal data should include: (a) the name, nickname, home address, sex, date and place of birth of the student; (b) the names, addresses of parents, or guardian, their birthplace, marital and educational status; (c) the names and ages of brothers and sisters; (d) a summary of health information including hearing, sight, speech, disabilities, and immunization data of the student.

2. Scholastic Information--The scholastic information typically includes school attendance beginning in the elementary grades and grades earned.

3. Test Results--Test results should contain information about achievement, interests, aptitudes, and mental maturity.

4. Extra-Curricular Participation--The record should include information about the student's participation in school activities, athletics and out-of-school functions, including offices held, honors, and other special awards. It should also record interests, noteworthy attributes, and special skills of the student.

5. Career Objectives--The student's future and intermediate goals should be reported.

6. Job-Training Experience--The teacher-coordinator should be familiar with the complete record of each student. He should add information about the student's adjustment on the cooperative job, family visits, placement information, and a follow-up record.

GUIDELINES ABOUT THE TEACHER-COORDINATOR

3. Characteristics and Qualifications of the Teacher-Coordinator
4. Preparation and Certification of Teacher-Coordinators
5. Duties and Responsibilities of the Teacher-Coordinator

GUIDELINE NO. 3

Characteristics and Qualifications of the Teacher-Coordinator

Guideline

A teacher-coordinator should have the personal and professional qualifications needed to organize, administer, and conduct an effective cooperative education program.

Explanation

To be successful, a teacher-coordinator must establish goals worthy for self-improvement. He must also be constantly aware of the relationships that are inherent in the teacher-student learning situation.

Teacher-coordinators should bring to their jobs the required experience and training. In every instance they should supplement their employment experience and teaching and counseling skills with continuous in-service improvement.

Implementation

1. Formal Education--He should have completed a bachelor's degree or the equivalent as a minimum professional requirement.

2. Employment Experience--He should have employment experience closely related to the occupations represented in his cooperative program. Some authorities recommend two or more years. A variety of employment experience should be required of a coordinator of a diversified cooperative program.

3. Purposeful Outlook--He should have a sincere desire to assist young people in developing into competent employees.

4. Skill as a Teacher--He should have a record of successful teaching experience and a desire to further perfect his teaching skills.

5. Role as a Teacher--He should constructively relate the cooperative program to other areas of basic instruction in the total school program and to teach what is needed when it is most meaningful to the student.

6. Role as a Teacher-Coordinator--He should be thoroughly convinced of the importance of his role as teacher-coordinator.

7. Personal Traits--He should be prompt, respectful, courteous, sympathetic, and consistent in all of his dealings. He must also be a good organizer not only of instruction but also of records, reports, and other details of the program.

8. Knowledge of Job Requirements--He should be familiar with job requirements, lines of advancement, and the job competencies required for each level of advancement.

9. Extra-School Duties--He should reflect an attitude of helpfulness and with other members of the faculty be willing to assume extra-school duties.

10. Physical and Mental Stamina--He should have sufficient physical and mental stamina to discharge his duties effectively.

11. Public Relations--He should be able to maintain effective public relations for the cooperative education program.

GUIDELINE NO. 4

Preparation and Certification of Teacher-Coordinators

Guideline

All teacher-coordinators should have adequate preparation and meet certification standards established by the appropriate state agency.

Explanation

Certification requirements for teacher-coordinators should be similar for all service areas in vocational education. The common elements found in all cooperative programs should be emphasized.

Some states require that specified courses be completed before an applicant will be considered for the teacher-coordinator's position. Other states permit certified teachers who are preparing to be teacher-coordinators to take some required courses in pre-service workshops during the summer months and other required courses through in-service study concurrent with employment.

Implementation

1. Certification Requirements--Certification requirements should be based on the needs of the teacher-coordinator as a result of job analysis. They should also define the prerequisite teaching and employment experience.

2. Teacher Education--The teacher education program to prepare the teacher-coordinator for certification should include:

   a. the principles, practices, and philosophy of vocational and technical education, and

   b. curriculum development, survey techniques, a study of recruitment, student selection and counseling, placement

and follow-up of trainees, job analysis, job adjustment, methods of individual and group instruction, and student and program evaluation.

3. In-service Improvement--In-service education to improve the effectiveness of the teacher-coordinator should be provided by colleges and universities in cooperation with the state department of education.

4. Follow-up of New Coordinator--Representatives from the teacher-education institution and the state staff should follow up the new teacher-coordinator and provide assistance in setting up or adjusting to the cooperative program.

5. Cooperative Education Workshop--The state operating manual for vocational education should provide for at least one cooperative education workshop a year involving the teacher-educators, state supervisors, local supervisors, teacher-coordinators, and administrators.

6. Recruitment of Teacher-Coordinators--The local school and the teacher education institution should work together in the recruitment and training of prospective teacher-coordinators.

GUIDELINE NO. 5

Duties and Responsibilities of the Teacher-Coordinator

Guideline

The duties and responsibilities of teacher-coordinators should be defined in terms of the objectives and policies of cooperative education.

Explanation

The nature and extent of the teacher-coordinator's duties and responsibilities involve skills in planning, counseling, teaching, placing, and supervising students in training stations, and making follow-up studies to evaluate the student's performance.

The teacher-coordinator's duties are so varied that he should develop a daily schedule to help him complete his work. Such a schedule will provide evidence to the school administration that the assigned coordination time has been well spent.

Implementation

1. Budget--Assist in preparing the cooperative education budget.

2. Advisory Committee--Meet and work with a Cooperative Education Advisory Committee.

3. Community Survey--Conduct a community survey to ascertain local training needs.

4. Public Relations--Inform faculty, students, and community about the program.

5. Reports--Make and submit necessary local and state reports.

6. Room Library--Maintain a library for related instruction.

7. Guidance and Counseling Services--Provide vocational guidance services for students interested in cooperative education, and counsel students about personal and training problems.

8. Parental Conferences--Conduct conferences with parents to explain the program.

9. Selection of Students--Select students for the program considering their interests, their vocational plans, and their ability to profit from the instruction.

10. Selection of Training Stations--(a) Find local employers who will cooperate with the school in training students and (b) develop for each student a training plan in cooperation with his on-the-job supervisor.

11. Training Agreement--Obtain agreement and signatures to the training agreement by student, employer, school representative, and parents.

12. Related In-School Instruction--(a) Provide general and specific related instruction for student-trainees in at least one school period daily; (b) coordinate in-school instruction with the students' on-the-job experience; and (c) provide organized instructional materials for specific related phases of the students' related instruction.

13. Supervisory Visits--Make supervisory visits to students' training stations to evaluate students' progress; allocate a minimum amount of time per student per week to coordination.

14. Appointment Schedule--Should develop and file an itinerary providing information where he may be reached.

15. Employer Conferences--Confer with students' on-the-job supervisor at regular intervals to check students' progress.

16. Youth Group Activities--Organize and sponsor co-curricular activities for youth enrolled in Cooperative Education.

17. Public Relations--See Guideline 9.

18. Self-Improvement--Attend professional workshop and conferences.

19. Participation in Professional Organizations--Maintain active membership in professional organizations.

20. Follow-up Studies--Conduct regular follow-up studies of co-operative education graduates.

GUIDELINES ABOUT THE PROGRAM

6. A Plan for Initiating and Organizing a Cooperative Program
7. Local School Policies Relative to Cooperative Education
8. Advisory Committees
9. Public Relations Activities
10. Teaching Facilities
11. In-School Instruction
12. On-The-Job Instruction
13. Evaluation of Training

GUIDELINE NO. 6

A Plan for Initiating and Organizing a Cooperative Program

Guideline

The procedures for developing a cooperative education program should be outlined in a written plan.

Explanation

The educational values of cooperative education, rather than the earnings, should be stressed with the superintendent, principal, counselors, employers, and members of the advisory committee.

A sequence of activities should give direction when organizing a new cooperative education program. The sequence should vary with the type of community and program. Few of the steps listed below can be eliminated without jeopardizing the program. (Many of the steps will be discussed in more detail elsewhere in this manual.)

Implementation

1. Establishment of the Need and Value--Draw up a statement of the need for a cooperative education program with supporting evidence.

2. Local and State Support--Organize a steering committee made up of school personnel (including counselors and the administration's representative) to plan the organizational procedures.

3. Steering Committee--Activities and responsibilities follow:

   a. Define the purpose and plan of the proposed program.

   b. Develop an outline of activities to start the program.

   c. Follow administrative policies and procedures established by the school system.

   d. Develop the student selection criteria.

   e. Determine the need for teaching facilities and office space to be used by the coordinators.

   f. Decide on the nature of the in-school instruction plan and schedule.

4. School Administration Approval--Obtain approval of training plans and operating details from the school administrators.

5. Approval of Board of Education--Secure the approval of the board of education to conduct the cooperative program.

6. Feasibility Study--Conduct a feasibility study to determine employer interests, employment opportunities, and student interests.

7. Employment of Teacher-Coordinator--Report to the board of education on the local survey and secure their approval to employ a qualified teacher-coordinator.

8. Advisory Committee--Establish an advisory committee to review the policy statement and the operating details for the administration of the program. (See Guideline 8.)

9. Faculty Support--Explain the plans for cooperative education to the school faculty.

10. Public Relations--Develop a public relations program in the school and community.

11. Instructional Facilities and Equipment--Arrange for instructional facilities and equipment.

12. Student-Trainee Recruitment--Encourage interested students to apply for admission into the cooperative education program and select the students.

13. Counseling--Explain the details of the program operation to the students selected and prepare them for the job application, employment interview, and job placement.

14. Training Stations--Inform prospective employers about the program and select the training stations.

15. Training Agreement--Develop a standard training agreement to insure progress on the job and adequate learning experiences.

16. Safety Practices--Check at the training stations for possible safety hazards to the student-trainee.

17. Maintenance of Records--Maintain placement records for review by the advisory committee and school administrators.

18. Establishment of a Schedule for Supervision and Coordination--Establish a schedule of supervision with an adequate allowance of coordination time.

19. Evaluation of Students' Performance--Fill in student evaluation forms and discuss them with students and employers.

20. Related Instruction--Provide related instruction in keeping with training agreements.

21. Co-Curricular Activities--Prepare basic plan for organizing the student club program.

22. Evaluation of the Program--Provide for evaluation of the program by means of a follow-up of the students. (Also, see Guideline 13.)

GUIDELINE NO. 7

Local School Policies Relative to Cooperative Education

Guideline

Local schools should develop operational policies for their cooperative education programs.

Explanation

The establishment of realistic standards, in the local cooperative education programs, will simplify the job of the teacher-coordinator as he explains the details of the program to fellow teachers, guidance counselors, parents, and employers. These standards can contribute to a healthy program and help develop relationships with individuals and groups.

These operating guidelines should be reviewed every two or three years by the advisory committee. If the committee recommends changes, these should be discussed with the superintendent, principal, or others who may have administrative responsibility for policy making.

State manuals define minimum standards, but local standards may be established above state minimum standards to provide for unique situations peculiar to that community.

Implementation

1. Use the state operating manual as the guide for preparation of local school policies.

2. Have the local steering committee review the local school policies and standards for the cooperative program.

3. Refer to the following seventeen examples of Local Policies for Cooperative Education.

Examples of Local Policies for Cooperative Education

The policies and procedures listed below can serve as an example of what may be done for a local program of cooperative education. The policies are not specific proposals but, rather, are illustrative of what might be included.

1. Selection of Students

   a. Students enrolled in the cooperative program must be at least 16 years of age.

   b. The students enrolled must have the ability to enter and progress in the vocation or occupation for which instruction is given.

c. The final selection of the students is primarily the responsibility of the teacher-coordinator. The coordinator and members of the guidance staff should work together in developing and selecting a testing program that will provide the needed information about each student.

d. All students enrolled must attend the pre-employment orientation class before the job interview is arranged.

e. A student's parents should be interviewed.

2. Student Wages

a. When the student enrolls, he should be paid as a beginning worker during the employment cooperative work-study assignment.

b. Except for the matter of legality and the prevention of exploitation, the school should not enter into the problem of wage standards.

c. Students employed in firms involved in interstate commerce should be paid at the established hourly rate in accordance with federal minimum wage regulations. All employed students under 18 must have "work permits."

3. Student Safety

a. Employed students should provide their own transportation to and from their place of employment.

b. Training stations should be selected with due consideration for the regulations regarding the employment of minors and safety factors.

c. Employed students must be covered by workmen's compensation and disability insurance.

4. Training Plans and Agreements

a. To provide for maximum individual training and direct on-the-job experience, a plan outlining the kinds of experiences to be assigned on the job will be prepared by the teacher-coordinator and the on-the-job supervisor.

b. A written training agreement outlining the specific responsibilities of the parties involved should be prepared by the school when the student is placed on his training station.

5. Class Size

a. The number enrolled in each related class should be specified. Some authorities recommend a minimum of fifteen and a maximum of twenty-five students.

b. The maximum number of students assigned to one teacher-coordinator for placement and follow-up should not exceed the number that he is able to visit at least once or twice each grade period.

6. Related Instruction

a. A minimum of one regular class period per day will be provided for related classroom instruction.

b. Approximately 50 percent of the total classroom instruction in a one-year program should relate to general employment information. The remainder of the time will be devoted to individual study related to the specific job assignment and the procedures and processes involved.

7. Facilities for Related Instruction

a. The cooperative education classroom should be equipped with tables and chairs suitable for individualized instruction. Adequate storage for reference books, pamphlets, and magazines, and other necessary materials should also be provided.

b. Study guides related to the particular vocation should be available for individualized study.

8. On-the-Job Instruction

a. The total time spent in school plus the time on the job should not exceed 40 hours per week.

b. School time plus hours in employment should not exceed 8 hours per day.

c. To receive credit for on-the-job training, the student should have a satisfactory job evaluation in terms of total hours of on-the-job instruction, experience, and other performance factors.

d. The length of the on-the-job instruction should be specified. Some authorities suggest a minimum of three months.

9. Placement in Training Stations

a. The teacher-coordinator should develop a systematic method of selecting training stations for student-trainees.

b. When the student-trainee shows a sufficient degree of maturity and responsibility, he is placed in a training station as a part-time employee. Placement in the training stations should be completed before the close of the first grading period.

c. Employers should interview and select the student-trainees to be employed.

10. Supervision and Instruction by Employer

    a. The teacher-coordinator should make regular visits to the student at his training station and discuss with the employer or the training supervisor the progress of each student-trainee.

    b. Employers should designate one person to whom the student-trainee is responsible while on the job.

    c. The training plan will serve as a guide for the in-school and on-the-job instruction plan.

    d. The employer's primary responsibilities are to provide a variety of skill-developing experiences related to the occupation.

11. School Credit for On-the-Job Experience and Related Instruction--The student's grade reflects an evaluation of his achievement and performance both in school and on the job.

12. Time and Travel Allowances for the Teacher-Coordinator

    a. Approximately half of each school day should be devoted to the supervision, coordination, and evaluation of the employment-part of the program.

    b. Travel should be reimbursed for the teacher-coordinator at the regular rate provided by the board of education.

    c. Each month the teacher-coordinator should file a time and effort report with the high school principal.

    d. An itinerary of proposed coordination visits should be left in the school office.

13. Administrative Relationships

    a. On-the-job instructors and supervisors should work closely with the teacher-coordinator.

    b. The teacher-coordinator should be responsible to the local director or high school principal.

14. Advisory Committee

    a. An active advisory committee should serve in an advisory capacity for the cooperative education program.

    b. This committee should have approximately equal representation from both employer and employee groups.

    c. If there is a general advisory committee, the craft or cooperative program committee should coordinate its activities with this general committee.

15. Community Activities and Promotion--A continuous program of public relations should be promoted by the teacher-coordinator.

16. Follow-Up of the Student-Trainee--The teacher-coordinator should maintain a follow-up file of graduates of the cooperative program. A report on graduates should be made to the advisory committee, administrators, and supervisors.

17. Program Evaluation--The cooperative education program should be evaluated each year. This evaluation should be based on the following:

    a. The number of students who have achieved their career goal through the cooperative education program.

    b. A favorable reaction of employers regarding the adjustment and performance of the cooperative students in the employment situation.

    c. A general reaction survey based upon the attitudes of parents, teacher, guidance personnel, administration, etc.

GUIDELINE NO. 8

Advisory Committees

Guideline

Advisory committees for cooperative education should give assistance to teacher-coordinators and teacher-educators.

Explanation

Three topics will be explained, which include (1) justification of the advisory committee, (2) two types of committees, and (3) the functions.

(1) The Vocational Education Act of 1963 makes the use of advisory committees mandatory for vocational programs at the state and national levels. If the instructional program is to be kept in tune with the needs of the individuals and the agencies to be served, they are also needed at the local level. The term consulting committee is sometimes used instead of advisory committee.

(2) In large communities at least two types of advisory committees are usually organized to help the vocational-technical program. One committee is concerned with the total program, and the other deals with one cooperative education program, a trade field, or a family of occupations. The first type is often referred to as the "general" advisory committee, and the second type is

designated according to the vocation or service it is organized to advise. Sometimes this committee is called a "craft" committee; for example, the "cooperative office education advisory committee." In a small community, one committee may serve a cooperative program which has placements in off-farm agricultural businesses, service agencies, distributive establishments, business offices, and the industrial trades.

(3) An effective advisory committee should add strength to the cooperative education program by serving as a sounding board for new ideas.

Implementation

1. Composition of Advisory Committee--All major trade or occupational groups of employers and employees should be represented. Each group should suggest names from which the teacher-coordinator can make a selection.

2. Letter of Invitation--The letter of invitation, asking a prospective committee member to serve, should come from the superintendent of schools. This letter should make clear to the prospective member the function of the advisory committee.

3. Employer and Employee Representation--It is well to have the same number of employer and employee representatives on the committee. A community representative may also be included.

4. Size of Committee--A committee of eight to twelve members is usually adequate.

5. Philosophy and Objectives of the Program--The school representative should be prepared to instruct the committee members regarding the philosophy and objectives and implementation of the vocational program.

6. Involvement of Superintendent--The superintendent or his representative should explain the consulting aspects at the first meeting of the advisory committee.

7. Representation by the School--A school representative usually serves in an ex officio capacity. Sometimes, the school coordinator will serve in this capacity as the secretary to the committee.

8. Term of Office--A plan should be developed for the rotation and replacement of committee members. Usually, a member will serve two or three years.

9. Agenda--A tentative agenda should be prepared and sent to the members several days before the meeting.

10. Minutes of the Meetings--At the conclusion of the meeting, the secretary should prepare the minutes of the meeting and mail them to each member of the committee.

11. Frequency of Meetings--Frequency of meetings should be established in the light of the work to be done. Once or twice each year should be often enough to meet after the program is well established.

12. Advance Planning--The teacher coordinator should involve the advisory committee in advance planning.

13. Committee Functions and Certain Observations and Suggestions--Additional assistance in establishing and operating the advisory committee follow:

Committee Functions

Advisory committees can assist local school personnel by:

1. Reviewing the goals and objectives of the local vocational program.

2. Explaining the cooperative programs to their friends and fellow workers.

3. Reviewing the course content or courses to be taught to see whether they are vocationally sound and are in keeping with the occupational needs of the community.

4. Reviewing ways and means of relating in-school to on-the-job instruction.

5. Recommending instructional facilities and methods for the selection of a teacher-coordinator to the school administration.

6. Interpreting regulations relating to the employment of minors.

7. Discussing local employment opportunities and standards.

8. Reviewing the guidance, counseling, and selection procedures.

9. Making recommendations regarding the placement and training of cooperative students on the job.

10. Assisting in finding training stations for cooperative students.

11. Working with the school in developing evaluation procedures for the local vocational program.

12. Assisting in organizing a follow-up program of cooperative graduates.

Observations and Suggestions

1. Strong cooperative programs have active advisory committees.

2. Advisory committees reflect the thinking of community in regard to educational activities.

3. School administrators and coordinators should evaluate the committee's advice, use it where it can upgrade existing programs, and initiate new ones.

4. Many criticisms leveled at cooperative programs can be avoided if active advisory committees are used effectively.

5. The planning of a committee meeting can be as valuable as the benefits derived from the meeting.

6. Committee members should be informed about activities of the local program.

7. The philosophy and objectives of the local program should be clearly defined by the coordinator and his superiors for the advisory committee.

8. Teachers and students usually react favorably when they learn that a representative group of community leaders are assisting in the local vocational program.

9. When selecting committee members, consider interest in school program, background of experience in relation to the committee's work, and community stature and leadership in the occupation or trade involved.

10. The benefits far outweigh the effort required to organize and involve the advisory committee.

11. Establish a suitable time, date, and place for future meetings.

GUIDELINE NO. 9

Public Relations Activities

Guideline

Effective public relations should be carefully planned to inform the public of the advantages, principles, and goals of the cooperative program.

Explanation

The cooperative program needs support from the school teaching staff, employers of the students, parents, workers in participating firms, and members of the community. This support can be obtained through an active information program designed to inform these groups about the cooperative program.

Good public relations revolve around the teacher-coordinator. He should develop good relations through his contacts with other teachers, students, employers, and community leaders. He should also utilize graduates of his cooperative program to inform the public about the usefulness of the program.

Implementation

1. Effective use of Media

   a. All communication media should be utilized in the cooperative program.

   b. News is not planned. Reporters, newscasters, feature writers, and other public information officials are antagonized by deliberate attempts to "advertise" in their media. If news occurs, call the education writer or editor in the respective media. At the same time, prepare a news release to give to him when he arrives. Let the newsman decide whether or not to include pictures. Invite him to look through your files to select pictures which might relate to the cooperative program.

   c. Involve only those parties who make the news in the news story. Do not attempt to "tell" the newsman what to write.

2. Feature Stories--During the year, the teacher-coordinator should write or have written feature stories about the cooperative program. These should be submitted as "exclusives" to selected media, such as radio, television, newspaper, business periodicals, and trade publications.

3. Reports to Faculty and Administration--Inform the faculty and administration about all news in the cooperative program. This can be done through a weekly newsletter and an end-of-the-year annual report about the program.

4. Public Relations for Parents--Parents can be the biggest boosters of the cooperative program. Prepare a printed newsletter every two weeks and mail to the parents of the student-trainees. The newsletter should include general news about the program and personal notes of interest.

5. Business Awards--Initiate "outstanding student" or "student of the year" awards through the organizations in the community which contribute to the cooperative program.

6. Alumni Group--Organize graduates from the cooperative program into an alumni group. The teacher-coordinators should attend their meetings and serve as advisors to these groups.

7. Additional Information Material--Additional material telling about the cooperative program should be prepared and presented to interested groups or individuals. This material could be in the form of printed brochures, films, slides, or radio tapes.

GUIDELINE NO. 10

Teaching Facilities

Guideline

Teaching facilities should be planned for maximum and effective use.

Explanation

Instructional facilities may consist of classrooms and fully equipped shops or laboratories where pre-employment skills are taught, including study tables, chairs, desks, files, bookcase, chalkboards, bulletin boards, and magazine racks. A coordinator's office and a combination conference room and library should also be provided adjoining the classroom.

Implementation

1. Classroom--Instructional facilities should be flexible enough to provide both group and individualized instruction. Consideration should be given to the facilities required by the largest class. The classroom should present a realistic atmosphere and allow sufficient room for the students and teacher to work efficiently.

2. Storage Space--Provision should be made for the storage of instructional aids and equipment such as charts, slide projector, overhead projector, student's notebooks, instruction sheets, reference pamphlets, and supplemental books.

3. Distributive Education--If the room is to be used for distributive education classes, the equipment should include display cases, sales counter, cash register, storage facilities, and other equipment needed for an effective instructional program.

4. Office Practice--If the room is to be used as an office practice laboratory, the equipment should include typewriters, adding

machines, bookkeeping facilities, file cabinets, transcribing units, and other equipment needed to provide skill-developing activities for those who may need practice to gain proficiency.

5. Industrial Vocations--If pre-employment instruction is given in the industrial vocations, the shops should be equipped with tools and machines that would normally be found in the places of employment.

6. Off-Farm Occupations--If pre-employment instruction is to be provided in off-farm occupations, facilities should be available to teach the background skills needed for represented areas of employment.

7. Coordinator's Office--An office should be provided for the coordinator where he can conduct interviews, keep student records, and work while the classroom is in use by another group.

8. Combination Conference Room-Library--A combination conference room-library should be adjacent to the instructor's office and classroom, so that the instructor can easily get to both the conference room-library and the classroom.

GUIDELINE NO. 11

In-School Instruction

Guideline

In-school instruction should make on-the-job experience educationally valuable.

Explanation

In every cooperative education program there is evidence of at least two major plans. One plan consists of related instruction and the other plan defines the learner's duties at the training station. This guideline is concerned with the nature of the related instruction.

In-school instruction should be classified in two major phases. The first phase consists of units that relate to all types of employment with information and technical knowledge needed for the development of vocational competence.

The second phase consists of units relating to the student's job. These units can be studied on an individual or small group basis.

Implementation

1. Training Plan--The training plan, prepared by the teacher-coordinator and the student's on-the-job supervisor, should identify the job

activities to be studied, the knowledge and skills needed for successful performance of those activities, and which elements of the training will be given in school and which will be given on the job. The educational aspects of the plan should be emphasized rather than production requirements. The next guideline specifically deals with on-the-job instruction.

2. Relationship Between Instruction In School and On The Job--Each student should understand that the in-school and on-the-job instruction represent two aspects of the same process, and both should contribute to the achievement of his career objectives and to transition, upon graduation, from school to full-time employment.

3. In-School Instruction--In-school instruction should be based on an analysis of the requirements of the on-the-job experiences.

4. Content of In-School Instruction--The content of in-school instruction typically includes:

   a. Orientation units such as how to apply for a job, employee responsibilities, development of good work habits, the importance of proper grooming, laws and regulations affecting the worker, social security, income tax, and the elements of proper communication. This instruction should be given before the first employment interview.

   b. Units on work habits and attitudes. The student-trainee should learn elements of job responsibility from his instructor. The student-trainee should understand that the on-the-job training station is a learning laboratory to practice desirable work habits and attitudes that contribute to his own personal development.

5. Community Resources--The teacher-coordinator should bring resource personnel into the classroom to handle certain units.

GUIDELINE NO. 12

On-The-Job Instruction

Guideline

On-the-job training in the cooperative program should contribute directly to the development of occupational competency.

Explanation

Occupational competency is developed by the student-trainee at the training station. It takes the collective effort of both the on-the-job supervisor and the teacher-coordinator to implement the details of the on-the-job training plan. The on-the-job supervisor instructs the student-trainee at the training station.

Implementation

1. Duties of the On-The-Job Supervisor

   a. The on-the-job supervisor, designated by the employer, should orient the student to his training station.

   b. The on-the-job supervisor should help the teacher-coordinator determine the necessary pre-employment skills and knowledges for placement of the student-trainee.

   c. The on-the-job supervisor should telephone the teacher-coordinator about problems that arise.

   d. The on-the-job supervisor should encourage the student-trainee to ask questions to clarify instructions and avoid mistakes.

   e. The on-the-job supervisor should teach safety practices along with the specific skills involved in doing a particular job.

   f. The on-the-job supervisor should prepare periodic evaluations of the student-trainee's progress.

2. Responsibilities of the Teacher-Coordinator

   a. The teacher-coordinator should help the employer understand the educational philosophy, the plan, and the purpose of co-operative education.

   b. When the teacher-coordinator visits the on-the-job supervisors, he should report first to the main business office.

   c. The teacher-coordinator should visit each student-trainee on the job at least once each grading period. Visits should be made more often if job adjustment problems exist or if additional attention and help is necessary.

   d. The teacher-coordinator, when visiting the student's employer, should be concerned about the following: (1) satisfaction of the employer with the work of the student-trainee, (2) the student's attitude toward his job, his employer, and his fellow workers, (3) the student-trainee's satisfaction regarding his own progress and learning experiences, and (4) the nature of the related instruction that should be assigned.

   e. The teacher-coordinator should inform the on-the-job supervisor about the student-trainee's progress in school.

3. Student Reports--Some teacher-coordinators require student trainees to prepare a daily work record listing the operations, jobs, and processes performed at work. This record provides a report of each day's activities and a continuous summary of on-the-job experience.

GUIDELINE NO. 13

Evaluation of Training

Guideline

The evaluation of the cooperative education program should be a continuous process covering all aspects of the program.

Explanation

The following questions will serve as the basis for evaluating the effectiveness of the various aspects of the program. The answers to the questions listed, therefore, should reflect the quality of the program. The growth and development of the students enrolled as they study and work toward realistic vocational goals should be the primary concern in every phase of evaluation. A suggested evaluation guide follows:

The School

	yes	no
1. Does the cooperative education program provide for the full range of abilities of the student-trainees?	____	____
2. Are the school administrators interested and involved in defining policies relating to the cooperative education program?	____	____
3. Are the enrollment standards for the cooperative program realistic in relation to the vocational demands?	____	____
4. Do the student personnel records contain information about the background, interest, potential, and achievement of the students enrolled?	____	____
5. Is the cooperative education program geared to the needs of the community it serves?	____	____
6. Does the school have a plan for student placement and follow-up?	____	____

The Teacher-Coordinator

1. Does he have the necessary background of professional training and employment experience?	____	____
2. Does the teacher-coordinator prepare student-trainees to be productive citizens?	____	____

	yes	no
3. Does he enjoy working with school personnel, employers, and other community groups?	____	____
4. Is he articulate in explaining the educational and job adjustment values of the cooperative education program?	____	____
5. Does he maintain adequate student personnel records to show their progress both in school and on the job?	____	____

The Program

Organizing New Programs

1. Is there a plan for starting and operating a new program?	____	____
2. Has the local school administrator utilized the resources of the State Department of Education in establishing the cooperative program?	____	____
3. Does the teacher-coordinator cooperate with the school administration in presenting the program to the community?	____	____
4. Are there specific objectives for the cooperative education program?	____	____
5. Do the local school administrators have school policies for the organization and operation of the cooperative program?	____	____

Advisory Committee

1. Does the representative advisory committee meet regularly with school personnel to assist them in the development of the program in the community?	____	____
2. Does the teacher-coordinator assist the advisory committee chairman in preparing the meeting agenda?	____	____
3. Does the teacher-coordinator keep the advisory committee informed of activities and developments affecting the local program?	____	____

Public Relations

1. Is a public relations program in operation?	____	____
2. Does the teacher-coordinator disseminate helpful information about the cooperative program?	____	____

	yes	no
3. Are trade associations and employer and employee groups encouraged to recognize outstanding student performance by presenting suitable awards and prizes?	____	____
4. Do the school administrators and student-trainees sponsor an appreciation banquet for the cooperative employers?	____	____
Teaching Facilities		
1. Are the teaching facilities flexible enough to permit the use of the best instructional methods?	____	____
2. Is there sufficient storage space for supplies?	____	____
3. Are there adequate facilities for student-teacher conferences?	____	____
Instruction		
1. Is there a syllabus for the in-school instruction?	____	____
2. Does the teacher-coordinator use the on-the-job experiences of students when teaching the related class?	____	____
3. Is there a pre-employment orientation to prepare the student-trainee for an interview?	____	____
4. Are various teaching methods used in the related class to provide for both individual and group instruction?	____	____
5. Does the employer understand the plan, purpose, and educational philosophy of the cooperative education program?	____	____
6. Does the school give graduation credit to the student-trainees for successful on-the-job experience?	____	____
7. Does the employer evaluate regularly the student-trainee's performance and progress?	____	____
Evaluation		
1. Is opportunity given to members of the school faculty to discuss the cooperative education program as a means of educational development?	____	____
2. Does the school have a follow-up program?	____	____

	yes	no
3. Are the opinions of parents sought in evaluating the program?	____	____
4. Are the opinions of employers sought in evaluating the program?	____	____
5. Are the opinions of graduates sought in evaluating the program?	____	____

The Student-Trainee

Recruitment and Selection

1. Is there a plan for publicizing the cooperative education program?	____	____
2. Are the students capable of achieving success in the occupations selected?	____	____
3. Does the advisory committee take an active part in the recruitment and selection of students?	____	____
4. Does the guidance office supply test information for counseling applicants?	____	____

Placement and Supervision

1. Are the student-trainees placed on jobs which will provide them with the kinds of experience needed for a career objective?	____	____
2. Does the teacher-coordinator regularly visit the student-trainees on the job?	____	____
3. Are the elements of job safety checked by the teacher-coordinator and the employer?	____	____

Legal Responsibilities

1. Is the teacher-coordinator informed of the changes in regulations of the employment of minors?	____	____
2. Are the cooperating employers familiar with the insurance needed to protect the student-trainee?	____	____
3. Is there a good working relationship between the school and the law enforcement agencies about the employment of minors?	____	____

Activity Program

	yes	no
1. Does the school have a youth group program for cooperative education student-trainees to develop informal learning and leadership?	____	____
2. Do the students conduct an annual appreciation activity for the employer?	____	____

The Employer

1. Does the cooperating employer understand his role in the education of the student-trainee?	____	____
2. Does the employer provide a variety of learning experience for each student-trainee?	____	____
3. Does the teacher-coordinator show equal concern for both the employer and student-trainee when placement is made?	____	____
4. Does the on-the-job supervisor decide with the teacher-coordinator what should be taught in the related class?	____	____
5. Is there a training plan in use for each student-trainee?	____	____

GUIDELINES ABOUT THE STUDENT-TRAINEE

14. Recruitment and Selection of the Student-Trainee

15. Placement, Supervision, and Follow-Up

16. Legal Responsibilities

17. Activity Programs for the Student-Trainee

GUIDELINE NO. 14

Recruitment and Selection of the Student-Trainee

Guideline

Students who need, want, and can profit from the experiences provided should be selected for the cooperative education program.

Explanation

All available resources of the school, including guidance services, school records, and faculty recommendations should be utilized in selecting students for the cooperative program.

The teacher-coordinator has the challenge to develop a procedure to recruit and select students who will benefit most from the combination of in-school instruction and on-the-job training.

Implementation

The following steps should be employed to recruit and select prospective students:

1. Obtain Administrative Approval--The teacher-coordinator should seek administrative approval for his recruitment plan. This plan should include:

   a. Statement from the superintendent's office approving recruitment procedures.

   b. Recommendation from the advisory committee relating to public relations, recruitment procedures, and student selection.

2. Distribute Recruitment Bulletin--A recruitment bulletin describing the cooperative education program should be given to prospective students. This bulletin should include: (a) a general description of the cooperative education program including the time in school, related instruction, and minimum and maximum hours on the job; (b) conditions of enrollment including age, grade completed, scholastic average, and career objective; (c) occupational information relating to the student's career objective; and (d) enrollment dates and the specific procedures to follow.

3. Determine Student Interest--If an assembly program is presented or the teacher-coordinator speaks to a particular class, students should be given an opportunity to fill in an "interest form" for use by the teacher-coordinator in scheduling enrollment interviews.

4. Recruit Students--In recruitment talks, the teacher-coordinator should point out the in-school instruction and on-the-job training features of the cooperative education program. He should also stress the importance of personal development which comes through employment.

5. Select Students--To be selected the student-trainee should have the intelligence, interest, aptitude, maturity, and personality to succeed in the program. The paid part-time employment aspect of the cooperative plan makes it possible for the school to select students from low-income families. The teacher-coordinator should consider the following qualifications when selecting students:

a. Interest
b. Mental capability
c. Physical suitability
d. Moral responsibility
e. Social adaptability
f. Educational background
g. Disciplinary record
h. School attendance record
i. Age
j. Hobbies
k. Past work experiences
l. Personality characteristics
m. Sex (when a requirement)
n. Former employers' opinions
o. Other school activities

6. Gather Information About Students--The teacher-coordinator should ask faculty members to give information about prospective students and to help evaluate the school records of students according to enrollment standards. When test information is not available, the guidance counselor should administer the necessary tests to determine aptitude, interest, achievement, and personality.

GUIDELINE NO. 15

Placement, Supervision, and Follow-Up

Guideline

The placement, supervision, and follow-up of students should conform to the best interests of the student, the school, and the cooperating employer.

Explanation

The transition from school to work is a major adjustment for most young people. The teacher-coordinator and employer should work together to develop a plan to help the student-trainee adjust to his job. For example, before the student is sent for the job interview he should be instructed about the job application, the interview procedure, and his responsibility.

When the student understands the nature of his responsibilities in the work-study situation, he should realize the importance and the

relationship of his school work to job success. He should also understand the importance of supervision by his teacher-coordinator and his employer. Each assumes a vital role in the development of skills and understanding.

In the follow-up phase of cooperative education, the teacher-coordinator should be concerned about the progress of the student-trainee on each job and what happens to him after graduation from high school. A good follow-up plan is very important in judging the effectiveness of the entire program.

Implementation

1. Interview Orientation--Proper orientation to employment interviews should be given before students are sent to be interviewed by prospective employers. Orientation instruction should include:

   a. Appropriate grooming

   b. Courtesies to be followed when presenting a letter of introduction

   c. Proper attitudes regarding employment and vocational goal

   d. Questions to ask regarding the work to be assigned

2. Application Forms--Before the employment interview, students should be given instruction and practice in preparing job application forms.

3. Student Data--The employer should have all the information that he desires regarding the students sent for interviews. Information about their career goals, school attendance, scholastic records, and pre-employment courses completed will be helpful to the employer as he selects the student-trainee.

4. Student Interview--When possible more than one student should be sent to the employer for a job interview. Sending two or three for each job opening will provide important experience for each student and it will give the employer a chance to select the student who will best fit his situation.

5. Student Placement

   a. The teacher-coordinator should send only those students to an employer who have the aptitude, interest, and intelligence to perform the work assigned.

   b. If a student has been employed during the summer and wishes to remain with the same employer as a student-trainee, he should be permitted to do so if both he and his employer clearly understand the relationship of the in-school and on-the-job experience to his educational and vocational development.

c. The teacher-coordinator and the cooperating employer are responsible for the welfare and safety of each student-trainee. Therefore, the work assigned should be in keeping with the regulations relating to the employment of minors.

6. Training Plan--The teacher-coordinator and the employer should develop a plan for each student-trainee that outlines the kinds of instruction and supervision to be offered in the cooperative work-study period.

7. Teacher-Coordinator Visits--The teacher-coordinator is expected to visit each employer at least once each grade period to discuss the adjustment, performance, and progress of each student-trainee. Such visits should be more frequent if problems arise.

8. Student Evaluation

   a. The student-trainee should know the factors the employer or the supervisor consider when preparing the student-trainee evaluation form.

   b. An evaluation form should be prepared each grade period. This evaluation is an objective means of recording the student's performance and progress.

9. Follow-Up--The follow-up of student-trainee should include the visits made while in school and also the record of employment and adjustment to full-time employment after graduation. Follow-up information can be used to determine the success of the program.

GUIDELINE NO. 16

Legal Responsibilities

Guideline

The legal aspects of the employment of cooperative students should be known and adhered to by the teacher-coordinator and the employer.

Explanation

Cooperative education programs must be operated within federal, state, and local laws and regulations. These laws relating to the employment of minors are similar in every community. The teacher-coordinator should keep informed about the regulations applicable to his school service area, such as employment certification, hazardous occupations, wage and hour laws, jobs requiring licenses, and social security regulations.

The teacher-coordinator should discuss with the cooperating employer, the student, and the parents all regulations applicable to the job. Any questions about regulations should be discussed with a representative from the proper governmental agency.

Implementation

1. Work Permits and other Working Papers--The teacher-coordinator should work closely with the agency concerned with enforcing the child labor laws.

   a. Instructions about the "work permits," employment certificates, or working papers should be given to each student.

   b. The school records should show when "work permits" have been issued to students. Such permits must be issued before they are placed on a cooperative job.

   c. The employer should be reminded that a student under 18 cannot be legally employed without a "work permit."

2. Child-Labor Laws--The teacher-coordinator should study the child-labor laws in his state.

3. Fair Labor Standards Act

   a. State staff members, concerned with cooperative education programs, should inform the state administrators of the Fair Labor Standards Act and other similar regulations about the purposes and plan of operation of cooperative education.

   b. The teacher-coordinator should be informed about the provisions and amendments of the Fair Labor Standards Act of 1938 regarding interstate commerce.

      (1) He should discuss with the employer provisions relating to minimum wage and overtime pay.

      (2) The employer should know how exemptions may be made by issuing special certificates for learners and apprentices.

4. Disability Insurance--The teacher-coordinator should discuss with students the terms of disability insurance carried by business and industry.

5. Workmen's Compensation Insurance--The teacher-coordinator should exercise caution in placing students with employers who may not carry workmen's compensation insurance or other comparable coverage for injuries incurred while on the job.

6. Social Security--Instruction regarding the basic provisions of the Social Security Act should be given in the related class.

7. Working Hours--The teacher-coordinator should establish employment guidelines relating to hours of work for both boys and girls. These should be checked against the state and federal regulations.

8. School Attendance--School attendance laws should be strictly enforced for all students enrolled in the cooperative education program.

GUIDELINE NO. 17

Activity Programs for the Student-Trainee

Guideline

A program of co-curricular activities for the student-trainees should be a part of cooperative education.

Explanation

Youth-group activities are a vital part of the total learning experience. Young people need to have friends and be identified with a group having common interests. They need to be given a chance to participate in a group where student leadership can be exercised and developed.

State and local staff members responsible for cooperative education should provide an organized plan of co-curricular activities. The plan should define conditions of membership in terms of vocational interests and goals, patterns of organization, and activities to serve as a setting for leadership development.

Local teacher-coordinators of cooperative education programs should also be involved in planning appropriate youth-development activities.

Implementation

1. Membership Qualification--To be a member of the youth-group activity, a student should be enrolled in a state-approved vocational education program.

2. Group Sponsor--An advisor directly involved in the school's program of cooperative education should supervise youth groups.

3. Vocational Activities

   a. Each youth group should develop a program for exploring the employment and career opportunities related to interests or concerns of the majority which involves cooperative action of the entire group.

b. Youth-group activities should involve participation of community leaders who can explain the nature and function of business and trade associations which sponsor education activities such as institutes and conferences.

4. Personal Growth--All members of youth groups should be encouraged to participate in service activities which contribute to school improvement, individual growth, and leadership development.

5. Employer Appreciation--Youth groups should plan and sponsor employer appreciation activities to acquaint community and educational leaders with the cooperative programs.

GUIDELINES ABOUT THE EMPLOYER

18. Selection of Training Stations

19. Preparation and Use of Training Plans

GUIDELINE NO. 18

Selection of Training Stations

Guideline

Training stations should be selected for their educational value to the cooperative education student.

Explanation

The nature and extent of learning experiences provided by the employer are factors that help to determine the effectiveness of the cooperative program. The teacher-coordinator should visit potential employers and discuss with them the values of the cooperative program. He should stress placement in a job, learning while on the job, skills to be learned, safety practices, general working environment, supervisor's duties, and evaluation procedures.

Implementation

The following items should be used as criteria in selecting training stations:

1. Type of occupations--The training station should provide experience in occupations that require both skills and knowledge.

2. Opportunities for rotation--The training station should provide a wide variety of direct experiences associated with the occupation. It should not be merely routine work experience of a repetitive nature.

3. On-the-job supervision--The training station should be supervised by someone competent in the skills and technical aspects of the occupation. He should be interested and eager to assist in the training program.

4. Working conditions--The working conditions of training stations should be safe with a good record of accident prevention. Training stations should be free of hazards that might impair the safety or health of the workers.

5. Reputation--Business establishments who furnish training stations should have a good reputation through ethical business practices.

6. Hours of employment--There should be a sufficient number of working hours at the training station.

7. Facilities and equipment--Up-to-date facilities and equipment should be used at the training station.

8. Supervisor and student-trainee--Good supervisor and student-trainee relationships should exist at the training station.

9. Accessibility--Consideration should be given to the travel time between the school and the training station.

10. Wages--Consideration should be given to a minimum wage for student-trainees based on that paid other employees of similar experience and training.

GUIDELINE NO. 19

Preparation and Use of Training Plans

Guideline

A training plan should be prepared and signed by the student-trainee and used as a guide for instruction by the teacher-coordinator and employer.

Explanation

The occupational training plan is an individualized course outline developed for the student-trainee. Its aim is to list the learning experiences which will assist him toward his career goal.

The best training plan provides a systematic method of keeping progress records of work completed, skills learned, and operations performed. A copy of the training plan should be included in the student's personnel record.

In some schools, a general statement which defines the responsibilities of the student-learner, the employer, the supervisor, and the teacher-coordinator is prepared and signed by the student, parents or guardian, employer, and coordinator.

Implementation

1. Training Plan--The training plan lists the skills and related knowledge to be mastered by the student-trainee.

2. Employer--The training plan should provide the employer with a guide to assist the student-trainee in securing on-the-job experience and developing skills and knowledge.

3. Supervisor--The training plan should emphasize the supervisor's role as a teacher in the cooperative program.

4. Teacher-Coordinator--The teacher-coordinator should review the training plan with the employer and the student-trainee.

   a. Previously-developed training plans should serve as a guide to the coordinator in selecting training stations.

b. A training plan should eliminate the possibility of placing a student in a job where the learning opportunities are limited.

5. Student--The training plan should contain a record of progress, knowledge, and skills mastered. It should define the student-trainee's responsibility for personal conduct and performance in keeping with his career objective.

PART III PAPERS PRESENTED AT THE NATIONAL SEMINAR

A National Seminar on Cooperative Education, sponsored by The Center for Vocational and Technical Education, was held on August 1-5, 1966. Seventeen special papers presented at the Seminar are reproduced in Part III. The affiliation of each of the authors is presented in the Table of Contents and a biographical sketch appears as Appendix A in this publication.

IMPENDING SOCIAL, ECONOMIC, AND EMPLOYMENT CHANGES THAT MAY AFFECT COOPERATIVE EDUCATION

Joseph W. Hines

I am glad to be here today to share with you some thoughts about social and economic trends which impinge upon the kinds of education and training that workers need in today's job market. I am especially happy on this occasion because the most arduous part of the job was done for me. Morton Levine, who was originally to have made this talk, prepared a set of remarks for this occasion before the prolongation of the airline strike made it necessary for him to arrange for a substitute.

In thinking about the focus of our topic this morning, I was impressed by the wide-range of activities encompassed by cooperative education. Business education, technical education, and other cooperative education programs in high schools provide an introduction to meaningful work experience for many youngsters. Moreover, they often enable young people to stay in high school who might otherwise drop out. In the growing number of community colleges and technical institutes, great stress is often placed on cooperative education programs. The dynamic leadership that is arising in the two-year college field is bringing imaginative innovations to cooperative education and other post-high school educational programs. During the sixty years that have elapsed since cooperative education, as a form of higher education, was founded at the University of Cincinnati by Professor Herman Schneider, many college students have had a unique opportunity to relate what they have learned in the classroom to the work place. The opportunity provided for young people to help defray the cost of attending college is important as well. Cooperative education programs of many types are now offered in more than seventy colleges and universities. Cooperative education is, indeed, a big picture on a wide screen.

Perhaps one of the most significant social and economic trends of our time is a widening interest in work experience programs. The "war on poverty" and the "active manpower policy" of the Labor Department have both drawn on the experience of cooperative education in developing new approaches to social and employment problems. The work-training programs have been among the most successful approaches used by these endeavors.

The Neighborhood Youth Corps places special emphasis on encouraging young people to stay in school or resume their schooling. Enrollees attending school are limited to fifteen hours of work a week to assure that work time does not interfere with school work. At the post-high school level, the work-study programs have financed part-time jobs, provided by the educational institutions, for students who need financial assistance to continue their studies.

The breadth of cooperative education is reflected in the multiple roles that cooperative educators are called upon to play. Those I know wear many hats--teacher, counselor, and placement director come immediately to mind. In the school setting, the cooperative education staff

are probably the group most directly involved in the transition from school to work. They bring the realities of the world of work into the classroom; they bring the job and the student together; and they assist the student in adjusting to the job setting. Hence, cooperative educators are interested in the kinds of jobs that are and will be available; they want to know where the jobs are (which industries are growing and which are declining), and they are concerned with social and economic problems that affect the careers of their students. These interests define then the focus for our discussion this morning. Since cooperative education is a big picture, we will paint with a broad brush--and try to skip most of the gory details.

First, let's take a quick look at the economic setting. This month the American economy is continuing in the longest sustained advance on record. The unprecedented upturn began in mid-1961. Since then, we have seen falling unemployment rates, new industrial production records, rising personal incomes, and record business profits. If we sum up in terms of that broadest of economic measures, Gross National Product--that is the dollar value of all goods and services produced in the nation--we find the economy is now running at a rate of more than $700 billion a year, up $200 billion since 1960.

Most economists anticipate that the general economic outlook will continue to be bright during the next decade. James Knowles, Executive Director of the staff of the Joint Economic Committee of Congress, projects a five percent annual increase in GNP right on through 1970 based on sustained strong consumer demand and private investment. This increase would mean a Gross National Product of $850 billions by 1970. If these figures seem a little high, hear what the highly respected, and often quite conservative, researchers from the Twentieth Century Fund have to say about the prospects in 1975. They expect the economy by that time to reach a $1 trillion Gross National Product--again on the basis of sustained consumer demand and high levels of public and private investment.

This anticipated economic growth will be accompanied by rapid population growth. The total population will increase by almost 28 million (nearly 3 million a year) during the 1960's and by an additional 17 million (well over 3 million a year) in the first half of the 1970's. The projected population figures for the United States are 209 million in 1970, up from 181 million in 1960. By 1975, the population will approach 226 million.

The age distribution of the population will change significantly. There will be many more older people and many more young children. Moreover, we are seeing now a dramatic increase in the number of young people who reach the age of 18 each year--the crucial turning point in the lives of the majority of young people. Here, they either go into the labor force, enter post-high school training for work, or proceed to college.

The country's labor force will expand at a faster rate than its population during the remainder of this decade. The number of young workers who will enter the labor force will be far greater than the

economy has ever before been required to absorb in a similar period. The number of older workers and of women workers will also increase substantially. Over-all, we will need for the next ten years about one and one-fourth to one and one-half million jobs a year to take care of new or newly returned entrants into the labor force. The Council of Economic Advisors estimates that to do this job the economy will have to grow at a rate of approximately 4 percent a year. Fortunately, you will recall that there are good possibilities the economy can grow at even a little better rate in the next 10 years.

Within this general economic setting, we expect that employment will rise by one-fourth by 1975. However, growth rates will vary by industry. For many years, there has been a shift in employment away from predominantly goods-producing industries to predominantly services-producing industries. As our production processes become more efficient and as income rises, we devote an increasing proportion of our labor resources to the provision of services such as health, education, and financial services. The affluent society is a service-oriented society. It was just a decade ago, in 1956, that employment in the provision of services first exceeded goods-production employment in this country.

Now, let's take a closer look at where the jobs will be in the decade ahead.

Agriculture is a major industry that is facing a continuing decline in manpower needs. Rapid mechanization, improved fertilizers and feeds, and a declining number of farms will continue to reduce the need for farm workers. My impression is that most colleges of agriculture have shifted their emphasis toward training students for careers in agriculture-related businesses. The outlook for production, sales and service jobs in such agriculture-connected businesses as food processing, agricultural chemicals, and agricultural machinery and equipment is much better than prospects on the farm. It might be worthwhile for more secondary schools to consider the collegiate model in agricultural education.

Mining is the only major non-agricultural industry for which no increase in manpower requirements is expected.

Contract construction is expected to grow at a more rapid rate than the average for all non-farm industries. The outlook is for construction employment to increase by more than one-third between 1964 and 1975. Graduates of pre-apprenticeship programs and building trades programs will also find additional opportunities because of replacement need. The average age of workers in a number of construction trades is rather high.

Manufacturing employment may grow by almost one-fifth in the decade ahead. Although the growth will vary for individual manufacturing industries, over-all the growth rate will be below average. However, since manufacturing is the largest industrial sector with the most employees, replacement needs, as workers retire or leave the industry for other reasons, will continue to generate a large volume of jobs.

Government will be a major source of new jobs in the coming decade. The employment level in government may be as much as one-half higher in 1975 than in 1964. The great bulk of the openings in government will be for people who work for state and local governments--teachers, policemen, firemen, and public health service personnel.

Service industries will be among the fastest growing industries during the next ten years. About 50 percent more workers will likely be employed in this industry division in 1975 than in 1964. As the young and old segments of our population increase, medical and health services will have to be expanded substantially. Business services (advertising, accounting, auditing, data processing, collection agencies, and maintenance firms) are also certain to grow. Manpower requirements in educational services are expected to grow especially fast as more young people attend school at all levels.

Employment in wholesale and retail trade may grow by nearly one-fourth between 1964 and 1965, not quite so fast as non-farm employment as a whole.

Cooperative educators may find some challenges in these industrial employment changes. Manufacturing has long accounted for a large share of total employment opportunities. As the factory growth rate slows and rapid growth continues in the services industries, cooperative education staff members will need to look increasingly to the non-manufacturing sector as a source of jobs. Manufacturing employment tends to be concentrated in large firms with well-organized personnel departments. Services employment is spread over a large number of smaller firms whose managements may be less likely to be knowledgeable concerning cooperative education.

Now that we have discussed <u>where</u> the jobs will be, let's take another perspective and consider the <u>kinds</u> of jobs there will be. Compared with the expected growth of about one-quarter in total employment between 1964 and 1975, an increase of nearly one-third is anticipated for white-collar jobs and nearly a fifth for blue-collar occupations. By 1975, white-collar jobs may make up nearly one-half of all employed workers.

The fastest growing occupations during the next decade will continue to be professional and technical occupations. Personnel in these areas will be in sharp demand as the nation explores new approaches to education; bends greater effort toward America's socio-economic progress, urban renewal, and transportation; harnesses the ocean; enhances the beauty of the land; and conquers outer space. Over-all, by 1975, the requirements for these workers may be more than 50 percent higher than in 1964. Although college enrollments are rising rapidly, it appears likely that the demand for college-trained people will continue to outrun the supply. This underlies the importance of cooperative education programs in engineering and other disciplines which help to defray the cost of a college education.

Service workers, a diverse group, may increase by as much as one-third by 1975. A relatively swift rise in demand for protective service

workers such as policemen and firemen is to be expected as the population increases in urban and suburban communities. A very substantial increase in the demand for attendants and other service workers in hospitals and other institutions is also anticipated. Other categories of service workers for which requirements are expected to increase rapidly include waiters and waitresses, cooks, counter and fountain workers, and charwomen and cleaners.

Clerical workers will be in strong demand, particularly those qualified to handle jobs created by the change to electronic data processing and those skilled in work involving public contacts. Employment opportunities will be particularly numerous for secretaries and stenographers, typists, and bookkeeping and accounting clerks. On the other hand, demand is expected to be slow for file clerks, calculator operators, and pen-and-pencil recordkeepers. The number of clerical workers is expected to increase by more than one-third between 1964 and 1975. But this increase represents only part of the opportunity for new clerical workers. An even greater number of clerical workers will be needed to replace those who retire or leave their jobs for other reasons. Employee turnover is especially high among clerical workers because many young women do this kind of work for only a few years and then leave their jobs to remain at home and care for their families. Cooperative office education and cooperative business education programs in high schools and junior colleges are important sources of qualified clerical workers. The many clerical job openings that will become available during the next decade will provide jobs for an increasing number of graduates.

The outlook for skilled workers is mixed. While the demand for skilled workers is spurred by the growing needs for mechanics and repairmen, building trades craftsman, and foremen, there are technological changes underway in manufacturing which tend to limit the expansion of the group. About average growth is expected between 1964 and 1975.

Managers, officials, and proprietors as a group also will increase at about the average rate for all occupations. The demand for salaried managers and other officials in business organizations and government is expected to continue to increase at a fairly rapid rate. Although the number of independent businessmen has declined substantially since World War II, this trend is expected to level off in the years ahead.

The number of sales workers will increase more slowly than other white-collar groups, although wholesale and retail trade activity is expected to rise considerably in the coming decade. Changes in distribution methods--such as self-service, automated vending, and allied techniques--are likely to have a restrictive influence on employment growth. Nevertheless, the over-all increase in needs for sales workers will be slightly above average for all workers, about a 30 percent increase between 1964 and 1975.

This about sums up the big picture as to where the jobs will be and what kinds of jobs there will be during the next decade. Now let's consider briefly three aspects of employment that seem to have particular relevance to cooperative education.

Cooperative education can be especially important for the Negro college student and the Negro high school student. It offers one solution for a common three-fold employment problem: Lack of money for education, need of education in order to get good jobs, and need to build confidence in the ability to get and hold jobs. The cooperative plan not only gives the disadvantaged Negro a chance to help finance his education and to get the on-the-job experience that will make him a good job prospect, but it gives him what he most needs: confidence. The expectation that when he graduates he can probably step into a permanent job, very likely where he is training, is particularly important.

Rapid progress in the professional education of Negroes is an important objective. The relatively small proportion of Negroes in professional and technical occupations is traceable, in large part, to their limited education, though discrimination in employment has also been a contributing factor. Only 6 percent of all non-white workers were in these occupations in 1965, compared with about 13 percent of all-white workers.

To enter the professions, Negroes have had, in the past, to overcome the barrier of relatively inferior educational opportunities. Because of their low-average income level, they have also had particular financial handicaps in obtaining a college education.

The major resource for training Negroes at the college level has long been colleges which are predominantly Negro. Roughly two-thirds of all Negro college students attend these institutions. The majority of Negro students have been able to prepare only for professional work in the field of education or, in a few schools, medicine. Their opportunities for training in scientific and technical professions or in business administration have been limited.

The predominantly Negro colleges were unprepared for the sharp increase in the number of recruiters from government and industry seeking Negro college graduates in recent years. Graduates of these colleges with training in science, engineering, mathematics, or business management--of whom there are few if any in these institutions--were those in greatest demand.

One of the most striking developments of the post-World War II period has been the more rapid growth in the employment of women as compared to men. In 1947, roughly sixteen million women were employed; by 1965, their number had increased by more than 50 percent reaching about twenty-five million. By way of comparison, employment of men rose by about 10 percent during the same period.

In 1965, slightly over half of all women between the ages of forty-five and fifty-four were at work; this proportion was about the same as for women twenty to twenty-four. The labor force participation rate for women is lower between the ages of twenty-four and forty-four, the ages during which many families are formed and household and child rearing duties occupy so much of the woman's day. After age thirty-five, increasing numbers of women seek to enter or re-enter the labor force.

Almost three-fourths of all employed women over age thirty-five work in four major occupational groups: clerical and kindred (26.5 percent); service, except private household workers (16.5 percent); operatives and kindred (15.9 percent); and professional and related (13.2 percent). The remaining 27.9 percent are employed in other categories.

Women need to be exposed to educational curriculum that are relevant to today's job market. Women work in almost every field; it is important that their abilities be fully utilized. Preparing young women for all fields of work is in line with the spirit of the Equal Opportunity provisions of the Civil Rights Act of 1964. It also makes good sense from the standpoint of individual potential and the country's progress.

The pattern in many communities is for young people to leave their home towns after they have graduated from school or college. The peak migration rate occurs among those in their early twenties. Of great importance also is the continuing movement to urban from rural areas.

The mobility of young workers is one of the great strengths which undergird our economy. The willingness of young people to move from labor surplus communities to labor shortage areas makes possible the most efficient utilization of our labor force and the achievement of satisfying careers for more workers. Educators have an important role to play here. In many communities, young people need to be trained and guided in terms of the national demand for trained workers so that they will be prepared to seek their place in the world of work when the time comes for them to leave home.

WHAT WE HAVE LEARNED FROM "ON-THE-JOB" TRAINING

Dennis H. Price

It rather surprised me when I tried to list some of the various areas that might be classified under this general title; I will go over this list with you so that we can see that it is a bigger program than might appear at first.

Let's look at high school cooperative education for just a moment. At that level, you will find such programs as diversified cooperative training appearing under different names in different states. We have distributive education, which is also a cooperative education program. For another special group, we have one called the occupational work-experience program. We find the day-trade cooperative program yet another type. Business and office occupations represent still another, and I would be amiss if I didn't mention the agricultural programs. This is perhaps one of the most perfect forms of cooperative education--that is, basic instruction plus the farm experience of the boy who has spent most of his life on the farm.

Now I would like to move on into another relatively new area. In the technical education areas we speak of the technical cooperative programs. Not all technical education programs can be classified as such, but we do have many. In such programs, the student spends part of his time in his educational program and a part of his time in the cooperative work experience or, shall I say, on-the-job phase of this program. The program that is known to many of you is the collegiate program of cooperative education. The University of Cincinnati has been, perhaps, one of the pioneers in this field. Its program goes back approximately sixty years. The program was generally in the field of engineering, business administration, and applied arts. Three different colleges are concerned with it. The program consists of one year of full-time work on the campus plus four years of a cooperative program (twelve months a year) in the field.

I want to mention apprentice programs in the skilled crafts which are not accepted generally as cooperative programs; nevertheless, they do have some facets of a cooperative program. We generally refer to a 144-hour year related-instruction program, the remainder of the year's program being full-time employment under a craftsman, journeyman, or some qualified worker in the occupation. I would like to include the apprentice programs under the umbrella of cooperative programs. We have others that I think are worth mentioning as we go by: internship in a college of medicine. Usually we think of a two-year internship as being a cooperative type of program where work experience and the proficiencies in the field are brought together. We could also include some professional areas, such as law. The professional and practical nursing fields are so organized that they might also be classified in this area. So we find that cooperative education is not a small program.

I would like to turn next to some of the principles of cooperative education.

First, one of the major principles involves the program of related instruction. This is generally a combination of regular classroom work for technical aspects of the occupation plus a type of related work that is coordinated to on-the-job training. The related work may be either independent or coordinated with the work experience.

The second principle I want to bring forth is the on-the-job aspect of this dual type of education. The on-the-job phase of the program is concerned with the work experience of the individual under supervision. He will take his experiences along with journeymen, craftsmen, or skilled workers, whether it be in an office, a professional organization, an industry, or an institution. As we look at this on-the-job program we find an interesting phase concerned with a rotation of the related instruction with the work experience. This rotation may assume a number of forms. In some of the high school programs, it may mean a person is concerned with a half-day in school and a half-day on the job, and the rotation is taking place daily. We may find other programs of a two-week rotation. A student will remain in school for full time for two weeks; then he goes out on the job for a two-week period of time. In some of the university programs the time is stretched to a longer phase. The University of Cincinnati uses a sixteen-week period of which eight weeks is spent on the job, seven weeks in school, and one week on vacation. It is necessary, under these plans, for two people to occupy a full-time job; so you will find in most cooperative programs two individuals are working in pairs rather than one individual working alone.

Looking a little closer at on-the-job training, we find that most programs provide orientation prior to on-the-job experience. This orientation may be a matter of a year in an engineering program; it may be as short as a few hours in other types of programs. But in any case, it is an orientation that must be made. It is almost impossible to put the student on the job without some prior instruction as to what to expect, what he can do, and especially what he shouldn't do.

On-the-job activities break down into the following general categories: First, we find a planned program of experiences. An individual working in industry doesn't just go on-the-job and be considered able to adjust to the job. He must work under supervision in a planned program. If it is not a planned program, it cannot justify the title of cooperative education. The planned program of experiences usually takes considerable time to establish and coordinate. The activity must be planned for two students, not for one; and the activities are such that as the students rotate on the job, they go through roughly the same experiences as those planned for a single student. The industry or business house has control over the type of activities the students must experience.

Another principle is that of supervision on the job carried out by the foreman or business-house supervisor. In some cases it could be

under the direction of the screening-program personnel within the industry or business. The supervisor may be considered a teacher in the industrial or business program. In many industries or businesses, rather large training programs are established, and most of them are well organized.

Another principle involves coordination. Two people are necessary in a cooperative program: one is the supervisor within the school who must have control of the educational side of the program; the other is the business or industrial coordinator. While the coordinator may be on a school staff, he is actually industry's man on the educational program. He is the one person most concerned with the activities on the job and is in a position to interpret the industrial program to the school. He is the key individual that brings together the curriculum in the school and the work experiences on the job. A strong coordinator is important to the program. If he does not uphold this capacity, the program is weakened and oftentimes can be lost. I will just give you one example to show you how bad we can really get sometimes. An automotive student did his cooperative work in a barrel factory. I can't quite put these two together, but there may be some connection. The work on the job, of course, must be highly coordinated with the work in the school.

Let me look at another facet of this problem of on-the-job training--the development of skills. Many occupations require considerable depth of training in the skills of the occupation. Perhaps it is a craft or maybe it is the operation of business machines. Whatever it may be, the development of skill takes some time. It must be geared to the learning speed of the individual to give him the opportunity to develop the skill correctly and with some depth. I would like to take the viewpoint that we need to get these skills to the state of overlearning so that the person may react automatically.

Another point in the psychology of learning is concerned with negative learning. One individual I talked to some time ago, who was coming into a teaching situation without any prior preparation, was heard to make this comment when asked how he expected to train his students. He said, "Well, I put them to work; I will wait until they make a mistake; then I correct it, and in the correcting, they will learn what is to be done." This is what I would call the negative approach to learning and one that should not be tolerated in an organized educational program. There will be enough of these situations without planning for them.

I would also like to look at the psychology of the pressures under which a person will work. Let's remember we have two situations existing. In an educational program, the learning situation is geared to the speed at which the learner may absorb or may adjust himself to a new problem or new situation. On the job, however, he must meet the pressures that are demanded of others in his production schedule so that one of the problems we have in on-the-job training is concerned with adjusting an individual to the pressures of production. Also, learning on the job includes many little details that cannot be taught in a classroom but must be learned on the job. The things that go on in the average industry day by day and in the average office day by day are often learned by being present or from a comment by a fellow worker.

Another point in the psychology of learning is concerned with human relations under pressure. This is the problem of give-and-take experiences on most jobs. The new learner is generally confused; he has a time adjusting himself, and it takes a sympathetic supervisor to help him through some of the rough spots. It is a rare student who can go into a business house or an industry and make an immediate adjustment.

Let's put some of these things together and see what they mean for us in terms of our topic, "What have we learned from on-the-job training?" As I first examined the problem, I found there were only three or four points that we might put together, but when I try to summarize them and build a listing of items that I can defend, I find that it grows into a rather lengthy list. Some of them overlap, some of them are points open for question, but they represent the things that seem to come to the surface when we examine an on-the-job training program. Let's look at it.

A planned program is a must in any cooperative training program. I want to distinguish between this and the work experience program; in the work experience program the student takes the work as it comes irrespective of a planned program.

A second point I would like to leave with you is that we develop skills through repetition. The law of repetition seems a good one. While the schools can often cover the common skills in a training program prior to the employment of the student, industry itself will require many special skills that must be taught on the job. All of these skills, whether special skills, common skills, or whatever they may be, must be taken to the degree of overlearning. Many educational programs will take a student only through the orientation program stages. He may have a chance to observe, to repeat a process once or twice, and then move on to something else. Too often the objective is to make the introduction to the occupation as broad as possible, and too often the skills are lost in the process so that on-the-job training is necessary to give this background of skills.

Another point that I want to make concerns accuracy and speed. A student on the job must work up to production standards: accuracy first, speed second, and as time goes on, he will meet the production standards of those around him.

Another point is the problem of coordination with related instruction. With the increase in technical education and the attention given to it, we find that related instruction takes on added significance. We find there are two types of related instruction. The first one is concerned with the usual academic programs that will advance the individual as a person--English, communications, and other liberal arts. The second type, and to us the more important, is the technical subjects that are to support his work on the job. It enables the student to meet his production standards and gain the support of his related instruction materials. Technical programs, especially, need to coordinate technical information with the work on the job. Some of the technical background needs to precede the actual work experience, and some of it may follow the work experience or may accompany it.

Many skilled persons who have been on the job many years must go back to school and, through a trade extension program, update themselves in skills and technical subjects. Sometimes industry assumes the full responsibility for this type of program. The training director in one industry made the comment recently that he expected every person on his staff to repeat his collegiate program, whether it be a two-year or a four-year program.

We find that cooperative education is expanding as a training program. The features of the cooperative program are being understood a little better by educators and by leaders in industry to the extent that this becomes a more natural approach to many types of training. We have learned that business and industry have developed a body of educational methods and practices that should help us improve both related instruction and the plan for the on-the-job experiences. While the student is on the job, he has an opportunity to work with others in the give-and-take manner. He develops a philosophy of work after a period of time. I have seen that philosophy change a little from that of a few years ago. I can go back in my own experience when there were no fringe benefits. We worked in a different manner from what we do today. It was so easy then for the foreman to say on Friday, "Well, here is your pay check; we won't need you Monday morning." We have seen the philosophy ethics of the job change--what are the things that are considered acceptable and that are not acceptable; what are the behaviors the student must conform to if he is to work in any specific work situation?

The student has an opportunity to assume responsibility for his work. Sometimes we are overly cautious with students in a school program, and we remove from them all or most responsibilities. On the job the learner must carry his own share of responsibilities, under guidance, and it is assumed that within a reasonable time he will take his place along with the other craftsmen, journeymen, or in an office carry his own share of the work. In an educational program, if a student spoils something, we may say, "Well, that's part of the learning process," and we start over. In industry, spoilage is something else.

The last point that I want to bring out in this list of items is that of developing a tolerance for the ideas and problems of others. I will call it Human Relations. The individual learns to work with others on a give-and-take basis where he must be tolerant of the ideas of others, tolerant of their problems, and not feel that the entire program revolves around "ME" alone.

VOCATIONAL INTERRELATED COOPERATIVE PROGRAMS

Ralph O. Gallington

By way of introduction, I would like to discuss the term interrelated cooperative program. One might say that interrelated cooperative programs are within the broad classification of cooperative occupational education.[1] Another way of saying something about these programs is to point out that they involve work experience programs. The term work experience here is used in its most generic sense. The term work experience itself refers to one type of cooperative occupational education with which some connative concepts have been established. Nonetheless, a vocational interrelated cooperative program certainly makes use of work experience in cooperation with the public school in which the program operates. At this point, I would like to make clear that the interrelated cooperative program is strictly vocational. It seeks to provide students with salable knowledges and skills to make for a smooth transition from school to the work-a-day world.

There are many different types of cooperative occupational education. Some which have been defined are as follows: for general education purposes, (1) work observation programs and (2) general work experience programs; for occupational education purposes, (3) work study programs, (4) internships and (5) cooperative education programs.

Vocational interrelated cooperative programs are, of course, identified with cooperative education work programs. It may be seen from the outset that work observation alone does not allow the students to perform tasks but rather to understand them and to observe them without actually becoming involved with skill-developing activities. The student in general work experience performs tasks of actual jobs for which he may or may not be paid. He is typically engaged for the general education which he is to receive. This is because general education is the main objective of both work observation and general work experience. The work is largely exploratory, and usually one semester or less is used for this exploratory purpose. There are many types of work observation and general work experience programs of education, and in various schools they have various names. Some are out of school; hardly any are non-remunerative type exploratory work. Some are community-service-type work, and some are in-school non-remunerative general-education work experience. Others are remunerative general-education work experience programs in the high school. All work observation and general work experience programs may be offered to help students to explore occupations, to provide them with opportunities to help earn money occasionally, and to motivate potential dropouts to remain in school and possibly provide experience at working so that the potential dropout may develop general personal characteristics which will enable him to get along well with

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[1] U. S. Office of Education, Work Experience Programs in American Secondary Schools, Vocational Division Bulletin No. 5 (Washington: United States Government Printing Office, 1957), pp. 2-4.

people if and when he does leave the organized school program.[2] At this point it is easy to see that the interrelated cooperative program is not associated particularly with general education but that it is one in which the student is preparing himself for some specific occupation after leaving school.

The cooperative classes for occupational education purposes are strictly vocational education classes. Among these there are the work-study and internship groups. These programs are particularly useful in preparing people for occupations and may be assumed to parallel an educational program, or they may be held after a formal training program has been completed. Generally speaking, the work experience part or the more commonly known work-study program is particularly one which is carried on in cooperation with an organized educational curriculum. It becomes cooperative at the time the student is still involved with the formalized school program. It is presumed that students entering a work-study program would have had some school training beforehand in order that they might perform well on the job. The school experience would not necessarily be complete in that the student would not be vocationally ready to accept all responsibilities on the job. An example of the school pre-occupational training might be that which students pursue in commercial education, or industrial arts, while working cooperatively. Some boys might be engaged in work experience on-the-job in farm machinery repair while being taught agriculture in a local school situation. This is not dissimilar to the well-known diversified occupations student who has long since been involved with this kind of a training program. Among diversified occupations students there will have been, in all probability, one or two years of industrial arts. The student entering a cooperative program would then be able to carry on more successfully a work-study program. Some have regarded work-study as something "less than" the other more sophisticated vocational programs.

For many years, the internship has been respected and well-known as a cooperative type of training. It has normally been a program which follows a formalized training program in some schools, mostly colleges, in the past. It has been used in the education of teachers, physicians, social workers, counselors and many other types of professional people. Its use is being made more prevalent today in the training of school administrators, accountants, engineers, police administrators, and the like. Normally, we speak of the internship as something which follows a professional or sub-professional curriculum. This like all other cooperative programs is one which is supervised by the school or college which has provided the basic training for the internship. Since we have now identified the vocational interrelated cooperative program with the occupational-education purpose field, since we can see that it is not simply just a "low level" work-study program, and finally since we cannot identify it particularly with internships in general, we must come to the recognition of it as "something new," having its roots in the cooperative education field.

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[2]Mason and Haines, Cooperative Occupational Education (Danville, Ill., The Interstate Printers & Publishers, Inc., 1965), p. 49.

The vocational interrelated cooperative program is concerned with developing outcomes for those who are preparing for the world-of-work. It is concerned with the learnings which every worker needs to know. It is definitely involved with the knowledges, skills, and attitudes which the workers in occupational fields need to have in order to perform proficiently on the job. Although it embraces the common learnings that all workers need to have in order to be good citizens and to become a part of the in-plant organization in which they work, it does give more consideration to the primary goal of occupational competency. The program will be fitted to each student's stated career objectives. The students will be hired by persons who are able to offer a vocational training which is somewhat like an extension of the school's vocational program. The in-plant supervision of the work which is done on the job will be done by a person who might be considered a vocational teacher, an extension teacher, in the plant or industry where the training is to be done. Vocational interrelated cooperative programs are particularly interested in placing the trainee in a position of work where he will be able to do the things assigned him, and his abilities will afford him an opportunity to advance in the work of his choice. In doing this he will fulfill his career objectives.

Now let us consider for a moment the other side of the coin. The trainee in a vocational interrelated cooperative program will have classroom activities in school which are directly related to the job activities and the trainee's occupational goals. These classes or training activities in the school will be conducted by a coordinator or by vocational related-subjects instructors. This again points up to the fact that the program is one of a cooperative occupational education nature. Not only does this program provide the training of individuals for jobs which are of greatest interest to the trainee, but the students selected for the work are selected on the basis of their need and probability of success on the jobs in which they are to be trained. Not only is the coordinator involved with the finding of training stations but also in finding responsible firms that can and probably will provide occupational stepping stones for the student once he has finished his formal school-related training. Interrelated cooperative work is coordinated by a coordinator similar to those who have long since handled programs of diversified occupations, office occupations, distributive education, and the like. This coordinator is obligated to visit the trainee on the job, to discuss his progress with his supervisor or supervisors, to plan learning experiences, to evaluate each trainee's progress from time to time, and to aid in the solutions of problems he may have while on the job. As in other cooperative occupational educational programs, the student in interrelated cooperative programs is expected to earn a salary at the rate which is normally paid a beginner upon his entry into the occupation.

The Interrelated Cooperative Program

The foregoing has presented a picture which is not unlike many other cooperative programs with which you are familiar. What then is the difference between the interrelated cooperative program and other types of cooperative programs where occupational education is the

main purpose? For many years we have spoken of the "services" which are prevalent among State Boards of Vocational Education and the United States. These services have included Trade and Industrial Education, Agricultural Education, Home Economics Education, Business and Distributive Education, and Technical Education. Interrelated cooperative programs are those not especially designed to become a part of any service classification. Their administration is not clearly discernible as the responsibility of any of the well-known services. Therefore, its administration is of a type that demands interdisciplinary service cooperation. Actually, the program should be administered at the state level by a special person who would handle interrelated programs only. At the state level it should be possible that a designated staff member would initiate, approve, administer, and supervise programs of interrelated cooperative programs. A supervisory assistant should be named from each of the pertinent subject-matter services. When this has been accomplished, more than likely we will see the interrelated programs becoming more important in our state and your state as well.

Now what occupations should be served by the interrelated cooperative programs? Let me say that I would recommend that farming occupations involving knowledge and skill in agriculturally-related subjects should be handled as well as distributive occupations, business and office occupations, trade and industrial education occupations, homemaking occupations, wage-earning occupations related to home economics, health occupations, fishery occupations, and technical occupations. Any recognized occupation which we have normally considered in the past as vocational as well as the many evolving occupations should be included. Let me ask: How can anyone with a single specialty in vocational education be able to coordinate and administer such a program? Certainly it may be impossible to find one with training in all of the occupations mentioned above by the various services involved. Generally, the instructional coordinator to handle an interrelated class should have had instruction designed to fit him for the occupational objectives of some service or another. Certainly, the coordinator should be a person qualified as a teacher of vocational or technical education in some one occupation or occupational field related to the above broad classifications.

In most states it will be found necessary to provide special training for the coordinators of the interrelated cooperative programs. In addition to the course work required of persons from one of the services, it will probably be necessary to require this individual to have some indication of success as a teacher. In the State of Illinois the qualifications would be two years of successful teaching, one year of cumulative wage-earning experience other than teaching or counseling in schools, and a minimum of twenty-four semester hours of credit of approved courses in the fields of vocational education or guidance. Some states may feel that the person with less than a Master's degree would be unqualified for such a position. In summarizing the qualifications, it may be said that one would need to be trained in one of the occupational services or in the field of vocational guidance; he should have had successful teaching experience other than teaching or counseling in the schools; and certainly an accumulation of college credit would be desirable.

There are actually two kinds of interrelated programs that could be offered in the high school: (1) one of a prevocational non-cooperative nature for those who are not yet ready for work experience; and (2) another of a vocational nature for those who have had preliminary training in prevocational classes and are able to be placed on the job in the vocational interrelated cooperative program. The first of these programs might be considered primarily one of exploration and guidance. Occupational information and vocational counseling should be afforded these students as well as educational guidance and vocational guidance. In the pre-work experience groups, it seems very logical to include vocational counseling sessions and to make certain that each student will have had personal interviews with the counselor frequently and will be able to move with the greatest of ease into the work experience part of the program.

At the state level it will be necessary to watch closely the time which is set aside for the pre-work experience part of the program, and limits should be set with respect to the number of times the student is counseled in reference to the work he is doing in school as well as his objectives, goals, and aims which are to be met later by the work experience. It would seem desirable to specify secondary education classes in occupational information as well as the counseling sessions. For those who are assigned to the cooperative class and who are definitely involved in work experience, it seems that a certain number of minutes be specified whereby the commitment to on-the-job training would be controlled. In some states, fifteen hours per week has been considered as a minimum commitment to on-the-job training, and of that at least five periods a week be given to the interrelated instruction by the coordinator in charge.

Special Needs Served

Interrelated programs often have been considered more especially for schools with less than five hundred students, or in schools within a city or village with no more than five thousand population. To me, these are ridiculous restrictions and possibly provide unwarranted barriers except to the smaller schools. To offset this, interrelated programs in larger schools will be discussed a little later. For the moment, let us consider the values to the small school or small village or city which has heretofore not been able to afford any vocational education.

The smaller school or city where vocational education may seem impractical does provide a desirable atmosphere for initiating an interrelated program. Not only is this small school unable to afford many types of vocational education but it is unlikely that the placement would be possible even if the training could be accomplished. In the interrelated setup, one coordinator could handle a class of some twenty to thirty students and would be able to see that vocational experience was provided as well as to provide the related information which is necessary in all vocational programs. In a small school such as we are now discussing, we could visualize a coordinator of a cooperative interrelated program handling some students in the area of agriculturally

allied occupations, some in the field of home economics and food services, some in the field of personal services, some in the field of health occupations, and possibly some in the field of industrial education as well as business and office occupations.

Next let us consider, for a moment, the possibilities in a large school. Many of our larger schools have good on-going vocational programs which have long since been supported by Smith-Hughes and George Barden moneys. In some instances these programs are meeting the needs of only a few students, and in other schools the needs of many students are met. Regardless, it is very doubtful that the traditional vocational programs ever can meet the needs of all of the needy children who should be getting a chance in the field of vocational education. For those whose needs cannot be met by the on-going vocational programs, it is either a college prep curriculum or a general education curriculum, from which most of them drop before graduation. It is my belief, therefore, that vocational interrelated cooperative programs have a great opportunity to spawn other cooperative programs in large high schools. Just take for instance, a high school which is already endowed with very fine programs of vocational education in industrial education, home economics, agriculture, and business education. Parenthetically speaking, business education programs have not been considered vocational education in the past simply because they have not been supported with federal funds. This may not be the case for long, but at the present, this is probably true in many large schools. Regardless, today we are likely to find a large high school with some programs as follows:

Homemaking for girls
Business education for boys and girls
Machine shop and auto mechanics
Electronics
Mechanical drafting
Agriculture

These fields being rather specific do not appeal to all children. Even though some might profit from taking one of the vocational curricula offered, they would find the training insufficient for the particular jobs they hope to enter. Since their needs are different, it seems logical to consider an interrelated program to help such children find their interests and attain the goals they would like to attain if they could remain in school and do so. You can easily see, therefore, how interrelated cooperative programs might be started in a large school and offer vocational experiences to a number of children whose needs are not being met otherwise. It is doubtful that even a larger school could, for example, hope to put in many of the programs related to the following occupations:

1. Appliance servicing
2. Beauty culture
3. Building maintenance
4. Food services
5. Nursery school attendants
6. Grocery store management

7. Clothing cleaning
8. Clothing alterations and tailoring
9. Hospital aides and attendants
10. Veterinarian assistants
11. Laboratory technicians
12. Librarians
13. Meat cutters
14. Shipping and receiving managers
15. Commercial cooks and the like

Since the interrelated program would allow for many, many occupations to be covered by the coordinator and his instruction, many individual student needs would be met. Not only would they be met early in the initiation of the program, but later it might be possible that some of these occupational areas would grow so large that other cooperative programs could be developed to handle certain phases of the cooperative work. I can see how the interrelated cooperative program in a large school might easily evolve or might spawn other programs such as diversified occupations programs, office occupations programs, distributive education programs, health occupation programs, and possibly agricultural related vocational cooperative programs. All such cooperative programs could be spawned by the interrelated cooperative. If interrelated vocational cooperative education could become a continuous thing, and even if new programs become outgrowths, it is my belief that the interrelated cooperative program should be maintained even in the larger school to take care of the ever evolving individual needs. In very large schools there are always students whose needs cannot be met by regular vocational programs even when the traditional cooperative programs with which we are familiar are included.

Summary

In summary, therefore, I would like to point out that the cooperative interrelated vocational program is one which meets the needs of the large school as well as the small school. It is a program which meets no challenge that it cannot vanquish. It is one which can look forward to the changing industry and business of our times and can prepare for new positions long before specific vocational programs can be set up for them.

It can be seen that I have not advocated that the interrelated cooperative program take over the whole field of vocational education. It seems to me that, rather, it is an innovative type of high level vocational education which can keep alive other vocational services. Also, it should keep alive other cooperative programs of worth which we have known in the past; it should spawn new cooperative programs; and it should stay alive as a vigorous pioneering program.

COOPERATIVE EDUCATION AS A POLICY OF THE NATIONAL SCHOOL BOARDS ASSOCIATION

Joseph Ackerman

I have often thought about why the United States is somewhat different from the rest of the world, and why democracy means more to us than it does to other parts of the world. There is no question in my mind but that education and the orderly process of responsible self-government are the two indispensable elements for furthering our values and goals. Education is of primary importance in sustaining orderly and responsible self-government. This has been stated as far back as the days of the early Greek philosophers. The authority by which the people are governed in a democracy resides with the people themselves. Government is exercised by officials within the limits set by the people, and the officials are responsible to the people. In an authoritarian form of government the authority resides with the governors or dictators and is exercised over the people, without their consent and without responsibility to them, except as it may be expedient to recognize them with limited concessions.

There is striking evidence in the history of nations that individual freedoms, the quality of citizenship, and the character of public and private morality are affected by the quality of education. Certainly the power of the people to govern themselves can be a vital force and can be used with intelligence and wisdom only if people are well educated.

The power of people to govern themselves will be weak and ineffectual, and lost by default, if the people are ignorant. And so we can emphasize the point that if we in the United States are to continue to have economic growth and to maintain our place in world leadership, universal education is a necessity. Certainly it is the cornerstone of all that is good in a democratic self-governing and forward looking society.

It is at this point that the Boards of Education come into the picture. They have been assigned by the state legislatures the task of translating into reality the American dream of universal, public elementary and secondary education at public expense. We need to be concerned with the following questions: What is the constitutional basis for public education? What is the role of administration in providing and operating public schools? What are the goals? What is the significance of membership on the Board? What is the scope of the educational opportunities that the Boards of Education should provide?

As we trace briefly the origin of the Boards of Education we can see that they evolved from the early town meetings, and we can see control coming from them. Originally the citizens voted at the town meeting to establish and maintain schools, levy taxes, and appoint teachers. Later came the appointment in the town meeting of special visiting committees to see that the schools were operated effectively. Still later committees were established to employ teachers, and special

committees were set up to provide the buildings. Finally the colonial laws sanctioned special committees with specific powers for the operation of the schools. From this developed the movement in the direction of making the town council an ex officio member of the school committee.

From these progressive steps certain general principles evolved. Most states now require by law that local boards of education be chosen directly by the people of the school district for the single and exclusive purpose of operating the schools. In most states, but not all, school districts are physically independent of other units of local government and have the authority to raise revenue from local sources for the support of local schools. Most boards of education have the authority to make and to approve the final school budget. In a few instances it is submitted to the public.

As we review the development of the boards of education, we find they have their legal roots in the New England concept of democracy which regards the importance of the individual, his freedom and responsibility as the cornerstone of community well-being. In order to foster the development of individuals capable of carrying on the responsibilities of citizens in a democracy, the boards of education must have one basic purpose in mind, that of providing educational opportunities for the youth of their area.

A board of education alone, however, cannot provide good schools, particularly if the district over which it presides is inadequate in size, or if the attitude of the people is such that they will not support a good educational program. The board needs to recognize that one of its main responsibilities is to create the proper educational environment and exert a wholesome influence in the community. Of equal importance, the board must have a knowledge of the educational needs of the community and an understanding of how these needs can be met.

It is essential, too, that boards of education have an informed, sincere, aggressive leadership if they are to take concerted action in the communities. The people can determine the kind of educational program they want. However, people are often confused, uncertain, indifferent, or inarticulate about the kind and amount of schooling they wish for their children as well as the quality and effectiveness of the educational program. Then, the politicians and others, with little interest in the schools, may make the decisions, thus, youth and the community may suffer.

The school system needs to reflect the community requirements. The professionals that are hired to operate the schools will be at sea unless the board properly interprets the needs and provides guidelines for areas of emphasis and methods of operation. Therefore, the board member must know his community intimately and must understand the educational aims and philosophy of his fellow citizens. Professional educators are trained to design and operate a school system that fits a pattern, provided the board of education provides the blueprint and the direction.

The framers of the national constitution did not create a national system of education but left the direct responsibility for it to the states. These leaders were aware of the importance in a democracy of developing an educated citizenry who would use the right to vote with responsibility and intelligence. They recognized the moral responsibility of the national government by making provisions for the states to act in their own interest and in the interest of the general welfare of the nation. The Federal Government provided for establishment and maintenance of public schools by territorial governments as new territories were acquired. Thus, today, it is the responsibility of the fifty states through their constitutions to provide public education for its citizens.

In most states the state constitution places a mandate upon the legislature to provide for establishment and maintenance, at public expense, of schools which are equally available to all. Thus the state legislatures have the primary jurisdiction and can provide whatever form of local organization they may choose. This is the reason for the great variety of programs throughout the United States. In general, however, all the powers of the school districts in the state are delegated by the legislature and not delineated in the constitution. One exception, however, tends to be the constitutional or statutory restrictions on the power to tax.

The goals of our public education arise from the meaning and the values of our democratic society. They are as old and as lasting as our democratic ideals. There are various kinds of goals in the same sense as there are varieties of needs and desires. Educational goals are often stated in various ways, but they always reflect the significance of the balance between individual freedom and general welfare, between the selfish and the altruistic, between competition and cooperation, and between rights and responsibilities. The emphasis always includes the learning and acceptance of these values and the rational application of them in our private as well as our public lives. They are often expressed in terms of productive, competent, ethical citizenship.

Educational goals are often expressed in terms of the capacities of individuals and richness in personal living on the one hand and contributions to society and enrichment of the lives of others through the sharing of talents on the other hand, whether this sharing be through the cultural, scientific, social, religious, economic, or other aspects of our life.

Some of these goals are expressed in terms of subjects to be learned within a specific time. Each individual has some notion of his educational goals although this is not as frequently emphasized in our schools as might be. Parents have goals for their children; teachers have goals for their pupils. Communities also have some sense of goals for their schools. Sometimes these are set down clearly, particularly when boards of education, along with their administrators, have given effective educational leadership to such communities. Some of the states, through the pronouncement of official agencies, have

also expressed educational goals. In many instances they set up commissions to spell out their goals. The National Education Association has prepared statements as guides on deciding what to teach in a changing society. Its goals and values appeared in an official report of its National Committee on Project on Instruction.

The responsibility of a board of education should be found in the statement of its policy. Boards of education more than any other agency have the direct and immediate responsibility of insuring the attainment of educational goals in the elementary and secondary schools in their communities and in the nation. This is, in fact, the only reason for the existence of the boards of education and it seems, therefore, reasonable to expect them to set forth in clear, definitive terms, the goals which the people of their state and of their community wish them to attain through the public schools which they operate for the people.

One of the major goals of education is to prepare youth to qualify for, and hold a job--one that will help them to achieve economic security and to live satisfying, successful, and useful lives as family members, workers, and citizens.

The educational needs of all youth cannot be met by a single uniform program of instruction. Equal educational opportunity does not mean identical education. A varied curriculum must be provided if the school system is to give pupils, who have individual differences, opportunity to develop their potentialities. Too often in the past we have rewarded conformity and have discouraged creativity. We need to provide sufficient classroom space and opportunities for divergence, and teachers should be encouraged to discover and nurture talent.

As pointed out in a set of leaflets, "Occupational Education and Training for Tomorrow's World of Work," prepared by the North Central Public Affairs Committee, yesterday's education is not sufficient to prepare today's youth for tomorrow's world of work. The problem of preparing for a job has always been a critical one; it is aggravated in the present decade by revolutionary advances in knowledge and technology that keep the nation's business and industrial complex in a continuous state of change. Changes in the way an industry produces a commodity have brought about changes in the way a man can earn a living. The joblessness that results from people's inability to change and develop the skills required by the changing world of work is a serious problem today.

Changes in the world of work have been accompanied by an unprecedented growth in the U. S. labor force. The total labor force in 1970 will be about 87 million. The 26 million young workers entering the labor force between 1960 and 1970 are far more than the country has ever had to educate and absorb into employment in any previous decade. The increasing size of the group is certain to mean increased competition for jobs, especially for the kinds of jobs in which young people normally find employment.

More and more occupations now require skills and specialized knowledge. While in colonial times most people in America were engaged in farming, fishing, hunting, lumbering, quarrying, and homemaking, there

are now more than 22,000 different occupations known by over forty thousand different job titles. The nation's more than seventy million workers are employed in jobs ranging all the way from the so-called unskilled occupations to the professions requiring years of specialized training. The process of specialization is continuing, and with it comes not only new and different job or vocations, but also many far-reaching social and economic changes. Those who adapt to change usually gain in income and personal satisfactions. For those who do not, the cost is usually great. This cost is borne by every American in terms of higher consumer costs, increased welfare costs, and loss in productive resources due to under-employment or unemployment.

Approximately 5 percent of the U. S. civilian labor force, or about four million persons, were unemployed in 1965. These figures indicate that the economy is not fully utilizing its human resources. Unemployment among young workers has consistently been higher than for the rest of the labor force because of the problems which face new workers entering the labor force: lack of training, little identification with an industry, inadequate knowledge of the labor market, and vulnerability to layoff due to lack of seniority. Young workers are entering the labor market today in rapidly increasing numbers, and the unemployment rates for these age groups are also increasing very rapidly. The highest rate of unemployment is found among job seekers sixteen and seventeen years of age. High school dropouts experience two to three times as much joblessness as do graduates.

One of the most frequently offered solutions for unemployment is more and better education and training. More schooling does not necessarily mean going to college. Not everyone need go, or should go, to college. There are many educational activities that can offer rewards in job satisfaction and income. One of the most important of these activities is the high school vocational program, which combines practical vocational training with academic education to produce employable graduates. The high school vocational program allows those who do not plan to go to college or take post-high school training the opportunity to learn a marketable skill while in school. It provides the student with a sense of accomplishment and dignity. For the potential dropout this training can be an important factor, which may induce him to remain in school and become employable. Some programs combine employment with schooling.

Studies show that in communities where students are not offered adequate vocational programs, the droput rate was three times as high, and the unemployment rate was eight times as high as in areas with such educational opportunities. In Milwaukee, which has one of the best vocational education systems of any large city in the United States, the school dropout rate is only 5.5 percent compared with a United States average of near 40 percent.

There is also a need for nonacademic training after high school. This need might be met by the broad scale community college which combines vocational-technical training with lower level academic education, adult continuing education, adult remedial education, and retraining. Other means of meeting the need include area or private

vocational schools, public or private technical schools, junior colleges of various kinds, and special federal or state remedial and retraining programs. Systems of earn-while-learning appear promising as do education and training provided on contract by industries.

Effective programs to combat unemployment are costly. But society pays a much higher price for unemployment in terms of youth delinquency and the waste of the abilities of thousands of citizens who cannot find their proper place in society.

We must always keep foremost the thought that the strength of the nation lies in the hearts, minds, spirits, and consciences of the people. The nation's welfare lies not in the laws of government but in the honesty and moral responsibility of its citizens, which is acquired through an effective educational program. Educators must be aware of their role of service and leadership if we are to have a better tomorrow for our children and if we are to see the full realization of our nation's democratic ideal.

PSYCHOLOGICAL EFFECTS ON STUDENT-TRAINEES

Ralph M. Stogdill

I should like to begin my talk by describing a situation. To begin, it appears to me that the educational establishment as a whole is not keeping pace with the other major institutions--political, economic, and religious--in our society. Too many of our young people are required to leave school without having encountered any experience or training that equips them to cope with the modern world. Despite the fact that we in the various professions like to blame all our problems on the home, I cannot believe that the home is responsible for our own backwardness.

Children are required by law to attend academic school whether or not they derive any real benefit from it. Many children who are wasting their time in academic school could profit from vocational training that is suitable to their aptitudes and abilities. However, because they are too young, below average in intelligence, present behavior problems in school or in the community, or for some other related reason, they are not regarded as suitable candidates for the cooperative education programs in many of our schools.

It seems to me that we who are interested in vocational education cannot afford to wait the several decades that will be required for the academic establishment to wake up to its responsibilities. We need to recognize and accept our responsibility for every student who can profit from vocational training, no matter what his physical, intellectual, or emotional handicaps may be. The student should not be compelled to leave school or depend upon some external agency such as the Neighborhood Youth Corps to get the training that he needs.

If we open the vocational program to the large numbers of deprived and socially maladjusted students who need it, we shall need the best possible understanding of their problems. We shall also need an understanding of factors that influence their adjustment to the work place. Fortunately, there exists a large body of research literature that can assist us.

I should like to summarize very briefly some of the research findings on factors related to job adjustment. In the time available, I can do little more than hit the high spots. A survey of the literature indicates that both individual and environmental factors influence adjustment to the job. The same variables influence adjustment to training, but not always in the same way that they affect work adjustment.

Individual Factors

Let us consider the individual factors first. Age, sex, and race are individual characteristics that are determined by birth. They are important because they operate as barriers to employment, and to training

as well. A person is never the right age for an available opening when jobs are scarce. Women find it difficult to enter various occupations. Race operates as a still more serious barrier to the desirable occupations.

Physique and health are more critical factors in some occupations than in others. Poor health is more frequent among the low-income groups. It is also associated with high accident rates and absenteeism. Health is not highly related to task performance.

Ability, skill, and knowledge are important determiners of job performance at all occupational levels--semiskilled, skilled, and professional. The three variables tend to be intercorrelated. That is, high verbal ability, knowledge, and manual skill tend to go together. There are exceptions, of course; but we know from years of practical experience that failure in academic subjects is not necessarily predictive of success in manual trades or vocational training.

Individual personality and pattern of social interaction are also related to success in job and training. Personality difficulties are far more frequent than unsatisfactory job performance as causes of discharge. In fact, persons with severe personality disturbances may do highly satisfactory work. But persons with emotional problems may find it difficult to obtain or hold a job because of inability to get along well with supervisors and fellow workers. Personality problems are often related to low job satisfaction as well.

Recent research indicates that expectations, aspirations, and reinforcements play a much more important role in adjustment to job and training than was believed possible in years past. It is not the absolute value of a reward, but the individual's reaction to it, that reinforces or depresses performance. Pay either higher or lower than expected is related to job dissatisfaction and turnover. Failure to satisfy expectations relative to job assignment, working conditions, pay, and advancement are associated with employee dissatisfaction. Young people often entertain expectations and aspirations that cannot be easily satisfied because they are unrealistic. Work experiences that enhance the individual's sense of accomplishment and self-esteem tend to be associated with job satisfaction.

Recent research has also shown that an individual's membership in various social, occupational, and ethnic groups tends to determine his values and his acceptability to other groups. The groups with which he compares and identifies himself tend to determine his aspirations and satisfactions. An individual tends to be better satisfied with his job or with training when it is highly valued by the groups with which he identifies himself.

I have noted six sets of individual factors that condition adjustment to work and training. These are: (1) age, sex, and race; (2) physique and health; (3) ability and skills; (4) personality; (5) expectations and aspirations; and (6) social class and group identifications. Certain of these tend to be interrelated in that the individual

who scores high on one of the factors tends to score high on one or more of the others.

Environmental and Job Factors

The school and the work place are located in a larger community environment. The community contains numerous elements that determine the nature of the schools and jobs that will be located in it and associated factors that condition the individual's reactions to school or job.

Community norms, for example, determine the nature of the jobs that will be available to individuals from different social classes and ethnic groups. Family, social class, and occupational norms determine the kinds of jobs that the individual will be willing to accept and also his willingness to acquire the training necessary for occupational advancement.

As the technology of a society becomes more complex, the demand for trained personnel increases. Also as technology becomes more complex, more levels of authority are required in the workplace, and the worker tends to lose control over the jobs. Thus, he needs not only better technical training, but he also needs to subordinate his own inclinations in order to adapt to the job.

Changes in technology involve changes in task performance. New jobs in the future will require less in the way of physical skill and more in the way of technical knowledge, judgment, decision, and responsibility. In other words, there will be greater demands for predictable and reliable performance, both in relation to task performance and to personal interactions.

Among the community and job factors that affect adjustment to work and training are (1) community structure and norms; (2) occupation and technology; (3) the structure of the workplace; (4) task demands and opportunities; and (5) dependability of performance in relation to the job and fellow workers. These factors interact with each other and with individual factors to determine job adjustment.

We have considered eleven classes of variables--six individual and five environmental--that determine adjustment to the job. They also condition adjustment to school and training. Each class of variables is complex in nature. The variables interact in various combinations to determine adjustment for different individuals. It is apparent that we do not have any simple formulas that will enable us to understand the problems of our students in school or on the job.

Several factors contribute to the high dropout rate and to maladjustment in educational programs. One of the most potent of these is the pressure exerted by the values and norms of groups and individuals with whom the student most strongly identifies himself. A boy friend, girl friend, or group of friends, is a particularly powerful source of pressure. If the student believes that dropping out of school will enable him to participate more satisfyingly with his friends and

enhance his status and respect, and if this idea is reinforced by his dominant reference groups, he has a lot going for him in the direction of dropping out of school.

A second factor, almost as influential as the first, is the school situation itself. If the academic program of the school has provided the student with several years of failure, discouragement, debased self-respect, and resentment against continued pressure for achievement, he is likely to expect the same outcome in the vocational program.

Reference group identifications added to experiences of academic failure combine to produce a third factor that makes it difficult to persuade the young person to complete his schooling--academic or vocational. This factor might be called the authentication of communications. These are big words, but they identify an important reality. The discrepancy between what adults say is true and what the student perceives to be true tends to invalidate adult communications. If we have provided the student with numerous experiences of failure, he comes to expect further failures. The difficulty is further complicated by the fact that dominant reference groups issue communications that are received by the individual as being authentic. Such authenticity is anchored in emotion, values, and group norms which, as we have noted, exert powerful forces upon the individual even though they may have little relevance to what actually exists in the world about us.

If we want our communications with the student to be received as authentic, we need to start the very first day he attends school, and continue thereafter, to provide him with experiences that reinforce his sense of self-esteem, and ability to cope with the world of people and things. We need to provide the same experiences for the other children in his classroom and for his playmates in the neighborhood. What happens to him, what he sees happening to his friends, and what they say to him, all influence what he will do.

The factors that I have discussed to this point merely indicate the complexity of the problem confronting us when we attempt to assist a vocational student who presents an adjustment problem in the classroom, or when we try to persuade a reluctant student to complete his schooling. If we want the student to believe what we tell him, we must provide him with experiences in the classroom that validate for him personally what we say to him. It is not enough that we perceive the truth of what we are saying. It will appear true to the student only if his own experiences demonstrate it to be true.

I return now to what I said at the beginning of this paper. The academic program is such that it frustrates and discourages many of our young people and alienates them from school. The vocational program, if it were enlarged and adapted to the needs of students with varying levels of ability and aptitude, could keep many of them in school and equip them to make the best possible contributions of which they are capable. Finally, I believe that we tend to underestimate the capabilities, not only of the most capable but also of the least capable, of our students. Most of them become self-supporting and valuable members of the community despite the little that we do for them.

The school has made a promise to our students. If those who are responsible for the academic programs continue to ignore that promise for a considerable proportion of our students, I believe that we who are interested in vocational education should exert ourselves to the utmost in an effort to fulfill their disappointed expectations.

EMOTIONAL, EDUCATIONAL, AND SOCIAL ASPECTS OF COOPERATIVE EDUCATION

Chrystine R. Shack

The purpose of this paper is to examine the emotional, educational, and social aspects of cooperative education with some special reference to the disadvantaged.

A well-conceived cooperative program answers a vocational need for many young people--and particularly, the disadvantaged. It is, therefore, one of the critically important programs in secondary education and as such, merits periodic examination.

A 12th Century Hebrew philosopher wrote: "There are eight degrees of charity . . . the highest is to aid a man in want . . . by providing work for him so that he may become self-supporting."

Ours is a nation characterized by heterogeneity--a nation in which its many peoples neither look, live, think, nor act alike--a people so characterized cannot be identical in their abilities, aspirations, hopes, or accomplishments.

It follows then, that among our millions of secondary school students, there are those whom we have come to identify as "disadvantaged."

This term has been interchanged with such descriptive identifications as deprived, under-achievers, uneducables, non-learners, handicapped, and alienated. Intellectual, social, and emotional inadequacies are experienced by this segment of our secondary school population. Any large typical American high school has a significant number of disadvantaged students: some by reason of their lack of high academic ability; some by reason of poor motivation resulting in underachievement even in instances where the ability may be high; some by reason of neglect resulting in socially undesirable behavior; and some by reason of the fact that they come from economically and culturally deprived homes and exhibit one or more of the deficiencies previously cited.

Our advanced society has prompted a new and concerned awareness of the disadvantaged--it has further propagated efforts to understand both the differences which serve to distinguish them and the similarities which relate them to other students. This awareness has further spread to the educational realm where vocational educators and a growing number of academicians have adopted Conant's theory of the ideal in American education--"education for all the children of all the people," embracing also, the disadvantaged.

Our public school authorities, in an attempt to meet the needs of all youth, have made valiant efforts toward the establishment of "the comprehensive school." These efforts have been exemplary, but the concept of comprehensiveness has not yet been accepted by all educators. The needs of the disadvantaged would be met in such a school. Their needs, as is the case for all youth, include the provision of effective prevocational education and ancillary services which will equip them

for vocational adjustment. They need an education which enables them to find satisfactory employment and, at the same time, one which fosters the development of their self-confidence and their productivity.

More than ever before, the American high school has the inescapable obligation to provide for every student who reaches this level of education that education and training which will prepare him for the next step in his life. In failing to provide such preparation, our schools contribute to an intolerable waste of human resources and the composting of grave social consequences upon society . . . unemployable persons, increased welfare costs, delinquency, crime and a sense of futility or frustration on the part of those who are the victims of such deprivation. A man void of occupation or work performs no function in or for society. James Baldwin in his Fire Next Time states: "The most dangerous creation of any society is a man who has nothing to lose."

Among the emerging programs designed to meet the needs of these and all students, is that of cooperative occupational education. In a discussion of the provision of cooperative occupational education for disadvantaged youth, one needs first to identify the disadvantaged--who are they, what are their disadvantages, how can we recognize them, and in what way can we serve them?

The findings of Havighurst and Stiles, as reported in A Statement of National Policy for Alienated Youth, indicate that a significant number of the disadvantaged (some 15%) have intelligence quotients which place them within the range of the slow-learner with IQs of seventy-five to ninety. Their intellectual ability is below that which we consider the "norm," but they are not as intellectually limited as the "educable" or mentally retarded. "Such youth," they reported, "have been unsuccessful in meeting the standards set by society for them--standards of behavior, of learning in school, of performance on the job. Upon reaching adolescence, these youngsters may be identified as the misfits in school. They are either hostile and unruly, or passive and apathetic. They have quit learning and have dropped out of school psychologically two or three years before they drop out physically."

Disadvantaged youth can be found in all ethnic groups, IQ ranges, and from middle and upper class homes. Any child, void of recognition, attention, interest, and emotional security, becomes disadvantaged. However, low income status often characterizes the home of the disadvantaged as well as a myriad of social problems contributing to emotional and cultural inadequacies. Additionally, their disadvantages include slow learning rates which make it difficult for them to meet the standards imposed on them by the regular academic curriculum . . . usually geared to average and above average learners. They experience academic retardation accompanied by the gnawing frustration of grade failures. It follows that they are generally over-age for the grade placement which leads to feelings of inadequacy and inferiority and an undermining or even destroying of self-confidence. The disadvantaged youngsters struggle with a program designed for more able students

because no special instructional or training programs are devised for them. Succinctly stated, the disadvantaged suffer a plethora of emotional, educational, and social inadequacies.

There are evidenced emotional deficiencies including:

1. a serious emotional or psychological handicap
2. an active antagonism to teachers and administration
3. an unhappy or unpleasant family situation
4. a tendency toward discipline problems

We are similarly cognizant of educational shortcomings such as:

1. below average grade placement
2. low scholastic aptitudes
3. low reading abilities
4. marked disinterest in school and a feeling of not belonging
5. failure to achieve in regular school work

These emotional and educational deficiencies are compounded by plainly visible social liabilities such as:

1. decided differences from peers with respect to size, interests, social class, mode of dress, and personality development
2. non-acceptance by staff and peers
3. friends who are considerably younger or older
4. delinquency tendencies

These are the students whom we must help to discover themselves--discover themselves in terms of who they are, what they are, where they are going, and what they can make of themselves. They need to know and be confident of their own abilities; they need to know their weaknesses and what they can do about them.

I submit to you that the void with a great many disadvantaged youth is one of <u>competence</u>, <u>not capability</u>. Unless they see what education can do for them, they will waste time as "attendance law prisoners" dropping out at the first opportunity. They need a wider acquaintance with job possibilities and realistic knowledge of what is involved in preparing themselves for jobs which interest them.

A dearth of opportunities for the disadvantaged make cooperative education a "must." Work itself can be educational and, very likely, a more applicable form of education for the disadvantaged in that it combines the tangible with the intangible. Cooperative education will help the under-privileged or deprived student find himself and the best role for him in relationship to society.

Give any student work that he can do--work at which he finds a measure of accomplishment and you have given him, in my opinion, impetus to an improved psychological attitude and elevated aspirations. A distributive education coordinator related to me the story of Bob Holloway who had endured the basic business education tract for three of his

senior high school years. The student had endured this pattern because his ability level was not adequate to the more demanding bookkeeping or stenographic patterns in the high school, and vocational trades and industries programs were completely lacking. This meaningless program provoked little enthusiasm nor did it heighten the aspirations of the student. A program of distributive education became a part of the high school curriculum. In his senior year, Bob was enrolled in the program. A heretofore hidden effervescence emerged. A slight of stature, yet neat and personable young man found his niche in selling at a local boys' clothing haberdashery. Within a few short weeks he was heard commenting to his high school principal: "Our D.E. program is the best thing that has happened here at Hamilton High. I'm working at a job I can really do. I help others and help myself. Besides, I get paid for doing it! It makes school worthwhile." The same student was subsequently accepted as a conditional student in a post high school distributive education program. The provision of cooperative education cannot be realized, however, without a basis of development. We think of cooperative education as the outer circle of a concentric circle of training. The inner circles include knowledges, skills, and abilities the student needs to have, and a nucleus of personality development, poise, social maturity, and empathy for others. It is not enough to equip the student with manipulative skill or manual dexterity. Rather, we must aid him in the acquisition of the added capabilities if he is to function successfully in the world of work. The disadvantaged require knowledge in basic academic skills: reading, writing, listening, speaking, mathematics, ability to find and organize information, and ability to think.

Our educational system tends to reinforce the good students and to give little attention, or provide less than the necessary help for the disadvantaged students. What then can be done to supply the needs of the disadvantaged? Should education change the curriculum for the disadvantaged? No, simply begin the instructional program at a level that can be understood by the disadvantaged child and through slow, gradual steps, help him improve and raise his ability level.

As is the experience of all initial learners, the disadvantaged are concrete rather than abstract thinkers. Therefore, attention should be focused on sensory rather than verbal aids. Instruction should be at the perceptual level as much as possible . . . teach by showing, by doing, by using gestures, posters, pictures, role playing, diagrams, and examples.

I am reminded of an incident involving a twelve-year-old migrant child, with the unusual name of Judge Wilks, whose scholastic aptitude placed him among the second grade students in our New Jersey Migrant Demonstration School Program. On the contrary, Judge's experiences and knowledges regarding farming and farm apparatus could be likened to that of a young adult. Judge had followed a migratory pattern with his family for all of his twelve years. On a school trip to acquaint the students with community helpers and resources, the fire station was visited. The fireman talked of fire monitoring sprinkler systems which were a part of many new buildings within the community. It wasn't too easy for Judge to understand or visualize "an automatic sprinkler"

triggered by a fire impulse, but we found ready acceptance of the idea when we associated it with a sudden shower or sprinkle (in Judge's language) which brought relief on an unbearably hot day or even the rotating lawn sprinkler used on the lawn of the farmer's home. Judge surprised all of us following these examples by his perceptive ability. He chose to relate the automatic sprinkler to "the i - ri - gation work his father was doing" when he boarded the bus for migrant school classes that morning. Most assuredly, we expounded on the irrigation on our return to the classroom, making it a part of our instruction.

Emphasis should be given to activities which involve oral expression--here the teacher can build vocabulary, correct language usage, and increase depth of comprehension. Through conversation, verbal skills are developed. Verbal stimulation is often absent in the home of the disadvantaged.

Initiating activities in which they can personally be involved and actively participate could provide stimulation for a more intensive search toward independent exploration. Making use of the innate curiosity they possess may help to open up avenues for further advancement. By no means should the disadvantaged receive a watered-down version of education, but if they are to be reached and subsequently reap profitable gains from their education, their learning experiences must be adapted to their style, interests, and needs.

A general education program which has meaning and importance for these students will help each to learn at his own level and pace. To fit the educational needs, we must then create and implement individualized curriculums. Similarly, we must provide counselors and classroom teachers whose training is geared to serve effectively the disadvantaged child. Better counseling, especially in the guidance area, is needed in the junior and senior high school.

Enrichment programs, even at the pre-school level, are necessary so that disadvantaged youngsters do not enter school with a learning deficit. Enrichment and remedial programs are necessary on a continuing basis all through elementary and high school. The instructional program should be a flexible one with an abundance of supplementary and vitalizing learning activities. It should include study trips, resource visitors, and many audio visual materials to broaden backgrounds and to make sure the students learn even though they have impaired or limited academic skills. Audio visual aids, programmed instructions and concrete aids help these students grasp knowledges considered vital in the learning process. Specially conceived instructional materials including textbooks and the supplementary materials are mandatory. Half-way measures will not do. It will not help to give a senior-year disadvantaged child whose learning skills need rebuilding a tenth-year book if what he needs is instruction at the seventh-grade level. He will be as helpless with the tenth-grade "easy book" as if he were wrestling with the twelfth-grade book he cannot use. It will not help to explain the processes of decimal fractions over and over to a child who still gets the wrong answers when he adds. Our programs for the disadvantaged should go back as far as necessary, without reservations as to how far that "ought to be." The student can then take the needed steps and sometimes quite rapidly indeed.

I must stress, that the voids with the disadvantaged are not permanent, fixed, or unchangeable. They are voids which can be rectified as a function and a responsibility of education. The individualized curriculum should have a structured pattern and provide a planned approach to the mastery of needed basic education and vocational skill development. The educative process satisfies the acquisition of knowledges, but what about the inner core--self-development?

No longer is the teacher merely master of language, or mathematics, or reading. Of necessity, the teacher must become the agent of the entire educational process with the disadvantaged child--concerned certainly with the acquisition of knowledge and the development of mind and cognitive abilities, but concerned also with the totality of the learner. Intellectual learning involves emotional learning, and the two must interact. The disadvantaged student must be guided in the development of personality, poise, social amenities, and person-to-person and intergroup relationships.

A cooperative occupational education program places great demands on the inner core, for it requires adherence to an adult code of behavior, appearance, and performance. The disadvantaged child needs to be recognized as an individual whose personal welfare and progress are important. Elevating his personal image increases his understanding of other people and his ability to work with them. To change the attitude of the disadvantaged student toward himself, others, and society, the teacher must be warm, understanding, and sympathetic. Learning activities should be carefully chosen to focus on important understandings and to mold attitudes and values. The social values of the teacher are most often transmitted to the disadvantaged student. For him, the interested teacher is an identification figure to be emulated. Continuing efforts should be made to improve the student's social concepts of dress, appearance, manners, speech, and participation.

Sue Majeski came from a broken home where little parental attention or interest was given the several children already in junior and senior high school. The mother probably thought of them as self-sufficient and viewed her forced freedom as a result of desertion as a recreational outlet. In this environment, Sue and her teen-age sister developed weird patterns of dress, coiffure, and make-up. Sue experienced no difficulty with the mastery of dictation and transcription and their companion secretarial skills. She was thus vitally interested in the cooperative work experience program in office occupations. During the initial six weeks in school and preceding actual cooperative employment, precept and example on the part of the teacher soon beguiled Sue and one problem--that of dress--was solved. The highly piled coiffure and ice-like make-up, then the current fads, were not so easily abandoned.

This was accomplished, however, when Sue was interviewed at an employment station along with two of her classmates. Each girl possessed the skills for the particular vacancy and the ultimate selection was to be based upon intangible factors of personality, appearance, etc. The interviewing personnel manager abhorred such hair fashions and make-up. Sue was not selected.

Self-evaluation in conjunction with the teacher ferreted out her probable liabilities. Sue had passed a hurdle of self-development. On her next interview, she was selected, and her student employment led to permanent employment upon graduation. Self-confidence, self-esteem, and feelings of worth, strength, capability, and adequacy aid the individual in coping with his environment.

The final perimeter of the referenced concentric circle of training is that of cooperative occupational education. For disadvantaged boys and girls, vocational guidance cannot wait until high school. They can and should learn about many kinds of jobs from the time they first study their own neighborhoods and towns. Experimentation might be undertaken with work experience programs starting as early as the seventh grade of the junior high school, continuing through senior high school, and leading to graduation. Such a program should, of course, have the proper sequential development with the staffs of both junior and senior high schools working together on the development of curriculum and types of work experience.

Important stress should be placed upon people at work. An organized study of vocations should be included in the seventh or eighth grade with adequate practical and specific information about the advantages of a wide variety of jobs and the preparation required for them.

The State of New Jersey has recently initiated a program in "Introduction to Vocations," which might interest you. Girded with these facts, the disadvantaged can be guided in the establishment of strong and practicable goals for themselves. Goal-centered children are the best guarantee for continuity of training and ultimate accomplishment.

The concentric approach toward readying the disadvantaged child for employment should, for the most part, satisfy the needs of these students. Conceivably, a program which aims to instill basic educational requirements, skills and abilities, social cognizance, and occupational intelligence should lead to a preparedness for practical work experience.

Moreover, the properly exercised coordination activities would provide an ideal selection of work station--a job which is suited to the individual student's personality, capabilities, and potentialities.

However, idealism is not always realism, and we might expect to find some, in my opinion a minority, of the total disadvantaged student population whose needs dictate a sheltered or protective employment situation. Protective or sheltered work experiences might well be provided in <u>four</u> stages:

<u>Work Exploration</u>--designed for those having little or no work experience. During a specified period of time, the students try out a number of job types in an effort to determine their vocational choices.

<u>Work Study</u>--wherein the student would work during the summer prior to participation in a cooperative program as an employee of the school or any other public employment situation.

Work Projects--where the students complete job assignments within a sheltered environment under the direction of a familiar supervisor. A contract plan of operation might be employed.

Actual Cooperative Work Experience--where the students work with an outside employer. The employment station should be fitted to the student's skills, social and emotional development.

We do not espouse the theory that cooperative occupational experience for the disadvantaged should be afforded solely through sheltered employment, but we do recognize its worth for those students whose emotional, educational, and social development dictate such employment experiences.

Disadvantaged children develop, in many instances, a natural protective covering as well as avoidance practices which result in placing veritable controls on their performance and in dulling their incentive. Protective employment, in some cases, would lend itself toward magnifying this presentiment.

Moreover, protective employment places the onus of continuity and accomplishment on the student, for we, in essence, are saying, "you have been provided the ultimate in training and job opportunity--if you do not succeed under such circumstances, you cannot succeed at all." Such an attitude belies the responsibility of our schools to the disadvantaged child--that of providing appropriate opportunity (in relation to the individual's abilities and personality) for a modicum of success.

Vocational education has a unique obligation: Ours is the task of exerting that concern and influence which will serve as the mainspring for significant changes in the lives of the disadvantaged. If we wish to develop citizens who are self-assertive rather than servile, self-sufficient rather than dependent, self-productive rather than parasitic, we must embark upon a course of action which will provide for the disadvantaged an opportunity for achievement commensurate with their ability and befitting their dignity as members of the human race.

EXPERIENCES WITH THE WOMEN'S JOB CORPS

Virginia Keehan

I would like to share some concepts, ideas, and experiences in working with disadvantaged youth who have joined the Job Corps Program. The Job Corps has taken but a small portion of these uncommited youth and attempted to train them in a skill.

These young people receive basic education instruction, instruction in pre-employment skills and knowledge--then the direct, purposeful, on-the-job-training planned by the Vocational Education Department with the basic education instructors. Mobility of young people is a strength--they are willing to move where the jobs are.

The Job Corps provides residential centers for young men and women sixteen through twenty-one in a coordinated program of basic education, shell training, and constructive work experience.

WHO THE GIRLS ARE: The women are the children of that under-developed nation that lives among us . . . the children of the poor. Who these girls really are, and who they will be, we are just beginning to know. Their vast potential has never been tapped. What we do know about them is this: They range in age from sixteen through twenty-one. They are technically not ready for employment through lack of education and lack of training. And we know this: Each one has the intelligence and the will to change her lot, if given the chance.

WHAT THE JOB CORPS HOPES TO ACCOMPLISH: To help young women rise above their environment, and to escape from the ever-downhill path that their mothers have had to follow--the Job Corps gives them a truly fresh start. The girls' experiences hopefully will provide the support they need to find that they are persons of value and have some contribution to make to society.

In an age of prosperity, when the economy is rapidly expanding, when unemployment is decreasing, and when new jobs are constantly being created, it may be easy to be confident about the ability of youth to find jobs and to be confident about the adequacy of the vocational education that they are receiving. In fact, however, there is a serious discrepancy between this rosy over-all picture and the situation which faces many of today's youth, especially certain segments of them--the poor, the unskilled, the uneducated or poorly educated, the members of minority groups--the women. Many of these new entrants into the labor market are unable to meet its demands for skills and thus find themselves unemployed.

In 1965 the unemployment rate had dropped to 4.6 per cent of the 75,635,000 in the labor force. But 1,431,000 of these 3,456,000 unemployed were between the ages of sixteen and twenty-four, which is 10.1 per cent of the 14,168,000 youth in this age group in the labor force. And for the youth between the ages of sixteen and nineteen the unemployment is 14.8 per cent. The women fare worse than the men. In

the total labor force 4.0 per cent of the 49,014,000 men are unemployed, but 5.5 per cent of the 26,621,000 women cannot find jobs. In the fourteen to nineteen age group, 13.1 per cent of the 4,157,000 boys were unemployed. The situation for the non-white is much worse. Four and one-tenth per cent of the 67,187,000 whites in the labor force were unemployed as compared to 8.3 per cent of the 8,448,000 non-whites. In the fourteen to nineteen age group 11.8 per cent of the 3,668,000 white males and 12.6 per cent of the 2,649,000 white females were unemployed as compared to 22.6 per cent of the 489,000 non-white males and 29.8 per cent of the 285,000 non-white females.[1]

This means that over one and a half million young people (fourteen to twenty-four) in the country are looking for work and cannot find it. And the number of young people entering the labor force is steadily increasing. In 1965 alone, 550,000 young people entered the labor force, and there are expected to be over twenty million young people in the labor force in 1970 compared to approximately seventeen million now.[2] And there are 13,029,000 young people now not even officially in the labor force, many of whom, especially the 10,506,000 women, might be interested in work if they could find it.

For these young people to find careers it is essential that they be adequately trained in the skills that will be demanded in the future. The unskilled and the dropout will be virtually unable to remain steadily employed as increasing and changing technological developments create demands for new skills and as the structure of the economy changes so that traditional occupations become obsolete.

The economy has changed from an agricultural to an industrial and commercial one and from chiefly goods-producing to a service-producing one, and the vocational opportunities have changed accordingly. Today opportunities in such fields as agriculture and mining are declining or increasing at a rate below that of the economy, and the need for unskilled workers is decreasing. However, the expansion of research and development, the application of new technology, the increased size and complexity of business organizations, the growth of record keeping and the increased need for educational and medical services have created many new opportunities in these areas for youth with the appropriate skills.

The greatest expansion has been and will continue to be in professional and technical fields, especially in the rapidly-growing areas of social science, education and medical services. There will be increasing job opportunities in engineering and science, especially the new fields of space, atomic energy, and automation; social work; library work; personnel work; and data processing and electronics. There will

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[1] Report on Manpower Requirements, Resources, Utilization and Training, U. S. Department of Labor (March, 1966).

[2] Ibid.

be many openings for women in all these areas, especially in education, medical services, social science and data processing.

Increasing almost as fast is the need for clerical and sales workers. Such occupations as secretaries, bookkeepers and accounting clerks, data processers and those in public contacts will have a great demand for workers, many of whom will be women. Sales occupations will increase their demand for part-time workers, which also can be filled by women.

There will also be a greatly increased demand for service workers, although the need will vary within the field. The need will be greatest in food services, protective services, recreational services, personal services, beauty services, clearning services, hospital work, maintenance, business services, and services in air transportation. Many women will be employed in these fields.

Demand will also increase for skilled workers, especially for mechanics, repairmen, electricians, craftsmen and skilled building-trades workers.

Most of these occupations which will be in great demand in the future are being taught at the present time either in public or private institutions, although not on the scale which their future needs would seem to demand. Other occupations in these fields, however, are not being taught and hardly even exist at the present time, but will be important in the future. Important among these are new non-professional jobs in health, welfare and educational services.

These positions are especially appropriate for the large numbers of currently unemployed youth and for Job Corps enrollees. They do not require the extensive and long-term training that many of the other vocations in great demand require, and thus unskilled youth can readily be trained and provided with work. Yet these are not unskilled positions. They are rather entry positions into fields where experience and further education can lead to professional or non-professional careers. And rather than being meaningless and unnecessary work, they serve important functions and relieve the professionals of unrelated tasks. In many of these jobs, non-professionals from disadvantaged backgrounds can add a new dimension of service as they can more easily understand the problems and relate to people of their own background who are being served than can the professionals.

In the rapidly expanding field of education, there is a need for such positions as teacher aides, library aides, school-community workers, recreation aides, talent searchers and home visitors. Many of the functions of these positions are not being fulfilled at the present time, but are important and necessary.

Similarly, there are many opportunities in the field of health. Aides are needed for nurses, community health, home care, health education, testing, rehabilitation and many other areas. Health case aides, case managers, data clerks, companions, psychiatric aides, and community mental health aides are needed also.

Non-professional aides could also be valuable in community organization and housing programs as organizers, interviewers, visiting homemakers, family counselors, neighborhood coordinators, big brothers, and mother's helpers.

Positions similar to these can also be used in such fields as corrections, mental retardation, social work, child care, recreation, legal services and police work.

There are also potential opportunities for non-professionals in the rapidly expanding field of research, in such areas as interviewing, coding, data processing, operations accounting, statistical analysis, organizing studies and disseminating results. Workers from underprivileged backgrounds can be especially useful in interviewing their peers and are often able to elicit information that professionals could not.

In training unskilled workers, most program directors have found that actual work experience is essential but that it must be supplemented by various supportive services.* Observation of the work situation and simulated work experience at several assignments have been found useful in prevocational training. The trainee can be taught by experienced workmen in a simulated work situation with visible accomplishments while under supervision. On-the-job training in an actual employment situation but training under close supervision has been found increasingly useful. Often if a trainee is not yet ready for regular employment, he is employed at the place of training.

In addition to work experience, many program directors have found that basic education is necessary. This is most successful if the skills taught are those necessary for the trainee's vocation and if they are closely related to his vocational training. Counseling, testing and close supervision have been found necessary at all stages of training. This is an important part of the program in Job Corps. In addition vocational orientation is usually necessary. This includes training in work skills and habits, proper appearance, relations with others, proper behavior on the job, and personal adjustment to employment. It is also necessary that the trainee understand such matters as payrolls and taxes, and applying and interviewing for a job. Orientation to the place of work and the functions of the employees is also important.

New curriculum guides including programmed and audio visual materials are being used in vocational training. Several new techniques are also being tried, including using more experienced trainees to help newcomers and training students in groups to give them a sense of solidarity. Role playing, group discussions, staff meetings and seminars, and student reports have also been found useful especially when the job involves working with people.

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*Many training program directors have found it advisable to teach skills on several levels, so that the trainee may advance as far as he can be trained for several different jobs or can finish earlier.

MULTIPLE ROLES OF TEACHER-COORDINATOR

K. Otto Logan

In the subject assigned to me, I am interpreting "multiple roles" as meaning "many duties and responsibilities," and I am assuming that everyone understands that "teacher-coordinator" refers specifically to teachers in vocational cooperative programs whose main responsibility is divided between the classroom and coordinating the instruction with on-the-job requirements and student needs.

What I'd like to do here is to show from my experience in Distributive Education what it is that puts the teacher-coordinator in a unique position. I would like to stress the necessity of recognition by school administrators of these special requirements. Here are a few points to consider:

The success of any class depends largely on the teacher. In an elective course, such as in a cooperative program, the quality of teaching can mean the life or death of the program itself. In a college-required, academic course, the student has no choice but to attend classes, even if the teacher might be sarcastic, arbitrary, or unfair. A poorly equipped or inept D. E. teacher, on the other hand, would be left without a class and perhaps without a job if he lacked the ability and qualifications to make his classes instructive, interesting, and productive--so the whole program might fall by the wayside. I've seen this happen.

Most states require, for certification, that a D. E. coordinator have, in addition to a degree, a minimum of two years' practical experience in a distributive occupation. (This may vary, up or down, in various states.) The theory behind this requirement or standard is simply this: A teacher-coordinator will be far better prepared to present his instruction if he speaks from a background of experience in his field. This experience lends something in terms of respect and acceptance not ordinarily derived from book learning alone. Businessmen in a community quickly find a common ground of understanding and communication and as a consequence, readily cooperate fully with the aims of the distributive education program. Students, also, quickly recognize and respect an instructor who speaks with the authority of practical experience. Administrators must acknowledge the value of occupational experience and its importance for the success of a cooperative program.

Many elective courses are self-explanatory by their titles, or are well known as to content (such as Art, Music, Chemistry) but this is not so in Distributive Education. For example, what do students know about Distributive Education? Do they understand what content is covered in Distribution? Do they understand that it is a program rather than a class, aimed primarily toward occupational objectives? Do they understand that they will attend school part-time and work part-time on a job? Do they understand that the job or career training must be in their program area? Do they know that students are paid on the job; that school credit is given for the course, etc.? It is the teacher-coordinator's responsibility to make this information known--to students,

to the parents, to the businessmen, to the public--and probably most of all to school counselors, teachers and administrators. Coordinators have devised many methods--brochures, newspaper publicity, student youth clubs, D. E. store display windows, letters to parents--many clever devices to accomplish this.

Thus you see that a teacher-coordinator has the role of a publicity agent. And what's more, it must be a continuous process. Otherwise there may be no students or no positions to place them in. I can vouch for the fact that where even experienced coordinators have let down on publicity, it has had a direct, adverse effect on student enrollment. (One center dropped from two programs to one simply because it was assumed that everyone knew of the program.)

A D. E. coordinator has more contact with a community than perhaps any other teacher in the school program. Most administrators who employ teacher-coordinators recognize that whoever is chosen to serve in this capacity is in a public relations position; he is the liaison between the business community and the school. What he says, what he does, and the way he says and does it, creates for the businessmen an image of the school--good or bad.

Most programs, when properly set up, have a minimum of one or two class periods scheduled daily for downtown coordination. What does a coordinator do during these periods scheduled for coordination? Briefly, the coordinator checks with employers on the students' strengths, weaknesses, the job requirements, and he adapts his course instruction to meet the immediate needs of his students and the jobs they hold. He investigates training stations to make sure that they are respectable places of business and able to provide the proper conditions for a student to learn on the job. A good teacher-coordinator discovers early that unless he has full knowledge of a store's policy and operation, he should go directly to the manager to discuss the D. E. program. A manager must be fully advised of the aims and purposes of the program and should understand that he has a vital part in the training of the student. Management may arrange for the coordinator to work through a department head or through someone especially assigned as sponsor. However, coordinators of new programs should not make the mistake of trying to set up relationships through buyers or department heads, or anyone else, before first having contacted the top man. Experienced coordinators have found that the top man, even the busiest man, is most often the easiest person to do business with in matters of this sort.

Several visits should be scheduled to each establishment, but at least one a quarter. (In some cases, especially in problem cases, several visits may be necessary during a quarter.) Decisions must be made regarding employers' reports and whether a student should be rotated in several departments or should concentrate in depth in one special area. Student interests and aptitudes must also be considered. The coordinator, therefore, is in the role of an instructor, guidance director, counselor, and advisor.

When an administrator is made aware of all these facets of a teacher-coordinator's duties, he must acknowledge that a coordinator has a real

job! Does the regular co-worker in academic subjects know this? Does he look upon the one- or two-hour downtown coordination periods as a time to drink coffee, to shop, or to get out of the school building? You'd be surprised at the number of coordinators who get "barbs" from other teachers on an out-of-class period: "You've sure got it soft" is a tiresomely familiar statement. Actually, it is much easier for a teacher to have twenty-five students in a regular classroom than in a science laboratory, for example, and, further, a D. E. class is even more complex than a science lab because most of the twenty-five students have separate labs in twenty-five different businesses. Administrators must be made aware of this, and where new programs are initiated, it is most advisable that the superintendent or principal be fully advised (perhaps at a faculty meeting) of the multiple roles of a teacher-coordinator, and of the full and complete justification for coordination on school time. It will make it much easier for the teacher-coordinator to work in harmony with his co-workers in a difficult (but exciting) program. Experienced coordinators occasionally find faculty colleagues who are still not convinced, in which case all a coordinator has to do is to invite the skeptic to accompany him on one of his coordination trips. This generally ends the matter.

Let's give a little attention for a moment to the title "coordinator." At one time this title applied almost exclusively to the Distributive Education cooperative program. It meant primarily coordinating the instruction with on-the-job requirements in line with student needs. Today everybody wants to get into the act. We have Coordinators of Federal Programs, Coordinators of Youth Corps, Coordinators of Adult Education Programs, Coordinators of Student Activities, and so on. Note that "coordinator" in these positions does not have the same basic definition as would apply to the duties of a teacher-coordinator in a cooperative program. In a cooperative program the teacher of the subject matter is expected to do the coordinating. The heart and worth of the program would be lost if one person were expected to do the teaching and another do the coordination. Should administrators make the mistake of assigning anyone except the teacher as a coordinator, the true meaning of coordination would be lost. The understanding of student needs, his problems in relation to the job requirements, is, I repeat, the heart of the program. The teacher must do the coordinating for his own students if the program is expected to move forward.

Perhaps one of the most necessary and important duties of a D. E. coordinator is the organization of and the work with a representative Advisory Committee. The Committee, when composed of employers and employees, is a coordinator's strongest support. Regular meetings must be held at least three times a year. When committees are organized and conducted properly, the businessman becomes a partner in the training of students. You might be surprised to learn that the average businessman desires greatly to carry out his part of the program. I know of one employer who has served on an Advisory Committee and has hired D. E. students for the past eight years, and takes pride in his part in the training of these students. He has a complete record of their progress in the field and reports frequently on the satisfaction he has received in being an active member of the D. E. program. Remember this: if you have any problems in the D. E. Cooperative Program, your Advisory Committee will

almost invariably come to your rescue. I can cite instance after instance where programs have been dropped because a coordinator has not availed himself of or used the services and advice of Advisory Committees.

Cooperative programs involving study in school and work on the job have become most popular in the last few years. It is interesting to note that D. E. has pioneered in this field, largely because preparatory programs were not possible under the George-Dean and George-Barden Acts. Even now, through the 1963 Vocational Act, where preparatory programs are possible with Federal funds, we have found in the State of Washington that school districts, even the very smallest, prefer or ask for the cooperative type of education, even though it may be difficult to administer in their small communities. All about us we find that cooperative programs are now the topic of conversation in many of the other vocational services. In the State of Washington we have a high school D. E. cooperative program and a mid-management cooperative type of program at the post-secondary level. It is my opinion that although methods of coordination may vary in the different services in respect to operation, essentially the same meaning attaches to the title of "coordinator."

All coordinators, in the future, must recognize the need for close cooperation between services. When an occupation requires the knowledge and competencies of more than one service, the question quickly arises, "How can this be done in a cooperative program?" How should this be done in terms of occupations which are distributive in nature but which have an agricultural background? How should this be handled for occupations involving both home economics and distribution? So, along with the multiple duties of the coordinator, this new dimension with its attendant problems has been added. I am confident that the problem will be faced squarely and that this challenge facing coordinators will be met.

In a survey I made in the State of Utah recently, I found that what coordinators liked most about the cooperative program is its uniqueness. It presents an opportunity to work closely with downtown businessmen. It offers a good combination of theory and practice, and the possibilities for expansion are now tremendous. This is the kind of spirit and enthusiasm that you will find in almost every successful cooperative program.

The coordinator's duties are multiple; his duties are demanding; and, it is my first belief that this type of education is the very best a student could secure.

I will speak anywhere and any time on the value of the cooperative program.

Duties and Responsibilities of the Teacher-Coordinator*

1. To students

   a. Teach thoroughly the knowledges and skills necessary for success in the field of distribution, using all approved methods of instruction.
   b. Explain purposes and procedures of part-time Distributive Education program.
   c. Give essential information about occupations.
   d. Know that student is sincere and really wants to follow occupation as a career.
   e. Assist in arranging schedule of general courses.
   f. Provide a training plan for each student as an individual and be sure the student understands it.
   g. See to it that adequate facilities and instructional materials are accessible to students.
   h. Provide properly selected related and technical instructional material.
   i. Provide working conditions in the classroom which are conducive to efficient and effective study.
   j. Establish progress and permanent record system.
   k. Establish effective placement and follow-up plan.
   l. Keep informed about the students' economic, social, and scholastic backgrounds.
   m. Develop or secure an analysis of each student's occupation for purposes of making a schedule of processes to be learned on each job.
   n. Make proper placement and supervise students while in training.
   o. Prevent exploitation of students on the job and in school.
   p. Build and maintain student morale and proper cooperative attitude.

2. To employers

   a. Carry out a systematic plan of coordination.
   b. Make clear the working of the plan of part-time Distributive Education.
   c. Make clear the purpose of training.
   d. See that placement is justified.
   e. Develop a thorough understanding of training plan.
   f. Make careful selection of students.
   g. See that students are taught, correctly, the proper related subjects.
   h. Adjust all complaints properly and promptly.

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*Distributive Education, Coordinators Guide, State Board for Vocational Education, pp. 25-29.

i. Transfer or remove "misfits."
j. Fill vacancies promptly, replace with juniors (future DE) if necessary.
k. Avoid wasting the time of employer and employee unnecessarily.
l. Avoid having red tape in dealing with employers.
m. Never try to run the employer's business.
n. See that student has proper attitude toward job and employer.

3. To school officials

a. Administrators

(1) Keep permanent records.
(2) Prepare yearly plan.
(3) Prepare yearly budget.
(4) Work out plan and policy for granting credits.
(5) Show need for providing instructional materials, equipment and classroom.
(6) Keep out unnecessary regulations.
(7) Have complete knowledge of all phases of the program.

b. Faculty members

(1) Follow proper lines of authority in all matters in which teachers and principals are concerned.
(2) Develop clear understanding of the purpose and plan of program.
(3) Establish and maintain cooperative working conditions.
(4) Enforce disciplinary regulations of students' academic studies.
(5) Assist in working out schedules.
(6) Seek aid of teachers in personal analysis of students.
(7) Make available all necessary records.
(8) Seek aid in working out related subjects.
(9) Recognize that teachers also have problems.
(10) Make a clear understanding of your job and of your training and experience and education.

4. To parents

a. Maintain cooperative relation with parents.
b. Furnish adequate program information.
c. Stress the advisability of students completing the entire course.
d. Develop student expense sheet as means of keeping parents informed
e. Show expenses have been kept as low as advisable.
f. Keep parents informed of changing social and economic conditions related to the occupation in which each student is being trained.
g. Avoid assuming prerogative of parent in making final decisions.
h. Justify placement, adjustment, or transfer of student.

5. To community organizations

   a. Sell the Distributive Education program

      (1) Stress the need for the program.
      (2) Give advantages of the program to those directly concerned.
      (3) Make clear objectives of the program to those directly concerned.
      (4) Make known the requirements of the reimbursable program.

   b. Secure the acceptance of organizations

      (1) Lions, Kiwanis, Rotary, and other service organizations.
      (2) Fraternal organizations
      (3) Junior and Senior Chambers of Commerce
      (4) Church of your choice
      (5) Various local unions

   c. Set up an advisory group

      (1) The group preferably selected by the businessmen and employee organizations themselves.
      (2) The coordinator could serve as secretary and as an ex officio member but in no way as a voting member.
      (3) Membership appointed on a staggered system.

   d. Exercise leadership in education for distribution

      (1) Help the community organizations to extend and carry out their own educational programs.
      (2) Get the organizations to establish needed clinics, workshops, in special areas as need might require.

6. To other coordinators

   a. Offer your services as freely as possible to the other coordinators in your area (especially the new teachers).
   b. Share ideas, discuss differences of systems.
   c. Discuss new methods and teaching techniques.
   d. Inspect and examine new training aids as a group.
   e. Keep others informed as to current events in the field.

7. To the profession

   a. Become a member of all the necessary professional organizations.
   b. Keep your dues paid.
   c. Attend meetings of local, county, and State educational groups. In DE you, as a coordinator, should attend at least one meeting per month. No meeting, no interest. Inactivity breeds discontent.
   d. Maintain high standards and keep the profession an honorable one.
   e. Work with teachers in related areas to improve the program. Exchange classes with other teachers during the year in order to improve the instruction in the distributive field.

f. Work within school requirements and within the terms of your written and implied contract.
g. Conduct research in areas pertaining to Distributive Education.

8. To the State Office

a. Hand in all required forms on time.
b. Attend all meetings called for.
c. Keep certification up-to-date--State and local--where necessary.
d. Keep files and records up-to-date.
e. See that the State Office knows about anything that is new, unusual, timely, for the benefit of the DE programs, regardless of who gets the credit.

9. To the public

a. Try to give a clear understanding of objectives of program.
b. Develop essential working attitudes of all public agencies.
c. Develop and maintain active public support.
d. Keep public informed on progress of program.
e. Assemble and keep accurate data on program.
f. Show that adequate training opportunities have been provided at reasonable cost.
g. Keep informed as to changing business and industrial trends.
h. Avoid stirring up needless unpleasant situations.

10. Additional duties

a. Plan your program in advance, by dates, in detail. Make it reasonable and workable, then follow it.
b. Buy or supervise the acquiring of classroom supplies. In DE, many of the items you will need cannot be found through the regular channels.
c. Interview and screen students before school starts. Help them secure training stations before school starts and after school is out in the spring.
d. Make a job analysis for each of the training stations you will have or expect to have.
e. Compile specific merchandise and training instructional materials for each training station.
f. Keep records up-to-date, complete and accurate.
g. Arrange for the follow-up of students. Arrange annual get-together, if possible, for alumni.
h. "Short course" work could be offered to summer students.
i. Build your classroom files; put your classroom in readiness for your program--storage, etc.
j. Develop projected plans, with interested groups, concerning program of work for adult classes and submit to local administration and State Office. (At least one new adult program should be instituted each semester, continuing programs already initiated.)

k. Prepare and distribute newspaper and radio releases concerning program.

(1) Restatement of objectives
(2) Number of high school classes
(3) Number of students in program
(4) Number of students placed
(5) Training stations cooperating in program
(6) The DE club program and its projected program of activities.

l. Attend teacher-training conferences sponsored by the State Board for Vocational Education.

11. Related responsibilities

a. Become a dedicated counselor and friend to DE students.
b. See that proper information is always in the hands of the right people at the right time--good public relations.
c. Set up the DECA club program in school.
d. Assist in a State organization of DECA.
e. Handle the awarding of certificates and other honors at the completion of the program.
f. Visit homes when possible. Open-house parties have been successful in certain areas. Potluck dinners and other get-togethers should be encouraged between students, families of students and possibly employers.
g. Work as a liasison between school, business, home and public.
h. Develop a file on both the student and the training station. List the important characteristics of each.
i. Supervise the teaching of the related areas in DE.
j. Work with the local or regional Employment Security office.
k. Organize annual class reunions as a means of follow-up.

ESTABLISHMENT, ORGANIZATION, AND OPERATION OF COOPERATIVE EDUCATION

Robert M. Worthington

Cooperative education, a program that combines classroom work and practical industrial and business work experience, is a unique bridge for the gap between school and the world of work. Cooperative education can be immediately responsive to changes in our technological society. Cooperative education in the United States has been demonstrated to be effective at many levels. It, of course, began at the college level for engineering students. There is no doubt that well-conceived and organized cooperative education programs can be effective for students at all levels--in the high school, the technical institute and community college, teacher education institutions, and even graduate schools.

Cooperative vocational education, particularly for high school students, should not be looked upon as a poor substitute for full-time institutional preparatory programs but as another equally important avenue for helping young people get and hold their first job. Inability to obtain and hold a job is a severe blow to any person, young or old. Cooperative vocational education programs emphasize the school's willingness to help young people make the often difficult transition from school to work.

Some of the most important outcomes of cooperative education programs for youth are that they provide entry level work skills which are marketable; provide an opportunity to earn money while at the same time perform useful work; and develop an improved self. They also provide invaluable occupational information and guidance which is realistic and can be very difficult, if not impossible, to attain in other ways. They give students a realistic opportunity to develop proper work habits and attitudes and to learn to get along with people outside the school situation.

For the purpose of this discussion my comments are directed to the objectives for which this seminar was organized: "to prepare guidelines for encouraging, developing, improving, and expanding cooperative education programs for high school youth and post-high school youth." To establish a framework for our discussion on the establishment, organization, and operation of cooperative education, I will discuss cooperative vocational education as it is developing in the highly industrialized State of New Jersey and set forth specific suggestions which may be applicable to any locality.

The passage of the Vocational Education Act of 1963 provided the impetus in the State of New Jersey for a state-wide study by a blue-ribbon committee of business and industrial leaders to provide guidelines for action for New Jersey's vocational education needs. The report of the New Jersey committee entitled "Vocational Education for New Jersey Today" strongly recommended that a massive effort be made to expand vocational education at all levels. It urged the establishment of cooperative work experience programs in every high school in the state, but especially urged that the small high school use this avenue for entry into the labor force where little, if any, formal vocational preparatory

opportunities were available. Using the recommendations of this committee report as our guideline for action, the Division of Vocational Education began immediately to place a maximum effort on the promotion, establishment, and organization of all kinds of cooperative education programs. A review of programs in existence in the State of New Jersey prior to the passage of the Vocational Education Act of 1963 revealed that the state had only three cooperative trade and industrial education programs, thirty-four distributive education programs, and twenty-five cooperative office occupations programs.

Goals for Program Expansion

Based on population trends and studies of labor market needs, the Division, with the help of the State Vocational Advisory Council, established state-wide goals for the various cooperative education programs. In order to provide adequate leadership at the state level, a special branch was established for cooperative industrial education programs with a director and three staff members whose sole job was to promote and establish programs in this field. The director of Cooperative Industrial Education was also named as chairman of the Division-wide Cooperative Education Committee. Working with him on the Cooperative Education Committee were the State Directors of Distributive Education, Home Economics Education, Agricultural Education, and Business and Office Occupations. With coordinated effort at the state level, goals were established using the 1964-65 school year as the starting point and the 1968-69 school year as the target date. Our state-wide objective is to expand Cooperative Distributive Education from thirty-four programs in 1964 to one hundred fifty in 1968; to expand Cooperative Office Occupations from twenty-five programs in 1964 to two hundred in 1968; to expand Cooperative Industrial Education from three programs in 1964 to one hundred fifty in 1968. We are moving rapidly towards reaching these goals which would give us a total of five hundred Cooperative Vocational Education Programs in 1968 at the secondary school level. Let us examine briefly program by program what we are doing in the State of New Jersey to accomplish these ambitious goals.

Cooperative Distributive Education

Our State Distributive Education staff makes its services available to school administrators and interested community groups who wish information on the establishing of D. E. programs based on the results of our periodic county and labor market surveys which detail the employment picture in kinds of training needed within the labor market's business community. When the individual community commits its resources to the establishment of Cooperative Education, a local analysis of training stations is conducted to determine where students might best be placed. Other vital planning data are compiled such as possible hours of training, the amount of remuneration, and the diversity of training stations for students with various occupational goals. If the results of this local survey are favorable, the school board approves the program as an addition to the curriculum. The designated coordinator, in close cooperation with the State Distributive Education staff, develops a program

of instruction to meet both the local needs of students to be enrolled in the program and the needs of the local business community. A list of quality Distributive Education programs that are in operation is provided to administrators who wish to observe and study them. The total process of surveying the local community and labor market area, establishing a curriculum, establishing an advisory committee, and preparing a fully-equipped sales laboratory and classroom, generally takes three months to a year prior to the installation of the instructional program. However, in the summer of 1965 we were able, in our State, with a crash effort, to establish fifteen new programs and get them in operation between July 1 and September 1. In our larger cities we recommend city-wide coordination of Distributive Education programs rather than each high school's attempting to operate on its own. Our state and local advisory committees in this field favor the establishment of the policy that students are employed throughout the school year on a half-day school and half-day work basis. This schedule permits the employer to have the same student throughout the year, and at the same time provides rotation of jobs according to a job process schedule. This schedule can be developed only when a business sponsor is fully committed to the program.

Our State Distributive Education service is frequently called upon to assist in recruiting, screening, and evaluating possible candidates and their credentials which are submitted to them through local school districts or the county superintendent's office. In a rapidly expanding program such as this, we are liberalizing our certification standards while at the same time working for high quality personnel who may or may not meet every requirement. We are finding it increasingly necessary to issue sub-standard emergency certificates for coordinators in this field. We, however, expect to meet the personnel shortage with four newly established teacher training programs, two in State colleges, one in a private college, and one at our State University. We conduct state-wide in-service training conferences two times each school year for all the distributive education coordinators.

Cooperative Industrial Education

Cooperative Industrial Education has expanded in New Jersey from four programs in 1964 to one hundred twenty which will be in operation in September, 1966. Under our old Cooperative Trade and Industrial Education plan, program and certification standards were quite narrow and rigid, and, as a result, growth was inhibited. By broadening the program and liberalizing certification standards for training coordinators in several institutions, rapid expansion is now possible. Recent action by our State Board of Education has broadened the scope of Cooperative Industrial Education by establishment of three levels: Cooperative Trade Occupations for the more highly skilled occupations, Cooperative Industrial Occupations for the semi-skilled or single skilled occupations, and Cooperative Employment Orientation in service occupations for the mentally retarded or extremely slow learners. Student learners are now employed in one hundred fifty different classifications of industrial jobs in more than thirteen hundred state approved work stations. Industrial employers are clamoring for more student learners. Of course we can

attribute some of the success of our program to present favorable economic conditions and the manpower shortage. Nevertheless, we feel that this expansion could not have been accomplished without providing adequate leadership and flexibility at the state and local level.

In establishing Cooperative Industrial Education, some of the following factors have been most significant for us. We have published and distributed widely a guide for part-time cooperative education, plus three pamphlets describing program operation. We have worked hard to develop cooperation between outside agencies whose influence affects the success of the program. Good working relationships have been established with the State Department of Labor and Industry, the Federal Wage and Hour Bureau, and the Rehabilitation Commission, and labor organizations. We have also developed much closer working relationships with the Secondary Division of the Department of Education. Our State staff has made themselves available at any time to speak at meetings of local school personnel. Preferential reimbursement has been most valuable as a stimulant to programs. Some of our new programs have been funded one hundred per cent the first year of operation as pilot programs. Paper work for establishment of programs has been kept to a minimum. Routine details for gaining state board approval have been made simple and understandable. Of course, as I mentioned previously, certification has been revised to be more realistic in terms of supply of personnel to man the programs. In-service courses have been conducted throughout the state by our State staff and a new training course for coordinators has been established at two colleges and at the State University.

Cooperative industrial education is being utilized in three teacher education programs in New Jersey. The State University has developed a five-year program to provide the equivalent of five thousand clock hours of industrial experience. Two state colleges have begun supplementing shop and laboratory experiences with cooperative industrial experience in three-month summer blocks. Another interesting development is a suggested plan from the National Commission for Cooperative Education to establish cooperative programs in our developing community college system. Two county technical institutes operate cooperative programs in Automotive, Drafting, and Electronics Technology. A special cooperative program for school dropouts is operated in cooperation with the city of Newark and seven major corporations. Students go to school one week and work the next week.

Cooperative Office and Business Education

Cooperative education is rapidly becoming a pattern of training in the field of business education. The program of cooperative work experience in office occupations has long been practiced in a limited number of high schools of New Jersey. It has the greatest potential for growth of all programs. Every high school could support a cooperative program in this field.

Cooperative office and business education has taken many patterns. Two types are most common. The first is a program in which the student is engaged in practical work experience on a job in which he may use

the skill learned in the classroom, but this practical experience is not provided concurrently with a job related class in the school facility. In many instances, such programs lack a very essential feature of instructor coordination. They represent, more than anything else, an answer to an economic demand rather than good cooperative education.

The second, and much more desirable, is a program in which the student is engaged in cooperative work experience at an approved training station. A job related course is provided in the school facility, and this course as well as the coordination of the school and practical experiences is under the supervision of a vocationally competent teacher-coordinator. The teacher-coordinator works closely with the training station supervisor and employer in mapping a program which will best utilize the students' skills and the instruction being received in the classroom.

Because of the variety of locally developed programs, cooperative office education has been organized in many ways.

1. The all-year program with students in school during morning hours receiving basic education and job related course instruction, and working at training stations utilizing knowledges and skills acquired for three or four hours daily.

2. Two students may fill a single job with one working during the morning session, and the second working during the afternoon session.

3. Students may participate in the cooperative experience for only one semester during their senior year in high school (usually February to June).

4. Students may alternate work with school attendance; in school one week--working the next week.

5. Students may work for only a short span of time, e.g., a two-week to six-week period.

The latter three programs do not represent, in our opinion, an ideal cooperative occupational education model.

Cooperative work experience programs have involved secretarial trainees in greatest numbers, but many of them have been extended to the general clerical and bookkeeping areas. One cooperative program in electronic data processing is in operation with twenty-six additional high schools scheduled to enter this field in September.

Cooperative Home Economics Education

This field is undergoing a transition to place emphasis on marketable skills. Cooperative education will be an important part of this transition. There are few, if any, cooperative programs in this field comparable to the older established programs; however, in four New Jersey

communities some part-time work experiences have been included in the home economics occupations courses. Where there are cooperative industrial education and distributive education coordinators, home economics teachers and these coordinators have worked together in identifying places of work and in supervision of students.

With the increase of home economics occupations courses as part of a comprehensive home economics program in our secondary schools, there will be a great need within the next two to three years for teachers who are prepared to coordinate cooperative education programs in diversified home economics occupations. (i.e., clothing services, foods services, child care services, hospitality industry services, etc.)

Schools with home economics occupations courses are finding in their first year of experience that there might be value to student preparing for entry occupations if the following approach were utilized:

a. Develop pertinent attitudes, information, and competences in a specific occupational course at the eleventh grade level. Provide field trips and some participation in a work experience as part of this course.

b. At the twelfth grade level, provide a bona fide cooperative education program for students in home economics occupations.

To lay the groundwork for future cooperative home economics programs some successful techniques being used this year include:

1. Students are placed for blocks of days or weeks in clothing retail shops where they assist with alterations, selling, display, and wardrobe coordination advice.

2. Students are placed in after-school and week-end jobs in nursing homes, diners, restaurants, coffee shops, and fountains.

3. Groups within classes create temporary business ventures, sometimes with the advice of the advisory committee representing some of these businesses. Some enterprises were: snack shops for students and teachers, catering services for PTA groups and student organizations, tea room service for faculty, dressmaking shop, drapery and slip-cover making clinic.

4. Experiences in catering and quantity cooking are provided through school lunch services (paid and unpaid).

Future plans of our leadership staff in this field include:

1. Develop with the help of an advisory group a proposal for a cooperative education program in home economics occupations for presentation to State Board for Vocational Education.

2. Encourage local administrators to extend home economics staffs to include a member who will coordinate cooperative home economics occupations activities.

3. Develop college programs to qualify home economics teachers for responsibilities in cooperative education. The first and most fruitful attack would be through graduate and in-service courses.

General Administrative Considerations

No doubt the greatest strength of cooperative education lies in its flexibility in method of operation. The concept of combining work experience and formal schooling can be developed in many ways. Administrators at all levels must remind themselves that the needs of the students to be served must come first. Schedules and programs should be designed to fit the needs of a particular community or labor market area only after thorough consideration of student needs.

No amount of administrative strategy can replace the most important individual in administration of cooperative education--the program coordinator! The interdependence of school and industry requires coordination by a person who is enthusiastic, tactful, and perceptive. The coordinator must be able to work with people of all levels and to share his own enthusiasm with them. He must be able to promote and to sell ideas. Once the right coordinator is selected to establish a program, we believe that he must be ready and able to carry out the following practices successfully:

1. Develop a spirit of cooperation among faculty, students, and administrators.

2. Become integrally involved with the total school program.

3. Maintain a written account of the progress shown by his students and the program in general.

4. Maintain constant communication with school administration.

5. Cooperatively select training agencies for the students with parents' knowledge, consent, and cooperation.

6. Utilize results of standardized tests to determine the student potential.

7. Make a survey of the student body to ascertain the nature of his future student learners.

8. Place students in training agencies only if they meet prescribed criteria.

9. Initially contact potential employers.

10. Confer with guidance counselors and other faculty members in the selection process and determine the over-all progress of his trainees.

11. Conduct an occupational survey of the community served by the school district and revise it periodically to keep it up-to-date.

12. Organize an advisory committee from business and industry to keep them informed of the progress of his program and to keep them vitally interested in the cooperative program.

13. Make arrangements for the related information classes to be given by him or supervised by him (depending on the size of the program).

14. Keep abreast of all changes in local, state, and national labor and employment laws.

15. Arrange for suitable wages, working conditions, and work schedule with the employer.

16. Aid the employer in making an analysis of jobs that the student-learner will be involved in so that progress may be recorded in some standard manner.

17. Make supervisory visits to the student on the job.

18. Become involved with the student's welfare on the job and prevent the exploitation of the student by constant reference to the mutually-agreed-upon training agreement.

19. Study the community on a periodic basis to determine new fields of opportunity for utilization by the program.

20. Create a cooperative atmosphere between the parents, students, employers, and school officials.

21. Offer educational, vocational, and personal guidance to his students.

22. Develop a strong on-going program of public relations.

23. Maintain a follow-up program of the students in the high school program for a period of time after their graduation.

Factors Affecting the Success of Cooperative Vocational Education

At the State level, awareness of the many factors which affect the success of Cooperative Education and the taking of positive action can insure growth and acceptance of the program. The following are some of the factors we believe to be essential:

1. Information must be provided through every possible means to schools and industry on program operation and goals. We have, in our State, distributed hundreds of copies of "A Guide for Part-Time Cooperative Education Programs." We are constantly developing, revising, and distributing three pamphlets which describe the several kinds of programs. School administrators, guidance personnel, board members, and lay leaders need to be thoroughly familiarzied with and sold on cooperative education.

2. There must be cooperation between outside agencies whose influence affects the success of the program. Good working relationships must be established and maintained with many agencies such as the State Department of Labor, the Federal Wage and Hour Bureau, the Rehabilitation Commission, and organized labor.

3. There must be cooperation between other divisions within the State Department of Education.

4. State staff people must be available to speak at meetings of local school people at their convenience.

5. Preferential reimbursement or outright grants can be most valuable as "pump primers" to get new programs started.

6. The routine details of gaining State Board approval of a local district program must be made more simple, understandable, and expeditious.

7. Certification standards must be liberalized so that requirements are realistic and do not serve as a deterrent to establishing new programs.

8. In-service courses must be provided in strategically located centers so that coordinators may more conveniently attain full certification and keep up with new developments in the field.

9. There must be an understanding and cooperation among coordinators and supervisors of all vocational cooperative programs such as Distributive Education and Office of Industrial Education, particularly with regard to the problems of the smaller high schools in connection with limited work stations and occupations which cut across two or more fields of vocational education.

10. Willingness to innovate should be a keynote at the State level. We have been experimenting with new cooperative programs for such disadvantaged groups as the mentally handicapped and over-age students at the junior high school level. Such program diversification must be accomplished without lowering standards.

11. Help from the State staff must be readily available to new coordinators who need and deserve it.

12. Every effort must be made to protect the interests of the employer who provides experience, instruction, facilities, and pay without cost to the taxpayer.

13. The help and cooperation of organized labor is essential.

14. State laws must be closely observed to enable the program to run smoothly, particularly in regard to hazardous occupations and food service establishments where alcoholic beverage control laws are in effect.

15. Violation of Child Labor Laws should be avoided through communication and state-wide inspection.

16. The challenge of competing programs of other agencies must be accepted and met positively through building superior quality into the public school system.

17. Special help should be provided by the State staff to encourage local districts to develop better related classes so that the in-school activity is challenging and of value. Cooperative education should never be thought of as simply putting a student to work.

18. There should be a careful follow-up of the graduates to provide clues for program improvement.

19. Periodic evaluation by qualified experts should be used to detect and correct weaknesses.

Cooperative education has proven its effectiveness for more than fifty years although it has served comparatively limited numbers. Expanded cooperative education will open doors to new and exciting opportunities for students preparing for occupations not readily served in institutional settings.

The dire consequences to the individual and to society of youth unemployment are well known. At this very moment, while over 97% of all Americans over twenty are employed, almost fourteen of every one hundred of our out-of-school youth <u>under</u> twenty are not employed.

Cooperative education can contribute much to the solution of this major social problem--more perhaps than any other form of vocational

education. Statistics gathered over the years in thirteen northeastern states consistently show approximately 98% employment of graduates of this program.

Comparison of drop-out statistics of cooperative students with those in other programs also provide dramatic contrasts and stack up additional points in favor of broadening and expanding cooperative vocational education!

KEYNOTE BANQUET SPEECH

E. F. Laux

Ladies and gentlemen, it is a pleasure to be with you during this week of conferences which, I am sure, will be important to the future of education in this country. I know from talking to education specialists in our Company that vocational educators have been confronted for too long with what can only be called vigorous apathy. I congratulate your profession for its outstanding work in the face of limited support. Though it is hard to admit, we know that we in industry have not given vocational education as much help and encouragement as it deserves. But now the massive impact of science and technology on modern life has changed all that.

We know that nine out of ten scientists, engineers, and technicians who have ever lived are not only alive today--they're alive and kicking. And in the storm of change they have stirred up has come a new magnitude of demand for vocationally trained people. You have long seen this coming; the public is beginning to be aware of it; and industry is now wide awake to it. I doubt very much if educators will hear too many more businessmen advising them to, "Simply do a good job of teaching the three R's and leave the rest up to us." I'm certainly not here to tell you that.

Before I go any further, let me recount the story of a small schoolboy who wrote an essay on Socrates. His entire theme contained only four sentences. He wrote: "Socrates was a Greek. Socrates was a great man. He went around telling people what to do. They poisoned him."

I am not here to tell anyone what to do.

I am here as a marketing man in the automobile industry--one, I hope, who takes a broad view of everything that affects our business. And I want to share a few thoughts with you about the youth of this country from that point of view. I think this view has relevance for your work because today's youth market is a leading factor in building an even more affluent society. As I see it, in the future a good vocational education will be as reliable a key to success as the baccalaureate degree has been in the past. I believe that vocational education can swing wide the door to full participation in the good life for millions of young people to whom it once was as tightly shut as the doors of the university.

As I said, the youth market is leading the way toward this era. It is the most dynamic and influential segment of a buying public which has pushed our economy to record heights that were not thought possible only five years ago. The economy is reaching the point where it will take more people to provide services than to produce goods. This development is creating a tremendous boom in opportunities for young people with good vocational educations. I'll come back to that part of my thesis in a few moments. But first, you might find it interesting, and I hope valuable, to take a brief look at one company's approach to the youth market that is helping push our economy forward so rapidly.

In the automobile industry, we see the under-twenty-five group as the market where the action is. Among other reasons, these young people compel our attention because of their sheer numbers. For example, between 1961 and 1962 the number of youths reaching the age of sixteen jumped by one million a year. Well over 3½ million now reach this age every year, and this pace will continue through 1970. We have always been a nation of young people, but now we are at the point where being over twenty-five puts us in the older half of the country's population. By 1970, 60 per cent of the population will be under twenty-five.

One out of five licensed drivers is under twenty-five, some twenty million in all. (It is not my intention to snow you with statistics, but in marketing many of our decisions are founded on such facts.)

In the light of those statistics, it is not difficult to understand why the most powerful single word in advertising is "young." You might say, they've got us surrounded. (Those of you with teenagers at home know that you can feel surrounded sometimes with only one of them.)

At Ford Motor Company our Marketing Research Office makes continuing studies of the youth market. We know from such studies that 7 per cent of new car purchases are made by those under twenty-five years of age. We know that, of the purchases made by this age group, 41 per cent currently buy economy cars, 22 per cent intermediates, 27 per cent low-priced full size cars, 10 per cent medium-priced cars and virtually none select cars in the high-priced category.

In terms of our Company's total penetration of the automobile market we show a fairly straight line across the entire age spectrum, from under twenty-five to over sixty-five years of age. This is exactly the kind of line we want to see because it shows that we are successfully appealing to every age group.

However, when we turn to an individual model, like the Mustang, we find that its highest level of penetration is in the under-twenty-five age group. But even though its penetration decreases as the age of the various groups increases, it maintains a significantly higher level of penetration in nearly every age group than other sports models. In other words, this car appealed so strongly to young people's spirits that it also was most attractive to the spirit of youth in the older age groups.

I mentioned that those under twenty-five account for 7 per cent of new car purchases. This represents only half as many new car purchases as those made by the forty-five to fifty-four age group. But the success of the Mustang is a perfect example of why the youth market has a significance to the marketing man far beyond its present purchasing power. The Mustang's success demonstrates that the youth market, though much smaller than other age groups in terms of per cent of new cars purchased, is very large in its trend-setting power.

Another reason why I, as a marketing man, pay such faithful attention to the youth market is the fact that this huge body of young people

is fast growing up. Building owner loyalty has a high priority in our business. No one knows better than an educator how important those early years are in shaping attitudes and tastes for a lifetime. Naturally, we hope that by appealing to the young person with the Mustang, we will develop in him a loyalty which will bring him back to buy many more of our products over the years.

Just as important as new car purchases is the huge youth market for used cars. Nearly one-third of all used-car purchases are made by those under twenty-five, more than all the used cars bought by the forty-five to sixty-four age groups. Here again, early impressions count. I am sure most of us here remember quite clearly and quite fondly our first car, which was probably a used one on which we heaped a great deal of loving attention.

Of course, no marketing man, in or out of the automobile industry, bats a thousand in this game. The job of building loyalty for the future by appealing to young people today is not a process of Pavlovian conditioning, any more than your educational task is. We are both trying to hit moving targets from moving platforms.

In my business we do not see our job of dealing with the youth market--or any other market--as a process of molding the public's taste by subtle and ingenious lures. What we do is much simpler! Because people already have plenty of needs, we try to satisfy those needs instead of attempting to create new ones.

It is my understanding that this is the approach you are rightly using in modern vocational education--trying to give youngsters the kind of training they want and need, rather than attempting to force them into pre-cast molds.

I believe it is imperative for our nation's future economic and social well-being that we both continue to improve our aim and do an even better job of meeting young people's needs--in the marketplace and in the classroom.

We have come to believe that our society can be great only when each person has a fair chance to share the good life. We believe that this goal is not a dream for the distant future but is attainable, certainly, for every young person alive today. The fact that education is a necessary step for all who would share fully in the benefits of our society is not new. The fact is new that the nearest and best way for millions of young Americans lies in vocational education.

There was a time when vocational education suffered a severe handicap in that it was thought to prepare people for dead-end jobs. Although there might have been some truth to this criticism when the trades and technology changed at a slower pace, it is assuredly not true today.

Today, it takes sixty thousand different periodicals to record just a part of the scientific and technological advances made each year. And a good vocational education can be a thru-street to a career in which opportunities for growth and advancement are as numerous as the changes in technology itself.

The only time that a young person with a good vocational education will confront an occupational dead-end is when he stops trying to learn more. In this regard his problem is not much different from that faced by the young man with a fresh Ph.D. in physics.

In few industries today are the opportunities more plentiful or the demand greater for vocationally educated youngsters than in the auto industry. When we're not looking at young people as customers or at their influence on customers, we're looking at them as employees or potential employees. And I think, when I tell you some of the things we are doing, you will see that we genuinely share your desire for more and better vocational education.

To put the opportunity picture in focus for the auto industry, let me point out that one U. S. business in six is automotive. Over twelve million Americans are employed in the manufacture, distribution, maintenance, or commercial use of motor vehicles. Here's a close-up of just one of the areas of opportunity in this vast and complex picture.

There are more than seventy-five million passenger cars being operated by more than ninety-two million licensed drivers in the United States. Servicing these automobiles is not only big business, it is big opportunity for the young man who wants a career in a growth industry, who wants to be well paid, who likes to work with his hands and his head, and who is willing to get the kind of vocational education it takes to service a modern automobile.

I am not talking about a youth who can pump gas or change tires. I am talking about a young man with sufficient training to handle courteously and efficiently the demands of a motorist who drives into his local dealer with complaints such as these:

1. My automatic temperature control system needs adjustment.

2. My stereo-tape system is "off-pitch."

3. My automatic speed control is not working right.

Such complaints may sound like those reported by an astronaut orbiting the earth in one of NASA's space capsules. But they are not. They are real, every-day complaints that might be heard in any auto dealership.

Should we call the man who can cure these ailments a "grease monkey?" I think not. He is a bona fide service technician. And a young man doesn't simply "pick up" the skills needed to qualify for such a job. He gets them through a first-class vocational education program.

More and more, the complexities of modern automotive equipment require that we establish diagnostic service centers to add speed and accuracy to the process of determining your automobile's precise condition. These centers use hundreds of thousands of dollars worth of sophisticated electronic equipment to pinpoint car troubles. The automotive technicians who man and manage these centers are highly respected

in our industry. They are skilled people with responsible positions and, I assure you, they are very well paid.

In a society where job obsolescence is a fact of life for many, a career in automotive mechanics and technology promises to be an enduring one, and one which will offer continuing opportunity for professional upgrading and advancement. Wherever there are people, there are automobiles and the need for knowledgeable technicians to keep them in top condition.

Our Ford and Lincoln-Mercury dealers employ some sixty-seven thousand automotive mechanics. Because of attrition and the demand generated by continuing growth in sales, we must add at least three thousand new, well-trained mechanics every year. Since it is not possible to meet this demand with young men from vocational high schools, technical schools, and junior colleges, we are embarking on a multi-million dollar program to expand our service training capacity.

First, our Student Technician Program will be expanded. This is a cooperative Company-dealer activity which offers evening classes to vocational high school seniors. We will expand this program to a level which can provide six hundred new mechanics annually for our dealers.

Another joint Company-dealer job-entry training activity will include classroom instruction in our Ford service schools as well as on-the-job instruction. This program will train one thousand six hundred technicians a year on a going basis. The courses will include six weeks of formal classroom instruction in Ford Training Centers, supplemented by eighteen weeks of on-the-job training. Both the regular mechanic course and a body and paint course will be available. During his twenty-four weeks of training, the student will be a full-time employee of the dealer.

A third program will see Philco Corporation, a subsidiary of Ford, establishing a full-time school for automobile mechanics in the Philadelphia area. Philco, which has had much experience in training technicians for government defense and space work, will enroll, on a going basis, one hundred fifty students in day classes and one hundred fifty in night classes. They will pay tuition and will, of course, be able to choose whatever employer they wish. We hope that a good number will choose Ford.

Besides these three programs, the Ford Motor Company Fund conducts a scholarship program to encourage students to enter the field of automotive technology. (The Ford Fund supports educational, scientific, and charitable programs, financed by contributions from Ford Motor Company. It is not related to The Ford Foundation.)

The Fund will provide approximately one hundred two-year scholarships this year to children of employees of Ford Motor Company dealerships throughout the nation. Winners will study automotive technology at qualified community colleges, junior colleges, and technical institutes. In addition to paying full tuition and stipends toward room and board, the scholarships will provide an annual $250 contribution to the general education budget of the college for each scholarship student in attendance.

The Ford Fund has also contributed to the Plans for Progress 1966 Vocational Guidance Program. This program will sponsor institutes in eighteen cities to acquaint high school officials and counselors with business needs and methods to improve preparation and motivation of underprivileged youth for jobs in industry. Many of you, no doubt, will be involved in the project.

Our Company also provides vocational education for thousands of young men by conducting apprenticeship training in twenty-seven industrial skilled trades. I'm told that we are continually developing basic text materials and furnishing them to schools throughout the country where our apprentices take their related classroom instruction. Because we know that once a young man has completed his apprentice training his skills will not automatically remain current, we also carry on a constant program of up-dating and improving the skills of journeymen.

We are now running programs in several Ford plants which offer employees who did not finish high school the chance to do so. Regular classes are held on-site and are taught by local public school teachers. Students attend classes on their own time and pay no tuition. We feel that this is vocational education in the broadest and best sense of the word. Thousands of our people, of course, take vocational courses at local schools and colleges on a Company, tuition-refund program.

As you can see from these few examples, we are very deeply committed and involved in the business of vocational education. There are few places on the vast, industry-education interface where stronger common interests exist than in the area of vocational education, and no place where we can make better use of shared knowledge and cooperative efforts. In our industry, as in others, we need our quota of Ph.D's. But we also have a sharply growing need for alert, well-educated men who have great interest in, and knowledge of, production machinery--men who get great personal satisfaction out of making, assembling, and, let me stress this, <u>selling</u> fine products.

As a salesman deeply interested in the motivations of young people, may I offer just one suggestion to you who, as educators, are equally concerned with motivating youngsters? It is simply this. I think you have a great opportunity to capitalize on a very powerful interest of young people, at least young men, in drawing them into vocational education programs. I am speaking of the compelling interest so many young people have in automobiles. Putting that interest to work in appropriate vocational education programs can be a powerful force in laying the foundation for an enduring career. If you're thinking this sounds like a pitch for the industry of which I am a part--you're right. But it is a completely sincere one.

I have tried to point out how young people are playing a leading role in propelling our economy toward a new level of abundance, an abundance we are determined to share with all who wish to share it, an abundance which is creating millions of opportunities for the building of rewarding, well-paid careers. In this context, you men and women who are leaders in vocational education are really where the action is in education today. Business and industry are doing a great deal to meet the demand for

well-trained people. We will have to do even more, but we'll never be able to do enough. Vocational high schools, cooperative education programs, technical schools, and community and junior colleges must also be fully geared up to meet our economy's need for skilled people.

In recent years, we have succeeded in convincing Americans that a college education is their best key to the future. One wag has even suggested that, if the number of those receiving college diplomas continues to multiply at its present rate, by the year two thousand there will be more college graduates than people in this country.

Now, I think the time is ripe for an all-out drive to provide the world's finest vocational education opportunities for our young people. Government, industry, and, increasingly, our young people are becoming alert to the great need. Our booming economy, spurred by the nation's youth, is creating both the demand for better vocational education and the means to provide it. I am confident that your work will prove the necessary catalyst to make this drive a reality.

AN ADMINISTRATIVE, COORDINATION, AND LEARNING MODEL FOR COOPERATIVE DISTRIBUTIVE EDUCATION

Ralph E. Mason

When considering a model for any cooperative education program, there needs to be a rather clear-cut understanding of the objectives and capabilities of cooperative education programs. The position taken in this presentation is that: (1) the student-learner's career objective determines his program classification, and (2) the subject matter presented in the related instruction and the educational opportunities at the training station, as revealed by a carefully prepared training plan, determine how well his career objective may be served.

Also, the teacher-coordinator may well ask himself: "In light of this enrollee's career objective and his planned training station learning experiences, which type of related classroom instruction would have the most vocationally useful outcomes for him--interrelated cooperative education, distributive education, cooperative office education, cooperative industrial education, or, in some communities, cooperative agribusiness or the cooperative home economics occupations program.

Turning our attention now to distributive education, it is suggested that a sound administrative, coordination, and learning model can be built around the elements represented in the diagram in Chart 1, Organization of Instruction for Cooperative Education Program. From the chart, a three dimensional program of instruction emerges, including related classroom instruction as one dimension, supervised on-the-job training as a second dimension, and a youth group to supplement instruction as the third dimension. Both the classroom phase and the on-the-job phase recognize the need for handling the demands of the immediate job through specific instruction, but also handling the teaching of underlying principles to be generalized through group instruction and independent study.

Coordination time to the extent of one-half hour per week per student enrolled should be provided for the teacher-coordinator. He needs this time for surveys, public relations, selection and recruiting, locating and developing training stations, planning specific and basic instruction, evaluating student-learners and training stations, carrying out action research, and planning adult education, among other things.

Instruction in distributive education must be concerned with the learner's need to acquire occupational skills, information, and job intelligence basic to all distributive occupations as well as with his need for specialized skills and information requisite to his career objective in distribution. Let us consider four areas of objectives which determine the direction of this learning.

The first area of objectives concerns those concepts, principles, skills, and attitudes common to all distributive occupations, concentrating on the following topics:

1. School and Business Relationships
   a. Orientation
   b. Human relations

2. Economics of Distribution
   a. Free-enterprise system
   b. Supply and demand
   c. Pricing

3. Marketing
   a. What marketing is
   b. What marketing does
   c. Marketing institutions
   d. Marketing research

4. Personal Development (recurring topics during the school year)
   a. Human relations
   b. Mathematics for distribution
   c. Business communications

5. Retailing and Merchandising
   a. Getting started in a retail business
   b. Basic job skills in retailing
   c. Merchandising and management principles

6. Career Opportunities in Distribution

A second area of objectives for this program concerns the student-learner's building of occupational skills and knowledge applicable to the particular initial job in which he is placed. Each student's individual learning outcomes are stated in the "step-by-step training plan" created for him by the teacher-coordinator and the training station sponsor. These learning outcomes are emphasized in the informal individual conferences of student-learner and teacher-coordinator and/or training station sponsor.

A third area of objectives for this related instruction concerns general education. The close association of teacher-coordinator and student-learner should contribute to improvement in the student's ability to read, write, and compute. The related instruction content should contribute to an understanding of the field of business and to the student's personal and general economic understanding.

The fourth area of objectives concerns the student's career objective. While instruction in the principles of distribution should contribute to this goal, the student should receive individual instruction that furthers his objective. This instruction is, of necessity, not closely related to the career objective.

It has become evident to us in distributive education that we need to take a "discipline approach" to planning instruction and avoid viewing D. E. as a "course." A logical curriculum or series of courses and experiences need to be planned to accomplish the objectives outlined above.

Contemporary thinking would have the curriculum consist of:

1. Preparatory (pre-employment) courses of at least one year, such as "Introduction to Marketing and Merchandising," followed by

2. Cooperative method of instruction of at least one period for one year in-school plus at least four hundred fifty hours (thirty weeks of fifteen hours a week) of instruction on the job in a training station.

Suggestions for the preparatory or pre-employment education beginning at freshman, the sophomore, or junior levels depending on the needs of the particular school system would include the following:

1. General education in the common areas of language arts and communications, mathematics and science, social science, physical and health education, and practical arts for general education, such as homemaking and industrial arts. The D. E. student might well take such courses as "General Business" and "Economics."

2. Business courses providing background in such skills as bookkeeping, typewriting, business arithmetic, and business organization and management.

3. Introductory courses in distribution, including such courses as "Retailing," "Salesmanship," and "Principles of Marketing and Distribution."

4. Employment instruction through the cooperative experience, including the related class of at least one period daily. This class might well be called "Distributive Practice" or simply "Distribution I" and "Distribution II."

A cooperative distributive education program in the high school, planned as outlined above, is designed to prepare students for initial entry jobs in areas of marketing such as manufacturing, storing, transporting, financing, risk-bearing, wholesaling, retailing, and servicing. Distributive education is concerned with marketing occupations and not with industrial or office occupations.

This model provides occupational preparation which aids the student-learner in acquiring general skills and knowledges applicable to all distributive occupations and in acquiring specialized skills and knowledges applicable to the training station where he is placed. Also, this background prepares the student-learner for advancement on the job.

COOPERATIVE OFFICE EDUCATION

James H. Wykle

In reading about, speaking of, or discussing vocational education, all kinds of nice adjectives have been used describing its past. One such adjective used is "illustrious"--vocational education has an illustrious past. It might be called that, but it has been a hard past also. It has moved from the apprenticeship method in the older days to the on-the-job training (meaning more pay, perhaps, but still learning as you work) to full-time vocational school, to vocational education programs in comprehensive public schools. With the increased need for vocational education there have been more and more agencies employed to meet the training needs of the people. From past experience it is known that a vocation cannot be completely mastered in the classroom. It is known that there must be a definite relationship between the learning of facts, the acquiring of habits of thoughts and attitudes, and the mastering of skills which will weld them together in the training experience of the learner. The schools' main functions are to teach facts, concepts, and principles, and in building attitudes. These functions are made more realistic in harmony with the daily vocational activities of the person being trained. In this way of thinking, the world of work becomes a part of the school's curricula--cooperative education is coming into its own.

In business education the development of skills has always been important but related information was not overlooked. Business educators have striven to include information with which to add meaning and understanding to skills. How closely employers and educators worked together in business education is evidenced by the fact that office occupations work-study programs increased even without the encouragement of Federal funds. Many of the state departments of education were putting these programs to work, but increased funds always help. The Vocational Education Act of 1963 gave encouragement for much expansion in the cooperative office occupations programs. Federal and State funds are now promoting and supporting occupational preparations in order to meet critical employment needs.

In the secondary schools the cooperative plan of instruction is being used to provide vocational training. The cooperative plan of instruction can be applied to different areas of occupational education. The components of competence in each occupation vary in kind and in the degree to which they are important. Occupations vary in the degree to which the skill can be developed in school and applied on the job as opposed to being developed primarily on the job. For example, the basic skills of typewriting and shorthand must be learned in school under controlled conditions. Yet, in some industrial occupations the machines on which skill is to be developed are too expensive and specialized to be taught in the schools. It is found, however, that in all occupations the job provides the student-learner with the realistic setting of fellow workers, supervisors, and the standards and atmosphere of actual employment.

A definition then might be--the cooperative plan of vocational instruction develops occupational competencies through supervised occupational experiences while related instruction is given in school. This plan also emphasizes discussions in school of problem situations encountered on the job, of benefits from supervision, and constructive criticism.

In order to provide the function of vocational instruction, the cooperative plan should include the following:

1. Related instruction in school which is comprised of two kinds of instruction:

   a. Basic related instruction--this has to do with those concepts, knowledges, skills, understandings, and attitudes needed by all the students as basic to occupational preparation;

   b. Specific related instruction--those concepts, skills, and attitudes needed by the individual student-learner to handle the duties and responsibilities of his career objective.

2. Career objective--requiring the student-learner to have the express purpose of preparing for an occupation or an area of occupations; he is a <u>student</u> in the secondary school and a <u>learner</u> in an occupation in the supervised experiences.

3. The curriculum--an instruction program is necessary that includes a series of courses which develop the information and skills, concepts, and attitudes needed before a student is placed as a cooperative student-learner.

4. Classroom facilities and instructional materials--the facilities and materials must be adequate for teaching vocational information, skills, and attitudes. It is the ideal situation to have a special budget available for instructional materials.

5. The training station--a cooperative business is selected according to standards which measure its ability to give the opportunities for a supervised educational experience to prepare the student for his career objective.

6. Training plan--a plan must be formulated to indicate what is to be learned and whether it is to be taught in the classroom or in the training field.

7. The teacher-coordinator--this person is employed by the school to operate the cooperative education program. He must have technical and professional education and business experience. He teaches the related classes at the school and coordinates the employment learning experiences with the school learning experiences of each student-learner.

8. Time for coordination--there must be time for the coordinator to carry out the organized program of activities that unite the training station experiences with the classroom learning experiences of each student-learner. How much time depends upon the number of student-learners and the location of the training stations. Coordination is the activity outside the classroom performed by the teacher-coordinator to organize, administer, operate, or improve the program.

9. Supervision in the training station--in each cooperating business there must be appointed a person who is directly responsible for the occupational learning experiences of a student-learner on the job. This person may be a manager, a supervisor, or an experienced employee.

10. Definite school policies for the program--a local plan of administration and operation should be formulated regarding student-learner recruitment and acceptance to the program, class scheduling, school credit for the classroom phase, and the training station phase, essentials for the training stations, responsibilities and duties of the teacher-coordinator. A record system should be set up with facilities to accommodate current records on students and training fields and follow-up records on graduates.

An ideal situation would be to organize a committee to represent the student's school, parents, and business to serve in an advisory capacity to the superintendent and teacher-coordinator.

The preceding elements make up the coordinating program. What are considered office occupations? Office occupations may be defined as the duties performed in private or public businesses which serve management through organizing, planning, interpreting, communicating, and filing the financial and other data about the business.

The general objective of the cooperative office education program is to prepare qualified high school students vocationally for initial office jobs such as those classified in the Dictionary of Occupational Titles. This background also prepares the student-learner for advancement on the job.

If this is the objective of the cooperative program, then when is it feasible to begin such a program?

The idea of beginning a cooperative program in a community may originate with the superintendent of schools, with an office occupations teacher, with the principal, or with a business group within the community. Of course, before any can have this idea of the cooperative program, he must know about it. Many times this task must be executed firmly by the state supervisor of office occupations or a member of the staff. No matter where the idea originates, the superintendent of schools must be consulted about the possibility of beginning the program--he is concerned with developing the curriculum in his school and

with maintaining standards in order to qualify for vocational funds for reimbursable programs, but the responsibility for the organization of the program is usually given to the prospective teacher-coordinator--this person becomes the key to the success of the program.

This person must be a teacher, a business man or woman, a counselor, an administrator, and a public relations person--some specific characteristics of this key person of the cooperative program are:

1. First, he must be a proven successful classroom teacher. He must be able to command the respect of the age group with which he works. He must be flexible and able to teach what is needed when it is needed. He must have a keen desire to help young people to develop into competent employers, supervisors, craftsmen, and managers. He must command the qualities which he expects from his student-learners--ambition, courtesy, promptness, and respect.

2. He must have a good background for learning and teaching--methods, courses developed, effective teaching techniques, and psychology courses taught him how learning takes place. Practice teaching further implants these knowledges. The coordinator must have in addition an understanding of the learning process and how vocational learning is strengthened by correct procedures and techniques in the classroom and on the job. The cooperative method must provide a feedback from the job to the classroom to the student learner and to the teacher-coordinator. Feedback emphasizes learning processes.

3. He should have had experience in the world of work. He is a combination teacher-personnel manager dealing with students, parents, other teachers, administrators, job supervisors, managers, and owners. He must have mature judgment of a successful teacher and of a successful employee as well. It is desirable for his experience to be in the kinds of jobs and firms in which his students will be working. He needs the ability to think in terms of the office and to talk in the language of the office. It is ideal if the coordinator should gain additional occupational experience after he begins coordinating--thus he keeps up with change and expansion in his area.

4. The coordinator should have the ability to plan the physical facilities for his cooperative program.

5. He must have physical and mental stamina. He cannot be a coordinator by telephone. There is no substitute for personal contact.

6. He must have specific academic requirements including graduation from an approved college with a major in the subject matter associated with his field in vocational education. It is wise of the prospective coordinator to check the certification requirements of his state board of vocational education--these state requirements vary.

7. He must have the ability to coordinate. Many activities make up this ability and even those activities may vary some in different situations; but a coordinator is working when he is using his coordination time wisely to develop his student-learners, to develop his training stations, and to develop his program.

8. He must be professional--coordinating this program is not just another duty--he must believe in his work--be able to justify the program and his activities.

Now, assuming that the superintendent recognizes the value of the cooperative program and has a prospective coordinator in mind, what is his next step? He might seek the advice of interested people within the school and local community.

A steering committee, temporary in nature, may be formed from people in education, business, labor, parents, and the news media. After being orientated to the goals and objectives of the program, this committee's function is to reply either affirmatively or negatively to the question: "Shall we begin a cooperative office occupations program in our school?" At this time it is well to survey the student body and the business community in order to find the following information:

1. Is there a need for trained, career-minded persons in office occupations in the community?

2. Are there opportunities for part-time training placements in the business community?

3. What are the vocational interests of the high school students which could be met by a cooperative program?

4. Are the physical facilities adequate for cooperative education?

5. Find the locations of recent graduates and the occupations they now practice.

If the answer of the steering committee is in the affirmative, an advisory committee should be appointed. This committee should be a sounding board for advice on operating procedures. It could suggest training stations, sources, and types of instructional materials.

It is now time for the teacher-coordinator to begin his work. He must distribute information to school personnel, guidance counselors, staff, students, and parents; he must make contacts in the community for possible training fields; he must counsel and interview prospective student-learners and cooperate with guidance counselors in testing them; he must assist in arranging class schedules; he must arrange for related classroom facilities; and he must arrange for textbooks, reference books, and supplies.

Those things are accomplished before the program actually begins. Remember, too, this coordinator is also the teacher of the related classes. He needs approximately one-half hour per student per week to accomplish his responsibilities other than classroom teaching. This will vary--more time would be needed if there is a great geographic spread of training fields, or a newly organized program.

There are certain procedures which the coordinator used in order to organize the various training fields. The employer must understand the responsibilities and conditions regarding his part and his firm's part in the cooperative plan:

1. The employer must understand the nature and scope of the program.

   a. It is a training program and not a school employment plan. The firm must help the learner with individual assignments if necessary.

   b. The employer must assist the school by providing planned experiences and on-the-job instruction.

   c. The employer must provide at least fifteen hours of employment a week throughout the school year (the working hours must work in with the school hours--also number of hours will vary in state plans).

   d. The employer must pay wages according to state or federal wage laws for beginning student-learners; this amount may be increased in proportion to the learner's productivity.

   e. The employer must understand that, through counseling, the student-learner has a tentative career objective; the student is enrolled in related classes at school and he should be given opportunity to move from one job activity to another in order to have more experience.

   f. The employer must understand that the student-learner must be treated as all part-time employees concerning social security, insurance, and labor laws.

   g. The employer must understand that the coordinator will visit the student-learner, observe his work, make suggestions for on-the-job training, and determine the job activities to which classroom instruction should be related.

   h. The employer must make periodic ratings on the performance of the student-learner and report these to the coordinator.

2. There must be developed a training plan which will bring into focus the career objectives. Through such a plan the student better understands his vocational objective, and the employer

also is more aware of the student's goal and is encouraged to lead him forward by providing adequate work activities and instruction.

3. The coordinator must develop a training memorandum; this memo will vary; it should contain name of student and all information concerning him, his training station objectives, etc.

4. After the initial general training plan has been made, the coordinator should make a step-by-step training plan so that he, the student, and the employer will know exactly where they are.

5. Preparation by coordinator of a complete training plan is necessary--this is a combination of the memorandum and the step-by-step training plan. Since there is a wide range of capabilities and career objectives of student-learners, some training stations are better for some students while another training station might serve to more advantage for another student. In preparing a complete training plan, learning outcomes should be identified for the career objectives of each learner. The continued success and future development of sound cooperative programs will rest on how well the coordinators identify good training stations and then place in those stations the career-minded student suited to it.

6. The coordinator then must select and orient the supervisor or sponsor within the training station. One person should be responsible for supervising the experiences and instruction on the job of the student-learner.

This does not conclude the work of the coordinator. This very efficient and busy person must prepare the student-learner for his role in the cooperative program.

1. The students are interviewed by the employer, acquainted with work regulations and time schedules, and are assigned to training stations early in the school year.

2. The students should know that they must have time for part-time employment while they complete school requirements, that they must produce well on the job, that the coordinator will visit them at the training field and evaluate their progress, and that the local rules on grades, credit, etc. are for them.

3. The student uses the training plan, too. He is given a copy of the plan and asked to do the following things:

   a. He lists title of job, his career objectives, and some areas in which he hopes to gain experience.

   b. He prepares a weekly report which indicates areas in which he is gaining instruction on the job.

c. He summarizes at least once each grade period the learning outcomes of job.

d. He evaluates at the end of school year his training.

At this point the teacher-coordinator knows what his job is, the employer knows what his part is, and the student-learner knows his role in this cooperative program. The coordinator continues to make plans. It is his responsibility to determine the time schedules for employment. It is his responsibility to give interview techniques to the students and then decide how many students are to be sent to each employer for an interview. The final decision for employment should be made by the employer.

Those are many of the responsibilities and problems of getting a cooperative education program started. Once a cooperative program has been inaugurated, the teacher-coordinator has new activities. The importance of a continuous program of maintenance activities and improvement activities cannot be overemphasized. The coordinator must work constantly with the training field, or that field may turn into a general work experience program.

There are routine activities which occupy the coordinator during the entire year; therefore, it is desirable that he be employed during part of the summer. Many systems are placing this person on a twelve-month basis.

Even though the program is organized, the coordinator continues to improve instruction in the training stations, make visitations to the training stations, measure the performance of the student in the station, find and select new training stations, carry on a sponsor development program (review their duties), report to cooperating employers on instructional activities, continue a public relations program, evaluate the program through follow-up of graduates or program reviews (usually the coordinator and outside consultant look over what is being done and discuss how it can be improved), and if time exists, conduct some form of research such as community surveys or placement studies.

Up to this point most of our discussion has concerned the cooperative program and its organization outside of the classroom.

The related classroom work is of equal importance, naturally. Remember the coordinator is above all a teacher. He designs the necessary learning experiences that enable the student to work toward his career objective. He is knowledgeable about the student and his training station in order to design in-school instruction that is correlated in time and sequence with the occupational experiences; therefore, it is the belief of most leaders in cooperative education that the ideal learning situation is structured by a coordinator who teaches his student-learners in the related class in school.

The cooperative program in office occupations is designed as a <u>capstone</u> experience for a curriculum in which students are enrolled who have career interests in clerical, stenographic, and bookkeeping

occupations. The typical curriculum usually gives beginning and advanced courses in typewriting, bookkeeping, and shorthand. There has been a trend toward copying these skill courses with a senior year laboratory practice type course in order to integrate the skills. The course may be one or two semesters and identified as "Office Practice," "Clerical Practice," "Secretarial Practice," or a similar name. The cooperative office occupations program is now a more recent curriculum addition. The cooperative programs are almost entirely a capstone of a curriculum of at least two years. The prerequisite courses build skills and information necessary to place them on the job as student-learners. The size of the school will help determine the sequences--but specialized sequences may be used with a cooperative program for each specialization--clerical, stenographic, and bookkeeping.

However, the general plan should look like this:

1. Grade twelve

   a. Cooperative office experience--one-half day.

   b. Related class for student-learner either one or two periods; in titles "Cooperative Office Practice," etc. (one of other names).

   c. Electives--one or more periods in general education such as English or in related office occupations courses such as advanced shorthand, bookkeeping, or office machines.

2. Grades nine to twelve. Prerequisite office occupations subjects depending on interest and aptitude of student--beginning shorthand, typewriting or bookkeeping, general business, business arithmetic, business English, etc.

This is a general outline and alternatives are possible. For example--if the cooperative related class is a double period, skills can be developed in that class that normally would be developed in other classes such as operation of calculators, duplicating machines, transcription, shorthand, speedbuilding, business correspondence, and filing.

This cooperative office occupations program is not intended as an addition to an already full curriculum. The student learns through this on-the-job training and through these related classes some concepts and skills which would be taught in other classes if he remained in the classroom.

I'd like to mention briefly that cooperative education for office occupations is likely to become a very significant part of the post-high school curriculum and in the near future. In fact, due to the national emphasis on adult education and retraining as one of the tools to reduce poverty, there is in progress a vast expansion of the post-high school movement in American education at this time. This demonstrates the need for expansion in the field for more specialized occupations.

In an effort to expand the real usefulness of cooperative office education, I have conducted an unofficial study--the voluntary assistance of the respective states--on the various policies and procedures of their cooperative occupations program.

The willingness of the states to help me in this undertaking resulted in a compilation of some very useful and excellent information, from which I have prepared a study into a type of state comparison.

To give you a picture of the trend in the states, I am going to share with you some of the most pertinent findings of my inquiry.

Of fifty states assisting in this project, seventeen did not have written policies and procedures at the state level. Eight states plan to implement such a program during the next year. One state, which does not have written policies and procedures, is following those of the Distributive Education program for the state level administration. Some of the states administer these programs only at the local level. One state has made a provision for the cooperative office education program, but it has not employed or appointed a state supervisor.

By permission of the state, another state has under consideration a submitted plan at the local level. Upon approval, it will be conducted as a cooperative office education program.

Most prevalent directions discovered through this unofficial endeavor are:

1. The teacher-coordinator is usually required to have at least one year of experience in a business office.

2. The coordinator is required to have a degree in business and office education. A few states require work beyond the baccalaureate degree.

3. Some states require two years of successful teaching experience. However, most states were in agreement that office experience is more important than teaching experience provided the coordinator has the B.S. degree.

4. Employment is for at least one month beyond the regular school employment, and in many cases the employment is for twelve months.

5. Some states require coordinators to receive credit in the following courses:

   a. History, principles and philosophy of Vocational Education

   b. Methods and materials of Teaching Vocational Business and Office Education

   c. Occupational Analyses in business and office education

d. Techniques of Coordination in business and office education

e. Problems of the coordinator

f. Organization for coordination of cooperative education

g. Administration and supervision of cooperative programs

These courses are the primary ones required of the teacher-coordinator. Some states require part of these courses before an individual can be employed as a coordinator. Others allow for two years to take four courses.

The schedules of coordinators vary. The inquiry revealed that: Most states provide for at least two class periods of released time for coordination. Some provide double periods and others provide for two periods, which may not follow each other. Some states limit the coordinator to teaching three periods of a six-class-period day. This allows at least one period for consultation with the students.

It was found that there were exceptions among the states. One state based its program on one hundred eighty classroom hours divided into the "Core" content and the "Fringe" content. It is half and half; except for the first month, twenty hours includes the "fringe" work. The "core" instruction is divided into six units from the orientation to the skill development.

When reading through the state policies and procedures, when working with the leaders in office education, when observing what is being done in the various state departments and in the individual schools, it appears that the concepts of cooperative office education must change continuously. Development and advancement in this area are possible only when new ideas and concepts are formulated and when they are implemented into practical use. Current concepts constitute the only valid criteria by which the program can change and progress.

Thus, we are beginning to see the necessity for cooperative office education. Through this insight, through strong leadership among the office educators and the business office, through a great deal of patience, and through much hard work, every state will have strong cooperative programs--thereby, providing the business world with the kind of employee who adapts to the changing world of business.

ADMINISTRATIVE, COORDINATING AND LEARNING MODEL IN INDUSTRIAL COOPERATIVE EDUCATION

Sam W. King

Role of Industrial Cooperative Training in Total Education Program

There are many different possible patterns of operation of Industrial Cooperative Training[1] programs depending upon local needs. ICT may be offered in grades eleven and twelve in high school, at the post-high school level, and special programs may be designed for high school dropouts or potential dropouts. It would be impossible to discuss all the various patterns of operation in the time allotted to this portion of the panel discussion. My discussion will be limited to the following type of program:

1. High School--grades eleven and twelve
2. One teacher-coordinator
3. Multi-occupations
4. Half-day in school--half-day On-the-Job Training[2]

I feel sure most of my recommendations will apply to any pattern of operation, and the model program I will describe can be adapted to fit local needs. (Explain Chart 1)

Students may enroll in ICT upon completion of sophomore year of general education curriculum. Students may enroll in ICT at beginning of senior year after completion of one or more years of Day Trade shop. The student would be expected to continue training in the same occupation.

Upon completion of one or two years of ICT, the student will have four choices. He may start working full time as a semi-skilled worker or advanced helper in the same occupation and in most cases for the same employer. This is the primary objective of ICT--to prepare boys and girls for useful employment in occupations of their choice. But there are other alternatives--and this is one of the strengths of the program.

The student may continue his education in a college or university and become a professional worker since students are able to complete the necessary courses for a high school diploma and entrance requirements of most colleges.

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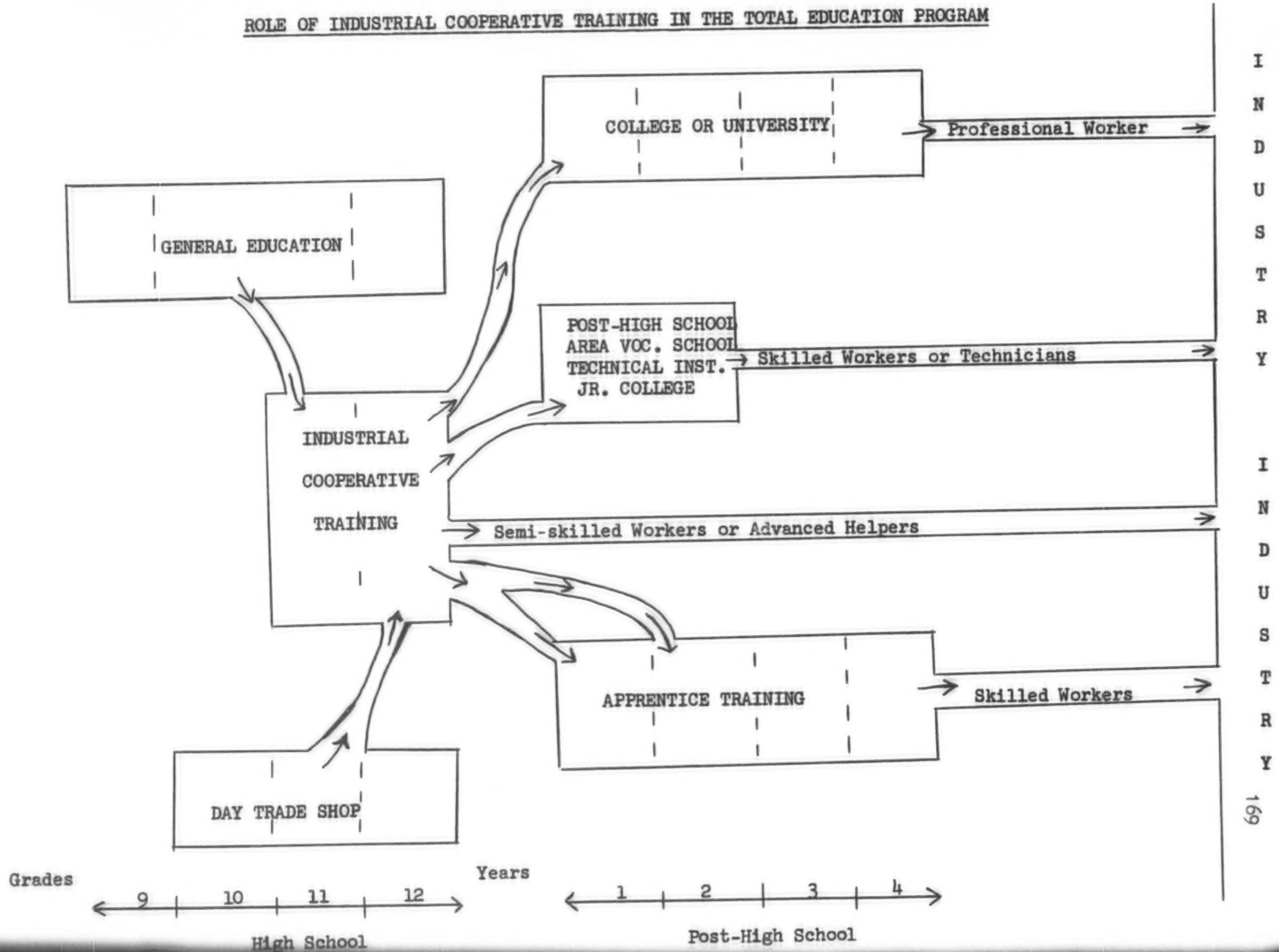
[1] Industrial Cooperative Training will be referred to as ICT.

[2] On-the-Job Training will be referred to as OJT.

Chart 1

ROLE OF INDUSTRIAL COOPERATIVE TRAINING IN THE TOTAL EDUCATION PROGRAM



The student may take advanced occupational training at the post-high school level and qualify for employment as a skilled worker or technician. Or, if the ICT student has been employed in an apprenticeable trade, he may elect to continue his training through apprenticeship and qualify as a skilled worker or journeyman. In many cases the joint apprenticeship council may give the ICT graduate credit for his training and start him as a second-year apprentice.

Organization of Instruction for an ICT Program (Explain Chart 2)

An ICT program is under the same school administration as other high school courses. A full-time teacher-coordinator is employed by the school to teach the related class and coordinate the on-the-job training. The training sponsor or employer is responsible for the manipulative aspects of the training through on-the-job training. An advisory committee is appointed by the school superintendent to serve in an advisory capacity to both the school and the training sponsor.

The technical information learned in the related class and the on-the-job training supplemented by the Vocational Industrial Club program combine to provide the total instructional program. The results, hopefully, are a vocationally competent, socially adjusted worker, and an intelligent and productive citizen.

Legal Aspects of ICT

Training of homogeneous groups of students was included in the Smith-Hughes Act in 1917. In 1931, the Federal Board for Vocational Education modified its policies on cooperative part-time education to permit training of youth employed in a variety of occupations. Cooperative training--for budgetary purposes, at least--is still classified as Part-Time General Continuation. However, due to special requirements and standards, this type of program is considered a special phase of part-time education. ICT programs which qualify for Federal reimbursement must conform to Federal regulations.

Reimbursed programs must also conform to the respective state plan requirements.

Standards for Approval

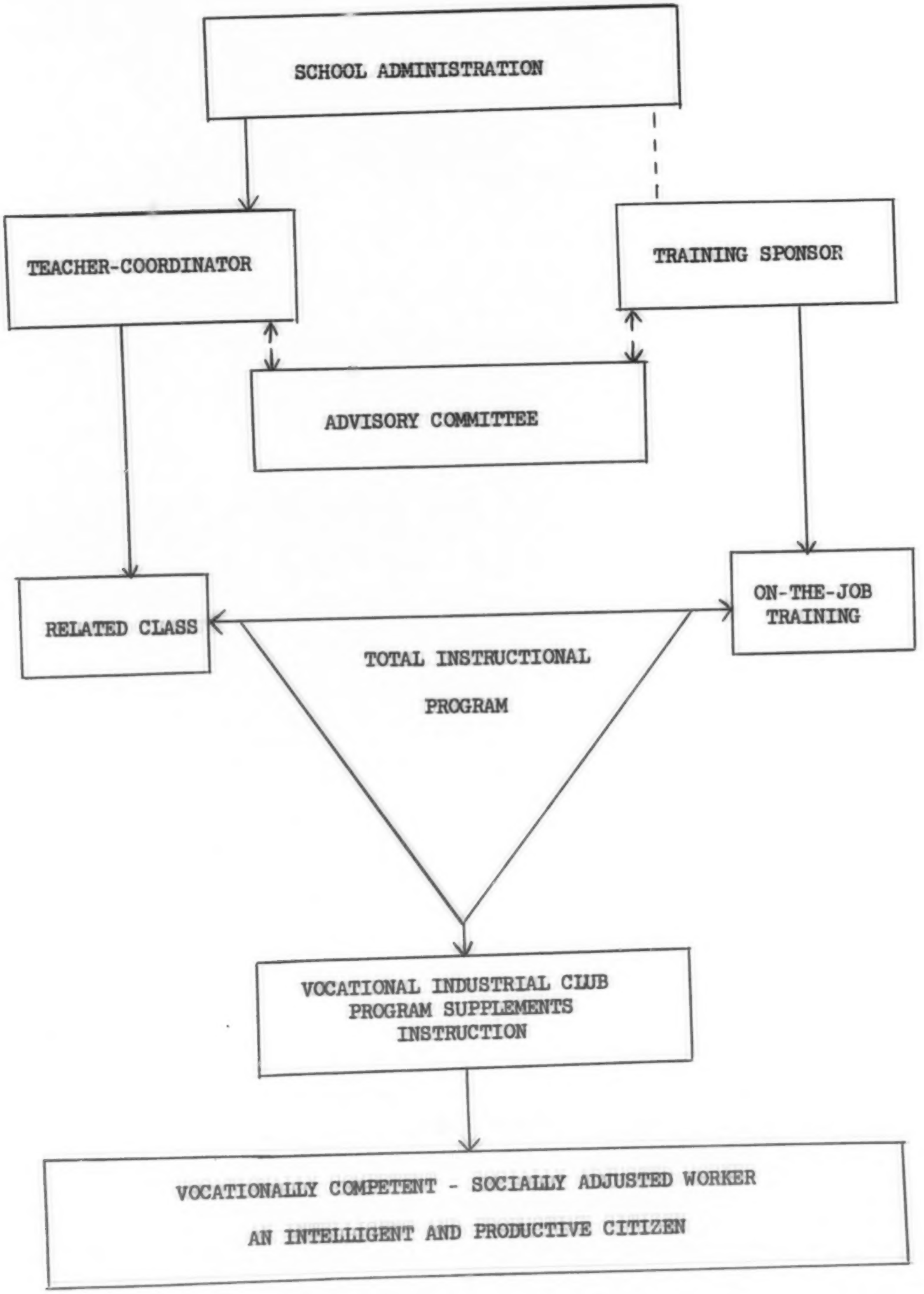
Approval of reimbursed programs is a function of the State Boards of Vocational Education. The standards vary from state to state. Generally speaking, programs should be approved only when the following criteria are met:

A. Data from an industrial survey indicates a need for training and there are sufficient employers interested in the program to provide adequate training stations.

B. A survey of students eligible for enrollment in ICT indicates there is sufficient interest to enroll a class of a minimum of twenty-four students.

Chart 2

ORGANIZATION OF INSTRUCTION FOR AN INDUSTRIAL COOPERATIVE TRAINING PROGRAM



C. The school has or will provide suitable classroom facilities and provide financial support necessary to provide necessary reference library and study guides for the related class.

Standards for Organization

A. Qualifications of Teacher-Coordinator

1. State Plan Requirements

2. Desirable Qualifications

a. Baccalaureate Degree

b. Minimum of three years work experience preferably in two or more industrial occupations or skilled trades

c. Three years of teaching experience in public schools, preferably in industrial education

d. Completion of three teacher training courses for ICT coordinators prior to start of school term

Day trade shop teachers, who have completed work for baccalaureate degree, and industrial arts teachers who have the required amount of work experience, are excellent prospects as coordinators. There are many desirable personal characteristics which may compensate for lack of other qualifications.

B. Duties of Teacher-Coordinator

1. Organize class

2. Teach related subjects

3. Organize instructional material

4. Coordination

C. Length of Program

1. Two years (Some one-year occupations)

2. Nine months or thirty-six weeks per year

3. Minimum of twenty hours per week on the job and maximum of twenty-five hours per week (Exclusive of Saturday)

D. Advisory Committee

Since success of a cooperative training program depends upon the close relationship and cooperation between the school and industries of the community, there is a definite need

for an advisory committee to guide the school in inaugurating and maintaining a program which will best meet the training needs of the community.

1. Appointed by Superintendent of Schools (with assistance of coordinator)

2. Representatives of employees, employers, and general public (Minimum of five plus coordinator)

3. Duties

   a. Advise as to general training policies

   b. Advise as to fitness of training stations

   c. Review wage scales

   d. Recommend approval of training plans

   e. Assist in conducting surveys

   f. Assist in promoting and publicizing program

   g. Assist in evaluating the program

4. Craft Committees--ad hoc committees

E. Selection of Students

   1. Eligibility of Students

      a. Sixteen years of age

      b. Junior or senior classification

   2. Procedures in Selection of Students

      a. Spring enrollment

         (1) Announcements

         (2) ICT student talks in home rooms

         (3) Referrals from counselors, teachers, and principal or registrar

      b. August enrollment

         (1) Newspaper publicity

         (2) Letters to prospective students and parents selected from student record cards

Students are usually selected after personal interviews; review of information on application blanks; check of school records; and conferences with counselors, principal, and former teachers of the students.

3. Factors in Selection of Students

a. Interest in training

b. Physical and mental suitability

c. Moral reliability

d. Educational background

e. Disciplinary and school attendance record

f. Past work experience

g. Recommendations (teachers, counselors, principal)

Selection of students is one of the most vital factors in maintaining a successful program. One or two "foul balls" can ruin a program by creating the image that ICT program is primarily for this type of students. Coordinators will then find it is extremely difficult to recruit desirable students. Once an unfavorable image is created, it will be years, if ever, before a new image can be created.

F. Selection of Occupations

While the ICT program should be diverse enough to meet the training needs of the community in several fields of employment, the coordinator should not attempt to provide training in such a wide variety of occupations as to make his program unwieldy. Generally, no more than eight to ten occupations which are prevalent in the community and which lend themselves to the apprentice plan of training are preferred.

The State Vocational Education Agency should provide schools with a list of occupations approved for ICT. The list should show the occupational title and code used in the "Dictionary of Occupational Titles." To qualify as an approvable occupation, an occupation should meet all three of the following criteria:

1. Must be a trade and industrial occupation

2. Must require at least two thousand hours of organized training

3. The related technical information required must be sufficient to justify the enrollment of students for three hundred fifty hours of related instruction.

In selecting occupations, it is necessary to comply with State and Federal laws regulating employment of minors in occupations which have been declared hazardous. The coordinator should also avoid occupations for which States have set up licensing requirements such as embalming, beauty operator, barbering, etc.

G. Selection of Training Stations

The chief factor in selecting an employer, training sponsor, or training station is the attitude of the employer and his employees toward the cooperative training plan and their willingness to provide well-rounded work experience. In addition, the following factors should be considered:

1. Respectability and responsibility of the employer
2. Training equipment available
3. Competent employees
4. Volume of business
5. Variety of work available for training
6. Wages to be paid student-learner
7. Company policy toward student-learner
8. Standards of workmanship required
9. Degree of specialization required
10. Employer-employee relationships existing

Generally, the following types of training stations should be avoided:

1. Employees work on a commission or piece-rate basis
2. Located remote from the community
3. Located in disreputable sections
4. Located in same building or adjacent to a place where alcoholic beverages are sold

H. Placement of Students

Placement of students involves the selection of a particular student by the employer, and the preparation of training agreement and training plan. If at all possible, the employer should have the opportunity to interview two or more students in making his selection. Coordinator must use his own judgment whether to send the student for an interview

or to go with the student and introduce him to the employer. The student should be briefed prior to the interview and the employer furnished as much information about the student as is available. The coordinator should avoid giving his personal recommendation--the employer should select the student for the job, not the coordinator.

In working out the training agreement, the coordinator must have clearly in mind the standards pertaining to hours and wages which have been set up in his state and by local advisory committee. On employment of ICT students, it is desirable that provisions be made for wage adjustments upon satisfactory progress.

One of the chief virtues of ICT is the fact that the training--both practical and related--is centered around an organized plan. The training plan for each student must be worked out by the coordinator and employer before the student begins work or immediately after placement. The plan must contain a list of work experiences to be provided by the employer and an outline of related study assignments. It must be approved by the Advisory Committee and State Supervisor of Trade and Industrial Education before the student is considered a bona fide T & I student.

Training plans are usually prepared in triplicate, one copy for school files, one copy for state files, and one copy for the employer.

In preparing the schedule of work experiences, the three most satisfactory methods are:

1. Jobs listed in order of difficulty, from the easiest to most difficult. (automobile body repair, meat cutting, etc.)

2. According to type of work done or machines and tools used. (printing, auto mechanics, etc.)

3. According to a "production order." (sheetmetal work, carpentry, etc.)

The course of study is prepared by the coordinator--with possible suggestions from the employer--and should consist of topics or subjects of information related to and paralleling the work experiences listed in the first column. In general, the informational topics listed concern:

1. Tools and equipment

2. Materials

3. Related math, science, and drawing

4. Operating principles and processes

Some system of recording work experience should be provided to show the type and frequency of work experience and whether it was done under close supervision or on his own. This record should be checked frequently by the coordinator to insure the student is receiving training in all phases of the occupation.

A similar record should be kept of related study assignments. This enables the coordinator to determine how closely the work experiences and related studies are correlated and where additional lesson assignments should be made.

Standards for Operation

A. Classroom Facilities

A regular classroom preferably should contain study tables and chairs, bookcases, file cabinent, bulletin board, and blackboard. There should be, also, an adequate supply of instructional material consisting of current reference books, manufacturing literature, trade manuals, bulletins, trade magazines, occupational study guides, and the like, for each occupation in which training is offered. In addition to occupational material, the library should contain material on economics, basic science, human relations, safety, etc., which may be used as references for class discussions on topics of common interest to all class members.

B. Related Subjects Class

The objectives of related study class are:

1. To provide technical information directly related to the daily work experience of the student

2. To provide a background of technical and auxiliary information that will enable the student-learner to advance beyond mediocrity

3. To create desirable attitudes toward work, school, and society

4. To develop latent leadership abilities of the students

A minimum of sixty minutes per day should be scheduled for related study. It is preferable to schedule first- and second-year students at different periods. In some programs, one group of students will work during the morning and attend classes in the afternoon. This would require one related study class in the morning and one in the afternoon. In my opinion, this is not a desirable arrangement unless it is impossible to obtain enough suitable training stations for afternoon employment.

The recommended pattern is to schedule supervised study three periods each week and two periods of group discussions, films, etc., each week. This schedule will vary for first-year students and second-year students as well as during the year.

Study guides should be loose-leaf so that appropriate related study assignments can be pulled out of the guide and assignments correlated with work he is doing on the job each week. Supervised study plan using individual assignments has many advantages over correspondence courses. It provides more flexibility and permits immediate checking and grading of student's written work. Students may be permitted the freedom of selecting the particular lesson they want to study each day. Written assignments must be graded promptly and records made of completion and the grade. If assignments are not completed satisfactorily, they should be repeated.

C. Records and Reports

Each state should require a class organization report within two weeks after opening date of the semester. This report will show:

1. City and school
2. Time of day-related Class Meetings
3. Starting date
4. Closing date
5. Length of course
6. Name of teacher-coordinator
7. Name of student, grade, age, employer, and occupation
8. Name of members of advisory committee and the organization they represent

A closing report should be submitted within two weeks after the close of the semester. This report will show:

1. Date closed
2. Students in class when report is made
3. Total hours each student was on job or in class
4. Students enrolled since organization report and same information on students as contained in the organization report.
5. Total cumulative enrollment

6. Total hours class met

7. Number of calls on parents

8. Number of contacts with employers

9. Total hours spent in coordination

10. Number of advisory committee meetings

11. Number of meetings with employer and employee organizations

12. Total hours of teaching and coordination

These reports are necessary to provide the state with statistical information for reporting to the Office of Education and also to provide data for issuance of Occupational Training Certificates.

Student permanent record cards should be maintained for the school files.

D. Coordination Activities

Coordination activities include the following:

1. Placement

2. Follow-up on graduates

3. Contacts with employers

4. Assist in making job analyses

5. Preparation of courses of study

6. Conferences with students

7. Contacts with members of advisory committee

8. Check on rotation of student on the job

9. Contacts with employers, labor organizations, and school administrators regarding the over-all program

The objective of coordination is to correlate all the helpful agencies and factors that contribute to the training of students. Coordination involves more than visiting the training station to check if the student reported to work or drinking coffee with business men.

Coordinators must plan or budget their time in order to carry out their multitude of responsibilities. A coordinator should plan a weekly schedule. Each afternoon, visits should be planned. He should plan where he will visit, the object of the visit, and what material to take

with him. A coordinator should not adopt a set pattern in visiting training stations. Care should be taken that favorite employers are not visited more often than others. A copy of the coordinator's daily itinerary should be left in the school office before leaving the building. Of course, it is impossible to adhere to planned itinerary strictly, but it does give school officials some idea where he might be contacted if necessary. If the itinerary has to be changed, a telephone call to the office may be necessary.

A coordinator should go about his visitation in a business-like manner. As a rule, the coordinator should first contact the manager or foreman upon entering a training station. Short, routine visits should be made once a week to see if the student is on the job, to observe the type of work he is doing, and to give the employer an opportunity to discuss any specific problems. Periodic conferences should be held with the employer to review student's progress and recommendations for related study assignments. Employers should be asked to complete an "Employers Periodic Rating" form as often as it is felt necessary. Coordinators should be alert to detect changes in student's attitude toward his work and initiate corrective action before undesirable situations arise.

There are several rules of conduct which the coordinator should observe while visiting training stations. These rules can best be given in the following "Do" and "Don't" lists:

DO

1. Be alert. Observe what is going on without appearing to "snoop."

2. Be friendly with everyone without fraternizing with them.

3. Show an interest in the work in progress. Be curious; ask questions if the opportunity presents itself.

4. Take notes (after leaving) on items which may be used for a conference with the student or for study assignments.

5. Be quick to sense the employer's desire to terminate a conference.

DON'T

1. Don't call attention to errors, bad practices, unsafe conditions, and the like while visiting the student. Do so in private conference.

2. Don't try to demonstrate to a student how to do a job which he is assigned.

3. Don't pose as an expert or authority on any matter concerning the work going on.

4. Don't request a conference with the employer when he is obviously busy.

5. Don't engage in so-called "friendly" arguments on controversial questions.

6. Don't interrupt or interfere with the student's work.

7. Don't let a visit degenerate into a "bull session" with the employer or employees.

8. Don't appear to be loafing or just "passing the time."

9. Don't handle tools, machines, or equipment unless invited to do so.

Coordinators should maintain a diary or record of their daily coordination activities. This diary will include notes, comments, and other pertinent information obtained during visits to training stations. These notes will be of assistance in preparing final reports, correlation of related study with OJT, and in planning follow-up visits and weekly schedules for coordination activities.

There are many other important facets of an ICT program that it was impossible to cover in the short time I have had to talk with you. Perhaps these can be covered during the question and answer period.

SOME QUESTIONS THAT NEED TO BE ANSWERED ABOUT THE TRAINING OF COORDINATORS

Jeffrey R. Stewart, Jr.

The first of the six questions which I shall discuss is, who should train the coordinator? As I see it, three groups should accept responsibility for training coordinators:

1. Teacher-educators
2. State and local supervisors
3. Experienced coordinators who are presently employed as such

In my opinion, the teacher-educators are best qualified to prepare coordinators for the related instruction phase of the program; the state and local supervisors are best qualified to prepare coordinators for the cooperative work training phase of the program; and experienced working coordinators are best qualified to prepare coordinators for the local operating procedures and problems.

No one of the three groups should try to train coordinators--they should all work together--each contributing from his expertise, teaching what he knows best. The structure for the training might be as follows:

Teacher educators--primarily concentrating on pre-service training on the related instruction curriculum, teaching methods, skills, and knowledges in occupations, vocational guidance in undergraduate classes, student teaching, and work experience supervision--and in graduate classes, short courses and workshops.

State and local supervisors--primarily concentrating on in-service training on the cooperative work training phase of the program, the planning of visits, preparation of reports, provision for equipment, program evaluation, and other special coordination activities--through workshops and summer conferences, publication of guidelines, and on-the-job visits to new and experienced coordinators.

Experienced coordinators--will be of invaluable assistance in introducing prospective coordinators to the program and in helping new coordinators in their schools get off to a good start--by acting as consultants at conferences and workshops, sponsoring new coordinators in their local area, and assisting the state staff in the formulation of written procedures and case problems which need solution.

What is the nature of the work experience that the coordinator should have? Is time employed the main criteria? Is a year's experience on one job really that, or is it one week's experience repeated fifty times? Are there any satisfactory substitutes for work experience as we presently know it? For example, would a program of planned in-depth business and industrial visitations in many businesses and industries give the prospective coordinator as valuable an experience as employment which may be

long but limited in scope? Assuming that a coordinator should have prior teaching experience, should the work experience come before or after he starts teaching?

How many students can one coordinator coordinate? The answer to this question will have an effect on how coordinators are trained. In my opinion, the coordinator is primarily a teacher rather than a program administrator. Therefore, he should not have so many students that he has little time to spend with each on the job. I do not see how a coordinator with forty or fifty students can be much more than an administrator of a work experience program.

How often should the coordinator visit the student on the job? How long should the coordinator stay with the student on the job during one of these visits? In my opinion, the most important duty of the coordinator other than his classroom teaching is on-the-job visitation. Because the student receives school credit for his work, in addition to pay, he should receive a good deal of attention from the school while he is on the job. At least half of the coordinator's so-called released time should be spent in making on-the-job visitations to students and their supervisors or employers. Visits should be planned so that specific points are checked. Visits of forty to sixty minutes in duration can be justified if the teacher has properly thought out points to be checked. Longer visits can also reduce program costs if figured on an hourly basis.

How should the coordinator allocate his time during a visitation? About half of the time is normally spent with the supervisor and half with the student, although I expect that as we obtain more information as to the value of these visits, we will find that the coordinator should spend a larger proportion of his time with the student--maybe two-thirds. Of course, part of the time will be spent in conference with the student and employer together.

What can be done to make the coordinator more efficient in terms of accomplishing his duties on a priority basis according to his major responsibilities? The coordinator who spends the whole month of April planning his employer-employee banquet, for example, is inefficient, to say the least, in terms of his major responsibilities. Do we need to make some cost studies to determine the relative efficiency of various programs, and pass this cost information along to the coordinator-trainee for his consideration? (This information would also be valuable to supervisors, administrators, and others.)

Sixteen cooperative programs which I have recently studied, for example, cost the taxpayers, in coordinator salaries alone, $62,400 more than the cost of traditional classroom programs for nine months. Is this extra salary money being spent wisely and on the most important activities? These sixteen programs enrolled from fifteen to thirty-four students each. The coordinator's salary cost per student for the three hundred thirty-one students averaged $188.52 for the nine months--ranging from $114 per student in the largest program to $260 per student in the smallest. These salary costs are <u>only</u> for coordination salary and do not include costs of related instruction, equipment, transportation, etc.

The mean number of on-the-job visits per student per year for the sixteen programs studied was 7.5. The range was thirteen to as few as five. Total yearly visits ranged from a high of three hundred forty to a low of eighty-eight.

The average salary cost per visit is difficult to arrive at, but estimates can be made by assuming that 30% of the coordinator's salary is for on-the-job visitation. With this assumption, the average coordinator salary cost per visit for the sixteen schools studied was $12.57. Because some coordinators visited their students more frequently than others, however, the salary cost per visit ranged from a low of $5.74 to a high of $22.16.

The duration of the visits for the sixteen coordinators in this study averaged .45 hours, or twenty-seven minutes. Visit duration averages by school ranged from a low of fifteen minutes to a high of forty minutes. Again, this range is an indication that coordinator-trainees need guidelines. Yearly total on-the-job visit hours ranged from a high of 112.2 to a low of only twenty-nine hours on the job with students for an entire school year.

For the sixteen schools, the yearly total hours a student or his employer saw the coordinator on the job averaged 3.4 hours. The range was from a high of 6.5 to a low of 1.3.

The average salary cost per visit hour for the sixteen schools was $27.72. The hourly cost ranged from a low of $17.38 to an hourly coordinator salary cost of $67.71. I remind you that these figures are based on the assumption that 30% of total coordinator salary is for visitation.

The salary cost for all students in a school's program to see the teacher on the job for one hour ranged from a low of $300 to a high of $1,500. This great range is caused by three variables--number of students, number of visits, and length of visits. The average for the sixteen schools was $573.

I believe that if the prospective coordinator is aware of the costs of operating a cooperative program and that he can in fact lower unit costs by making more frequent and perhaps more lengthy visits, he will attempt to do so. He will give priority to the important coordination activity of on-the-job visitation.

I predict that in the near future it will not be uncommon for school administrators and evaluators to make cost studies of various programs. Let's protect ourselves now and know what the answers are before we are asked. And let's see to it that the coordinators we train are cost conscious.

School	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
A	34	$1,950	$57.35	10.0	$5.74	.33	11.2	340	112.2	3.3	$17.38	$590.92
B	34	1,950	57.35	5.0	11.47	.25	8.5	170	42.5	1.3	44.12	1,500.08
C	26	1,950	75.00	8.0	9.38	.45	11.7	208	93.6	3.6	20.83	541.58
D	26	1,950	75.00	6.0	12.50	.67	17.4	156	104.5	4.0	18.75	487.50
E	26	1,950	75.00	6.0	12.50	.50	13.0	156	78.0	3.0	25.00	650.00
F	23	1,950	84.78	9.0	9.42	.45	10.4	207	93.2	4.0	21.20	487.60
G	18	1,950	108.33	10.0	10.83	.33	5.9	180	59.4	3.3	32.83	590.94
H	18	1,950	108.33	6.0	18.06	.29	5.2	108	31.3	1.7	63.72	1,146.96
I	17	1,950	114.70	6.0	19.12	.63	10.7	102	64.3	3.8	30.18	513.06
J	16	1,950	121.87	8.0	15.23	.63	10.1	128	80.6	5.0	24.37	389.92
K	16	1,950	121.87	6.5	18.75	.63	10.1	104	65.5	4.1	29.72	475.52
L	16	1,950	121.87	6.0	20.31	.50	8.0	96	48.0	3.0	40.62	649.92
M	16	1,950	121.87	5.5	22.16	.33	5.3	88	29.0	1.8	67.71	1,083.36
N	15	1,950	130.00	13.0	10.00	.50	7.5	195	97.5	6.5	20.00	300.00
O	15	1,950	130.00	8.5	15.29	.50	7.5	128	64.0	4.3	30.23	453.45
P	15	1,950	130.00	8.0	16.25	.45	6.8	120	54.0	3.6	36.11	541.65
	331 Total	31,200 Total	94.26 Mean	7.5 Mean	12.57 Mean	.45 Mean	149.3 Total	2,486 Total	1,117.6 Total	3.4 Mean	27.72 Mean	573.52 Mean

I--Number of cooperative students
II--On-the-job coordination cost*
III--On-the-job coordination cost per student
IV--Yearly average number of on-the-job visits per student
V--Average salary cost per visit
VI--Yearly average hours per visit

VII--One visit to all students takes ? hours
VIII--Total yearly visits
IX--Yearly total on-job visit hours--teacher
X--Yearly total hrs. student or employer sees teacher on job
XI--Average salary cost per visit hour
XII--Salary cost for all students to see teacher on job one hour

Total coordination salary cost - $62,400
Total coordination salary cost per student - $188.52

*50% of reimbursed portion of salary (60% reimbursement) at average annual salary of $6,500

All means are weighted means

VOCATIONAL INTEGRITY IN COOPERATIVE EDUCATION

Mary V. Marks

I appreciate this opportunity to have a part in this high priority leadership seminar on cooperative education. There were others in the Division of Vocational and Technical Education of the U. S. Office of Education who would have considered themselves fortunate to be with you also. I bring you their greetings and their assurances that the guidelines you develop from this seminar are awaited with anticipation.

In reviewing the program format for this week and the topics which outstanding speakers would discuss, it seemed to me that my efforts today appropriately might be directed toward pulling together and putting into a different perspective some of the ideas already expressed. My thoughts have turned, therefore, to certain basic beliefs which it would be my hope could motivate whatever involvement each of us might have with cooperative education.

Recently I heard Harold Howe II, our Commissioner of Education, speak on the subject of "Great Expectations." He pointed out that news about the educational establishment used to be found, perhaps even 98% of it, on the sports pages; whereas now education is front-page news. Public interest has been whetted by social and technological changes. Legislative programs have created new resources and challenges which promise to have far-reaching impact on the lives of all our people. But, he cautioned, let us not forget that great expectations also carry with them disappointments and frustrations. Ours is the task to minimize these possibilities.

For example, let's not go overboard on cooperative education to the point of weakening other ways of providing vocational education. Let's not label all "work experience" programs for our young people "cooperative education" just because they are school-approved. Some have vocational guidance purposes; others are wage-producing or cultural enrichment programs. The point I want to make is that we must raise no false hopes; we must serve well the great expectations characteristic of cooperative education.

I have, therefore, elected to talk with you about "Vocational Integrity in Cooperative Education." Our frame of reference is Part A, Section I of the Vocational Education Act of 1963. This includes the Declaration of Purpose which states its intent as making available vocational training or retraining which is of "high quality . . . realistic in the light of actual or anticipated opportunities for gainful employment," and is "suited to (the) needs, interests, and ability" of those enrolled to benefit from such training. My remarks will deal with cooperative education as it relates to the people involved and to instruction.

First, let us look at cooperative education as a program requiring the participation of three groups--students, employers, and teacher-coordinators.

Students

Students enroll in a vocational education program in order to develop competencies needed to enter, gain satisfactions, and build a successful career in a specific occupational field. Each has an occupational objective which develops and matures during the course of his training program. This objective is a key element in his motivation and in his acceptance of himself as a worker and contributing member of society. No matter how tentative or how committed the student's occupational objectives may be, it nevertheless is an essential condition for his preparation for employment.

The vocational integrity of cooperative education is irrevocably linked to the occupational objective of each student. The trainee must be able to see the connection between his employment situation and the vocational goal he has set for himself. In his training station he must find the opportunity to measure himself against the initial demands of his vocational choice and to feel the satisfactions inherent in progress toward a goal. While being a productive part-time employee for his training agency, he must never be permitted to lose sight of his trainee status and the level of employment qualifications he is expected to achieve at this stage of his vocational development.

Hopefully, this will be a happy and successful experience leading to full-time employment, perhaps with his cooperative employer. Or, an equally acceptable result would be the pursuit of further formal training in order to meet requirements for jobs at a more complex level of responsibility in the field of his occupational objective.

One of the key elements of cooperative education then is the selection of training stations according to students' occupational goals and abilities. The fact that a student already has an after-school job does not automatically make that job appropriate to his occupational purposes. His cooperative employment must first be a bona fide part of his vocational education. After that criterion has been met and accepted, a student's other motivations--such as payments on a motor scooter, cash for dates, financial help to his family, or tuition fees--may be considered. Any compromise with this standard that might be approved by the school should be made only with the complete awareness of the student concerned that cooperative education for him will be somewhat less than realistic and not suitable to his goal.

Employers

The role accepted by employers in cooperative education has a significant influence on the vocational integrity of the program. Employers who join with the schools in providing training stations for cooperative students become in effect "downtown" members of the school faculty. They agree to assume some teaching responsibilities and to guide trainees through a sequence of learning activities related to their employment and occupational goals. A key factor here is the understanding and approval of the top decision-makers in the business or industry and, where appropriate, the support of the craft or industry

union or other organization representing employees. Without this type of partnership, arrangements made for a joint training endeavor can be weakened or even abrogated to the detriment of individual students and vocational education.

The usual procedure is for management to delegate to experienced members of their organization responsibility for the implementation of the training agreement with the schools. Clear authority as well as responsibility is needed to encourage these individuals to develop relationships with the school and with trainees that will be mutually productive--that is to say, relationships which will simultaneously promote the objectives of the employer, the learner-employee, and the school.

Usually employers name experienced employees as training sponsors--those who have demonstrated their ability to give leadership to other workers. However, in some cases, the person designated feels inadequate in his new assignment. This is a serious impediment to desired standards for cooperative education. Experience has shown us that training sponsors will be effective as "downtown teachers" to the degree that they have the ability to train and to supervise.

There is in operation in some states what has been called the "Sponsor Development Program." It ties in with the regular supplementary adult education offerings. Employers refer their training sponsors to a series of classes conducted by teacher-coordinators. The principles and techniques of what many of us know as JRT (Job Relations Training) and JIT (Job Instruction Training) are explored in terms of the purposes of cooperative education. In addition, monthly breakfast meetings are sometimes scheduled so that successes and problems may be aired and sponsor skills recognized and strengthened. This planned program for training sponsors seems to be a technique deserving of further study and evaluation.

Teacher-Coordinators

The teacher-coordinator is the controlling figure in high-quality cooperative education. We have already felt his presence in our discussion of the student's occupational expectations and the employing agency's relationship to the school. Probably more than anything else, the competency and dedication of teacher-coordinators make the difference between success or failure of cooperative education.

First, however, they must enjoy the confidence of school administrators who have a firm commitment to the educational values derived from a school-work program of study. This support is essential. It establishes a climate conducive to program acceptance in the school and in the community. It upholds the need for a teaching load compatible with the time requirements for coordination. It gives teacher-coordinators flexibility of operation while working within the administrative, philosophical, and organizational structure of public education. An administrator's endorsement of cooperative education, and the public backing he gives his teacher-coordinators are essential to the vocational integrity of the program in his school system.

Teacher-coordinators represent the school administration and the quality of the total educational program as they seek to bring into harmony the economic and educational goals of the community. They are "front and center stage" by the very nature and extent of the coordination activities they undertake. As an example of their dominance in relation to the vocational integrity of cooperative education, let us look at coordination as an operational procedure. These activities include:

1. Analyzing "actual or anticipated opportunities for gainful employment" upon completion of training;

2. Surveying business establishments representative of these opportunities in terms of the objectives of prospective students;

3. Creating opportunities for all economic enterprises to be considered for selection as cooperating training stations for respective occupational programs;

4. Referring students to employers of a size, philosophy of operation and location that is suited to each student's needs, interest, and ability to benefit from such an association;

5. Getting agreement on hours and continuity of employment, wages, placement, planned training experiences, working records and reports, and evaluation procedures;

6. Gaining approval of parents or guardians, counselors, school administrators, and the local advisory committee; and

7. Explaining to each student, employment forms, transportation, required records, and personal standards set by the school.

Each of these activities is an aspect of coordination which contributes to the values of cooperative education. For education--the teacher-coordinator will have built an environment in which optimum opportunities for learning in a job situation will be available for each student. For the economy--the teacher-coordinator will have provided employers and their employees with opportunities to benefit from participation in personnel and job-development experiences. Here, indeed, is evidence of vocational integrity in cooperative education.

Here, also, is evidence that the preparation and appointment of individuals as teacher-coordinators is no casual process. Teachers in cooperative programs must be able to look forward with real liking to off-campus, out-of-the-school-building educational responsibilities. When "making calls" in the business community, they must feel sure of their knowledge and experience in the occupational field they represent, and they must feel comfortable in inter-personal situations requiring natural business social skills. Both pre-service and in-service teacher education should provide opportunities for teacher-coordinators to

gain, renew, and enrich their capacities for effective relationships in the business community. For example, to my knowledge, in only a few states is provision made for the renewal at specified intervals of teacher-coordinators' occupational experiences. In only some occupational fields is there opportunity within pre-service teacher education for directed work experience, organized and supervised to the same degree as student teaching or the teaching internship. In only some in-service teacher education programs is subject matter course work offered in addition to professional courses in the improvement of instructional techniques.

It may be that administrators at state and local levels will wish to explore among others these means of securing and maintaining a staff realistically competent for their day-to-day activities in cooperative education programs.

From this brief overview of the expectations and needs of individuals intimately associated with cooperative education, let us now approach our topic as it relates to instruction. Study of the Rules and Regulations for the Administration of Vocational Education will show that rather specific standards have been delineated in order to assure the soundness and quality of vocational education. Sections 104.13 and 104.16 specify that:

1. The program of instruction will include a planned logical sequence of those essentials of education or experience (or both) deemed necessary for the individual to meet his occupational objective.

2. The program of instruction will include the most up-to-date knowledge and skills necessary for competencies required in the occupation or occupational field in which the individual is being prepared.

3. Cooperative programs are for persons enrolled in school who will receive vocational instruction in the classroom and an organized program of training on the job.

It is evident from these references that both subject matter and methodology must be visible in cooperative education programs. May I be permitted to observe also that cooperative education is school-centered; it is not merely an employment program, or an uncoordinated work-experience program.

Identification of Subject Matter

Decisions concerning subject matter to be included in a course of study can be made quite apart from the selection of learning activities that will make the subject matter meaningful to individual students. The objectives of the curriculum and of the students and the level of achievement to be required provide the bases for topics, units, and courses. The procedure for curriculum analysis is familiar to all

vocational educators and applies no matter what organizational plan is used for scheduling instruction.

In cooperative education, however, there is the added dimension of determining what is best taught in the classroom and what can be presented or discovered more effectively at the cooperative training station. This determination involves several considerations. Not the least of these is the influence representative and thoughtful employers exert on the total school curriculum. If employers have already helped to build into the local educational system or the institution a commitment to the non-college bound student, their companies may be expected to instruct in subject-matter areas which go beyond immediate job performance. However, we know such situations would be the exception at the present stage of employer involvement in cooperative education.

Perhaps it would be pertinent in the light of our goal of vocational integrity to plan according to one of the management techniques of the Program Evaluation and Review Technique network. You will recall that this system uses three time values for each activity: optimistic, most likely, and pessimistic times. To paraphrase, we might say that the extent of subject-matter emphases we might expect training sponsors to handle for the school could be estimated as optimistic, most likely, and very minimum (or pessimistic). Such a scale would give us a realistic basis for determining the knowledge and skills to be taught in the classroom exclusively or in both the classroom and the training station.

A second consideration in the area of subject matter involves breadth of preparation. The pace of obsolescence is such that vocational educators must appraise teaching content in light of the flexibility it will give students in adjusting to change. For example, principles and theory underlying occupational requirements are needed that permit transferability to new situations. Also, it must be recognized that there are limitations to breadth of background present when subject matter is to be learned in the training station. An employer will transmit only information that has been shaped by his experiences with the practices, equipment, and policies of his particular organization. This information may be of high quality, but, nonetheless, it represents only a small "sample of the population."

A third important factor in safeguarding vocational intent in the selection of instructional content is concerned with the contribution of other subject-matter areas, both vocational and general to the purposes of the curriculum. I will mention this aspect only briefly since the concept is not unique to cooperative education programs. Those experienced in distributive, industrial, health, agricultural, and office cooperative programs have established the pattern of drawing on business enterprises to strengthen the vocational integrity of occupational preparation. Their leadership is needed to identify new relationships in the school program that also will strengthen curriculums for students preparing to enter and to succeed in employment.

The Cooperative Method

Earlier in our discussion of the expectations of people involved in cooperative education, we spoke of the operational aspects of coordination. There are also aspects of coordination which are rightly considered as methodology. We find it appropriate therefore to refer to the coordination of learning activities as the "cooperative method of instruction." This concept describes a key element in vocational integrity.

Use of the cooperative method assures that each training station will be viewed as a learning laboratory in which desired behavioral outcomes may be developed. The team composed of teacher-coordinator, training sponsor, and student-trainee plans together so that the educational values in specific job experiences will be perceptible. In other words, insofar as is practical, the focus of on-the-job tasks is on training purposes rather than on the number or variety of tasks that are performed by a paid employee.

Skillful use of the cooperative method by the teacher-coordinator also creates interaction between the substance of classroom instruction and activities in the job situation. For example, training calendars may be used by the teacher-coordinator to keep the training sponsor abreast of units of instruction or individualized study assignments completed at school. This coordination reinforces the structure of training agreements and may open opportunities for additional job training experiences that are especially timely for the student-trainee. Conversely, current or anticipated job experiences that require new knowledge or skills may be introduced in the classroom where practice, discussion, or independent study may be used to supplement training given by the employer.

Visualize, also, if you will, how the concept of the cooperative method encourages teacher-coordinators to develop with each student an understanding of relationships and opportunities inherent in the field of his career objective. Requirements for success in the training job may be compared to the movement generated by a pebble tossed into water. Just as the circle of ripples widens and touches a larger area, so the various functions performed in the business enterprise become evident to the student. Finally, at the outer edge of the circle, he begins to understand how the job he is now doing affects his firm's relationship to the local or state economy. Here is a liberalizing experience that may be enjoyed with benefit to each student throughout his working life.

Another advantage of the concept of the "cooperative method" is that it provides a basis for the evaluation of learning in the classroom and in the training station. Cooperative education programs are constantly in the public view and may be justified only to the degree that they demonstrate sound educational results. Training profiles and similar rating devices attempt to measure progress in the training station. Yet, too frequently these only include questions related to personality and manual skills. Appropriate use of the cooperative method requires that progress reports reflect the student's ability to apply subject-matter theory in reaching planned outcomes. Rating forms stress

evidences of understanding, appreciations, and satisfactions as well as immediate job skills, and job attitudes.

Finally, let me share with you a challenging idea which has been put forth by Dr. Grant Venn, Associate Commissioner, Bureau of Adult and Vocational Education. It fits neatly into the concept of the cooperative method and the vocational integrity of cooperative education. Dr. Venn has asked his staff to explore ways and means of building into the mainstream of the public education endeavor a concern for learning how to enter college. He suggests that schools assume responsibility for assisting all high school students to find employment during high school and when they leave school.

What better place is there to start than with those who have completed or left cooperative education programs? What better source of evaluation of the vocational integrity of our programs can we have than the placement and follow-up of those we have trained?

Our analysis of vocational integrity began with some observations concerning career objectives and the purposes of vocational instruction. We have looked at some basic beliefs about cooperative education, its effects on the people involved, and its use in providing instruction that is of high quality, realistic in the light of actual or anticipated opportunities for gainful employment, and suited to the needs, interests, and ability of those enrolled.

If what has been presented has sparked just one new idea for each of us, my goal will have been met. Great expectations abound! Challenging opportunities abound! In this dynamic environment, the vocational integrity of cooperative education must be clearly visible in the school and in the community. Guidelines for implementing cooperative education programs, in my opinion, must reflect this commitment. At the same time we should stay clear of innovation inertia. As Ethel Barrymore put it, "It's what you learn after you know it all that counts!"

ELEMENTS COMMON TO ALL COOPERATIVE PROGRAMS

Hugh M. Stephenson

It is a pleasure being here today and addressing the National Seminar on Cooperative Education. Having been asked to speak on the last day of the Seminar presents two challenges. As this is the last day of the program, it may require more skill on my part to hold your undivided attention. On the other hand, I may be in a more favorable position to make a lasting impression. You will have to judge how well I fare.

National Cash Register has had a continuing and strong interest in cooperative education. This interest was demonstrated initially through the leadership of John H. Patterson who was instrumental in establishing vocational cooperative education in the Dayton area. Mr. Patterson headed a committee of interested citizens including Colonel Deeds and Charles Kettering. The committee approached the Dayton Board of Education in 1913 to consider adoption of the work-study approach to vocational education. The then-superintendent of schools, Edwin J. Brown, agreed to give the approach an opportunity to prove its merit. The program was established in the fall of 1914 with a group of forty boys employed on a full-time basis and attending school four hours a week. From this modest beginning has grown the present day John H. Patterson Cooperative High School with a student body of 1,173. With this heritage, I am particularly pleased to present the current NCR high school cooperative program.

To cover the topic effectively, "Elements Common to all Cooperative Programs," I have organized my discussion into the following areas:

1. First, a statement of the NCR Philosophy of Cooperative Education.

2. Description of the program including the principle elements of selection, placement, job adjustment and counseling, and full-time placement upon graduation.

In closing, I would like to make some observations of an evaluative nature concerning the current program and take a brief look at some of our future plans.

Before discussing the NCR High School Cooperative Program, let me give you some brief data concerning its dimensions. There are one hundred eight cooperative students participating. This total figure represents fifty-seven juniors and fifty-one seniors. There are seventy-four female students and thirty-four male students. You might be interested to know that in addition to the one hundred eight cooperative students, we have fifty associate level co-ops, thirty-six bachelor level co-ops, as well as a Graduate Industrial Fellowship Plan which is basically a cooperative program for a Master's Degree in Engineering Science. This is a small program, and there are usually one or two individuals participating.

The coordination of the High School Cooperative Program is accomplished with one full-time administrator who is also accountable for apprentice training. This combined accountability seems appropriate in view of the number of co-ops who enter apprenticeship.

NCR Philosophy of Cooperative Education

To provide a meaningful perspective to a discussion of the NCR High School Program, it is important if only in succinct terms to state our philosophy of cooperative education. It has been said that successful teaching turns upon the recognition both in thought and action that learning is essentially a meaningful rather than a mechanical process. In the field of vocational education, the complementary nature of the work-study relationship permits the student the experience of applying knowledge and skill from the classroom to a "live-job" in a business environment. When the work experience is properly related to the students' academic program, there is mutual reinforcement. The student not only learns "about a subject," but also blends knowledge into competent practice.

A meaningful side-effect of the work-study approach is that fact that the student can make a more informed judgment about his career based on his industrial experience.

The simplicity of the concept of a sound cooperative program may create a deceptive impression as to the ease of conducting a viable program. Like most worthwhile endeavors, a good cooperative program must be worked at on a continuing basis.

Selection Process

The initial step in the selection process is taken when the NCR co-op program administrator contacts the Patterson High School coordinators in February of each year to discuss the requirements for new cooperative students to replace graduating seniors in August. In recent years, the number of replacements has ranged between fifty and sixty.

Arrangements are made for the students to visit NCR as a second step in the selection process. This step which constitutes preliminary screening includes a battery of tests and at the same time an interview by Mr. Paul Wiesmann, the NCR Cooperative Program Administrator. This is accomplished during the months of March and April.

Let's look briefly in more detail at the testing program. There are two test batteries utilized. A battery of clerical tests is given to all students in accounting and office education. The factory battery is given to all students in drafting, electrical, industrial electronics, machining trades, printing, and sheet metal and air-conditioning.

The clerical battery, as you will note on slide three, includes aptitude, achievement, and skill tests. The first test is an intelligence test which is similar to the Otis or Wonderlic. The second test

is called Office Work Ability and is a differential clerical test with six sub-sections.

The sections are:

1. Vocabulary
2. Arithmetic Reasoning
3. Spelling
4. Arithmetic Computation
5. Checking
6. Posting

In addition, typing and shorthand skill tests are administered.

The factory battery is made up of six separate tests. They include the same intelligence test included in the office battery, a practical intelligence test which is a non-verbal test, the space form thinking test which is a special relations test, finger dexterity test, a two-hand dexterity test, and arithmetic computation.

Following completion of the appropriate test battery, each student is interviewed by Mr. Wiesmann. The purpose of this preliminary interview is to determine the following:

A. The student's attitude and expectations concerning work experience.

B. The nature of any previously related experience.

C. Attitude toward achievement level in school.

The interview information is evaluated in light of the student's academic performance, school recommendations, and test results.

The third step in the selection process is the placement interview. Those co-op students who have met NCR employment standards are contacted for a final interview. The Employment Department, based on the information generated in step two, refers the cooperative student to those departments where openings exist which are compatible with the student's school program and interests. The manager of the department interviews the student for the purpose of describing the job and its duties as well as assessing whether or not the student would have a profitable experience. When possible, the junior cooperative student starts to work so that there is an overlap with the senior cooperative student to provide for an appropriate training period.

Now that we have the student on the job, let us look at the type of departments and the nature of assignments which are given these students.

Placement

High school cooperative students are placed in twenty-three departments throughout NCR Divisions located in Dayton. These divisions include Financial, Research and Development, Manufacturing, International, Marketing, and Industrial Relations.

In recent years, the male students, in general, have not been as effectively placed as female students. This winter and spring we have conducted an assessment study in which principle emphasis was directed toward improved placement of males for this coming academic year.

Slide five shows the placement of cooperative students throughout the Company at Dayton as it will occur this fall. The chart is organized by major vocational divisions in which the students are enrolled at Patterson High School. Within this major breakout are noted the departments in which the students are placed. On the right side are the types of assignments given the cooperative student.

Job Adjustment and Counseling

As a result of conversation with cooperative high school students, certain patterns seem to emerge concerning their attitude toward the work-study approach. Their comments run something like this:

1. Other kids have no idea what a job is all about.

2. If we had the opportunity, we would go through the cooperative program again.

3. You learn how to act and talk around adults. (One young lady reluctantly admitted that when she first started on the job she had difficulty communicating with another generation. Her "jargon" lost something in translation.)

4. Being able to observe as well as perform different jobs helps one decide what to do after graduation.

5. Occasionally you hear the comment "people are afraid to give you something more difficult to do. You have to show them that you can do it."

6. The teachers treat you more like an adult in the cooperative program. You have to measure up.

7. When you begin the program, the two-week alternating schedule is a little difficult to adjust to. After a few months you get in to the swing of it. It is interesting because there is a change every two weeks.

These are but a few of the representative remarks that express in a very real sense their basic attitudes toward the experience of cooperative education.

The Work Session Performance Review is a formal input to counseling the student. This rating form is completed each six months' period. Record of the student's achievement is the basis of counseling from the vantage point of both the department management and the student's coordinator. I would like to comment that with the group as large as ours (one hundred eight), we have very few serious counseling problems. In no small part, I am confident that this is due to the excellent efforts of the Patterson Cooperative faculty, particularly the coordinators, to prepare effectively the student for the work experience segment of their education.

Full-time Placement

In developing the information for the talk today, we compiled a listing of graduates for the last twenty-six years. To our surprise, there were one thousand fifty-two graduates during this period. It has been our experience in recent years to employ 70% to 80% of the graduating seniors. From this group, a significant number have gone into apprenticeships in such areas as Toolmaking, Tool Designing, Machining, Patternmaking, and Modelmaking.

It is not uncommon to have a graduate of Patterson as a secretary in our Executive Office. The graduates have proven by their performance the merit of vocational cooperative education.

The Evaluative Comments and Future Plans

In reflecting on the over-all performance of the High School Cooperative Plan, it is my judgment that it is an effective program. Furthermore, it has been a worthwhile and meaningful relationship among the interested parties--the cooperative student, the school, and the Company. As I mentioned earlier, we have recently completed an assessment study. Our chief area of concern had been with the placement of male co-op students. With the realignment of placements planned for this fall, this aspect of the program should be greatly improved.

You may feel my over-all evaluation of the program is biased. However, what I have not told you is that I have assumed accountability for the program as recently as last October. The present High School Cooperative Program was developed under the guidance of Mr. Robert E. Kline, who was director of Educational-Training until October of last year at which time he was made Special Assistant to the Vice President of Industrial Relations. At that time, my former department, Research and Development Personnel Services, was merged with the Educational-Training Department to form Manpower & Organization Development.

Within the Research and Development Division I have had continuing accountability for scientific and engineering university cooperative programs. From this experience have been generated a number of ideas

for potential future application to our High School Program. Let me identify a few of these ideas:

1. University students are asked twice each year to discuss before other students in their section in fifteen or twenty minutes their assignments during this period emphasizing how their experience relates to their course of study. This exercise has proven worthwhile in acquainting students with areas they have not worked in as yet. The student has the opportunity to make an informal talk. The program Administrator has the opportunity to hear firsthand the level and types of assignments given the student. This proves to be a very effective control. Departments who do not provide appropriately related training experience do not stay in the program.

2. Annually the university student is asked to write a report concerning his work experience during that year. The report is descriptive in part, but what is more important from our point of view is the student's discussion of what impact his work experience has had on his career objectives. Has the experience reinforced his thinking or has a new channel been opened through which he can more profitably apply his talents and interests?

The university cooperative student is rotated on a fixed interval schedule every twelve months. We have been experimenting with a variable schedule which would give the underclassman broader exposure starting with a three-month schedule working up to a twelve- or fifteen-month schedule for seniors. The latter period would permit more continuity and encourage delegation to the senior student of more complex and demanding assignments. This same type of variable schedule might also be applicable to the High School Program.

As is the nature of most processes, the work-study approach to vocational education is a dynamic system. It must adapt itself to the changing environment in which it finds itself. In this sense, it must be a self-adaptive system to remain vital. The work-study program has a very crucial role in preparing young men and women to cope effectively in their working environment. This objective is not easily attained.

As I have commented earlier, the principle of cooperative education is simple in concept. The embodiment of the concept into effective practice takes the best efforts of each of the interested parties, the student, the school, and the company.

Slide 1

NCR HIGH SCHOOL

COOPERATIVE STUDENT PROGRAM

	Female	Male	Total
Juniors	43	14	57
Seniors	31	20	51
Total	74	34	108

Slide 2

COOPERATIVE STUDENT SELECTION PROCESS

		Period
Step I	Initial NCR contact with the School Coordinators	February
Step II	Preliminary NCR screening a. Testing b. Interview with Co-op Program Administrator	March-April
Step III	Final interview and placement a. Employment interview b. Department management interview	May-June

Slide 3

PTFI

PERSONNEL TEST REPORT
lrb

Date of Test(s) May 20, 1965

☐ Male
☐ Female

No. 62082
Name Jane Doe
Department

Age 17
Position

CLASSIFICATION Right Hand

	MEASURED QUALIFICATIONS	R
	OFFICE BATTERY	
PT1	General Intelligence	8
PT15	OFFICE WORK ABILITY: Vocab.	7
	Arithmetic Reasoning	5
	Spelling	5
	Arithmetic Computation	6
	Checking	7
	Posting	4
PT19	TYPING ABILITY: Cont. Copy	57wpm
	Accuracy	17err
	SHORTHAND	80wpm
	Accuracy	Accept.

Low	Below Average		Average				Good		High
1	2	3	4	5	6	7	8	9	10

X-1360-9 1/24/66 NCR NOTE: Please see reverse side for summary of test results.

Slide 4

PTFI

PERSONNEL TEST REPORT
lrb

Date of Test(s) June 18, 1964

☐ Male
☐ Female

No. 59029
Name Frank Jones
Department

Age 18
Position

CLASSIFICATION Right Hand

MEASURED QUALIFICATIONS	R	Low	Below Average		Average				Good		High
		1	2	3	4	5	6	7	8	9	10
FACTORY BATTERY											
PT1 General Intelligence	5										
PT25 Practical Intelligence	5										
PT3 Space Form Thinking	5										
PT9 Finger Dexterity	5										
PT20 Two-hand Dexterity	6										
PT7 Arithmetic Computation	8										

Slide 5

PLACEMENT OF HIGH SCHOOL COOPERATIVE STUDENTS

Co-ops in Machine Trades Division

Departments:

Toolmaking
Equipment Maintenance
Cash Register Engineering Machine Shop
Accounting Machine Engineering Machine Shop
Physical Research Machine Shop
Numerical Control
Tool Inspection
Equipment Engineering Lab

Assignments:

Operate basic machines such as lathes, milling machines, grinders, drill presses.

Operate NC drill press
Help inspect petty tools
Assistant to evaluation engr.

Co-ops in Electrical Divisions

Departments:

Quality Engineering
Electrical Test
Electrical Department
Peripheral Equipment Engineering
Data Processor Engineering

Assignments:

Wireman, junior technician, and helper in electrical maintenance.

Slide 6

PLACEMENT OF HIGH SCHOOL COOPERATIVE STUDENTS

<u>Co-ops in Sheet Metal Division</u>	
Department:	Assignment:
Sheet Metal	Helper on sheet metal work
<u>Co-ops in Printing Trades Division</u>	
Department:	Assignment:
Printing	Press Assistant, Composing Room Assistant, Offset Plate Assistant
<u>Co-ops in Accounting and Business Education Divisions</u>	
Departments within following Divisions:	Assignments:
Financial Marketing Industrial Relations International	Filing, posting, sorting, typing, dictation, operate duplicating machines, receptionist, sort and deliver mail, grade tests, and prepare test graphs.

Slide 7

WEEKLY SALARY FOR PATTERSON HIGH SCHOOL COOPERATIVE STUDENTS

IN ACCOUNTING AND OFFICE EDUCATION

Scheduled Increases

Starting rate	$59.10
Completion of 6 months	61.60
Completion of 1 year	64.10
Completion of 1-1/2 years	66.60
Completion of 2 years	69.10

Slide 8

HOURLY RATES FOR PATTERSON HIGH SCHOOL COOPERATIVE STUDENTS

IN MACHINE TRADES, ELECTRICAL, INDUSTRIAL ELECTRONICS, PRINTING, SHEET METAL

Scheduled Increases

Starting rate	$2.205
Completion of 6 months	2.255
Completion of 9 months	2.305
Completion of 1 year	2.355
Completion of 15 months	2.405
Completion of 18 months	2.445

Slide 10

PATTERSON HIGH SCHOOL GRADUATING SENIORS

by Year of Graduation

Year	Number in Office	Number in Factory	Year Totals
1966	31	20	51
1965	53	10	63
1964	24	23	47
1963	32	23	55
1962	30	24	54
1961	37	23	60
1960	35	30	65
1959	32	27	59
1958	24	25	49
1957	24	27	51
1956	25	15	40
1955	21	24	45
1954	13	14	27
1953	16	24	40
1952	13	21	34
1951	16	18	34
1950	15	14	29
1949	16	29	45
1948	16	24	40
1947	26	19	45
1946	11	19	30
1945	14	7	21
1944	25	22	47
1943	4	15	19
1942		1	1
1941		1	1
Totals	553	499	1,052

Slide 9

John H. Patterson Cooperative High School
Semi-Annual Rating Scale

Firm Name The National Cash Register Company
Name of Co-op
Job Held

Will a person who has supervision of her work please place check marks in spaces below to represent student's grade.

Student's Qualifications	Excellent 95	Good 85	Fair 75	Poor 65	Special Grade
APTITUDE Quickness to learn Ability to carry out directions		✓			
QUALITY OF WORK Attaining Standards Freedom from error and waste	✓				
QUANTITY OF WORK Output of satisfactory work	✓				
INITIATIVE Self-reliance Resourcefulness in planning and carrying out a job assigned Sees work to be done and does it		✓			
DEPENDABILITY Attendance and punctuality Can be depended upon to complete assigned job Observes safety rules Keeps information confidential Is honest	✓				
APPEARANCE Well groomed. Neat Properly attired for the job Does not "primp" during work	✓				
ATTITUDE Willingness to accept correction Willingness to follow rules Respect for authority Interest in work	✓				
COOPERATION Ability to get along with others Willingness to help others get out required work	✓				

Comments (Record anything of special interest regarding student or her work)

Graded by W. E. Helmstadter — Name
Head, Inventory Accounting — Department

Please mail to: Miss Mary A. Kost
Patterson Cooperative High School,
118 East First Street, Dayton 2, Ohio

Date 11-15-65

SELLING THE COOPERATIVE PROGRAM

Edward G. Blendon

A School-Work Program is designed to serve several different purposes. It provides a better understanding and appreciation of our business enterprises and strengthens the relationship between the school and the business community.

Students are exposed to experiences which stimulate their interest and make classwork more meaningful. It familiarizes them with potential employment possibilities, and in a great majority of cases the job becomes full-time upon graduation. It also offers students in financial need a way to earn money to assure staying in school.

The programs offered in Philadelphia are Cooperative Office Education, Distributive Education, and School-Work.

The teacher-coordinator plays a vital role in the success of these programs. An important responsibility is job placement. This function entails making contacts with business executives, employment personnel, and store proprietors in order to sell the programs and secure part-time jobs. It is, therefore, of utmost importance for these teachers to have a well-rounded business background in addition to professional training. Business people display a keen interest in teachers who are business orientated.

It is wise to encourage teachers of these programs to obtain summer employment in order to strengthen their knowledge of business activities and procedures.

It is very important to inform all teachers about the school-work programs. They can be very helpful in promoting these projects. Time should be allotted during a faculty meeting to describe the school-work programs and explain how they benefit the students, the school, and the community.

There are many effective recruitment techniques and procedures for attracting prospective students.

1. We visit advisory classes.

2. We present programs during an assembly period in our own school and in nearby junior high schools.

When we visit classes or are scheduled to make a presentation in the assembly, we ask students already in the program to describe their experiences. We frequently invite graduates to tell the audience how the school-work program helped them attain success in business.

The following devices can be used effectively to stimulate interest:

1. Insert notices in the daily school bulletin.

2. Describe offerings in the school magazine.

3. Include write-ups of successful graduates who participated in these programs.

4. Build attractive bulletin board displays.

5. Encourage students who are enrolled in these programs to solicit worthy applicants.

6. Ask administrators, counselors, and other members of staff to recommend students.

7. Consider students who are currently employed after school as likely candidates. Many employers appreciate the services of students enrolled in a work-program under school supervision.

8. Make arrangements for groups of students to visit business and industrial establishments where opportunities are available for part-time employment.

9. Invite junior high school students to observe school-work classes in action and report observations to their fellow classmates. We have been informed that many junior high students who had little desire to continue their education have been encouraged to remain in school because of their inclination to enroll in one of the work programs.

10. Make use of appropriate visual aids which describe and illustrate employment activities (films, slides, charts, posters, etc.).

11. It is very important to acquaint parents with the operation and value of school-work programs. This can be accomplished as follows:

    a. Describe the program at a scheduled meeting of the Home and School Association.

    b. Invite an employment manager to explain the job opportunities.

    c. Arrange for students in the program and graduates to tell about their experiences.

    d. Ask parents of students enrolled in the program to inform the group of the benefits and advantages.

    e. Permit parents to observe school-work classes.

    f. Prepare appropriate literature for distribution to parents of interested students.

Student Selection

The teacher-coordinator is responsible for recruitment in addition to job placement, teaching, and employment follow-up. Any student who can profit from work experience should be given the opportunity to do so regardless of the curriculum in which he is enrolled. There is room in the program for students of every ability.

Students are admitted on the basis of school records, health, appearance, ability to get along with people, teacher recommendations, willingness to accept a job for which they are qualified, and parental permission.

The central office assumes responsibility for job placement in the cooperative-office education program.

Providing Job Opportunities

We are very proud of the wholesome and cordial relationship which exists between the commercial department and the business community. Our business friends not only provide many resources which help improve instruction but are always ready and eager to share educational experiences with us.

Since the success of school-work programs is dependent upon the availability of jobs, we use many techniques and procedures to provide job opportunities for our students.

Selected groups of business leaders are periodically invited to observe and evaluate the commercial program. The schedule includes class visitation and luncheon in the faculty dining room followed by a conference. The program offerings are described at this time, and the visitors are encouraged to express reactions and to voice opinions. We are alert to helpful suggestions made by our guests.

We receive many letters of appreciation from business men after these visits. The following is a brief resume of comments included in the letters:

> "I genuinely enjoyed observing good teacher-student relationships in action."
>
> "We were very happy to learn that your department provides effective guidance and instruction in the following skills, practices, and behavior patterns: handwriting, spelling, fundamentals of arithmetic, grooming, and ability to get along with people."
>
> "Thank you for giving us the opportunity to see how the commercial department of a Philadelphia high school can be so effective."
>
> "I think it is a very good idea to show this type of work to business people and heartily recommend that you continue to do so."

"It is meetings such as the one we had which will go a long way to help individuals in industry to more fully appreciate the problems you are facing and the strides you are taking to overcome them."

"It surely makes our job easier when people who manage and supervise can see for themselves what excellent training their future employees receive."

It is always gratifying to know that our guests are impressed with the wholesome and democratic atmosphere which exists in classrooms, the friendly and enthusiastic teachers, the outstanding courtesy displayed by students, and a well-rounded program which is designed to prepare students for vocational efficiency.

It is also our practice to schedule dress-up lessons for seniors in retailing and stenography classes long before graduation. On these occasions students are instructed to dress properly for a job interview and are given the opportunity to demonstrate how to apply for a job.

Employment personnel are invited to observe and participate in these programs. Our visitors heartily approve of the realistic approach in preparing students for the business world.

Outstanding business and industrial leaders are invited to participate in career conferences.

We also conduct school-wide good grooming contests and invite business executives to serve as guest speakers in order to inspire the students and encourage them to participate in the program.

Members of the business community appreicate the many courtesies which are extended to them by our school. We provide students for part-time employment in retail organizations for the holiday seasons when extra services are very much in demand. In many instances employment managers are permitted to interview our seniors in school before graduation. They are very grateful for the opportunity to recruit students in advance.

Our consumer credit course in the eleventh year is designed to prepare students for careers in the retail credit field. The Philadelphia Retail Credit Association sponsors this program. A variety of rich resources which are certain to motivate, stimulate, and enlighten the students are easily accessible for class use. Credit organizations make available films, charts, informational folders, and consumer digest periodicals. Prominent credit executives are scheduled for speaking assignments. Planned visits to industry by a group of students who report their experiences and observations, add to the realistic aspect of this program.

Opportunity is provided for a select group of students to work in credit organizations on a cooperative school-work basis during the senior year.

We permit students to participate in career programs in business and industry. In these projects, students receive on-the-job experiences for a day under the sponsorship of trained employees. This program provides job guidance for students and at the same time employers have the opportunity to observe potential employees.

We encourage business and community organizations to provide awards at graduation for students who have displayed excellent scholarship, outstanding leadership, or have rendered worthwhile services to the school and community. This is an excellent device to develop an interest in school activities, and at the same time strengthen school-community relations. The donors of the awards are given recognition in the following manner:

1. Announcement in school assembly.

2. Newspaper publicity.

3. A personal note of acknowledgment is sent by the principal.

4. Recipients write letters of appreciation.

5. Lists of award winners and names of contributors are distributed to everyone attending graduation exercises.

We hold membership in business and community organizations and also participate and provide leadership in community activities. In addition we attend functions sponsored by these groups.

Many years ago I assisted in the reorganization of a local business association and had the honor of serving as secretary for two years. In this capacity I became acquainted with business leaders in the school community and was, therefore, able to secure many part-time jobs.

About a year ago I was invited to be a guest speaker at a local businessmen's organization. My topic was "School-Work Programs at the John Bartram High." Before the evening was over, I had the promise of sixteen part-time jobs. Employers who are pleased with our programs are asked to suggest names of businessmen who would be interested in employing our students on a part-time basis. Graduates of our programs are contacted and asked to recommend the names of potential employers. We encourage students to seek and obtain jobs on their own initiative. Leads can be obtained from the following sources:

1. Newspaper want ads.

2. Store window "help wanted" signs.

3. State Employment agencies.

4. Parents, relatives, and friends.

Personal visits to stores and offices often result in job placement.

It is of utmost importance to prepare students for a job interview. If time is limited, make available instructional materials which will acquaint them with the basic steps and procedures for a successful job interview.

Publicity

Publicity plays a vital role in our efforts to build and strengthen our community relations and also to obtain part-time employment for our students.

We prepare material for insertion in local and city newspapers, administrative publications, and business house organs. Items which we include are:

1. Description of school-work programs and the importance of community participation and support.

2. Acknowledgment of school visits made by businessmen.

3. Appreciation for services rendered by guest speakers.

4. Names of organizations which employ our students.

5. "Write-up" of successful graduates.

6. Tributes paid to businessmen who provide awards to outstanding graduates.

7. Activities which benefit the students, school, and community.

We participate in radio and television programs.

We make contacts by means of direct mail media. Excellent results have been achieved by sending letters and return postcards to members of the business community explaining our programs and asking them to make available part-time employment for our students. Names and addresses are obtained from the telephone directory. Members of the faculty are also asked to submit names of potential employers.

When I received my appointment as a teacher-coordinator of distributive education twenty-five years ago, I made a quick tour of the business community in the vicinity of the school. The section of the city was new to me since I seldom had occasion to visit it. It took me three weeks to enroll twenty-four students for the class. This was accomplished very easily since I had the cooperation of the administrative staff. The next procedure was to find suitable jobs. I assigned students to tour the various streets where stores were located and make note of address and name of proprietor, or names of businesses as they were shown on store windows. In the meantime, I prepared literature describing the program, including information relating to student

placement. A return postcard was included. Two hundred envelopes were addressed and mailed when the students submitted the necessary information.

As a result of this publicity, store visits, and personal contacts, all twenty-four students were employed within a period of three weeks.

The Director of our division and his staff promote activities which are greatly responsible for the success of the work-programs.

Business advisory committees are organized for cooperative office education and distributive education. These committees are composed of outstanding business leaders who are also the employers of our students. They provide the guidance and support which make possible well-rounded and successful programs.

A certificate of merit is given to each employer. It contains the signatures of the Superintendent of Schools, the President of the Philadelphia Chamber of Commerce, and the Mayor of the City of Philadelphia. The presentation is made by the teacher-coordinator who has contact with the employer. The recipients are very proud of this citation since it indicates that the service they are performing is recognized by outstanding educational, civic, and business leaders.

Schools cooperate with business by assigning students to participate in the following programs:

1. Office Executive for a Day.

2. Junior Administrative Management Association.

3. Junior Credit Association.

4. Junior Achievement.

5. Invest in America

In the past, our students have also participated in Retail Executive for a Day and Junior Realtor Association.

The Philadelphia Public School System, through its Division of Education, cooperates with business firms in a program entitled "Two Week Look at Business." The program, which is conducted during the summer, is designed to motivate students to remain in school, raise their achievement level, graduate, and qualify for jobs in the commercial field for which trained personnel will be needed.

Tenth-grade commercial students who were not performing to the best of their ability in school were selected. In many cases attendance and punctuality records were poor. Marks in general were below the pupil's potential as indicated by test scores. Students were not employed nor were they paid for reporting to the company for the two weeks. Their carfare and lunch were supplied by the cooperating companies.

The pupils who participated have had a rare opportunity of being a part of the working and social life of excellent firms. They have learned at first-hand about working conditions, wages, and fringe benefits. They have seen and participated in a wide variety of clerical jobs. They have become familiar with office terminology, and they have seen skills learned in school used in actual job situations. They know that fundamentals such as spelling and arithmetic are important. It is apparent that this program has prepared pupils to qualify for the cooperative course and has also gained the cooperation and support of business firms.

The highlights of all these activities are the cooperative office education and distributive education banquets which are scheduled in late spring near the close of the school term. They are attended by top-level administrators, principals, department heads, coordinators, employers, alumni, and business and community leaders. An outstanding business executive or civic leader is invited to serve as a guest speaker. Many awards are presented to students for worthy achievements and accomplishments.

In conclusion, it is a challenging and daring venture to use every available technique and device to gain the cooperation and support of the business community in order to promote school-work programs.

We are very grateful to our school administrators for their guidance and cooperation. Without their support, the success of the cooperative programs would not have been possible.

The State Department of Public Instruction in Harrisburg, Pennsylvania, is to be commended and congratulated for providing effective and dynamic leadership.

APPENDICES

A. Biographical Sketches of Speaker-Consultants

B. Forms for Conducting the Seminar
   - Discussion Group Plan
   - Discussion Group Organization
   - Evaluation Form

C. Selected Bibliography

D. Forms for Administering Cooperative Education
   - Student Agreement
   - Cooperative Training Agreement
   - Employer's Evaluation

E. Roster of Participants

F. Reports of Selected Cooperative Work-School Programs

Appendix A

Biographical Sketches of Speaker-Consultants

JOSEPH ACKERMAN, Ph.D., University of Illinois, is an agricultural economist and a native of Illinois. Presently, he is managing director of the Farm Foundation, Chicago, and president of the National School Boards Association. Dr. Ackerman is a member of the National Council of the Boy Scouts of America, and the Board of Trustees of the Joint Council on Economic Education. He has co-authored Town and Country Churches and Family Farming, and served as editor of Farm and Rural Life After the War, and as co-editor of Family Farm Policy and Agrarian Reform and Moral Responsibility. He has been recognized by the American Country Life Association for outstanding contribution to the improvement of rural life.

EDWARD G. BLENDON, M.S., New York University, is presently Department Head of Commerce, John Bartram High School, Philadelphia. His varied teaching and business background includes experience as Training Director for the Sun Ray Drug Company, Philadelphia. Mr. Blendon has served as head counselor and assistant director of a children's summer camp. He is a member of the Board of Directors of the Temple University College of Education and the Retail Council and Retail Task Force of the Philadelphia Chamber of Commerce. He has authored "The High School--Multiple Programs in Business Education," a chapter in the 1966 Eastern Business Teachers Association yearbook.

RALPH O. GALLINGTON, Ed.D., George Washington University, a native of Illinois, is presently Professor of Industrial Education and Professor of Guidance of Psychology at Southern Illinois University, Carbondale. He has also taught at the University of Maryland, Eastern Illinois University at Charleston, and Pennsylvania State University. Dr. Gallington has worked as an industrial engineer, products designer and engineer, and plant superintendent. He is listed in Who's Who in America, Who's Who in Engineering, Leaders in American Science, and Who's Who in American Education. He has contributed many professional articles and has co-authored Course Construction in Industrial Arts and Vocational Education.

VIRGINIA KEEHAN, Ed.D., University of Colorado, is presently Director, Program Division, Women's Centers Directorate, Job Corps, Office of Economic Opportunity, Washington, D.C. She has also served as Specialist for Program Organization, Guidance and Counseling Programs Branch, U.S. Office of Education. In the New Mexico State Department of Education, she has served as State Director of Guidance and Pupil Personnel Services and Director of Title V-A, National Defense Education Act. Dr. Keehan has taught at New Mexico State University, University Park, and has served as Director of Guidance and Psychological Services for the Albuquerque, New Mexico, public schools.

SAM W. KING, M.A., West Texas State University, a native of Texas, is presently Field Representative, Manpower Development and Training, U.S. Office of Education, Department of Health, Education and Welfare, Denver, Colorado. He has served as area supervisor and assistant director of Vocational-Industrial Education for the Texas Education Agency. His many years of federal government service includes work as Program Specialist, Trade and Industrial Education Branch, U.S. Office of Education; Field Director, Office of Manpower, Automation and Training, U.S. Department of Labor; and Chief, Foreign Manpower Development Program Staff, Office of Manpower, Automation and Training, U.S. Department of Labor. Mr. King is a Lieutenant Colonel in the U.S. Marine Corps Reserve.

E. F. LAUX, a graduate of Hamilton College and a native of Jamaica, New York, is presently Vice President for Marketing of the Ford Motor Company, Dearborn, Michigan. His distinguished automotive career began in 1947. For the Ford Motor Company, he has served in the following capacities: Car Sales Manager at St. Louis, Missouri; Division Sales Planning and Analysis Manager at Dallas, Texas; Assistant District Sales Manager at Houston; Car Promotion and Training Manager at the general sales offices; Parts and Service Marketing Manager; Ford Division Vehicle Marketing Manager; General Marketing Manager and General Sales Manager; and Executive Director, Marketing Staff.

MORTON LEVINE, M.A., American University, is presently Special Projects Director, Division of Manpower and Occupational Outlook, Bureau of Labor Statistics, Washington, D.C. Since 1949, Mr. Levine has been associated with the U.S. Department of Labor in positions involving responsibility for program and administration. He has authored numerous articles in the field of manpower and occupational outlook and is listed in Who's Who in the South and Southwest and Who's Who in the East. (Joseph W. Hines, Asst. Regional Director, Bureau of Labor Statistics, U.S. Department of Labor, Cleveland, Ohio, presented the speech prepared by Morton Levine.)

K. OTTO LOGAN, M.A., University of Minnesota, is presently Director of Distributive Education for the State Board of Vocational Education, Olympia, Washington. He has served as Distributive Education Coordinator and Curriculum Director in Aberdeen, Washington. He has also served as president of the following organizations: American Vocational Association (1965-1966), Distributive Education Clubs of America (DECA), Inc., and National Association of State Supervisors of Distributive Education (NASSDE). Mr. Logan has contributed articles to many professional magazines and is listed in Who's Who in the West.

GEORGE L. LUSTER, Ph.D., The Ohio State University, a native of Kentucky, is presently Associate Professor and Teacher Trainer of Agricultural Education at the University of Kentucky. From 1962 to 1964, he was employed by the Near East Foundation, New York City, as American Co-Director of Ahwaz Agricultural College in Ahwaz, Iran. He has

contributed numerous teaching aids and magazine articles in agricultural education and has authored three publications for the Ahwaz Agricultural College.

WILLIAM B. LOGAN, Ph.D., The Ohio State University, a native of North Carolina, is presently Professor of Distributive Education and Director of Management Institutes at The Ohio State University. He has served as president of the American Vocational Association (1961-1962) and president of the Council of Distributive Educators. Dr. Logan was a member of President Kennedy's Panel of Consultants on Vocational Education. He has co-authored three books, The Retailing Salesperson at Work, Store Salesmanship, and Facts about Merchandise, and is a contributing editor to the 1965 edition of the Encyclopedia Americana with a 6,000-word article on vocational education. He is listed in Who's Who in American Education, Who's Who in the Midwest, and Who's Who in America.

MARY V. MARKS, M.S., New York University, a native of New Jersey, is presently Program Specialist, Distribution and Marketing, Division of Vocational and Technical Education, U.S. Office of Education, Washington, D.C. Her professional background includes experience as Education Research and Program Specialist (Pacific Region), Distributive Education Branch, U.S. Office of Education and Head of Department and State Teacher Educator for Distributive Education at Richmond Professional Institute, College of William and Mary, Richmond, Virginia. She has contributed widely to professional journals and has authored Role of Teacher Education in Distributive Education.

RALPH E. MASON, Ph.D., University of Illinois, is presently Professor of Business and Chairman, Division of Business and Distributive Education, Indiana State University at Terre Haute. His varied business and teaching experience includes work in retailing and sales, secondary school teaching and supervision in the public schools in Illinois, and college-level teaching at the University of Illinois. He has authored Methods in Distributive Education and co-authored Cooperative Occupational Education and Work Experience in the Curriculum, Office Career Notebook, Distributive Education Notebook for Occupational Growth, and Case Studies in Marketing and Distribution.

DENNIS H. PRICE, Ed.D., Indiana University, is presently Professor of Education and Director of Vocational Education at the University of Cincinnati. He has also taught at Purdue University and Indiana State University at Terre Haute. His professional background includes experience as Education Specialist in the Republic of Panama under the auspices of the Institute of Inter-American Affairs, U.S. Department of State. He has contributed widely to the publications of his field including a series of nineteen apprenticeship manuals, and a technical trigonometry textbook. He is listed in Who's Who in American Education, Who's Who in the Midwest, and Who's Who in Ohio.

MRS. E. CHRYSTINE SHACK, M.A., Rider College, a native of Tennessee, is presently Supervisor of Business Education for New Jersey. Her interesting teaching background includes experience as Teaching Principal and Assistant Director, Migrant Demonstration Schools, State of New Jersey; Principal, Cranbury School, Migrant Demonstration Schools, State of New Jersey; and Critic Teacher, Trenton State College and Rider College. In May, 1965, she was honored as the Woman of the Month by Rider College. Mrs. Shack has prepared three television documentaries which focused attention to the education of migrant children.

FARMER SMITH, M.A., University of North Carolina at Chapel Hill, is presently Assistant Professor in the Department of Industrial Education at North Carolina State University, Raleigh. His well-rounded background includes experience as a construction engineer, school administrator, guidance counselor, mathematics teacher, industrial cooperative training coordinator, and teacher trainer. Mr. Smith is a Colonel in the U.S. Air Force Reserve.

HUGH M. STEPHENSON, M.B.A., Xavier University, Cincinnati, is presently Manager of Manpower and Organization Development for the National Cash Register Company, Dayton, Ohio. For NCR, he has also served as Manager of Personnel Services for the Research and Development Division with additional experience in the recruitment and selection of personnel for the Engineering Department. Mr. Stephenson is a member of the University of Dayton Graduate School faculty.

JOHN A. SESSIONS, Ph.D., Cornell University, is presently Staff Representative, Department of Education, American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), Washington, D.C. Dr. Sessions has taught at The University of Michigan and Cornell University and has served as lecturer-consultant of workers' education in Norway, Denmark, Sweden, France, and Indonesia. He is a member of the Board of Education for the District of Columbia and was a participant in the White House Conference on Education (1965). He has co-edited Seventy Years of Life and Labor by Samuel Gompers, and authored Writers for Tomorrow and Labor, Champion of Education.

JEFFREY R. STEWART, JR., Ed.D., New York University, is presently Associate Professor and Head of the Business Education Department, Virginia Polytechnic Institute, Blacksburg. He has co-authored textbooks in records management, filing and recordkeeping. One publication in records management has been adopted by the U.S. Office of Economic Opportunity for use nationally with Job Corps classes. Dr. Stewart has served in the U.S. Air Force as a pilot, training officer, and operations officer.

RALPH M. STOGDILL, Ph.D., The Ohio State University, is presently Professor of Business Organization, The Ohio State University. His varied professional background concerning the developments of role theory and

organization theory includes experience as Research Social Scientist, Stanford University. Dr. Stogdill has authored Individual Behavior and Group Achievement, Leadership and Structures of Personal Interaction, and Team Achievement Under High Motivation.

ROBERT M. WORTHINGTON, Ph.D., University of Minnesota, is presently State Director of Vocational Education for New Jersey. He has taught in the St. Paul, Minnesota, public schools, at Purdue University, University of Minnesota, and Trenton State College. Dr. Worthington is a member of the Research Committee of the American Industrial Arts Association. He is the past president of the National Association of Industrial Teacher Educators, and has served three years as editor and associate editor of the Journal of Industrial Teacher Education.

JAMES H. WYKLE, M.A., George Peabody College for Teachers, is presently Education Research and Program Specialist in Office Education for Region IV, Division of Vocational and Technical Education, U.S. Office of Education, Atlanta, Georgia. Mr. Wykle has served as State Supervisor of Business and Office Education for Georgia. His teaching background includes experience in the Tennessee public schools and at Mississippi State College, Columbus. He is past president of the Southern Business Education Association, a division of the National Business Education Association, and is listed in Who's Who in American Education.

Appendix B

Forms for Conducting the Seminar

The forms in this section were actually used for conducting the Seminar on August 2, 3, and 4, 1966

Discussion Group Plan

The same plan will be followed each afternoon

Under the leadership of six Group Chairmen, each afternoon will be devoted to three activities. The proposed time schedules follow. Please attend the sessions to which you are assigned.

1:45 - 2:45 p.m.

Reaction Panel of Selected Leaders

A. Reactions to presentations given in the morning--what questions, points, and issues should be clarified and discussed? Opportunity is provided for restatement and interpretation of significant points of view.

B. Special assigned topic for the group. Thought-starter questions will be provided.

2:45 - 3:00 p.m.

Intermission

3:00 - 4:00 p.m.

Reaction Roundup--each participant will make a 1-2 minute presentation on one of the following:

What is one major idea learned?
What is one big unanswered question?
What is one major recommendation?

4:00 - 4:30 p.m.

General Summation for the Day including Morning and Afternoon Sessions

What do we know?
What recommendations can we make?
What needs to be researched?

(Sample Form)

Discussion Group Organization

All sessions will be held in the Civil and Aeronautical Engineering Building.
PLAN AND ASSIGNMENTS FOR AFTERNOON SESSIONS

Group	Tuesday, August 2 1:45 - 4:30 p.m.	Wednesday, August 3 1:45 - 4:30 p.m.	Thursday, August 4 1:45 - 4:30 p.m.
I	Title: Effect of Employment Trends and Changing Technology Place: Room 311 Chairman: JAMES H. WYKLE, Specialist, Region IV, Dept. of HEW, Atlanta, Ga. Recorder:_____ Summarizer:_____ List of Participants:	Title: Preparation of Teacher-Coordinators Place: Room 311 Chairman: JAMES H. WYKLE Recorder:_____ Summarizer:_____ List of Participants:	Title: Office Education Model Place: Room 311 Chairman: JAMES H. WYKLE Recorder:_____ Summarizer:_____ List of Participants:
II	Title: Advisory Committees; Attitudes and Influence of School Boards Place: Room 220 Chairman: SAM W. KING Field Representative Region VIII Dept. of HEW Denver, Colorado Recorder:_____ Summarizer:_____ List of Participants:	Title: Problems in Organizing and Operating a Cooperative Program Place: Room 220 Chairman: SAM. W. KING Recorder:_____ Summarizer:_____ List of Participants:	Title: Agricultural Education Model Place: Room 220 Chairman: SAM W. KING Recorder:_____ Summarizer:_____ List of Participants:

Group	Tuesday, August 2 1:45 - 4:30 p.m.	Wednesday, August 3 1:45 - 4:30 p.m.	Thursday, August 4 1:45 - 4:30 p.m.
III	Title: Psychological, Social, and Emotional Aspects of Cooperative Education Place: Room 316 Chairman: THOMAS J. WEYANT State Supervisor Dept. of Public Inst. Harrisburg, Penna. Recorder:_____ Summarizer:_____ List of Participants:	Title: Cooperative Education for Youth with Special Needs Place: Room 316 Chairman: THOMAS J. WEYANT Recorder:_____ Summarizer:_____ List of Participants:	Title: Distributive Education Model Place: Room 316 Chairman: THOMAS J. WEYANT Recorder:_____ Summarizer:_____ List of Participants:
IV	Title: The Justification for the Cooperative Program Place: Room 211 Chairman: HAROLD L. MAILMAN Director, State Department of Education, Augusta, Maine Recorder:_____ Summarizer:_____ List of Participants:	Title: The Challenging Roles of Teacher-Coordinator Place: Room 211 Chairman: HAROLD L. MAILMAN Recorder:_____ Summarizer:_____ List of Participants:	Title: Trade and Industrial, Technical, and Health Education Models Place: Room 211 Chairman: HAROLD L. MAILMAN Recorder:_____ Summarizer:_____ List of Participants:
V	Title: Occupational Strands Common to All Cooperative Education Place: Room 314 Chairman: JOHN R. WYLLIE Vocational Division State Department of Education Trenton, New Jersey Recorder:_____ Summarizer:_____ List of Participants:	Title: Evaluation of Cooperative Education Place: Room 314 Chairman: JOHN R. WYLLIE Recorder:_____ Summarizer:_____ List of Participants:	Title: Home Economic Education Model Place: Room 314 Chairman: JOHN R. WYLLIE Recorder:_____ Summarizer:_____ List of Participants:

Evaluation Form

Instructions: Please check your evaluation in the columns to the right. Check column 4 for Excellent; 3 for Good; 2 for Average; and 1 for Poor.

	High			Low
	4	3	2	1
1. To what extent did you secure help and suggestions for improving your state or local cooperative education program?	( )	( )	( )	( )
2. To what extent did the seminar contribute ideas and procedures for the promotion and expansion of the cooperative education plan in your state or locality?	( )	( )	( )	( )
3. To what extent are you better prepared to conduct a seminar or conference on cooperative education in your state?	( )	( )	( )	( )
4. To what extent has the seminar helped you more clearly to define the basic elements common to all cooperative programs?	( )	( )	( )	( )
5. To what extent has the seminar aided in a better understanding of potential interrelationships between vocational services?	( )	( )	( )	( )
6. In general, did the speakers provide you with new and constructive ideas?	( )	( )	( )	( )
7. Did the provision for group reaction to the seminar speakers in the afternoon discussion groups contribute to a better understanding of cooperative education?	( )	( )	( )	( )
8. Were the special topics used in the afternoon discussion groups suitable and profitable?	( )	( )	( )	( )
9. Did the "reaction roundup" contribute to the value of the afternoon discussion group?	( )	( )	( )	( )
10. Other reactions and comments:	( )	( )	( )	( )

_____

_____

_____

_____

Appendix C

Selected Bibliography

Books, Research Studies, and Manuals

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Appendix D

Forms for Administering Cooperative Education

Student Agreement

Cooperative Part-Time Training Program

DISTRIBUTIVE EDUCATION
SERVICE STATION

OFFICE OCCUPATIONS
TRADE AND INDUSTRY

The Part-Time Occupational Training Program has been discussed with me by my coordinator and I understand that through enrolling in this program:

1. I am not guaranteed a job and neither am I assigned to a job. My coordinator may suggest a job which seems suitable and then it is up to the employer and to me to discuss the requirements and the other responsibilities of the job. If I qualify and am hired I am in the Coop Program for the year; If I do not qualify and am unable to get hired on a job I shall return to the regular school program.

2. I am to receive training on a job, or in an industry, in which I hope to work after graduation.

3. I am to be paid the going-rate for my work.

4. I am to have a combined school-work week which will not exceed the number of hours which are standard for the work week in the industry where I am employed. I must average a minimum of 15 hours on the job per week over the course of the year.

5. I will discuss my future plans with my coordinator and the high school counselor.

6. I may earn a maximum of four semester credits toward graduation on this Program; two semester credits for Occupational Relations, and two semester credits of Occupation Lab.

7. I will be present and on time each day, both in school and at work. I will not attend my Coop Part-Time Lab any afternoon when I have been absent from my regular morning classes.

8. I will notify my Employer, my Coordinator and the Principal's Office as far in advance as possible of my inability to report for school or work if the occasion should arise. If I am ill, I will call the school and my employer and report such illness.

9. I will be prompt and accurate in making all required reports for the school and for my employer.

10. I will at all times keep my coordinator informed of any problems which may confront me in school or on the job.

11. I will be dropped from the program resulting in a loss of 4 semester credits if I leave my employment without the consent of my coordinator.

12. I shall be dropped from the program resulting in the loss of 4 semester credits for failure to secure re-employment if I am discharged for cause.

13. I may retain my 4 semester credits for graduation by doing extensive outside class work and jobs as assigned by my coordinator if I lose my job through automation or other causes outside of my own doing.

14. I will be suspended from the program resulting in the loss of 4 semester credits if I participate in any form of truancy.

15. I must remain employed until the date of graduation or lose my credits.

16. No special privilege shall be granted to any student because he is a member of the Cooperative Part-Time Training Program.

17. I will at all times conform with the rules, regulations, and policies of the school and my employer. The school policy shall prevail in regard to smoking, attendance, and all the other areas of conduct.

18. I shall at all times perform my duties in school and on the job to the best of my ability.

19. I will fulfill all the requirements that may be set up from time to time by the state or federal department of education or our local school board pertaining to the operations of this program.

20. I understand the duties and responsibilities connected with my training and my admission to the Cooperative Part-Time Training Program, and accept this of my own accord.

_____
Student
Part-Time Training Program.

The above provisions of the Cooperative Part-Time Training Program have been discussed with me. I hereby give my consent and approval for _____assignment to a supervised job as a part of the regular school program. I have received a copy of these provisions for future reference.

Date_____ _____
Signature of Parent or Guardian

From Hopkins High School, Hopkins, Minnesota

Cooperative Training Agreement

PUBLIC HIGH SCHOOL
In Cooperation With
The State Board of Control for Vocational Education*

Trainee_____ Address_____ Tel._____

Grade_____ Coun._____ Soc.Sec.No._____ Date of Birth_____ Age_____

Establishment_____ Address_____ Tel._____

Employer_____ Supervisor_____ Work Permit No._____

Work Schedule (General)_____ Average Hrs. per Wk._____

Occupational Approval No._____ Date Started_____

Trainee's Job Title_____ D. O. T._____

Work Activities (This section to be completed by employer or supervisor, and coordinator)	School Program (This section to be completed by student-trainees and coordinator)

(Use an extra sheet to fully outline the learning experiences to be provided.)

Trainee's responsibility in program:

1. No trainee shall leave his job without first discussing the matter with his coordinator.
2. Each trainee shall abide by the rules, regulations, and policies of his employer during his period of training.
3. Each trainee shall faithfully perform the assignments of his job and school program.

1. The student's training period shall not be less than one full school year at a minimum of 15 hrs. per week.
2. The training plan should include work activities which are of vocational and educational value.
3. The employer shall complete a brief check list (provided by the coordinator) three times a semester, indicating the trainee's progress on the job.

*Adapted from form used by Grosse Pointe Public High School, Grosse Pointe, Michigan

School credit:

School credit toward graduation is given for the work experience, and pupils taking the course receive the same diploma, upon graduation, as is received by all graduates.

4. This training program agreed upon shall not be interrupted by either trainee or employer without consultation with the coordinator.

Approved: Date_____

Trainee_____ Employer_____

Parent or Guardian_____ Coordinator_____

AGREEMENT FOR HIGH SCHOOL CREDIT
IN
OCCUPATIONAL TRAINING

The trainee and parents do understand and agree to the following requirements:

1. Credit will be granted only upon the satisfactory performance of job duties as determined by the employer and coordinator.

2. The trainee must notify his employer not later than 10 o'clock on any day that he is unable to report for work because of illness, death in the family, or other similar emergencies. (Saturday employment 8:15 notification)

3. Unless regular school attendance is maintained the trainee will be dropped from the program.

4. The trainee must maintain satisfactory grades in all subjects in order to remain on the program.

5. No credit will be granted if the trainee quits his job without first notifying his coordinator.

6. If the trainee is released from his job, he must notify his coordinator immediately if he is to receive any credit.

7. The trainee agrees to report to his coordinator all problems or difficulties which occur at his place of employment, if the parties involved feel that this would be desirable.

8. The trainee agrees to participate in all cooperative functions related to the total program.

9. Parents or guardians will assume responsibility over any conduct or safety of the co-operative training student from the time he leaves his job until he arrives home.

10. When not at work during the afternoon school hours, the trainee is required to be at home.

11. All trainees under 18 years of age must secure a working permit at the Pupil Personnel Office - second floor - 389 St. Clair - Grosse Pointe.

12. To keep all matters of business in STRICT CONFIDENCE.

13. In order to receive full credit the trainee must be in school at least 15 hours per week and must also work at least 15 hours per week during school hours. (The maximum number of hours that a trainee under 18 may work is 33 hours per week.)

14. If there are any further questions concerning this cooperative occupational training plan contact: Coordinator's Office, Phone_____.

Employer's Evaluation of Cooperative Student

Information, as checked in the space below, will assist us in our appraisal of the Cooperative work of--

_____School Division_____

for the work period of_____to_____

Name of employer_____

Please return completed form to_____by_____

It is suggested that the person most familiar with the student's work supply a frank and impersonal estimate of his or her performance by comparison with the average employee doing the same or similar work.

ATTITUDE AND INTEREST ____Enthusiastic ____Interested ____Average ____Somewhat indifferent ____Not interested	QUANTITY OF WORK ____Unusually high output ____More than expected ____Average ____Less than expected ____Below minimum requirements
ADAPTABILITY ____Adjusts easily--very well liked ____Good team worker ____Cooperates satisfactorily ____Has difficulty working with others ____Antagonizes fellow workers	DEPENDABILITY ____Entirely dependable ____Requires little supervision ____Satisfactory ____Sometimes neglectful or forgetful ____Unreliable
ABILITY TO LEARN ____Grasps ideas very quickly ____Above average ____Average ____Rather slow to learn ____Very slow	INITIATIVE ____Takes hold readily ____Above average ____Goes ahead reasonably well ____Somewhat lacking ____Lazy
QUALITY OF WORK ____Excellent ____Above average ____Satisfactory ____Below average ____Very poor	JUDGMENT ____Displays excellent common sense ____Usually does the right thing ____Ordinary ____Occasionally uses poor judgment ____Very poor--rash
ATTENDANCE ____Regular ____Irregular PUNCTUALITY ____Regular ____Irregular	SUMMARY: Student's total performance considered: ___Outstanding ___Good ___Poor ___Very Good ___Mediocre ___Unsatisf.
ADDITIONAL comments: _____ _____ _____	EVALUATION MADE BY: Date_____ Name_____ Title_____ Department_____

Appendix E

Roster of Speaker-Consultants Participants*

SEMINAR ON COOPERATIVE EDUCATION
August 1-5, 1966

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*Five participants were unable to attend the Seminar because of an airline-machinists' strike.

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Appendix F

Reports of Selected Cooperative Work-School Programs

The coordinators of the cooperative education seminar express thanks to the administrators, teachers, and students of the schools and colleges listed below who have cooperated in furnishing first-hand information about their respective cooperative education programs. This first-hand information has been very helpful for planning and implementing the Cooperative Education National Seminar which was held in August, 1966, and also for developing the guidelines of this publication.

Phoenix College, Phoenix, Arizona

Phoenix Union High School System, Phoenix, Arizona

A. P. Leto High School, Tampa, Florida

Lamphier High School, Springfield, Illinois

Grosse Pointe High School, Grosse Pointe, Michigan

Lansing Community College, Lansing, Michigan

Jefferson Senior High School, Alexandria, Minnesota

Fergus Falls Area Junior College, Fergus Falls, Minnesota

Hopkins Senior High School, Hopkins, Minnesota

Kirkwood High School, Kirkwood, Missouri

South Mecklenburg High School, Pineville, North Carolina

Columbus Area Technician School, Columbus, Ohio

Dayton Public Schools, Dayton, Ohio

Marysville High School, Marysville, Ohio

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION,
OHIO STATE UNIVERSITY
980 Kinnear Road, Columbus, Ohio 43212

SELECTED COOPERATIVE WORK-SCHOOL PROGRAMS

1. **School Information**

Name of School _____ Phone No. _____

Address _____

Principal _____

Vocational Director and/or Supervisor _____

Teacher-Coordinator(s) _____

Guidance Counselor(s) _____

Total Enrollment of School _____, Grades included: 9_____, 10 _____

11_____, 12_____, 13_____, 14 _____

Type of school (e.g. comprehensive, area vocational, etc.) _____

_____

Explanation _____

_____

2. **Title of Program or Course**

Descriptive title _____

General Description _____

_____

_____

_____

3. **Description of Program or Course**

Cooperative Work-Study _____, Occupational Work Experience _____

Grade Level: 10 _____, 11 _____, 12 _____, 13 _____, 14 _____

Length of program in weeks _____, Current enrollment _____, Recommended

Enrollment _____, Average class size _____, Number of pupils working _____

Number of firms involved _____, Number of job titles _____

4. **Recruitment Procedure**

_____

_____

5. **Guidance and Testing**

Person(s) responsible for pupil selection _____

_____

Person(s) primarily responsible for counseling _____

_____

Screening tests used _____

_____

6. **Enrollment Standards**

General Intelligence: Low ___, Low Av. ___, Average, ___, High Av. ___, High ___

I. Q. Range: From ___ to ___, Median I. Q. ____, Explanation _____

Required courses or grade completed _____

Recommended courses _____

Personal-social skills recommended or required _____

_____

Physical attributes or abilities required _____

7. **Typical Weekly Schedule for Cooperative Students**

Number of classroom hours per week devoted to: Related Technology _____

General Employment Information _____, General school subjects _____

Employment _____, Other _____

Description of work-school plan _____

Employment outlook _____

Description of typical cooperative or work experience jobs _____

_____

_____

8. **Instructional Pattern**

Nature and extent of pre-employment instruction (Orientation, shop, etc.) _____

_____

Nature and extent of in-school instruction during employment period.

(Include course outline, title of textbook, etc.) _____

9. **Weekly Schedule of Teacher-Coordinator or Coordinator**

Number of hours devoted to teaching: General employment information _____

Related technology _____, General subjects _____, Other _____

Frequency of coordination visits per student _____, Comments _____

_____

Time assigned for coordination _____, For counseling _____, Other school duties

(hall duty, testing, activities, etc.) _____

Coordinator responsible for:

a. Placement on job _____

b. Follow-up on job _____

c. Evaluation of performance _____

d. Follow-up of graduates _____

Other _____

10. **Qualification and Preparation of Teacher-Coordinator and/or Coordinator**

Formal education required (Degrees, majors, etc.) _____

_____

Years of teaching experience to qualify as coordinator _____

Years and/or months of employment experience in business, industry, agriculture or home economics _____

Pre-employment vocational instruction (orientation class, time spent, etc.)

_____

Required in-service courses or assignments _____

_____

Number of months that coordinator is employed _____

11. **Facilities used and/or Recommended**

No. of classrooms ___, Laboratories ___, Offices ___, Other _____

Classroom size, description and furniture _____

_____

Laboratory size, description and equipment _____

_____

Shop(s) size, description and equipment _____

_____

12. **Advisory or Consulting Committee**

Organization and function (size, frequency of meetings, representatives from, etc.) _____

_____

_____

13. Public Relations Activities (Include folders, form letters, bulletins, etc.) _____

_____

_____

_____

14. Activity Program for Co-Op Students (D.E.C.A., V.I.C., etc.) _____

_____

_____

15. Comments and suggestions (Re: faculty support, guidance services, etc.) _____

_____

_____

16. Unusual Features and/or Advantages, Etc. _____

_____

_____

_____

Other Center Publications

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agricultural Education, "Program Development and Research."

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

VT 001 738

VT 001 738 ED 011 297

A Study of the Diffusion Process of Vocational Education Innovations.

Michigan Vocat Educ Res Coordinating Unit, Lansing

67

EDRS Price MF-$0.09 HC-$2.16 54p.

*VOCATIONAL EDUCATION, *DIFFUSION (IDEAS), *ADOPTION (IDEAS), HOME ECONOMICS EDUCATION, *INNOVATION, VOCATIONAL AGRICULTURE, HIGH SCHOOLS, TRADE AND INDUSTRIAL EDUCATION, BUSINESS EDUCATION, QUESTIONNAIRES, COMMUNICATION (THOUGHT TRANSFER), SURVEYS,

Michigan,

The main objective was to identify a communication network, if one existed, which could be used to shorten the time lag in adoption of educational innovations in vocational education. Five relatively new practices identified in each of the vocational service areas were surveyed. Questionnaires were sent to all schools in Michigan having reimbursible vocational education programs and responses were received from 118 of the 205 schools with programs in agriculture, 265 of the 600 with programs in business, 280 of the 600 with programs in home economics, and 100 of the 189 with programs in trade and industry. The following data are analyzed for each service area -- (1) the time of adoption of the practices surveyed, (2) percentage of schools which had heard about the practices, adopted the practices, and had been observed by others, (3) patterns of visitation networks, (4) sources of influence to adopt each practice (journals, conferences, etc.), (5) list of practices observed in other schools, (6) new practices being tried, (7) new ideas in the field, and (8) discontinued practices. (PS)

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A STUDY OF THE DIFFUSION PROCESS OF VOCATIONAL EDUCATION INNOVATIONS.

VOCATIONAL EDUCATION

RESEARCH COORDINATING UNIT

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F O R E W O R D

This study of the Diffusion Process of Vocational Education Innovations could prove to be invaluable to vocational education. It could prove to be the foundation for a structure able to meet the problems of change in a positive manner.

The motivation for this particular study came from two primary sources. First, Dr. Everett Rogers, researcher and writer on the diffusion-of-innovations process, on several occasions urged that an attempt be made to study the spread of vocational education innovations. His suggestions were heard by members of the Vocational Education Division. Secondly, after the establishment of the Michigan Research Coordinating Unit in the fall of 1965, the RCU Advisory Committee suggested that one activity of significant value for vocational education would be the identification of innovative schools through a study of the diffusion process. The final stimulus was provided by the approval of Vocational Education Director, Robert M. Winger, and State Superintendent of Public Instruction, Dr. Ira Polley.

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PART I

THE DIFFUSION PROCESS OF VOCATIONAL EDUCATION INNOVATIONS

Changes are taking place in American education at a rate never before experienced, and the pace will probably increase. Educators today are acutely aware that America can no longer afford a long time lag between research and practice. We cannot afford to watch our children simply pass through our schools. Because of the startling changes in technology of business and industry, vocational education is faced with many perplexing problems.

One of the main problems facing vocational education lies in the fact that new ideas in education are not accepted or adopted anywhere as rapidly as changes occur in business and industry. Ability to change is a vital prerequisite for survival in the world of business activity. Keep up with the times or fall by the wayside. Vocational education in the public schools is faced with this problem; it has been accused of living in the past and not doing the job it is supposed to do. The Vocational Education Act of 1963 has encouraged vocational education to change this image.

The Michigan Research Coordinating Unit (RCU) undertook the task of trying to find out some things that might help to improve and up-date and keep up-dated vocational education in Michigan.

The RCU proposed to study the process of change in vocational education within the public schools of Michigan. It was believed that in order to fulfill the functions of Stimulation, Coordination, and Dissemination the RCU needed to know more about the target systems, the local schools. Some of the questions to which answers were needed were: Who are the local schools? How do they react to change and innovations? Who are the opinion leaders and who are the followers? How do they communicate with one another? How soon after research do they begin putting research findings into practice?

Answers to these questions would make it possible to establish a communication network throughout the State for the diffusion of future vocational education innovations. Such a network would enable vocational education to help shorten the time lag between research and the implementation of research in the local schools.

One of the best methods of determining both opinion leaders and communication channels was described by Rogers[1] when he discussed the

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[1]Everett Rogers, Diffusion of Innovations, New York: The Free Press of Glencoe, 1962.

process of diffusion of innovations. Opinion leaders tend to be early adopters of innovations and tend to serve as role-models for others in the area.

It was felt that the findings from a study of the diffusion process of vocational education innovations in the State of Michigan would enable the RCU to utilize the existing communication network and leadership structure to more adequately stimulate, coordinate, and disseminate vocational education research.

As Rogers suggested at a meeting at Boyne Mountain in September, 1965, it would be well for education to study its diffusion process, determine who the adopters and the followers are if we are going to get acceptance of new methods and programs in our Michigan schools. A precedent for this type of study can be found in former Superintendent Bartlett's "5 Years of Change," which followed the diffusion of several academic innovations.[2] The study of the Diffusion Process of Vocational Education Innovations differed from the "5 Years of Change" study in two major respects: (1) It was concerned only with vocational education innovations, a noticeable omission from the Bartlett study, and (2) it was concerned only with the diffusion and communication of innovations whereas the Bartlett study was much broader in nature.

METHODOLOGY

It was determined that each of the vocational service areas included in the study would list some relatively new practices within their particular field, which would vary in terms of recency of invention, complexity, and cost.

From these lists the RCU Resource Committee, consisting of a representative from each of the Services within the Division of Vocational Education, selected the five practices that were used in the study. A questionnaire form was devised with the help of Dr. Everett Rogers, which could provide the information needed to supply answers to the important questions previously mentioned. (See Appendix A)

After the practices were selected and the questionnaire developed, it was sent out to all schools in Michigan having reimbursable programs of vocational education.

The survey itself consisted of four separate studies, one for each service area. All schools received two or more different forms, making a total of 1594 questionnaires. Forms were sent to 600 schools having both Office Education and Home Economics Education.

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[2]Lynn M. Bartlett, "5 Years of Change," Lansing: The Department of Public Instruction, 1964.

Agricultural Education forms were sent to 205 of these schools, and 189 received Trade and Industrial Education forms. Because of the lateness in the school year, which prevented a follow-up, and because of the difficulty in answering that confronted new teachers it was felt that the responses received from the survey were very good. The responses by service are shown in Table 1.

TABLE 1

SUMMARY OF RESPONSES

	Number of Schools Sent Surveys	Number of Schools Responding with 1 or More Surveys	% of Schools Responding
TOTALS	600	362	60.3%
Services			
Agriculture	205	118	57.6%
Business	600	265	44.2%
Home Economics	600	280	46.7%
Trade & Industry	189	100	52.9%

TIME LINES

For each of the service areas surveyed the information was transferred onto the charts and tables found in the respective sections of this report. It was found that time lines did exist for the practices surveyed. It can be seen that various forms of the "S" Curve of adoption rate were discovered. The curves range from very subtle ones in the T & I area (where the practices were not well defined) to rather obvious ones in the other service areas. One interesting thing that can be seen from these lines is that there is a definite relationship between the adoption of some of the practices and the Vocational Education Act of 1963. An example of this can be seen in the time lines for Agricultural Education Practices No. 1 and No. 2 as shown on page 8.

The time line for Practice No. 1, Land Laboratory, begins slowly with early adopters and gradually grows, moving diagonally across the chart. This is described by Dr. Rogers as a "spontaneous" adoption curve.

Practice No. 2, Off-Farm Supervised Experience Program, gives an entirely different adoption time line. This practice began in 1948 and did not get underway to any extent until 1963-64, the beginning of the Vocational Education Act of 1963. The shape of the time line for this practice was probably affected by legislation. The Smith-Hughes Act emphasized farming and discouraged off-farm experiences of students. Those schools adopting the practice prior to passage of the Vocational Education Act of 1963 were truly innovators.

The 1963 Act encourages off-farm experience programs and with the obvious results. This is what Dr. Rogers describes as a "directed" adoption of an innovation. The idea was first held back by legislation and later encouraged or released.

COMMUNICATION NETWORK

Channels and networks of visitation were developed from the responses. For each practice in each service area visitations were reported both by the visiting and the visited schools. (See Charts c) From this it would seem that given the proper leadership, exposure of demonstration programs should help the spread of new ideas in vocational education. The networks of visitation are shown in the respective sections of this report.

SOURCES OF INFLUENCE

Responses as to the way in which the school became convinced to adopt a given practice indicated that most schools had many different kinds of exposures before the practice was adopted. Many schools did not interpret the question to mean which of the items was most important and they made several responses without any given order of importance to them.

Of the schools responding to this question, more than half made two or more references as to factors involved in causing them to adopt a practice. The schools were not asked to indicate which of the items was most important in the decision for adoption where more than one item was checked. Therefore, the only information that can be derived from the responses is a list of the times each item was mentioned without any relative weight attached to the responses.

NEW IDEAS

Respondents were asked to indicate what new things they were doing and what they considered to be new practices in their area. For each of the service areas lists of these two things are included. This may serve as a start for the pooling of new ideas so that they may become systematically spread throughout the State.

IDENTIFICATION OF INNOVATIVE SCHOOLS

One of the main objectives of the study was to identify a communication network, if one existed, for the purpose of developing a systematic approach to the spread of educational innovations in vocational education. The task was to make use of the information available from the study for this specific purpose. An effort was made to work as many different responses into the evaluation procedure as possible to reduce the margin of error in the identification process. Actual use was made of b, c, and d items from questions 1-5; and of questions 7, 9, and 10. These data were used in the following ways:

First, lists of schools were made for each practice by year of adoption. From these lists some schools were identified as early adopters by reason of being among the first to use such practices in their programs. From the five lists for each service a separate list was made of the schools that appeared on two or more of the practices as early adopters. It was felt that schools which appeared on this combination list might fit the classification of "innovative" schools.

Secondly, lists were made of the schools by the number of practices adopted regardless of year. This information would bring in newer schools which by fact of newness would not show on the early adopter list but which might be more likely to be innovative than others. An additional look was taken to see which schools were still using the practices as this could have some meaning as to how well the personnel involved in the school were able to plan and implement the practice. (It is recognized that there may be many other factors involved in whether or not a school continues to use a practice over a period of time, but this is the reason the particular item was used.)

Thirdly, consideration was given to whether or not the school (vocational education personnel) had observed any new or different practices within their field. It is felt that an innovative school would be one in which an interest in new ideas and new developments exists. An indication of this might be given by observation of something new. Probably both administrators and teachers would be in accord in situations where visits outside of the school were involved.

Fourthly, a look was taken at whether or not something new was being tried within the particular vocational education field within the school. Since so many new ideas and practices are currently being developed it seems likely that a school which is truly innovative would be trying something new. Here we are not thinking necessarily of new courses but rather something within a course or even a teaching method.

Last, consideration was given to the rating given to the school by the person responding to the survey. It seems that an atmosphere for innovation would be obvious to the personnel within a school, if such an atmosphere existed.

The above mentioned items were taken all together in order to arrive at a list of schools for each service which might be among the more "innovative" vocational education schools within the State of Michigan.

After such a list was made for each of the four areas surveyed, an effort was made to combine the four vocational areas into one list of schools in which vocational education and innovation were strongly entrenched. The final identification was made in connection with representatives of the service areas at the State Vocational Education office. The final step was to map the schools identified in an effort to see how these schools were distributed geographically.

USES

It is hoped that the network identified can be used to the benefit of vocational education in general. This may be accomplished through the involvement of the school's personnel in the responsibility for the advancement of vocational education.

The first use of this information was made in selecting and inviting personnel from the identified schools to a Research Training Workshop held October 25-27, 1966, at the Kellogg Center for Continuing Education, Michigan State University, East Lansing, Michigan, sponsored jointly by the Michigan Research Coordinating Unit and Michigan State University's College of Education.

Specific information about the practices and service areas is found in the individual reports by service.

PART II--Section 1

AGRICULTURAL EDUCATION

The Agricultural Education survey form was distributed to 205 different high schools within the State of Michigan. Responses were received from 118 schools or 57.6 percent.

It was hoped that the analysis of these 118 surveys would provide us with some valuable information; such as:

1. Time lines showing the relative recency of the practices surveyed.

2. Identification of schools which were visited by other schools because of their innovativeness in adopting new ideas.

3. Identification of schools which adopted new practices early.

4. Identification of a communications network throughout the State which could be used to shorten the time lag in adoption of new practices.

5. Identification of school systems with favorable climate for demonstration, pilot, and research projects which would further the cause of vocational education.

6. Identification of new developments in each field of vocational education.

The five practices surveyed were:

1. Land Laboratory: A school forest or land rented or owned by the school or FFA which is used for crop, nursery, or livestock production for instructional purposes.

2. Off-Farm Supervised Experience Program: A program which gives students occupational experience in non-farm agriculture occupations and is under the joint supervision of the teacher of agriculture, or coordinator, and the employer.

3. Course for Students Entering Off-Farm Agriculture Occupations: A course with content designed specifically for preparation of students for non-farm agricultural occupations rather than the traditional preparation for production farming courses.

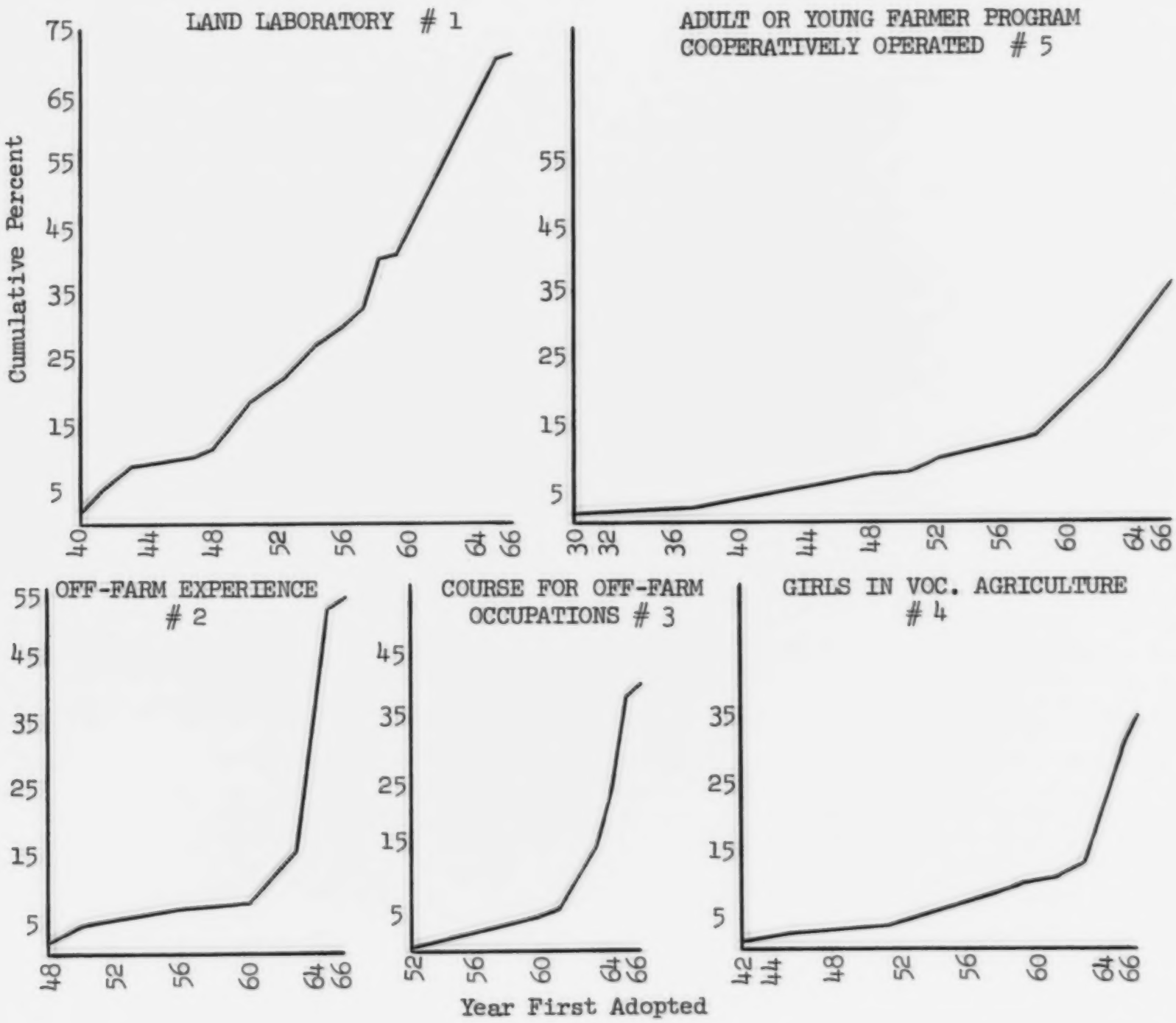
4. Girls in Vocational Agriculture on a Regular Basis: Self explanatory except that on a "regular basis" means that girls in agriculture has become a common practice rather than an occasional occurrence.

Section 1 - continued

5. Adult or Young Farmer Program Operated Cooperatively by Two or More Schools: Self Explanatory.

It can be seen from Chart 1a that these practices have been moderately adopted, with the exception of the more widely adopted Practice 1. It also can be seen that the adoption rate for these practices ranges from about 33% to about 72%. (It should be reported that several schools did not report the first year a practice was in use, so that Practice 1 actually has been adopted by 88% of the schools reporting.)

CHART 1a
ADOPTION TIME LINES



Section 1 - continued

An interesting point is the rather sharp increase in adoption of Practices 2, 3, and 4 corresponding to the Vocational Education Act of 1963. Another point of interest is that the first year of adoption reported ranged from 14 to 36 years ago. This points up the need for developing ways of giving new ideas and practices exposure and for reducing the time lag of adoption.

Three of the questions asked about each of the practices concerned Awareness, Adoption, and Demonstration. Awareness meant had you heard about the practice; adoption meant were you using the practice now; and demonstration meant had others come to observe the practice in your school. The responses to these questions are found in Table 1b.

TABLE 1b

Practices	Awareness		Adoption		Observed	
	#	%	#	%	#	%
1. Land Laboratory	118	100	103	88	48	41
2. Off-Farm Experience	118	100	78	66	12	10
3. Off-Farm Occ. Course	115	98	54	46	7	6
4. Girls in Voc. Agric.	114	97	41	35	5	4
5. Adult/Young Farmer Prog.	107	91	48	41	11	9

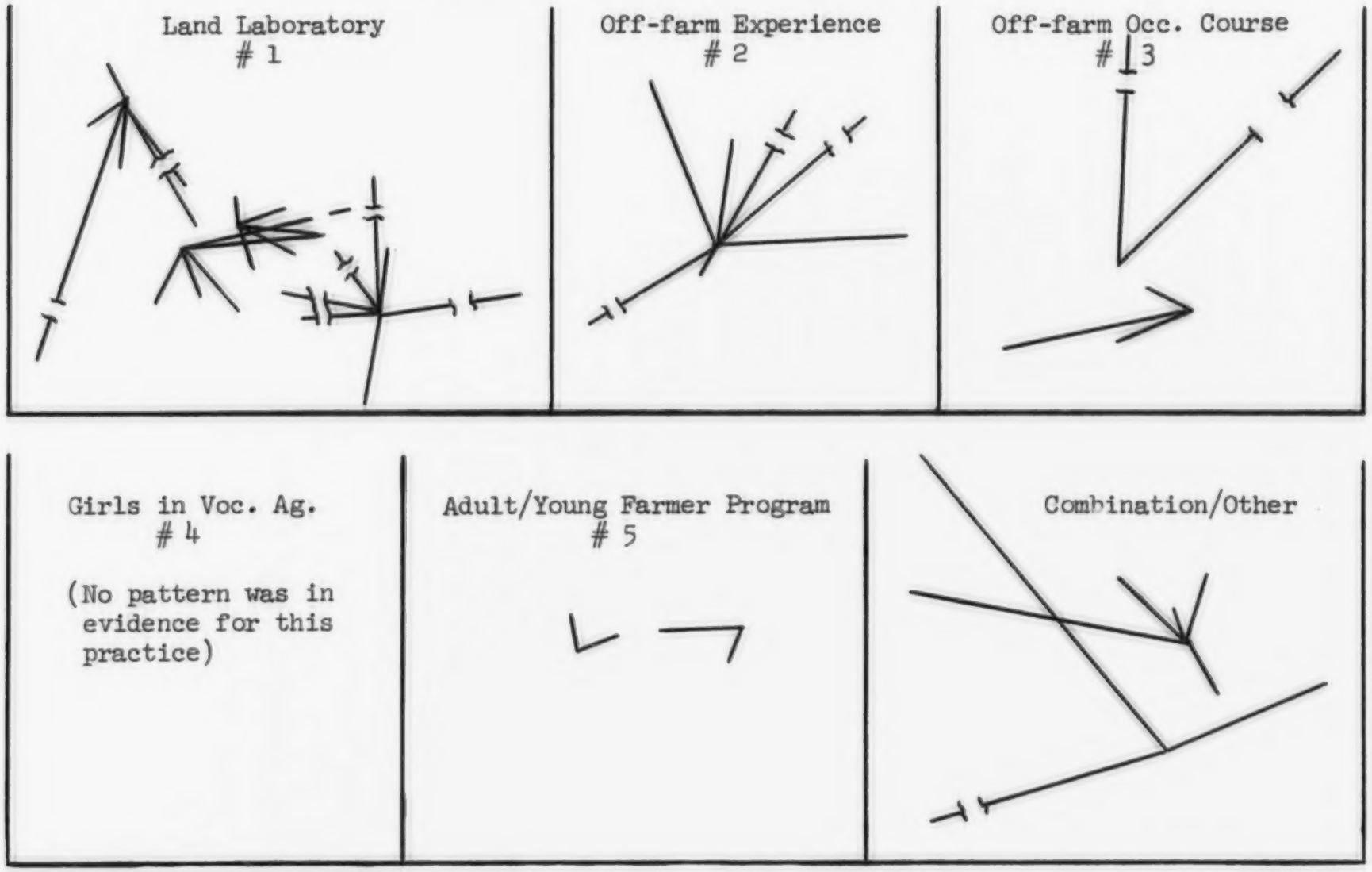
These figures indicate that these practices were widely known, and Table 1b indicates the percent of adoption. There was special interest in the demonstration responses because it is in this area that we hope to find some of the answers to the problems of time lag in adoption.

From 12% to 47% of the schools using the practices had been visited by other schools. From this information an effort was made to establish a communications network for these Agricultural practices. It was found that some patterns of visitation do exist (Chart 1c) which would indicate that given the proper leadership, exposure of demonstration programs should help the spread of new ideas in Agriculture as well as in vocational education in general.

Section 1 - continued

CHART 1c

VISITATION NETWORKS BY PRACTICE

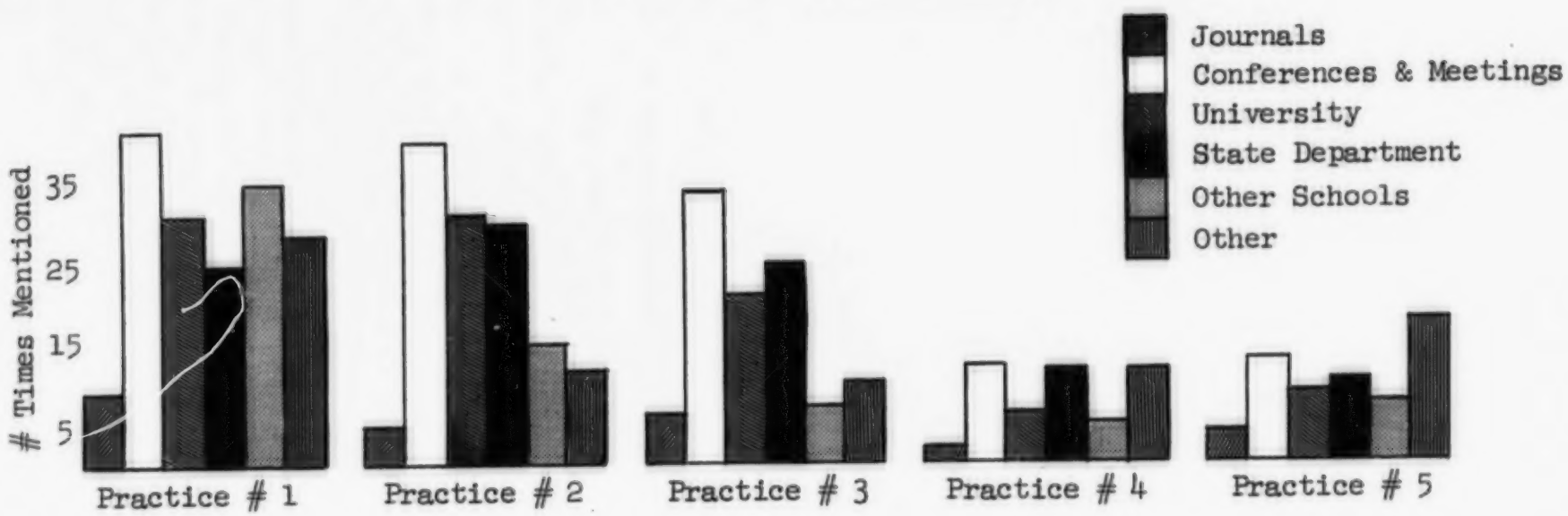


Section 1 - continued

Another area of interest in regard to the adoption of these particular practices dealt with the various sources of influence to adopt each practice (Chart 1d). From this it was found that there are often several sources of influence. In most cases more than one source was mentioned. For these particular practices several sources seemed to have considerable influence with conferences and meetings being the most consistently mentioned and journals being of least importance in each case.

CHART 1d

SOURCES OF INFLUENCE TO ADOPT



Section 1 - continued

Some general totals of interest concern the number of practices adopted by each school, the number of practices now in use, how many schools had observed a new practice within the last year, and how many schools were trying something new (Table 1e).

TABLE 1e

NUMBER OF PRACTICES ADOPTED			NUMBER OF PRACTICES NOW IN USE		
Adopted	Schools	%	Using	Schools	%
5	11	9.3	5	3	2.5
4	18	15.2	4	16	13.5
3	39	33.1	3	35	29.7
2	31	26.3	2	31	26.3
1	16	13.6	1	23	19.5
0	3	2.5	0	10	8.5
	118	100		118	100

OBSERVED NEW PRACTICES		TRYING NEW PRACTICE	
Schools	%	Schools	%
46	39.0	68	57.6

Section 1 - continued

Information given regarding the practices which schools reported going to visit is found in Table 1f. It is assumed that practices which attract observers would be somewhat of an innovative nature, at least to the extent that the practice was new in a particular geographic region.

TABLE 1f

PRACTICES OBSERVED IN OTHER SCHOOLS

Greenhouse
Drawing
Experience Program
Landscape Laboratory
Nursery
Steer Feeding
Floriculture
Conservation
Power Mechanics
Land Use
Work Study
Propagation Houses
Farm Mechanics
Plant Propagation
Horticulture
Plowing-Tractor Contests
Adult Education
School Farm
Science in Agriculture
Off-Farm Experience
FFA Activities
Plant Bed
School Pond
School Forests
Corn
Swine
Co-op

Practices reported as newly being tried within a school are shown in Table 1g. These practices may or may not reflect the influence of visits to other schools. It might be assumed that most of the new practices being tried would be patterned after observed practices. However, some of the new ideas being tried might be of a truly innovative nature.

TABLE 1g

NEW PRACTICES BEING TRIED

One semester program of special problems for seniors
Advanced courses in mechanics work (Agriculture)
Semester courses; Ag. projects for private homes
Honest approach to achieving success in FFA; adult courses
More forestry; surveying course; contests; livestock sale
Exchange of Agriculture and Home Economics classes for 6 days
Group according to interest; students supervise class
Floriculture; sheep project; greenhouse; vegetable growing
Reduce labor in dairying; 2-year farm mechanics
Landscaping and gardening; ornamental horticulture
Relation of all to Agriculture; girls in vocational ag.
Slides of homes with a landscape architect as resource person
Vocational agriculture for junior high students
Sap projects for community (evaporation)
Electrical training for farm and non-farm students

Section 1 - continued

Table 1h lists the responses to the question, "In your opinion, what are the most important new ideas and practices in your field?". These are single responses for the most part with no selecting or editing done for this report. Items in the list may or may not reflect the latest developments within the field and should be treated with caution in terms of adoption or promotion.

TABLE 1h

NEW IDEAS IN FIELD

Integration of farm and off-farm related occupations
Methods of showing agricultural job opportunities
Placement in ag-related occupations
Combination of vocational and technical skills
Broadened ag. training (forestry and conservation)
Ag. outside farming
Girls in vocational agriculture
Land laboratories
Plant study
On-job training
Automation
More ag. opportunities available
Ornamental horticulture
Field trips and films
Meeting of student needs
Area vocational programs
Silage feeding to dairying
First 2 years allow for non-farm persons; last 2 years farm persons only
Occupational surveys
Animal science
Nursery
Use of chemicals, mechanical picking equipment
Greenhouse
Technical training ag.
Free-stall housing
Automation of potato industry

Section 1 - continued

The last Table, 1i, lists practices that have been tried but discontinued. The reasons for discontinuing these practices could be an area for careful consideration, for there may be some information pertinent to the development of new practices and the pitfalls that face any new program ideas. This is largely a single-response (unedited) list.

TABLE 1i

INEFFECTIVE PRACTICES TRIED

Cropping program- no work done without nominal fee
Shop- no equipment, lack of qualified personnel
Horticulture course-
Disease control-
New crop varieties-
Combined FFA from HS-lack of leadership
Using more principle less practice-
Using grade sheets and FFA as part of grade-
FFA meetings right after school-transportation, no coordination
Course arrangements-
Program and opportunities not large enough-
Weed control-moisture
Inbreeding hogs-small litter size
Co-op farm plots-
Veal production on milk replacer-volume not large enough
All students in agriculture- lack of interest
Students select area of study-lack of interest
Landscaping experience-lack of time, interest
Putting together agricultural machinery-lack of time
Upgrading classes-
Reduced size of land laboratory-
Integrated farm and shop-unable to use shop
Gardens for freshmen-summer, lack of interest
School nursery-limited area
FFA buy brod gilts-lack of money
Planting trees-too large of a job
Young farmer meetings separate from adults-farming is a partnership
Agriculture II as a science course-lack of equipment
Instruction in ag. occupations-dull
Raising calves at school-too many students feeding, not good facilities
Raising of crops-summer, lack of interest, loss of money
Greenhouse-vandalism, lack of interest
Teach how to calibrate a sprayer-
Renting of land-didn't use it all
Classroom work with resource persons-lack of participation
Finding jobs for those in agriculture-students leave for higher pay
Class for non-farm bound agriculture students-lack of time
Sold SMV emblems-slow, little demand
Grew popcorn-no demand
Grafting and top working old apple trees-impractical
Christmas trees-weeds, started too late

Section 1 - continued

In Summary

It is hoped that this information will be of use to vocational education and that it can be used in such a way that the change process within vocational education is speeded and made less haphazard. We do not have all the answers to the problems of adoption of new practices, but hope that some things can be started which will help to provide answers and to help improve vocational education in the high schools. The reader is encouraged to make any suggestions known to the Research Coordinating Unit in regard to the use of the Diffusion Study data and in connection with new ideas within the field of vocational education.

PART II--Section 2

BUSINESS--OFFICE EDUCATION

The Business--Office Education survey form was distributed to 600 different schools within the State of Michigan. Responses were received from 265 schools or 44.2 percent.

It was hoped that the analysis of these 265 surveys would provide us with some valuable information; such as:

1. Time lines showing the relative recency of the practices surveyed.

2. Identification of schools which were visited by other schools because of their innovativeness in adopting new ideas.

3. Identification of schools which adopted new practices early.

4. Identification of a communications network throughout the State which could be used to shorten the time lag in adoption of new practices.

5. Identification of school systems with favorable climate for demonstration, pilot, and research projects which would further the cause of vocational education.

6. Identification of new developments in each field of vocational education.

The five practices surveyed were:

1. Audio Laboratory for Shorthand Skills Training: A laboratory classroom utilizing records and commercially- or teacher-prepared tapes for the development or improvement of skills in shorthand or typing.

2. Overhead Projector with Overlays: The use of an overhead projector and either commercially- or teacher-prepared transparencies.

3. Motorized Visual Aids--Skill Builders: This approach to teaching is concerned with the utilization of commercially-prepared skill-building programs (such as the EDL typewriting and shorthand series).

4. Teaching "Concepts" in Data Processing: This does not mean instruction utilizing expensive hardware. The approach refers to teaching the basic elements and theory underlying data processing operations.

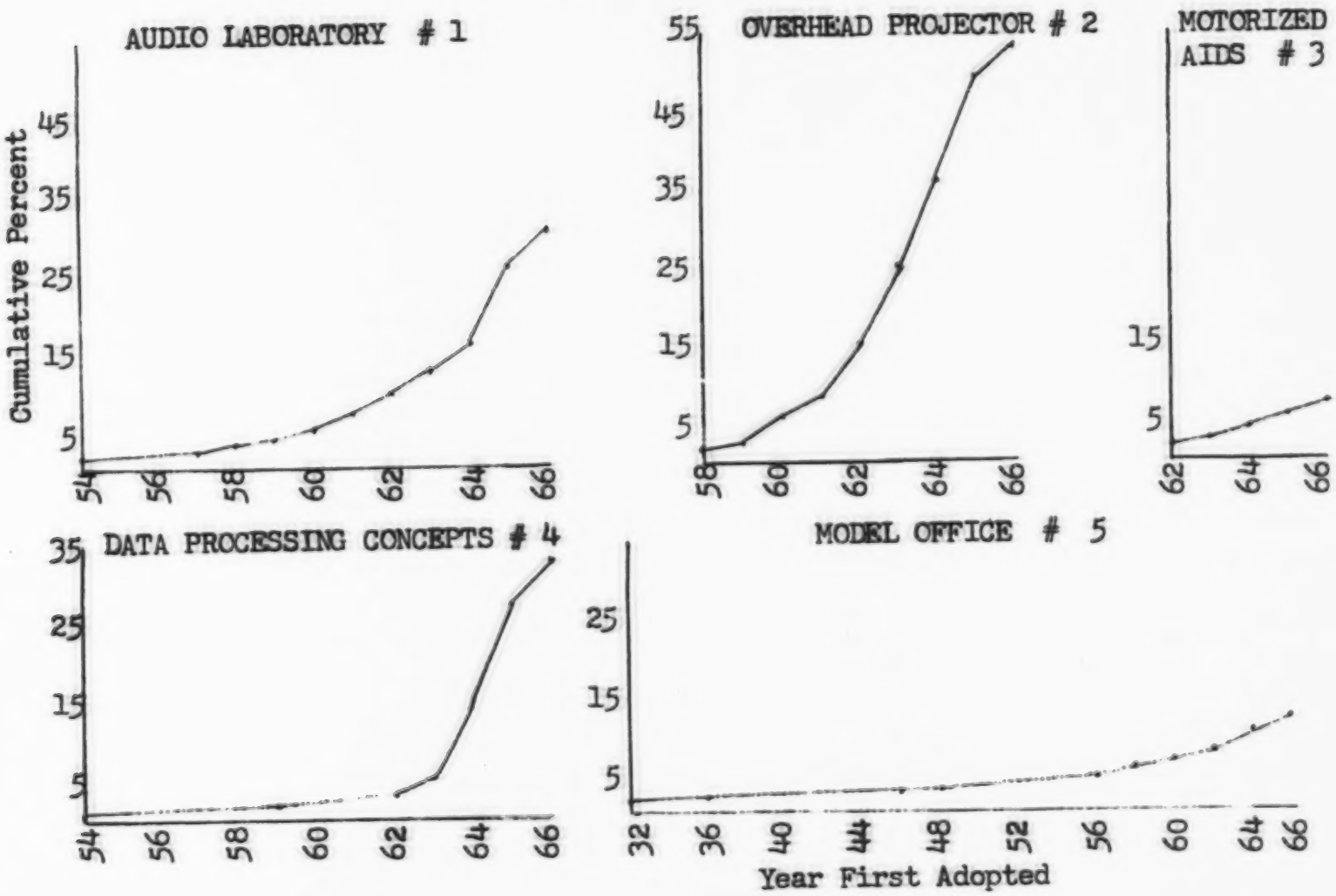
Section 2 - continued

5. Model Office: A simulated business office, furnished with typical, modern office furniture and equipment, and designed in such a manner as to provide the student with the opportunity to apply her skills in a situation closely resembling the operation of an actual business office.

It can be seen from Chart 2a that these practices have not been widely adopted, with the exception of Practice 2. It also can be seen that the adoption rate for these practices ranges from about 5% to 53%. (It should be noted that several schools did not report the first year a practice was in use, so that Practice 2 actually has been adopted by 64% of the schools reporting).

CHART 2a

ADOPTION TIME LINES



Section 2 - continued

An interesting point is the recent sharp increase in adoption of Practices 1, 2, and 4, all of which have some relation to recent Federal legislation related to the use of equipment. Another point of interest is that the first year of adoption reported ranged from 4 to 35 years ago. Except for the most recent innovative practice, the time lag of adoption indicates a need for developing ways of giving new ideas and practices exposure.

Three of the questions asked about each of the practices concerned Awareness, Adoption, and Demonstration. Awareness meant, had you heard about the practice; adoption meant, were you using the practice now; and demonstration meant, had others come to observe the practice in your school. The responses to these questions are found in Table 2b.

TABLE 2b

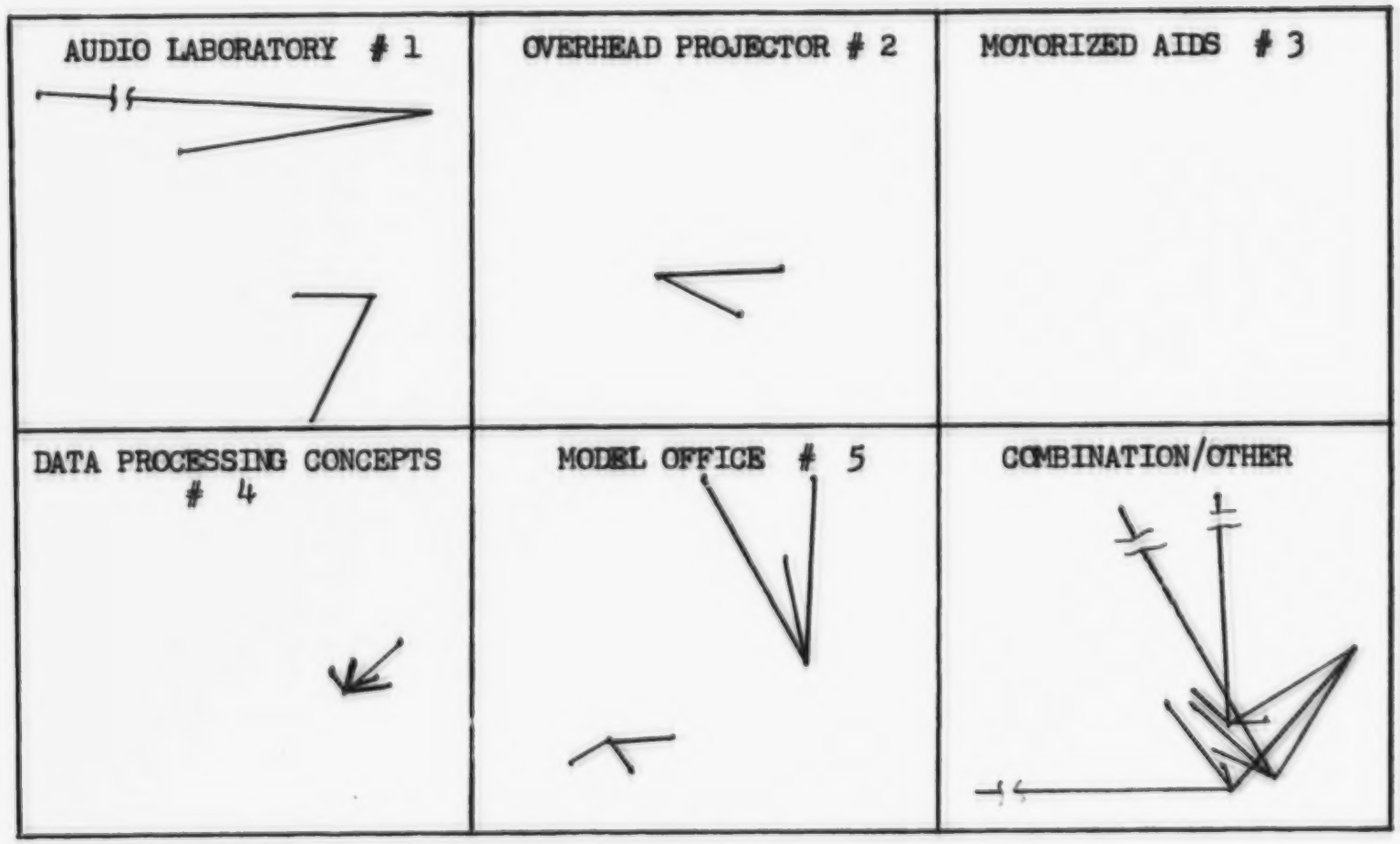
Practices	Awareness		Adoption		Observed	
	#	%	#	%	#	%
1. Audio Laboratory	257	97	84	32	12	5
2. Overhead Projector	262	99	169	64	12	5
3. Motorized Visual Aids	189	71	16	6	3	1
4. Data Processing Concepts	249	94	89	34	9	3
5. Model Office	245	92	31	12	8	3

Section 2 - continued

These figures indicate that these practices were widely known with the exception of Practice 3, which is the most recent innovation and was unknown to about 30% of the respondents. There was special interest in the demonstration responses because it is in this area that we hope to find some of the answers to the problems of time lag in adoption. It was found that from 7% to 26% of the adoptor schools had been visited for these practices. It would seem, therefore, that for these practices, or possibly for office education in general, other sources of influence play larger roles in the spread of practices. It was found, however, that some patterns of visitation did exist (Chart 2c) which would indicate that given the proper leadership, exposure of demonstration programs should help the spread of new ideas in Office Education as well as vocational education in general.

CHART 2c

VISITATION NETWORKS BY PRACTICE

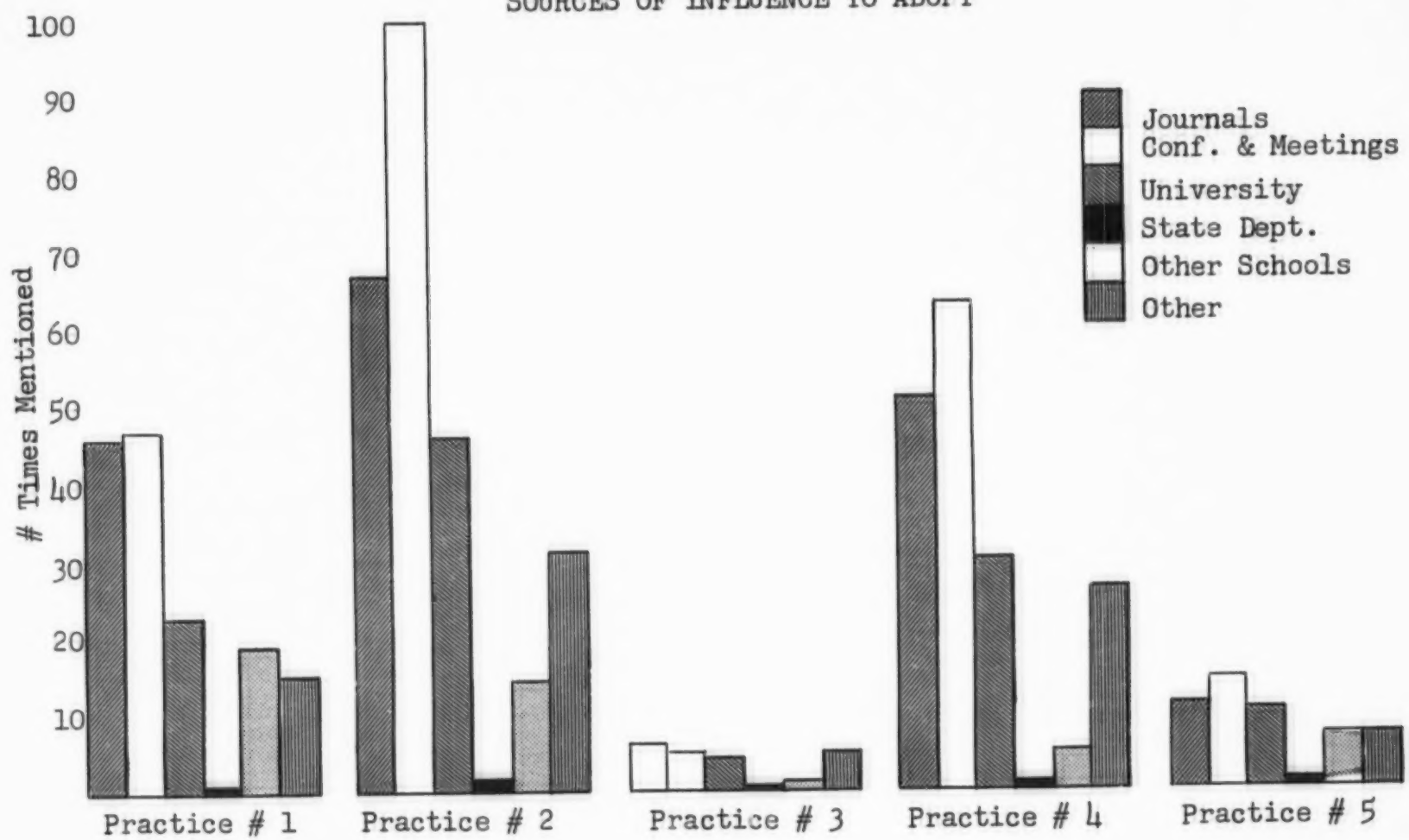


Section 2 - continued

An area that may be even more significant as far as Office Education practices are concerned dealt with the sources of influence to adopt the practices surveyed (Chart 2d). It can be readily seen that the most significant sources of influence were Conferences & Meetings and Journals. It may be that the nature of the practices surveyed resulted in this picture and that a different set of practices less connected with equipment would show a different picture.

CHART 2d

SOURCES OF INFLUENCE TO ADOPT



Section 2 - continued

Some general totals of interest concern the number of practices adopted by each school, the number of practices now in use, how many schools had observed a new practice within the last year, and how many schools were trying something new (Table 2e).

TABLE 2e

NUMBER OF PRACTICES ADOPTED			NUMBER OF PRACTICES NOW IN USE		
Adopted	Schools	%	Using	Schools	%
5	0	0	5	0	0
4	9	3.4	4	6	2.3
3	48	18.1	3	40	15.1
2	72	27.2	2	60	22.6
1	74	27.9	1	84	31.7
0	62	23.4	0	75	28.3
	265	100		265	100

OBSERVED NEW PRACTICE		TRYING NEW PRACTICE	
Schools	%	Schools	%
62	23.4	109	41.1

Information given regarding the practices which schools reported going to visit is found in Table 2f. It is assumed that practices which attract observers would be somewhat of an innovative nature, at least to the extent that the practice was new in a particular geographic region.

TABLE 2f

PRACTICES OBSERVED IN OTHER SCHOOLS

Steno Laboratories	Typing Via Television
Modular Scheduling	Key Punch
Model Office	Audio Laboratory
Visual Aids	Shorthand Course
Laboratories	Office Machines
Data Processing Machine	Co-op
Lab Work in Typing	Mimeograph

Section 2 - continued

Practices reported as newly being tried within a school are shown in Table 2g. These practices may or may not reflect the influence of visits to other schools. It might be assumed that most of the new practices being tried would be patterned after observed practices. However, some of the new ideas being tried might be a truly innovative in nature.

TABLE 2g

NEW PRACTICES BEING TRIED

Adding co-op and vocational programs to the curriculum
Use of modern textbooks and teaching aids
Rotating wheel for the use of office machines in office practice
Use of personal typing and notehand for the academic student
Work in outside organizations
Student operated book and retail store
Key punch introduction and practice
Data processing kits with workbooks
Overhead projectors in typing
Offset printing
Co-op education
Character development
Varied dictation techniques
Student centered bookkeeping classes
Group work
Year-round co-op
Blackboard approach to key punching
Exploratory business
Practical office class
Individual study plan
Use of telephone and office procedures
Stiff penalities to improve proofreading
Use of resource people
Integrated typing and shorthand
Xerox and modern machines and usage
Block time
Team teaching

Section 2 - continued

Table 2h lists the responses to the question, "In your opinion, what are the most important new ideas and practices in your field?". These are single responses for the most part with no selecting or editing done for this report. Items in the list may or may not reflect the latest developments within the field and should be treated with caution in terms of adoption or promotion.

TABLE 2h

NEW IDEAS IN FIELD

Teaching data processing or at least an introduction to data processing
Teaching of key punch, use of the IBM typewriter
Teaching of typing and bookkeeping on different levels in same class
Use of overhead projector and overlays
Use of audio visual equipment
Shorthand laboratories
Films, records, tapes, and slides
Automated equipment
Advanced typing, shorthand, and bookkeeping
Work for the advanced students within the school
Model office
Co-op program
New advancements in office machines and the increased use of electric typewriters
Developing attitudes needed in business in the schools
Distributive education
Teaching of economics and distributive education
EDL skill building dictation sets
Federal government recognition of value of office education
Practice sets
Typing in elementary grades
Skill building
Vocational education
Exploratory business
Television in schools
Diamond jubilee in shorthand
Independent study
Teaching to ability
Modernization of ideas and practices
Production typing
On-the-job training
Team teaching and modular scheduling

The last Table, 2i, lists practices that have been tried but discontinued. The reasons for discontinuing these practices could be an area for careful consideration, for there may be some information pertinent to the development of new practices and the pitfalls that face any new program ideas. This is largely a single-response (unedited) list.

TABLE 2i

INEFFECTIVE PRACTICES TRIED

Use of EDL in introducing keyboard in typing-
Students use of time cards-
Coordinating typing and office practice-
Giving just one semester of advanced typing-made typing too vocational and college bound were afraid to take it because of the standards
Teaching office practice-lack of proper equipment
Overhead projector with overlays-surface too small, crowded
Taking a survey of local businesses to see what is needed for the Business Education Department-lack of interest from business
Laboratories-
Open book tests in shorthand-speeds too low
Filing on an individual basis-lack of time
Key punch with IBM Selectric-lack of materials
Self-directed study-didn't know how to direct themselves
Large assignments instead of many little ones-students get discouraged
Personal typing-poor textbook

In Summary

It is hoped that this information will be of use to vocational education and that it can be used in such a way that the change process within vocational education is speeded and made less haphazard. We do not have all the answers to the problems of adoption of new practices, but hope that some things can be started which will help to provide answers and to help improve vocational education in the high schools. The reader is encouraged to make any suggestions known to the Research Coordinating Unit in regard to the use of the Diffusion Study data and in connection with new ideas within the field of vocational education.

PART II--Section 3

HOME ECONOMICS EDUCATION

The Home Economics Education survey form was distributed to 600 different high schools within the State of Michigan. Responses were received from 280 schools or 46.7 percent.

It was hoped that the analysis of these 280 surveys would provide us with some valuable information; such as:

1. Time lines showing the relative recency of the practices surveyed.

2. Identification of schools which were visited by other schools because of their innovativeness in adopting new ideas.

3. Identification of schools which adopted new practices early.

4. Identification of a communications network throughout the State which could be used to shorten the time lag in adoption of new practices.

5. Identification of school systems with favorable climate for demonstration, pilot, and research projects which would further the cause of vocational education.

6. Identification of new developments in each field of vocational education.

The five practices surveyed were:

1. Wage Earning Course: Any course involving home economics knowledge and skills that prepares youth and/or adults for gainful employment upon completion. Such a course is taught by, or under the supervision of, a home economics teacher.

2. Play School in Teaching Child Development: A planned and organized play school for pre-schoolers that is conducted by home economics or family living classes as part of a unit on the understanding and guidance of children.

3. Teaching with Television: Home economics classes where television is used as a method of classroom instruction.

4. A Home and Family Living Class for Senior High School Boys and Girls: A specialized semester or full year's course for girls and boys in senior high school.

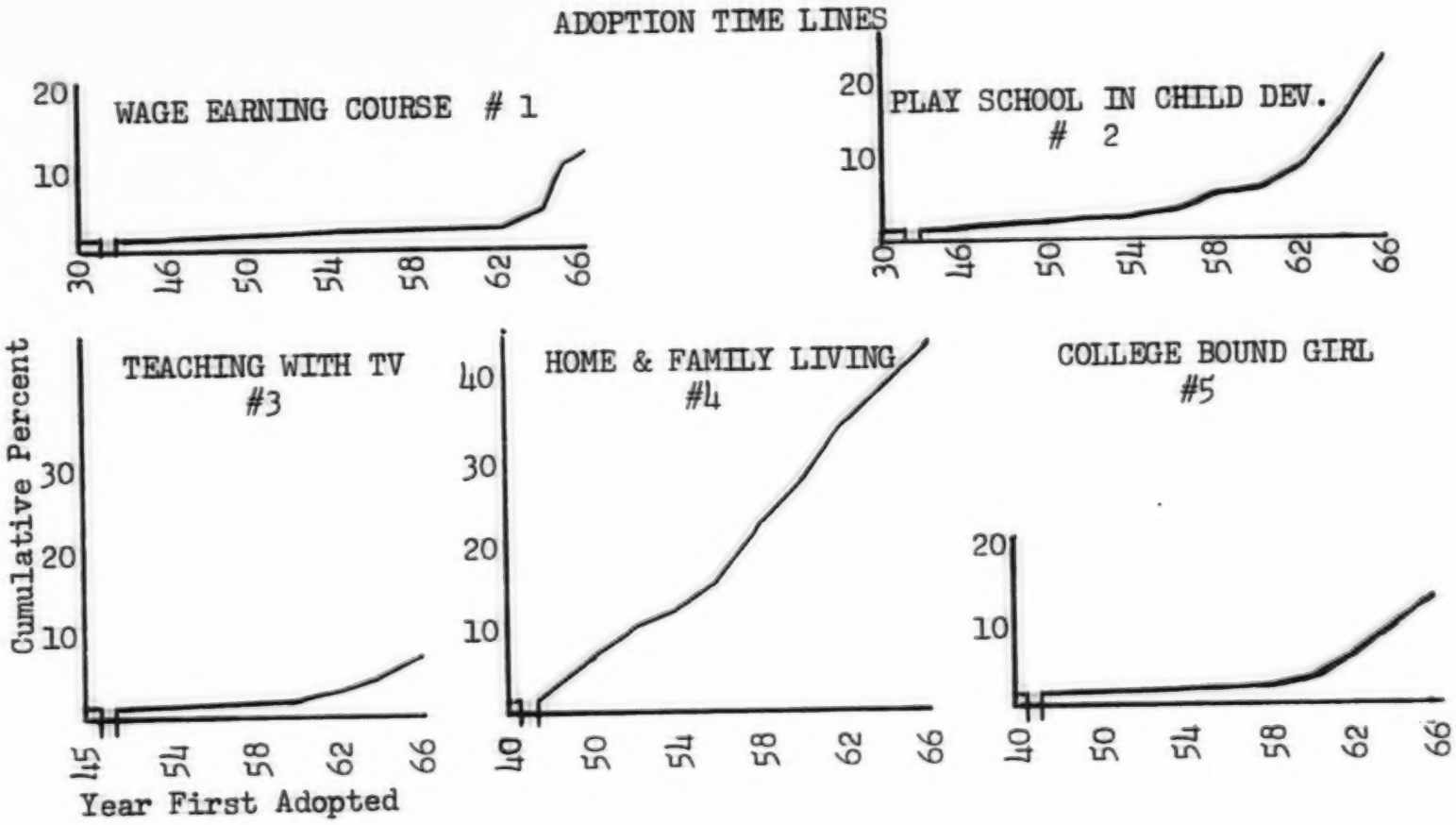
Section 3 - continued

5. A Home Economics Course for the College-bound Girl: A course specifically designed for college-bound senior girls who may or may not have had previous classes in home economics.

It can be seen from Chart 3a that these practices have not been widely adopted, and are relatively new Home Economics Education developments. With the exception of Practice 4, all of the practices still are not widely adopted and show an upswing only within the last 5 to 8 years. It is readily seen from this chart that all of the practices were first adopted, according to our study, twenty or more years ago. This points up the need for developing ways of giving new ideas exposure and for reducing the time lag of adoption.

CHART 3a

ADOPTION TIME LINES



Section 3 - continued

Three of the questions asked about each of the practices concerned Awareness, Adoption, and Demonstration. Awareness meant, had you heard about the practice; adoption meant, were you using the practice now; and demonstration meant, had others come to observe the practice in your school. The responses to these questions are found in Table 3b.

TABLE 3b

Practices	Awareness		Adoption		Observed	
	#	%	#	%	#	%
1. Wage Earning Course	258	92	37	13	8	3
2. Play School in Child Dev.	249	89	69	25	11	4
3. Teaching With Television	267	95	18	6	0	0
4. Home & Family Living	277	99	145	52	20	7
5. College Bound Girl	238	85	35	12	10	4

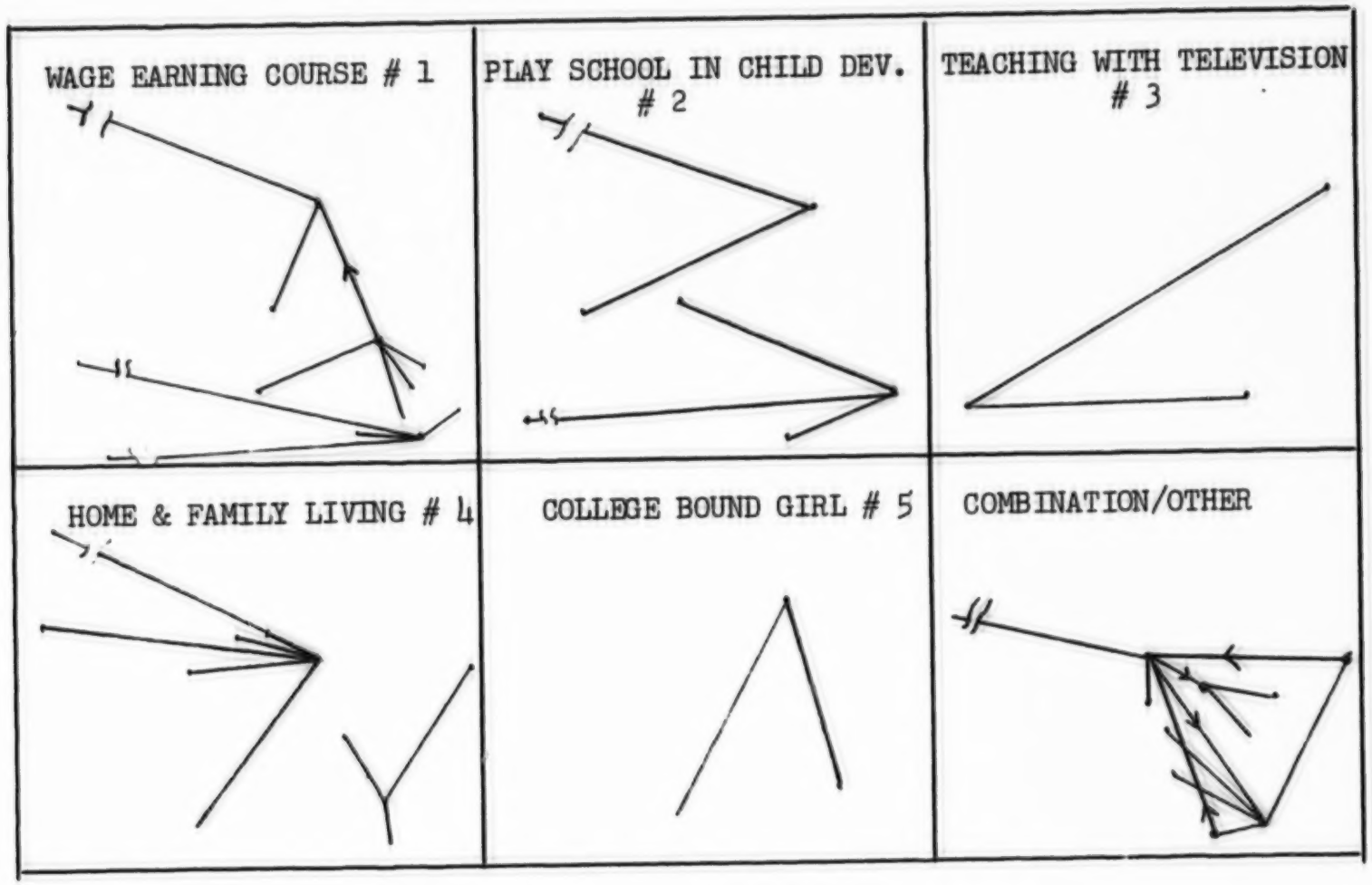
These figures indicate that these practices were widely known, and Table 3b indicates the percent of adoption among responding schools. There was special interest in the demonstration responses because it is in this area that we hope to find some of the answers to the problems of time lag in adoption. Except for the TV practice, from 14% to 29% of the schools using the practices had been visited by other schools. From this information we tried to establish a communications network for these Home Economics practices.

It was found that some patterns of visitation do exist (Chart 3c) which would indicate that given the proper leadership, exposure of demonstration programs should help the spread of new ideas in Home Economics as well as in vocational education in general.

Section 3 - continued

CHART 3c

VISITATION NETWORKS BY PRACTICE

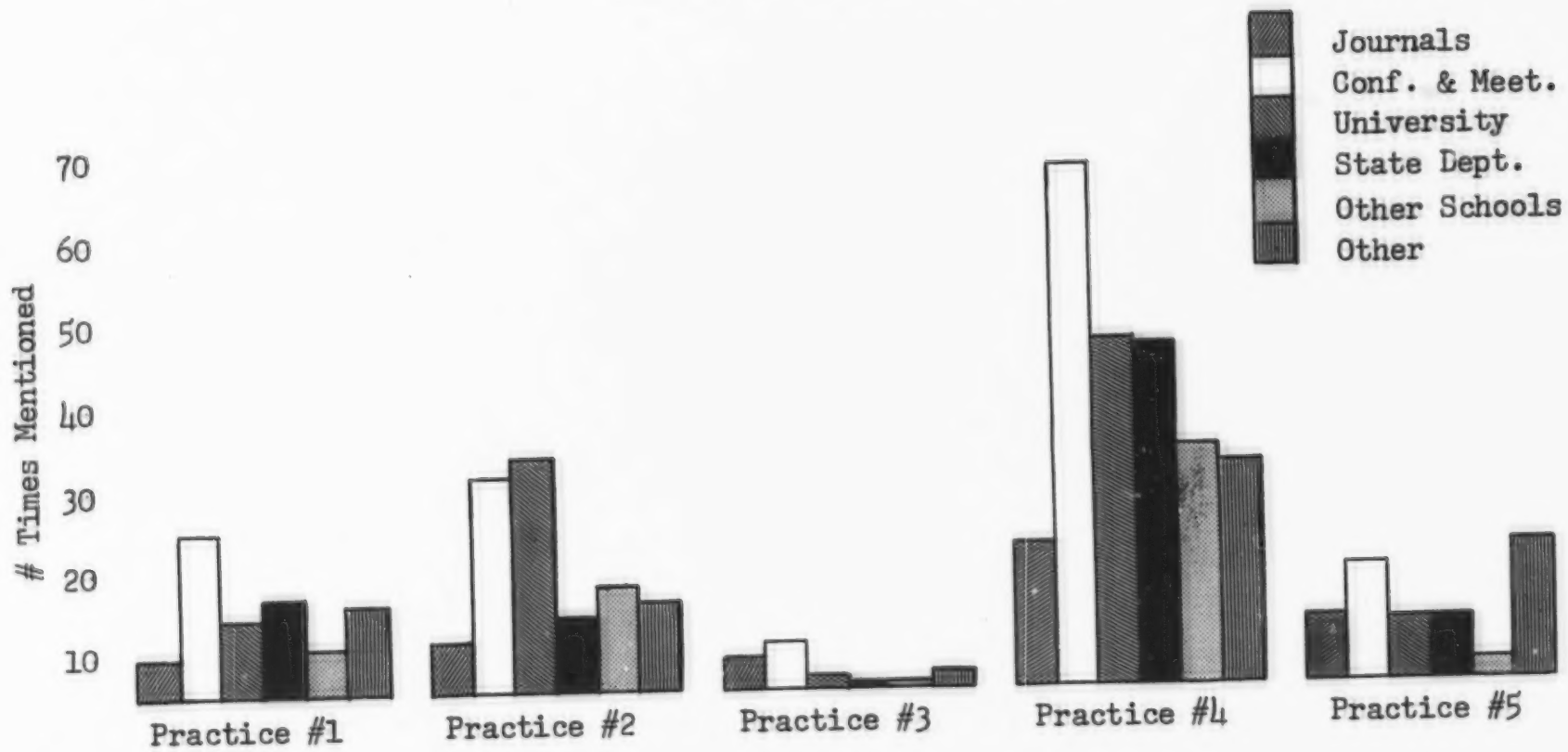


Section 3 - continued

Another area of interest in regard to the adoption of these particular practices dealt with the various sources of influence to adopt each practice (Chart 3d). From this we can see that there are often several sources of influence. In most cases more than one source was mentioned. It was interesting to find that meetings and conferences seem to be relatively important for the spread of new ideas. It was also notable that the Home Economics Service of the State Vocational Education Division seems to be of considerable importance and influence in the spread of new practices.

CHART 3d

SOURCES OF INFLUENCE TO ADOPT



Section 3 - continued

Some general totals of interest concern the number of practices adopted by each school (Table 3e), the number of practices now in use, how many schools had observed a new practice within the last year, and how many schools were trying something new.

TABLE 3e

NUMBER OF PRACTICES ADOPTED			NUMBER OF PRACTICES NOW IN USE		
Adopted	Schools	%	Using	Schools	%
5	1	.4	5	0	0
4	4	1.4	4	2	.7
3	17	6.1	3	10	3.6
2	57	20.4	2	39	13.9
1	120	42.8	1	114	40.7
0	81	28.9	0	115	41.1
	280	100		280	100

OBSERVED NEW PRACTICE		TRYING NEW PRACTICE	
Schools	%	Schools	%
48	17.1	126	45.0

Section 3 - continued

Information given regarding the practices which schools reported going to visit is found in Table 3f. It is assumed that practices which attract observers would be somewhat of an innovative nature, at least to the extent that the practice was new in a particular geographic region.

TABLE 3f

PRACTICES OBSERVED IN OTHER SCHOOLS

Supermarket Pricing
Senior Boys in Home Economics
Home and Family Living Classes
Wage Earning
Nursery School--Play School
Concentrated Effort on Less Talented Girls
Visual Aids
Wardrobe
Regular Home Economics
Commercial Foods in Wage Earning
Restaurant (Boys Class)
Home Economics for College-bound Girl
Television
Lunch Room Run by Home Economics Class
Adult Education
Pattern Making
Food and Health Program
Child Care
Value Teaching
Human Development
Clothing Craft
Scheduling
Mixed Home Economics
Student Participation

Practices reported as newly being tried within a school are shown in Table 3g. These practices may or may not reflect the influence of visits to other schools. It might be assumed that most of the new practices being tried would be patterned after an observed practice. However, some of the new ideas being tried might be of a truly innovative nature.

TABLE 3g

NEW PRACTICES BEING TRIED

Child development; Family life education; Sex education
Alterations; Decorating; Reports and demonstrations
Use of Anita Dowler Fielder's Student Notebook in Home Economics
Junior high boys in Home Economics; 4-H; FHA; Teaching on levels
Catering unit; Waitress training; Use of resource persons
Science course geared to Home Economics; Consumer economics
Exchange of classes with Agriculture and Shop
Meal planning and nutrition combined
Individual research and study for advanced students
Bishop Method of clothing construction
Using Michigan Vocational Curriculum Guide in Home Economics
Shared-time programs; Non-graded Home Economics
Life adjustment class; Food service programs
Hotel and motel training; Hospitality program
Slow learner courses; Work with handicapped

Section 3 - continued

Table 3h lists the responses to the question, "In your opinion, what are the most important new ideas and practices in your field?". These are single responses for the most part with no selecting or editing done for this report. Items in the list may or may not reflect the latest developments within the field and should be treated with caution in terms of adoption or promotion.

TABLE 3h

NEW IDEAS IN FIELD

Wage earning
Home Economics for the college bound
How families are important to our society
Home and family living for boys and girls
Consumer education
Teaching with television
Play school in child development
Home units
New types of foods, packaging
New methods of preparation for foods and clothing
Student learning how much his actions are influenced by his psychological needs
Class work combined with outside opportunity
Discussion in all branches of Home Economics
Rotation of schedule for junior high with music, etc.
Preparation for occupations
More information on entertaining
Student planning
Use of resource persons
Retailing
Homemaking services--girls go out and help others
Adult education
Generalizations
Less stress on foods and clothing
Restaurant management
Pre-job training
Modular scheduling
Money management
Classes for boys
Concept method for teaching
Emphasis on synthetics and textiles
Economic concept
Science in Home Economics
Practical applications
Modern approaches
Home Economics in lower grades
Use of cookbooks as supplements
Work with handicapped
Shared-time programs

Section 3 - continued

The last Table, 3i, lists practices that have been tried but discontinued. The reasons for discontinuing these practices could be an area for careful consideration, for there may be some information pertinent to the development of new practices and the pitfalls that face any new program ideas. This is largely a single-response (unedited) list.

TABLE 3i

INEFFECTIVE PRACTICES TRIED

Integrated a semester course in home science and home chemistry-
Role playing-students self-conscious
Classes for married girls-girls too busy, left at noon
Double activity-too complicated
Work in cafeteria, menus-lack of cooperation
Home Economics for boys-boys afraid to speak up
Home Economics into the summer-lack of cooperation and approval
Change of program from 4 years to 3 years-parent objection
Home Economics for 7th grade boys and girls-better off if only girls or only boys
Use of Vocational Guide for Home Economics in child development-
Trip to health center, lectures-nothing new
Summer classes in sewing-lack of control
Work with elementary school-
Group instruction in foods-unable to go on without formal instruction
Foods class for boys-lack of interest
Operated a bakery-lack of money
Boys' "chef" class-lack of discipline
Family health class-no teacher available
Time limits on foods and clothing-not completed on time
Students plan course-needed more direction
Required home and family living-lack of interest
Individual assignments-no interest, time
Tried to develop consumer economics-
Interior decorating-
Allow students to choose own project-too much diversity, lack of interest
Good grooming-
Nutrition and dietetics unit-lack of interest
Varying approaches-not inspiring enough
Advanced meal preparation-lack of interest
Generalizations-not effective
Unit on merchandising-lack of time
Scheduling-
Wage earning-lack of class time
Home and family living for seniors only-lack of interest
Field trips-red tape
Different furniture and material styles and repair-lack of time, money

Section 3 - continued

In Summary

It is hoped that this information will be of use to vocational education and that it can be used in such a way that the change process within vocational education is speeded up and made less haphazard. We do not have all the answers, but we hope that some things can be started which will help to provide answers to the problems of adoption of new practices, and of improving vocational education in the high schools. The reader is encouraged to make any suggestions known to the Research Coordinating Unit in regard to the use of the Diffusion Study data and in connection with new ideas within the field of vocational education.

PART II--Section 4

TRADE AND INDUSTRIAL EDUCATION

The Trade and Industrial Education survey form was distributed to 189 different high schools within the State of Michigan. Responses were received from 100 schools or 52.9 percent.

It was hoped that the analysis of these 100 surveys would provide us with some valuable information; such as:

1. Time lines showing the relative recency of the practices surveyed.

2. Identification of schools which were visited by other schools because of their innovativeness in adopting new ideas.

3. Identification of schools which adopted new practices early.

4. Identification of a communications network throughout the State which could be used to shorten the time lag in adoption of new practices.

5. Identification of school systems with favorable climate for demonstration, pilot, and research projects which would further the cause of vocational education.

6. Identification of new developments in each field of vocational education.

The five practices surveyed were:

1. Metals Program: A program which leads to the following occupations: machinist, machine repairman, machine operator, heat treater, welder, tool grinder, tool room clerk.

2. Woods--Other Soft Materials Program: A program which leads to the following occupations: cabinet maker, furniture maker, carpenter, pattern maker, machine operator, plastic molder, floor layers, plastic extrusion, construction.

3. Power Sources Program: A program which leads to occupations in auto mechanics and/or electricity-electronics.

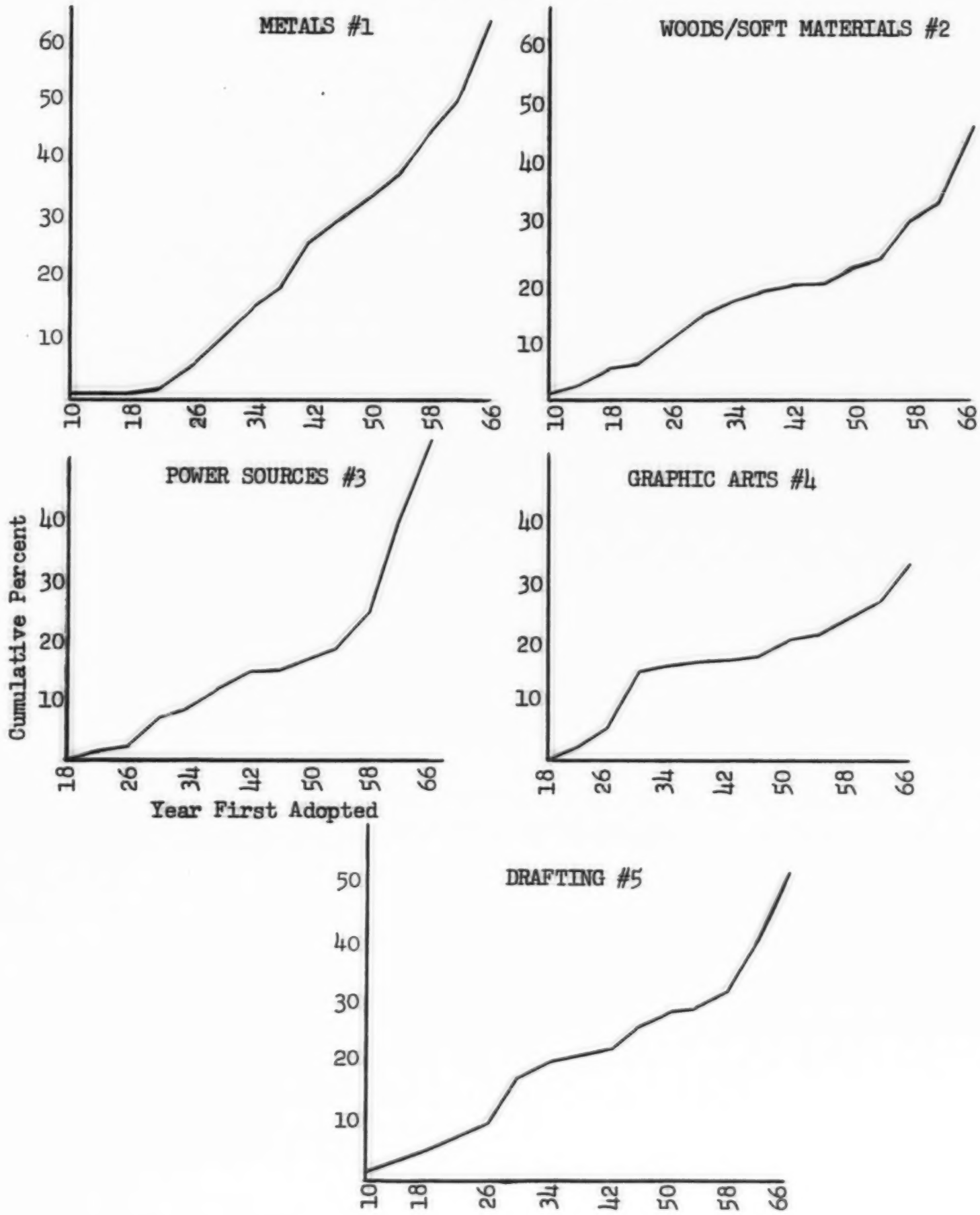
4. Graphic Arts Program: A program which leads to the following occupations: off-set pressman, letter pressman, bookbinder, compositor, machine repairman, cameraman, rubber stamp maker, commercial arts, vari-type.

5. Drafting Program: A program which leads to the following occupations: detailer, draftsman, tool designer, topographer, surveyor.

Section 4 - continued

CHART 4a

ADOPTION TIME LINES



Section 4 - continued

It can be seen from Chart 4a that these practices have been quite widely adopted in schools with Trade and Industrial programs. There seems to have been some misunderstanding on the part of the persons developing the practices and the descriptions of them and the respondents. As a result, the information seems to indicate that respondents interpreted the practices as general courses of study that are offered in most industrial education programs.

As the chart shows, these are not particularly new developments in the industrial education area, as all of the programs had beginnings more than 40 years ago. Regardless of the beginning dates, it is interesting to note that a definite upswing has taken place within the last three years, or, to put it another way, since the passage of the Vocational Education Act of 1963. This chart also points out the slowness with which adoption of these programs has taken place, and indicates that a need exists for developing ways of giving new ideas and practices exposure.

Three of the questions asked about each of the practices concerned Awareness, Adoption, and Demonstration. Awareness meant, had you heard about the practice; adoption meant, were you using the practice now; and demonstration meant, had others come to observe the practice in your school. The responses to these questions are found in Table 4b.

TABLE 4b

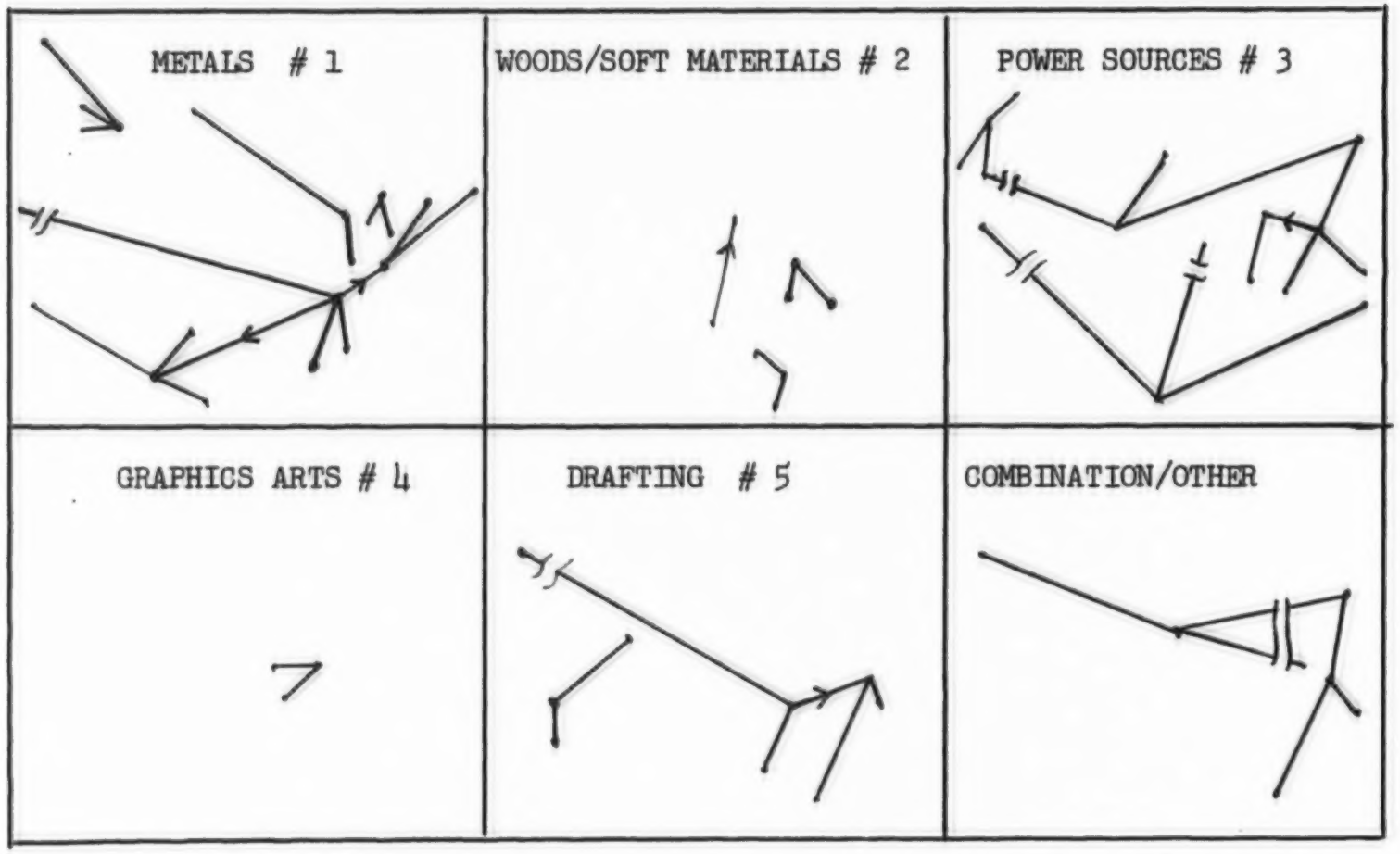
Programs	Awareness		Adoption		Observed	
	#	%	#	%	#	%
1. Metals	92	92	73	73	37	37
2. Woods/Soft Materials	84	84	60	60	26	26
3. Power Sources	87	87	66	66	31	31
4. Graphics Arts	88	88	37	37	14	14
5. Drafting	89	89	66	66	25	25

Section 4 - continued

These figures indicate that these programs were widely known and that adoption of these programs ranged from 37% to 73% in the responding schools. There was special interest in the demonstration responses because it is in this area that we hope to find some of the answers to the problems of time lag in adoption.

CHART 4c

VISITATION NETWORKS BY PROGRAMS



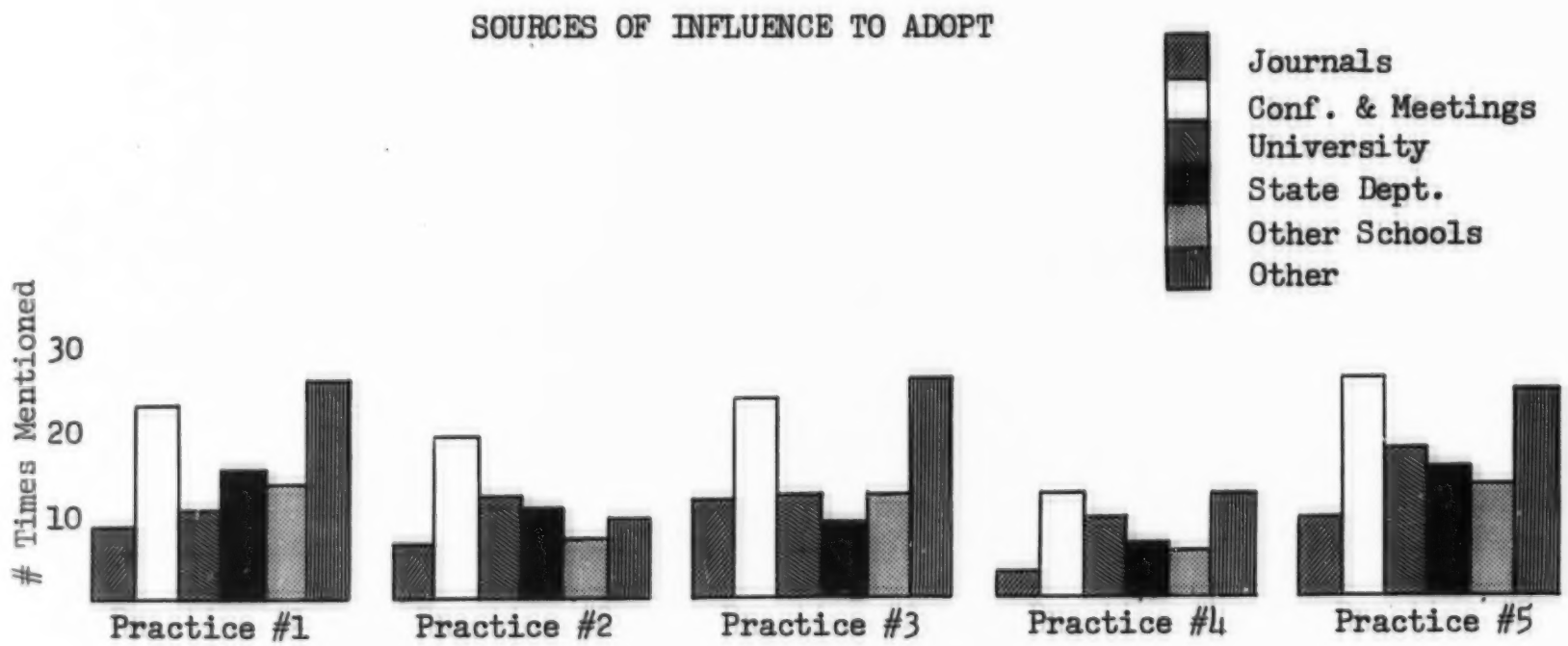
Section 4 - continued

It was found that from 38% to 51% of the schools adopting a practice had been visited for the particular practice. An observation about the high percentage of visitations to adopting schools might be that the long time period covered by these programs allowed visits to schools as they newly adopted the programs. In other words, the visitations to the schools might very well correspond to the time period in which the programs were adopted.

Nevertheless, patterns of visitation did exist (Chart 4c) which would indicate that given the proper leadership, exposure of demonstration programs should help the spread of new ideas in Industrial Education as well as vocational education in general.

Another area of interest related to Industrial Education concerned the sources of influence to adopt the programs surveyed (Chart 4d). It can be seen from this that conferences and meetings were most frequently mentioned. The variety of responses grouped as "other" may have some significance for Industrial Education educators.

CHART 4d



Section 4 - continued

Some general totals of interest concern the number of practices adopted by each school, the number of practices now in use, how many schools had observed a new practice within the last year, and how many schools were trying something new (Table 4e).

TABLE 4e

NUMBER OF PRACTICES ADOPTED			NUMBER OF PRACTICES NOW IN USE		
Adopted	Schools	%	Using	Schools	%
5	25	25.2	5	20	20
4	22	22.2	4	22	22
3	18	18.2	3	23	23
2	11	11.1	2	8	8
1	7	7.1	1	10	10
0	16	16.2	0	17	17
	99	100		100	100

OBSERVED NEW PRACTICE		TRYING NEW PRACTICE	
Schools	%	Schools	%
38	38	44	44

Information given regarding the practices which schools reported going to visit is found in Table 4f. It is assumed that practices which attract observers would be somewhat of an innovative nature, at least to the extent that the practice was new in a particular geographic region.

TABLE 4f

PRACTICES OBSERVED IN OTHER SCHOOLS

Unit Shops; Industrial Practices
Electrical Works
Plastics; Scheduling
Hydraulics
Gas Engine Repair
Printing
Building Trades Program
Drafting
Foundry
Power Mechanics
Auto Mechanics
House Construction
Paper Works
Occupational Secondary Training
Welding
Co-op
Work Line Theory
Phases of Vocational Education
Team Teaching
Modern Equipment and Usage
Auto and Farm Mechanics
Tracer to Lathe

Section 4 - continued

Practices reported as newly being tried within a school are shown in Table 4g. These practices may or may not reflect the influence of visits to other schools. It might be assumed that most of the new practices being tried would be patterned after an observed practice. However, some of the new ideas being tried might be of a truly innovative nature.

TABLE 4g

NEW PRACTICES BEING TRIED

Die work; Optical measurement; Construction shop
Power mechanics; Industrial survey and shared-time
Shorter periods; House building; Implementing; Printing
New approach to electronics and drafting; Visual aids
Soft materials; Model making; Small gasoline engine service
Plastics; Model building; Work with industry
Drafting program correlated to metals and woods
Furniture repair; Auto bump and paint shop
Tig-welding; "Gas station service"

Table 4h lists the responses to the question, "In your opinion, what are the most important new ideas and practices in your field?". These are single responses for the most part with no selecting or editing done for this report. Items in the list may or may not reflect the latest developments within the field and should be treated with caution in terms of adoption or promotion.

TABLE 4h

NEW IDEAS IN FIELD

Automated devices; Masonry, Carpentry, Dry Wall
De-emphasis on industrial arts; more for vocational education
Survey of American Industry; Self-instruction by students
Cooperation--realistic experience; Area technical schools
Equipment; Job clusters; Welding and electronics; Off set camera
Off set approach to graphic arts; Plastics; Hydraulics
Teaching of industrial practices; not just operation of machines
Metals program; More specialization; Power mechanics
Furniture repair; Auto bump and paint shop
Preparation for an occupation
Up-dating of equipment and procedure; Problem solving
On-the-job training; Team teaching; Independent study
Mill work; Chemical milling; Electrical discharge machines

Section 4 - continued

The last Table, 4i, lists practices that have been tried but discontinued. The reasons for discontinuing these practices could be an area for careful consideration, for there may be some information pertinent to the development of new practices and the pitfalls that face any new program ideas. This is largely a single-response (unedited) list.

TABLE 4i

INEFFECTIVE PRACTICES TRIED

Industrial vocational trades-
Metalurgy-
Charts-
Wood shops with plastic-
Students pick projects-go to extremes, too hard or too easy
Adult education-lack of interest
Programmed instruction-poor motivation
Combine physics and electronics courses-lack of time
Auto mechanics program-lack of money
Furniture repair course-
Auto bump and paint course-
Electronics course-
Problem solving technique-individual study hard
Electricity course-lack of interest
Carpentry-
Team teaching-facilities not adequate
Tungsten carbide tools-students not skilled enough

In Summary

It is hoped that this information will be of use to vocational education and that it can be used in such a way that the change process within vocational education is speeded and made less haphazard. We do not have all the answers to the problems of adoption of new practices, but hope that some things can be started in the high schools. We ask that you feel free to make any suggestions known to the Research Coordinating Unit in regard to the use of the Diffusion Study data and in connection with new ideas within the field of vocational education

APPENDIX A

School _____

SURVEY OF _____ PROGRAMS

1. __No __No GO TO PROGRAM #2	__Yes: __Yes:	a) Have you heard about _____ _____? b) Has your school ever used this program? c) What year was it first used? _____ d) Do you now use the program? __Yes __No; Why did you discontinue? _____ e) Where or from whom did you become convinced to use this program? __journals/newspapers __university staff __conference or meeting __State Department staff __other; specify _____ __observed in another school f) In what school(s) was it observed prior to adoption? _____ g) Since adoption, has the program been observed by other schools? Specify _____
2. __No __No GO TO PROGRAM #3	__Yes: __Yes:	a) Have you heard about _____ _____ _____? b) Has your school ever used this program? c) What year was it first used? _____ d) Do you now use the program? __Yes __No; Why did you discontinue? _____ e) Where or from whom did you become convinced to use this program? __journals/newspapers __university staff __conference or meeting __State Department staff __other; specify _____ __observed in another school f) In what school(s) was it observed prior to adoption? _____ g) Since adoption, has the program been observed by other schools? Specify _____

Appendix A - Continued

3. __No __Yes: a) Have you heard about _____ _____ _____?
__No __Yes: b) Has your school ever used this program?
c) What year was it first used? _____
d) Do you now use the program?
__Yes __No; Why did you discontinue?
_____

GO TO PROGRAM #4

e) Where or from whom did you become convinced to use this program?
__journals/newspapers __university staff
__conference or meeting __State Department staff
__other; specify _____
__observed in another school
f) In what school(s) was it observed prior to adoption? _____
g) Since adoption, has the program been observed by other schools? Specify _____

---

4. __No __Yes: a) Have you heard about _____ _____ ____?
__No __Yes: b) Has your school ever used this program?
c) What year was it first used? _____
d) Do you now use the program?
__Yes __No; Why did you discontinue?
_____

GO TO PROGRAM #5

e) Where or from whom did you become convinced to use this program?
__journals/newspapers __university staff
__conference or meeting __State Department staff
__other; specify _____
__observed in another school
f) In what school(s) was it observed prior to adoption? _____
g) Since adoption, has the program been observed by other schools? Specify _____

5. __No | ___Yes: a) Have you heard about _____ _____ _____?
__No | ___Yes: b) Has your school ever used this program?
c) What year was it first used? _____
GO TO COMMENTS | d) Do you now use the program?
___Yes __No; Why did you discontinue?
_____
e) Where or from whom did you become convinced to use this program?
__journals/newspapers __university staff
__conference or meeting __State Department staff
__other; specify _____
__observed in another school
f) In what school(s) was it observed prior to adoption? _____
g) Since adoption, has the program been observed by other schools? Specify _____

COMMENTS:

GO TO #6

6. Have you tried new practices within the past three or four years which proved to be ineffective:

__No | ___Yes: a) What were the practices and what was wrong with them? _____
GO TO #7 | _____
_____

7. Have you observed a new practice in another school during the past year?
__No | ___Yes: a) What was the name of the school(s)? _____
_____
GO TO #8 | b) What practice(s) did you observe? _____
_____

8. In your opinion, what are the most important new ideas and practices in your field? _____

_____

_____

9. Are you currently trying out new ideas and/or approaches which might be of interest to other schools?
__No ___Yes: Specify _____

_____

10. Think of the most innovative school in your field in Michigan. Now think of the least innovative school in the State. On the scale below, place an X where you think your school stands in relation to the most and least innovative schools in the State.

Least Innovative								Most Innovative

Please send the completed questionnaire by _____ to:

Research Coordinating Unit
Division of Vocational Education
Box 928
Lansing, Michigan 48904

VT 001 740

VT 001 740

Status of Enrollment in Area Vocational-Technical Schools, September 1, 1965 - March 1, 1966.

Bottoms, Gene

Ga. State Dep. of Educ, Atlanta. Div. of Vocat. Educ.

Georgia Occupational Research Unit, Atlanta

30Nov66

DOCUMENT NOT AVAILABLE FROM EDRS 29p.

*STUDENT ENROLLMENT, *VOCATIONAL EDUCATION, *DROPOUTS, *TECHNICAL EDUCATION, *AREA VOCATIONAL SCHOOLS, TRANSFERS,

Georgia,

Enrollment information is presented in seven tables. The total enrollment was 6,133 full-time day students. More than 2,000 of these students enrolled between September 1965 and March 1966. More than 1,000 students dropped out of area schools during this period. The area schools which had a larger number of students transferring from one course to another within the school had a smaller dropout rate than those schools which discouraged course-to-course transfer. There was a little difference in the percentage of dropouts of area vocational-technical programs by occupational areas. It was recommended that guidance practices be reviewed because of the high number of dropouts and the low number of transfers. Improvement in the quality of programs was recommended because the number of area school students transferring to another kind of educational institution. (SL)

ED015348

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STATUS OF ENROLLMENT IN AREA VOCATIONAL-TECHNICAL SCHOOLS

September 1, 1965 - March 1, 1966

Gene Bottoms
Associate State Director
Vocational Education
Leadership Services - Guidance

A report prepared in conjunction with the Research Coordinating Unit staff as one of its services during its first quarter of operation.

VT 01740

STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL EDUCATION
255 STATE OFFICE BUILDING
ATLANTA, GEORGIA 30334
November 30, 1966

M E M O R A N D U M

TO: Area School Directors, Assistant Directors and Personnel Workers; Mr. George Mulling, State Director of Vocational Education and Mr. Ed Bodenhamer, Associate State Director for State and Area Schools and Special Adult Programs.

FROM: Gene Bottoms, Associate State Director, Vocational Education, Leadership Services - Guidance.

SUBJECT: Report of the Status of Enrollment in Area Vocational-Technical Schools.

Effective administration of Georgia's area vocational-technical schools calls for periodic review of the status of school programs, staffs, faculties, students, services available, and services rendered.

As part of this periodic review, the Research Coordinating Unit of the Vocational Education Division, in cooperation with area school directors and staffs, collected information on the status of enrollment in the state's area vocational-technical schools reflecting the period September 1, 1965, to March 1, 1966.

Resulting from that coordinated effort is the accompanying compilation of information. This report is presented to area school directors and staffs with the hope that it will act as a stimulus for discussion by local area school staffs of their own enrollment status as reported during this period, of their relation by comparison to other area vocational-technical schools, and of the implications resulting from such discussion for developing and maintaining the best possible programs and services for present and potential area school students.

The Research Coordinating Unit staff would very much appreciate knowing your reactions to the services offered by this report in attempting a self-evaluation by school staffs of their programs and services as related to the enrollment of their schools.

GB:MKM:bp

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I. INTRODUCTION.

Enrollment in Georgia's area vocational-technical schools in Georgia has been our interest and concern since these schools were first developed. We have measured our past enrollment and we have projected our future enrollment. But there is a need to take time out now to look at the present enrollment in our area vocational-technical schools and, further, to look at some of the problems which accompany our present enrollment status.

As of September, 1966, enrollment in our area schools in Georgia is up, but this increase has brought with it many complex problems which we need to examine. Central of these problems is the question "What are we doing for our area school students once they are enrolled in our schools?"

If this report, compiled from figures you sent us, is to be in any way effective, it should act as a stimulus to your area staff, a source of discussion of enrollment in your school as compared to other area schools, a touchstone of concern that your school offer the best possible programs and services to your present and potential students.

II. ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS.

In surveying the enrollment status of area schools in Georgia between September 1, 1965, and March 1, 1966, the following figures stood out:

- -- Total enrollment in this period was 6,133 full-time day students.
- -- Over 2,000 of this number enrolled between September 1, 1965, and March 1, 1966.
- -- As of March 1, 1966, the total full-time day enrollment was 4,070.
- -- During this period, 2,100 students left area schools.
- -- Only 699 of these 2,100 were graduates of area vocational-technical programs.
- -- Ninety-two of these 2,100 students enrolled in area schools transferred from one course to another within area schools.
- -- Only 74 students transferred from full-time day programs to part-time night programs in area schools.
- -- Almost 300 students dropped out of vocational-technical schools either because of financial problems or because of full-time employment opportunities.

-- During this period, 101 students transferred from an area vocational-technical school to some other kind of educational institution.
-- Only 213 students who left area schools before they completed their programs were employed in the field for which they trained.
-- The more than 1,000 students who dropped out of area schools, approximately one-fifth of the total enrollment during this period, gave the following as reasons for dropping out:

1.	To enter military service	--103.
2.	Inability to do course work or doing failing work	--147.
3.	Reasons unknown, not reported	--176.
4.	To get married	-- 61.
5.	Dismissed for disciplinary reasons	-- 41.
6.	Dislike or disinterest in school	--124.
7.	Financial problems	-- 74.
8.	Poor health, unable to do class work	--106.
9.	To obtain employment	--213.

-- As regards to the GATB test and scores for those students who dropped out during this period:

1. Approximately one-half of dropouts or 467 students had acceptable scores for occupational areas in which they were enrolled.
2. Furthermore, 226 of these had borderline aptitute scores for courses in which they were enrolled.
3. Only 85 of 486 dropouts had aptitudes not acceptable for courses in which they were enrolled.
4. But 178 students were enrolled in area schools without being given GATB prior to enrollment.

III. IMPLICATIONS.

The accompanying tables offer many implications for the staffs of area vocational-technical schools in evaluating their own and other area school programs and services.

Table I, although not exactly balanced because of some inaccuracies on the part of some area schools in reporting enrollment figures, does imply trends which can act as a touchstone in evaluation of strengths and weaknesses of local area school programs.

A. The small number of transfers from course to course and the high number of dropouts reported in this study implies that area school programs might be too rigid and don't allow students enough opportunity to transfer once they've found another program which better meets their interests and abilities.

B. The small numbers of transfers also implies that it is easier for a new student to enroll in a program than it is for an enrolled student to transfer.

Table II indicates that area schools which had a larger number of students transferring from one course to another within the area school had a smaller dropout rate than did those area vocational-technical schools which discouraged course-to-course transfer.

A. Low number of transfers from day-time programs to night programs implied schools are not making full use of night programs, especially for those students who have financial difficulties and who feel they must assume full-time employment rather than remain in school full-time.

B. Another implication stemming from the number of dropouts in area schools is that we must take positive steps to give students reasons for completing area programs and then make sure that our programs are designed to encourage student to complete his work, not to discourage him from staying through graduation or else shorten the length of the course.

C. And finally, the number of students allowed to enroll in area schools without having taken the GATB implies that area school staffs might be doing a disservice to their students by not testing them prior to their enrollment.

Table III indicates an insignificant difference in the percentage of dropouts of area vocational-technical programs by occupational area. This table indicates, however, that students in technical courses and health occupations have the lowest dropout rate.

Tables IV, V, VI, and VII are a breakdown as to the enrollment status in each of the four major categories of courses--technical, health, clerical, and skilled.

IV. RECOMMENDATIONS.

A. The large numbers of area vocational-technical students enrolled after the beginning of the school year suggests a need to examine the flexibility of instructional programs and the quality of these programs in relation to their strength under a great influx of new students.

B. Area school staffs and in particular the personnel worker should examine possible ways of assisting area students to transfer from one course offering to another within the area vocational-technical school.

C. The high number of dropouts and the low number of transfers reflected in this study suggests a need to examine guidance opportunities and assistance offered to area school students who might consider night programs as an alternative to day programs.

D. This study emphasizes a need for area staffs to examine their attitudes toward students leaving the area vocational-technical program to take jobs in the fields for which they received training without completing the vocational-technical course. Either students should complete the prescribed curriculum or else it may not be needed.

E. Further, school staffs must give logical and tangible reasons to area vocational-technical students for their need to complete vocational-technical programs before getting a job.

F. The number of area school students transferring to another kind of educational institution indicates a need for area vocational-technical school staffs to examine the quality of their programs as related to student interests, abilities, and needs.

G. The high number of dropouts reflected in this study in some schools underscores the need for these schools to carefully examine student motives and abilities before students are enrolled in area vocational-technical schools.

H. The number of area students who dropped out with failing course grades indicates area vocational-technical school staffs need to determine whether their students are being adequately counseled to choose courses appropriate with their abilities or to transfer to courses in line with their abilities.

I. The number of area school students enrolled in courses for which they had low GATB scores indicates that area vocational-technical school staffs should examine the possibility of inadequate educational background on the part of the students attracted to area vocational-technical schools and consider the need for remedial programs to help overcome these student limitations.

J. The high percentage of area students enrolled without first taking the GATB indicates need for area vocational-technical staffs to examine the admissions program in their schools to insure that all students are being properly tested before their acceptance and entry into area vocational-technical programs.

K. Individual area vocational-technical schools should examine dropouts by course area to determine the percentage of withdrawals in each area.

V. CONCLUSION.

In compiling this report, we have made no attempt to examine occupational areas in area vocational-technical schools in an effort to determine the courses in which our area schools are experiencing their highest dropout rates. More than likely, each area school staff will want to do that for itself.

We prepared this report for the purpose of focusing upon questions, issues, and problems which should be considered on a local area school level in establishing policies for programs and personnel services offered to area vocational-technical students if the schools are to meet the needs of the student for whom the programs and services are designed. Further, we prepared this report with the hope that those at the local area school level will use it for discussion purposes in local staff meetings. During these meetings we hope you will focus on examining enrollment status in your local area school in order to see what steps you should take to strengthen your programs and services as they relate to the changing needs of Georgia's area vocational-technical schools and their students.

TABLE I
ENROLLMENT STATUS IN GEORGIA'S
AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 to March 1, 1966

AREA SCHOOL	TOTAL ENROLLMENT 7/65	TOTAL ENROLLMENT SINCE 7/65	TOTAL ENROLLMENT	TOTAL ENROLLMENT PERCENTAGE	NUMBER CHANGED COURSES	NUMBER TRANSFERRED TO NIGHT PROGRAM	NUMBER TRANSFERRED TO ANOTHER SCHOOL	NUMBER GRADUATED	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED	TOTAL DROPOUTS	PRESENT ENROLLMENT	REASONS FOR LEAVING									CLASSIFY DROPOUT BY GATB SCORES			
												1	2	3	4	5	6	7	8	9	Acceptable	Borderline	Non-Acceptable	GATB Score Unavailable
Harris AVTS	93	21	114	.19	0	1	0	22	6	21	64	4	2	6	0	2	0	1	2	12	29	0	5	0
Marietta-Cobb AVTS	344	89	433	.20	5	5	0	21	20	85	297	10	11	3	4	5	6	10	11	24	66	14	1	4
Moultrie AVTS	90	44	134	.14	1	7	4	0	2	19	102	1	2	1	1	4	4	1	1	4	9	8	2	0
Savannah AVTS	21	17	38	.05	0	0	0	0	1	2	35	2	0	0	0	0	0	0	0	1	3	0	0	0
South Georgia TVS	285	490	775	.10	28	0	12	126	21	71	517	5	19	21	5	2	8	5	6	0	3	2	0	0
Swainsboro AVTS	115	13	128	.15	1	2	3	8	2	19	94	1	1	8	2	1	1	1	2	2	8	4	5	3
Thomas AVTS	32	113	145	.13	3	6	5	1	6	19	105	4	3	0	2	0	4	0	4	2	12	7	0	0
Upson County AVTS	136	30	166	.23	4	7	3	2	7	38	108	4	7	8	3	3	2	1	5	5	15	19	2	2
DeKalb AVTS	266	504	770	.15	15	11	15	177	9	112	431	13	27	16	11	2	8	1	10	24	73	33	5	0
Albany AVTS	254	94	348	.20	1	8	10	26	36	70	197	6	9	8	6	0	13	3	15	10	34	9	0	27
Coosa Valley AVTS	222	26	248	.20	2	6	3	5	4	50	178	7	7	5	2	0	6	0	6	16	19	6	8	17
Athens AVTS	51	4	55	.15	1	3	1	0	2	8	41	1	4	0	0	0	2	0	0	1	0	0	0	12
Griffin-Spalding AVTS	80	22	102	.19	1	0	3	31	0	19	49	0	0	0	0	0	14	0	0	35	1	3	0	18
North Georgia TVS*	687	161	848	.15	11	0	24	100	18	124	569	12	8	29	7	12	26	7	14	9	43	39	36	6
Waycross-Ware AVTS	91	35	126	.21	0	5	0	0	14	27	99	0	5	0	0	0	2	0	4	13	7	2	9	9
Dudley Hughes AVTS**	145	115	260	.26	0	4	0	42	21	67	193	2	4	3	0	0	3	0	0	9	42	20	0	7
Muscogee AVTS***	153	43	196	.18	1	2	2	43	1	35	116	4	2	3	3	0	3	1	4	3	0	0	0	7
Valdosta AVTS****	136	13	149	.22	1	3	0	17	4	32	97	4	2	1	1	0	2	8	6	9	11	7	5	9
Richmond AVTS	165	54	219	.14	0	1	5	29	6	30	148	8	5	4	4	0	1	3	0	0	0	0	0	29
Monroe AVTS	203	34	237	.14	4	0	2	17	6	34	177	6	5	4	1	5	0	7	0	7	23	8	0	0
Walton AVTS	145	26	171	.37	1	2	0	25	9	64	100	2	12	6	3	1	6	17	6	11	13	11	5	21
Augusta AVTS	278	32	308	.23	5	1	9	4	11	70	230	4	10	0	5	0	7	2	9	10	40	30	0	0
Columbus AVTS	128	35	163	.18	7	0	0	3	7	29	123	3	2	0	1	4	6	6	1	6	16	4	2	7
TOTAL	4120	2015	6133		92	74	101	699	213	1045	4070	103	147	176	61	41	124	74	106	213	467	226	85	178

(Continued on next page)

TABLE I
ENROLLMENT STATUS IN GEORGIA'S
AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 to March 1, 1966
(continued)

*Figures do not balance because some left for reasons not listed on report.
**Three columns are combined to give Total Dropouts.
***The number left prior to completion but employed in field in which trained is included in total dropouts.
****The number left prior to completion but employed in field in which trained is included in total dropouts

REASONS FOR LEAVING:

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do classwork
9. Employments

TABLE II

PERCENT OF DROPOUTS
OF
AREA VOCATIONAL-TECHNICAL PROGRAMS

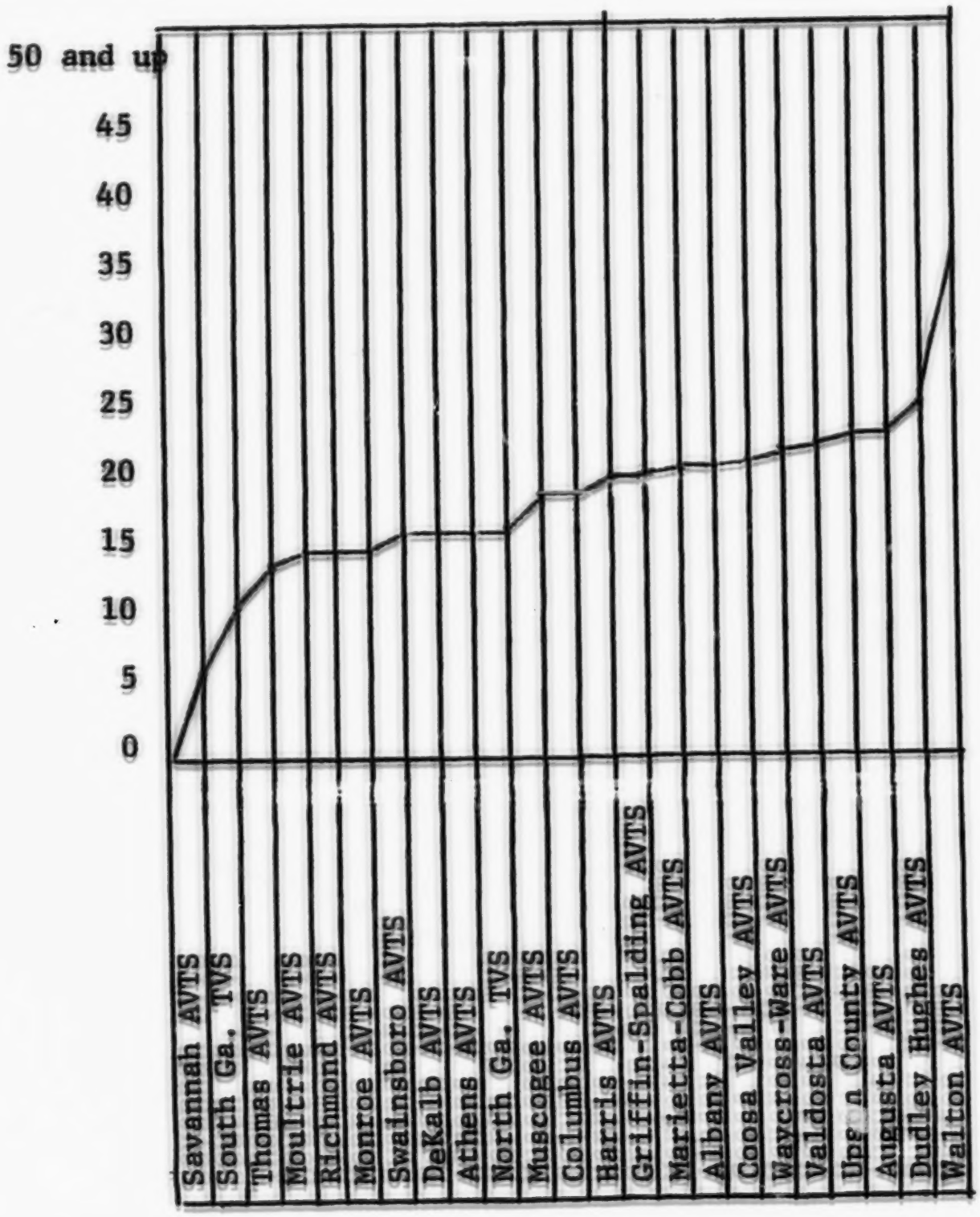

TABLE III

DIFFERENCE IN PERCENTAGE OF
DROPOUTS
OF
AREA VOCATIONAL-TECHNICAL PROGRAMS
BY
OCCUPATIONAL TITLE

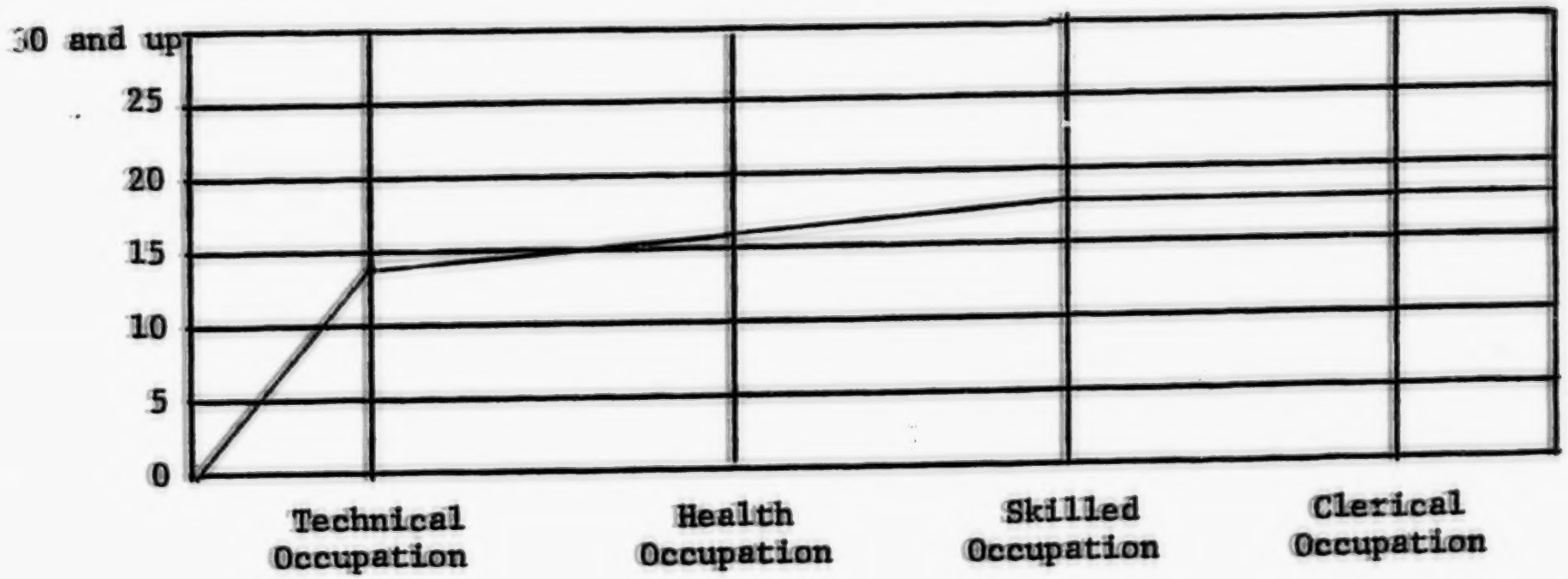

TABLE IV

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

TECHNICAL OCCUPATIONS

COURSE AREAS (1)	TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSI
											1	2	3	4	5	6	7	8	9	Accept-able (13)
Electrical Technology	80	25	105	5	2	1	0	1	17	81	5	4	0	2	0	1	1	2	1	10
Electronic Technology	11	1	12	0	0	0	0	0	4	8	0	2	0	0	0	0	0	1	1	1
Mechanical Technology	107	60	167	21	1	2	7	3	19	122	2	7	2	0	0	4	1	2	1	11
Drafting Design	86	66	151	13	5	2	21	1	20	96	4	3	2	0	2	2	1	2	4	8
Data Processing	30	4	34	0	0	0	0	3	6	25	2	0	0	1	0	0	2	0	1	5
Chemical Technology	9	20	29	1	1	3	4	1	9	10	4	0	2	1	0	0	0	1	1	6
Electronic Technology	399	128	527	22	10	12	12	8	73	404	16	7	7	4	2	10	3	8	9	24
Total Technology	722	304	1025	62	19	20	44	17	148	746	33	23	13	8	4	18	17	16	18	65
Occupations				1025 ÷ 148 = .14%																

\- Transferred to another course

\+ Transferred to course

REASONS FOR LEAVING:

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, classwork
9. Employments

TABLE IV

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

TECHNICAL OCCUPATIONS

ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSIFIED DROPOUT BY GATB SCORES			
										1	2	3	4	5	6	7	8	9	Acceptable (13)	Borderline (14)	Non-acceptable (15)	GATB Score Unavailable (16)
0	25	105	5	2	1	0	1	17	81	5	4	0	2	0	1	1	2	1	10	5	1	0
1	1	12	0	0	0	0	0	4	8	0	2	0	0	0	0	0	1	1	1	0	2	1
7	60	167	21	1	2	7	3	19	122	2	7	2	0	0	4	1	2	1	11	3	2	3
6	66	151	13	5	2	21	1	20	96	4	3	2	0	2	2	1	2	4	8	10	2	0
0	4	34	0	0	0	0	3	6	25	2	0	0	1	0	0	2	0	1	5	1	0	0
9	20	29	1	1	3	4	1	9	10	4	0	2	1	0	0	0	1	1	6	2	1	0
9	128	527	22	10	12	12	8	73	404	16	7	7	4	2	10	3	8	9	24	21	3	17
2	304	1025	62	19	20	44	17	148	746	33	23	13	8	4	18	17	16	18	65	42	11	21
			1025 ÷ 148 = .14%																			

- Transferred to another course

+ Transferred to course

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do classwork
9. Employments

TABLE V

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

HEALTH OCCUPATIONS

COURSE AREAS (1)	TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12) 1	2	3	4	5	6	7	8	9	CLASS Acceptable (13)
Practical Nursing	387	157	544	2	0	2	169	10	88	311	2	35	5	4	3	7	7	11	25	66
Medical Office Assistant	24	17	41	0	0	0	13	1	6	21	0	3	0	2	0	0	0	1	0	5
Medical Laboratory Assistant	24	22	46	0	0	0	11	0	4	31	0	0	0	1	0	3	0	0	0	2
Total	435	196	631	2	0	2	193	11	98	363	2	38	5	7	3	10	7	12	25	73

Occupation .14

- Transferred to another course

+ Transferred to course

REASONS FOR LEAVING:
1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financia
8. Poor hea class wo
9. Employme

TABLE V

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

HEALTH OCCUPATIONS

ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSIFIED DROPOUT BY GATB SCORES			
										1	2	3	4	5	6	7	8	9	Acceptable (13)	Borderline (14)	Non-Acceptable (15)	GATB Scores Unavailable (16)
7	157	544	2	0	2	169	10	88	311	2	35	5	4	3	7	7	11	25	66	23	7	5
4	17	41	0	0	0	13	1	6	21	0	3	0	2	0	0	0	1	0	5	1	0	0
4	22	46	0	0	0	11	0	4	31	0	0	0	1	0	3	0	0	0	2	2	0	0
5	196	631	2	0	2	193	11	98	363	2	38	5	7	3	10	7	12	25	73	26	7	5

- Transferred to another course

+ Transferred to course

:
1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do class work
9. Employments

TABLE VI

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

CLERICAL OCCUPATIONS

COURSE AREAS (1)	TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSI	
											1	2	3	4	5	6	7	8	9	Accept-able (13)	I 1
Accounting	11	25	36	1	1	2	11	0	10	11	1	0	1	0	0	1	0	1	6	4	
Secretarial Science	900	471	1371	16	19	36	136	93	256	860	8	30	21	40	2	28	11	37	59	129	
IBM Punch Card	30	68	98	2	3	1	17	4	10	61	3	4	1	0	0	0	0	0	2	4	
Office Education	50	1	51	1	0	2	00	0	5	46	1	0	0	1	0	0	1	0	0	4	
Total Clerical	991	565	1556	20	23	41	164	97	281	978	13	34	23	41	2	29	12	38	67	141	
Occupation								.18													

- Transferred to another course

+ Transferred to course

REASONS FOR LEAVING:

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health
   classwork
9. Employment

TABLE VI

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

CLERICAL OCCUPATIONS

ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSIFIED DROPOUT BY GATB SCORES			
										1	2	3	4	5	6	7	8	9	Acceptable (13)	Borderline (14)	Non-Acceptable (15)	GATB Score Unavailable (16)
1	25	36	1	1	2	11	0	10	11	1	0	1	0	0	1	0	1	6	4	6	0	0
0	471	1371	16	19	36	136	93	256	860	8	30	21	40	2	28	11	37	59	129	45	11	50
0	68	98	2	3	1	17	4	10	61	3	4	1	0	0	0	0	0	2	4	6	0	0
0	1	51	1	0	2	00	0	5	46	1	0	0	1	0	0	1	0	0	4	1	0	0
1	565	1556	20	23	41	164	97	281	978	13	34	23	41	2	29	12	38	67	141	58	11	50
							.18															

- Transferred to another course

+ Transferred to course

G:
1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do classwork
9. Employments

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS

COURSE AREAS (1)	TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSI
											1	2	3	4	5	6	7	8	9	Accept-able (13)
Barbering	13	17	30	0	1	0	10	6	17	13	0	2	1	0	0	1	0	0	2	3
Auto Mechanics	369	181	550	4	3	7	41	23	98	383	12	11	18	0	4	11	11	4	40	50
Auto Body Repair	86	32	118	3	0	2	8	5	20	81	1	0	9	0	4	1	2	1	1	8
Refrigeration A. C. & Heating	188	67	255	10	7	4	18	9	56	167	5	4	6	0	3	10	3	1	9	30
Aircraft Mechanics	30	31	61	0	0	1	13	4	3	40	0	1	1	0	0	0	1	0	0	1
Building Construction	10	0	10	0	0	0	1	0	7	3	1	0	0	0	1	2	2	0	1	2
Electricity	19	7	26	+3	0	1	0	3	8	18	1	1	0	0	0	0	0	0	2	4
Machine Shop	179	89	268	17	7	1	18	3	42	197	10	6	2	1	2	4	1	2	14	22
Industrial Electricity	24	21	45	0	0	1	18	0	3	23	1	0	1	0	0	0	0	0	1	3

- Transferred to another course

+ Transferred to course

REASONS FOR LEAVING:

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, classwork
9. Employments

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS

ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSIFIED DROPOUT BY GATB SCORES			
										1	2	3	4	5	6	7	8	9	Acceptable (13)	Borderline (14)	Non-Acceptable (15)	GATB Score Unavailable (16)
3	17	30	0	1	0	10	6	17	13	0	2	1	0	0	1	0	0	2	3	14	0	2
69	181	550	4	3	7	41	23	98	383	12	11	18	0	4	11	11	4	40	50	22	6	15
36	32	118	3	0	2	8	5	20	81	1	0	9	0	4	1	2	1	1	8	1	7	2
88	67	255	10	7	4	18	9	56	167	5	4	6	0	3	10	3	1	9	30	10	5	2
30	31	61	0	0	1	13	4	3	40	0	1	1	0	0	0	1	0	0	1	2	0	0
10	0	10	0	0	0	1	0	7	3	1	0	0	0	1	2	2	0	1	2	0	1	4
19	7	26	+3	0	1	0	3	8	18	1	1	0	0	0	0	0	0	2	4	4	0	0
79	89	268	17	7	1	18	3	42	197	10	6	2	1	2	4	1	2	14	22	14	1	5
24	21	45	0	0	1	18	0	3	23	1	0	1	0	0	0	0	0	1	3	0	0	0

- Transferred to another course

+ Transferred to course

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do classwork
9. Employments

(Continued)

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS (Continued)

COURSE AREAS (1)	TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASS	
											1	2	3	4	5	6	7	8	9	Acceptable (13)	
House Wiring Electrician	36	5	41	+1	0	0	14	0	1	24	0	0	0	0	0	1	0	0	0	0	
Fabric Maintenance	12	12	24	+2	0	0	1	2	7	11	0	1	3	0	1	1	0	1	0	1	
Electrical Construction and Maintenance	60	25	85	0	0	2	10	4	7	60	3	0	2	0	0	0	2	0	3	7	
Electrical Appliance Service	62	21	83	4	0	3	7	0	21	51	2	2	2	0	1	2	1	2	7	7	
Diesel Machines	61	76	137	3	3	2	2	3	21	93	2	10	4	0	1	1	1	1	1	10	
Cosmetology	294	135	429	1	3	2	102	7	63	285	0	6	3	6	2	5	5	12	4	29	

- Transferred to another course

+ Transferred to course

REASONS FOR LEAVING:
1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, classwork
9. Employments

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS (Continued)

TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSIFIED DROPOUT BY GATB SCORES			
										1	2	3	4	5	6	7	8	9	Acceptable (13)	Borderline (14)	Non-Acceptable (15)	GATB Scores Unavailable (16)
36	5	41	+1	0	0	14	0	1	24	0	0	0	0	0	1	0	0	0	0	0	1	0
12	12	24	+2	0	0	1	2	7	11	0	1	3	0	1	1	0	1	0	1	0	5	1
60	25	85	0	0	2	10	4	7	60	3	0	2	0	0	0	2	0	3	7	0	0	3
62	21	83	4	0	3	7	0	21	51	2	2	2	0	1	2	1	2	7	7	3	3	3
61	76	137	3	3	2	2	3	21	93	2	10	4	0	1	1	1	1	1	10	3	2	0
294	135	429	1	3	2	102	7	63	285	0	6	3	6	2	5	5	12	4	29	8	4	16

- Transferred to another course

+ Transferred to course

G: 1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do classwork
9. Employments

(Continued)

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS (Continued)

COURSE AREAS (1)	TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12) 1	2	3	4	5	6	7	8	9	CLASS Acceptable (13)
Cabinet Making Carpentry & 5	37	34	71	6	0	0	4	1	11	50	2	1	6	0	0	1	1	0	0	3
Brick Tile & Stone Masonry	142	28	170	2	0	4	12	6	38	113	5	0	9	0	2	6	7	3	6	10
Welding	47	11	48	1	1	0	2	2	24	32	1	1	2	2	0	9	0	0	9	6
Watch Repair	7	12	19	1	0	0	1	4	3	10	0	0	0	0	1	2	0	0	0	1
Upholstery	27	30	57	4	2	0	11	0	6	34	1	1	0	1	0	1	1	0	1	0
Small Engine Repair	22	6	28	-1	0	0	1	0	7	17	0	0	0	0	2	1	3	1	0	3

- Transferred to another course

+ Transferred to cou

REASONS FOR LEAVING:

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, classwork
9. Employments

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS (Continued)

ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL (12)									CLASSIFIED DROPOUT BY GATB SCORES			
										1	2	3	4	5	6	7	8	9	Acceptable (13)	Borderline (14)	Non-Acceptable (15)	GATB Scores Unavailable (16)
7	34	71	6	0	0	4	1	11	50	2	1	6	0	0	1	1	0	0	3	1	2	0
2	28	170	2	0	4	12	6	38	113	5	0	9	0	2	6	7	3	6	10	6	3	
7	11	48	1	1	0	2	2	24	32	1	1	2	2	0	9	0	0	9	6	2	1	15
7	12	19	1	0	0	1	4	3	10	0	0	0	0	1	2	0	0	0	1	1	0	1
7	30	57	4	2	0	11	0	6	34	1	1	0	1	0	1	1	0	1	0	0	2	1
2	6	28	-1	0	0	1	0	7	17	0	0	0	0	2	1	3	1	0	3	2	2	0

- Transferred to another course

+ Transferred to course

:
1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do classwork
9. Employments

(Continued)

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS (Continued)

COURSE AREAS (1)	TOTAL NUMBER ON ROLL 7/65 (2)	TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL 1	2	3	4	5	6	7	8	9	CLAS (13)
Shoe Repair	21	12	33	4	0	1	1	0	8	21	1	0	4	0	0	0	0	2	1	0
Radio and Television	160	84	244	13	2	3	21	2	49	162	5	9	8	0	1	8	5	6	6	35
Printing	39	20	59	0	0	2	1	2	3	40	14	1	1	1	0	0	0	0	1	2
Photography	22	8	30	+1	0	0	5	1	8	17	0	0	2	0	2	2	0	1	1	4
Office Machine Repair	21	31	52	2	1	1	5	0	4	36	0	2	0	0	1	0	1	1	2	6
Mechanical Drafting	10	14	24	2	2	1	0	1	3	15	0	0	1	0	1	0	0	1	0	0
Total Skilled Occupations	1968	1009	2997	85	32	38	327	88 .18	535	1996	67	58	84	11	29	69	47	39	111	247

- Transferred to another course

+ Transferred to cou

REASONS FOR LEAVING:

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financi
8. Poor he classwo
9. Employm

TABLE VII

ENROLLMENT STATUS IN AREA VOCATIONAL-TECHNICAL SCHOOLS
September 1, 1965 - March 1, 1966

SKILLED OCCUPATIONS (Continued)

TOTAL NUMBER ENROLLED SINCE 7/65 (3)	TOTAL NUMBER ENROLLED--ADD COL. 2 & 3 (4)	NUMBER CHANGED COURSES (5)	NUMBER TRANSFERRED TO NIGHT PROGRAM (6)	NUMBER TRANSFERRED TO ANOTHER SCHOOL (7)	NUMBER GRADUATED (8)	NUMBER LEFT PRIOR TO COMPLETION BUT EMPLOYED IN FIELD IN WHICH TRAINED (9)	TOTAL DROPOUTS (10)	PRESENT ENROLLMENT 3/1/66 (11)	REASONS FOR LEAVING SCHOOL									CLASSIFIED DROPOUT BY GATB SCORES			
									1	2	3	4	5	6	7	8	9	(13)	(14)	(15)	(16)
12	33	4	0	1	1	0	8	21	1	0	4	0	0	0	0	2	1	0	2	2	1
84	244	13	2	3	21	2	49	162	5	9	8	0	1	8	5	6	6	35	13	0	10
20	59	0	0	2	1	2	3	40	14	1	1	1	0	0	0	0	1	2	1	0	2
8	30	+1	0	0	5	1	8	17	0	0	2	0	2	2	0	1	1	4	1	2	1
31	52	2	1	1	5	0	4	36	0	2	0	0	1	0	1	1	2	6	1	0	0
14	24	2	2	1	0	1	3	15	0	0	1	0	1	0	0	1	0	0	1	2	0
1009	2997	85	32	38	327	88	535	1996	67	58	84	11	29	69	47	39	111	247	112	51	101
						.18															

- Transferred to another course

+ Transferred to course

1. To enter service
2. Inability to do work or failing
3. Unknown
4. To get married
5. Disciplinary measure
6. Dislike or disinterest in school
7. Financial
8. Poor health, unable to do classwork
9. Employments

VT 001 742

VT 001 742 ED

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Brunetti, Frank * Williams, Jerome

Nevada Occup. Res. Coordinating Unit, Reno

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EDRS Price MF-$0.36 HC-$9.56 239p.

*ANNOTATED BIBLIOGRAPHIES, *VOCATIONAL EDUCATION, *TECHNICAL EDUCATION, OCCUPATIONS, EMPLOYMENT, EMPLOYERS, LABOR, PERSONNEL,

More than 1,000 items are listed alphabetically within subject areas. Some of the areas include agricultural education, art industries and trade, business education, economics, job analysis, labor and democracy, manpower, occupational health nursing, occupations, personnel management, technical education, vocational guidance, vocational mathematics, vocations for girls, work and leisure, work measurement, work-study programs, workers on relief, etc. Publication dates range from the early 1900's through 1966. The materials are available at the Noble H. Getchell Library on the University of Nevada campus, Reno, and the library call numbers are given. (PS)

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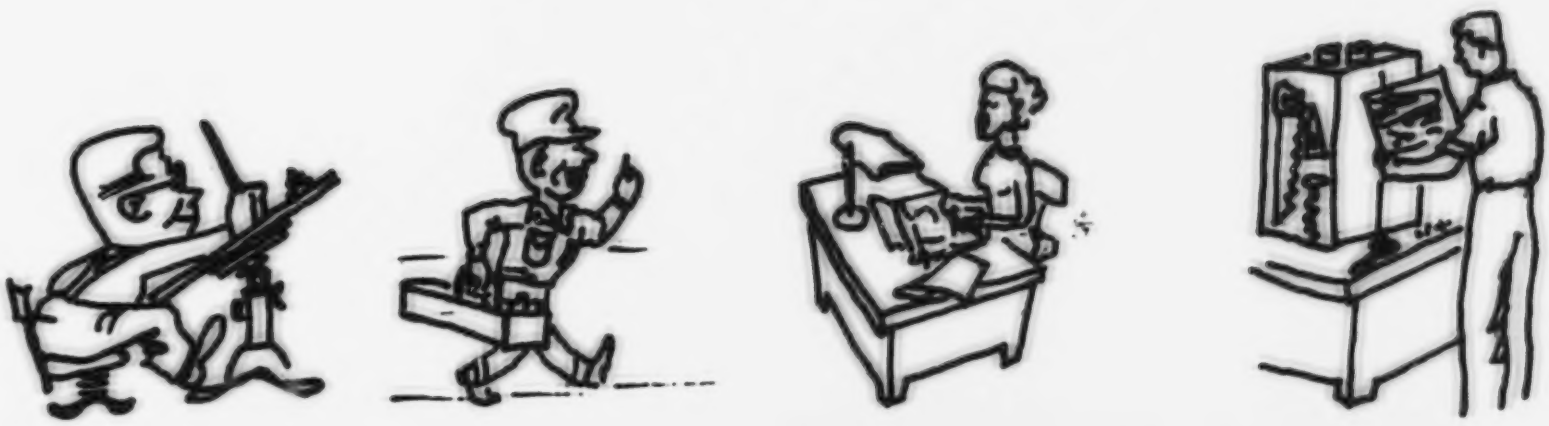
ANNOTATED BIBLIOGRAPHY



FOR VOCATIONAL - TECHNICAL EDUCATION

NEVADA RESEARCH COORDINATING UNIT

RCU

The Nevada Research Coordinating Unit is pleased to present this annotated bibliograpy to you as an aid to improving vocational and technical education programs in the State of Nevada.

This bibliography was compiled to provide material in a form that minimizes review of literature activity.

Source materials listed in this bibliography are available at the Noble H. Getchell Library on the University of Nevada Campus, Reno.

Research for this publication was done by Mr. Frank Brunetti and Mr. Jerome Williams.

J. Clark Davis
R.C.U. Director

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Workers' Non-Profit Co-Operatives. 229

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DAVENPORT, EUGENE, Education for Efficiency.
D.C. Heath and Co., 1914.

A discussion of certain phases of the problem of universal education, with special reference to academic ideals and methods.

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Sciences

DEYOE, GEORGE PERCY, Farming Programs in Vocational Agriculture.
The Interstate, 1953.

Chapter headings include: The Importance of Farming Programs in Vocational Agriculture. - The Nature of Farming Programs. - Evaluating Farming Programs. - Considering Examples of Activities in Farming Programs. - Programs and High School. - Educating Teachers.

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IOWA. STATE UNIVERSITY OF SCIENCE AND TECHNOLOGY, AMES. COMMON FOR AGRICULTURAL AND ECONOMIC ADJUSTMENT, Agricultural Adjustment.
State University of Science and Technology, 1960.

Publication attempts to discuss Roles, Goals, and Nature of Agriculture, and what adjustments and research need to be done. A challenge and opportunity for land-grant colleges.

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JUERGENSON, ELWOOD M., Teaching Tricks and Other Aids for Teachers of Vocational Agriculture.
Interstate Printers & Publishers, 1950.

Contents include: New teacher - Discipline - Future Farmers - Supervised Farming - Audio-Visual Aids - Good Relations.

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ROBISON, CLARENCE HALL, Agricultural Instruction in the Public High Schools of the United States.
Teachers College, Columbia University, 1911.

Areas of emphasis: Typical High Schools Teaching Agriculture. - Administration, Equipment, and Methods. - Problems of Agricultural Instruction.

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STRUCK, FERDINAND THEODORE, Construction and Repair Work for the Farm.
Houghton Mifflin Company, 1923.

This is self-explanatory. Book deals with various areas of agricultural education, including tools, materials, and techniques.

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UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION, Education and Agricultural Development.
Paris, 1964, 1963.

Freedom From Hunger campaign. 1. Agricultural education.

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CANADA. ROYAL COMMISSION ON INDUSTRIAL TRAINING AND TECHNICAL EDUCATION
C. H. Parmelee, 1913.

Report of the commissioners. 1. Technical education. 2. Agricultural education.

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LEAKE, ALBERT H., The Means and Methods of Agricultural Education.
Houghton Mifflin Company, 1915.

1. Agricultural education - U.S. 2. Agricultural education - Canada

371.42
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STIMSON, RUFUS WHITTAKER, Vocational Agricultural Education by Home Projects.
The MacMillan Company, 1919.

Chapter Titles: 1. Vocational Agricultural Ed. 2. Home-Project School or Dept. versus Self-Contained School. 3. Project Study vs. Subject Study. 4. Vegetable Growing Project Study. 5. Example of a State Agricultural Project Study Bibliography. 6. County Schools and High School Departments. 7. Suggestions to Supervisors. 8. Suggestions to Vocational Agricultural Instructors. Also detailed outlines of chapters in table of contents.

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Agricultural Progress
The Journal of the Agricultural Education Association, London, 1924.

1. Agricultural education - Periodicals. 2. Agricultural education - Societies. 3. Agricultural education - England. - Periodical.

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Agricultural Progress
The Journal of the Agricultural Education Association, London, 1924.

1. Agricultural education - Periodicals. 2. Agricultural education - Societies. 3. Agricultural education - England. - Societies

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BURRITT, MAURICE CHASE, The County Agent and the Farm Bureau.
Harcourt, Brace and Company, 1922.

1. Agricultural education - U.S. 2. Agricultural societies - U. S.

375.63
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CLYBURN, LLOYD E., Criteria for Evaluating Programs of Agriculture in the Community College.
Baton Rouge, 1953.

Chapter Titles include: The Program - Plant and Facilities - Library - Student Personnel Services - Departmental Organization - Supervision of Instruction - Administration.

B
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Serials
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COCANNOUER, JOSEPH A., Trampling Out the Vintage.
University of Oklahoma Press, 1945 .

1. Agricultural Education- U. S.

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DAVIS, BENJAMIN MARSHALL, Agricultural Education in the Public Schools.
The University of Chicago Press, 1912.

A study of its development with particular reference to the agencies concerned, with an introduction by Charles Hubbard Judd.

630.7
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HAMLIN, HERBERT MCNEE, Agricultural Education in Community Schools.
Interstate, 1949 .

Book broken down into parts, each containing several chapters, Major areas include: (1) Policies and Policy-making for Agricultural Education in Community Schools. (2) Organization and Management of Agricultural Education. (3) Extra-Community Relationships of Agricultural Education. (4) Prospects for Agricultural Education. (5) Agricultural Education in Schools of Less-Than College Grade.

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HARDIN, CHARLES MEYER, Freedom in Agricultural Education.
University of Chicago Press, 1955 .

Major areas include: Research and Extension - Controversial Issues - Federal Grants - Politics and Case History in Agricultural Education.

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LEAKE, ALBERT H., The Means and Methods of Agricultural Education.
Houghton Mifflin Company, 1915.

1. Agricultural education - U. S. 2. Agricultural education - Canada

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LORD, RUSSELL, The Agrarian Revival.
American Association for Adult Education, 1939.

A study of agricultural extension. Studies in the social significance of adult education in the United States.

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MARTIN, OSCAR BAKER, The Demonstration Work.
The Stratford Company, 1921 .

A biography about Dr. Seaman A. Knapp's contribution to Agricultural Education. Topics include: Clubs - demonstration work - supervision and instruction.

630.9
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SHEPARDSON, WHITNEY HART, Agricultural Education in the United States.
The Macmillan Company, 1929.

The report was made for the officers and trustees of the General Education Board.

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SMITH, CLARENCE BEAMAN, The Agricultural Extension System of the United States.
J. Wiley and Sons, Inc., 1930 .

Co-author: Meredith Chester Wilson. Bibliography on extension studies. References at end of most chapters.

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DICKINSON, SHERMAN, Job Operations in Farm Mechanics.
Columbia, Missouri, 1932.

Written by Vocational Agriculture teachers of Missouri.
1. Agricultural engineering. 2. Agricultural machinery.
3. Study and Teaching. 4. Project method in teaching.

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JOHNSON, PAUL E., Mechanics of Agriculture.
Burgess Publising Co., 1953.

Notes and Workbook.

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KENNEDY, ARTHUR C., Farm Shop Demonstrations.
The Interstate Printers and Publishers, 1942.

This is an illustrated manual showing and telling how various tasks that need to be done on the farm can be accomplished.

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O'BRIEN, MICHAEL, Demonstrations for Farm Mechanics.
Interstate Printers and Publishers, 1957.

An illustrated teachers's manual concerning various activities in farm mechanics.

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STRUCK, FERDINAND THEODORE, Construction and Repair Work for the Farm.
Houghton Mifflin Co., 1923.

1. Agricultural engineering. 2. Agricultural education.

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U. S. DEPARTMENT OF AGRICULTURE. LIBRARY, Bibliography of Agriculture.
U. S. Government Printing Office, 1942.

Current literature in agricultural engineering, entomology, plant science, forestry, and a list of agricultural experiment station publications, each from their respective U. S. Bureaus.

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U. S. DEPARTMENT OF AGRICULTURE, LIBRARY, Bibliography of Agriculture.
U. S. Government Printing Office, 1942.

Periodical. Current literature in agricultural engineering, entomology, plant science, forestry, and a list of agricultural experiment station publications, each from their respective U. S. Bureaus.

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AGRICULTURAL ENGINEERING, The Journal of the American Society of Agricultural Engineers.
The Society, 1920.

Periodical. Monthly.

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COOK, GLEN CHARLES, Practical Methods in Teaching Farm Mechanics.
The Interstate, 1952.

A basic reference for trainees in college, and a handbook for teachers and administrators. Revised by Obed L. Snowden.

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Life
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HOLLOWAY, KEITH LEAMING, Farm Mechanics Job Sheets for Pupils in Vocational Agriculture.

A work book - text for students in agricultural education on all facets of farm mechanics.

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1956

MORFORD, VILAS JAY, Methods of Teaching Farm Mechanics.
Burgess Publishing Co., 1956.

Book including discussions on the: Importance of Farm Mechanics Instruction - Objectives - Planning the Physical Plant - Selecting Tools and Equipment - Planning the Program - Teaching Materials - Teaching Demonstrations.

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THURMOND, MILAM FRANK, Shop Work for Farm Boys.
Interstate Printing Co., 1940.

A thorough text covering all aspects of farm mechanics.

AGRICULTURE - STUDY AND TEACHING

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BRICKER, GARLAND ARMOR, The Teaching of Agriculture in the High School.
The Macmillan Co., 1911.

Main topics include: (1) Nature of Secondary Agriculture. (2) Rise and Development of Secondary Agriculture. (3) Social Results of Secondary Agriculture. (4) Secondary Agriculture as a Separate Science. (5) Psychology and Organization. (6) Presentation. (7) Laboratory and Field Work. (8) Aims, values, and ideals.

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1952
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COOK, GLEN CHARLES, Handbook on Teaching Vocational Agriculture.
The Interstate, 1952.

Main areas of emphasis include: (1) Vocational Agriculture. (2) Developing and Evaluating the Program. (3) Instruction. (4) Vocational Education in Agriculture, for Young and Adult Farmers. (5) Farm Mechanics Program. (6) Guidance Program. (7) Facilities, Equipment, etc. (8) Managing a Department of Vocational Agriculture.

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COOK, GLEN CHARLES, Practical Methods in Teaching Farm Mechanics.
The Interstate, 1952.

A basic reference for trainees in college, and a handbook for teachers and adminstrators.

630.7
C88
1915
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CROMWELL, ARTHUR D., Agriculture and Life.
J. B. Lippincott Co., 1915.

A textbook for normal schools and teachers' reading circles. Edited by Kary C. Davis. Most of the book consists of lectures delivered many times before farmers' and teachers' institutes. An agricultural library for teachers and schools.

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DICKINSON, SHERMAN, Job Operations in Farm Mechanics.
Columbia, Mo., 1936.

Written by Vocational Agriculture teachers of Missouri. Agricultural engineering. Agricultural machinery. Study and teaching. Project method in teaching.

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1954
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GARRIS, EDWARD WALTER, Teaching Vocational Agriculture.
McGraw-Hill, 1954.

Main Chapter Headings: (1) Tracing Development of Agriculture Education and Vocational Education. (2) Analyzing duties and Responsibilities of Teachers. (3) Planning Building, Equipment Supplies, Agriculture Library, Outdoor Lab or School Farm. (4) Making and Using Surveys. (5) Course of Study. (6) Teaching Procedures, Plans, Visual Aids Records, Reports. (7) Evaluate the Vocational Education Act.

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1950
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HAMMONDS, CARSIE, Teaching Agriculture.
McGraw-Hill, 1950.

This book is designed for teachers and prospective teachers of agriculture. Primarily, a background of educational concepts, philosophy, and psychology has been provided. Many specific techniques and procedures are suggested, and principles of both group and individual teaching are discussed.

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HAMMONDS, CARSIE, Your Farming Program.
Hurst Printing Co., 1951.

Co-Author: W. R. Tabb. Agriculture: Outlines, Study and Teaching, United States.

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HUMMEL, WILLIAM GRANVILLE, Materials and Methods in High School Agriculture.
The Macmillan Co., 1913.

Co-author: Bertha Royce Hummel.

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KARLS, GLENN E., A Workbook in General Agriculture.
The Interstate Printer, n.d.

1. American Agriculture. 2. Soils, Conservation. 3. Dairying, Poultry. 4. Vegetables, Small Fruits. 5. Farm Animals, Farm Crops, Farm and Home.

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LATTIG, HERBERT ELMER, Practical Methods in Teaching Vocational Agriculture.
McGraw-Hill Book Co., Inc., 1931.

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NEVADA. STATE BOARD FOR VOCATIONAL EDUCATION,
Vocational Agriculture Policies Manual.
Carson City, 1955.

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NOLAN, ARETAS WILBUR, The Teaching of Agriculture.
Houghton Mifflin Co., 1918.

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PHIPPS, LLOYD JAMES, Handbook on Agricultural Education in Public Schools.
Interstate Printers and Publishers, 1965.

Handbook on teaching vocational agriculture.

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SCHMIDT, GUSTAVUS ADOLPHUS, New Methods in Teaching Vocational Agriculture.
The Century Co., 1924.

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SCHMIDT, GUSTAVUS ADOLPHUS, Projects and the Project Method in Agricultural Education.
The Century Co., 1926.

Project Method in Teaching. The Century Vocational Series.

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SCHMIDT, GUSTAVUS ADOLPHUS, Teaching Farm Shop Work and Farm Mechanics.
The Century Co., 1927.

Co-Authors: W. Arthur Ross, M. A. Sharp. The Century Vocational Series. Agricultural machinery. Manual Training.

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STORM, ASHLEY VAN, How to Teach Agriculture.
J. B. Lippincott Co., 1921.

Co-Author: Kary C. Davis. A book of methods in this subject.

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WAUGH, FRANK ALBERT, The Agricultural College.
Orange Judd Co., 1916.

A study in organization and management and especially in problems of teaching.

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MOTLEY, JAMES MARVIN, Apprenticeship in American Trade Unions.
The Johns Hopkins Press, 1907.

Johns Hopkins University studies in historical and political science. Published also as thesis (Ph.D) Johns Hopkins University, 1906.

331.63
N277n

NATIONAL ASSOCIATION FOR THE ADVANCEMENT OF COLORED PEOPLE. Labor Department. The Negro Wage-earner and Apprenticeship Training Programs, A Critical Analysis with Recommendations.
New York, 1960.

Prepared under the direction of Herbert Hill..who is responsible for the final draft of this study, its conclusions and recommendations. This study was undertaken by the Association to define the contemporary states of Negro craftsmen and apprentices and to analyze the reason for the negligible participation of Negroes in apprentice programs.

ART INDUSTRIES AND TRADE

745.5
H321i

HARRISON, OVAL STANLEY, Industrial Arts and Handcraft Activities .
Burgess Publishing Co., 1959 .

This is a classroom manual, but can be used by the researcher. Chapter 1 - Handwork and Education. Chapter 2 - Considerations in the Use of Handwork. Chapter 3 - Integration of Handwork. Chapter 4 - The Common Tools for Handwork. Chapter 5 - Creating Handcraft Projects. Chapter 6 - Wood Projects for Industrial Arts and Handcraft.

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1954

READ, SIR HERBERT EDWARD, Art and Industry.
Horizon Press, 1954, 1953.

The principles of industrial design. Four main parts - Part 4 applicable "Art Education in the Industrial Age."

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INDUSTRIAL ARTS AND VOCATIONAL EDUCATION .
The Bruce Publishing Company, monthly.

1. Technical education - Periodicals. 2. Manual Training. 3. Industrial arts. 4. Art industries and trade. Periodical.

BUSINESS EDUCATION

371.42
D182p
1954

DAME, JOHN FRANK, Guidance in Business Education.
South-Western Publishing Co., 1954 .

The aim of this book is to provide practical and worthwhile assistance in the field of guidance to those business teachers who work closely with students in the business education program. Contents include: Guidance and Business Education - Business Curriculum, the Occupational Survey - Job Analysis - Follow-up- Placement - Case Study - Testing - Occupational Standards and Guidance Services - Career Conference - Interpreting Guidance Services.

650.7
D746t

DOUGLAS, LLOYD VIRGIL, Teaching Business Subjects .
Prentice-Hall, 1958 .

Serves as a methods text for all business education students and as a handy reference or handbook for all business teachers and educators interested in ever-improving methods of teaching business subjects.

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EIGELBERNER, JESSE, The Investigation of Business Problems.
A. W. Shaw Company, 1926 .

Purpose behind the book was to develop a practical training in the art of investigation which will be of equal value to the business executive and to the research worker, both in the analysis and the solution of their problems.

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F862
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FRASER, CECIL EATON, The Case Method of Instruction.
McGraw-Hill Book Company, Inc., 1931.

Presents information for teachers of business who wish to know more about the various approaches and methods of using cases. Collection of articles outlining the concepts of the case method by men who have had actual experience in its application.

650.7
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HARMS, HARM, Methods in Vocational Business Education.
South-Western Publishing Co., 1949.

The purpose of this volume is to make available to pre-service and in-service business teachers a source book and a summary of suggestions on methodology that apply to the preparation of office workers. A philosophy of education is developed in the first chapter. The remainder of the volume is devoted to typewriting, shorthand, transcription, bookkeeping and the various phases of office practice.

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LIPSTREU, OTIS, Editor, Guidelines for the Aspiring Professor.
South-Western Publishing Co., 1963.

A critical appraisal of the institution, the faculty, the problems, the objectives, the standards, the students, and the methods in collegiate education for business and economics. Co-author: James I. Doi.

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LYON, LEVERETT SAMUEL, Education for Business.
The Universtiy of Chicago Press, 1922.

Part I - A Statement of the Case. A. The Growth and Position of Business Education. Part II - The Objectives of Education for Business. Part III - Modern Agencies of Education for Business. Part IV - High-School Commercial Curriculum Reform.

650.77
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MCNAIR, MALCOLM PERRINE, The Case Method at the Harvard Business School.
McGraw-Hill, 1954.

Consists of various articles on the case method of interest as well as significant developments in case pedogogy, written by past and present professors at Harvard.

650.71273
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NATIONAL ASSOCIATION FOR BUSINESS TEACHER EDUCATION, How to Teach Business Subjects, Especially Designed for Student Teachers.
Washington, 1959.

Contents: Contains selections from four previous bulletins prepared primarily for student teachers and for beginning teachers in business subjects. Part 1 - Orienting yourself. Part 2. - How you will be Supervised. Part 3. - How you will be Evaluated. Part 4. - How to Teach.

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PERSON, HARLOW STAFFORD, Industrial Education.
Houghton, Mifflin and Company, 1907.

A system of training for men entering upon trade and commerce. Part I - The Need of a System of Industrial Education in the United States. Part II - An Outline of a System of Industrial Education for the U. S.

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1959

STICKNEY, RUFUS, Office and Secretarial Training.
Prentice-Hall, 1959.

The fourth edition of Office and Secretarial Training covers the entire field in a realistic and practical manner. The student works in an office, attending to the many details of a busy organization. The adequate, background material presented is followed by appropriate "Office Activities" designed to familiarize the student with modern secretarial procedures. Text stresses personality training. Another important feature of the book is the cumulative nature of the Office Activities.

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THOMPSON, FRANK VICTOR, Commercial Education in Public Secondary Schools.
World Book Company, 1915.

The purpose of the present book is to offer a descriptive, critical and constructive treatment of current problems in commercial education. Contents include: Present conditions in Education for Commercial Life - School Organization and Teachers in Commercial Education - The General High School and Commercial College - Commercial High Schools and Commercial Counselor.

650.7
T615m
1949

TONNE, HERBERT ARTHUR, Methods of Teaching Business Subjects.
Gregg Publishing Company, 1949.

The purpose of this book is to provide a body of teaching materials for the introductory methods course in business education offered in many colleges and universities and to assist individual teachers in the classroom. The unique characteristic of this book is that it deals with all business subjects and yet presents a unified concept of methodology.

650.7
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1954

TONNE, HERBERT ARTHUR, Principles of Business Education.
McGraw-Hill, 1954.

This book presents a complete discussion of principles, practices, problems, and trends of business education. Major attention is given to business education in the secondary school. There is also discussion on training for various business occupations. Specific problems and readings are included.

650.7
T615m
1957

TONNE, HERBERT ARTHUR, Methods of Teaching Business Subjects.
Gregg Publishing Division, 1957.

This book deals with all business subjects and yet presents a unified concept of methodology. Much attention is given to problem-solving, teaching techniques, and illustrations. Human relations problems are stressed.

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WYLLIE, EUGENE DONALD, An Evaluation Plan for Business Education Programs in High Schools.
South-Western Publishing Co., 1963.

Based upon a doctoral study and developed with the cooperation of members of the Indiana Business Education Association.

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REF.

BUSINESS EDUCATION INDEX, 1940, An Author and Subject Index of Business Education Articles.
The Business Education World, 1941.

Compiled from a selected list of periodicals and yearbooks published during the year 1940. Sponsored by Delta Pi Epsilon.

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SCHULTZ, WILLIAM E., A Study of the Business Education Curriculums in the Secondary Schools of Nevada. Reno, 1957.

Thesis (M.A.) - University of Nevada, 1957.

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AMERICAN BUSINESS EDUCATION.
Somerville, New Jersey, from 1944.

Issued by the Eastern Business Teachers Association and the National Business Teachers Association. Periodical.

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THE BALANCE SHEET.
South-Western Publishing Co., v. 1 - Oct. 1919.

Periodical. Monthly (except June-August).

f650.7
B978

BUSINESS EDUCATION FORUM.
National Business Education Association, v. 1 - March 1947.

Periodical. Monthly (except June-September).

f650.7
B979

BUSINESS EDUCATION WORLD.
Gregg Publishing Company, v. 1 - Sept. 1920.

Periodical. Monthly (except July and August).

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JOURNAL OF BUSINESS EDUCATION.
R. C. Trethaway, v. 1 - 1928.

Periodical. Monthly (October-May).

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REF.

BUSINESS EDUCATION INDEX, 1940.
The Business Education World, 1941.

An author and subject index of business education articles, compiled from a selected list of periodicals and yearbooks published during the year 1940. Sponsored by Delta Pi Epsilon.

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DVORAK, EARL A., Review of Research in Business Education.
Indiana University, 1957.

A review of research completed in the Department of Business Education and Office Training, Indiana University, 1946-1956. Contents: 1 - Business Education - Status, subject-matter areas, Follow-up of Graduates. 2 - Economic Education. 3 - Higher Education - Collegiate Education for Business, Teacher Education, Graduate Education. 4 - Business.

650.711
N277b

NATIONAL ASSOCIATION FOR BUSINESS TEACHER EDUCATION.
Bulletin No. 1 - 1930.

Includes reports of the association's annual meetings. Some bulletins incorporated in issues of the National Business Education Quarterly. Societies.

650.71173
G664h

GORDON, ROBERT AARON, Higher Education for Business.
Columbia University Press, 1959.

Co-Author: James Edwin Howell. 1. Business Education - U.S.

650.712
G76
1933

GRAHAM, JESSIE, The Evolution of Business Education in the United States and its Implications for Business-Teacher Education.
University of Southern California Press, 1933.

Annotated bibliography of business-teacher education. Accepted in partial fulfillment of the requirements for the degree of doctor of philosophy, granted June 3, 1933 at the University of Southern California.

650.76
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HAYNES, BENJAMIN RUDOLPH, Tests and Measurements in Business Education.
South-Western Publishing Company, 1940.

Co-Authors: M.E. Broom and Mathilde Hardaway. Objectives and Principles of Measurements - Construction of Classroom Tests - Testing Procedures - Arranging and Duplicating Tests - Published Tests - Vocational Testing - Grades and Scores - Frequency Distributions - Prognostic Testing - Improving Testing and Grading.

650.712
N516
1933

NICHOLS, FREDERICK GEORGE, Commercial Education in the High School.
D. Appleton-Century Company, Inc., 1933.

1. Business education - U.S. 2. High Schools - Curricula.

650.71173
P624e

PIERSON, FRANK COOK, The Education of American Businessmen.
McGraw - Hill, 1959.

A study of university college programs in business administration. Carnegie series in American education.

650.7
Si583e

SILK, LEONARD SOLOMON, The Education of Businessmen.
Committee for Economic Development, 1960.

Applicable to higher education - business colleges.

330.9754
W521b
v.5
no.4

WEST VIRGINIA. UNIVERSITY. BUREAU OF BUSINESS RESEARCH,
Collegiate Business Education in the Next Quarter Century.
West Virginia University College of Commerce, 1958.

Proceedings of a meeting commemorating the fifth anniversary of the founding of the West Virginia University College of Commerce. Presents the remarks of several gentlemen associated with collegiate business education. They discuss fundamental questions being asked about the quality and direction of the American education system, at the university level, particularly business college.

650.71173
Am512v

AMERICAN ASSOCIATION OF COLLEGIATE SCHOOLS OF BUSINESS,
Views on Business Education.
University of North Carolina, 1960.

A symposium by Fred C. Foy and others. Papers given at the 1960 annual meeting of the association. Contents: A Prologue to Some Diverse Views on Business Education - A Businessman Looks at Business Education - Education for Business Management - Liberal Education for Business.

650.7
Am359
1946

THE AMERICAN BUSINESS EDUCATION YEARBOOK, V.1-19; 1944-1962
Somerville, New Jersey.

Formed by the union of the yearbooks of the National Business Teachers' Association and the Eastern Commercial Teachers' Association. Published jointly by the two associations. 1944 has also distinctive title: Community co-operation in business education.

650.3
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1930

BRADDY, NELLA, The Business Encyclopedia.
Doubleday, Doran and Company, Inc., 1930.

Encyclopedia. Author also wrote: "The Business Man's Dictionary and Guide to English", and "The Book of Business Etiquette", etc.

CIVIL SERVICE

351.1
Ah286e

AHMAD, JALEEL, The Expert and the Administrator.
University of Pittsburgh Press, 1959.

Contents: Author focuses on the contrasting and complimentary roles of the specialist and administrator in the processes of administration. He equates the functional specialist with the "expert" role of the specialist is compared with that of the administrator who is considered to be a non-specialist.

351.1
L95

LOWELL, ABBOTT LAWRENCE, Colonial Civil Service.
New York, London, The Macmillan Company, 1900.

The selection and training of colonial civil service. England, Holland, and France.

351.1
M368c

MARVICK, DWAINE, Career Perspectives in a Bureaucratic Setting.
University of Michigan Press, 1954.

Contents: Approaches the problem of the reconciliation of agency goals and the interests of the individuals who carry on the work of government organizations. Through the use of emperical data the author has identified some of the traits displayed by upper-hand employees in an actual federal agency. Study throws new light on the attitudes of these employees toward their careers.

351.1
M886a

MORSTEIN MARX, FRITZ, The Administrative State.
University of Chicago Press, 1957.

Contents: In presenting a number of analytical tools, he examines the main forms of bureaucracy, relates bureaucracy to the industrial revolution and points to the most significant factors of the bureaucrat and the bureaucracy in a political system. An attempt is made to face problems posed by the growth of bureaucracy - notably the problem of individual freedom and responsibility.

351.109
P961
1941

Public Administration Service, Chicago. Merit System Installation.
Chicago, Ill., Public Administration Service, 1941.

Problems and procedures in establishing a public personnel agency. Contents: Consists of a part royal of early days.

of the Public Administration service, a logical delineation of the problems encountered in that period and suggestions for coping with these problems. The contents are based on "flesh and blood" situations which were confronted in the installation of a series of merit system programs and herein lies the value. The solutions offered are predicated on things which have been tried and have proven their worth in widely varying situations.

351.1
C499p
1941

Public Personnel Association. Committee on position-classification and pay plans in the public service.
Position-classification in the public service.
Civil service assembly of the United States and Canada, 1941.

A report submitted to the civil service assembly by the committee on position-classification and pay plans - The public service.

351.1
R576c
1956

ROBSON, WILLIAM ALEXANDER, The civil service in Britain and France.
London, Hogarth Press, 1956 - Britain and France.

Bibliographical footnotes.

351.1
G451c

GLADDEN, EDGAR NORMAN, Civil service or bureaucracy?
London, Staples Press, 1956.

Bibliography.

351.1
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U.S. Civil Service Regional Office.
U.S. Government Printing Office Field Service, 1960.

12th Region federal career directory; covering career opportunities in California, Nevada, Hawaii and the Pacific area. - Positions.

351.6
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1952

CARPENTER, WILLIAM SEAL, The unfinished business of civil service reform.
Princeton University Press, 1952.

Civil service reform.

351.1
C869c

CRITCHLEY, THOMAS ALAN, The Civil Service Today.
Gollancz, 1951.

With an introduction - Civil Service Great Britain.

351.1
Sca77h

SCARROW, HOWARD A., The Higher Public Service of the Commonwealth of Australia.
Duke University Press, 1957 .

Includes bibliography.

634.9069
C128
1952

CALIFORNIA, Forestry Employment .
State of California, 1952.

Employee regulations. This booklet gives an appreciation of the Divisions history and present working philosophy. It gives a comprehensive picture of the California Division of Forestry for Prospective and current employees.

351.1
R576c
1956

ROBSON, WILLIAM ALEXANDER. The Civil Service in Britain and France .
Hogarth Press, 1956 .

Consists of a series of nine essays about many and varied topics within the British and French Civil Service.

351.1
Ab83g
1957

ABRAMOVITZ, MOSES. The growth of Public Employment In Great Britain.
Princeton University Press, 1957.

A study by the National Bureau of Economic Research.

351.1
B764p

BRIDGES, Sir EDWARD ETTINGDENE, Portrait of a Profession.
Cambridge Eng. University Press, 1950.

Contents: British speech with regard to certain positions on the staff of the government.

351.1
C869c

CRITCHLEY, THOMAS ALAN. The Civil Service Today .
Gollancz, 1951.

Book outlines the organization scope of functions of the post-war British Civil Service. Book is offered to the tax-payer as an outline of the Civil Services' Stewardship of his money.

351.1
G451c

GLADDEN, EDGAR NORMAN. Civil Service or Bureaucracy?
Staples Press, 1956.

Aim is to (1) provide an up-to-date description of the British Civil Service as a developing institution with

special reference to its problems as a working body. and (2) examine critically the present situation and suggest lines for future development.

351.1
R576c
1956

ROBSON, WILLIAM ALEXANDER. The Civil Service in Britain and France.
Hogarth Press, 1956.

Bibliographical footnotes.

351.109
St76
1938

STOUT, HIRAM MILLER, Public Service in Great Britain.
University of North Carolina Press, 1938.

"Selected bibliography" Civil service - Great Britain Great Britain - Officials and employees.

351.17
W182m

WALKER, NIGEL, Morale in the Civil Service.
University Press, 1962, 1961.

A study of the desk worker - Employee morale.

351.105
P976

Public Personnel Review.
Public Personnel Association, quarterly, April, 1940.

Periodicals.

342.43
R813b

ROSENBERG, HANS, Bureaucracy, Aristocracy, and Autocracy.
Harvard University Press, 1958.

Bibliographical footnotes - The Prussian experience, 1660-1815. Prussia - Nobility, Prussia - Politics and Government.

352.005
C787
1936

COOPER, ROBERT WELDON, The Texas Municipal Civil Service.
The University of Texas, 1936.

Extent and Cost - Personnel Practices; Salary, Training, In-Service Activities, Retirement.

351.10947
Ar57s

ARMSTRONG, JOHN ALEXANDER, The Soviet Bureaucratic Elite.
Praeger, 1959.

A case study of the Ukrainian apparatus. Identifying the Decision Makers - The Elite as a Social Group - Training for Rule - Bosses of the Apparatus Supervising the Economy - Mechanisms of Control - Indoctrination Specialists Expansion - War - A New Oligarchy?

353
Am349
1954

AMERICAN ASSEMBLY, The Federal Government Service: Its Character, Prestige and Problems.
Columbia University, 1954.

Background papers prepared for the use of participants and the final report of the Sixth American Assembly, Arden House, Harriman Campus of Columbia University.
Civil service - U.S.

351.6
C227
1952

CARPENTER, WILLIAM SEAL, The Unfinished Business of Civil Service Reform.
Princeton University Press, 1952.

The unfinished business of civil service reform. The Nature of Public Employment - The Paradox of Civil Service Reform - Employee-Employer Relationships - Education and the Public Service - Administrative Control of Public Personnel - The Unfinished Business.

351.109
C73
1935

COMMISSION OF INQUIRY ON PUBLIC SERVICE PERSONNEL, Better Government Personnel.
Whittlesey House, McGraw-Hill Book Co., Inc., 1935.

Report of the Commission of inquiry on public service personnel. Summary of Recommendations - The Report; Government and Personnel; Needed: A Career; Service; Major Problems; Minor Problems; Practice Results.

351.109
C76
1931

Conference on University Training for the National Service.
University of Minnesota Press, 1932.

Proceedings of a conference held at the University of Minnesota, July 14 - 17, 1931. (1) Civil service-U.S. (2) U.S.-Officials and employees. (3) Education, Higher (4) Universities and colleges - U.S. - Curricula.

351.1
D28e

DAVID, PAUL THEODORE, Executives for Government.
Brookings Institution, 1957.

Bibliography - Executives, U.S. - Civil service, U.S. - U.S. Officials and employees.

351.10973
F532c
1963

FISH, CARL RUSSELL, The Civil Service and the Patronage.
Russell and Russell, 1963.

This is a history of the civil service from the standpoint of the patronage, and of the patronage with regard solely to the public offices. The aim has been to give the development of policy and practices as to the relation of these two elements of our public life, from the foundation of the government to the present day.

351.17
H326c

HART WILSON R., Collective bargaining in the Federal Civil service.
Harper, 1961.

A study of labor-management relations in U.S. Government employment. The purpose of this book is to consider arguments of the critics and defenders of the governments' labor management policies; review its history; analyze attempt of labor unions to interfere; devise a program by which the federal government can voluntarily carry on collective bargaining.

351.1
H998
1950

HYNEMAN, CHARLES SHANG, Bureaucracy in a Democracy.
Harper, 1950.

Book deals with the question of what can we do to increase our assurance that the officials and employees who do the day-to-day work of government will actually provide the kind of government the American people want.

352.005
In7m
1950

Institute for Training in Municipal Administration.
The International City Managers' Association, 1950.

Book deals with the question of what can we do to increase our assurance that the officials and employees who do the day-to-day work of government will actually provide the kind of government the American people want. Part I - Bureaucracy and Democracy. Reality and Ideal. Part II - Direction and Control by Congress. Part III - Direction and Control by the President. Part IV - The Control Staff Agencies. Part V - Direction and Control Within the Administrative Organizer. Part VI - Unification of Political Direction and Control.

351.10973
K48i

KILPATRICK, FRANKLIN PEIRCE, The Image of the Federal Service.
Brookings Institution, 1964.

The three broad objectives presented are: (1) to explore the attitudes of various groups in the American public toward the American federal civilian service generally; (2) to analyze what Americans think of the Federal

Government as an employer, in light of the occupational values and attitudes toward work that prevail in their society today and (3) to set forth for public consideration a series of proposals for changes in federal civilian personal organization, policies, and procedures designed to enhance the appeal of federal employment in the future.

351.109
K673
1940

KLEIN, ALICE M., Civil Service in Public Welfare.
Russell Sage Foundation, 1940.

A discussion of effective selection of public social work personnel through the merit system. The author relates the well-founded civil service system to social wishers and attempts to set guidelines by which they could be brought into the system.

506.9
L753s

LINDVEIT, EARL WAYNE, Scientists in Government.
Public Affairs Press, 1960.

The objectives of this study are to appraise some of the significant factors relating to the development, nature and extent of the problem of retaining scientific personnel in federal employment. Contains: (1) Role of Science in Government. (2) Policy Formulation. (3) Training and Recruitment. (4) Environment for Scientific Research. (5) Retention of Scientists.

351.1
M368c

MARVICK, DWAINE, Career Perspectives in a Bureaucratic Setting.
University of Michigan Press, 1954.

Civil Service - U. S.

351.109
M543
1938

MERIAM, LEWIS, Public Personnel Problems from the Stand-Point of the Operating Officer.
The Brookings Institution, 1938.

Three objectives have been sought in the preparation of the present book: (1) to attempt to see public personnel administration as a whole; (2) to view it primarily, although by no means exclusively, from the stand point of an operating officer immediate responsibility for getting a certain specific task done or for rendering a specific government service; and (3) to deal with the subject as simply and as realistically as possible, making free use of illustrative cases.

351.082
M839
1940

MORSTEIN MARX, FRITZ, Public Management in the New Democracy.
Harper and Brothers, 1940.

Part I - Foundations of Public Management, Part II - Essentials of Public Management, Part III - Recruitment for the Public Service, Part IV - Conditions of Public Employment.

351.109
M853
1936

MOSHER, WILLIAM EUGENE, Public Personnel Administration.
Harper & Brothers, 1936.

Contents: Development and Significance of the Public Service - Employment - Training and Terms of Employment - Compensation and Other Positive Incentives - Employee Relations, Working Conditions and Reporting.

351.10973
M853
1949

MOSHER, WILLIAM EUGENE, Public Personnel Administration.
New York and London, Harper & Brothers, 1941.

Contents: Part I - Development and Significance of the Public Service. Part II - Employment, Part III - Training and Terms of Employment. Part IV - Compensation and Other Positive Incentives. Part V - Employee Relations, Working Conditions and Reporting.

351.1
N2131

NATIONAL CIVIL SERVICE LEAGUE, The Law of Civil Service.
M. Bender, 1958.

A book useful to lawyers and public administrators who deal with the complexities of the civil service.

351.109
P417
1939

PERGANDE PUBLISHING COMPANY, Government Positions.
The Pergande Publishing Co., 1939.

A manual for the prospective government employee with a high school education or less. Gives working conditions, job descriptions, benefits, etc.

351.1
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1941

PUBLIC PERSONNEL ASSOCIATION, Employee Training in the Public Service.
Civil Service Assembly of the United States and Canada, 1941.

(1) Ascertaining the Need for Training, (a) Classification of needs. (2) Instruction Where and by Whom. (3) Selecting and Developing Content. (4) Training Methods. (5) Evaluation of Public Service Training. (6) Control Training Unit.

351.109
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1941

PUBLIC PERSONNEL ASSOCIATION, Public Relations of Public Personnel Agencies.
Civil Service Assembly of the United States and Canada, 1941.

Bibliographical footnotes - A report submitted to the Civil Service assembly by the Committee on public relations of public agencies. Policies and practices in public personnel administration.

351.1
Sco84
1950

SCOTT, CARL, U.S. Government Jobs.
Arco Publishing Co., 1950.

The why, what, who, when, where, and how of Federal Civil service. This book is a useful manual for the citizen who wants to know how to find, qualify for, and be hired for a job as a federal Government employee.

351.1
Sp36g
1948

SPERO, STERLING DENHARD, Government as employer.
Remsen Press, 1948.

The Public Employment Relationship - The Rise of Trade Unionism in the Public Service - Public Employment Policies.

351.109
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1941

U.S. CIVIL SERVICE COMMISSION, History of the Federal Civil Service, 1789 to the Present.

Spoils vs. Merit, 1789-1829; Spoils System at its Height 1829-1861; First Merit System 1861-1883; Establishment of Merit System 1883-1901; Modern Public Administration 1901-1919; Merit System today.

351.3
F536i
1959

FISHER, ROBERT, Intensive Clerical and Civil Service Training.
South-western Publishing Company, 1959.

This book provides an intensive, pre-employment review of the knowledge and basic skills that are necessary for clerical positions in industry and government. Their materials will make entry into the field as rapid and profitable as possible by providing a planned study program.

351.1
C499o
1943

PUBLIC PERSONNEL ASSOCIATION, Oral Tests in Public Personnel Selection.
Civil Service Assembly of the United States and Canada, 1943.

A report submitted to the civil service assembly by the Committee on oral tests in public personnel selection. Bibliography - Civil Service U.S. - Examinations - Interviewing.

351.3
T852
1953

TURNER, DAVID REUBEN, Homestudy Course for Civil Service Jobs.
Arco Publishing Co., 1953.

Arco courses for Civil service jobs - Civil service examinations.

351.1
V357h

VAN RIPER, PAUL P., History of the United States Civil Service.
Row, Peterson, 1958.

Volume is devoted to the story of one administration system as it developed over time, as it responded to various political and social pressures, and as it functioned from day to day over more than a century and a half (1789-1958).

351.105
P976

PUBLIC PERSONNEL REVIEW.
Public Personnel Association, April, 1940.

Periodicals.

COMMERCIAL POLICY

HF
1.411
G3

GALBRAITH, VIRGINIA L., World Trade in Transition.
Public Affairs Press, 1965.

1. Commercial policy. 2. International economic relations.

HF
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M33

MALLERY, OTTO TOD, More than Conquerors.
Harper, 1947 .

Building peace on fair trade. Part I is a telescopic view of the whole problem of international trade relations. Part II is a close-up view of one essential part of the necessary program for peaceful progress, the proposed I.T.O. (International Trade Organization) which will shortly come before Congress and the General Assembly of the U. N. Part III proposes mutual aid for dependent peoples whose rise in living standards would lift industrial nations, including ourselves. Part IV accepts the relationship between spiritual energy and material progress.

HB
171
P66
1948

POLANYI, MICHAEL, Full Employment and Free Trade .
University Press, 1948 .

1. Full employment policies. 2. Commercial policy.

HD
9006
T66

TONTZ, ROBERT L., ed., Foreign Agricultural Trade.
Iowa State University Press, 1966.

Selected readings, edited by Robert L. Tontz. 1. Produce trade.
2. Commercial Policy.

CORRESPONDENCE SCHOOLS AND COURSES

374.473
C884
1936

CROSS, A. J. FOY, Relative Success in Certain Supervised Correspondence Courses of Pupils at Various Levels of Mental Ability and Reading Ability.
Nebraska, 1936.

Thesis (Ph.D.) - University of Nebraska, 1936. 1. Correspondence schools and courses. 2. Ability - testing.

374.4
N277h
REF.

NATIONAL HOME STUDY COUNCIL, Home Study Blue Book.
Washington, 1928 .

Cover title, 1st - Home Study Blue Book and Directory of Private Home Study Schools and Courses.

374.4
N278g
REF.

NATIONAL UNIVERSITY EXTENSION ASSOCIATION. CORRESPONDENCE STUDY DIVISION, Guide to Correspondence Study.
Minneapolis.

Listing courses available through regionally accredited colleges and universities which are members of the Correspondence Study Division of the National University Extension association.

374.477311
qAm512

AMERICAN SCHOOL NEWS
American School, v. 1 - 1949.

Periodical.

ECONOMIC DEVELOPMENT

HD
82
B47

BHATT, VINAYAK VIJAYSHANKER, Employment and Capital Formation in Underdeveloped Economies.
Bombay, Orient Longmans, 1960.

The first five chapters of this book represent, substantially, the work done at the Harvard University for doctoral dissertation during the academic year 1951-52. 1. Underdeveloped areas. 2. Economic development. 3. Capital. 4. Unemployed.

ECONOMICS

330.7
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NATIONAL TASK FORCE ON ECONOMIC EDUCATION, Economic Education in the Schools.
Committee for Economic Development, 1961.

A report. 1. Economics - study and teaching.

330.7
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HAYNES, JOHN, Economics in the Secondary School.
Houghton Mifflin Company, 1914.

1. Study and teaching.

330.7
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ASSOCIATION FOR SUPERVISION AND CURRICULUM DEVELOPMENT. COMMISSION ON EDUCATION FOR ECONOMIC COMPETENCE, Educating for Economic Competence.
Washington, 1960.

1. Education for Economic Challenge. 2. Social Goals of the Economy. 3. Economic Education and Curriculum Policy. 4. Economic Education in the Primary Grades, Intermediate Grades, Junior High, Senior High.

330.7
C734e

COMMITTEE FOR ECONOMIC DEVELOPMENT, Economic Literacy for Americans, A Program for Schools and for Citizens.
Committee for Economic Development, February, 1962.

A statement on national policy by the Research and Policy Committee of the Committee for Economic Development, February, 1962.
1. Responsibility without knowledge. 2. Obstacles to Economic Education. 3. Progress: (a) Teacher Preparation (b) Goals (c) Study materials. 4. Recommended Action.

330.7
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DODD, JAMES HARVEY, Economics in the Secondary Schools.
South-Western Publishing Co., 1953.

1. Economics in Secondary Schools. 2. Values from Study of Economics. 3. Status of Economics in Secondary School. 4. Provisions for Teaching Economics in High School. 5. Teach Economic Theory? 6. Teach Controversial Issues?

H
62
C53

Economic Education Experiences of Enterprising Teachers.
Calvin K. Katzanjian Economics Foundation, 1962/63.

It provides interesting examples of Economic Education on the march in classrooms throughout the country. It provides considerable testimony that Economic Education is evolving into a fresher and more lively, challenging, realistic, and analytical presentation of highly significant subject matter.

330.7
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1914

HAYNES, JOHN, Economics in the Secondary School.
Houghton Mifflin Company, 1914.

1. Need of Economic Interest. 2. Suitability of Economics as a Secondary Subject. 3. Present Status. 4. Place of Economics in the Curriculum. 5. Methods of Teaching. 6. Content of Course. 7. Bibliography.

A330
J74s

JOINT COUNCIL ON ECONOMIC EDUCATION. MATERIALS EVALUATION COMMITTEE, Study Materials for Economic Education in the Schools.
Committee for Economic Development, 1961.

Report of the Business Education Committee of the Committee for Economic Development, October 1961. 1. Production and its Control Through Markets. 2. Distribution of Income. 3. Inflation, Recession, and Stabilization Policies. 4. Special Areas of Study.

330.7
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NATIONAL TASK FORCE ON ECONOMIC EDUCATION, Economic education in the Schools.
Committee for Economic Development, 1961.

A report. 1. Study and Teaching.

335.407
R969a

RUSSIA(1923 - U.S.S.R.) UPRAVLENIE PREPODAVANIIA OBSHCHESTVENNYKH NAUK, Administration of Teaching In Social Sciences in the U.S.S.R.
University of Michigan, 1960.

Syllabi for three required courses: Dialectical and Historial Materialism, Political Economy, History of the C.P.S.U.
1. Communism. 2. Dialectical materialism.

330.82
J65s
ser.5
no.12

WHITE, ANDREW DICKSON, European Schools of History and Politics.
Johns Hopkins University, 1887.

List of books upon the civil service of Germany. History; Political Science; Economics.

EMPLOYEES, TRAINING OF

Tm
B474

BENSON, JAMES DARRELL, An Evaluation of Present and Proposed Selection Criteria for the Management Achievement Program of the Pacific Telephone and Telegraph Company.
Reno, Nevada, 1964 .

Thesis (m.a.) - University of Nevada.

658.16
C885j

CRAF, JOHN RILEY, Junior Boards of Executives.
Harper, 1958 .

A management training procedure. The need for management development - A history of junior boards - Methods of operation Rating, Accomplishments, Evaluation.

658.386
M822
1945

MORGAN, HOWARD KEY, Industrial Training and Testing.
McGraw-Hill Book Company, Inc., 1945 .

Introduces a method of industry training designed to be profitable in either war or peace. Not a review of all training methods but a plan with specific recommendations. In brief, it starts with the day a worker applies for a job and ends with the day that he leaves the plant, and not only is the worker tested, but the training plan is under continual test.

658.3082
N277s
no.107

NATIONAL INDUSTRIAL CONFERENCE BOARD, Company Programs of Executive Development.
New York, 1950.

Gives actual data received from companies training executives and lists problems they face.

658.3082
N277s
no.119

NATIONAL INDUSTRIAL CONFERENCE BOARD, Employee Education .
New York, 1951 .

Selected films used in employee education programs.

658.3082
N277s
no.188

NATIONAL INDUSTRIAL CONFERENCE BOARD, College Graduates Assess Their Company Training.
New York, 1963 .

Purpose of this study is to provide companies with specific information that may help them improve their training programs for college graduates. Major finding of this study is the high enthusiasm of these young college-trained men for their companies and for most of the things that have happened to them since they joined their companies. Level of enthusiasm varies by program and by company but in no instance is it low.

658.386
Se482e

SERBEIN, OSCAR N., Educational Activities of Business. American Council on Education, 1961.

Contributions of Business to Education - Administrative Aspects of Educational Activities of Business - Structure of Major In-Company Educational Programs, examples of - Other Educational Programs - Out-of-Company Training. Business and the Traditional System of Education.

658.386
St62j
1955

STOCKTON, FRANK TENNEY, Job Training in Kansas Industry . Bureau of Business Research, School of Business, University of Kansas, Lawrence, 1955.

Employees, Training of. Technical education in Kansas.

FORESTRY SCHOOLS AND EDUCATION

634.907
G78
1932
Life
Sciences

GRAVES, HENRY SOLON, Forest Education.
Yale University Press, 1932.

Co-Author: Cedric H. Guise. Purpose of the present inquiry is to aid in strengthening the foundations of the system of forest education in America. The inquiry deals with the education of men preparing for the profession of forestry. Contains: Part I - The Background of Forest Education. Part II - The Occupations of Foresters. Part III - The Education of Foresters. Part IV - Problems of the Forest Schools. Part V - Forest Education in Europe and in Other Foreign Countries.

634.907
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1944
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MASON, EARL GEORGE, A Functional Curriculum in Professional Forestry.
Corvallis, 1944.

The purpose of this study is twofold: first, the construction of a major framework outlining a functional curriculum in professional forestry and, second, the suggesting of a method of procedure that will enable a staff in any forestry school to develop a functional curriculum adapted to local needs. It will not be a precise course of study, rather it will provide a valuable guide to proper approaches and procedures for forestry school faculties.

634.9058
F762
1943
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THE FORESTRY DIRECTORY.
The American Tree Association, 1924.

This book gives a comprehensive look at forestry including history, problems legislation, organizations, forest education, schools of forestry, and special geographic areas of forestry.

INDUSTRIAL ARTS

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C38

CHASE, ANNIE, Stories of Industry.
Educational Publishing Company, 1891.

Co-Author: E. Clow.

371
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GALTON, FRANK W., Ed., Workers on Their Industries.
C. Scribner's Sons, 1896.

Essays...originally delivered as a course of lectures on industries, at South Place institute, on Sunday afternoons during the winter of 1893-4.
The need and value of technical education - Dressmakers and tailoresses - Workers in precious metals. - Shipbuilding. - Wood engraving. - Corn-milling, ancient and modern. - Engineering. - Cask-making. - The Art of Bookbinding. - The Agricultural Labourer. - Bricklayers - Pottery. - The need of organization among women. - The need of labour representation.

600
M556
1947

MERSEREAU, SAMUEL FOSTER, Materials of Industry, their Distribution and Production.
McGraw-Hill Book Company, Inc., 1947.

This book was written originally to meet a need felt in education work for a more systematic study of the common materials of industry. It is intended for use not only in technical high schools, but also in industrial and vocational schools and in other institutions where the study of these materials is taken up. Selection and arrangement of the materials have their basis in the requirements of a course development in the Brooklyn Technical High School over a period of several years. Immediate aim of the course is to give the students a working knowledge of the main facts of industry, including the distribution and production of raw materials and their general properties, transportation, conversion into commercial products and economic importance.

j670
R58

ROCHELEAU, WILLIAM FRANCIS, Great American Industries.
A. Flanagan, 1900-2.

Book 1. Coal, petroleum, iron, marble, slate, gold and silver. Book 2. Products of the soil. Book 3. Manufactures. Book 4. Transportation.

F600
Un3
1892

U. S. PATENT OFFICE. The Growth of Industrial Art. Government Printing Office, 1892.

Arranged and compiled under the supervision of the Hon. Benj. Butterworth, Commissioner of Patents. 200 pages of illustrations, with descriptive letterpress, representing primitive methods and modern patents.

745
V288
1940

VAN DOREN, HAROLD LIVINGSTON, Industrial Design. McGraw-Hill Book Company, 1940.

This book is aimed at the young person making his choice of vocation. The book is divided into four parts: The New Profession, a discussion about the new profession of industrial design - Fundamentals, a discussion of concepts of design - Technique, tells how to go about doing design - Practice, offers a few problems to the students.

331
V49

VEBLEN, THORSTEIN B., The Instinct of Workmanship, and the State of the Industrial Arts. The Macmillan Company, 1914.

The following essay attempts an analysis of such correlation as is visible between industrial use and want and those other institutional facts that go to make up any given phase of civilization. (1) Contamination of Instincts in Primitive Technology. (2) Savage State of the Industrial Arts. (3) Technology of the Predatory Culture. (4) Ownership and the Competitive System. (5) Era of Handicraft. (6) Machine Industry.

600.1
Am3o
1919

AMERICAN LIBRARY ASSOCIATION. WAR SERVICE, One Thousand Technical Books. American Library Association, Library War Service, 1919.

A selected list with annotations emphasizing especially elementary practical books. Contents: Engineering, Civil Engineering, Mechanical Engineering, Electric Engineering, Building, Mining and Metallurgy, Chemical Technology, Miscellaneous.

016
H847
1963
REF.

How-To-Do-It Books.
R.R. Bowker Company, 1963.

A selected guide. The first two editions compiled by Robert E. Kingery. Industrial Arts Bibliography.

j926
P25

PARTON, JAMES, Captains of Industry.
Houghton, Mifflin and Company, 1884-91.

A book for young Americans. Title of v. 1 reads: Captains of industry; or, Men of business who did something besides making money.

603
C774c
1879

COOLEY, ARNOLD JAMES, Cooley's Cyclopaedia.
D. Appleton and Company, 1879-80.

Cooley's cyclopaedia of practical receipts and collateral information in the arts, manufacturers, professions, and trades, including medicine, pharmacy, and domestic economy: designed as a comprehensive supplement to the pharmacopoeia and general book of reference for the manufacturer, tradesman, amateur, and heads of families.

338.45
F623
1944

FLEDDERUS, MARY L., Technology and Livelihood.
Russell Sage Foundation, 1944.

An inquiry into the changing technological basis for production as affecting employment and living standards. Documented with materials quoted from scientific, governmental reports and arranged to describe new technological developments and their effects on productivity and labor requirements. Co-Author: Mary van Kleeck.

M
609
F746m
1950

FORBES, ROBERT JAMES, Man, the Maker.
Schuman, 1950.

A history of technology and engineering.

650
G35

GIBBINS, HENRY DE BELTGENS, Economic and Industrial Progress of the Century.
The Linscott Publishing Company, 1901.

1. Commerce, Nineteenth century, Economic conditions.

609
M919
1934

MUMFORD, LEWIS, Technics and Civilization.
Harcourt, Brace and Co., 1934.

1. Industrial arts; 2. Civilization; 3. Machinery; 4. Social Conditions; 5. Inventions; 6. Power (Mechanics).

914.2
R37
1931

RICHARDSON, ALBERT EDWARD, Georgian England.
B. T. Batsford ltd., 1931.

A survey of social life, trades, industries and art from 1700 to 1820. The genesis of this book was a series of lectures delivered some little time since before the University of Bristol.

509.03
W83
1935

WOLF, ABRAHAM, A History of Science, Technology, and Philosophy in the 16th and 17th Centuries.
G. Allen & Unwin, ltd., 1935.

With the co-operation of Dr. F. Dannemann and Mr. A. Armitage. 1. Science; 2. Industrial Arts; 3. Philosophy.

509.03
W83h
1939

WOLF, ABRAHAM, A History of Science, Technology, and Philosophy in the Eighteenth Century .
The Macmillan Company, 1939.

1. Science; 2. Industrial arts; 3. Philosophy.

605
I129

ILLUSTRATED WORLD
Technical World Company, 1905-23.

Periodical. Monthly. 1. Technology; 2. Industrial Arts.

f371.42605
In42

INDUSTRIAL ARTS AND VOCATIONAL EDUCATION.
The Bruce Publishing Company, monthly.

Periodical. 1. Technical education; 2. Manual training; 3. Industrial arts; 4. Art industries and trade.

620.5
In2
GEN.REF.

APPLIED SCIENCE AND TECHNOLOGY INDEX, v. 1 - Feb. 1913.
H. W. Wilson.

1. Engineering; 2. Technology; 3. Industrial Arts.

608.4
D555
REF.

A DIDEROT PICTORIAL ENCYCLOPEDIA OF TRADES AND INDUSTRY
Dover Publications, 1959.

Manufacturing and the technical arts in plates, selected from L'Encyclopedie.

051
Am495j

AMERICAN INSTITUTE OF THE CITY OF NEW YORK, Journal of the American Institute.
T. B. Wakeman, 1836-40.

A monthly publication devoted to the interests of agriculture, commerce, manufactures, and the arts, accompanied with public documents, sketches of natural history, and occasionally, philosophical and literary essays.

371.422
B64
1923

BONSER, FREDERICK GORDON, Industrial Arts for Elementary Schools.

This book is divided into two main areas: Part I presents a brief exposition of the principles for the organization and teaching of the industrial arts in elementary schools; Part II is an application of these principles to the activities in which the children may engage, together with much related material. For each grade, the principal desired outcomes are specified. There is also a chapter on the historical aspects of this topic.

371.426
Er68t
1956

ERICSON, EMANUEL E., Teaching the Industrial Arts.
C. A. Bennett Company, 1956.

The chief concern of this book is to encourage teachers in service and those who are preparing to teach, to recognize and analyze the many problems and opportunities that confront them as teachers, and to offer suggestions that will lead to a more effective and satisfying teaching career. The book deals with teaching situations and personal relationships. Patterns of organization, class management teaching methods, and lesson planning are presented.

371.42
W46
1923

WELLING, JANE BETSY, Social and Industrial Studies for the Elementary Grades, Based on Needs for Food, Clothing, Shelter, Implements, and Records.
J. B. Lippincott Co., 1923.

1. Industrial Arts; 2. Social sciences; 3. Project method in teaching.

745.5
H321i

HARRISON, OVAL STANLEY, Industrial Arts and Handcraft Activities.
Burgess Publishing Co., 1959.

1. Art industries and trade; 2. Handicraft.

f371.42605 INDUSTRIAL ARTS AND VOCATIONAL EDUCATION
In42 The Bruce Publishing Co., monthly, 1914.

Periodical. 1. Technical education; 2. Manual training.

371.426 NEWKIRK, LOUIS VEST, The Industrial Arts Program.
N461 Macmillan Co., 1948.
1948

Volume is intended for all who are interested in the place and education contribution of industrial arts in any or all of the twelve grades of the elementary and high school. The shop plans, objectives and content for industrial arts at all grade levels should be helpful to supervisors, principals and superintendents who are planning, equipping and administering industrial arts programs in their schools as a part of general education. The objects suggested content, sample projects, and discussion of teaching method should be practical and useful for industrial arts teachers as well as teachers in other fields who are interested in shopwork. Includes: photos of pupils at work, shop plans, graded sample projects as well as the statement of the philosophy, content and methods of industrial arts.

INDUSTRIAL MANAGEMENT

HD
31
A58

ANSOFF, H., Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion.
New York, McGraw-Hill, 1965.

This book is concerned with business strategy formulation in the social-economic environment of the United States. The concepts and methodology presented are applicable to other environments and other types of institutions.

HD
31
A59

ANTHONY, ROBERT NEWTON, Planning and Control Systems.
Harvard University, 1965.

The basic purpose of this volume is not to report research findings themselves but to set forth a framework which will influence the conduct of future research in the broad topic area of planning and control systems.

HB
601
C5686

COLLINS, ORVIS F., The Enterprising Man.
Michigan State University, 1964.

Prepared by Michigan State University under the Small Business Administration Management Research Grant Program. Entrepreneur.

T
58
F54
1963

FOLTS, FRANKLIN ERTON, Introduction to Industrial Management: Text, Cases, and Problems.
New York, McGraw-HIll, 1963.

HD
31
G32

GARDNER, FRED V., Profit Management and Control.
New York, McGraw-Hill, 1955.

For the past 20 years, product growth and profits have outstripped managements' ability to measure these values. Mr. Gardner's purpose is to bring "the costs of keeping costs" in line. In addition to simple statistical graphs, he stresses the importance of the break-even-point for management decisions in planning, measuring profit efficiency, determining selling prices, and labor relations.

HD
31
H315

HANIKA, FRANCIS DE PAULA, New Thinking in Management.
London, Hutchinson, 1965.

A guide for managers.

Sol/b 59

HD
31
H78

HUGHES, CHARLES L., Goal Setting.
American Management Association, 1965.

Key to individual and organizational effectiveness. Today there are many good theories of motivation, many potentially useful concepts about increasing employee commitment to company objectives and goals. This book synthesizes many electric ideas and translates them into meaningful terms. Numerous conflicts between theory and application are brought to life.

HD
31
036

ODIORNE, GEORGE S., Management by Objectives.
Pitman Publishing Corp., 1965.

A system of managerial leadership. The system of management by objectives is viewed in a larger context than that of a mere appraisal procedure. It regards appraisal as only one of the several sub-systems operating within the larger system of goal oriented management. Lists the major functions of management as well as the major premise of management by objectives.

HD
38
P65

L PORTER, ELIAS HULL, Manpower Development.
Harper & Row, 1964.

The system training concept. The author writes about the evolution of the system training concept, with its related "system thinking." Contains: (1) Systems, Components, and Organizational Behavior. (2) Why Study Organizations? (3) Real-Time Problems and Scientific Method. (4) Search and Serendipity. (5) Field Test and Expansion. (6) A Field Evaluation of System Training. (7) Adaptations of System Training Concepts.

T
56
P76
1958

Production Handbook.
Ronald Press Co., 1958.

Edited by Gordon B. Carson. Factory management. Personnel management.

HD
31
s56

SIMON, HERBERT ALEXANDER, The Shape of Automation for Men and Management.
Harper & Row, 1965.

Presents some of the thinking, new and old, on the subject of computers and automation. Also provides an analysis of the economic implications of automation. Part I - The Long Range Economic Effects of Automation. Part II - Will the Corporation be managed by machines? Part III - The New Science of Management Decision.

HD
31
W64

WOODWARD, JOAN, M.A., Industrial Organization: Theory and Practice .
Oxford University Press, 1965.

Bibliographical footnotes. Industrial management.

HD
31
M2935

MANAGEMENT SCIENCE, Executive Readings in Management Science .
New York, Macmillan, 1965.

Edited by Martin Kenneth Starr. This volume gives the reader a real flavor of the current topics of conversation that make up the management sciences of today. He will come to realize that in this effort to develop a living conversation about the deepest problems we humans face, too many people are remaining silent. Contents: Some History of Management Science - Philosophical Issues - Methodological Development - Institutional Realities - Adaptation and Control: Educational Goals - Progress.

HD
31
M2938

MANAGEMENT SCIENCE. Mathematical Studies in Management Science.
New York, Macmillan, 1965.

Edited by Arthur F. Veinott, Jr. Papers reprinted from the first eight volumes of Management Science. Industrial management - Addresses, essays, lectures.

Z
7164
C81A4

AMERICAN MANAGEMENT ASSOCIATION. Research and Information Service, Index to AMA's Publications.
American Management Association, 1954-1963.

First vol. titled: 10-yr. index of AMA publications. Industrial management - Bibliography.

HD
31
W35

WASSON, CHESTER R., Managerial Economics: Text and Cases.
Appleton-Century-Crofts, 1966.

Contents: Chapter 1 - Economic Concepts Needed for the Analysis of Business Figures. Chapter 2 - Pinpointing the "How Much" of a Decision. Chapter 3 - Understanding and forecasting the Demand and Supply Situation. Chapter 4 - Competition: Management of the Product Variable. Chapter 5 - Price: the Tactical Weapon of Competition. Chapter 6 - Determination of Economic Cost. Chapter 7 - Planning for Capital Investment. Chapter 8 - Tools Useful for Comparing Alternatives.

JOB ANALYSIS

023.7
Am35
1951

AMERICAN LIBRARY ASSOCIATION. Position Classification and Salary Administration in Libraries.
Chicago, 1951.

Contents: This manual has been written to provide a practical step-by-step guide to position classification and salary administration for the use of administrators, staff, and governing boards of libraries. The manual has been planned with libraries of all types and sizes in mind but has been geared primarily to the medium sized public library, with a staff of 10 or more. The techniques presented have been adapted from established and tested methods used in government, business and industry.

331.22
J276m

JAQUES, ELLIOTT, Measurement of Responsibility.
Harvard University Press, 1956.

A study of work, payment, and individual capacity.
Contents: Recurrence of payment disputes - The problem of status and salaries - The maximum time-span of discretion - Analysis of status and salary problems - Manual work and hourly-rated operator - The current situation - Notes on the Psychological meaning of work - Serve socio-economic implications.

658.511
J632
1946

JOHNSON, FORREST HAYDEN, Job Evaluation.
J. Wiley & Sons, Inc., 1946.

Contents: Book is written to satisfy the need created because of the large increase in the number of industrial job-evaluation programs all over the world. Attempts to illustrate how a typical plan works out in practice not to specify a ready-made job evaluation plan.

658.3222
L27j

LANHAM, ELIZABETH, Job Evaluation.
New York, McGraw-Hill, 1955.

Contents: Purpose of this book is to present a guide to the salutation and installation of job evaluation programs in business, industrial, governmental and educational organizations. Presents a discussion of underlying management principles and philosophies, practices, and procedures. Currently utilized. It is designed for college and university students as well as operating personnel who are handling problems in the field.

658.32
N547f

NICOLOPOULOS, LEONIDAS GEORGE, Formal Job Evaluation and Some of its Economic Implications.
McGill University, 1954.

This report is a reflection of the contradictions inherent in group thinking where, deliberately no attempt was made to reach a final and universally acceptable synthesis of ideas. It contains the essence of the problem as seen by the group. Contents: Development of Formal Job Evaluation - Administration and Maintenance - Union Participation - Formal Job Evaluation and Labor Relations - Advantages and Disadvantages - Economic Implications.

658.3222
P322j
1957

PATTON, JOHN A., Job Evaluation: Text and Cases.
Homewood, Ill., R. D. Irwin, 1957.

Contents: Approach to Job Evaluation - Relations with Unions - Job Analysis - Job Descriptions and Specifications - Evaluating by Ranking, Grading, Factor Comparison, Point Rating - Selecting the Rating Method - The Process of Evaluation - Wage Survey - Wages Curve-Committee - Problems - Administration - Executive Evaluation - Merit Rating.

371.425
Sh532o
1959

SHARTLE, CARROLL LEONARD, Occupational Information, Its Development and Application.
Prentice-Hall, 1959.

Vocational Guidance - Occupations.

653.511
qM922mo
1955

MUNDEL, MARVIN EVERETT, Motion and Time Study Workbook .
New York, Prentice-Hall, 1955.

Loose-leaf - 139 pages - charts - Handbooks, manuals.

658.32
B436
1941

BENGE, EUGENE JACKSON, Manual of Job Evaluation.
New York and London, Harper & Brothers, 1941.

Procedures of job analysis and appraisal. Contents: Manual is devoted primarily to an authoritative exposition of job analysis and to that method of job evaluation known as "Factor Comparison." It is not intended as a treatise on wages, but is addressed directly to executives and workers seeking a practical method for determination of equitable wages and salary rates. Part I - Job evaluation systems. Part II - The factor comparison method. Part III - General Consideration.

352.23
W362j

WEATHERHEAD, PAYNTER AND ASSOCIATES. Job Analysis and Classification Study of the Police Officer Occupation. Police Officers Association, 1957.

Contents: (1) Explores, as directly as possible, the pertinent facts about police officers work. (2) Evaluates the occupation according to significant selection factors. (3) Determines the level of requirements for the occupation. (4) Determines the relation of the police officer occupation to other occupations in the community in terms of requirements and levels of requirements.

JOB DESCRIPTIONS

HD
21
A6
no.33

BENNET, CARRIE LYNN, Defining the Manager's Job: The AMA Manual of Position Descriptions. New York, American Management Association, 1958.

This book describes the current practices of 140 companies which have had considerable experience with position descriptions on the managerial level, and it attempts to identify some of the factors which encourage particular approaches in particular situations. Contents: Part I - A Survey of Company Practice, Making the Basic Decisions - The Uses of Position Descriptions Establishing the Program - Gaining Acceptance - The Descriptions. Part II - Handbook of Descriptions.

3 62.1
Un3
1952

U. S. EMPLOYMENT SERVICE. Job Descriptions and Organizational Analysis of Hospitals and Related Health Services. Washington, U. S. Government Printing Office, 1952.

Hospitals - Staff; Workers - U. S.; Management and regulations; Occupations - Descriptions; Nurses and Nursing in the U. S. Prepared by the U. S. Department of Labor, Bureau of Employment Security, U. S. Employment Service, Occupational Analysis Branch in cooperation with the American Hospital Association.

651.374
Un3
1945

U. S. BUREAU OF MANPOWER UTILIZATION. Job Descriptions for Office Occupations. Washington, D. C., War Manpower Commission, Division of Occupational Analysis, 1945.

Office Management and clerks.

JOB EVALUATION

658.511
J632
1946

JOHNSON, FORREST HAYDEN, Job Evaluation.
New York, J. Wiley & Sons, Inc., London, Chapman & Hall limited, 1946.

Co-Authors: Robert W. Boise, Jr., and Dudley Pratt.
Job Analysis.

HD 4909
L23

LANHAM, ELIZABETH, Administration of Wages and Salaries.
New York, Harper & Row, 1963.

The purpose of this book is to provide information about the administration of wages and salaries as well as the philosophies and principles entering into that administration. An evaluation of several of the controversial areas is included because some present-day practices are still open to question. A look into the future is included in order that some perspective of the view ahead may be seen. Long-range planning as well as short-term problem solving are essential for sound control of wages and salaries.

658.3222
L27j

LANHAM, ELIZABETH, Job Evaluation.
New York, McGraw-Hill, 1955.

Job Analysis.

JOB OF THE FEDERAL EXECUTIVE

351.1
B458j

BERNSTEIN, MARVER H., The Job of the Federal Executive. Washington, Brookings Institution, 1958.

Executives - U. S.; U. S. Officials and employees.

JOB OPERATIONS IN FARM MECHANICS

631.3
D56
1936

DICKINSON, SHERMAN, Job Operations in Farm Mechanics. Columbia, Missouri, 1936.

Written by vocational agriculture teachers of Missouri. Agricultural Engineering; Agricultural machinery; Agriculture - Study and Teaching; Project Method in teaching.

JOB ORDER PRACTICE SET

657.867
V277j
1957

VANCE, LAWRENCE LEE, Job Order Practice Set: Industrial Rubber Hose, Inc.
Brooklyn, N. Y., The Foundation Press, Inc., 1957.

Includes sample looseleaf work sheets in set.

JOB SATISFACTION

331.1
H274f

HARE, ANTHONY EDWARD CHRISTIAN, The First Principles of Industrial Relations.
New York, St. Martin's Press, 1958.

Industrial Relations

331.01
H582m
1959

HARZBERG, FREDERICK, The Motivation to Work.
New York, Wiley, 1959.

Co-author: Barbara Block Snyderman.

Tm
H693

HOE, BETTY HEATH, Occupational Satisfaction as a Function of Self-role Congruency.
Reno, Nevada, 1962.

Thesis (M.A.) - University of Nevada. Social psychology. Character tests. Apperception - Testing.

658.3
M837s
1953

MORSE, NANCY C., Satisfactions in the White-Collar Job.
Survey Research Center, University of Michigan, 1953.

This report considers in detail the several aspects of employee satisfaction, and the social psychological factors associated with it. The author proposes a general framework for predicting the level of satisfaction which an individual will derive from a given situation.

HF
5549
T83

TURNER, ARTHUR NICHOLSON, Industrial Jobs and the Worker.
Boston, Harvard University, Division of Research, Graduate School of Business Administration, 1965.

Personnel Management. Co-author: Paul L. Lawrence.

331.011
Z14m

ZALEZNIK, ABRAHAM, The Motivation, Productivity, and Satisfaction of Workers.
Boston, Harvard University, 1958.

Contents: Study reports the results of research on the factors influencing the maturation, productivity, and satisfaction of industrial workers - Research design combined both analytical and clinical tools. Study was designed from the start to provide the opportunity for testing a large number of different hypotheses about factors determining the behavior of the work group and the individuals in the work group.

JOB TRAINING IN KANSAS INDUSTRY

658.386
St62j
1955

STOCKTON, FRANK TENNEY, Job Training in Kansas Industry. University of Kansas, 1955.

Training of Employees; Technical education - Kansas.

JOBS AHEAD IN ENGINEERING

338
T313
1944

TEXAS. AGRICULTURAL AND MECHANICAL COLLEGE. SCHOOL OF ENGINEERING., The Texas School of the Air. College Station, Texas, 1944.

Jobs ahead in engineering, sponsored by the School of Engineering. The last 16 programs of the 1943-44 Jobs Ahead Series of the Texas School of the Air.

JOBS AND GROWTH

338.973
C748j

CONFERENCE ON ECONOMIC PROGRESS. Jobs and Growth. Washington, 1961.

Contents: We are moving, but much too slowly on the economic front. The long-term rising tide of idle workers- Who are the unemployed? - The increasing idleness of machines and plants - Low economic growth - The costs of chronic ailment - Reasons for the ailment - Goals and programs for optimum performance - appraisal of the administrations program - Inflation and tight money - The gold and balance of payments problem - Toward an "American Economic Performance Budget."

JOBS AND THE MAN

658.3
W875
1945

WOODWARD, LUTHER ELLIS, Jobs and the Man.
Springfield, Ill., C. C. Thomas, 1945.

A guide for employers, supervisors, interviewers, counselors, foremen, and shop stewards in understanding and dealing with workers - veterans or civilians.

JOBS FOR ALL THRU INDUSTRIAL EXPANSION

330
Ez9

EZEKIEL, MORDECAI, Jobs for all Through Industrial Expansion.
New York, London, A. A. Knopf, 1939.

Sources of statistics. Industry - organization, control, etc.; Industry and State - U. S.; U. S. - Economic policy.

JOBS IN RURAL JOURNALISM

070
W333
1945

WATSON, ELMO SCOTT, Jobs in Rural Journalism.
Chicago, Illinois, 1939.

Selected bibliography in rural journalism. Compiled from materials secured through Northwestern University in cooperation with the Illinois Federal Writers' project, Works Progress Administration.

JOBS OR THE DIRECT RELIEF

331.1379
D431
1935

DE NOOD, NEAL BREAULE, Jobs or the Dole?
Chicago, Ill., The University of Chicago Press, 1935.

Contents: One in a series which represents an attempt to present, in a spirit of scientific inquiry but in non-technical language a discussion of current issues in economics; politics and sociology.

JOBS, PROFITS, ECONOMIC GROWTH

331.112
N277j

NATIONAL INDUSTRIAL CONFERENCE BOARD, Jobs, Profits, Economic Growth.
New York, 1963.

Contents: This chartbook was designed to contribute toward a better understanding of the interrelations of jobs, profits, and economic growth. It shows that job creation and economic growth have not always marched in step. The constant changes in our economic system have resulted in spurts and slowdowns in economic growth, which at times expand job opportunities and at other times curtail them. This manual attempts to explain some of the reasons for the aforementioned.

LABOR AND DEMOCRACY

338.9
H87
1922

HUGGINS, WILLIAM L., Labor and Democracy.
New York, The Macmillan company, 1922.

The work is mostly devoted to the Kansas Industrial Act and its workings. Contents: Author has attempted to discuss the relations between government and modern industry conditions, to point out some of the dangers to democracy institutions inherent in the present labor movement, to carefully appraise the rights of labor, of capital and of the public and to suggest legal principles upon which remedial legislation may be based.

LABOR AND EDUCATION

370.973
W893
1939

WORKERS EDUCATION BUREAU OF AMERICA. Labor and Education.
Washington, D.C., American Federation of Labor, 1939.

"At the request of the Committee on education of the American Federation of Labor and Workers education bureau prepared this pamphlet." It is a brief outline of the resolutions and pronouncements of the American federation of labor in support of the general principles and practices of education from 1881-1938.

LABOR & INDUSTRIAL SOCIETY

331
G5361
1963

GITLOW, ABRAHAM LEO, Labor and Industrial Society.
Homewood, Ill., R.D. Irwin, 1963.

Contents: Labor and Industrial Society - Trade Unionism; history, problems, character - Wages; economics, labor market, productivity - Collective Bargaining; Full Employment; population, unemployment, technological change - Protective Labor Laws; Hours of work, benefits. This is a very good interview of modern labor and its problems in the United States.

LABOR AND INDUSTRY IN BRITAIN

330.5
L123

Labor and Industry in Britain v. 1-14; Apr. 1943-Dec. 1956.
New York, British Information Services.

Periodical - Labor and laboring classes - Great Britain - Great Britain Industry.

LABOR AND LABORING CLASSES

172.1
Ad2

ADDAMS, JANE, ...Newer Ideals of Peace.
New York, London, The Macmillan Company, 1907.

Contents: Introduction - Survivals of militarism in city government - Failure to utilize immigrants in city government - Militarism and industrial legislation - Group morality in the labor movement - Protection of children for industrial efficiency - Utilization of women in city government - Passing of the war virtues.

352
Av3

AVEBURY, JOHN LUBBOCK, On Municipal and National Trading.
London, New York, Macmillan and Co., Limited, 1907.

Contents: Introduction - The duties and responsibilities of local authorities - The increase of municipal debt - Labour questions - The housing of the working classes - Loss and profit - The effect of municipal trading on private enterprise - Railways - The interests of working men - Representation without taxation, and taxation without representation - Conclusion and recommendations - Index.

331.8
B62
1919

BLOOMFIELD, DANIEL, ...Selected Articles on Modern Industrial Movements, comp. and ed.
New York City, The H.W. Wilson Company, 1919.

Contents - Workers' co-operative movement - Syndicalism, industrial unionism, and the I.W.W. - Shop stewards - Scientific management - Guild socialism - Management sharing - Bolshevism - Labor parties - Industrial reconstruction programs - Index.

331.8
3621
1925

BLUM, SOLOMON, Labor Economics.
New York, H. Holt and Company, 1925.

Contents: Book deals partially with the labor movement and labor legislation in the U.S. as well as many aspects of unionism.

HD
4909
C2
1965

CAREY, HENRY CHARLES, Essay on the Rate of Wages (1835).
New York, A.M. Kelley, 1965.

Contents: Examines the circumstances which tend to determine the rate of wages. Includes an examination of the causes of the differences in the condition of the laboring population.

331.1
C73
1921

COMMONS, JOHN ROGERS, Industrial Government.
New York, The Macmillan Company, 1921.

A study of eighteen industrial establishments visited from July to September of 1919, with presentations from each individual who participated in the study.

331.8
C73t
1921

COMMONS, JOHN ROGERS, Trade Unionism and Labor Problems.
Boston, New York Ginn and Company, 1921.

Contents: Security - The labor market - Labor management - Labor unions - The law.

HM
213
C6

CORY, HERBERT ELLSWORTH, The Intellectuals and the Wage Workers.
New York, The Sunwise Turn, 1919.

A study in educational psychoanalysis. Contents: (1) Equality; (2) Proletarianism; (3) Religion; (4) Criticism; (5) History and Freedom; (6) Liberty; (7) Class Struggle and Fraternity; (8) Education, a Program for the American University.

HD
4901
G7

GOMPERS, SAMUAL, Labor in Europe and America.
New York and London, Harper & Brothers, 1910.

Personal observations from an American viewpoint of life and conditions of working men in Great Britain, France, Holland, Germany, Italy, etc.

172.405
In8
no. 425

GULICK, ROBERT LEE, ...The Share of Labor in World Trade.
New York, N.Y., Carnegie Endowment for International Peace, Division of Inter-course and Education, 1946.

Suggested charter for an International Trade Organization of the United Nations, presented by the United States as a basis for discussion by the Preparatory Committee for the international conference on trade and employment.

335.5
H35
1924

HEARNSHAW, FOSSEY JOHN COBB, Democracy and Labour.
London, Macmillan and Co., Limited, 1924.

A sequel to "Democracy at the Crossways".

331.1
H432w
Chemistry
Collection

HERON, ALEXANDER RICHARD, Why Men Work.
Stanford, Calif., Stanford University Press, 1948.

Work - Labor and laboring classes - Industrial relations.

331.214
H53
1932

HICKS, JOHN RICHARD, The Theory of Wages.
London, Macmillan and Co., Limited, 1932.

This book discusses the problem of wages in relation to productivity, labor demands, unemployment, unions, economic progress, and wage regulation.

339
H71

HOLLANDER, JACOB HARRY, The Abolition of Poverty.
Boston, New York Houghton Mifflin Company, 1914.

Contents: An essay which attempts, in a few, short pages, to set forth the needlessness of poverty. Maintains that the essential causes of poverty are determinable and its considered presence unnecessary. Sees a need for renewed emphasis in regard to the aforementioned.

358
H85
1915

HOXIE, ROBERT FRANKLIN, Scientific Management and Labor.
New York and London, D. Appleton and Company, 1915.

Efficiency, Industrial - Factory Management - Labor and Laboring Classes.

331.01
K98p

KWANT, REMIGIUS C. Philosophy of Labor.
Pittsburgh, Duquesne University, 1960.

Bibliographical footnotes - Contents: Text of a series of lectures given at Duquesne University in Pittsburgh in 1959. (1) Labor as a Paradox of Human Existance; (2) The Evolution of Labor; (3) The Totalitarian Philosophy of Labor Marxism; (4) Nature of Labor; (5) Practical Questions Concerning the Labor World.

331.081
L793m

LLOYD, HENRY DEMAREST, Men, the Workers.
New York, Doubleday, Page & Company, 1909.

Contents: The labour movement July 4, 1889. - The union forever. - The safety of the future lies in organized labour December, 1893. - Arbitration. - Illinois factory law speech 1894. - The new independence. - Strikes and injunctions 1894. - Boomerang law. 1895. - Speech at the reception of Eugene V. Debs. 1895. - Lessons of the Debs case. 1895. - Argument before the Anthracite coal strike commission. 1903. - Speech at the Mitchell, Darrow, Lloyd reception. 1903. - Addenda: A. The political economy of child labour. 1887. B. Civilization as heralded by Labour day.

331.8
M34
1918

MAROT, HELEN, Creative Impulse in Industry.
New York, E.P. Dutton & Company, 1918.

Contents: Production and creative effort - Adapting people to industry. The American way - Adapting people to industry. The German way - Educational industry and associated enterprise.

HB
301
M14
1963

MCCULLOCH, JOHN RAMSAY, A Treatise on the Circumstances which Determine the Rate of Wages and the Condition of the Labouring Classes.
New York, A.M. Kelley, Bookseller, 1963.

The rate of wages in 1854.

331
M623
v.1

MILLIS, HARRY ALVIN, Labor's Progress and Some Basic Labor Problems.
New York and London, McGraw-Hill Book Company, Inc., 1938.

Contents: Trend of Real Earnings. Workers' Share in National Income - Wage Theory - Income Distribution - Governmental Regulation of Wages - Women in Industry - Child Labor - Hours of Work.

331.87
M67

MITCHELL, JOHN, Organized Labor, Its Problems, Purposes and Ideals, and the Present and Future of American Wage Earners.
Philadelphia, Pa., American Book and Bible House, 1903.

Contents: Grade Unionism - History of Organized Labor - Unskilled Workers - Union and Politics - Strikes - Ideals of Organized Labor - 51 chapters in all.

331
M78

MOORE, HENRY LUDWELL, Laws of Wages.
New York, The Macmillan Company, 1911.

An essay in statistical economics. Contents: Statistical Laws - Wages, Subsistence and Standard of Life - Wages and Productivity of Labor - Wages and Ability - Wages and Strikes - Wages and the Concentration of Industry.

331
M8251

MOORE, WILBERT ELLIS, Labor Commitment and Social Change in Developing Areas.
New York, Social Science Research Council, 1960.

Contents: Spheres of Commitment; labor force, work place, market, society - Organization of Work - Market Matrix - Competing Status System; Mobility, Changing Social Structures; unions and conflict, political organization.

172.405
In8
no. 57

NEILL, CHARLES PATRICK, ...The Interest of the Wage-earner in the Present Status of the Peace Movement.
New York, American Association for International Conciliation, 1912.

An address delivered at the Lake Mohonk conference on international arbitration, May 17, 1912.

331.137
P62
1933

PIGOU, ARTHUR CECIL, The Theory of Unemployment.
London Macmillan and Co., Limited, 1933.

Contents: Studies the problem of unemployment from the real end not from the money end. He uses the monetary factor only at a late stage. Book is addressed primarily to students of economics. Unemployment as it relates with wages may be applicable here. Part V - Chapter 3.

338.4
P86
1922

POUND, ARTHUR, The Iron Man in Industry.
Boston, The Atlantic Monthly Press, 1922.

An outline of the social significance of automatic machinery. This is an argument for such education of our industrial workers that they may be equipped profitably to enjoy the leisure with which the automatic machine now provides them. Contents include: Leveling of wages, mind and machine, changing corporation, job and society, education for leisure.

331.8
R52
1922

ROBBINS, HAYES, The Labor Movement and the Farmer.
New York, Harcourt, Brace and Company, 1922.

Labor and laboring classes.

330.1
R649c
1960

ROBERTSON, DENNIS HOLME, The Control of Industry.
London, J. Nisbet, 1960.

Contents: Principles of Modern Industry - Large-Scale Industry-Organization of Marketing - Capitalization of Industry; credit, stock, investment - Finance and Industry - Industry and the Consumer - Workers' Control-Joint Control.

331
Sh68
1951

SHISTER, JOSEPH, Readings in Labor Economics & Industrial Relations.
Philadelphia, Lippincott, 1951.

Labor and laboring classes - Industrial relations -
See 2nd Edition for later information. 2nd is annotated.

331
Sh68
1956

SHISTER, JOSEPH, Readings in Labor Economics and Industrial Relations.
Philadelphia, Lippincott, 1956.

Contents: Can be utilized as a course book in Courses in labor problems, labor economic, collective bargaining, or industrial relations. Contains - Part I - The American Working Class. Part II - Trade Unionism. Part III - Collective Bargaining. Part IV - Employment Security, particularly (b) Technological Unemployment.

331.1
Si5
1921

SIMONS, ALGIE MARTIN, Personnel Relations in Industry.
New York, The Ronald Press Company, 1921.

This book was written for a "human nature" viewpoint in personnel work in industry. It discusses sources of labor, tests, work in industry, training, environments, wages, turnover, organization, and management.

331
T125
1955

TAFT, PHILIP, Economics and Problems of Labor.
Harrisburg, Pa., Stackpole Co., 1955.

Contents: Most of the book deals with unions and all association aspects. These chapters may be applicable (2) Problems and Measurement and Unemployment. (8) Special Groups in the Labor Force. (11) Wages and Income.

HD
6476
T3
1951

TANNENBAUM, FRANK, A Philosophy of Labor.
New York, Knopf, 1952.

Bibliographical footnotes. Trade-unions - Labor and laboring classes.

331.05
Un3

U.S. BUREAU OF LABOR STATISTICS. Monthly Labor Review.
Washington, U.S. Govt. Print. Off. V. 1 - July, 1915.

Labor laws and legislation.

331.8
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1922

WATKINS, GORDON S., An Introduction to the Study of Labor Problems.
New York, Thomas Y. Crowell Company, 1922.

Contents: The following chapters appear to be applicable:
3 - Development of Labor Problems in the U.S.
5 - Wealth, Income and Wages.
8 - Child Labor.
9 - Women in Industry.
12 - Labor Turnover.
Chapter 22 is quite applicable: Industrial Education and Training.

323.1
Z6
1918

ZIMMERN, ALFRED ECKHARD, Nationality and Government, With Other Wartime Essays.
London, Chatto and Windus, 1918.

Contents: I. German culture and the British commonwealth - II. Nationality and government - III. True and false nationalism - IV. The passing of nationality - V. Education, social and national - VI. The universities and public opinion - VII. Progress in government - VIII. Progress in industry - IX. The labour movement and the future of British industry - X. Reconstruction - XI. The control of industry after the war - XII. Capitalism and international relations - XIII. The new German empire - XIV. Three doctrines in conflict. - Index.

614.83
D35
1926

DE BLOIS, LEWIS AMORY, Industrial Safety Organization for Executive and Engineer.
New York McGraw-Hill Book Company, Inc., 1926.

Bibliographical foot-notes - Labor and laboring classes - Accidents - Prevention.

M
331.823
J924
1944

JUDSON, HARRY HARLOW, Occupational Accident Prevention.
New York, J. Wiley & Sons, Inc., London, Chapman & Hall, Limited, 1944.

"References" at end of some of the chapters. Labor and laboring classes - Accidents - Prevention.

614.8
Sch9

SCHWEDTMAN, FERDINAND CHARLES, Accident Prevention and Relief.
New York, For the National Association of Manufacturers of the United States of America, 1911.

An investigation of the subject in Europe, with special attention to England and Germany, together with recommendations for action in the United States of America. Labor and laboring classes - Accidents.

HD
4854
G32
1962

GALENSON, WALTER, Labor in Developing Economies.
Berkeley, University of California Press, 1963.

Labor and laboring classes - Addresses, essays, lectures. "A publication of the Institute of Industrial Relations, University of California." Bibliographical footnotes.

Z
7165
A4F7

FRIEDLAND, WILLIAM H., Unions, Labor and Industrial Relations in Africa.
Ithaca, Center for International Studies, Cornell University, 1965.

Labor and laboring classes - Africa - Bibliography. An annotated bibliography. Contents: This bibliography seeks to contribute to the analysis of social change in Africa by concentrating upon an area that has been somewhat neglected. Represents an attempt to accumulate almost all significant published sources which deal with the subject of unions, labor and industrial relations.

A331
G972h

GULICK, CHARLES ADAMS, History and Theories of Working-class Movements.
Berkeley, Bureau of Business and Economic Research, University of California, 1955.

Labor and laboring classes - Bibliography. Contents: This bibliography is "select" in more than one sense. It is limited to articles, notes, and occasional documents in journals and magazines that range from scholarly to popular to propagandistic. Problem: It is severely restricted for material concerning the U.S.

A331.88091 In61b — INTERNATIONAL LABOR OFFICE.
Geneva 1919-26.

Bibliography on the International Labour Organization.

HD 8676 S47 — SHIH, KUO-HENG. China Enters the Machine Age.
Cambridge, Mass., Harvard University Press, 1944.

A study of labour in Chinese war industry. Labor and laboring classes - China. Factory system - China.

331.8 N21 1919 — NATIONAL INDUSTRIAL CONFERENCE, ...National Industrial Conference on Dominion and Provincial Governments with Representative Employers and Labour Men, on the Subjects of Industrial Relations and Labour Laws, and for the Consideration of the Labour Features of the Treaty of Peace.
Department of Labour of Canada. Ottawa, 1919.

Official report of proceedings and discussion, together with various memoranda relating to the conference and the report of the Royal Commission on Industrial Relations. Proceedings and discussions reported by the official reporters of the Senate of Canada.

331.803 B81 1921 — BROWNE, WALDO RALPH, What's What in the Labor Movement.
New York, B.W. Huebsch, Inc., 1921.

A dictionary of labor affairs and labor terminology.

331.03 C272 1949 REF. — CASSELMAN, PAUL HUBERT, Labor Dictionary.
New York Philosophical Library, 1949.

A concise encyclopedia of labor information.

331.03 H789d REF. — HORTON, BYRNE JOSEPH, Dictionary of Labor Economics.
Washington, Public Affairs Press, 1948.

Labor and laboring classes - Dictionaries.

974.886 H71 — HOLDSWORTH, JOHN THOM, Report of the Economic Survey of Pittsburgh.
Pittsburgh, 1912.

"Municipal reference library" (recommendation: p. 29-30, 226-229.) Pittsburgh - Econ. condit. Cost and standard of living. Labor and laboring classes - Dwellings.

979.461 Sa5r 1913 — ...SAN FRANCISCO RELIEF SURVEY.
New York, Survey Associates, Inc., 1913.

The organization and methods of relief used after the earthquake and fire of April 18, 1906. San Francisco Charities. Labor and laboring classes - Dwellings.

HD
3707
H33

HARBISON, FREDERICK HARRIS, Manpower and Education.
New York, McGraw-Hill, 1965.

Country studies in economic development. Industry and education. Labor and laboring classes - education. Labor supply.

LC
5051
K38

KERRISON, IRVINE LEDWARD HAMILTON, Labor Leadership Education.
New Brunswick, N.J., Rutgers University Press, 1960.

A union-university approach. Contents: Book attempts to explain what trade union labor educators active in New Jersey and members of the Rutgers Institute of Management and Labor Relations Labor Program Staff together have done to create the kind of labor education, that will enable the trade union student to advance from one level to another, adding both to his knowledge of subject matter and to his skill and technique in labor education in a systematic, disciplined manner. Pinpoints the program of the two institutions.

374
M676
1956

MIRE, JOSEPH, Labor Education, a Study Report on Needs, Programs, and Approaches.
Madison Wis., Inter-university Labor Education Committee, 1956.

Contents: Chapters 3, 4, 5, 6, and 7 are partially applicable. Chapter 3 discusses the scope of workers' education, viewing it primarily as education for members of trade unions and tracing it from its early emphasis to its present extension into many areas of liberal and adult education. A catalog of workers' education needs is assembled in chapters 4 and 5. Chapter 6 examines past and current approaches to workers' education by unions, universities, by the federal government and the states and finally by voluntary organizations. General findings and recommendations are given in Chapter 7.

HQ
728
Z5

ZIMMERMAN, CARLE CLARK, Family and Society.
New York, D. Van Nostrand Company, Inc., 1935.

A study of the sociology of reconstruction. A study of LePlay method of social investigation illustrated by an examination of social problems in America, and including as part IV (p. 359-595) an abridged adaptation of volume I of LePlay's "Les ouvriers europeens".

HD
8395
H5

HENDERSON, FRED, The Labour Unrest, What it is and What it Portends.
London, Jarrold & Sons, 1911.

Contents: Traces the history of labor, working classes, trade unionism, advantage of the labor party, etc. in Great Britain.

HD 7102 G707

ORR, DOUGLASS WINNETT, Health Insurance with Medical Care.
New York, Macmillan Co., 1938.

Bibliography. Insurance, Health - Great Britain. Labor and laboring classes - Medical care. Labor and laboring classes - Great Britain. Medical economics.

HD 5017 G5

GILBOY, MRS. ELIZABETH (WATERMAN), Wages in Eighteenth Century England.
Cambridge, Harvard University Press, 1934.

"This study ...began as a thesis for the doctor's degree at Radcliffe college, 1929...The whole study has been revised and many parts of it rewritten." "Manuscript sources": p. 245-249. Cost and standard of living - Great Britain.

HD 8395 H3

HARRISON, ROYDEN JOHN, Before the Socialists.
London, Routledge & K. Paul, 1965.

Studies in labour and politics, 1861-1881. Contents: This is a book about working - class politics during the two decades which separated the last of the Chartists from the first of the modern socialists.

331.09 G1531

GALENSON, WALTER, Labor and Economic Development.
New York, Wiley, 1959.

One of a series of books from the research program of the Institute of Industrial Relations. Labor and laboring classes - History

HC 462 07

ORCHARD, JOHN EWING, Japan's Economic Position.
New York, Whittlesey house, McGraw-Hill Book Co., Inc., 1930.

"Prepared under the auspices of the Council for research in the social sciences of Columbia University." List of principal sources, p. 490-491. Japan - Econ. condit. - 1918-1945. Japan - industry. Japan - Manufacture.

HD 6530.5 A75

ALEXANDER, ROBERT JACKSON, Organized Labor in Latin America.
New York, Free Press, 1965.

Since World War II the urban laboring classes have been the most rapidly expanding social force in both Latin America and the Caribbean. Trade Unionism has accompanied the growth of the urban working elements and labor organizations now exercise considerable influence in all of the transitional societies. This volume sheds further light on a heretofore neglected subject.

331.822 MCGRATH, BETHEL J., Nursing in Commerce and Industry.
M178n New York, The Commonwealth Fund, 1946.

Contents: Book offers many practical suggestions and insights for the nurse already practicing in the complex industrial environment. Nurses preparing for service in industry thru university courses also will find it useful. Supervisors, teachers, and consultants will be grateful for the way in which the author has reinforced some of the principles others have emphasized without adequate references.

HD ORR, DOUGLASS WINNETT, Health Insurance with Medical
7102 Care.
G707 New York, Macmillan Co., 1938.

Bibliography. Insurance, Health - Great Britain. Labor and laboring classes - Medical care. Labor and laboring classes - Great Britain. Medical economics.

331.8206373 NATIONAL CONFERENCE ON LABOR HEALTH SERVICES.
N213p Washington, 1958 .

Papers and proceedings. Bibliographical footnotes. Medical care.

331.05 INTERNATIONAL LABOUR REVIEW.
In61 Geneva, International Labour Office, Jan. 1921 .

A "Statistical supplement" accompanies each number. Indexes. Periodicals .

f335.05 LABOR AGE.
L123 New York, Labor Publication Society, etc. V. 1-22, no. 1; Feb. 1913 - Feb./Mar. 1933.

Socialism - Periodical. Labor and laboring classes - Periodicals. Labor and laboring classes - U.S.

070.486 WATSON, MORRIS, How to Write for Your Union Paper.
W341h International Longshoremen's & Warehousemen's Union, 1943.

Periodicals. Journalism. Labor and laboring classes - Periodicals.

HD REYNOLDS, LLOYD GEORGE, Wages, Productivity, and Indus-
8236.5 trialization in Puerto Rico.
R4 Homewood, Ill., R.D. Irwin, 1965.

"Three related essays." Bibliographical footnotes. Wages - Puerto Rico. Labor supply - Puerto Rico.

HD LOUIS, PAUL, Ancient Rome at Work.
4844 New York, Barnes & Noble, 1965.
L73
1965 Labor and laboring classes - Rome. An economic history of Rome from the origins to the Empire.

331.083
In61
REF.

INTERNATIONAL LABOR OFFICE. Yearbook of Labour Statistics. Geneva, 1935/36.

Labor and laboring classes - Statistics.

331.8
Ad1

ADAMS, THOMAS SEWALL, Labor Problems. New York, London, The Macmillan Company, 1913.

Contents: Introduction. The labor problem and its genesis - Woman and child labor. Immigration. The sweating system. Poverty, earnings and unemployment. Labor organizations and employers' associations. The agencies of industrial peace. Profit sharing. Cooperation. Industrial education. Labor laws. The material progress of the wage earning classes. Woman and child labor laws in the United States.

331.2973
Ah31
1945

AHEARN, DANIEL JOSEPH, The Wages of Farm and Factory Laborers. London, P.S. King & Staples, Ltd., 1945.

Bibliography. Contents: (1) Statistics of the number of farm laborers and factory laborers. (2) Wages statistics for above. (3) Inflation and deflation 1914-1922. (4) Recovery and stability 1922-1929. (5) Depression and revival 1929-1944. (6) Annual earnings, money and real. (7) Wages, production and productivity.

331.709
An23
1940

ANDERSON, HOBSON DEWEY, Occupational Trends in the United States. Stanford University, Calif. Stanford University Press, 1940.

Bibliographical footnotes. U.S. Occupations. Labor and laboring classes - U.S. U.S. Industry.

331.8
An2
1922

ANDREWS, JOHN BERTRAM, Labor Problems and Labor Legislation. New York City, American Association for Labor Legislation, 1919.

Labor and laboring classes - U.S. Labor laws and legislation - U.S. Brief list of selected readings, 2 p. at end.

331
An2
1927

ANDREWS, JOHN BERTRAM, Labor Problems and Labor Legislation. New York City, American Association for Labor Legislation, 1919.

Contents: Employment - Wages - Hours - Safety - Health - Collective Bargaining - Social insurance - Enforcement of laws.

338.973
An26
1932

ANDREWS, JOHN BERTRAM, Labor Problems and Labor Legislation. New York City, American Association for Labor Legislation, 1932.

Includes supplement revision, 1940. Labor and laboring classes - U.S. Labor laws and legislation - U.S.

331.8
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1920

BAKER, RAY STANNARD, The New Industrial Unrest: reasons and remedies.
Garden City, New York, Doubleday, Page & Company, 1920.

Contents: (1) The industrial crisis as it appears from above to the capitalist-employer. (2) The industrial crisis as it appears from below to the worker. (3) Inspected causes of the unrest. (4) Real causes of the unrest. (5) Massed forces behind the industrial conflict - Organized labor, Organized capital - other problems caused by the industrial crisis.

331
B619
1950

BLOOM, GORDON F., Economics of Labor and Industrial Relations.
Philadelphia, Blakiston Co., 1950.

Contents: Economics text. It aims to integrate economic analysis, and industrial relations problems for both the beginning and the advanced student. Part IV brings the tools of economic analysis to bear on a variety of basic industrial relations problems. Parts V and VI dealing with social security collective bargaining legislation are suitable for both beginning and advanced students.

Microfilm
M38

BURN, JAMES DAWSON, Three Years Among the Working-Classes in the United States During the War.
London, Smith, Elder and Co., 1865.

"The autobiography of a beggar-boy".

331.88
C190
1920

CARLTON, FRANK TRACY, Organized Labor in American History.
New York, London, D. Appleton and Company, 1920.

Contents: It is the purpose of this book to present the background for an intelligent consideration of the labor problems of today.

331
C4431

CHAMBERLAIN, NEIL W. Labor.
New York, McGraw-Hill, 1958.

Contents: Designed as a text. Originated as a series of lectures for an introduction course in labor. The first thirteen chapters examine the organizations of labor and business and the collective-bargaining relationship between them. The rest of the book explores the impact of unionism on the economy. The object is not only to acquaint the student with specific issues and problems but to permit an overall assessment of the economic significance of unions in the United States.

331.8
C66
1919

COHEN, JULIUS HENRY, An American Labor Policy.
New York, The Macmillan Company, 1919.

Contents: The author presents his own viewpoint with regards to a labor policy which would apply to the problems encountered in labor at that time.

331.8
C73

COMMONS, JOHN ROGERS, Labor and Administration.
New York, The Macmillan Company, 1913.

Labor and laboring classes - U.S. Trade-unions - U.S. Social problems.

331.8
C73h

COMMONS, JOHN ROGERS, History of Labour in the United States.
New York, The Macmillan Company, 1918-35.

Contents: Introduction - Colonial and federal beginnings - Citizenship - Trade unionism (1833-1839) Humanitarianism (1840-1860) - Nationalization (1860-1877) - Upheaval and reorganization (since 1876) Introduction to volumes III and IV. - Working conditions - Labor legislation - Labor movements.

331.8
C73i
1919

COMMONS, JOHN ROGERS, Industrial Goodwill.
New York, McGraw-Hill Book Company, Inc., 1919.

Contents: (1) Theory and practice; (2) Labor market; (3) Security; (4) The public; (5) Education; (6) Depression.

331.8
C731
1913

COMMONS, JOHN ROGERS, Labor and Administration.
New York, The Macmillan Company, 1913.

The history of labor laws and strikes has this in common to both - laws become dead letters; the victories of strikes are nibbled away. Attention is shifting from laws to the means of enforcing them - from strikes to the unions that safeguard the gains - from the rights of labor to the protection of its rights. These are the questions and subject of this book.

331.8
C73t
1921

COMMONS, JOHN ROGERS, Trade Unionism and Labor Problems.
Boston, New York, Ginn and Company, 1921.

The chapters are selected with a view of setting forth five principal aspects of labor problems. Security is first. Next is labor market, closely related to security. Next is labor management, the part of the employer; next labor unions; and finally the part played by the state through legislation, administrating and judical decision.

331.88 COMMONS, JOHN ROGERS, Trade Unionism and Labor Problems.
C73 Boston, New York, Ginn & Company, 1905.

Contents: Introduction - Trade agreements - The miners' union: its business management - The teamsters of Chicago - The New York building trades - The Chicago building trades dispute of 1900. The incorporation of trade unions - Decisions of courts in labor disputes - State arbitration and the minimum wage in Australia. Labor conditions in slaughtering the meat packing - The introduction of the linotype - The premium plan of paying for labor - The printing trades and the crisis in British industry (restriction of output) - The system of apprenticeship at the Baldwin Locomotive Works - The sweating system in the clothing trade - Slavs in coal mining - The negro artisan - Women in the clothing trade - Women's wages in manual work. Employment of girls in the textile industries of Pennsylvania - The printer's health - Hours of labor - Massachusetts labor legislation - State regulation of employment decisions of courts - The benefit system of the Cigar Makers' Union - Employers' liability and accident insurance - Workmen's insurance in Germany - Insurance against unemployment - Public employment offices in the United States and Germany.

331 DAY, JAMES ROSCOE, My Neighbor the Workingman.
D33 New York, Cincinnati, The Abingdon Press, 1920.
1920

Contents: Deals with the common workingman and many of the problems that he encounters. Personal comments with regard to such things as strikes, patriotism, responsibilities, wages, property and advantages.

330.973 A Documentary History of American Industrial Society.
D659 New York, Russell & Russell, 1958.

Includes Bibliographies. Contents: v. 1-2 Plantation and frontier - v. 3-4 Labor conspiracy cases - v. 5-10 Labor movement.

331.8 ELY, RICHARD THEODORE, The Labor Movement in America.
E19 New York, T.Y. Crowell & Co., 1886.
1886

Contents: Early American communism growth and present condition of labor organizations - Economic value of labor organizations - educational value - Socialism - Revolutionary socialism.

331.62 ERICKSON, CHARLOTTE, American Industry and the European
Er44a Immigrant, 1860-1885.
Cambridge, Harvard University Press, 1957.

The thesis of this book is that contract labor was rare in America during the years after the civil war, and never reached the proportions claimed by the advocates of a law against its impentation. Immigration was for the most part voluntary. Contents include: The search for Shill; recruitment - Iran European Farms to American Industry - the anti-central labor laws.

331.880973
F4951
1961

FINE, NATHAN, Labor and Farmer Parties in the United States, 1828-1928.
New York, Russell & Russell, 1961, 1928.

Contents: Irrepressible conflict - United Front of 1886 - Grangers - Socialist Labor Party - Socialist Unity - Communist vs. Socialist - Farmer-Labor Party - Progressive Political Action.

331
G428
1940

GILSON, MARY BARNETT, What's Past is Prologue.
New York and London, Harper & Brothers, 1940.

Reflections on my industrial experience. "I have attempted to confine my recollections and reflections to my preparation for and progress through the world of industry. I consider many of my experiences common to these men and women who went into personnel work in the early part of this century.

331.8
G76
1918

GRANT, PERCY STICKNEY, Fair Play for the Workers.
New York, Moffat, Yard and Company, 1918.

Some sides of their maladjustment and the causes. The object of this volume is to call attention to some of the consequences of our blindness to the world's deeper democratic activities and to the dawn of proletarian control. A review of a few subjects upon which working people have strong opinions will cover from before war to after war time when labor will expect to exercise larger power.

338.9
G89
1911

GROAT, GEORGE GORHAM, ...Attitude of American Courts in Labor Cases.
New York, Longmans, Green & Co., agents; etc. 1911.

The purpose of this volume is to present the various views expressed by judges in their decisions in labor cares. They are stated as nearly as possible in the words of the judges themselves by means of liberal quotations. Various conflicting views on problems are set forth to give the reader a broad overview.

331.88
G89
1917

GROAT, GEORGE GORHAM, An Introduction to the Study of Organized Labor in America.
The Macmillan Company, 1916.

The background, beginning in England, etc., - The structure, unions, collective bargaining - Political activity, legislation - Transitional stages.

325.1
H81

HOURWICH, ISAAC AARONOVICH, Immigration and Labor.
New York and London, G. P. Putnam's Sons, 1912.

The economic aspects of European immigration to the United States. The immigration commission, after three years of investigation, reached the conclusion that our immigration policy "should be based primarily upon economic or business considerations." The book treats immigration solely as an economic question. It treats only European immigration, Oriental immigration being viewed primarily as a role question.

331.0971
In6
1937

INNIS, HAROLD ADAMS, Labor in Canadian-American Relations: The History of Labor Interaction, and Labor Costs and Labor Standards.
New Haven, Yale University Press, 1937.

The relations of Canada and the United States, a series of studies prepared under the direction of the Carnegie Endowment for International Peace, Division of Economics and History.

300.82
J65s
ser. 34
no. 3

JANES, GEORGE MILTON, The Control of Strikes in American Trade Unions.
Baltimore, The Johns Hopkins Press, 1916.

Contents: (1) The Development of Control. (2) Control by National Deputy. (3) Arbitration and Control. (4) The Initiation of Strikes. (5) The Independent Strikes. (6) The Management of Strikes. (7) Strike Benefits. (8) The Termination of Strikes.

973
P147
v. 5

KEIR, ROBERT MALCOLM, The Epic of Industry.
New Haven, Yale University Press, 1926.

A series. U.S. - Industry. The pageant of America.

323.33
K58
1918

KING, WILLIAM LYON MACKENZIE, Industry and Humanity.
Boston and New York, Houghton Mifflin Co., 1918.

The author made a personal investigation into the root causes of some of the existing industrial controversies in America, and contribute by suggestion or otherwise, to working out improvements in the relations between capital and labor. Also prepared a statement of underlying principals which are finding expression in the organization of industrial society.

331
K961

KUHN, ALFRED, LABOR: Institutions and Economics.
New York, Rinehart, 1956.

Contents: (Labor text) Deals with the institutional aspects of labor under four logically sequential headings: the development, framework, nature and results of collective bargaining and unionism; then public policy toward collective bargaining in the light of the information already developed. Part II is divided into 2 parts: the size of labor's income (wages) and the regularity of that income (security). The philosophy of the labor movement has been made to permeate the whole of the volume.

f335.05
L123

Labor Age
New York, Labor Publication Society, Feb. 1913 - Feb. 1933.

Periodical. Socialism. League for Industrial Democracy. Conference for progressive labor action.

973
L13

LA FOLLETTE, ROBERT MARION, The Making of America.
Chicago, The Making of America Co., 1906.

I. The people and their social life. II. Statesmanship and diplomacy. III. Industry and finance. IV. Trade and Commerce. V. Agriculture. VI. Mining and metallurgy. VII. Science and invention. VIII. Labor. IX. Army and Navy. X. Public Welfare.

940.5
An4
1919

LANE, RALPH NORMAN ANGELL, The British Revolution and the American Democracy.
New York, B. W. Huebsch, 1919.

An interpretation of British labour programmes. Reconstruction (1914) - Great Britain and the United States. Labor Party - Great Britain. Social problems.

331.8
L53
1919

LEITCH, JOHN, Man to Man.
New York, B. C. Forbes Company, 1919.

The story of industrial democracy. The whole future of the U.S. is bound up in the establishment of a happy relation between the employer and the employee. The author has set down some of the theory and a few cares arising out of his conception of Industrial Democracy in the hope that it will serve to bring the attention of both employer and employee to the big problem which confronts us.

331.8
L56
1919

LESCOHIER, DON DIVANCE, The Labor Market.
New York, The Macmillan Company, 1919.

Unemployment. Employment agencies.

300.82
J65se
v. 22

LEVASSEUR, EMILE, The American Workman.
Baltimore, The Johns Hopkins Press, 1900.

Contents: (1) The progress of American industry in the last 50 years. (2) The productivity of labor and machinery. (3) Labor laws and grade regulations. (4) Organizations of labor. (5) The strike. (6) Wages of men. (7) Wages of women and children. (8) Factors Determining Nominal Wages. (9) Real wages and Workmen's Budgets. (10) Present conditions and future prospects.

331.081
L793m

LLOYD, HENRY DEMAREST, Men, the Workers.
New York, Doubleday, Page & Company, 1909.

Contents: The labour movement. July 4, 1889 - The Union forever. - The safety of the future lies in organized labour. December, 1893 - Arbitration - Illinois factory law speech. 1894 - The new independence - Strikes and injunctions. 1894 - Boomerang law. 1895 - Speech at the reception of Eugene V. Debs. 1895 - Lessons of the Debs case. 1895 - Argument before the Anthracite coal strike commission. 1903 - Speech at the Mitchell, Darrow, Lloyd reception. 1903 - Addenda: A. The political economy of child labour. 1887. B. Civilization as heralded by Labour day.

335.073
L84
1905

LONDON, JACK, War of the Classes.
New York, The Macmillan Company; London, Macmillan & Co., Ltd., 1905.

Contents: The class struggle - The tramp - The scab - The question of the maximum - A review - Wanted: a new law of development - How I became a socialist.

300.82
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MCCABE, DAVID ALOYSIUS, ...The Standard Rate in American Trade Unions.
Baltimore, The Johns Hopkins Press, 1912.

Contents: Defines terms. (1) The price scale (2) The standard time rate. (3) The area of the standard rate. (4) The form of the rate.

973
M167a

MCMASTER, JOHN BACH, The Acquisition of Political, Social, and Industrial Lights of Man in America.
New York, F. Ungar Pub. Co., 1961.

This volume contains three lectures given by the author dealing with the topic described in the title. These lectures are true, down-to-earth descriptions on this aspect of America's History.

331
M623
v.1

MILLIS, HARRY ALVIN, Labor's Progress and Some Basic Labor Problems.
New York and London, McGraw-Hill Book Company, Inc., 1938.

Bibliographical foot-notes. Labor and laboring classes. Labor and laboring classes - U.S. Labor laws and legislation. Labor laws and legislation - U.S.

300.18
Or64m

ORCUTT, GUY H., Microanalysis of Socioeconomic Systems.
New York, Harper, 1961.

A simulation study. Social sciences - Mathematical models. U.S. - Population. Labor and laboring classes, U.S.

973
J63

ORTH, SAMUEL PETER, The Armies of Labor.
New Haven, Yale University Press, 1919.

A chronicle of the organized wage earners. Labor and laboring classes - U.S. Bibliographical note: p. 261-263.

331.88
P22
1920

PARKER, CARLETON HUBBELL, The Casual Laborer, and Other Essays.
New York, Harcourt, Brace and Howe, 1920.

Contents: Toward understanding labor unrest - The casual laborer - The I.W.W. - Motives in economic life - Appendix: Foreword. Report on the Wheatland hop fields' riot.

973.911
R67rp
1908

ROOSEVELT, THEODORE, The Roosevelt Policy.
New York, The Current Literature Publishing Company, 1908.

Speeches, letters and state papers, relating to corporate wealth and closely allied topics, of Theodore Roosevelt, President of the United States.

331
R73

ROSS, JOHN ELLIOT, Consumers and Wage Earners.
New York, The Devin-Adair Company, 1912.

The ethics of buying cheap. Bibliography: p. 135-136. Wages in the United States.

331.8
Si4
1917

SIMKHOVITCH, MRS. MARY MELINDA (KINGSBURY), ...The City Worker's World in America.
New York, The Macmillan Company, 1917.

Contents: The industrial family - Dwellings - Standard of living - Education at work - Leisure - Health - Poverty - Politics - Religion.

331.88
SL32
1941

SLICHTER, SUMNER HUBER, Union Policies and Industrial Management.
Washington, D.C., The Brookings Institution, 1941.

This project was originally focused on the policies and attitudes of trade unions with reference to production, however it became clear that production policy could not be appraised except on a basis of a fuller analysis of a wide range of relationships between trade unionists and employers. The volume presents a comprehensive discussion of both the content and the process of collective bargaining except as to wage rates.

331.082
So6941

SOMERS, GERALD GEORGE, Labor, Management, and Social Policy.
Madison, University of Wisconsin Press, 1963.

Contents: The Basis of Commons' Progressive Approach to Public Policy, by K.H. Parsons -The Labor History and Labor Theory of John R. Commons: An Evaluation in the Light of Recent Trends and Criticism, by R. Ozanne - Collective Bargaining Theory, by L.R. Tripp - The Government and Politics of the AFL-CIO, by J. Barbash - Law and the Public Interest in Labor-Management Relations, by N.P. Feinsinger - The Development and Status of Social Security in America, by A.J. Altmeyer - The Adequacy of Workmen's Compensation as Social Insurance: A Review of Developments and Proposals, by A. Brodie - Migrant Labor in Wisconsin, by E. Brandeis - Prevailing Wage Law, by D.B. Johnson - Policy Implications of Labor Market Analysis, by G.G. Somers.

331.8
St8

STREIGHTOFF, FRANK HATCH, The Standard of Living Among the Industrial People of America, Boston and New York, Houghton Mifflin Company, 1911.

Contents: (1) The standard of living; (2) Family Expenditures; (3) Unemployment; (4) Incomes; (5) Housing; (6) Food; (7) Clothing; (8) Thrift; (9) Health; (10) Intellectual and Social Life; (11) The living wages; (12) Possibilities.

917.3
Sw971r

SWADOS, HARVEY, A Radical's America.
Boston, Little, Brown, 1962.

U.S. Civilizaton, 1945. Labor and laboring classes - United States.

300.82
J65s
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no. 1

TEPER, LAZARE, ...Hours of Labor.
Baltimore, The Johns Hopkins Press, 1932.

Contents: Part I Hours of Labor in Relation to Various Factors. - Part II The Movement of the Hours of Labor in the United States: 1890-1928.

331.082
Un58a

UNIVERSITIES-NATIONAL BUREAU COMMITTEE FOR ECONOMIC RESEARCH, Aspects of Labor Economics.
Princeton, N.J., Princeton University Press, 1962.

A conference of the Universities-National Bureau Committee for Economic Research. Bibliographical footnotes. Labor economics - Addresses, essays, lectures.

331.05
Un3

U.S. BUREAU OF LABOR STATISTICS, Monthly Labor Review.
v. 1 - July, 1915.
Washington, U.S. Govt. Printing Office.

Labor and laboring classes - U.S. - Labor and laboring classes. - Labor laws and legislation - U.S. - Labor laws and legislation.

658.3
W171
1945

WALTER, JACK EDWARD, Personnel Relations, Their Applicaton in a Democracy.
New York, The Ronald Press Company, 1945.

"Selected general references on personnel relations": p. 525-527. Personnel management.

331.880973
W271i

WARE, NORMAN JOSEPH, The Industrial Worker, 1840-1860.
Gloucester, Mass., Peter Smith, 1924.

(1) The state of the nation. (2) The immigrant and the homes of the poor. (3) The degradation of the worker. (4) The ten-hour movement: Industrial 1840-50. (5) The labor movement: Defensive, 1840-50 Aggressive, 1850-60.

331.880973
W2711

WARE, NORMAN JOSEPH, The Labor Movement in the United States, 1860-1895.
Gloucester, Mass., Peter Smith, 1929.

A study in democracy. Trade-unions - U.S. Knights of labor.

331.8
W67
1920

WILLIAMS, WHITING, What's on the Worker's Mind.
New York, C. Scribner's Sons, 1920.

Contents: (1) Hunting a job. (2) In a Ten-thousand Man-power Steel Plant. (3) In a Railing Mill. (4) A Second Coal Town. (5) With the Builders of Ships. (6) In an Oil Refinery. (7) In the Iron Mines. Part II - Findings.

331
W93
1895
c.2.

WRIGHT, CARROLL DAVIDSON, ...The Industrial Evolution of the United States.
Meadville, Pa., New York, Flood and Vincent, 1897.

Contents: Introduction - Part I The Evolution of Industry: The Colonial Period - Part II The Evolution of Industry: 1790-1890 - Part III The Labor Movement. Part IV The Influence of Machinery on Labor.

325.73
Yo85
1932

YOUNG, DONALD RAMSAY, American Minority Peoples.
New York and London, Harper & Brothers, 1932.

A study in racial and cultural conflicts in the United States. The purpose of this book is to give new perspective to academic discussions of American race relations as well as to summarize and interpret the outstanding facts in the history and present condition of minority peoples. The view is that the problems and principles of race relations are remarkably similar regardless of what groups are involved.

331.081
R447s

REUTHER, WALTER PHILIP, Selected Papers.
New York, Macmillan, 1961.

These papers represent the author's philosophy on the various aspects and problems facing labor, over economy, and country in general. Labor and laboring classes - U.S. - Addresses, Essays, Lectures.

A331.0973
R795a
REF.

ROSE, FRED DUANE, American Labor in Journals of History.
University of Illinois, 1962.

A bibliography.

HD
6509
A2B7

BRANSTEN, RICHARD, Men Who Lead Labor.
New York, Modern Age Books, Inc., 1937

Biography. A series of candid biographies of men in every day's news - men who are influencing thousands of destinies and the course of our national life. These sketches are vivid and factual, written without fear or favor. This series of personal history sketches also the inside story of labor's history during the past decades. Contents: William Hutcheson - Edward McGrady - John L. Lewis - Heywood Brown - A. Phillip Randolph - Harry Bridges - Giant Killers.

331.880973
M182a
1962

MADISON, CHARLES ALLAN, American Labor Leaders.
New York, Ungar, 1962.

Biography. Personalities and forces in the labor movement. This book is made up of biographies about key labor leaders that molded labor from the time of the civil war to present. There biographies are grouped into four main parts: Labors Early Efforts - The American Federation of Labor - Aristocrats and Revolutionaries - The Congress of Industrial Organiations.

923.37
W62
REF.

WHO'S WHO IN LABOR,
New York, The Dryden Press, 1946.

The authorized biographies of the men and women who lead labor in the United States and Canada and of those who deal with labor.

973.2
J551
1960

JERNEGAN, MARCUS WILSON, Laboring and Dependent Classes in Colonial America, 1607-1783.
New York, Ungar, 1960.

Each study in this volume illustrates the attitude of the state and the upper classes toward the lower classes: the place of the latter in society; their economic and social status; their treatment efforts for their industrial, religious, or secular education, or their support. Contents include: Economic and social aspects of Negro Slavery and Indentured Servant Systems - Free Education for poor children and Appentice in New England - Free Education for Poor Children and Apprentices in the South - Types of Public Poor Relief Systems.

331.88
B38
1924

BEARD, MRS. MARY (RITTER), A Short History of the American Labor Movement.
New York, George H. Doran Company, 1925.

This book is intended as a brief and simple story of the labor movement in the U.S. from the day of independence to the present time. Contents include: Overview of the labor movement - Origin of Trade Unions - Parties - Politics, Chaos - Revolutionary Labor.

331.880973
D249h
1958

DAVID, HENRY, The History of the Haymarket Affair.
New York, Russell & Russell, 1958.

A study in the American social-revolutionary and labor movements. It is the purpose of this study to present a full account of how the bomb came to be thrown in Chicago on the night of May 4, 1886, and of its consequences; but that forms only the core of the present work. To this core are related these constituents of the American and European scenes which are directly and indirectly linked with it. This embraces an examination of certain phases of American, industrial and labor history and a treatment of the origin, growth, form, and nature of the social revolutionary movement in the country and especially in Chicago.

331.880973
D889L
1949

DULLES, FOSTER RHEA, Labor in America, a History.
New York, T.Y. Crowell Co., 1949.

The purpose of this book is to give an account of the rise of American labor, tracing it from vague colonial beginnings through the exciting days of the New Deal and the second World War. Emphasis has been placed upon national organization - the National Labor Union, Rights of Labor, A.F.L. and C.I.O.

HD
6508
F57

FONER, PHILIP SHELDON, History of the Labor Movement in the United States.
New York, International Publishers, 1947.

Contents: V.1 From colonial times to the founding of the American Federation of Labor - V.2 From the founding of the American Federation of Labor to the emergence of American imperialism.

331.880973
M624
1948

MILLS, CHARLES WRIGHT, The New Men of Power, America's Labor Leaders.
New York, Harcourt, Brace, 1948.

This volume asks what sort of man the labor leader is; what sort of organization he is running; and what sort of country he is running it in. He is not a private citizen; he is a social actor, and the first condition of his action is the character of his union. The labor leader is a union-made product, and that is true whether he built his union single-handed and now treats it as his private property or whether he came into it late in life and still feels like a stranger in it.

331.0973
P391a

PELLING, HENRY, American Labor.
Chicago, University of Chicago Press, 1960.

This book deals with the question for an American standard of living which has haunted the American imagination and has unified the working energies of Americans regardless of their jobs. Among the peculiarly American features which have made this unifying notion possible are the variety of working conditions, the high wages, the agricultural background, and vagueness of social classes. Because of these unique characteristics it is especially difficult to separate the history of "American labor" from the whole story of American civilization. We must not look for a class of workers but for Americans at work. It is from this framework that the author writes this history.

331.880973
R265h

RAYBACK, JOSEPH G., A History of American Labor.
New York, Macmillan, 1959.

Contents: The main contents are divided into three parts - the colonial and revolution - and era - the transitional era, dealing with first unions through the late 1800's - and the Modern Era, studying with the machine and A.F.L.

300.82
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YEARLEY, CLIFTON K., Britons in American Labor.
Baltimore, Johns Hopkins Press, 1957.

A history of the influence of the United Kingdom immigrants on American labor, 1820-1914.

331.05
A1436

ALLIED INDUSTRIAL WORKER, V. 1 - March, 1956.
Milwaukee, etc., International Union.

Periodicals - Labor and laboring classes - United States.

331.880973
Am35p

AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS. Proceedings of the...convention. 1st 1955.

Labor and laboring classes - United States - Societies, etc.

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1953
REF.

SPECIAL LIBRARIES ASSOCIATION. Social Science Group.
New York, Special Libraries Association, 1953.

A source list of selected labor statistics. Bibliography.
Labor and laboring classes - U.S. Statistics.

HD
5856
U5A57

ANDERSON, NELS, Men of the Move.
Chicago, Ill., The University of Chicago Press, 1940

Contents: The Hobo is no more - An Old Problem in New Form - The Unattached Migrant - the Migrant Family - Labor Relocation and Natural Resources - Industrial Change and Labor Relocation - Agricultural Change and Labor Relocation - Where Should the Migrants Go? - Migrancy and the Labor Market - Work and Welfare for Migrants.

331.8
At5
1924

ATKINS, WILLARD EARL, Labor Attitudes and Problems.
New York, Prentice-Hall, Inc., 1924.

Contents: Purpose of this book is to present to students who have already obtained some slight background in the concepts and terminology of economics, a more intimate consideration of the worker in society. It is an attempt to understand the worker from an economic standpoint; what he does, how he lives what he thinks - in brief to get at his attitudes.

331.137973
B179c

BAKKE, EDWARD WIGHT, Citizens Without Work.
London, M. Milford, Oxford University Press, 1940.

Contents: Represents results of a research study of Yale, which was undertaken for the purpose of discovering the readjustment problems faced by unemployed American workers and their families and the resources which they brought with them to this task. Certain principles have emerged which must be taken into account in the development of a plan for the solution of the problem. The studies represent an effort to see the complex ramifications of the problem through the eyes of the worker himself, and to reveal the self-initiated efforts at readjustment which programs must take into account if they are to be effective.

331.1
B29
1919

BASSET, WILLIAM RUPERT, When the Workmen Help you Manage.
New York, The Century Co., 1919.

Contents: (1) The New Basis of Industry. (2) Skillful Management vs. Welfare Work. (3) When the Workmen Help to Manage. (4) Providing Steady Jobs for Your Men. (5) Preserving the Wage System. (6) Why Profit-Sharing Fails. (7) Striking the Balance Between Capitol and Labor.

331.0973
B4891

BERNSTEIN, IRVING, The Lean Years.
Boston, Houghton Mifflin, 1960.

Contents: This book begins with the worker rather than with the trade union. It is about the worker in American society at a particular stage of its development. It covers the 20's and the early years of the depression.

331.88
B79
1937

BROOKS, ROBERT ROMANO RAVI, When Labor Organizes.
New Haven, Yale University Press, 1937.

Contents: (1) Organizing a Union. (2) Evolution of the Labor Movement. (3) Antiunionism. (4) The Strike. (5) Breaking Strikes. (6) The Unions. (7) Business Policies of Labor. (8) Labor Movement and Political Action. (9) Labor Movement in an Evolving Society.

331.8
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1926

CATLIN, WARREN BENJAMIN, The Labor Problem in the United States and Great Britain.
New York and London, Harper & Brothers, 1926.

Thesis (PH.D.) Columbia University, 1927. Bibliographical foot-notes. Labor and laboring classes - United States, 1914. Labor and laboring classes - Great Britain. Trade-unions.

331.880973
C6891

COLE, GORDON H., Labor's Story as Reported by the American Labor Press.
Glen Cove, N.Y., Community Publishers, 1961.

Contents: (1) Trade Unions in Action (see Chapter 4 - Apprenticeship and Vocational education) (2) Serving the Family and Community, (3) Labor and the Nation, (4) Labor in a World Crises, (5) Looking Ahead.

338.018
C76c

CONGRESS OF INDUSTRIAL ORGANIZATIONS. Committee on Economic Policy. The Challenge of Automation.
Washington, Public Affairs Press, 1955.

Papers delivered at the National Conference on Automation. U.S. Industry and Labor and laboring classes in 1914.

331
C912
1947

CUMMINS, EARL EVERETT, The Labor Problem in the U.S.
New York, D. Van Nostrand Company, Inc., 1947.

Contents: Part I - Origin of the Wage-Earning Class, Part II - Grievances, Part III - The Wage Earner, Part IV - The Employer, Part V - The Government, Some Conclusions.

051
R25
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DANIELS, WALTER MACHRAY, The American Labor Movement.
New York, H.W. Wilson Co., 1958.

Bibliography: p. 216-223. Trade-unions - United States. Labor and laboring classes - United States, 1914.

331.0973
D27
1933

DAUGHERTY, CARROLL ROOP, Labor problems in American Industry.
Boston, New York, Houghton Mifflin Company, 1933.

Contents: Attention is general in this volume to almost all the main areas of human mal-adjustment which are to be found in American industry today, and consideration is accorded to the chief existing and proposed attempts to bring about adjustment and harmony. Part I reviews the psychological, social, economic, historical and political factors which are significant to an orientation in industrial relations; Part II analyzes 5 main phases of labor disharmony - insecurity, inadequate income, work periods, sub-standard workers, and industrial conflict - from the standpoint of effects and casual factors; and Part III surveys the attempts of Unions, employers, and the state to secure adjustment.

331.0973
D27
1941

DAUGHERTY, CARROLL ROOP, Labor Problems in American Industry.
Boston, New York, Houghton Mifflin Company, 1941.

Labor and laboring classes - United States, 1914. United States Industry. Labor laws and legislation - United States.

331.880973
D4271

DERBER, MILTON, Labor and the New Deal.
Madison, University of Wisconsin Press, 1957.

There is hardly an aspect of current economic life which has not been profoundly influenced by the events of the 1930's, and none, perhaps as the labor movement and labor relations. This volume brings a realization of what present-day labor owes to developments in the New Deal period in the form of independently written essays designed to analyze and interpret related aspects of labor relations and the labor movement during the New Deal years and their implications for the present.

331.214
D75
1934

DOUGLAS, PAUL HOWARD, The Theory of Wages.
New York, The Macmillan Company, 1934.

Bibliography: p. 553-610. Wages - United States. Supply and demand. U.S. Industry. Labor and laboring classes - U.S. 1914. Capital. Economics, Mathematical.

323.33
F33
1920

FELD, ROSE CAROLINE, Humanizing Industry.
New York, E.P. Dutton & Company, 1920.

This book is written about the change in industry that stressed the "human" element. It gives an account of the changes made in the way of accident prevention, health, education, benefits, housing, profit-sharing, etc.

331.0973
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1937

FELDMAN, HERMAN, Problems in Labor Relations.
New York, The Macmillan Company, 1937.

A case book presenting some major issues in the relations of labor, capital, and government. This book is intended as an aid to the study and teaching of labor relations.

331.8
F553
1924

FITCH, JOHN ANDREWS, The Causes of Industrial Unrest.
New York and London, Harper & Brothers, 1924.

Contents: Unrest arising from economic conditions - Unrest arising from the Struggle-Unrest and the Government - Fundamental Principles.

331
F582
1945

FITZPATRICK, BERNARD H., Understanding Labor.
New York, London, McGraw-Hill Book Company, Inc., 1945.

This book emphasizes four main points. (1) The differences between usual labor and tenure labor. (2) The monopoly characteristics of traditional union forms: usual craft, tenure craft, and extrovert industry. (3) A look into the Railway Labor Act, Wagner Act, and their derivatives, (4) The incompatability of the traditional union forms with the new introvert forms.

HD
8072
G24

GALENSON, WALTER, A primer on Employment and Wages.
New York, Random House, 1966.

Contents: The Labor Force - The Wage System - The Role of Trade Unions - The Supply and Demand of Labor to the Firm - Wages, Employment, and Inflation - Who are the Unemployed? - Analytical Aspects of Unemployment - The Attack on Unemployment and Poverty.

331.762
G286
1948

GENERAL MOTORS CORPORATION. My Job and Why I Like It.
Detroit, 1947.

Letters of the 40 winners of General Motors' My job contest. Labor and laboring classes - U.S., 1914.

331
H22
1928

HARDMAN, JACOB B. American Labor Dynamics in the Light of Post-war Developments.
New York, Harcourt, Brace and Company, 1928.

An inquiry by thirty-two labor men, teachers, editors, and technicians. Contents: Four main points - The Decade in Retrospect- 1918 to 1928 - Problems of a Labor Union - Labor Issues in Industry and Politics - The Mind of Labor, Ideas, and Leadership.

331.12
H496c

HENDERSON, JOHN P., Changes in the Industrial Distribution of Employment, 1919-59.
Urbana, University of Illinois, 1961.

Bibliographical footnotes. Labor and laboring classes United States, 1914. United States Industry.

331.8
K58
1923

KING, WILLFORD ISBELL, Employment, Hours and Earnings in Prosperity and Depression, United States, 1920-1922.
New York, The National Bureau of Economic Research, Inc., 1923.

The results of an inquiry conducted by the National Bureau of Economic Research with the help of the Bureau of Markets and Crop Estimates and the Bureau of the Census for the President's Conference on Unemployment. Hours of labor. Wages - United States.

331.881292
K842w

KORNHAUSER, ARTHUR WILLIAM, When Labor Votes, a Study of Auto Workers.
New York, University Books, 1956.

Contents: The Union and the Study - How they voted and why - Campaign Influences - Political Orientation and Interest - Attitudes Related to Political Behavior - Four Types of V.A.U. Members and the Future of Political Action.

331.0973
L114
1936

LABOR RESEARCH ASSOCIATION. Labor Fact Book.
New York, International Publishers, 1931.

Includes bibliographies. Labor and laboring classes, 1914. United States Economic Condition, 1918.

331
L14
1926

LAIDLER, HARRY WELLINGTON, New Tactics in Social Conflict.
New York, Vanguard Press, League for Industrial Democracy, 1926.

Contents: Changing relations between property ownership and control - Trade unions enter business - Changing tactics of employers toward the workers - The sweep toward industrial combination - American economic imperialism - The new propaganda - Power, coal and forests.

331.1
L642i

LESTER, RICHARD ALLEN, Insights into Labor Issues.
New York, Macmillan Co., 1948.

This volume represents some of the results in the economic, psychological, social, and political aspects of labor and indicates how understanding may be enhanced through analysis of underlying factors, and how new insights may be gained through the application of new methods and approaches. Contents are divided into three parts: Labor Relations - Wages and the Labor and Full Employment .

331.880973
M876a

MORRIS, GEORGE, American Labor, Which Way?
New York, New Century Publishers, 1961.

This book concerns itself with changing labor and the direction it is taking. Topics include: Unions, changing work force, cold war and labor, economic front, civil rights, A.F.L.-C.I.O., Labor and Peace, Merger of Labor, New Base for Progressives, New Program and Perspectives.

331.809
M999
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MYERS, JAMES, Do You Know Labor?
Washington, D.C., National Home Library Foundation, 1940.

Facts about the labor movement. The present volume attempts to supply in brief from factual information drawn chiefly from first hand experience of the writer as labor manager in a factory, from his subsequent wide investigations of labor relations, and from extensive personal acquaintance with employers and labor leaders. Contents include: Labor Unions, Grievances, Strikes, Profit-Sharing, Negroes, and Women and Labor.

051
R25
1937
11:7

NICHOLS, EGBERT RAY, ...Arbitration and the National Labor Relations Board.
New York, The H.W. Wilson Company, 1937.

Arbitration, Industrial - U.S. United States National Labor Relations Board. Labor and laboring classes - U.S. - 1914.

331.8
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PATTERSON, SAMUEL HOWARD, Social Aspects of Industry.
New York, McGraw-Hill Book Company, Inc., 1929.

A survey of labor problems and causes of industrial unrest. Contents: The purpose of the present volume is that of an introductory survey of a number of social problems of industry. Part I - The Background of Labor Problems. Part II - Problems of Income. Part III Human Conservation and Labor Legislation. Part IV Collection Bargaining and Labor Organizations. Part V - The Approach of the Employer. Part VI - Programs of Reconstruction.

331.0973
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PERKINS, FRANCES, People at Work.
New York, The John Day Company, 1934.

Contents: (1) The Problem of Pauperism (2) The Worker and the Great War (3) Recession after the War (4) The increase of Unemployment (5) Unemployment and the Money Crisis of 1933 (6) The Unemployment Monster (7) Purpose of the Department of Labor.

331
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REDER, MELVIN WARREN, Labor in a Growing Economy.
New York, Wiley, 1957.

Contents: A text in labor economics. Part I - Introduction, Labor and Its Problems, Labor Force and American Economy Development. Part II - Unions and Collective Bargaining. Part III - Employment, Wages, and Income Part IV - War on Poverty Part V - Role of the Union in Modern Society.

331.880973
Se458a

SEIDMAN, JOEL ISAAC, American Labor from Defense to Reconversion.
Chicago, University of Chiago Press, 1953.

Contents: (1) Labor Movement Before the War. (2) The "Phony War" and the Defense Crisis. (3) Union - Management Relations During the Defense Crisis. (4) Government Labor Policy in the Defense Crisis. (5) Pearl Harbor and Its Aftermath. (6) Wages: The Little Steel Formula. (7) Wartime Strikes: The Problem of Enforcement. (8) Manpower Crisis. (9) Government and Labor. (10) Labor Movement During the War. (11) Post-war Ready. (12) American Labor in Two World Wars.

331.0973
So722m

SOULE, GEORGE HENRY, Men, Wages, and Employment in the Modern U.S. Economy.
New York, New American Library, 1954.

Written... to summarize some of the main findings and conclusions of the Twentieth Century Fund's authoritative survey, Employment and wages in the United States.

339.4
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STIGLER, GEORGE JOSEPH, Trends in Employment in the Service Industries.
Princeton, Princeton University Press, 1956.

Contents: (1) The Growth of the Service Industries. (2) A Historical Preface. (3) The Classification and Characteristics of Service Industries. (4) Retail Trade. (5) Routine Personal Services.

331.0973
T212
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TAYLOR, ALBION GUILFORD, Labor Problems and Labor Law.
New York, Prentice-Hall, Inc., 1938.

Contents: Part I - The Nature and Origin of Labor Problems. (2) The Labor Movement. (3) Legal Background of the Labor Movement. (4) Social and Legal Phases of the Problems. (5) The Government in Industrial Conflicts. (6) The Approach of the Employer.

331.6272
T217m

TAYLOR, PAUL SCHUSTER, Mexican Labor in the United States.
Berkeley, California, University of California Press, 1928-34.

Contents: Vol. 1 Imperial Valley. Vol. 2 Valley of the South Platte, Colorado. Vol. 3 Migration Statistics, I. Vol. 4 Racial School Statistics, California, 1927. Vol. 5 Dimmit County.

331
T918
1953

TWENTIETH CENTURY FUND, Employment and Wages in the United States.
New York, W.S. Woytinsky and Associates, 1953.

Contents: Volume represents the need for a comprehensive factual survey of the working people of the U.S. and their conditions of labor: the size, make up and distribution of the labor force; the various occupations represented and the number of workers employed in each; the extent and flow of employment and unemployment; the wages that American workers are paid and how then wages are determined; their hours of labor and other working conditions and the regulations and controls that government has imposed upon them; labor unions and the role they play in the vast drama of wages and employment; the underpinnings of insurance which have been set up to make the worker's life more secure and finally, the relation of all these basic facts to the operation of the economy as a whole with a showing of past trends and a projection of these trends into the future.

331.15
V743
1930

VINCENT, MELVIN JAMES, The Accomodation Process in Industry.
Los Angeles, University of Southern California Press, 1930.

Contents: (1) The Inception of Employer and Employee Accomodation During the Time of the Industrial Revolution. (2) Trade-Union Methods for Promoting the Process of Accomodation-Employee Initiative. (3) Summary and Conclusion.

331.0973
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WARE, NORMAN JOSEPH, Labor in Modern Industrial Society.
Boston, New York, D.C. Heath and Company, 1935.

Deals with and is based on the history, problems and organization of labor. Discusses capitalism, Socialism, A.F.L., and the N.I.R.A.

331.8
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YODER, DALE, Labor Economics and Labor Problems,
New York and London, McGraw-Hill Book Company, Inc., 1933.

Contents: Attention is directed at the outset of this study to the nature and significance of economic phases of modern culture, and emphasis is continually placed on labor economy - the underlying economy principles and processes rather than upon the specific social problems that arise therefrom. Study is intended as an introduction to the field of labor economics.

331.05
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THE AMERICAN LABOR YEAR BOOK, 1916.
New York City, The Rand School of Social Science, 1916.

Prepared by the Department of Labor Research of the Rand School of Social Science. Labor and laboring classes - Year-books. Socialism - Year-books.

338
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ANTHONY, ARTHUR BRUCE, Economic and Social Problems of the Machine Age.
Los Angeles, University of Southern California Press, 1930.

Annotated bibliography: p. 73-79. Machinery in industry. Labor and laboring classes - 1914. Industry and state. Social conditions. Economic conditions - 1918-1945.

331.8
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HADLEY CANTRIL, S.P. HAYNES, H.M. SOMERS...and others.
Industrial Conflict: a Psychological Interpretation.
New York, The Cordon Company, 1939.

Contents: (1) Orientation in time and space; Industrial Conflict and Community Organization. (2) Personal Conflict; Individual Tensions, Needs, and Satisfactions. (3) Courses of Group Identification. (4) Efforts to Eliminate Conflicts - Forces within Industry and Contributions of Public Opinion.

331.0973
L114
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LABOR RESEARCH ASSOCIATION, Labor Fact Book.
New York, International Publishers, 1931.

Includes bibliographies. Labor and laboring classes - 1914. Labor and laboring classes - U.S. - 1914. U.S. Economic condition - 1918.

338.4
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MAYO, ELTON, The Human Problems of an Industrial Civilization.
Boston, Division of Research, Graduate School of Business Administration, Harvard University, 1946.

Includes a description of the experiments undertaken by the Western Electric Company in its Hawthorne works in Chicago. Efficiency, Industrial. Fatigue. Labor and laboring classes - 1914. Social problems. Western Electric Company, Incorporated.

HD 6331 M3 — MAYO, ELTON, The Human problems of an Industrial Civilization.
New York, Macmillan, 1933.

Includes a description of the experiments undertaken by the Western Electric Company at its Hawthorne works in Chicago. Efficiency, Industrial. Fatigue. Labor and laboring classes - 1914. Social problems.

330.1 P62w 1932 — PIGOU, ARTHUR CECIL, The Economics of Welfare.
London, Macmillan and Co., Limited, 1932.

Contents: Welfare and the national dividend - The size of the national dividend and the distribution of resources among different uses - The national dividend and labour - The distribution of the national dividend. Appendices.

323.33 R59 1923 — ROCKEFELLER, JOHN DAVISON, The Personal Relation in Industry.
New York, Boni and Liveright, 1923.

Contents: Cooperation in industry. Labor and capital - Partners. The personal relation in industry - Representation in industry - To the employees - To the people of Colorado - Appendix. A record containing the purpose, organization, and work of the International Labor Organization.

331 W89 1928 — WORLD PEACE FOUNDATION, Industry, Governments and Labor.
Boston, 1928.

Record of the International Labor Organization, 1919-1928. Contains "Selected references".

LABOR AND THE LAW

331
G862
1958

GREGORY, CHARLES OSCAR, Labor and the Law.
Norton, 1958.

The purpose of this book is to give the reader a look at the many problems involved in the development of labor relations laws.

LABOR AND TRADE UNIONISM

331.880492
G1531

GALENSON, WALTER, Labor and Trade Unionism: An Interdisciplinary Reader.
Wiley, 1960.

Contents: The theory of the Union - Labor Markets - Trade Union History - The Union Monopoly Issue - Unions, Wages, and Inflation, Democracy and Bureaucracy in Trade Union Government - The Internal Political Life of Trade Unions - Factors Shaping Occupational Behavior - The Social Environment of Work Attitudes.

LABOR ARBITRATION

331.155
T8581

TROTTA, MAURICE S., Labor Arbitration.
Simmons-Boardman Publishing Corp., 1961.

Principles, Practices, Issues.

LABOR ATTITUDES AND PROBLEMS

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ATKINS, WILLARD EARL, Labor Attitudes and Problems .
Prentice-Hall, Inc., 1924 .

Co-Author: Harold D. Lasswell. Labor and Laboring classes - U. S. - 1914.

LABOR BOARD DECISIONS

951
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BEMAN, LAMAR T., Enforcement of the decisions of the Railway Labor Board .
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Reference Shelf 1:7.

LABOR BULLETIN

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CONNECTICUT. LABOR STATISTICS, Bureau of Labor Bulletin.
Hartford, 1909 .

Labor and Laboring classes - Connecticut. Periodical.

LABOR BUREAU, INC.

338
C387
1925

CHASE, STUART, The Tragedy of Waste.
The Macmillan Company, 1925-1926.

Contents: (1) The Control of Industry. (2) Four Main Channels of Waste. (3) An Analysis of Advertising. (4) Wastes in Production. (5) Industrial Co-ordination. (6) Natural Resources - The Gutting of a Continent.

LABOR CONTRACT

HD
6757
N6

NORGREN, PAUL HERBERT, The Swedish Collective Bargaining System.
Harvard University Press, 1941.

This study of collective bargaining in Sweden is important because in that country one finds rapid economic progress combined with a high degree of labor organization and with powerful trade unions. Contents: Parts - The Development of Workers' and Employers' Organizations - The Collective Agreements - The Agreement Making Process - Bargaining Within the Agreement Framework - The Conclusion discusses the significance of this system and if it will work in the U. S.

LABOR ECONOMICS

HD
5724
O35

OKUN, ARTHUR M., The Battle Against Unemployment.
Norton, 1965 .

While the selections in this volume reach different conclusions on matters of fact and value, they all follow the spirit of social scientific inquiry that Kennedy commended. The essays also reflect the policy and responsibility of the U. S. Government to promote maximum employment, production, and purchasing power. Contents: Prologue, Kennedy - Unemployment: Concepts, Courses, and Consequences - The Balance of Employment and Price Stability - Fiscal Policy: Principles and Instruments - Monetary Policy.

LABOR LAWS AND LEGISLATION

HD 6508 F3

FELLER, ALEXANDER, How to Deal With Organized Labor.
Alexander Publishing Co., 1937.

Contents: Presents the labor situation in such a light as will enable the employer to conduct his bargaining with labor in an intelligent, effective, and economical manner. It points out present trends and points out to the employer how labor disputes may be averted,and how - if conflict is unavoidable - they may be ameliorated and losses minimized.

HD 6971 L48

LEVIN, NOEL ARNOLD, Successful Labor Relations, an Employers' Guide.
Book Division, Fairchild Publications, 1963.

Contents: I - Before the Company is Unionized. II - The Election. III - Negotiating the First Labor-Management Agreement. IV- Living with the Union. V - Renegotiating the Contract. VI - Union Weapons: How to Blunt Them. VII - Trouble Spots. VIII- Practical Handling of Key Problems.

HD 4935 U5M6

MORTON, HERBERT CHARLES, Public Contracts and Private Wages.
Brookings Institution, 1965.

Experience under the Walsh-Healey Act. Public Contracts.

LABOR POLICY

331.880973
P962

The Problems of Union Power.
Washington, Labor Policy Association, v. 1, ser. 1, 1961.

Author states the problems of union power, analyzes them, examines their components, draws conclusions, and recommends remedies. 1 - An Outline of the Task. 2 - Historical Perspective of American Labor. 3 - Complex Pattern of Employment Laws. 4 - Social Incentives and Economic Effects of Union Power. 5 - Priority of Structure and Procedure.

331
M568
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METZ, HAROLD W., Labor Policy of the Federal Government.
The Brookings Institution, 1945.

Contents: (1) The Development of National Labor Policy. (2) The Government and Concerted Action of Employees. (3) Collective Bargaining and the Collective Agreement. (4) Governments' Policy Toward Union Organization. (5) The Government and the Labor Market. (6) Conditions of Employment: Union Preference. (7) Conditions of Employment: Wages. (8) Conditions of Employee Hours, Child Labor, and Safety. (9) Settlement of Labor Disputes. (1) Machinery for the adjustment of wartime Labor Disputes.

331.1
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PETRO, SYLVESTER, The Labor Policy of the Free Society.
Ronald Press, 1957.

Two objectives are involved here defining the essential features of the free society, and advancing certain proposals in the field of labor relations. Three main parts are: I - The Free Society. II - Evaluation of Labor Law and Policy in the U. S. III - A Labor Policy for the U. S.

LABOR PROBLEM

331
Es85
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ESTEY, JAMES ARTHUR, The Labor Problem.
McGraw-Hill Book Company, Inc., 1928.

The book avoids a detailed study of the grievances of labor and includes an analysis and evaluation of those different attempts to modify the traditional economic relations of an individualistic society that have been forced upon us by the disabilities of wage earners in the modern industry system. Includes: I - Organized Labor. II - The Liberal Employer. III - Labor Legislation.

331
C912
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CUMMINS, EARL EVERETT, The Labor Problem in the United States.
D. Van Nostrand Company, Inc., 1947.

Co-author: Frank T. DeVyver. Labor and Laboring classes - U.S. - 1914.

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CATLIN, WARREN BENJAMIN, The Labor Problem in the United States and Great Britain.
Harper & Brothers, 1926.

Origins - Grievances; Unemployment, wages, opportunity - Unionism; evolution, strikes, bargaining - Labor Politics; Vote, legislation, methods - Collectivism.

331.8
Ad1

ADAMS, THOMAS SEWALL, Labor Problems.
The Macmillan Co., 1903.

Introduction: The Labor Problem and its Genesis. - Woman and Child Labor - Immigration - The Sweating System - Poverty, Earnings and Unemployment - Strikes and Boycotts - Labor Organizations and Employers' Associations - The Agencies of Industrial Peace - Profit Sharing - Cooperation - Industrial Education - Labor Laws - The Material Progress of the Wage Earning Classes. Appendix A. Woman and Child Labor Law in the U.S. -- Appendix B. Profit Sharing in the U.S. -- Appendix C. Earnings and Unemployment in 1901.

331.0973
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TAYLOR, ALBION GUILFORD, Labor Problems and Labor Law.
Prentice-Hall, Inc., 1938.

Labor and Laboring Classes - U.S. - 1914. Labor Laws and Legislation - U.S. "Collateral readings" at end of each chapter.

331
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1927

ANDREWS, JOHN BERTRAM, Labor Problems and Labor Legislation.
American Association for Labor Legislation, 1919.

Labor and Laboring Classes - U.S. Labor Laws and Legislation - U.S.

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ANDREWS, JOHN BERTRAM, Labor Problems and Labor Legislation.
American Association for Labor Legislation, 1932.

4th ed. completely revised. Includes supplement revision, 1940.

331.082
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SHULTZ, GEORGE PRATT, Labor Problems: Cases and Readings.
McGraw-Hill, 1953.

Co-Author: John R. Coleman. Industrial relations.

331.0973
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DAUGHERTY, CARROLL ROOP, Labor Problems in American Industry.
Houghton Mifflin Co., 1933.

Refer to 5th Edition. Labor and Laboring Classes - U.S. - 1914. U.S. - Industry. Labor Laws and Legislation - U.S.

LIBRARY SCHOOLS AND TRAINING

020.7
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BERELSON, BERNARD, Education for Librarianship.
American Library Association, 1949.

The University of Chicago studies in library science. Papers presented at the Library Conference, University of Chicago, August 16-21, 1948.

023.4
B81

BROWN, JAMES DUFF, Guide to Librarianship.
London, Libraco ltd., 1909.

A series of reading lists, methods of study, and tables of factors and percentages required in connection with library economy. Designed for the use of students entering for the professional examinations of the Library association.

020.7
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CARNEGIE CORPORATION OF NEW YORK, Training for Library Service.
D. B. Updike, The Merrymount Press, 1923.

A report prepared for the Carnegie Corporation of New York. Appendix: 1. General information in regard to the fifteen library schools studied in this report, arranged by date of founding. 2. Entrance examination questions of library schools.

020.7
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1949

REECE, ERNEST JAMES, The Task and Training of Librarians.
King's Crown Press, 1949.

A report of a field investigation carried out in February to May 1947, to assist with curricular problems then pending before the Dean and faculty at the School of Library Service, Columbia University.

q020.7
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1954

CHICAGO. UNIVERSITY. GRADUATE LIBRARY SCHOOL., The Core of Education for Librarianship.
American Library Association, 1954.

A report of a workshop held under the auspices of the Graduate Library School of the University of Chicago, August 10-15, 1953. Edited by Lester Asheim.

020.711
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WHITE, CARL MILTON, The Origins of the American Library School.
Scarecrow Press, 1961.

History of library schools and training.

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AMERICAN LIBRARY ASSOCIATION. BOARD ON PERSONNEL ADMINISTRATION, Descriptive List of Professional and Nonprofessional Duties in Libraries.
Chicago, 1948.

Preliminary draft. Prepared by the Subcommittee on Analysis of Library Duties of the A.L.A. Board on Personnel Administration.

370.10973
N277e

NATIONAL MANPOWER COUNCIL, Education and Manpower.
Columbia University Press, 1960.

Represents a selection of educational materials from 4 of the 7 volumes published by the national manpower council to date and from the many papers published by members of its staff in connection with the council's work. They are the products of a common approach - namely, a manpower approach - to education, and they are still relevant. Part 3 - Vocational Guidance and the Work Force is applicable.

338.9173
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ZOOK, PAUL D., Foreign Trade and Human Capital.
Southern Methodist University Press, 1962.

Seven studies presented as lectures at Southern Methodist University in 1960 and 1961 under the auspices of the Jno. E. Owens Memorial Foundation. 1. Underdeveloped areas. 2. Economic Assistance, American. 3. Spanish America - Economic Policy.

331.760973
P935m

PRINCETON UNIVERSITY. INDUSTRIAL RELATIONS SECTION.
Manpower and Innovation in American Industry.
Princeton, New Jersey, 1959.

Co-authors: Samuel E. Hill and Frederick Harbison.
Skilled labor and Supervisors - U.S.

331.0962
B138m
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BADR, ALBIRT YUSUF, Manpower and Oil in Arab Countries.
American University of Beirut, Economic Research Institute, 1959.

Co-Authors: Albert Y. Badre and Simon G. Siksek.
Labor and Laboring Classes - United Arab States. Oil industries - United Arab States.

331.112
C818
1943

CORSON, JOHN JAY, Manpower for Victory.
Farrar & Rinehart, Inc., 1943.

Total mobilization for Total War. Attempts to present the facts about the "manpower problem" during wartime. Deals with the following: (1) The extent to which manpower is a national network of local problems. (2) The extent to which an effective chain of public employment exchanges, the USES, is the backbone of the system. (3) Extent to which each manpower operation depends upon adequate, well-trained, professional personnel paid sufficiently to hold them , and free of political obligations.

331.112
In2m

INDUSTRIAL RELATIONS RESEARCH ASSOCIATION., Manpower in the United States: Problems and Policies.
Harper, 1954.

Editorial board: William Haber and others. The intent of the volume is to present, in an integrated way, some of the manpower problems and policies in a free society and, as an indication of direction and scope, certain of the current findings of research which in time may provide solutions to the problem. Part I - Utilization and Motivation of Workers. Part II - Changing Dimensions of the Work Force. Part III - Manpower Mobilization.

331.1825
H816m

HOROWITZ, MORRIS AARON, Manpower Utilization in the Railroad Industry: An Analysis of Working Rules and Practices.
Bureau of Business and Economic Research, Northeastern University, 1960.

Railroads - U.S., Employees, Full crew rules. Collective labor agreements.

370.947
D522s

DEWITT, NICHOLAS, Soviet Professional Manpower, Its Education, Training and Supply.
National Science Foundation, 1955.

The aim of this study was to investigate the availability and growth of the specialized manpower resources of the U.S.S.R. insofar as they might be judged from the Soviet Educational effort during the past 25 years. Chapter 6, Soviet Professional and Specialized Manpower, is applicable.

331.112
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GINZBERG, ELI, Human Resources: The Wealth of a Nation.
Simon and Schuster, 1958.

Contents: (1) The Study of Human Resources. (2) The Emergence of the Issue. (3) Wasted Human Resources. (4) Talent and Superior Performance. (5) The New World of Work. (6) Human Resources and the General Welfare. (7) Investment in People.

355.22
G435i

GINZBERG, ELI, The Ineffective Soldier.
Columbia University Press, 1959.

Lessons for Management and the Nation. Contents: 1. The Lost Divisions. 2. Breakdown and Recovery. 3. Patterns of Performance.

331.112
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U. S. LIBRARY OF CONGRESS. LEGISLATIVE REFERENCE SERVICE, Development of Scientific, Engineering, and Other Professional Manpower, With Emphasis on the Role of the Federal Government.
U. S. Government Printing Office, 1957.

Prepared by Charles A. Quattlebaum, Principal Specialist in Education. Printed for the use of the Joint Committee on Atomic Energy. Federal Aid to Education.

371.425
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INTERNATIONAL BUREAU OF EDUCATION, The Teaching of Handicrafts in Secondary Schools, from Information Supplied by the Ministries of Education: Argentina, Australia, Austria and Others.
Paris, UNESCO, 1950.

13th International Conference on Public Education convened by UNESCO and the I.B.E., Geneva, 1950. The conference, with representation from Argentina to Yugoslavia, discussed the following: (1) Place Assigned to the Teaching of Handicrafts. (2) Aims of Handicraft Teaching. (3) Curriculum. (4) Methods. (5) Workroom Organizations, Premises, Equipment. (6) Teaching Staff.

396.4
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KELLEY, LILLA ELIZABETH, Three Hundred Things a Bright Girl Can Do.
D. Estes and Company, 1903.

1. Amusements.

371.425
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NATIONAL ASSOCIATION OF INDUSTRIAL TEACHER EDUCATORS, Summaries of Studies in Industrial Education, Jan. 1930 - Aug. 1948.
Educational Services, Ford Motor Company.

Prepared by the Research Committee of the National Association of Industrial Teacher Educators. Technical Education.

371.426
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O'BRIEN, MICHAEL, Shopwork Teaching Tricks and Other Aids for Shop Teachers.
The Interstate, 1953.

The aim of this book is to provide in text form a variety of approaches to shop-work teaching; to stimulate teacher imagination; to add labor to the daily presentation; to increase the meaningfulness of principles; and to provide some ideas for teaching in the specific areas of shopwork for high school, vocational school, and technical school.

379.173
P58

PICKARD, ANDREW EZRA, Rural Education.
Webb Publishing Co., 1915.

A complete course of study for modern rural schools. This book is the outgrowth of a series of lectures on rural school organization in the Minnesota State Summer Schools for teachers and of several revised courses of study planned for and executed in rural schools under the supervision of the author.

371.42
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ROW, ROBERT KEABLE, The Educational Meaning of Manual Arts and Industries.
Row, Peterson and Company, 1909.

Contents: Development of the Educational Conception of Manual Occupations - Fundamental Impulses and Interests - Sense Training - Habit and Attention - Courses of Study.

630.7
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SCHMIDT, GUSTAVUS ADOLPHUS, Teaching Farm Shop Work and Farm Mechanics.
The Century Co., 1927.

Co-authors: W. Arthur Ross and M.A. Sharp. The Century Vocational Series, Edited by C.A. Prosser. Agriculture - Study and Teaching. Agricultural Machinery.

016.6
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LOVELL, ELEANOR COOK, Index to Handicrafts, Modelmaking, and Workshop Projects.
F. W. Faxon Company, 1936.

The index is based on an extensive collection of references accumulated in the Minneapolis Public Library. Co-author: Ruth Mason Hall.

371.42
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1914

DOBBS, ELLA VICTORIA, Primary Handwork.
The Macmillan Company, 1914.

Manual training - methods and manuals.

371.42
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1904

HOLTON, MARTHA ADELAIDE, Industrial Work for Public Schools.
Rand, McNally & Co., 1904.

Co-author: Alice F. Rollins. Includes suggestions with accompanying illustrations of programs for the first through the fifth year of work in industrial arts.

371.42
Sa7

SARGENT, WALTER, Fine and Industrial Arts in Elementary Schools.
Ginn and Company, 1912.

Contents: (1) Educational and Practical Values of the Fine and Industrial Arts. (2) A Survey of the Progression of Work through the Grades. (3) Grades I - VIII.

372.5
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WIECKING, ANNA MARGARET, Education Through Manual Activities.
Ginn and Company, 1928.

Part I - Materials, tools, techniques, purposes. Part II - The relation of handwork to subject matter. Part III - The administration of manual activities.

f371.42605 Industrial Arts and Vocational Education.
In42 The Bruce Publishing Company, v. 1 - Jan. 1914.

Periodical. Technical education. Industrial arts. Art industries and trade.

f371.42605 Industrial Education Magazine.
In44 The University of Chicago Press, 1899-1903.
Manual Arts Press, 1903-1939.

Periodical. None published after 1939.

707 U. S. OFFICE OF EDUCATION, Art and Industry.
Un38 Government Printing Office, 1885-1898.

Education in the Industrial and Fine Arts in the United States. By Isaac Edwards Clarke. Pt. 1 (1885) Drawing in Public Schools. Pt. II (1892) Industrial and Manual Training in Public Schools. Pt. III (1897) Industrial and Technical Training in Voluntary Associations and Endowed Institutions. Pt. IV (1898) Industrial and Technical Training in Schools of Technology and in U.S. Land Grant Colleges.

MEDICAL COLLEGES

610.69
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FISHBEIN, MORRIS, Do You Want to Become a Doctor?
Frederick A. Stokes Company, 1939.

Medicine - Study and Teaching. Choice of Profession.

610.71
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REF.

World Directory of Medical Schools.
Geneve, World Health Organization, 1953.

Medical Colleges - Directory.

610.7
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COMMISSION ON MEDICAL EDUCATION. Final Report of the Commission on Medical Education.
New York, Office of the Director of Study, 1932.

Parts of the final report had been presented earlier in the ad interim reports. Medicine - Study and Teaching.

610.7
I129t

ILLINOIS. UNIVERSITY. BUREAU OF INSTITUTIONAL RESEARCH.
Trends in Medical Services and Training Facilities in Illinois.
Urbana, 1959.

Co-authors: Edward F. Potthoff and Herbert E. Longenecker.
Medical services and training facilities in Illinois.

MIGRANT LABOR

331.763
An546b

ANDERSON, HENRY POPE, The Bracero Program in California, With Particular Reference to Health Status, Attitudes, and Practices.
Berkeley, School of Public Health, University of California, 1961.

No one is in so good a position to influence the health status of braceros as the agencies which administer the program. We believe these agencies may be unaware of some of the defects which have developed in the system. We are confident that once these defects are made known the agencies will do what they can to remedy them. To assist in this process, we offer recommendations for concrete steps which appear to merit consideration in the interest of improved administration of the bracero program.

331.763
F534h

FISHER, LLOYD HORACE, The Harvest Labor Market in California.
Harvard University Press, 1953.

Contents: (1) Theory of the Harvest Labor Market. (2) History of Contract Labor in California Agriculture. (3) Labor Contracting as a Contemporary System. (4) Wage fixing by Employers Associations. (5) The Government as a wage-fixing agency. The author's one concern was that no man or group of men should enjoy unappeased power, that men should be free to clash their wills and minds against each other on terms approaching equality. He regarded the harvest labor market as one skirmish and wrote his book with that in mind.

331.763
B873s

BROOKS, MELVIN S., The Social Problems of Migrant Farm Laborers.
Department of Sociology, Southern Illinois University, 1960.

Effect of migrant farm labor on the education of children. Assisted by Robert L. Hilgendorf. The research reported herein was supported through the Cooperative Research Program of the Office of Education, U. S. Department of Health, Education, and Welfare.

331.763
Io641
Life
Sciences

IOWA. STATE UNIVESTIY OF SCIENCE AND TECHNOLOGY, Labor Mobility and Population in Agriculture.
Iowa State University Press, 1961.

Papers assembled and published under the sponsorship of the Iowa State University Center for Agricultural and Economic Adjustment. Agricultural laborers. Rural Conditions.

331.63
N276n

NATIONAL ASSOCIATION FOR THE ADVANCEMENT OF COLORED PEOPLE, No Harvest for the Reaper.
New York, 1959.

The story of the migratory agricultural worker in the United States. The problems of the Negro farm worker have always been an important concern of the N.A.A.C.P. As Negro agriculture labor increasingly becomes migratory the Association's concern has been turned to the pattern of exploitation and discrimination which characterizes migratory farm labor in the U. S. today. As streams of migratory farm workers swelled during the past decade the N.A.A.C.P. has focused national attention upon the many injustices suffered by the migratory worker, especially the aspects of economic exploitation abuses of child labor and civil rights violations. It is hoped this publication will not only provide much needed information, but will also help mobilize broad public support for the necessary changes in the life and work of these people.

331.763
Sch95
1945

SCHWARTZ, HARRY, Seasonal Farm Labor in the United States, with Special Reference to Hired Workers in Fruit and Vegetable and Sugar-beet Production.
Columbia University Press, 1945.

Presents information about labor engaged in the production of various agricultural commodities. The two groups of workers that were singled out (see title) were chosen because of the belief that their study would best delineate the most important characteristics of casual agricultural wage laborers and the problems they face.

MINING SCHOOLS AND EDUCATION

n 622.071 N411 1953 Spec. Coll.	NEVADA. UNIVERSITY. COMMITTEE ON MACKAY SCHOOL OF MINES. Report on Mackay School of Mines and Related Organizations. Reno, Nevada, 1953. Report submitted by Roy A. Hardy, Chairman, Committee on Mackay School of Mines.
622.0711 N499r 1904 Mines Library	NEVADA. UNIVERSITY. MACKAY SCHOOL OF MINES. Report. Reno, Nevada, 1904. Mining Schools and Education - Nevada.
622.0711 M157	The Mackay Miner. Reno, Nevada. Published by the Crucible Club, affiliated student society of the American Institute of Mining Engineers.
622.071 R22 1941	READ, THOMAS THORNTON, The Development of Mineral Industry Education in the United States. The American Institute of Mining and Metallurgical Engineers, 1941. Sponsored by the Seeley W. Mudd Memorial Fund. This study is a direct result of the activities of the Mineral Industry Education Division of the Institute.

OCCUPATIONAL ACCIDENT PREVENTION

M
331.823
J924
1944

JUDSON, HARRY HARLOW, Occupational Accident Prevention
J. Wiley & Sons, Inc.

Co-author: James M. Brown. Labor and laboring classes.
Accidents - prevention.

OCCUPATIONAL COUNSELING TECHNIQUES

371.425
Oc1

Occupational Counseling Techniques, Their Development and Application.
American Book Company, 1940.

The Occupational Research Program of the United States Employment Service has been engaged for several years in studying workers and jobs in various sections of the country. Results of the studies of jobs have already been published in the form of job descriptions and an occupational dictionary. This volume presents the results of the studies of workers....The authors have carried major responsibility for the worker-analysis studies, but they have been guided by the general counsel of the Technical Board of the Occupational Research Program.

OCCUPATIONAL DISEASES

610
N21
L924
v.13

FRANKEL, LEE KAUFER, Health of the Worker, How to Safeguard It.
Funk & Wagnalls Co., New York and London, 1924.

Occupations - Diseases and hygiene.

331.822
H945d
1957

HUNTER, DONALD, The Diseases of Occupations.
London, English University Press, 1957.

This book reviews on a broad basis and with emphasis on it clinical aspects, the problem of disease in relation to occupation. Every type of occupation is considered, whether it belongs to an industry or not. The work embodies the experience of 20 years' teaching and is designed to be of use to the student, the general practitioner and the consultant.

331.82
N42

NEW YORK (STATE) FACTORY INVESTIGATING COMMISSION,
Preliminary Report of the Factory Investigating Commission.
The Argus Company, Printers, 1912.

I - Preliminary report of the Director of Investigation. II - The Fire Hazard. III - Report on Bakeries and Bakers in New York City. IV - Women Workers in Factories in New York State. V - Notes on an Industrial Survey of a Selected Area in New York City with Respect to Sanitary Conditions in the Factories. VI - Occupational Diseases. VII - Home Work in the Tenement Houses of New York City. VIII - Questionnaire Issued by Commission and Digest of Replies. IX - Briefs and Memoranda Submitted to the Commission. X - Bills Submitted to Legislature. Parts II-III. Minutes of Public Hearings: Witnesses Examined. Testimony.

371.7
T27

TERMAN, LEWIS MADISON, The Teacher's Health.
Houghton Mifflin Company, 1913.

A study in the hygiene of an occupation. The purpose of this book is to summarize and interpret the most important investigations which bear upon the hygiene of the teaching profession. Includes: (1) The problem. (2) Mortality Rate, and Physical Morbidity. (3) Tuberculosis and the Teacher. (4) Health Suggestions for the Teacher. (5) The Hygiene of Character. (6) The Responsibility of the Normal School.

331.822
qIn61r

INTERNATIONAL CONGRESS ON OCCUPATIONAL HEALTH., Reports.
1840-1937.

First congress held in 1906. English, French, German, Italian, or Spanish. Occupational diseases - Congresses. Industrial hygiene - Congresses. Industrial Accidents - Congresses.

OCCUPATIONAL HEALTH NURSING

610.734
B814o
1956

BROWN, MARY LOUISE, Occupational Health Nursing.
Springer Publication Co., 1956.

The book has a dual aim: To assist the student who wants to learn more about occupational health nursing; and to guide the practicing occupational health nurse and give her a standard against which to measure her program and her performance. It covers the following major areas: I - The Field and Scope of Occupational Health Nursing. II - The Ten Functions of Occupational Health Nursing. III - Participation of the Nurse in Occupational Health Programs.

OCCUPATIONAL INFORMATION - ELEMENTARY ED.

371.42
M13
1923

MC CRACKEN, THOMAS COOKE, Occupational Information in the Elementary School.
Houghton Mifflin Co., 1923.

The authors of this volume have tried to supply the deficiency with regard to bringing occupational information to children of elementary school age. They have examined large numbers of books used in elementary schools, and materials suitable for children of elementary school age, for the purpose of selecting usable stories, readings, songs, and other materials which relate to occupational activities. These have been read and the selected parts listed under proper occupational classifications.

501 to 99

OCCUPATIONAL LICENSING

331.762
C832
1952

COUNCIL OF STATE GOVERNMENTS, Occupational Licensing Legislation in the States.
Chicago, 1952.

The report deals with licensing by state governments as an institution for regulating the entrance into and continued practice in professions, trades, and other occupations. It is concerned primarily with problems of public health and welfare; problems of potential monopoly - the barriers to the free choice of an individual in selecting his vocation; and the extent to which state officials have effective control over the administration machinery of examination and licensure.

OCCUPATIONAL LITERATURE

016.371425
Oc15
LATEST
IN REF.

Occupational Literature; An Annotated Bibliography.
New York, H. W. Wilson Co., 1946.

By Gertrude Forrester.

OCCUPATIONAL MOBILITY

658
W248
1955

WARNER, WILLIAM LLOYD, Occupational Mobility in American Business and Industry, 1927-1952.
University of Minnesota Press, 1955.

The American Business Life - Occupational Origins of the Business Elite - Circulation of the Elite - Education - Business Careers and Business System - Man's Family and Career - Methods and Techniques of Study.

331.112
J180

JAFFE, ABRAM J., Occupational Mobility in the United States, 1930-1960.
King's Crown Press, Columbia University, 1954.

Represents a pioneer attempt to study mobility and patterns of working life by applying chart analysis to the data from successive decennial censuses of population. Goal was the construction of models and procedures for estimating possible future manpower supply by occupation in the U. S. Such projections were calculated for 1960 for the total male population of the U. S. and are shown in Part 1. Secondarily, they presented additional information and definitive analysis on: (a) the rate of new entries into major occupational groups, (b) retirements by occupations, (c) net mobility among the various occupations, and (d) patterns of working life.

OCCUPATIONAL OUTLOOK HANDBOOK

371.425
Oc15
LATEST
IN REF.

OCCUPATIONAL OUTLOOK HANDBOOK
U.S. Bureau of Labor Statistics Bulletin,
Washington, 1949.

Vols. for 1949 - issued in the congressional series of House documents. Issued by Bureau of Labor Statistics in cooperation with Veterans Administration and prepared in the Bureau's Occupational Outlook Branch.

OCCUPATIONAL SATISFACTION

TM
h693

HOE, BETTY HEATH, Occupational Satisfaction as a Function of Self-role Congruency.
Reno, Nevada, 1962.

Thesis (M.A.) - University of Nevada. Social psychology. Character tests. Job satisfaction. Apperception - testing.

OCCUPATIONAL THERAPY

615.851
D927o
1957

DUNTON, WILLIAM RUSH, Occupational Therapy, Principles and Practice.
Springfield, Illinois, Thomas, 1957.

Contents: History of - Principles of - Prescription - Kinetic Occupational Therapy - Appliances and Games - Recreational Therapy - Educational Therapy.

615.851
W661p
1954

WILLARD, HELEN S. Principles of Occupational Therapy.
Lippincott, 1954.

Contents: History and Development of - Scope of - Educational Aims - Activities - Organization and Administration - Therapy for Mentally Ill - Therapy for Physical Disability - Equipment.

OCCUPATIONAL TRENDS IN U. S.

331.709
An23
1940

ANDERSON, HOBSON DEWEY, Occupational Trends in the United States.
Stanford University Press, 1940.

Co-Author: Percy E. Davidson. This is the second report in an anticipated series. The first volume, Occupational Mobility in an American Community, was published in 1937. In process of development and soon to be published is a third report dealing with a vertical scale of occupations based upon rates of pay and earnings. The fourth study in progress is an investigation of the political behavior and voting records of occupational groups. A fifth research now under way is a study of occupational trends in Califonia since 1870, following the plan developed in this volume.

331.09794
H242C

HARRIS, NORMAN (Director), Community Occupational Survey Report (Kern County Union High School District).

1. Occupational information for use in curriculum, instruction, guidance, and placement. Contents: The study is designed to yield realistic information concerning the occupational structure of the community, in order to better evaluate the present program of the school and point the way to needed changes in curriculum and guidance. Chapter X - Implications for Industrial Art - Vocational Education is applicable to the R. C. U.

374
Am3
1919

AMERICAN LIBRARY ASSOCIATION. WAR SERVICE, Your Job Back Home.
Washington, Press of Judd & Detweiler, Inc., 1919.

A book for men leaving the service.

378
B114
1941

BABCOCK, FRANKLIN LAWRENCE, The U. S. College Graduate.
The Macmillan Company, 1941.

Herein a statistical report on the status of living U. S. college alumni (and alumnae) - who they are, how and where they live, what they earn, and at what work. For the research, full credit must go to Charles L. Stillman...who conceived the idea, and to Time's Wendell Ward and Edward Rhett who managed the operation throughout.

151.2
B51
1937

BINGHAM, WALTER VAN DYKE, Aptitudes and Aptitude Testing
New York and London, Publishers for the National Occupational Conference by Harper & Brothers, 1937.

The purpose is to tell what aptitudes are, and how an inquirer can recognize his potential. Much is said about theory and practice of testing. Contents: Aptitudes and Gudiance, Orientation with the World of Work, The Practice of Testing.

301.4
C244s

CAPLOW, THEODORE, The Sociology of Work.
Minneapolis, University of Minnesota Press, 1954.

Sociology, Social Classes.

151.22
G345m
1955

GHISELLI, EDWIN ERNEST, The Measurement of Occupational Aptitude. Berkeley, University of California Press, 1955.

The objective of this monograph is to summarize in a concise and integrated fashion, the results of all investigations concerned with the validities of tests used in the selection and placement of workers. The review is restricted to aptitude tests, since tests of job knowledge and of job skill are highly specific in nature. The pertinent publication from 1919 to date was searched. The specific purpose of this monograph is to obtain a representable value of the validity of each type of test for each type of job.

378
H244m
1949

HARRIS, SEYMOUR EDWIN, The Market for College Graduates and Related Aspects of Education and Income.
Cambridge, Harvard University Press, 1949.

Vocational guidance.

378.365 HOCKENBURY, MYRON DOWNEY, Make Yourself a Job.
H66 Dauphin Publishing Company, 1936.
1936

This volume is addressed to the student whose funds are inadequate to meet the expenses of four years study away from home. It is largely a handbook of jobs. It presents the chief avenues of earnings which students have used to advantage.

323.3 HUGHES, EVERETT CHERRINGTON, Men and Their Work.
H893m Glencoe, Ill., Free Press, 1958.

This volume is concerned with the social psychological aspects of work and the professional-would-be professional. It is felt that the career of a man is worked out in some organized system and that the career of an occupation consists of changes of its internal organization and of its place in the division of labor of which society itself consists.

371.425 KITSON, HARRY DEXTER, I Find My Vocation.
K65i McGraw-Hill, 1954.
1954

The purposes of the book are: (1) to set forth the steps a young person must take in choosing a field of work; (2) to present the types of problems one encounters in occupational life; (3) to acquaint students with sources of information regarding occupational problems; (4) presenting exercises in choosing occupations that can be used in later years.

371.425 LEHMAN, MAXWELL, Jobs After Retirement.
L528 New York, Holt, 1954.
1954

Book seeks to answer more or less the problem for the older person who finds retirement either too costly or too deadening, or both and who seeks an income within the limitations of health and time. The editors have considered these problems from the standpoint both of the person already retired and of the person planning for the inevitable day when he will wish to step down as a full-time member of the working community.

177 MAC GIBBON, ELIZABETH GREGG, Fitting Yourself for Business.
M174 New York, Gregg Publishing Division, McGraw-Hill Book Co.,
1955 1955.

Blueprinting Careers in Business - Getting the Job - Success on the Job - Managing Your Personal Affairs.

331.4
M35
1918

MARSHALL, MARIAN DANA, 101 Ways of Making Money for Women at Home.
Webster City, Iowa, The Collins Studio, 1918.

Employment of women.

658.1
P163
1950

PAINE, LANSING MORSE, Start Your Own Business on Less Than $1000.
New York, McGraw-Hill, 1950.

Book has been written to help steer the novice through the charted reefs of business. It deals with many phases and problems with which a successful operator must become familiar. The emphasis is on <u>what</u> you should know, <u>where</u> you can learn it, and <u>why</u> it is necessary.

371.425
P946i
1945

PROSSER, CHARLES ALLEN, Information Book on Selecting an Occupation.
Bloomington, Illinois, McKnight and McKnight, 1936.

Co-Author: R. H. Palmer. Choice of profession. Selecting an occupation.

371.425
T499t

THORNDIKE, ROBERT LADD, Ten Thousand Careers.
New York, Wiley, 1959.

Co-Author: Elizabeth Hagen. Book is devoted to reporting the outcome of a study of 17,000 men who were given a battery of aptitude tests in 1943. An attempt was made to locate as many as possible of these men in 1955-56 and to get information from each about his education and vocational history. Information has in fact been obtained from over 10,000 men who were out in the civilian world of work. The analysis of aptitude test scores for these 10,000 men in relation to their later careers provides the substance of their work.

070
W333
1945

WATSON, ELMO SCOTT, Jobs in Rural Journalism.
Chicago, Illinois, 1939.

A Science Research Associates publication. Compiled from materials secured through Northwestern University in cooperation with the Illinois Federal Writers' Project, Works Progress Administration. Selected bibliography on rural journalism.

331.82
F86
1921

FRASER, CHELSEA CURTIS, Work-a-day Heroes.
New York, Thomas Y. Crowell Company, 1921.

The miner - The structural iron-worker - The steeple-jack - The "high-up" painter - The window washer - The city policeman - The state patrol - The Royal Canadian mounted policeman - The city fireman - The diver - The wild animal catcher - The wild animal trainer - The airmail man. Occupations - dangerous.

301.44
R378o

REISS, ALBERT J., Occupations and Social Status.
New York, Free Press of Glencoe, 1962, 1961.

I - Problems of Method in NORC (National Opinion Research Center). II - NORC Ratings as a Prestige. Continuum. III - Social Correlates of Occupational Prestige Status. IV - Scaling Occupations. V - A Socio-economc Index for all Occupations. VI - Properties and Characteristics of #5. VII - Sources of Variation in Rating the Prestige Status of Occupations. VIII - Occupation and Social Stratification.

317.3
Un32
1900
Oc

U. S. CENSUS OFFICE. 12TH CENSUS, 1900., Occupations at the Twelfth Census.
Washington, Government Printing Office, 1904.

Prepared under the supervision of William C. Hunt. Summary of the state and territorial laws regulating the employment of children.

396.5
H28
1927

HATCHER, ORIE LATHAM, Occupations for Women.
Richmond, Va., Atlanta, Ga., Southern Woman's Educational Alliance, 1927.

It is written to help girls and women find themselves in the maze of conflicting demands and opportunities which confront them today. It faces the new trends and economic conditions which have led to the entrance of many women into occupations outside the home, and helps women to solve the resulting problems.

371.425
B7580
1949

BREWER, JOHN MARKS, Occupations Today.
Boston, Ginn, 1949.

Attention is paid to self-study and analysis as well as to job analysis. Social aim of vocational guidance is constantly emphasized. Simplifies vocational choice. Occupational information is brought up to date. Long range trends and growing occupations are presented, as well as recent research. Contents: Education and Work - Learning About Occupations - Choice, Start, Progress - Cooperation.

A371.42
H118
1953
REF.

HAEBICH, KATHRYN A., Vocations in Fact and Fiction.
Chicago, American Library Association, 1953.

A selective, annotated list of books for career background and inspirational reading.

016.371425 FORRESTER, GERTRUDE, Occupational Literature.
Oc15 New York, N.W. Wilson Co., 1946.
REF.

An annotated bibliography.

371.42 PRICE, WILLODEEN, Index to Vocations.
P932 H.W. Wilson, 1938.
1936

A subject index to 1,950 careers. First published in 1936. Index to vocations; List of books analyzed; Useful books for vocational teachers and counselors.

331.7 PATERSON, DONALD GILDERSLEEVE, Revised Minnesota Occupa-
P273 tional Rating Scales.
1953 Minneapolis, University of Minnesota Press, 1953.

Minnesota studies in student personnel work. (1) The Scales and the Record Form. (2) Occupational Ability Ratings. (3) Classification of Occupations Grouped by Kinds and Levels of Ability. (4) Classification of Occupations by Similarity of Ability Patterns. (5) Hierarchy of Occupational Ability Patterns. (6) The Individual Counseling Record.

331.7 Dictionary of Occupational Titles.
Un3 Washington, U.S. Government Printing Office, 1949.
1949
REF. Prepared by Division of Occupational Analysis, U.S. Employment Service. Job definitions...prepared... primarily for the use of public employment offices and related vocational and personnel service.

370.62 RUML, BEARDSLEY, Teaching Salaries Then and Now.
F981b New York, Fund for the Advancement of Education, 1955.
no. 1

Report summarizes the work of Ruml and Tickton in the area of teaching salaries. Over the last 50 years. It does not attempt to say what teaching salaries should be. It does, however, reveal clearly how these salaries stood today in relation to incomes in other fields.

PERSONNEL MANAGEMENT

T
56
P76
1958

Production Handbook.
New York, Ronald Press Co., 1958.

Edited by Gordon B. Carson. Industrial Mangement. Factory Management.

HD
6490
G7S3

SCOTT, WILLIAM G., The Management of Conflict
Homewood, Ill., R. D. Irwin, 1965.

Appeal systems in organizations. Grievance procedures. The Irwin-Dorsey Series in Behavioral Science.

HF
5549
S84285

STEINER, GARY ALBERT, The Creative Organization.
Chicago, University of Chicago Press, 1965.

Proceedings of a seminar sponsored by the Graduate School of Business under a grant from the McKinsey Foundation for Management Research, Inc.

HF
5549
T83

TURNER, ARTHUR NICHOLSON, Industrial Jobs and the Worker.
Boston, Harvard University, 1965.

An investigation of response to task attributes. Co-author: Paul R. Lawrence. Job Satisfaction.

PERSONNEL RECORDS IN EDUCATION

Tesis
31

WITTWER, MARILYN, An Analysis of Methods of Reporting Pupil Progress in the Eight Mountain States.
Reno, Nevada, 1956.

Thesis (M.A.) - University of Nevada. Personnel records in education. Grading and marking (Students). Home and school.

PERSONNEL SERVICE IN EDUCATION

371.422
Am3
1949

AMERICAN ASSOCIATION OF COLLEGES FOR TEACHER EDUCATION. COMMITTEE ON STUDIES AND STANDARDS, Student Personnel Services.
Washington, American Association of Colleges for Teacher Education, 1949.

A monograph covering the entire range of personnel services. Each chapter is written by a person well qualified in areas such as: recruitment for teacher education, admission and registration, student counseling, student health and housing services, student financial aid, etc.

378.113
Am3
1933

AMERICAN COUNCIL ON EDUCATION. CENTRAL COMMITTEE ON PERSONNEL METHODS, Measurement and Guidance of College Students.
Baltimore, Williams & Wilkins Co., 1933.

First report of the Committee on Personnel Methods of the American Council on Education with an introduction by Dean Herbert E. Hawkes. Universities and colleges - Administration. Mental tests. Character tests. Vocational education.

136.7
Am35
1945

AMERICAN COUNCIL ON EDUCATION. COMMISSION ON TEACHER EDUCATION, Helping Teachers Understand Children.
Washington, D. C., American Council on Education, 1945.

Book is about teachers. Describes behavior of school children and analyzes forces that led them to act as they did in various situations. Demonstrates how classroom teachers and teaching principals deepen their understanding concerning the conduct of children and how they increased their skill in identifying such causes in the case of particular children and groups.

371.422
Am35s

AMERICAN COUNCIL ON EDUCATION. INTERGROUP EDUCATION IN COOPERATING SCHOOLS, Sociometry in Group Relations, A Work Guide for Teachers.
Washington, American Council on Education, 1948.

Presents adaptations of sociometric devices to diagnosing interpersonal relationships in school groups and describes the successive methodological steps as these were developed in the Intergroup Education in Cooperating Schools project.

370.82
Am512s
Ser. C

AMERICAN COUNCIL ON EDUCATION, Studies. Series VI.
Student Personnel Work. No. 1-19.
Washington, Apr. 1939 - Feb. 1958.

Chapter 12 is concerned with helping students find employment. Deals in college and university areas. Combines college placement services with industrial placement services. Chapter 18 concerned with students and staff in a social context. Deals with extracurricular - cultural life on campus of students. Chapter 17 concerned with personnel principles in the chapter house. It is a guide for house mothers in fraternity houses to her understanding of her group and her operation in her house.

370.15
An24p
1932

ANDERSON, VICTOR VANCE, Psychiatry in Education.
New York and London, Harper & Brothers, 1932.

This book is intended largely for those engaged in educational work, for teachers and school officials. It emphasizes the individual who is being educated. Deals with psychiatry in college and in secondary schools. Contains case records. Used scientific method to approach problems. Deals with junior high, elementary and primary schools.

371.422
Ar19g

ARBUCKLE, DUGALD SINCLAIR, Guidance and Counseling in the Classroom.
Boston, Allyn and Bacon, 1957.

This book is written for the students who are taking a beginning course in guidance, for teachers concerned with guidance work, and for parents who are interested in the philosophy and practice of the personal teacher-child relationship in the school. Deals with measurement and testing. Contains a case study in counseling. Discusses organizing guidance services.

371.422
B279m

BARRY, RUTH, Modern Issues in Guidance-Personnel Work.
New York, Columbia University, 1957.

Critical comprehensive review of guidance-personnel issues by the authors. Contains judgments, new organizations of ideas, and new interpretations. The book's goal is to contribute a clearer direction and to give greater strength in guidance-personnel work.

LB
1027
B26

BAXTER, EDNA DOROTHY, An Approach to Guidance.
New York, Appleton-Century Company, Inc., 1946.

Bibliography at end of each chapter. Annotated references for story and story interpretation.

372
B457
1954

BERNARD, HAROLD WRIGHT, Guidance Services in Elementary Schools.
New York, Chartwell House, 1954.

Emphasizes the development of skills and knowledges which will enable teachers to deal with the ramifications of problems, varied approaches, and to make guidance to continuous emphasis in daily procedures. This volume is designed to indicate workable answers to questions teachers frequently ask. Emphasis is on the individual. Sociometry and psychodrama is explained. It deals with informational services that are most appropriate to the elementary school worker. It is directed to both the teachers on the job as well as to those who are in training.

370.1
B639
1941

BOLTON, FREDERICK ELMER, Educational Sociology.
New York, Cincinnati, American Book Company, 1941.

This book is intended as an introductory college textbook in the field of educational sociology. The text aims to bring to the consciousness of students the vital relation between education and democracy. It discusses the Federal government to education, the U. S. Office of Education, and the N.E.A. Discusses adult and vocational education. The curriculum in its relation to our social values is also discussed.

371.422
B758g

BREWSTER, ROYCE EDWIN, Guidance Workers Certification Requirements.
Washington, U. S. Department of Health, Education, and Welfare, Office of Education, 1957.

Lists certification requirements for 41 states for a school counselor and 12 states for the school psychologist, as of 1957.

371.422
B799s

BROUWER, PAUL J., Student Personnel Services in General Education.
Washington, American Council on Education, 1949.

Analyzes ways to identify and satisfy the needs of students through the coordinated use of fact-finding devices and of personnel services. Contents deal with the ways in which the total development of the student may be effectively improved through general education. The text deals in three areas: developing the personnel services, facilitating the personnel services, and the principles of personnel services.

371.42
B893
1944

BURCH, WILLA CARTER, Clinical Practices in Public School Education.
Philadelphia, 1944.

Contains a brief study concerning child accounting and child guidance, clinical testing, cumulative recording and the individualizing of instruction.

371.42
C361
1951

CHANDLER, JOHN ROSCOE, Successful Adjustment in College.
New York, Prentice - Hall, 1951.

Personnel service in Education.

371.422
C432d

CHICAGO. UNIVERSITY. CENTER FOR INTERGROUP EDUCATION,
Diagnosing Human Relations Needs.
Washington, American Council on Education, 1951.

Describes several devices helpful in diagnosing gaps in social learning of children and adolescents introduced by their cultural backgrounds, their social relationships and patterns of belonging, and their feelings and concerns about their relationships with their families and peers. Six instruments are described: diaries, parent interviews, participation schedules, sociometric procedures, open questions, and teacher logs.

370.193
C771sc

COOK, LLOYD ALLEN, School Problems in Human Relations.
New York, McGraw-Hill, 1957.

Study of problems in human relations in and about schools - mainly concrete cases. Part I - Defines human relations education, discusses methods of problem solving. Part II - Consists of 9 case-centered chapters concerned with teaching, room order, individual differences, inter-group relations, area study and action, and school head and staff relations. Part III - Teacher-leader role in "change action".

SDP
371.42
C885i
1951

CROW, LESTER DONALD, An Introduction to Guidance.
New York, American Book Company, 1951.

Gives an over-all view of guidance in relation to individual problems of adjustment in home and school and in occupational, social, and civic experiences. The book also traces the guidance needs of individuals from childhood through adulthood.

371.42
D182p
1954

DAME, JOHN FRANK, Guidance in Business Education.
Cincinnati, South-Western Publishing Company, 1954.

Purpose is to assist in the guidance of students in the business education program. General areas: (1) Guidance and business education. (2) Business curriculum. (3) Occupational survey. (4) Job analysis. (5) The placement service. (6) Occupational standards and guidance services. (7) Interpreting guidance services. (8) The interview and the guidance worker.

373
D29
1935

DAVIS, BURTON ELSWORTH, Guidance in the Junior High School.
Yokohama, Yamagata Press, 1936.

Contains the scope of the work now being undertaken in the junior high school. It provides a measuring rod for other guidance services to appraise themselves for completeness.

371.42
D293
1948

DAVIS, FRANK GARFIELD, Pupil Personnel Service.
Scranton, International Textbook Company, 1948.

Represents the thinking and experience of eight different persons, all specialists in the areas presented. The book was written with the individual pupil in mind. It is intended for college and university classes and is a useful handbook for teachers in schools lacking professional leadership in the field of pupil-personnel service. It contains information about group counseling.

371.42
D482
1952

DETJEN, ERVIN WINFRED, Elementary School Guidance.
New York, McGraw-Hill, 1952.

This book is written for all teachers who are interested in improving the mental health of children in the elementary or junior high area. The book has a threefold purpose: (1) Suggests ways teachers may learn about the background, the environment, the physical condition, and the social status of children. (2) To suggest ways in which adults can give children more opportunities to bring their grievances to the surface, to get rid of negative feelings, and to work out their own solutions to problems. (3) To show how boys and girls can get along better with one another.

373
D747e
1950

DOUGLASS, HARL ROY, Education for Life Adjustment, its Meaning and Implementation.
New York, Ronald Press Company, 1950.

This book is designed to make contributions that should be useful to school officials and to communities that are attempting to adjust and expand their secondary school programs to serve all youth. One chapter gives special attention to the small high school.

371.422
D923P
1949

DUNSMOOR, CLARENCE CLIFFORD, Principles and Methods of Guidance for Teachers.
Scranton, International Textbook Company, 1949.

The text's major emphasis is upon the development of ways and means by which guidance and counseling can be implemented in the actual school situation. It also is designed as a basic text for teacher-training institutions which offer introductory courses in principles and basic concepts of guidance and pupil personnel services. It also provides a source for ready reference on usable techniques and materials for those teachers

charged with the responsibility for guidance and to those teachers generally working in secondary and elementary schools.

370.973
N21so

EDUCATIONAL POLICIES COMMISSION, Social Services and the Schools.
Washington, D. C., Educational Policies Commission, National Education Association of the United States and the American Association of School Administrators, 1939.

Presents a systematic analysis of cooperative relationships between public schools and public health, welfare, and recreation agencies and public libraries. Attempts to present a comprehensive policy by which current and proposed practices can be checked, and discrepancies between theory and practice can be observed and discussed on their merits.

A371.42
Ed24

Educators Guide to Free Guidance Materials.
Randolph, Wisconsin, Educators Progress Service, 1962.

Vocational Guidance - film catalogs, bibliography. Personnel service in education.

371.8
E142H
1949

ELIAS, LLOYD J., High School Youth Look at Their Problems.
Pullman, State College of Washington, 1949.

The tabulated results of a state-wide survey of the opinions of 5,500 high school youth concerning their schools, their families, their friends, and their futures.

371.422
Er44
1947

ERICKSON, CLIFFORD ERIC, A Basic Text for Guidance Workers.
New York, Prentice-Hall, 1947.

The text attempts to portray many different aspects of the guidance program and at the same time to indicate the extent of some of the specializations within the field as a whole. The book is prepared both to serve all teachers interested in learning more about guidance services and to furnish counselors a beginning reference for their work.

371.422
Er44p
1949

ERICKSON, CLIFFORD ERIC, A Practical Handbook for School Counselors.
New York, Ronald Press Company, 1949.

The contents of the text contain the following chapters: (1) The role of guidance services. (2) Learning about pupils. (3) Interviewing and counseling. (4) Informational services. (5) The staff and the guidance program. (6) Organizing the guidance program.

371.422
Er44o
1955

ERICKSON, CLIFFORD ERIC, Organization and Administration of Guidance Services.
New York, McGraw-Hill, 1955.

This book aims to describe both adequate guidance service and the competent preparation of counselors. The book is also concerned with a philosophy of guidance servies which is consistent with present trends. (1) Functions of school personnel. (2) Planning for guidance services. (3) Qualifications of guidance workers. (4) Organizing counseling, information and placement services.

371.422
F317
1949

FEDDER, RUTH, Guiding Homeroom and Club Activities.
New York, McGraw-Hill Book Co., 1949.

The aim of this book is to give a description and analysis of the group process, by which is meant the interpersonal relationships within a group -- describe the dynamics out of which group programs evolve. Areas of importance in this book: (1) The leader's role in group work. (2) The setting for club and homeroom activities.

371.425
F55
1935

FITCH, JOHN ANDREWS, Vocational Guidance in Action.
New York, Columbia University Press, 1935.

This is a study of the practice of vocational guidance in order to discover what workers in this field do, and under what circumstances their work is performed. (1) What vocational guidance is. (2) The organization of vocational guidance. (3) Duties of counselors. (4) Methods of counseling. (5) Gathering and dissemination of occupational information. (6) Conditions of work. (7) Placement in vocational guidance. (8) Registering and interviewing. (9) The employer and the job. (10) Placement office.

371.8
F894
1931

FRETWELL, ELBERT KIRTLEY, Extra-Curricular Activities in Secondary Schools.
Boston, New York, Houghton Mifflin Co., 1931.

The author stresses the need for the students having extra-curricular activities and suggests ways in which teachers can give direction to students. (1) Sense of direction. (2) Class organization. (3) Pupil participation in Government. (4) Councils in junior high and senior high. (5) Assembly and clubs. (6) High school newspaper. (7) Pupil handbook. (8) Athletics. (9) The annual, commencement, extra-curricular finances.

371.422
F922g
RESERVE
DESK

FROEHLICH, CLIFFORD PAYO, Guidance Testing and Other Student Appraisal Procedures for Teachers and Counselors. Chicago, Science Research Associates, 1959.

Use is that of a handbook to supplement guidance people. (1) Statistical methods of summarizing test results. (2) Statistical methods of analyzing groups of test scores and other data. (3) Principles of guidance testing. (4) Measuring scholastic ability. (5) Aptitude tests. (6) Measuring scholastic achievement. (7) Appraising personal adjustment. (8) Self-reporting. (9) Studying social relationships in the classroom. (10) Guideposts for individual analysis. (11) Identifying student problems.

371.422
F922
1950

FROEHLICH, CLIFFORD PAYO, Guidance Services in Smaller Schools.
New York, McGraw-Hill, 1950.

McGraw-Hill practical guidance series. Includes bibliographies.

610.73
G655c

GORDON, H. PHOEBE, Counseling in Schools of Nursing.
New York, McGraw-Hill, 1947.

A study of the principles and techniques of personnel services for students. Co-authors: Katharine J. Densford and E. G. Williamson.

371.422
G655t
1956

GORDON, IRA J., The Teacher as a Guidance Worker.
New York, Harper, 1956.

Human Development concepts and their application in the classroom. A. Nature of Guidance; (1) Role of the Teacher. (2) Qualifications for guidance work. B. The child as a growing organism; C. Understanding community forces; (1) Role of culture in self-development. (2) Societies of the child. D. The Child's Self; (1) Self-process. (2) Uniqueness of the individual. (3) Self-system as an 'influencer'. E. The Teacher as a Group Worker; F. The Teacher as a Counselor; G. The Teacher as an Action Researcher.

378.1
G79
1932

GRAY, WILLIAM SCOTT, Provision for the Individual in College Education.
Chicago, The University of Chicago Press, 1932.

Edited by William S. Gray. Proceedings of the Institute for administrative officers of higher institutions. Universities and colleges - Administration and Curricula. Students - U.S.

371.422
H124c
1955

HAHN, MILTON EDWIN, Counseling Psychology.
New York, McGraw-Hill, 1955.

Deals with the nature of educational-vocational-personal problems and with educational-vocational interests. It also covers the tools and techniques of counseling with the changes in theory and practice that have come about.

371.422
H124g
1950

HAHN, MILTON EDWIN, General Clinical Counseling in Educational Institutions.
New York, McGraw-Hill, 1950.

Contains the basic theories, hypotheses, and cocepts of clinical counseling. Discusses the nature of educational-vocational problems and educational-vocational interests.

371.422
H189ch
1950

HAMRIN, SHIRLEY AUSTIN, Chats With Teachers About Counseling.
Bloomington, McKnight & McKnight Publishing Co., 1950.

The book is devoted particularly to a discussion of teacher responsibilities in counseling. Counseling techniques are presented for use by teachers in their contacts. The book is about the counseling of normal youngsters.

371.42
H189i

HAMRIN, SHIRLEY AUSTIN, Initiating and Administering Guidance Services.
Bloomington, McKnight & McKnight Publishing Co., 1953.

This text is directed toward helping school administrators and superintendents initiate, improve, extend and supervise guidance services.

378.11
H313
1945

HAWKES, HERBERT EDWIN, Through a Dean's Open Door.
New York, London, McGraw-Hill Book Company, Inc., 1945.

A guide for students, parents, and counselors. This book is written for personnel officers and college administrators, who are interested in providing for each student a situation in which he may find opportunity for his best development. (A) The Individual and the College: (1) Choosing a College. (2) The responsibility of the college to the individual. B. The College and the Individual: (1) Admissions. (2) Tests and examinations. (3) Flexibility of requirements. (4) Group relations. (5) Health. (6) Discipline. C. The College and the Student - A Reciprocal Relationship.

377.2
H352
1933

HEATON, KENNETH LEWIS, The Character Emphasis in Education.
Chicago, The University of Chicago Press, 1933.

A collection of materials and methods. The chapters of this volume are written in the effort to bring together examples of some of the better methods and materials that have been used in elementary and secondary schools regarding character emphasis in education. It is designed with the thought of the teacher in service and for principals and supervisors.

371.422
H352
1953

HEATON, MARGARET M., Feelings are Facts.
New York, National Conference of Christians and Jews, 1954.

Deals with specific problems of inter-group relations. It exposes facts about different types of feelings created by different situations that teachers face with their dealings with children.

371.422
H927g
1960

HUMPHREYS, JOSEPH ANTHONY, Guidance Services.
Chicago, Science Research Associates, 1960.

The text presents basic concepts and procedures for guidance services at all educational levels, from elementary through university. The text serves as an introduction to the field of student guidance services for students of guidance.

371.42
H976g

HUTSON, PERCIVAL W., The Guidance Function in Education.
Appleton-Century-Crofts, 1958.

The text defines the function, the basic components, and various features of the guidance program. The text is best suited to the first year of graduate study in education.

371.422
J54s
1959

JENNINGS, HELEN HALL, Sociometry in Group Relations.
Washington, American Council on Education, 1959.

The book deals with findings from sociometric research, the sociometric test, and uses and applications of this method.

371.422
J642r

JOHNSTON, EDGAR GRANT, The Role of the Teacher in Guidance.
New Jersey, Prentice-Hall, 1959.

Written for teachers and approaches the question of the school's guidance program from the teacher's point of view. Purpose is to introduce teachers to the various facets of the guidance function. (1) Guidance through the teacher's eyes. (2) The teacher looks at individuals. (3) The teacher looks at groups (know the group as well

as the individual). (4) The teacher works on a team (with other school personnel, with parents, with the community). (5) The teacher evaluates his role (his own growth and that of his pupils).

370.15
J71
1934

JONES, ARTHUR JULIUS, Principles of Guidance.
New York and London, McGraw-Hill Book Co., Inc., 1934.

Function of guidance and its relation to other aspects of education. Results of many research studies dealing with problems of young people. The aims of the various phases of guidance are incorporated into the various chapters of the book. Homeroom and group guidance, leadership and leisure time guidance to mention a few other areas covered. Last chapter is dedicated to the results of investigations into the effects of guidance (1934).

371.71
K141m

KAPLAN, LOUIS, Mental Health and Human Relations in Education.
New York, Harper, 1959.

Basic contention of this book is that schools must also educate for mental health so that youngsters will learn to work together in wholesome and satisfying ways and to live together as responsible citizens. This text has sought to synthesize current knowledge and experience regarding mental health and human relations. Part I presents the problem of mental disorder and mal-adjustment in the U.S. - how it reaches schools. Part II deals with environmental influences on development of mental health. Part III describes the psychological forces of growth and the symptoms of behavior deviation in children. Part IV makes practical application of these principles in the school setting.

LB
1027.5
K64

KORNRICH, MILTON, Underachievement.
Springfield, C. C. Thomas, 1965.

In this text one will find: formal research, clinical case studies, preference to recent studies related to intellectually gifted underachievers.

371.42
L521
1950

LEFEVER, DAVID WELTY, Principles and Techniques of Guidance.
New York. Ronald Press Co., 1950.

This second edition stresses the part which the classroom teachers play in the guidance of youth by providing specific suggestions and listing source units. It also stresses strongly vocational guidance. Other areas covered: (1) Need for guidance. (2) Meanings and concepts of guidance. (3) Principles of guidance. (4) Group approach to guidance. (5) Individual guidance and counseling. (6) Evaluation and follow-up.

371.422
L729
1953
Reserve

LITTLE, WILSON, Developmental Guidance in Secondary School.
New York, McGraw-Hill, 1953.

The text is designed especially for the beginner in his preparation for guidance responsibilities. and for those engaged in on-the-job study to improve existing guidance services. The text notes: the nature of problems found in secondary school pupils, the relationships between the problems and the behavior of youth, and practical suggestions for initiating guidance activities.

378.113
L775
1938

LLOYD-JONES, ESTHER (MC DONALD), A Student Personnel Program for Higher Education.
New York, McGraw-Hill Book Co., Inc., 1938.

This book attempts to outline a total personnel program, shows its purpose in the total program of higher education, and shows the various aspects of the personnel program in relation to each other. Contents: (1) Philosophy and Organization of the Student Personnel Program. (2) Functions of same.

371.422
L879g

LOS ANGELES COUNTY, CALIFORNIA. OFFICE OF SUPERINTENDENT OF SCHOOLS. Guidance Handbook for Secondary Schools.
Los Angeles, California Test Bureau, 1948.

General Purposes: (1) Handbook for educators. (2) Main emphasis is on techniques, and essential characteristics of a guidance program. General areas: (1) Guidance in the modern Secondary School. (2) Technique for collecting and recording guidance data. (3) Techniques for the administrative use of guidance data. (4) Techniques for teacher and counselor use of guidance data. (5) Modern guidance materials.

371.422
M393p

MARZOLF, STANLEY S., Psychological Diagnosis and Counseling in the Schools.
New York, Holt, 1956.

The text covers: (1) Foundations of diagnosis and counseling. (2) Case study. (3) Testing in a case study. (4) Improving adjustment.

371.422
M426g
1949

MATHEWSON, ROBERT HENDRY, Guidance Policy and Practice.
New York, Harper, 1949.

The content of this book is a rough attempt to outline a framework of fundamental theory which may be useful in evaluating current guidance practice and in projecting future programs.

371.422
M426g
1955

MATHEWSON, ROBERT HENDRY, Guidance Policy and Practice, Rev. Ed.
New York, Harper, 1955.

In this book one will find chapters dealing with a thorough exposition of procedures and practices of guidance required for implementation of policy, a chapter on prevailing strategies of guidance practices and one on the history of guidance. There are also chapters dealing with individual and social needs for guidance and the basic process - areas of guidance. A more comprehensive treatment has been given to the psychological and philosophical foundations of guidance.

378.113
M129
1939

MC CAUL, MARGARET ELIZABETH, Guidance for College Students.
Scranton, Pa., International Textbook Co., 1939.

The main purpose of this book is to furnish a working basis for the guidance of college freshmen. The book attempts to orient the student to his new environment, to his personality development, and to the conditions in the working world and in making a wise choice of a vocation.

371.422
M141g

MC DANIEL, HENRY BONNER, Guidance in the Modern School.
New York, Dryden Press, 1956.

This book deals with: (1) The organization of the school for identifying and serving the needs of young people, the systematic study of the individual, the informational program, and the principles and practices of counseling.

371.332
M19
1934

Mc KOWN, HARRY CHARLES, Home Room Guidance.
New York and London, McGraw-Hill Book Co., Inc., 1934.

In general, there are two main emphases in this book. (1) Philosophy, purposes, and principles of organization and administration, and the development and presentation of home room programs and activities. (2) Program material and activities relating to particular phases of specialized guidance. Areas covered in this book: A changing conception of education, purposes of the home room, administration of the home room, and areas concerned with guidance in home room.

371.332
M19
1946

MC KOWN, HARRY CHARLES, Home Room Guidance, Second Ed.
New York, London, McGraw-Hill Book Co., Inc., 1946.

The main purpose of this book is to assist in the further development of worthy, justifiable, and beneficial home room externals and internals. There are two main emphases in this book: (1) Philosophy, purposes, and principles of organization and administration and development presentation, and evaluation of home room programs and activities. (2) Program material and activities relating to particular phases of specialized guidance.

371.422
M666t
1949

MINNESOTA. UNIVERSITY., Trends in Student Personnel Work.
Minneapolis, University of Minnesota Press, 1949.

This book contains sections related to the following areas: (1) The role of the personnel worker in higher education and the lives of youth. (2) Developments in tests and testing. (3) Vocational Counseling and Occupational Adjustment: (a) Developments in vocational counseling techniques. (b) Contribution from the field of occupational adjustment. (4) Counseling methods and points of view. (5) Special personnel services (emphasis on general areas of counseling). (6) Personnel work as a profession. (7) Counseling by faculty members.

371.422
M899c

MOSER, LESLIE E., Counseling and Guidance: An Exploration.
Englewood Cliffs, New Jersey, Prentice-Hall, 1963.

This book is divided into three basic parts: (1) This part presents material describing the guidance services in elementary and secondary schools. (a) Detailed discussion of philosophy, organization and implementation services, process and procedures in counseling, etc. (2) This part deals with student personnel work in colleges and universities. (3) This part explores counseling and guidance work outside the schools. (Government services, business and industry, community clinics and agencies).

370.6
N213
v.37:1

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. COMMITTEE ON GUIDANCE, Guidance in Educational Institutions, Prepared by the Society's Committee on Guidance.
Bloomington, Ill., 1938.

The text contains frequent reference to the adjustments that should be made in the guidance service to bring it in harmony with the remainder of the school program.

370.6
N213
v. 47:1

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. COMMITTEE ON JUVENILE DELINQUENCY AND THE SCHOOLS., Juvenile Delinquency and the Schools.
Chicago, University of Chicago Press, 1948.

The yearbook dealt with the role of the schools in promoting remedial and preventive measures in relation to delinquent behavior. Covered in the text are also the problems of juvenile delinquency.

370.6
N213
v. 58:2

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. COMMITTEE ON PERSONNEL SERVICES IN EDUCATION., Personnel Services in Education.
Chicago, University of Chicago Press, 1959.

This volume directs attention toward the pupil as a person to be cultivated. It discusses: education and the evolving nature of society; philosophical and psychological bases of personnel services in education; principles for programming personnel services; functions

and procedures in personnel services; organization of personnel services; and frontiers of personnel research in education.

371.422
P317c

PATTERSON, CECIL HOLDEN, Counseling and Guidance in Schools: A First Course.
New York, Harper, 1962.

The text emphasizes principles and problems, or issues, rather than procedures and techniques. It contains a chapter on the educational setting in which counseling and guidance services operate. Also included is a chapter concerned with the philosophy of guidance. Another notes the qualifications for counseling and guidance.

371.422
P393
1948

PEPINSKY, HAROLD B., The Selection and Use of Diagnostic Categories in Clinical Counseling.
Stanford, California, Stanford University Press, 1948.

Deals in the area of student personnel work. The author tries to answer these questions: (1) What are the basic categories of student needs? (2) How reliably can the needs of students be diagnosed? (3) What information is most essential in diagnosis? (4) What are the general characteristics of students who fit each category? (5) What are the causes of the various forms of maladjustment? (6) Is differential treatment a sound basis for determining diagnostic categories? (7) Do diagnostic categories aid the study of effectiveness of differential therapies?

378.73
P936
1944

PRINCETON, UNIVERSITY. PRINCETON PERSONNEL INDEX., Directory of College Counseling and Placement Offices for Servicemen.
Princeton, New Jersey, Princeton University, The Princeton Personnel Index, 1944.

Contains a list, by states, of all colleges accredited by the American Council on Education. Vocational guidance. Veterans - Employment - U.S.

371.101
P96
1930

PULLIAM, ROSCOE, Extra-instructional Activities of the Teacher.
Garden City, New York, Doubleday, Doran and Co., Inc., 1930.

This book is designed to introduce to the classroom teacher and the prospective classroom teacher the extra-instructional problems that she may meet and suggest means by which these problems may be met. Helpful hints for a new teacher in her classroom are discussed.

371.422
R252
1944

REED, ANNA (YEOMANS), Guidance and Personnel Services in Education.
Ithaca, New York, Cornell University Press, 1944.

The purpose of this book is to present the whence, how, and where of the guidance and personnel movement and to question it whither: (1) to tell how four segments of a guidance movement come into being; (2) to present the universal principles, practices, tools and techniques of guidance; and, (3) to take stock of the present assets and liabilities of guidance and personnel services.

373.73
R362
1933

RICE, GEORGE ARTHUR, The Administration of Public High Schools Through Their Personnel.
New York, The Macmillan Company, 1933.

The text examines the responsibilities of the administrative officers of the high school, to analyze the principles upon which good organization is based, and to set forth sound practice in administration. The text considers in detail the duties of each administrator.

371.422
R562
1950

ROBINSON, FRANCIS PLEASANT, Principles and Procedures in Student Counseling.
New York, Harper, 1950.

This book is primarily concerned with helping personnel workers who wish to develop professional skill in counseling with normal individuals. Areas covered in this book: (1) Factors in the counseling situation. (2) Counseling techniques. (3) Related aspects of counseling programs. (4) Types of interviews.

371.422
R745c
1949

ROTHNEY, JOHN WATSON MURRAY, Counseling the Individual Student.
New York, W. Sloane Associates, 1949.

The text is aimed at those who are preparing to become teachers and counselors at secondary and higher levels. It deals with the vocational problems of the individual student. The text provides case histories of subjects who have been studied, counseled, and followed up over a period of years. It attempts to prepare a person to evaluate and apply methods learned about individuals.

371.422
R745h
1953

ROTHNEY, JOHN WATSON MURRAY, The High School Student.
New York, Dryden Press, 1953.

A book of cases. Students - U.S. Personnel service in education.

378.1
In8
1940
v.12

RUSSELL, JOHN DALE, Student Personnel Services in Colleges and Universities.
Chicago, Ill., The University of Chicago Press, 1940.

This volume treats the many problems involved in maintaining effective personnel services for students. The volume discusses: (1) The obligation of the institution to its students, (2) administrative organization for student personnel services, (3) Institutional provisions for understanding students, (4) Interpretation and use of data in counseling students, (5) The extra-classroom life of the student, (6) Evaluation of student personnel services.

371.42
Sa111g

SAALFELD, LAWRENCE J., Guidance and Counseling for Catholic Schools.
Chicago, Loyola University Press, 1958.

The text seeks to outline a practical method proper to the problems and needs of Catholic students. The text discusses: duties of personnel; recommended procedures for initiating a program, and a means of implementing a guidance and counseling program guaranteed to be distinctly Christian. The text is a "how-to-do-it" manual for principals and personnel. It is applicable to the elementary school.

371.422
Sa121e

SACHS, GEORGIA MAY, Evaluation of Group Guidance Work in Secondary Schools.
Los Angeles, Calif., The University of Southern California Press, 1945.

Included for administrators and guidance workers are: (1) A statement of hypotheses concerning factors which may have contributed to the efficiency of group guidance in the schools studied, and (2) suggestions for the evaluation of many different aspects of the group guidance work.

371.422
Sh82
1952

SHOSTROM, EVERETT L., The Dynamics of the Counseling Process.
New York, McGraw-Hill, 1952.

This book is concerned with normal individuals and uses the preventive, or mental-hygiene, approach to counseling. It also reveals a desirable balance between principle, or theory and practice. The emphasis is on the client because the author believes that effective adjustment is self-adjustment.

371.422
Sm57
1955

SMITH, GLENN ERLE, Counseling in the Secondary School.
New York, Macmillan, 1955.

The emphasis is placed upon counseling as the focal service of the guidance program; all other services occupy a supporting role. This book attempts to provide an overview of counseling and its supporting services designed to acquaint prospective counselors, practicing counselors having limited experience, administrators, and teachers with a complete description of the counseling service in operation in the school setting with particular reference to the roles of all the staff members.

371.422
Sm57p
1951

SMITH, GLENN ERLE, Principles and Practices of the Guidand program.
New York, Macmillan, 1951.

A basic text. This book is concerned with the How, Why, and the What of guidance services. It has discussions of early experiments in the field, a brief overview of guidance activities, presents some suggestions for appraising the guidance program, and presents some partinent facts concerning the development of guidance services on a national basis.

371.422
St89g

STOOPS, EMERY, Guidance Services: Organization and Administration.
New York, McGraw-Hill, 1959.

This book is a storehouse of basic principles and techniques for successfully organizing and administering pupil guidance. The authors have outlined basic principles and procedures which are flexible enough to meet the needs of schools in all parts of the country.

371.422
St81
1949

STRANG, RUTH MAY, Counseling Technics in College and Secondary School.
New York, Harper, 1949.

This book supplies a systematic understanding of each counseling technique that can be illumined by concrete illustrations.

371.422
St81e
1947

STRANG, RUTH MAY, Every Teacher's Records.
New York, Bureau of Publications, Teachers College, Columbia University, 1947.

The pamphlet presents a simple, natural approach to the appraisal of individual boys and girls. The pamphlet attempts to prepare teachers to do a better job of guidance in their classes.

371.8
St81
1946

STRANG, RUTH MAY, Group Activities in College and Secondary School.
New York and London, Harper and Brothers, 1946.

Group work, Educational and social. Personnel service in education.

371.422
St81g

STRANG, RUTH MAY, Group Work in Education.
New York, Harper, 1958.

Includes Bibliography. Student activities. Personnel service in education.

378.11
St8
1934

STRANG, RUTH MAY, Personal Development and Guidance in College and Secondary School.
New York and London, Harper & Brothers, 1934.

The function of this book is to summarize the results of investigations relating to personnel work. The text is intended for the use of specialists in work with individuals, for research workers, and for teachers whose part in the guidance of students is increasingly recognized.

378.113
St8
1953

STRANG, RUTH MAY, The Role of the Teacher in Personnel work.
New York, Bureau of Publications, Teachers College, Columbia University, 1953.

This text contains concrete examples of counseling and group work. It contains information on guidance in the elementary school, group dynamics, client-centered counseling, and projective methods.

159.9
Sy6
1935

SYMONDS, PERCIVAL MALLON, Measurement of the Personality Adjustments of High School Pupils.
New York City, Teachers College, Columbia University, 1935.

Character tests. Adaptability (psychology). Adolescence. Personnel service in education.

371.422
T648i

TOLBERT., E., Introduction to Counseling.
New York, McGraw-Hill, 1959.

Includes Bibliographical references. This book is intended to assist educators - teachers, teacher counselors, and administrators on a secondary school level. The text is suitable for a first course in counseling, and also for in-service education to develop counseling competencies. The emphasis is on what the counselor does when he is face-to-face with the counselee.

371.422
qT699
1957

TRAXLER, ARTHUR EDWIN, Techniques of Guidance.
New York, Harper, 1957.

The book covers the following topics: The essentials in starting a guidance program, group work in guidance, tests, opportunities for young people, general principles and practices of measurement, record keeping case studies, and teacher guidance. Includes bibliographies.

371.145
Um8
1937

UMSTATTD, JAMES GREENLEAF, Institutional Teacher Placement. Detroit, Michigan, Office of the Editor, Institutional Teacher Placement, College of Education, Wayne University, 1937.

This book can serve as a manual of best practices for directors of institutional teacher placement. It could also be used as a guide to college administrators about to improve and extend their teacher-placement services as well as a source of new ideas for directors of bureaus already well established. Contents: The place of supply and demand studies in a teacher placement office. The administration of a teacher placement office. Office arrangement and management. The credentials. Counseling of prospective teachers. The measurement of teaching efficiency. Relations with registrants. Problems of graduate placement. Relations with employers. The institutional teacher placement bureau as an integral unit in teacher education. A placement bureau as a division of the state department. Some problems in the ethics of teacher placement. The publicity program of the teacher placement office. Trends in institutional teacher placement.

378.113
W171
1935

WALTERS, JACK EDWARD, Individualizing Education by Means of Applied Personnel Procedures.
London, Chapman & Hall, Limited, 1935.

This book has been written to present the methods of individualizing education by means of the applied personnel procedures and techniques of dealing with the students in college, high school and grammer school. Part I - is a handbook for teachers and counselors. Part II - includes a description of a centralized personnel department or guidance bureau. Part III - describes personnel methods which have been used greatly in a centralized personnel program but which can be employed by the individual teacher.

371.422
W265
1946

WARTERS, JANE, High-School Personnel Work Today.
New York, London, McGraw-Hill Book Company, 1946.

This book is an attempt to present a synthesis of the current theories on personnel work, to indicate their strong and weak points, to show similarities and basic agreements, and to smooth out the wrinkles that may be causing the secondary - school people to trip in their thinking about high-school personnel work today. It is to assist the readers' understanding of personnel work not to qualify him as a practitioner.

371.422
W265t
1954

WARTERS, JANE, Techniques of Counseling.
New York, McGraw-Hill, 1954.

The subjects considered in this volume are: instruments important to the student personnel worker in the proficient performance of his functions: tests, inventories, observation reports, self-reports, cumulative personnel records, interviews, case studies, and case conferences.

371.422
W669g

WILLEY, ROY DE VERL, Group Procedures in Guidance.
New York, Harper, 1957.

Considerable space in this book is devoted to the core curriculum as an environment where group guidance may be attempted. This book is written with the conviction that a revised concept of group guidance should be presented.

371.422
W669m
1955

WILLEY, ROY DE VERL, Modern Methods and Techniques in Guidance.
New York, Harper, 1955.

Contains a comprehensive discussion of all aspects of the problems of a guidance program: personnel and their required qualifications, techniques and procedures in the guidance process, how to get started on such a program, and the like.

371.422
W676
1950

WILLIAMSON, EDMUND GRIFFITH, Counseling Adolescents.
New York, McGraw-Hill, 1950.

Revision of Part I of How to Counsel Students. This edition centers around a new formulation of the broadened role of counseling in education. Stress is placed upon counseling as a form of personalized and individualized assistance to adolescents as they develop their full personalities in a societal and school context of other personalities and social processes and institutions.

371.422
W676i
1940

WILLIAMSON, EDMUND GRIFFITH, Introduction to High School Counseling.
New York and London, McGraw-Hill Book Company, Inc. 1940.

This book attempts to outline the broad scope of student personnel work in high schools. Special emphasis is given to the treatment of the functions of the counselor or advisor and the teacher-counselor.

371.425
W676
1937

WILLIAMSON, EDMUND GRIFFITH, Students and Occupations.
New York, H. Holt and Company, 1937.

The first part of this text is devoted to a discussion of the importance of the non-vocational values of general education and further discussion of the psychological problems involved in the making of a vocational choice. The remainder of the book is devoted to the following broad occupational fields; medical occupations, agriculture, forestry, home economics, engineering, chemistry, teaching, business, law, journalism and writing occupations, social welfare, the ministry, library, various art occupations, skilled trades, personnel service, and public service occupations.

378.113
W67
1937

WILLIAMSON, EDMUND GRIFFITH, Student Personnel Work, An Outline of Clinical Procedures.
New York and London, McGraw-Hill Book Co., Inc. 1937.

The text attempts to expose the possibilities of developing and utilizing scientific techniques in the educational and vocational guidance of the individual.

372.42
W85
1948

WOOD, BENJAMIN DE KALBE, Measuring and Guiding Individual Growth.
New York, S. Burdett Co., 1948.

The text attempts to deal with three interrelated phases of education - individual differences, measuring instruments, and guidance.

371.422
W945p
1961

WRENN, CHARLES GILBERT, Planned Group Guidance, A Complete Manual for the Sponsor of Various Types of Planned Group Guidance Activities.
Minneapolis, American Guidance Service, 1961.

Revision of Aids for Group Guidance, published in 1942. Co-Authors: Reinhard G. Hein and Shirley Pratt Schwarzrock.

371.422
W927
1951

WRENN, CHARLES GILBERT, Student Personnel Work in College.
New York, Ronald Press Co., 1951.

With emphasis on counseling and group experiences.

371.42
W931p
1948

WRIGHT, BARBARA H., Practical Handbook for Group Guidance for Teacher-Advisers of Homerooms, Common Learnings Classes and Clubs.
Chicago, Science Research Associates, 1948.

SRA professional Guidance Books.

371.2
Ye31
1949

YEAGER, WILLIAM ALLISON, Administration and the Pupil.
New York, Harper, 1949.

The contents of this book cover such areas as: (1) The nature and social basis of the pupil personnel function. (2) The attendance function with prcblems and procedures. (3) Providing for all pupils. (4) Problems incidental to a wider educational program for all pupils. (5) Adjustment services. (6) Evaluation, recording, and reporting. (7) Achieving personality and social adjustment. (8) The organizing function.

136.73
Z12
1940

ZACHRY, CAROLINE BEAUMONT, Emotion and Conduct in Adolescence.
New York, London, D. Appleton-Century Co., Inc., 1940.

For the Commission on secondary school curriculum. Adolescence.

371.422
Z581

ZERAN, FRANKLIN ROYALTON, Life Adjustment Education in Action, A Symposium.
New York, Chartwell House, 1953.

Each chapter is written by an author specializing in the specific area. Specific areas covered: (1) Vocational and industrial education. (2) The curriculum in life adjustment education. (3) Social studies in life adjustment. (4) Guidance services for life adjustment. (5) Work experience programs. (6) Instructional materials.

LB
1027.5
Z473

ZERAN, FRANKLIN ROYALTON, Organization and Administration of Guidance Services.
Chicago, Rand McNally, 1962.

Contents: (1) The analysis of the individual. (2) Informational services. (3) The counseling service. (4) Placement and follow-up of the school-leaver. (5) Evaluation of existing services. (6) Roles and responsibilities. (7) Organization patterns and practices. (8) Selection criteria, preparation, and certification of guidance personnel. (9) Physical facilities.

016.37142
G942

Guide to Guidance.
Washington, D. C., The National Association of Deans of Women of the National Education Association, 1939.

An annotated bibliography of publications of interest to deans, counselors, and advisors.

371.422
B279c
1956

BARRY, RUTH, Case Studies in College Student-Staff Relationships.
New York, Teachers College, Columbia University, 1956.

Doctoral Disertation - 22 cases - For the purpose of furthering study, and understanding, and the development of human relations knowledge and skills.

371.422
Se444n

SECHREST, CAROLYN A., New Dimensions in Counseling Students.
New York, Bureau of Publications, Teachers College, Columbia University, 1958.

A case approach. The contents of this book cover the following areas: (1) Understanding the role of counseling in education. (2) Making use of the cases. (3) Defining and establishing a counseling relationship. (4) Counseling, discipline, and teachers. (5) Using school consultants. (6) Locating the real problems. (7) Preparing for referral. (8) Maintaining a long-term relationship.

371.422
F247g

FARWELL, GAIL F., Guidance Readings for Counselors.
Chicago, Rand McNally, 1960.

Rand McNally Education series.

371.422
Sy995n

SYRACUSE UNIVERSITY, DIVISION OF THE SUMMER SESSIONS.
New Frontiers in Guidance-Personnel Work.
Suracuse, N. Y., Syracuse University Press, 1959.

Lectures given at a workshop at Syracuse University in July 1958, and jointly sponsored by the Syracuse University Division of Summer Sessions and the National Association of Women Deans and Counselors. The leaders of the workshop addressed themselves to placing before the students of the workshop by lecture, discussion, conference, and demonstration the most recent developments in philosophy and practice in guidance-personnel work. They also considered present problems in the field, especially as they affect women.

371.422
Sy996g

SYRACUSE UNIVERSITY, SCHOOL OF EDUCATION. Guidance In the Age of Automation.
Syracuse, Syracuse University Press, 1957.

Lectures and summaries of lectures in a workshop held during the summer sessions of the School of Education at Syracuse University in 1956, celebrating the twenty-fifth anniversary of the graduate program in student personnel work for women.

371.42205 C855 — Counselor Education and Supervision.
Washington, Association for Counselor Education and Supervision, v. 1 - Fall 1961, quarterly.

Periodical. Preceded by an unnumbered issue, Spring, 1961.

371.42205 J86 — The Journal of College Student Personnel.
Knoxville, Tenn., American College Personnel Association, v. 1 - Oct. 1959.

Bi-minthly Periodical. Supersedes Personnel-O-Gram.

371.42205 Sch372 — The School Counselor.
Washington, American School Counselor Association.

Periodical.

371.422 B27e — BARR, JOHN A., The Elementary Teacher and Guidance.
New York, Holt, 1958.

Personnel service in elementary education.

371.422 G243g — GARRY, RALPH, Guidance Techniques for Elementary Teachers.
Columbus, Ohio, C. E. Merrill Books, 1963.

The book emphasizes the principles and techniques that will enable an elementary teacher to use a guidance program. The book is focused on basic, psychological, sociological, and physical health principles. Techniques, such as socio-grams, socio-dramas, the Social Distance Scale, Guess Who, record keeping, measurements of physical health and growth, case histories, and intelligence tests, are introduced. The book provides a comprehensive view of a child's world through treatment of family relationships, health and physical development, personal development, social development, and the school and community context.

371.422 K88g — KOWITZ, GERALD T., Guidance in the Elementary Classroom.
New York, McGraw-Hill, 1959.

The book is intended primarily for the in-service teacher. It is presented to try to provide a foundation from which the teacher can successfully work to meet the thousands of problems in the classroom.

371.422
L879u

LOS ANGELES COUNTY, CALIFORNIA. OFFICE OF SUPERINTENDENT OF SCHOOLS, Guiding Today's Children.
Los Angeles, California Test Bureau, 1959.

A guidance book for teachers and administrators of elementary schools.

371.422
M366g

MARTINSON, RUTH, Guidance in Elementary Schools.
Englewood Cliffs, New Jersey, Prentice-Hall, 1958.

Co-Author: Harry Smallenburg. Bibliography.

371.422
R799s

ROSECRANCE, FRANCIS C., School Guidance and Personnel Services.
Boston, Allyn and Bacon, 1960.

An attempt to make clear to teachers what the function of guidance services really is in our schools, and how teachers are involved in these services. It is also directed toward pupil personnel workers.

371.422
T111w

TABA, HILDA, With Focus on Human Relations, A Story of an Eighth Grade.
Washington, American Council on Education, 1950.

This is the sixth in a series which is designed to describe ideas, tools, and procedures. It was published to permit further experimentation and to make the findings of one group of teachers available to others.

371.422
W714g
1960

WILLEY, ROY DE VERL, Guidance in Elementary Education.
New York, Harper, 1960.

Education for Living Series. Includes bibliography.

371.422
B281g

BARRY, RUTH, Guidance in Elementary Education.
New York, Bureau of Publications, Teachers College, Columbia University, 1958.

Series in Guidance and Student Personnel Administration. A Case Book. Case Studies.

371.422
B634e

BLAINE, GROHAM BURT, Emotional Problems of the Student.
New York, Appleton-Century-Crofts, 1961.

Personnel service in higher education. Mental hygiene. Attempts to answer the question, "Why does a college need a psychiatrist?" The book contains a collection of articles dealing with student emotional problems in different areas of a college.

371.422
B838g

BRUNSON, MAY AUGUSTA, Guidance.
New York, Bureau of Publications, Teachers College, Columbia University, 1959.

An integrating process in higher education.
The book attempts to explore developments in higher education which have helped to establish the need for integration of the total campus program, and to suggest techniques and processes through which unification of the campus may be achieved.

371.422
H258f

HARDEE, MELVENE DRAHEIM, The Faculty in College Counseling.
New York, McGraw-Hill, 1959.

This text will aid in the placement of students in programs of study; for programs of counseling; the faculty member himself; for advanced students; and for professional personnel in the secondary schools.

082
Em55
v. 8
no. 2

STIBAL, WILLARD OCTIVE, The Historical Development of Student Personnel Records in Colleges and Universities.
Emporia, Kansas, Graduate Division of the Kansas State Teachers College, 1959.

The Emporia State Research Studies. Personnel service in higher education.

371.422
Y17p

YALE UNIVERSITY. DIVISION OF STUDENT MENTAL HYGIENE.
Psychosocial Problems of College Men.
New Haven, Yale University Press, 1958.

Students. Personnel service in higher education. Mental hygiene.

371.427
Z66
1955
REF.

ZIMMERMAN, OSWALD THEODORE, College Placement Directory.
Dover, New Hampshire, Industrial Research Service, 1955.

This book notes the following about finding a job: the company's name and location; the nature of business; the location of principal plants; total employees; graduates hired per year; training program; whom to contact and graduates normally interested in.

371.422
L552o

LEONARD, EUGENIE (ANDRUSS), Origins of Personnel Service in American Higher Education.
Minneapolis, University of Minnesota Press, 1956.

The text deals with the colonial period, the early federal period, the years of expansion, and the evolution of personnel services in brief.

371.422
B1681

BAKKEN, CLARENCE J., The Legal Basis for College Student Personnel Work.
Washington, American College Personnel Association, 1961.

Student Personnel Series, No. 2. Personnel service in higher education. Law and legislation.

371.422
W254s

WARBURTON, AMBER (ARTHUN), Stimulating Guidance in Rural Schools.
Washington, American Personnel and Guidance Association, 1964.

Influence of the National Defense Education Act, Title V-A on Rural Secondary Schools. U. S. Laws, statutes, etc., National Defense Education Act.

371.422
B789c

BOY, ANGELO V., Client-centered Counseling in the Secondary School.
Boston, Houghton Mifflin, 1963.

Personnel service in secondary education. Co-Author: Gerald J. Pine.

371.42
C363w
1959

CATHOLIC UNIVERSITY OF AMERICA. WORKSHOP ON COUNSELING IN THE SECONDARY SCHOOL, Counseling in the Secondary School.
Washington, Catholic University of America Press, 1960.

The proceedings of the Workshop on Counseling in the Secondary School, conducted at the Catholic University of America, June 12 to 23, 1959. Some of the bibliographies talked about in this book are concerning counseling: current problems in counseling programs; organizing; the exceptional student; reading and study skills; the UDE Act of 1958; vocational preference; testing; certification; techniques of the interview; and organizing and administering.

371.422
C848g

COTTINGHAM, HAROLD F., Guidance in the Junior High School.
Bloomington, Ill., McKnight and McKnight Publishing Company, 1961.

The text, besides being designed strictly for the guidance of junior high school students, also includes the nature and characteristics of guidance, the exceptional child, and trends for the future.

371.422
K287g
1955

KELLEY, JANET AGNES, Guidance and Curriculum.
Englewood Cliffs, New Jersey, Prentice-Hall, 1955.

The purposes of this book are: to emphasize the integral role of guidance in the total educational setting; to emphasize the teacher as the center of a well-functioning guidance program; to show by illustrative practices the ways in which guidance and curriculum can be united in building an effective, workable program; and to point up the changing role of guidance personnel and to indicate the preparation and training that guidance counselors and teachers need in order to work within the modern concepts and designs of education.

LB
1620.5
L66

LOUGHARY, JOHN WILLIAM, Counseling in Secondary Schools; A Frame of Reference.
New York, Harper, 1961.

The objective of this book is to provide a frame of reference (Primarily developmental counseling help to young people in secondary schools) and to discuss and illustrate its applications.

SDP
371.42
Oh4g
1955

OHLSEN, MERLE M., Guidance, an Introduction.
New York, Harcourt, Brace, 1955.

The text attempts to acquaint prospective and practicing teachers, administrators, and counselors with basic guidance services, the relationships among these services, organizing their resources, and using guidance techniques in helping youth solve their problems.

371.422
P442g

PETERS, HERMAN JACOB, Guidance, A Developmental Approach.
Chicago, Rand McNally, 1959.

This text was written as an introductory for counselor preparation programs and as a resource for the school staff interested in in-service education of teachers who wish to understand the basic premises of guidance work. It also aims to provide for the beginning student, guidance tools, techniques, and resources.

371.422
R745g

ROTHNEY, JOHN WATSON MURRAY., Guidance Practices and Results.
New York, Harper, 1958.

The book presents generally accepted practices in counseling. It also is a report of an attempt to discover the effect of counseling on students throughout high school as it is revealed in their lives during the 5 year period immediately following graduation.

371.42082
An25o
1955

ANDREW, DEAN C., 120 Readings in Guidance.
Lincoln, University of Nebraska Press, 1955.

The text can be used in the following ways: as an introductory guidance course; supplementary reading; a counselor's handbook (in-service training); aid to teachers of guidance courses. The text covers all areas of guidance.

370.6
N213
v.58:2

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. COMMITTEE ON PERSONNEL SERVICES IN EDUCATION, Personnel Services in Education.
Chicago, University of Chicago Press, 1959.

The text concerning personnel services attempts to point out: the developments in America as it relates to social, economic, and cultural changes; its importance; its growth; its functions at all levels of education; its philosophical principles and its psychological content; and lastly, the problems and issues at hand.

PERSONNEL STANDARDS

361
K283
1944

KELLERMANN, HENRY J., Personnel Standards in Social Group Work and Recreation Agencies...
Welfare Council of New York City, 1944.

Personnel Standards in Social Group Work.

PERSONNEL STUDY

370.82
C726c
no.393

STURTEVANT, SARAH MARTHA, A Personnel Study of Deans of Girls in High Schools.
New York City, Teachers College, Columbia University, 1929.

Deans in schools. Education of women. High schools in the United States.

378.794
L615
1936

LIBBY, PHILIP ALLAN, ...A Personnel Study of Junior College Students.
Los Angeles, The University of Southern California Press, 1936.

Containing approved portions of a dissertation accepted by the Council on Graduate Study and Research, University of Southern California. This monograph ...deals with the scholastic equipment and the scholastic achievement of a selected group of junior college students at the University of Southern California. Includes bibliography.

PERSONNEL WORK IN EDUCATION

378.113
W67h
1939

WILLIAMSON, EDMUND GRIFFITH, How to Counsel Students.
New York and London, McGraw-Hill Book Company, Inc., 1939.

Selected references at end of each chapter except the last. Personnel work in education.

361.07
T6591
1954

TOWLE, CHARLOTTE, The Learner in Education For the Professions.
Chicago, University of Chicago, University of Chicago Press, 1954.

How do the aims of professional education differ from the objectives sought in training for other occupations or from goals of general education? Objectives - Learning Principles - Personality - Social Component in Professional Education - Social Case-Work - Case Material and the Use of Readings.

370.637
In8
1948

INTER-PROFESSIONS CONFERENCE ON EDUCATION FOR PROFESSIONAL RESPONSIBILITY, Buck Hill Falls, Pa., 1948.
Education for Professional Responsibility.
Pittsburgh, Carnegie Press, 1948.

Brief bibliographies on professional education. Contents include: The Objectives of Professional Education - Content and Method in Professional Education - Social and Humanistic Aspects of Professional Education.

378.01
D773a

DRESSEL, PAUL LEROY, Attitudes of Liberal Arts Faculty Members Toward Liberal and Professional Education.
New York, Published for the Institute of Higher Education by the Bureau of Publications, Teachers College, Columbia University, 1960.

The inquiry reported here deals with the attitudes of faculty members in liberal arts colleges toward the liberal arts subjects which professional students ought to pursue as part of their under-graduate education. Some disturbing results are found and analyzed.

378.99
Un3e

U.S. OFFICE OF EDUCATION, Education for the Professions.
Washington, 1955.

Here the editor and the authors of the chapters present briefly some of the significant and up-to-date information on the various professions and their education which should prove useful to all who wish to be informed on how our professional personnel are prepared for their work.

331.2973
C548
1937

CLARK, HAROLD FLORIAN, Life Earnings in Selected Occupations in the United States.
New York and London, Harper & Brothers, 1937.

A few selected references included. Wages in the United States.

331.7
C737
1954

COMMISSION ON HUMAN RESOURCES AND ADVANCED TRAINING.
America's Resources of Specialized Talent.
New York, Harper, 1954.

Bibliographical footnotes included. Contents: Educated Manpower: A National Resource - The Fields of Specialization College Graduation Trends - The Occupational Distribution of College Graduates - Supply and Demand in the Specialized Fields - The Potential Supply - Characteristics of Students Entering the Specialized fields - Utilization of Educated Specialists - Improving the Utilization of the Potential Supply - The Use of Manpower Information.

331.762
C832
1952

COUNCIL OF STATE GOVERNMENTS, Occupational Licensing Legislation in the States.
Chicago, 1952.

Includes bibliography. The report deals with licensing by state governments as an instrument for regulating the entrance into and continued practice in professions, trades and other occupations. It is concerned primarily with problems of public health and welfare; problems of potential monopoly - the barriers to the free choice of an individual in selecting his vocation; and the extent to which state officials have effective control over the administrative machinery of examination and licensure.

301.451
Ed96n

EDWARDS, GILBERT FRANKLIN, The Negro Professional Class.
Glencoe, Ill., Free Press, 1959.

A development of the author's doctoral dissertation at the University of Chicago. Includes bibliography.

TECHNICAL EDUCATION

607
B882
1941

BUNDY, ROY DALTON, How to Teach a Job.
New York, Deep River, Conn, National Foremen's Institute, Inc., 1941.

Contents: A manual set up to outline the steps in the teaching process (with regard to teaching a vocation). It also points out definite procedures which are involved, as well as includes certain cautions which bear directly upon the success of teaching the job.

370.7
D27

DAVENPORT, EUGENE, Education for Efficiency.
Boston, New York, D.C. Heath & Co., 1914.

Contents: Education for efficiency - Industrial education with special reference to the high school - Industrial education a phase of the problem of universal education - The educative value of labor - The culture aim in education - Unity in education - Agriculture in the high schools - Agriculture in the elementary schools - Agriculture in the normal schools - The development of American agriculture.

371.42
D34

DEAN, ARTHUR DAVIS, The Worker and the State.
New York, The Century Co., 1910.

Bibliography of vocational education. A study of education for industrial workers.

371.42
D72
1919

DOOLEY, WILLIAM HENRY, Principles and Methods of Industrial Education for Use in Teacher Training Classes.
Boston, New York, Houghton Mifflin Company, 1919.

Bibliography at end of each chapter.

372
D72

DOPP, KATHARINE ELIZABETH, The Place of Industries in Elementary Education.
Chicago, The University of Chicago Press, 1909.

Contents: Significance of Industrial Epochs; a discussion of the various stages and ages man has gone through to industrialize himself - Origins of Attitudes that Underlie Industry - Practical Application.

371
G13

GALTON, FRANK W., Workers on Their Industries.
New York, C. Scribner's Sons, 1896.

Contents: The need and value of technical education. Dressmakers and tailoresses. Workers in precious metals. Ship-building. Wood engraving. Corn-milling, ancient and modern. Engineering. Cask-making. The art of bookbinding. The agricultural labourer. Bricklayers. Pottery. The need of organization among women. The need of labour representation.

370.4
H19

HANUS, PAUL HENRY, Beginnings in Industrial Education.
Boston and New York, Houghton Mifflin Company, 1908.

Contents: Industrial education. - Industrial education, under state auspices, in Massachusetts. - What kind of industrial school is needed? - Industrial education and social progress. - The industrial continuation schools of Munich. - Professional preparation of high-school teachers. - School instruction in religion. - The country schoolmaster in Bavaria.

330
K92
1919

KROPOTKIN, PETR ALEKSIEEVICH, Fields, Factories and Workshops.
New York and London, G.P. Putnam's Sons, 1913.

Industry combined with agriculture and brain work with manual work.

371.42
L48

LEAVITT, FRANK MITCHELL, Examples of Industrial Education.
Boston and New York, Ginn and Company, 1912.

Contents: Movement for Industrial Education - Manual Training and Industrial Education - The Demand - Organized Labor, Educators, Social Workers - Reorganization - Grades 6-8 - Industrial School - Vocational High Schools - Trade School - Guidance - Legislation - Agricultural Education.

331.8
M34
1918

MAROT, HELEN, Creative Impulse in Industry.
New York, E.P. Dutton & Company, 1918.

Contents: Production and creative effort. - Adapting people to industry. The American way. - Adapting people to industry. The German way. - Educational industry and associated enterprise.

371.425
N213

NATIONAL ASSOCIATION OF INDUSTRIAL TEACHER EDUCATORS.
Summaries of Studies in Industrial Education.
Dearborn, Mich., Educational Services, Ford Motor Co., Jan. 1930/Aug. 1948.

Technical education. Manual training.

371.42
Se4

SEIDEL, ROBERT, Industrial Instruction: A Pedagogic and Social Necessity.
Boston, D.C. Heath & Co., 1887.

Together with a critique upon objections advanced. Technical education.

607
Se4
1923

SELVIDGE, ROBERT WASHINGTON, How to Teach a Trade.
Peoria, Ill., The Manual Arts Press, 1923.

Contents: Aim was to present in plain language a simple and effective plan for teaching a trade without elaborate or complicated machinery. Plan consists of an analysis or examination of the trade in order to secure a list of the things one must be able to do and a list of the things one must know in order to be proficient in the trade. The latter portion of the book discusses methods of presentation. Plan of instruction is presented which, if followed, places an inescapable responsibility where it belongs and gives a number of points where the teacher may check accurately the progress of the student.

371.42
T21
1914

TAYLOR, JOSEPH SCHIMMEL, A Handbook of Vocational Education.
New York, The Macmillan Company, 1914.

Contents: Industrial Education in Europe - Industrial vs. Manual Training - Intermediate School - Continuation Schools - Training of Vocational Teachers - Guidance - Apprenticeship and Compulsory Education.

707
Un38

U.S. OFFICE OF EDUCATION. ...Art and Industry.
Washington, Govt. Print. Off., 1885-98.

Contents: pt. I. (1885) Drawing in public schools. - pt. II. (1892) Industrial and manual training in public schools. - pt. III. (1897) Industrial and technical training in voluntary associations and endowed institutions. - pt. IV. (1898) Industrial and technical training in schools of technology and in U.S. land grant colleges.

371.42
W42

WEEKS, RUTH MARY, ...The People's School.
Boston and New York, Houghton Mifflin Company, 1912.

A study in vocational training. Bibliography on elementary vocational education.

607.761
M226a

MCLURE, JOHN RANKIN, Area Vocational Education Programs for Technicians.
University, Ala., Bureau of Educational Research, College of Education, University of Alabama, 1959.

The problem of selecting the type of institution for the training of technicians in Alabama under provisions of the National Defense Education Act of 1958.

620.1
St933c
Engin.
Library

STUDY SESSION IN THEORETICAL AND APPLIED MECHANICS CURRICULA. Curricula in Solid Mechanics.
1st, University of Colorado, 1961.

Mechanics - Study and teaching - Congresses. Technical education - Curricula - Congresses.

374.8
K47

KERSCHENSTEINER, GEORG MICHAEL ANTON, The Schools and the Nation.
London, Macmillan and Co., limited, 1914.

Four illustrations of continuation schools.

371.4269773
M166v

MCLURE, WILLIAM PAUL, Vocational and Technical Education in Illinois.
Urbana, Bureau of Educational Research, College of Education, University of Illinois, 1960.

Tomorrow's Challenge. Contents: Occupational trends and their implication for education - The nature of vocational

education and technical education - Organizing and financing vocational education in the high school - Organizing and financing technical education beyond high school - The education of teachers and other professional personnel.

658.386
St62j
1955

STOCKTON, FRANK TENNEY, Job Training in Kansas Industry.
Lawrence, Bureau of Business Research, School of Business, University of Kansas, 1955.

Training of employees. Technical education in Kansas.

371.426
F32
1938

FEE, EDWARD MEREDITH, The Origin and Growth of Vocational Industrial Education in Philadelphia to 1917.
Philadelphia, 1938.

Technical education in Pennsylvania - Philadelphia.

f371.42605
In42

INDUSTRIAL ARTS AND VOCATIONAL EDUCATION.
Milwaukee, New York, The Bruce Publishing Company, v.1 - Jan. 1914.

Technical education - Periodical. Manual training - Periodical. Industrial arts - Periodical.

650.5
M266

THE MANAGEMENT REVIEW. v. 1.
New York, N.Y., American Management Association, 1914.

Includes section "Abstracts and reviews". Industrial management - periodical. Personnel management - periodical. Technical education - periodical. Corporations in the United States.

670.947
K843s

KOROL, ALEXANDER G., Soviet Education for Science and Technology.
Cambridge, Technology Press of Massachusetts Institute of Technology, 1957.

Contents: Mass Education - Ten Year School; Organization, Curriculum, Instruction, Texts, Examinations - Secondary Engineering Technical Schools - Higher Education; Institutional System, Selection Enrollment, Graduation, Academic Plan, Sample Curricula, Teachers, Texts, Facilities, Teaching Process, Graduate Training.

f607.47
R969uE
Engin.
Library

RUSSIA, MINISTERSTVO VYSSHEGO OBRAZOVANIIA. METODICHESKOE UPRAVLENIE, Soviet Technological Curricula.
U.S.S.R., 1923.

Technical education in Russia - curricula. Agricultural education in Russia - curricula.

620.7
M145f
Engin.
Library

MCGIVERN, JAMES GREGORY, First Hundred Years of Engineering Education in the United States, 1807-1907. Spokane, Gonzaga University Press, 1960.

Includes bibliography. Technical education in the United States.

650.7
Ot8
1948

OTTESON, SCHUYLER FRANKLIN, Attitudes of Industrial Executives Regarding Education for Industry. Bloomington, School of Business, Bureau of Business Research, Indiana University, 1948.

Contents: Involves the study of the attitudes of those who have achieved some measure of success regarding their own education experiences. Study undertakes to provide information based on the opinions of employers concerning the education background of their employees to be used as a basis for judging the effectiveness of education programs in the field of business administration.

607
P29
1926

PAYNE, ARTHUR FRANK, Methods of Teaching Industrial Subjects.
New York McGraw-Hill Book Company, Inc., 1926.

A companion volume to Administration of Vocational Education and Organization of Vocational Guidance. Contents: Purpose of this book is to bring together the fundamentals of the techniques of teaching and to indicate their use in the teaching of industrial subjects. Author has endeavored to present only the generally accepted methods and their applications to the teaching of industrial subjects. The following chapters are applicable: IV - Pedagogical Principles of Industrial Education.

371.426
Un3
1924

U.S. FEDERAL BOARD FOR VOCATIONAL EDUCATION, ...Trade and Industrial Education.
Washington, D.C. Washington, Govt. Print. Off., 1924.

Organization and administration, all-day schools, part-time schools, evening schools, teacher training.

607.73
Am512
Gen.
Ref.

AMERICAN TRADE SCHOOLS DIRECTORY, 1964-1965.
Queens Village, New York, Croner Publications v. 22.

The loose-leaf directory is designed for use by anyone interested in giving vocational guidance. This directory lists some 3,000 private and public trade, industrial and vocational schools all over the U.S. Two hundred-twenty five trades are listed.

TECHNOLOGICAL INNOVATIONS

331.18691
B218a

BANKS, OLIVE, The Attitudes of Steelworkers to Technical Change.
Liverpool, Liverpool University Press, 1960.

Contents: This is a continuation of an earlier study which sought to analyze, in a large steel-works, the relations between technical change, social structure and industrial relations; the present study was designed to achieve a more precise description and interpretation of attitudes to technical change. Applicable chapter 3 - Wage Experience and the Change. Chapter 4 - Occupational Status and the Change.

572.082
So678m
no.3

RICHARDSON, FREDERICK LEOPOLD WILLIAM, Talk, Work, and Action.
Ithaca, New York, Society for Applied Anthropology, 1961.

Contents: A monograph written about experiments conducted in an industrial setting. Discover how best to help large numbers of persons and groups. Improve their performance and wellbeing - Improvement by changing human environments - Work group reactions to a changing organizational environment - Reactions depend more on human action and voice than on language - Fundamentals for a program of action to improve human environments.

301.24
R725d

ROGERS, EVERETT M., Diffusion of Innovations.
New York, Free Press of Glencoe, 1962.

Includes bibliography. Social change. Technological innovations.

338.01
Sal77p

SALTER, W.E.G., Productivity and Technical Change.
Cambridge, Eng., University Press, 1960.

Contents: (1) Technical Knowledge and Best Practice Techniques. (2) Determinants of Best Practice Productivity Movements. (3) Productivity, Prices and Costs. (4) The American Scene. Basically, the author attempts an analyzation of the relationship between productivity and technical change. He uses two approaches. First is a theoretical analysis of the relationships between movements of productivity, price, costs, wages and investment in industries experiencing a continuous flow of new techniques. Second approach is emperical and examines the relationships between movements of productivity, prices, costs, etc. in a number of British and American industries.

338.0183
St897r
1959

STRASSMANN, WOLFGANG PAUL, Risk and Technological Innovation.
Ithaca, N.Y., Cornell University Press, 1959.

American manufacturing methods during the nineteenth century. This text covers the following points: the basic concepts and technological innovation; iron and steel; innovation from 1817 through the civil war. The Bessemer Process; and from the open hearth to the Duquesne Revolution.

M
620
En33
1945
Mines
Library

ENGINEERING PREVIEW by L.E. Grinter, Harry N. Holmes, H.C. Spencer, Rufus Oldenburger, Charles Harris, R.G. Kloeffler and V.M. Faires.
New York, The Macmillan Company, 1945.

An introduction to engineering, including the necessary review of science and mathematics. The text is designed for study by high school or first year college student. It treats the background sciences of engineering (math, chemistry and physics); the two languages of engineering (math and technical drawing); the slide rule; and some of the basic engineering applications of physics such as illumination, electric power, electronics, mechanics, heat engines, and refrigeration.

500
F981
1936

FURNAS, CLIFFORD COOK, The Next Hundred Years.
New York, Reynal & Hitchcock, 1936.

Contents: Book is a survey of the fields of scientific endeavor, concerning itself not so much with what science has done as with what it hopes to do. Each of the principle branches of scientific activity are taken up in turn and the most serious short-comings of present-day accomplishments are discussed. Then, because all of our lives are affected by applied science, engineering is given special attention.

604
1982s
1946

HUXLEY, ALDOUS LEONARD, Science, Liberty and Peace.
New York and London, Harper & Brothers, 1946.

Technology. Science. Civilization.

301.243
T226

FRANCIS R. ALLEN AND OTHERS, Technology and Social Change.
New York, Appleton-Century-Crofts, 1957.

The purpose of this book is to investigate the effect of modern technological advances on our social structure. The main emphasis presents the steady, cumulative flow of change in all the social environment. Contents: Process and Theories of Social Change - Social Effects of Selected Major Inventions - Influence of Technology on Social Institutions - Rapid Social Change and Social Problems - Social Change, Planning, Social Control.

600
T383
1955
Physics
Library

THOMSON, SIR GEORGE PAGET, The Foreseeable Future.
Cambridge, England University press, 1955.

Technology. Science.

331.137
Ac182u

ACKERMAN, PAUL, Unemployment.
Montreal, 1959.

The problem of industrial nations. Contents: The Key Problem: The Superfluous Manpower - The Boom and Depression Cycle, its Cause and Aggravating Factors - The Social, Fiscal, Tax, and Monitary Reform - The Mechanics of National Existence - The Industrial Age and Its Basic Problem.

331.137
B468
1912

BEVERIDGE, WILLIAM HENRY, Unemployment.
London, New York, Longmans, Green and Co., 1912.

A problem of industry. "Contains a course of lectures delivered in Oxford, during Michaelmas term of the year now ending (1908) for the delegates of the Common University Fund. Its object is to combine a record of the principal facts of unemployment with a continuous argument as to the causes of unemployment. It includes a good deal of matter from published sources...and appendices, the most important of which deal with 'Public labour exchanges in Germany' (reprinted from the Economic Journal for March, 1908) and 'Methods of seeking employment in Great Britain'".

HD
82
B47

BHATT, VINAYAK VIJAYSHANKER, Employment and Capital Formation in Underdeveloped Economies.
Bombay, Orient Longmans, 1960.

"The first five chapters of this book represent, substantially, the work done...at the Harvard University, for doctoral dissertation during the academic year 1951-52." Underdeveloped areas. Economic Development. Capital.

338.91
C548n

CLARK, JOHN MAURICE, National and International Measures for Full Employment.
Lake Success, United Nations Department of Economic Affairs, 1949.

Part I - The Nature of the Full Employment Obligation. Part II - The Maintainance of Full Employment. Part III - Recommendations. a. Domestic Measures. B. International Measure.

338.9
F319m

FELLNER, WILLIAM JOHN, Monetary Policies and Full Employment.
Los Angeles, University of California Press, 1946.

Contents: (1) Underemployment and Equilibrium. (2) Indeterminateness of Underemployment Equilibrium. (3) Protracted Depression in the "Mature" American Economy. (4) Generalized Expansion. (5) Interest Rates and Problem

of Cost Policies. (7) Underutilization and Full Employment Policy.

330.904
H19
1932

HANSEN, ALVIN HARVEY, Economic Stabilization in an Unbalanced World.
New York, Harcourt, Brace and Company, 1932.

The author believes that much of the world's present instability has been caused by wrong government policies and other unfortunate forms of social control. His chapters deal primarily with analyzation of measures for economic stabilization.

339.41
H327s
1945

HAYES, HARRY GORDON, Spending, Saving and Employment.
New York, A. A. Knopf, 1945.

A significant account of the relations of management, labor, and government during the war and of the potential consequences in the post war period.

331.214
H53
1932

HICKS, JOHN RICHARD, The Theory of Wages.
London, Macmillan and Co., Limited, 1932.

Restatement of the theory of wages, 1932. Part I - The Free Market. Part II - The Regulation of Wages.

330.1
H684r
1930

HOBSON, JOHN ATKINSON, Rationalization and Unemployment.
London, Allen & Unwin; New York, Macmillan Co., 1930.

(1) Income, Monetary and Real. (2) Uses of the Surplus. (3) Underconsumption. (4) Rationalization and Productivity. (5) Rationalization and Consumption. (6) Markets and Distribution of the Product. (7) Social Services and Workers' Incomes. (8) Economic Internationalism. (9) Lack of Purchasing Power.

331.13
H684e
1931

HOBSON, JOHN ATKINSON, The Economics of Unemployment.
London, G. Allen & Unwin Ltd., 1931.

The thesis put forth here is as follows: "If, say, consumption could be maintained at 3/4's of the high war standard, and could be applied productively to enhance the future efficiency of the human instruction instead of being applied distructively, it would seem that trade fluctuations might diappear by a policy which would not merely avert unemployment (outside the minor requirements of economic elasticity), but would furnish the economic conditions for a continually increased productivity, with a corresponding rise in the general standards of consumption. In other words, there exists at any time an economically sound ratio between spending and saving. The author attempts to prove that the foregoing is true according to his thesis.

331
J62
1915
See 1921
Same
Author

JOHNSEN, JULIA E., Selected Articles on Unemployment.
New York, The H. W. Wilson Co., 1915.

Debaters' handbook series. Unemployed - U.S.

331.8
J63
1921

JOHNSEN, JULIA E., Selected Articles on Unemployment.
New York, The H. W. Wilson Co., 1921.

Offers a selected range of articles on - The establishment of public labor exchanges, and the supplying of municipal, state or national work when normal channels are inadequate to absorb surplus labor. Articles are arranged in affirmative and negative sequence.

951
R25
1931
v.7:2

JOHNSEN, JULIA EMILY, Stability of Employment.
The H. W. Wilson Company,1931.

Volume was prepared especially for debaters who are concerned with areas associated with employment and unemployment. Presents both affirmative and negative arguments on all issues concerned.

051
R25
v.6:5

MULLER, HELEN MARIE, Government Fund for Unemployment.
New York, The H. W. Wilson Company,1929.

Volumes prepared especially for debators who deal in the area of labor and all associated subjects. Presents affirmative and negative arguments on the side of all issues concerned.

338.91
Oh4p

OHLIN, BERTIL GOTTHARD, The Problem of Employment Stabilization .
New York, Columbia University Press, 1949.

(1) Aspects of the Economy of Over-Full Employment.
(2) Investment Policy and Employment Stabilization.
(3) International Relations and Economic Stability.
(4) A Swedish Program for Anti-Depression Measures.
(5) Economic Stability and the Structure of Society.
(6) The Keynesian Theory of Underemployment and Its Practical Application.

331.137
Ox2e

OXFORD. UNIVERSITY. INSTITUTE OF ECONOMICS AND STATISTICS., The Economics of Full Employment.
Oxford, B. Blackwell, 1944 .

Six studies in applied economics, prepared at the Oxford University Institute of Statistics. Contents: The Causes of Unemployment. Three Ways to Full Employment. The Stability and Flexibility of Full Employment. Public Finance, Its Relation to Full Employment. The International Aspects of Full Employment. An Experiment in Full Employment. Controls in the German Economy, 1933-1938.

331.110942 PASSFIELD, SIDNEY JAMES WEBB, Seasonal Trades.
P287s London, Constable, 1912.

The present volume is the outcome of a seminar at the London School of Economics and Political Science during the session of 1910. Contents: Work adds something to our available stock of knowledge on seasonal trades and they serve to bring home to us some of the realities of economic pressure that lie beneath and behind all our abstractions about the capacity of "the labour market" for an indefinite "absorption" of the temporarily unemployed.

371.425 PATERSON, DONALD GILDERSLEEVE, Men, Women, and Jobs.
P273 Minneapolis, The University of Minnesota Press, 1936.
1936

A study in human engineering; a review of the studies of the Committee on individual diagnosis and training. Ability - testing. Mental tests. Employment management.

HD PIERSON, JOHN HERMAN GROESBECK, Full Employment.
5724 New Haven, Yale University Press; London, H. Milford,
P5 Oxford University Press, 1941.

Part I - Point of Departure. A. Full Employment Part II - The Alternative Approaches. Part III - A Full-Employment Market Economy. The book aims to show that the U.S. can have lasting and guaranteed full employment without resorting to external expansion or aggression in any shape or form, if the American people will understand the conditions making this possible and will insist upon having them.

331.137 PIGOU, ARTHUR CECIL, The Theory of Unemployment.
P62 London, Macmillan and Co., Ltd., 1933.
1933

In some degree this book complements the author's Industrial fluctuations. Contents: General Considerations, a Discussion on Unemployment. The Elasticity of the Real Demand for Labour - Factors Other Than Money Affecting the Level and Variations in the Level of the Real Demand for Labour - Monetary Factors Affecting Variations in the Level of the Real Demand Function for Labour - The Causation of Unemployment and of Changes in Unemployment.

330.1 PIGOU, ARTHUR CECIL, Employment and Equilibrium.
P633e London, Macmillan and Co., Ltd., 1941.

The objective of this book is a set of interelated problems which bear on the behavior, not of particular parts of economic systems, but of economic systems as wholes.

331.137
P629
1945

PIGOU, ARTHUR CECIL, Lapses from Full Employment.
London, Macmillan & Co., Ltd., 1945.

The purpose of this book is to provide a background for the discussion of practical schemes for attacking the problem of unemployment. It does not discuss the schemes, but seeks to disentangle from one another and to set out in clear light some of the principal influences by which the employment situation is affected.

330.1
R56es
1947

ROBINSON, JOAN, Essays in the Theory of Employment.
Oxford, B. Blackwell, 1947.

Full Employment - Mobility of Labour - Remedies for Unemployment - Disguised Unemployment - Long-Period Theory of Employment - Concept of Zero Saving - Disinvestment Diagrammatic Illustrations - The Foreign Exchanges - Indeterminary - An Economist's Sermon - Some Reflections on Marxist Economics.

330.1
R56i
1937

ROBINSON, MRS. JOAN, Introduction to the Theory of Employment.
London, Macmillan and Co., Ltd., 1937.

Economics. Money.

364
So4

SOLENBERGER, MRS. ALICE WILLARD, One Thousand Homeless Men.
New York, Charities Publication Committee, 1911.

A study of original records. Defective and delinquent classes.

338.4
T21
1933

TAYLOR, MORRIS PECK, Common Sense About Machines and Unemployment.
Philadelphia, Chicago, The John C. Winston Co., 1933.

The object of this book is to determine why we have failed to use machinery properly, and to consider the control necessary to make machinery serve the needs of society.

338.91
Un3ma

UNITED NATIONS. DEPARTMENT OF ECONOMIC AFFAIRS, Maintenance of Full Employment.
Lake Success, 1949.

An analysis of full employment policies of governments and specialized agencies prepared by the Economic Stability Section of the Division of Economic Stability and Development of the Department of Economic Affairs. United Nations publications.

331.13797292
M451e

MAUNDER, W. F., Employment in an Underdeveloped Area.
New Haven, Yale University Press, 1960.

A sample survey of Kingston, Jamaica. Contents: Employment Theories of Underdeveloped Economies - Problems of Measurement and Data Collection - Growth of the Kingston Labour Force - Skills and Rewards - Manpower Utilization.

361.8
Su8
1936

SUTHERLAND, EDWIN HARDIN, Twenty Thousand Homeless Men.
Chicago, Philadelphia, J. B. Lippincott Co., 1936.

A study of unemployed men in the Chicago Shelters. The principal purpose of the study was to secure a better understanding of the life experiences and attitudes of the shelter men and of their reactions to the relief policies which were being used. It is therefore written from the point of view of the men rather than from the point of view of the police, social worker, or taxpayer.

331.137
Un3m
1957

UNIVERSITIES-NATIONAL BUREAU COMMITTEE FOR ECONOMIC RESEARCH, The Measurement and Behavior of Unemployment.
Princeton, Princeton University Press, 1957.

The Meaning and Measurement of Full Employment - Current Unemployment Statistics - Unemployment Data From the Employment Security Program - Meaning and Measurement of Partial and Disguised Unemployment - The Secondary Labor Force and Measurement of Unemployment - Annual Estimates of Unemployment in the U.S., 1900-1950 - Differential Unemployment and Characteristics of Unemployed in U.S., 1940-54 - Unemployment by Industry - Unemployment by Locality - Unemployment in the Soviet Union - International Comparison of Unemployment Rates.

331.1379
B468
1945

BEVERIDGE, SIR WILLIAM HENRY, Full Employment in a Free Society.
London, G. Allen & Unwin Ltd., 1944.

"Sequel to the report on Social insurance and allied services...made to His Majesty's government in November. 1942." Great Britain - Economic Policy. Social insurance and allied services.

331.137
B468
1912

BEVERIDGE, WILLIAM HENRY, Unemployment, A Problem of Industry.
London, New York, Longmans, Green and Co., 1912.

"Contains a course of lectures delivered in Oxford, during Michaelmas term of the year now ending (1908) for the delegates of the Common university fund. Its object is to combine a record of the principal facts of unemployment with a continuous argument as to the causes of unemployment. It includes a good deal of matter from published sources..and appendices, the most important of which deal with "Public labour exchanges in Germany" (reprinted from the Economic journal for March, 1908) and

'Methods of seeking employment in Great Britain.'"
Lists of reports and other publications bearing on unemployment

331.137942
C217i

CARNEY, JAMES JOSEPH, Institutional Change and the Level of Employment.
Coral Gables, Florida, University of Miami Press, 1956.

A study of British Unemployment, 1918-1929. Contents: (1) Deficiency in Demand and Institutional Change. (2) Unemployment in the United Kingdom: 1918-1929. (3) Average Wages and Prices in Great Britain: 1919-1929. (4) Deficiency in Demand. (5) The Immobility of Labor. (6) Scarcity and Immobility of Capital. (7) Fiscal and Monetary Policies. (8) The Meaning of the British Experience.

332.40942
C674

COLE, GEORGE DOUGLAS HOWARD, Gold, Credit and Employment.
London, G. Allen & Unwin, Ltd.; New York, The Macmillan Company,1931.

Four essays for laymen. Contents: I. Gold, Credit and Employment. II. The Gold Question. III. The Government and the Unemployed. IV. Cheaper money, Rationalization and employment.

331.137942
D2992
1938

DAVISON, RONALD CONWAY, British Unemployment Policy.
London, New York, Longmans, Green and Co., 1938.

The Modern Phase Since 1930. Gives an account of British Unemployment and the transformations of public policy for dealing with it in the years from 1930 to 1937. They chose these years because they were years when mass unemployment and the measures for coping with it dominated the domestic scene in Britain more than ever before.

HD
1537
I4M8

MUJUMDAR, N. A., Some Problems of Underemployment.
Bombay, Popular Book Depot, 1961.

An analytical study of underemployment in the agricultural sector. The present thesis is a modest attempt at an analysis of some aspects of underemployment in the agricultural sector. The first part of the book deals with the theoretical aspects of the phenomenon, while in the second, data on underemployment collected through field investigation are analyzed with a view of illustrating the theory. The third part presents problems involved in planning for full employment in a situation of underemployment.

HD
7096
U6M563

DEVINO, WILLIAM STANLEY, Exhaustion of Unemployment Benefits During a Recession: A Case Study.
East Lansing, 1960.

A community study delving into the area of social security laws. Offers a setting of personal experiences within a community context. It also offers a comprehensive look at the personal, social and occupational characteristics of the unemployed worker, as well as numerous associated problems.

331.3
K245h

KEELER, MIRIAM, Hunting a Career.
Washington, U.S. Government Printing Office, 1949.

A study of out-of-school youth, Louisville, Kentucky. This is the final report of a study made to get a close-up view of what has been happening since the war to young people who are out of school and in the labor market, under what conditions they are leaving school and going to work, what difficulties they encounter in finding satisfactory work, and what assistance they receive and need in achieving vocational adjustment. Offers suggestions on how better to serve the needs of boys and girls entering the full-time labor market.

368.4409774
qM582f

MICHIGAN. EMPLOYMENT SECURITY COMMISSION. Financing of Unemployment Insurance in Michigan, 1959-1960.
Lansing, 1959.

An analysis of the Michigan economy in 1959 and 1960 with projections as to the short-range aspects of unemployment insurance benefit financing in Michigan.

331.4
Am3
1931

AMERICAN WOMAN'S ASSOCIATION, The Trained Woman and the Economic Crisis.
New York City, The American Woman's Association, 1931.

Employment and unemployment among a selected group of business and professional women in New York City; study conducted by the General Service Committee of the American Woman's Association.

331.409
Am3
1934

AMERICAN WOMAN'S ASSOCIATION., Women Workers Through the Depression.
New York, The Macmillan Co., 1934.

A study of white collar employment made by the American Woman's Association.

351.809
Ad17
1939

ADAMS, GRACE KINCKLE, Workers on Relief.
New Haven, Yale University Press; London, H. Milford, Oxford University Press, 1939.

U.S. Work Projects Administration.

HD
5856
U5A57

ANDERSON, NELS, Men of the Move .
Chicago, The University of Chicago Press, 1940 .

The University of Chicago sociological series. Migrant Labor, Labor and Laboring Classes.

331.137973
B179c

BAKKE, EDWARD WIGHT, Citizens Without Work
New Haven, Yale University Press; London, H. Milford, Oxford University Press, 1940.

A study of the effect of unemployment upon the workers' social relations and practices. This research was undertaken to discover the readjustment problems faced by the unemployed American workers and their families and the resources which they brought to this task. It is written as seen by the worker himself, and to reveal the self-initiated efforts at readjustment which programs must take into account if they are to be effective. Contents include: The Unemployed Worker and His Community - The Unemployed Worker and His Family - Alleged Decay of Self-Reliance.

338.973
C734d

COMMITTEE FOR ECONOMIC DEVELOPMENT, Distressed Areas in a Growing Economy.
New York, 1961.

A statement on National policy by the Research and Policy Committee of the Committee for Economic Development. Full employment policies. Economic assistance, Domestic.

331.30973
D28
1942

DAVID, PAUL THEODORE, Barriers to Youth Employment.
Washington, D.C., American Council on Education, 1942 .

This book is concerned with some of the more conspicuous obstacles which frequently seem to stand in the way of youth employment: entrance requirements for certain occupations, seniority, governmental restrictions upon child labor and youth employment, and minimum wage laws.

331.25
EL2
1934

ELBERT, ROBERT GEORGE, Unemployment and Relief .
New York, Farrar and Rinehart, Inc., 1934 .

Contents: Economic Disease of Unemployment - Unemployment - Unemployment Insurance - Arguments for and Against Permanent Federal Relief Administration - Administration of the Insurance System - The Money We Do Not Spend.

330.973
EL94
1931

ELY, RICHARD THEODORE, Hard Times -- The Way In and The Way Out, with a Special Consideration of the "Seen and the Unseen" .
New York, The Macmillan Co., 1931 .

A program for action based on research. Appendices: As a Banker Looks At It. As the American Federation of Labor Looks at It. As the American Association for

Labor Legislation Looks at It. What Can Insurance Do? Economic Conditions 1918; Panics.

HD 5724 H3 — HARDY, CHARLES OSCAR, Prices, Wages, and Employment. Washington, Board of Governors of the Federal Reserve System, 1946.

Series of articles by authors in the field. Contents: (1) Prospects of Inflation in the Transition Period. (2) Employment and Wage Policies. (3) Monopoly and Unemployment.

332.414 In43 — Inflation, Growth, and Employment; a Series of Research Studies Prepared for the Commission on Money and Credit. Englewood Cliffs, New Jersey, Prentice-Hall, 1964.

Contents: The Causes and Consequences of Inflation - Administered Prices and Recent Inflation - Escalation and Its Use - Concepts and Measures of Economic Growth - Estimates of Capacity and Capacity Utilization in Manufacturing - The Use of Unemployment Statistics - Inflation vs. Unemployment.

331 J62 1915 — JOHNSEN, JULIA E., Selected Articles on Unemployment. White Plains, N.Y., and New York City, The H. W. Wilson Co., 1915.

Debaters' handbook series.

331.8 J63 1921 — JOHNSEN, JULIA E., Selected Articles on Unemployment. New York, The H. W. Wilson Co., 1921.

Debaters' handbook series.

361 K67 1923 — KLEIN, PHILIP, The Burden of Unemployment. New York, Russell Sage Foundation, 1923.

A study of unemployment relief measures in fifteen American cities, 1921-22. Contents: (1) Meaning of Unemployment to the Worker. (2) Unemployment Committees. (3) Work. (4) Relief Aspects of Unemployment. (5) The Task of Social Agencies in Meeting the Emergency. (6) Relations of Social Agencies. (7) The Homeless Man. (8) Use of Employment Statistics. (9) The Statistical Indexes Available in a Community.

330.973 N213 No.93 — KLEIN, PHILIP A., Financial Adjustments to Unemployment. New York, National Bureau of Economic Research; Distributed by Columbia University Press, London, New York, 1965.

Klein developed empirical evidence to support his major finding that both liquid-asset holdings and consumer debt permit financial adjustments which enable unemployed households to maintain consumption expenditures. He

shows that in addition to unemployment benefits, liquid assets, primarily, and consumer indebtedness, to a lesser extent, work as compensatory economic stabilizers against deflationary influences among unemployed households. Contents: (1) Characteristics of the Sample and Data. (2) Aggregate Adjustments to Unemployment. (3) Specific Adjustments to Unemployment. (4) Factors Affecting the Adjustments to Unemployment.

331.1379
K836
1940

KOMAROVSKY, MIRRA, The Unemployed Man and His Family - The Effect of Unemployment Upon the Status of the Man in Fifty-nine Families.
New York, The Dryden Press, Inc., for the Institute of Social Research, 1940.

In 1931 the International Institue of Social Research undertook studies of the family in contemporary society. The first results were published in 1936, a voluminous symposium on Authority and the Family (Librairie Felix Alcan, Paris, 1936). Dr. Komarovsky's book represents a continuation of the earlier studies... It reports of an investigation undertaken by the Institute in the winter of 1935-1936, after its transfer to New York.

HC
106.5
L38

LERNER, ABBA PTACHYA, Planning and Paying for Full Employment.
Princeton, Princeton University Press, 1946.

Symposium of papers submitted by participants in a conference called in 1944 by the American Labor Conference on International Affairs, first published in its journal, International Post-War Problems, October 1945 and January 1946.

331.8
L56
1919

LESCOHIER, DON DIVANCE, The Labor Market.
New York, The Macmillan Company, 1919.

Work aims to prove the necessity for national machinery for the control of the problem of employment and to furnish information which the author hopes will be of value to employment office managers and to students of the employment and the labor problem. The conditions of supply and demand are analyzed in Part I; Past present, and needed labor market machinery are discussed in Part II; while the common laborer and the farm laborer are given special consideration in Part III.

051
R25
v.34
no.6

LINEBERRY, WILLIAM P., The Challenge of Full Employment.
New York, H. W. Wilson Co., 1962.

Volume prepared for debators who are concerned with areas associated with employment and unemployment. Presents both positive and negative arguments on all issues concerned.

331
M623
v.2

MILLIS, HARRY ALVIN, Labor's Risks and Social Insurance.
New York and London, McGraw-Hill Book Company, Inc., 1938 .

Co-author: Royal E. Montgomery. The second of three volumes published as a series, "The economics of labor." While the two authors assume joint responsibility for the series, the chapters constituting the present volume were drafted by Mr. Millis.

338.973
M823
1947

MORGAN, THEODORE, Income and Employment .
New York, Prentice-Hall, Inc., 1947.

Quite similar to Morgan's 1952 edition. Contains: (1) The National Income. (2) Fluctuations in the Real National Income. (3) Production and Employment. (4) The Main Constituents of Total Production. (5) The Cost of Unemployment and the Aim of Full Employment. (6) What Causes Changes in Employment? (7) Basic Problems of Employment. (8) Stability of Prices and Wages. (9) Mobility of Labor.

338.973
M823
1952

MORGAN, THEODORE, Income and Employment.
New York, Prentice-Hall, 1952 .

This book is an essay in Macroeconomics, with theory tied close to data of the U.S. The subject matter falls naturally into three divisions: The measurement of income, production, and average prices; The trend and determinants of production and productivity; and, Influences on, and policies toward, the levels of employment and of prices.

331.76
M83
1934

MORRIS, HOMER LAWRENCE, The Plight of the Bituminous Coal Miner.
Philadelphia, University of Pennsylvania Press; London, H. Milford, Oxford University Press, 1934 .

Appendix: England transfers her surplus miners: p.230-247 Coal-miners - Kentucky, West Virginia. Coal mines and mining. Bituminous coal. Unemployed - U.S. Mountain whites (Southern states). Kentucky and West Virginia - Social conditions.

HD
5724
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NATIONAL BUREAU OF ECONOMIC RESEARCH, INC., Business Cycles and Unemployment.
New York, McGraw-Hill, 1923 .

An investigation under the auspices of the National Bureau of Economic Research made for a committee of the President's Conference on Unemployment. Contents: Part I - The Relation of Business Cycles to Unemployment. Part II - Cyclical Evaluations in Employment. Part III - Proposed Remedies for Cyclical Unemployment.

338.082
N213s
no.62

NATIONAL INDUSTRIAL CONFERENCE BOARD, Unemployment, Wages, and Inflation.
New York, 1958 .

A discussion by the Conference Board Economic Forum and guests, held at Hotel Pierre, New York City, October 7, 1958.
Studies in business economics, no. 62. Inflation (Finance). Wages. Unemployed.

HD
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OKUN, ARTHUR M., The Battle Against Unemployment.
New York, Norton, 1965 .

An introduction to a current issue of public policy.
Problems of the modern economy. Unemployed. Labor economics. Economic Policy - U.S.

331.0973
P42
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PERKINS, FRANCES, People at Work .
New York, The John Day Company,1934 .

This book is a unit of numerous conversations and informal discussions with people who are concerned with the problems which a machine type of mass production industry offers not only to the wage-earners, but to the whole civilization which rests upon it. A comprehensive account of the labor and economic conditions of the times.

300.82
J65s
ser.37
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SMELSER, DAVID PAUL, Unemployment and American Trade Unions .
Baltimore, The Johns Hopkins Press, 1919 .

Johns Hopkins University Studies in Historical and Political Science. "The monograph had its origin in an investigation carried on by the author while a member of the Economic Seminary of the Johns Hopkins University." Trade Unions.

338.91
T918
1945

TWENTIETH CENTURY FUND. Financing American Prosperity, A Symposium of Economists.
New York, The Twentieth Century Fund, 1945 .

Contents: The Road Back to Full Employment - Financing High-Level Employment - Economic Expansion Through Competitive Markets - Stability and Expansion - Public Policies and Postwar Employment - Free Enterprise and Full Employment.

331.9
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1919

U. S. DEPARTMENT OF LABOR. Employment and Natural Resources.
Washington, Government Printing Office, 1919 .

Possibilities of making new opportunities for employment through the settlement and development of agricultural and forest lands and other resources. A portion of the study required for the preparation of this report was made by the author, Mr. Benton MacKaye, while he was still a member of the forest service. Part of the field investigation and the preparation of the original draft, together with the accompanying maps and figures, were made at the expense of that organization.

330.973
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WALLACE, HENRY AGARD, Sixty Million Jobs.
New York, Reynal and Hitchcock, Simon and Schuster, 1945.

This book is concerned with the full employment of the nations workers in peace time. The author states that this can be done and keep our free enterprise system. Contents: Full Employment and Peace - Sixty Million Jobs - The American Approach to Abundance - New Frontiers of Abundance - The Budget for Abundance.

331.137973
W667u

WILCOCK, RICHARD CARRINGTON, Unwanted Workers.
New York, Free Press of Glencoe, 1963.

Permanent Layoffs and Long-term Unemployment. This book is primarily concerned with the problems arising when experienced workers are permanently displaced from their jobs and undergo extended periods of joblessness. Contents: Changing Patterns of Unemployment - The Communities, Studies and Workers - Unemployment After Shutdown- The Personal Impact of Unemployment - The Search for Work - The Jobs Found - Relieving the Burden of Long-term Unemployment - Efforts to Reduce Long-term unemployment.

331.1379
W69
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WILSON, ROBERT S., Community Planning for Homeless Men and Boys.
New York City, Family Welfare Association of America, 1931.

The experience of sixteen cities in the winter of 1930-31. This study was undertaken at the request of the President's organization on unemployment relief and is issued as a companion volume to A Community Plan for Service to Transients prepared by the National Association of Travelers Aid Societies.

331.254
W776
1939

WITHERS, WILLIAM, Financing Economic Security in the United States.
New York, Columbia University Press, 1939.

Public Policy in Financing Security - A Review of American Relief and Security Programs - The Sources and Distribution of Relief Funds, 1933-34 - The Capacity to Pay - The Economic Effects - Distribution of Funds - A Financial Program for Economic Security.

331.112
W885e

WOLFBEIN, SEYMOUR LOUIS, Employment and Unemployment in the United States.
Chicago, Science Research Associates, 1964.

A study of the American Labor force. Part I - Concepts and measurements. - Gives an intensive review of the development and current status of the definitions, concepts, and technical structure of the basic sources of information in the labor force field which, together, provide us with the facts and figures used in program and policy design. Part II - The American Labor Force. - Patterns and Trends. Discusses what the data in I show about the length and pattern of our working lines, the major trends, demographic and

socioeconomic, that have operated in this country to effect labor force activity and a look ahead to 1970. Part III - Occupations and Industries - analyzes current and expected trends in the occupational and industrial deployment of the working population. Part IV - Migration, mobility and movement. Part V - The Anatomy of Unemployment. Reviews what are considered as the basic causes of unemployment in the U.S., our record in this respect since World War II, a detailed example of who and where the unemployed are, and how we fare in comparison with other countries.

331
W97w
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WYCKOFF, WALTER AUGUSTUS, The Workers.
New York, C. Scribner's Sons, 1898.

An experiment in reality. Contents: I - Army of the Unemployed. II - Living by Odd Jobs. III - Finding Steady Work. IV - A Hard Truckman in a Factory. V - Among the Revolutionaries. VI - A Road Builder on the World's Fair Grounds. VII - From Chicago to Denver. VIII - From Denver to the Pacific.

331.137
Un3m
1957

UNIVERSITIES - NATIONAL BUREAU COMMITTEE FOR ECONOMIC RESEARCH, The Measurement and Behavior of Unemployment.
Princeton, Princeton University Press, 1957 .

A conference of the Universities-National Bureau Committee for Economic Research. Unemployed - U.S. - Congresses.

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U. S. OFFICE OF ADMINISTRATOR OF THE CENSUS OF PARTIAL EMPLOYMENT, UNEMPLOYMENT AND OCCUPATIONS., Census of partial Unemployment, Unemployment and Occupations: 1937.
Washington, U. S. Government Printing Office, 1938 .

Statistics. Final report on total and partial unemployment: 1937.

330.9754
W521b
v.8
no.1

GAVETT, THOMAS WILLIAM, The Unemployed in West Virginia.
Morgantown, West Virginia University, 1962 .

Section I - Summary and Conclusions. Section II - The Severity of Unemployment. Section III - Who are the Unemployed? Section IV - Economic Adjustment to Unemployment.

331.1379
K836
1940

KOMAROVSKY, MIRRA, The Unemployed Man and His Family - The Effect of Unemployment Upon the Status of the Man in Fifty-nine Families.
New York, The Dryden Press, Inc., 1940 .

A publication of the Institute of Social Research. "In 1931 the International Institute of Social Research undertook studies of the family in contemporary society. The first results were published in 1936, a voluminous symposium on Authority and the Family. Dr. Komarovsky's book represents a continutation of the earlier studies...it reports on an investigation undertaken by the Institute in the winter of 1935-1936, after its transfer to New York.

338.45
F623
1944

FLEDDERUS, MARY L., Technology and Livelihood.
New York, Russell Sage Foundation, 1944 .

An inquiry into the changing technological basis for production as affecting employment and living standards. Documented with materials quoted from scientific, governmental reports and arranged to describe new technological developments and their effects on productivity and labor requirements.

300.82
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SMELSER, DAVID PAUL, Unemployment and American Trade Unions.
Baltimore, The Johns Hopkins Press, 1919 .

Johns Hopkins University studies in historical and political science. "This monograph had its origin in an investigation carried on by the author while a member of the Economic Seminary of the Johns Hopkins University." Trade-unions.

331.25444
N213u
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NATIONAL INDUSTRIAL CONFERENCE BOARD, Unemployment Benefits and Insurance .
New York, National Industrial Conference Board, Inc., 1931

Voluntary Organizations and Public Subsidies - Unemployment Insurance in Great Britain - Compulsory Unemployment Insurance in Germany - Compulsory Unemployment Insurance in Other Countries - Situations in U.S. - Proposed Legislation - Voluntary Benefit Plans.

VOCATION AND LEARNING

371.42
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MUNSTERBERG, HUGO, Vocation and Learning.
St. Louis, Missouri, The Peoples University, 1912.

This book presents an analysis of the demands which are made by various vocations, especially deep philosophical and psychological considerations.

VOCATIONAL ADJUSTMENT

371.712
V851
1939

VOCATIONAL ADJUSTMENT BUREAU FOR GIRLS, INC.,
New York, Mental Hygiene Research Committee.
New York, The Committee, 1939.

Mental hygiene project at kindergarten level, 1937-1939; report to the Board of Education, city of New York, by the Mental Hygiene Committee of the Vocational Adjustment Bureau for Girls, Inc. Mental physiology and hygiene. Child study. Educational psychology.

371.425
K65p
1925

KITSON, HARRY DEXTER, The Psychology of Vocational Adjustment.
Philadelphia, Chicago, J.B. Lippincott Company, 1925.

Bibliography of texts...proposed for the measurement of aptitude in various vocations: p. 253-256.
Vocational guidance. Personnel management. Psychology, Physiological.

VOCATIONAL AGRICULTURAL EDUCATION

371.42
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STIMSON, RUFUS WHITTAKER, Vocational Agricultural Education by Home Projects.
New York, The Macmillan Company, 1919.

Agricultural Education - Massachusetts. Agricultural - Study and Teaching.

630.7
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SCHMIDT, GUSTAVUS ADOLPHUS, ...New Methods in Teaching Vocational Agriculture.
New York & London, The Century Co., 1924.

Bibliography at end of each chapter. Agriculture - Study and teaching.

630.7
L356
1931

LATTIG, HERBERT ELMER, Practical Methods in Teaching Vocational Agriculture.
New York and London, McGraw-Hill Book Company, Inc., 1931.

Includes bibliographies. Agriculture - Study and teaching. Project method in teaching.

630.7
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1955
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NEVADA. STATE BOARD FOR VOCATIONAL EDUCATION.
Vocational Agriculture Policies Manual.
Carson City, 1955.

Includes bibliography. Agriculture - Study and teaching.

VOCATIONAL AND EDUCATIONAL

371.425
W899
1938

WORTHINGTON, EDWARD HUMPHREY, Vocational and Educational Choices of High School Pupils in Relation to their Subsequent Careers.
Philadelphia, 1938.

Thesis (PH.D.) - University of Pennsylvania, 1938. Bibliography: p. 248-250. Profession, Choice of.

VOCATIONAL CONFERENCE PAPERS

396
W75

WISCONSIN, UNIVERSITY. UNIVERSITY EXTENSION DIVISION.
...Vocational Conference Papers and Vocational Preparation.
Madison, The University, 1913.

Including correspondence study. This bulletin comprises a number of papers presented at a vocational conference for women in the University of Wisconsin.

VOCATIONAL COUNSELING

371.425
Sh24v

SHARTLE, CARROLL LEONARD, Vocational Counseling and Placement in the Community in Relation to Labor Mobility, Tenure, and Other Factors.
New York, 1948.

This paper directs attention to problems within the scope of labor market research. (1) It is concerned with the development of series of topics and questions useful in analyzing techniques of counseling and placement. (2) Presents approaches for examining the characteristics of those who use employment service. (3) Relationship between public...employment agencies and policies and programs for full employment.

331.59
L828v

LOFQUIST, LLOYD H., Vocational Counseling With the Physically Handicapped.
New York, Appleton-Century-Crofts, 1957.

Includes bibliography. Main areas of emphasis: (1) The Need. (2) Relationships with other services, (3) Specific disability areas. (4) Counseling Process, (5) Reference resources, (6) Appendices: Forms, bibliography and glossary.

VOCATIONAL EDUCATION

378.113
Am3
1933

AMERICAN COUNCIL ON EDUCATION, Central Committee on Personnel Methods.
Measurement and Guidance of College Students.
Baltimore, Williams & Wilkins Company, 1933.

Includes bibliographies. Personnel service in education. Universities and colleges administration. Mental tests. Character tests. Vocational education.

371.42684
Am512h

AMERICAN VOCATIONAL ASSOCIATION. Home Economics Section.
Home Economics Education for Out-of-School Youth and Adults.
Washington, 1954.

Vocational Education. Home economics study and teaching.

501 to L9

q371.42
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1924

BOWMAN, CLYDE A., Graphic Aids in Occupational Analysis for Guidance and Teaching.
Milwaukee, Wis., The Bruce Publishing Company, 1924.

Contents: (1) The relation of modern youth and modern production in industry. (2) The lesson plan of the vocational teacher. (3) Guidance opportunities and responsibilities in the junior high. (4) Guidance opportunities and responsibilities in senior high. (5) Guidance in the vocational school.

371.42
B75
1926

BREWER, JOHN MARKS, Case Studies in Educational and Vocational Guidance.
Boston, New York, Ginn and Company, 1926.

The authors present over 100 case studies which are typical of the many problems found in Educational Guidance and Vocational Guidance, the philosophies of the above are also discussed.

371.426
B996
1956

BYRAM, HAROLD MOORE, Vocational Education and Practical Arts in the Community School.
New York, Macmillan, 1956.

In presenting theory and recreation practices in the development of community-school programs, the authors have drawn upon their own experience and first hand contacts with all phases of vocational education and practical arts. It departs from the general practice employed in writings on vocational education by focusing on the community, its people, its resources, and its needs.

371.4
F47
1920

FILENE, CATHERINE, Careers for Women.
Boston and New York, Houghton Mifflin Company, 1920.

This book presents discussions on the vocations open to women. Tells the disadvantages, advantages, salary, opportunities, qualifications, etc.

371.425
F55
1935

FITCH, JOHN ANDREWS, Vocational Guidance in Action.
Columbia University Press, 1935.

Choice of Profession. Vocational education. Personnel service in education.

371.426
H33
1924

HAYNES, MERITT WAY, Teaching Shop Work.
Boston, New York, Ginn and Company, 1924.

A handbook for instructors in vocational schools, and for students in trade-teacher training classes.

371.42
K28p
1948

KELLER, FRANKLIN JEFFERSON, Principles of Vocational Education.
Boston, D.C. Heath, 1948.

The primacy of the person. Bibliographical footnotes.

371.42
K28
1937

KELLER, FRANKLIN JEFFERSON, Vocational Guidance Throughout the World.
New York, W.W. Norton & Company, Inc., 1937.

A comparative survey. Contents: This book tells what is being done throughout the world to help people find their places in the complex industrial structure of the power machine age. It tells how the art of vocational guidance and the science of applied psychology are being used for this purpose. Methods and accomplishments are described against a background of kaleidoscopic patterns of national aspirations ambitions, and attainments.

371.425
K65i
1954

KITSON, HARRY DEXTER, I Find My Vocation.
New York, McGraw-Hill, 1954.

This book has been planned for use as a high school text in classes in occupations, in civics classes studying occupations, for homeroom periods in which problems of vocational life are discussed, and as a guide to private reading. It stresses activity on the part of the individual. An aid to help young people in exploring the world of work.

370.1
K66
1929

KLAPPER, PAUL, Contemporary Education, Its Principles and Practices.
New York, London, D. Appleton and Company, 1929.

Education - Sociology - Physical education and training. Vocational education.

371.42
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1918

LEAKE, ALBERT H., The Vocational Education of Girls and Women.
New York, The Macmillan Company, 1918.

This book is written as a companion volume to Industrial education - its methods, problems and dangers, and the means and methods of agricultural education.

371.42
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1923

MCCRACKEN, THOMAS COOKE, Occupational Information in the Elementary School.
Boston, New York, Houghton Mifflin Company, 1923.

Selected list of books and pamphlets and selected list of industrial and commercial pamphlets. Education of children.

370.6
N213
v.37:1

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. Committee on Guidance. ...Guidance in Educational Institutions.
Bloomington, Ill., 1938.

Contents: Guidance and purposive living. Appraisal of student characteristics and needs. Appraising certain aspects of student achievement. Counseling with students. Guidance Through group activities.

374.1
N27
1924

NEBRASKA. STATE BOARD FOR VOCATIONAL EDUCATION,
Vocational Education.
Lincoln, 1923.

A study of the thoughts of 26,000 Nebraska high school boys and girls was undertaken with the idea of stimulating interest in the vocational guidance of these young people in order that life-work may be chosen in a less haphazard way.

371.4
P94
1925

PROCTOR, WILLIAM MARTIN, Educational and Vocational Guidance.
Boston, New York, Houghton Mifflin Company, 1925.

A consideration of guidance as it relates to all of the essential activities of life. Guidance, as viewed from the angle of vocational adjustment alone, tends to come one-sided, to lack perspective, and to neglect other aspects of education which are fully as important. It is on this account that the writer has undertaken to treat the subject of guidance comprehensively, and to bring it more nearly into accord with the present trends of thoughts relating to the reorganization of elementary and secondary education.

371.42
P94
1925

PROSSER, CHARLES ALLEN, ...Vocational Education in a Democracy.
New York & London, The Century Co., 1925.

This book has to do with the underlying principles which the authors believe apply to all forms and grades of vocational education of secondary grade; with the policies which schools and occupations must adapt; and methods which must be used to develop human resources.

371.42
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1949

PROSSER, CHARLES ALLEN, Vocational Education in a Democracy.
Chicago, American Technical Society, 1949.

Contents: (1) What is vocational training? (2) Social need for vocational education. (3) Economic theory of vocational education. (4) Vocational Education and Human Resources. (5) The discovery, placing, training, and direction of ability. (6) Vocational Education (a) Theories. (b) Federal aid. (c) adult and youth. (d) Training teachers.

371.426
R543v

ROBERTS, ROY W., Vocational and Practical Arts Education.
New York, Harper, 1957.

History, development and principles. Source references.

LC 1043 R68 1965

ROBERTS, ROY W., Vocational and Practical Arts Education.
New York, Harper and Row, 1965.

Contents: A scholarly comprehensive text that reports past experiments and developments in practical and vocational education, and, equally essential, the present state of this important and expanding field. Represents the most current and significant developments in the field, new data and ideas, as well as the results of past experiments and a fresh view of the whole field of practical and vocational arts education. Emphasis is placed on the origins, development, principal and relationships of these areas of vocational and practical arts education in schools of less than the baccalaureate degree level. Also contains an analysis of the vocational education art of 1963. This book is especially designed for use in teacher education programs of vocational and practical arts education and for the education of school administration who have or may have respect for organizing and administering programs in these areas. It should prove useful as a text book for courses concerned with the history, development, and administration of the programs described.

371.425 A15 1928

SMALL, R.O., AND OTHERS-COMP. Charles Ricketson Allen, a Testimonial in Recognition of Service Rendered the Cause of Vocational Education.
Chicago, R.R. Donnelley & Sons Co., 1928.

Vocational education.

371.2 Sm6

SMITH, WALTER ROBINSON, An Introduction to Educational Sociology.
Boston, New York, Houghton Mifflin Company, 1917.

Selected references at end of each chapter. Education - Sociology - School management and organization - Vocational education - Education and state.

371.425 Sw35 1946

SWEENEY, MARY AGNES, Rehabilitation.
Chicago, American Library Association, 1946.

Materials on today's problems for veterans and civilians. Vocational guidance - handbooks, manuals, etc. Disabled rehabilitation, etc.

371.425 Sw35 1944

SWEENEY, MARY AGNES, Today's Handbook for Librarians.
Chicago, American Library Association, 1944.

Ready reference data with lists of sources of information about industrial employment and training opportunities, opportunities in the armed services and the qualifications they demand, rehabilitation, and other social and emotional problems involving individual readjustment and guidance.

371.42
T21
1914

TAYLOR, JOSEPH SCHIMMEL, A Handbook of Vocational Education.
New York, The Macmillan Company, 1914.

Contents: (1) Industrial Education Europe. (2) Industrial vs. manual training. (3) The intermediate school. (4) Continuation schools. (5) The training of Vocational teachers. (6) Vocational Guidance. (7) Apprenticeship and Comparative Education.

151.223
T393
1934

THORNDIKE, EDWARD LEE, Prediction of Vocational Success.
New York, The Commonwealth Fund; London, H. Milford, Oxford University Press, 1934.

The purpose of this report is to tell what we have discovered by following for ten years a large group of children who were carefully studied in 1922. Ability testing. Mental tests. Vocational education, Columbia University. Teachers college. Institute of educational research.

371.42082
M624v

MICHIGAN. STATE UNIVERSITY OF AGRICULTURE AND APPLIED SCIENCE, East Lansing. Dept. of Vocational Education.
Vocational Education in a Robot Revolution.
East Lansing, College of Education, Michigan State University, 1957.

Vocational education - Addresses, essays, lectures.

658.311
W723r

WILLIAMS, GERTRUDE (ROSENBLUM) Lady, Recruitment to Skilled Trades.
London, Routledge & Paul; New York, Humanities Press, 1957.

Recruiting of employees in Great Britain. Vocational education in Great Britain.

371.4269773
M166v

MCLURE, WILLIAM PAUL, Vocational and Technical Education in Illinois.
Urbana, Bureau of Educational Research, College of Education, University of Illinois, 1960.

Tomorrow's challenge. Study of vocational and technical education in Illinois. Covers occupational trends - the nature of vocational and technical education and the organizing and financing of technical and vocational education in and beyond the high school.

371.4262
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EMERSON, LYNN ARTHUR, Vocational Education in the Joliet Township High School.
Joliet, Ill., Joliet Township High School Press, 1925.

This book gives a detailed account of the vocational program in Joliet, and also includes discussion of related academic subjects required of students.

331.114
W427i

WEISER, EARL V., An Investigation of the Training Requirements of Small Business With Regard to the Educational Needs of Prospective Employees.
Montana, 1962.

Includes bibliography. Labor supply in Montana. Vocational education in Montana.

Thesis
30

MILLER, JOHN RANDALL, Historical Background and Present Development in Vocational Guidance in Nevada. 1861-1951.
Sparks, Nevada, 1952.

Thesis (M.A.) - University of Nevada, Bibliography. Vocational Education in Nevada.

371.426
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1952

MILLER, JOHN RANDALL, Historical Background and Present Development of Vocational Education in Nevada, 1861-1961
Carson City, State Board for Vocational Education, 1952.

Contents: This study is significant because there has been no history of vocational education written for the state. Covers four main problems: (1) legal basis of vocational education in Nevada. (2) Precedents and procedures from which vocational education in Nevada has evolved. (3) Growth and adjustments of vocational instructors to needs of the people of Nevada. (4) Present vocational programs under public school control in Nevada.

371.426
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NEVADA, DEPARTMENT OF VOCATIONAL EDUCATION, Vocational Education Serves Nevada.
Carson City, 1955.

Vocational education in Nevada.

371.42
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1951

NEW YORK (STATE) UNIVERSITY, Vocational Education in the New York City Schools.
Albany, 1951 .

The report of a study conducted by the New York State Education Dept. with the cooperation of the staff of the Board of Education of the city of New York. Development of Vocational Education in New York City - New York City Labor Market trends in Industrial Education - Administration and organization of vocational education - student population - Curriculums - Business education - part-time and adult education.

371.42
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BURDGE, HOWARD GRIFFITH, Our Boys.
Albany, J.B. Lyon Company, Printers, 1921.

A study of the 245,000 sixteen, seventeen and eighteen year old employed boys of the state of New York.

371.426
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1938

FEE, EDWARD MEREDITH, The Origin and Growth of Vocational Industrial Education in Philadelphia to 1917.
Philadelphia, 1938.

Contents: A dissertation (I) Early Colonial Developments. (II) Indentured Industrial Education under Industrial Servitude. (III) Industrial Education is Institutionalized in Philadelphia. (IV) Growth of Institutions of Vocational Education. (V) Industrial Education in Schools to 1917.

f371.42605
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INDUSTRIAL EDUCATION MAGAZINE. V. 1-41; Oct. 1899-Nov. 1939.
Chicago, Ill., The University of Chicago Press, 1899-1903.

Manual training. Periodical.

371.4205
P467

THE PERSONNEL AND GUIDANCE JOURNAL. V.1-Aug. 1921.
Easton, Pa., American Personnel and Guidance Association, 1921.

Vocational guidance periodical.

370.947
Un3e

U.S. DIVISION OF INTERNATIONAL EDUCATION, Education in the USSR.
Washington, U.S. Dept. of Health, Education, and Welfare, Office of Education, 1957.

Contents: Education in Russia - Planning and Administration - Preschool - General Primary - Secondary - Extracurricular - Vocational training - Semiprofessional training - High Education - Teachers.

371.425
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BENNETT, GUY VERNON, Vocational Education of Junior College Grade.
Baltimore, Warwick and York, Inc., 1928.

This book is based on a study of vocational education in junior college based in three areas: (1) The need for vocational education. (2) The status of on-the-job training and commercial schools. (3) Public institutions to carry the burden.

371.426
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1948

KAHLER, ALFRED, Education For an Industrial Age.
Ithaca, Pub. for the Institute of World Affairs, Cornell University Press, 1948.

Contents: Industrial trends - Academic and Vocational High Schools - Aims of Vocational Education - Teachers Guidance - Apprenticeship - Management and Labor.

371.426062
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ROEDIGER, ROGER D., A History of the Ohio Vocational Association.
Columbus, Ohio Vocational Association, 1961.

Contents: Introduction -- Events Leading to Formation of the Ohio Vocational Association - Organizational structure - Legislative Activity - Membership - Public Relations.

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COLLEGES AND SPECIALIZED SCHOOLS
Boston, P. Sargent
1952.

Universities and colleges - U.S. Direct. Professional education in the U.S. Vocational education in the United States.

371.426
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1938

LEE, EDWIN AUGUSTUS, Objectives and Problems of Vocational Education.
New York and London, McGraw-Hill Book Co., Inc. 1938.

The book delves into vocational education in detail covering many areas such as: History - Teacher Training - Rehabilitation - Guidance - Industrial Arts - Organized Labor - Commercial Education.

920.073
L83
1935

LOGIE, IONA MARGARET ROBERTSON, Careers in the Making.
New York and London, Harper & Brothers, 1935.

Planned especially to present the early training, both educational and vocational, and the first try-outs or first jobs which figured in the youthful ventures of nineteen modern Americans. List of four hundred biographies.

370.6
N213
v.42:1

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. Committee on Vocational Education.
Chicago Ill., The Dept. of Education, The University of Chicago, 1943.

Contents: This yearbook extends the exposition of the vocational topics treated in earlier publications and includes many additional types of training and current practices in administering the appropriate programs of instruction but also provides a challenging definition of the legitimate objectives of vocational education and the relation of these objectives to the total education program to be implemented by schools and other agencies in the interests of social progress.

370.973
N828p
1939

NORTON, THOMAS LOWELL, Public Education and Economic Trends.
Cambridge, Mass., Graduate School of Education, Harvard University, 1939.

Contents: The nature of the modern economy. Population trends. The shifting pattern of consumers' wants. The progress of technology. The changing character of employment opportunities. The mobility of labor. A summary view. Bibliography.

371.42
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PAYNE, ARTHUR FRANK, Administration of Vocational Education, With Special Emphasis on the Administration of Vocational Industrial Education Under the Federal Vocational Education Law.
New York, McGraw-Hill Book Company, Inc., 1924.

Vocational Education in the United States. Bibliography.

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PAYNE, ARTHUR FRANK, Methods of Teaching Industrial Subjects.
New York, McGraw-Hill Book Company, Inc., 1926.

A companion volume to Administration of Vocational Education and Organization of Vocational Guidance. Includes a list of biographies on industrial education.

371.425
St91
1945

STRUCK, FERDINAND THEODORE, Vocational Education for a Changing World.
New York, J. Wiley & Sons, Inc., London, Chapman & Hall ltd., 1945.

Contents: The author has covered the whole field of vocational education of less than college grade. The reader will see the program as a whole and will gain an appreciation of the need for such training in agriculture, industry, homemaking, business, and various technical occupations which do not require training of college grade.

371.425
T365
1956

THOMAS, LAWRENCE GREGG, The Occupational Structure and Education.
Englewood Cliffs, N.J., Prentice-Hall, 1956.

Contents: This book examined the socio-economic significance of pre-job preparation and adjustment from the larger social viewpoint of achieving a more equitable and democratic distribution of the nation's labor force. It explores the present distribution of workers among occupations and inquires into the reasons for this distribution; it notes the socially and economic significant differences among these occupations and seeks reasons for these differences; it studies the hierarchical arrangement of occupations in a structure of specific dimensions and inquires into the factors that support or conceivably modify the present occupation structure.

379.120973
Un396
1938

U.S. ADVISORY COMMITTEE ON EDUCATION, ...Report of the Committee. February 1938.
Washington, U.S. Govt. Print. Off., 1938.

Report of the Advisory Committee on Education. Message from the President of the United States transmitting the report of the Advisory Committee on Education appointed in September 1936 to study the experience under the existing program of federal aid for vocational education.

f371.425
L897v
GEN.
REF.

LOVEJOY, CLARENCE EARLE, Vocational School Guide.
New York, Simon and Schuster, 1963.

Vocational Education in the United States. Directories.

371.425
M647n
1963
GEN.
REF.

MILLER, ADELINE ELIZABETH, National Directory of Schools and Vocations.
North Springfield, Pa., State School Publications, 1963.

Vocational education in the United States. Universities of the fifty states and high enrollment universities showing selected departments and specialities on the fold sheet inserted.

371.426
B996
1956

BYRAM, HAROLD MOORE, Vocational Education and Practical Arts in the Community School.
New York, Macmillan, 1956.

Vocational Education and Practical Arts in the Community School.

371.42082
M624v

MICHIGAN. STATE UNIVERSITY OF AGRICULTURE AND APPLIED SCIENCE, Vocational Education in a Robot Revolution.
East Lansing. Dept. of Vocational Education, 1957

Vocational education - addresses, essays, lectures.

371.42
N42
1951

NEW YORK (STATE) UNIVERSITY, Vocational Education in the New York City Schools.
Albany, 1951.

The report of a study conducted by the New York State Education Dept. with the cooperation of the staff of the Board of Education of the city of New York, under the direction of J. Cayce Morrison, Coordinator of Research and John J. Seidel, Coordinator of Studies.

371.42
L47
1918

LEAKE, ALBERT H., The Vocational Education of Girls and Women.
New York, The Macmillan Company, 1918.

This book is written as a companion volume to Industrial Education - its methods, problems and dangers, and The Means and Methods of Agricultural Education. Bibliography.

371.42
Sn2

SNEDDEN, DAVID SAMUEL, ...The Problem of Vocational Education,
New York, Boston, Houghton Mifflin Company, 1910.

Contents: Presents a measure of our educational experience in vocational training, with suggestive interpretations and clarifications of the necessary terminology.

371.426
N41v
1955

NEVADA. DEPT. OF VOCATIONAL EDUCATION, Vocational Education Serves Nevada.
Carson City, 1955.

Contents: Presented with the three fold purpose of (1) explaining the present program of vocational education; (2) illustrating some typical activities in the respective services and; (3) pointing up some of the needs for the further degree of vocational education.

VOCATIONAL GUIDANCE

331.4
Ad1w
1921

ADAMS, ELIZABETH KEMPER, Women Professional Workers.
New York, Macmillan Company, 1921.

Contents: Book offers a penetrating analysis of the essential characteristics of a profession. Treats the professional problems of women in connection with the professional problems of men. An authoritative difference of professional work.

374.1
A15ad
1919

ALLEN, FREDERICK JAMES, Advertising as a Vocation.
New York, The Macmillan Company, 1919.

Advertising. Choice of profession.

370.62
N21s

AMERICAN ASSOCIATION OF SCHOOL ADMINISTRATORS. Schools and Manpower - Today and Tomorrow.
Washington, D.C., American Association of School Administrators, 1943.

Youth. Children employment.

396.5
Ar77
1947

ARTHUR, JULIETTA K., Jobs for Women Over Thirty-five.
New York, Prentice-Hall, 1947.

Contents: This book attempts to deal with practical solutions to such common problems facing women over thirty-five as earning a living when you are middle-aged and have no recent work experience, to be without training for a job, or to lack the necessary qualifications or the funds and time to acquire them.

371.425
B145o
1958

BAER, MAX FRANK, Occupational Information.
Chicago, Science Research Associates, 1958.

Vocational Guidance. Includes bibliographies.

371.425
B281e

BARRY, RUTH, An Epitaph for Vocational Guidance: Myths, Actualities, Implications.
New York, Bureau of Publications, Teachers College, Columbia University, 1962.

The authors' conclusions led them to write about the myths, the actualities, and implications of vocational guidance. The purpose of the book is to present an analysis and conclusions in the hope that it will allow educations the opportunity to review their current guidance practices.

371.425
B413m
1940

BELL, HOWARD MITCHELL, Matching Youth and Jobs.
Washington, D.C., American Council on Education, 1940.

Contents: Results of a program of research into the needs of young people seeking jobs and a demonstration of several ways of meeting these needs. I. The elements of a program. II. The research basis of a program. III. Development of a program.

378.11
343
1933

BENNETT, MARGARET ELAINE, College and Life.
New York and London, McGraw-Hill Book Company, Inc., 1933.

References at end of each chapter; Suggested tests and rating scales for a personal inventory, prepared by Mary E. Herschberger.

371.42
B472c
1952

BENNETT, MARGARET ELAINE, College and Life.
New York, McGraw-Hill, 1952.

Includes bibliographies. Living in College - Values Learning in College - Study, Reading Building a Life.

371.425
B494g
1958

BILLETT, ROY OREN, Growing Up.
Boston, Heath, 1958.

High School text designed to provide guidance to the teenager. Contents include: Your future - Interests - Personal Appearance - Emotions - Vocational Choice - Educational Planning - Citizenship.

3780
B497
1953

BILLS, JOHN ERWIN, An Investigation Into the Guidance Program in the Senior High School, Billings, Montana.
University of Nevada, Reno, 1953.

Thesis presented for the degree of Master of Arts. Vocational Guidance.

371.42
B64

BLOOMFIELD, MEYER, ...The Vocational Guidance of Youth.
Boston, New York, Houghton Mifflin Company, 1911.

Contents: (1) The choice of a life-work and its difficulties. (2) Vocational chaos and its consequence. (3) Vocational guidance in the public schools. (4) Vocational counseling. (5) Social and economic gains through vocational guidance.

371.42
B626
1951

BLUM, MILTON L., Counseling and Psychology.
New York, Prentice-Hall, 1951.

Vocational psychology and its relation to educational and personal counseling. Psuedo-Scientific guidance - counseling centers - vocational testing and tests - clinical psychology and vocational counseling - interests - occupational information - employee counseling - vocational guidance and vocational selection.

371.425
B736v

BOROW, HENRY, Vocational Planning for College Students.
Englewood Cliffs, N.J., Prentice-Hall, 1959.

A sequential project method.

371.425
B7580
1949

BREWER, JOHN MARKS, Occupations Today.
Boston, Ginn, 1949.

Contents: Your education and work - Learning about occupations - Choosing, starting, progressing - Cooperating for success.

374.1
B75
1917

BREWSTER, EDWIN TENNEY, Vocational Guidance for the Professions.
Chicago, New York, Rand, McNally & Company, 1917.

Contents: Three main areas: (I) The general question. (II) The personal problem. (III) The particular profession.

371.42
B89
1924

BUREAU OF VOCATIONAL INFORMATION, NEW YORK. Training for the Professions and Allied Occupations.
New York, N.Y., Bureau of Vocational Information, 1924.

Facilities available to women in the United States, by the Bureau of Vocational Information.

600
C629
1939

CLYNE, ROBERT W., Engineering Opportunities.
New York, London, D. Appleton-Century Company, Inc., 1939.

Twenty-six engineer-authors...have collaborated in the preparation of the chapters of this book. Acknowledgment.

371.425
C697
GEN.
REF.

COLLEGE PLACEMENT ANNUAL.
Bethlehem, Pa., College Placement Council

Vocational guidance. United States Occupations.

374.1
D56
1919

DICKSON, MRS. MARGUERITE STOCKMAN, Vocational Guidance for Girls.
Chicago, New York, Rand, McNally & Company, 1919.

Young women. Choice of profession. Women employment.

331.113
D674e

DONAHUE, WILMA T., Earning Opportunities for Older Workers.
Ann Arbor, University of Michigan Press, 1955.

Contents: Book is devoted to the problems of employment of men and women who, because of their age, are unable to continue in their jobs, or who find it difficult to re-enter the work force. Aim is to examine the nature of the barriers to continued employment or retiring of older persons, and to seek methods by which such persons may be effectively utilized in the labor force.

374.1
D76
1923

DOXSEE, HERALD M., ...Getting Into Your Life-Work.
New York, Cincinnati, The Abingdon Press, 1923.

Contents: (I) A world of opportunities. (II) The first requisite. (III) Laying the foundation. (IV) Field of the Greatest need. (V) Guiding principles.

371.4
Ed3
1926

EDGERTON, ALANSON HARRISON, Vocational Guidance and Counseling.
New York, The Macmillan Company, 1926.

Including reports on preparation of school counselors. Includes bibliography.

371.4
F47
1920

FILENE, CATHERINE, Careers for Women.
Boston and New York, Houghton Mifflin Company, 1920.

Employment of women. Choice of profession. Vocational education.

610.69
F53
1939

FISHBEIN, MORRIS, DO You Want to Become a Doctor?
New York, Frederick A. Stokes Company, 1939.

Study and teaching of medicine. Medical colleges. Choice of profession.

371.425
F55
1935

FITCH, JOHN ANDREWS, Vocational Guidance in Action.
New York, Pub. for the American Association of Social Workers by Columbia University Press, 1935.

Choice of profession. Vocational education. Personnel service in education. Employment agencies.

371.425
F714c

FOREIGN POLICY ASSOCIATION-WORLD AFFAIRS CENTER.
Careers in World Affairs: at Home and Abroad.
Garden City, N.Y., Doubleday, 1961.

Vocational Guidance. International officials and employees. Americans in foreign countries - Employment.

374.1
F94
1925

FRYER, DOUGLAS, Vocational Self-Guidance.
Philadelphia, Chicago, J.B. Lippincott Company, 1925.

Planning your life work. Contributed chapters upon the business professions by leading specialists of New York City and the business professions for women.

HF
5381
G55

GINZBERG, ELI, Occupational Choice.
New York, Columbia University Press, 1963, c1951.

An approach to a general theory. Bibliography included.

374.1
G74
1923

GOWIN, ENOCH BURTON, Occupations.
Boston, New York, Ginn and Company, 1923.

A textbook for the educational, civic, and vocational guidance of boys and girls. Includes a list of references on occupations.

371.425
G844
1955

GREENLEAF, WALTER JAMES, Occupations and Careers.
New York, McGraw-Hill, 1955.

Vocational guidance.

371.425
H188
1946

HAMRIN, SHIRLEY AUSTIN, 4 Square Planning for Your Career.
Chicago, Ill., Science Research Associates, 1946.

Contents: Book is to be used as a guide in developing a strategy of vocational choice.

378
H244m
1949

HARRIS, SEYMOUR EDWIN, The Market for College Graduates and Related Aspects of Education and Income.
Cambridge, Harvard University Press, 1949.

Contents: I. A survey of the problem. (1) What is the outlook? (2) The issue of numbers. (3) Education and income. (4) Education and the labor market. II. Detailed analysis and documentation.

374.1
H26
1924

HARVARD UNIVERSITY. Principles of Vocational Guidance.
Cambridge, Harvard University, 1921.

Contents: Presents the principles of guidance which are treated from the standpoint of the teacher, school administrator, vocational counselor, parent, social, civic, and religious worker and personnel worker in employment.

396.5
H28
1927

HATCHER, ORIE LATHAM, Occupations for Women.
Richmond, Va., Atlanta, Ga., Southern Woman's Educational Alliance, 1927.

Contents: This book is a practical presentation of information regarding occupations open to women - explaining what they are, the education and training, and the personal qualifications needed for engaging in them, ways of entering them, financial returns, and outstanding advantages and disadvantages which one field may present in comparison with others.

371.425
H798o

HOPPOCK, ROBERT, Occupational Information: Where to Get it and How to Use it in Counseling and Teaching. New York, McGraw-Hill, 1957.

Includes bibliography. Vocational guidance.

371.425
H889

HUMPHREYS, JOSEPH ANTHONY, Helping Youth Choose Careers. Chicago, Science Research Associates, 1950.

Contents: (pamphlet) (1) Career selection is important. (2) Understanding themselves - the first step. (3) Exploring the job world. (4) Matching themselves to jobs. (5) How we can help. (6) Keeping a notebook, on career information.

371.426
K141
1948

KAPLAN, OSCAR J., Encyclopedia of Vocational Guidance. New York, Philosophical Library, 1948.

Includes bibliographies. Contents: This book is encyclopedic only in a relative sense; it does not pretend to cover in great detail all phases of the guidance field. Some attention has been given to the phase of guidance concerning articles on occupational trends, unemployment, cost of preparation for the major professions, use of census data and average earnings.

330.973
K628k

KIPLINGER, WILLARD MONROE, Kiplinger Sees Prosperity Ahead: Your Guide to a Higher Income. New York, Simon and Schuster, 1959.

United States Occupations. Vocational Guidance.

371.425
K65
1929

KITSON, HARRY DEXTER, How to Find the Right Vocation. New York and London, Harper & Brothers, 1929.

Contents: Presents a body of principles and methods stated in non-technical language, with a presentation in outline form of these guiding principles on which expects, in vocational guidance are generally agreed.

371.425
K65i
1954

KITSON, HARRY DEXTER, I Find My Vocation. New York, McGraw-Hill, 1954.

Vocational Guidance. Vocational Education.

371.425
K65p
1925

KITSON, HARRY DEXTER, The Psychology of Vocational Adjustment.
Philadelphia, Chicago, J.B. Lippincott Company, 1925.

Contents: This book is designed: (1) to point out the psychological problems involved in choosing a vocation and becoming proficient therein; (2) to describe the attempts that have been made toward their solution; and,(3) to suggest and illustrate rate scientific methods that may be employed in the exploration of the vast field that remains to be covered.

371.425
L528
1954

LEHMAN, MAXWELL, Jobs After Retirement.
New York, Holt, 1954.

Occupations. Vocational guidance. Retirement. Age and employment.

396.5
L647
1939

LINGENFELTER, MARY REBECCA, Vocations for Girls.
New York, Harcourt, Brace and Company, 1939.

Woman employment. Choice of profession. Occupations.

371.42
L81
1938

LOCKHART, EARL GRANGER, My Vocation.
New York, The H.W. Wilson Company, 1938.

Contents: Twenty-five "eminent Americans" have written this book to help the youth of America. Each of these contributors, writing from the wealth of knowledge gained through years of experience and observation feels the inside story of his own profession or occupation, showing what it holds in store for the future and what qualifications are essential for success.

331.59
L828v

LOFQUIST, LLOYD H., Vocational Counseling with the Physically Handicapped.
New York, Appleton-Century-Crofts, 1957.

Includes bibliography. Vocational guidance.

920.073
L83
1935

LOGIE, IONA MARGARET ROBERTSON, Careers in the Making.
New York and London, Harper & Brothers, 1935.

Planned especially to present the early training, both educational and vocational, and the first try-outs or first jobs which figured in the youthful ventures of nineteen modern Americans. List of four hundred biographies.

331.115
L952
1954

LOWEN, WALTER ALBERT, How and When to Change Your Job Successfully.
New York Simon and Schuster, 1954.

Vocational Guidance.

371.425
M386e

MARTINSON, WILLIAM D., Educational and Vocational Planning.
Chicago, Scott, Foresman, 1959.

Vocational guidance.

396.5
M44
1934

MAULE, FRANCES, She Strives to Conquer.
New York and London, Funk & Wagnalls Company, 1934.

Business behavior, opportunities and job requirements for women.

374.1
M54
1921

MERTON, HOLMES WHITTIER, How to Choose the Right Vocation.
New York and London, Funk & Wagnalls Company, 1917.

Vocational self-measurement based upon natural abilities; the mental ability requirements of the fourteen hundred vocations, including: 362 professions, arts and sciences, 344 commercial enterprises and businesses, 700 trades and skilled vocations, with 720 self-testing questions.

378
M57
1928

MEYER, JACOB GIBBLE, Small Colleges and Teacher Training.
Bloomington, Ill., Public School Publishing Company, 1928.

The author...in conjunction with the Association of American colleges has revealed the professional and occupational tendencies of the graduates of 269 American Colleges. Includes bibliography.

370.6
N213
v.37:1

NATIONAL SOCIETY FOR THE STUDY OF EDUCATION. Committee on Guidance. ...Guidance in Educational Institutions.
Bloomington, Ill., 1938.

Includes references. Contents: Guidance and purposive living. Appraisal of student characteristics and needs. Appraising certain aspects of student achievement. Counseling with students. Guidance through group activities.

374.1
N27
1924

NEBRASKA. STATE BOARD FOR VOCATIONAL EDUCATION, Vocational Education.
Lincoln, 1923.

The choice of a life work.

396.5
N399
1948

NEUSCHUTZ, LOUISE (MORGENSTERN), A Job for Every Woman.
New York, H.W. Wilson Co., 1948.

Includes bibliographies. Employment for women. Book is designed to meet the needs of women who are interested in self-created jobs. Handbook for: (1) Woman with no experience who must support herself. (2) Woman who must earn money while staying at home. (3) Elderly woman in need of self-support (etc.).

371.425
N861o

NORRIS, WILLA, Occupational Information in the Elementary School.
Chicago, Science Research Associates, 1963.

Vocational guidance.

371.42
N861i

NORRIS, WILLA, The Information Service in Guidance: Occupational, Educational, Social.
Chicago, Rand McNally, 1960.

Includes bibliography. Vocational guidance. This book is intended as a text for the course which develops the competency or area of training required of all counselors, commonly referred to as "occupational and educational information." It is also intended as a resource book for use by school administrators, teachers, and other members of a staff in the performance of their guidance responsibilities. This text clarifies and elaborates on the role of the information service and the contribution that the service makes to the choices and adjustments of students.

371.425
Oc1

WILLIAM H. STEAD, CARROLL L. SHARTLE, JAY L. OTIS... AND OTHERS. Occupational Counseling Techniques, Their Development and Application.
New York, Cincinnati, American Book Company, 1940.

"The Occupational research program of the United States Employment service has been engaged for several years in studying workers and jobs in various sections of the country. Results of the studies of jobs have already been published in the form of job descriptions and an occupational dictionary. This volume presents the results of the studies of workers... The authors have carried major responsibility for the worker-analysis studies, but they have been guided by the general counsel of the Technical board of the Occupational research program."

371.425
Oc15
GEN.
REF.

OCCUPATIONAL OUTLOOK HANDBOOK, 1949- Washington.
Washington, 1949.

Issued by Bureau of Labor Statistics in cooperation with Veterans Administration and prepared in the Bureau's Occupational Outlook Branch. Includes illustrations, maps, diagrams.

174
P25

PARSONS, FRANK, Choosing a Vocation.
Boston and New York, Houghton Mifflin Company, 1909.

Includes bibliography. Choice of profession.

396.5
P35
1933

PEIRCE, ADAH, Vocations for Women.
New York, The Macmillan Company, 1933.

References at end of each chapter except chapter II. Employment for women and choice of profession.

371.42
P932
1936

PRICE, WILLODEEN, AND TICEN, ZELMA E., Index to Vocations.
Wilson, H.W., 1938.

A subject index to 1,950 careers. Analyzes the occupations in 115 books. It is of great importance to the student who is making a general survey of careers in order to aid in the intelligent selection of his life work.

378.73
P936
1944

PRINCETON UNIVERSITY. Princeton personnel index, Directory of College Counseling & Placement Offices for Service-men.
Princeton University, The Princeton Personnel Index, 1944.

Contents: Under each college appears a list of those admission placement and counseling offices as they exist, along with a brief description of their functions.

331.115
R323o

REED, ANNA (YEOMANS), Occupational Placement, Its History, Philosophies, Procedures, and Educational Implications.
Ithaca, N.Y., Cornell University Press, 1946.

Contents: Purposes of this book are: (1) to consider the social and economic needs which placement services at different periods of time have been instituted to meet, (2) to call attention to the various philosophies which have motivated the institution and controlled the operation of such services, (3) to present certain basic procedures which constitute the placement process wherein it may be in operation, and (4) to afford an opportunity for those who are not professional placement workers to become acquainted with the problems and procedures of placement services and with their close relationship to education problems and procedures.

371.422
R273
1954

REILLY, WILLIAM JOHN, Life Planning for College Students.
New York, Harper, 1954.

Contents: Purpose of this book is to define the fundimental principles of orderly thinking and intelligent action, and to show how college students can successfully use these tested principles in arriving at satisfactory solutions to the various problems of life planning. The book is based on case studies of thousands of under-graduates and graduates of more than a 100 leading colleges and universities throughout the United States.

374.1
R39
1917

RICHARDS, CLAUDE, The Man of Tomorrow.
Salt Lake City, The General Board of Young Men's Mutual Improvement Associations of the Church of Jesus Christ of Latter-Day Saints, 1917.

A discussion of vocational success with the boy of today.

374.1
R56
1922

ROBINSON, CLARENCE CROMWELL, The Find Yourself Idea.
New York, Association Press, 1922.

A friendly method of vocational guidance for older boys for the use of adult leaders.

371.425
R698p

ROE, ANNE, The Psychology of Occupations.
New York, Wiley, 1956.

Contents: Intended for upper-class college students in programs in vocational guidance, counseling and clinical psychology. It structures the broad field of the relations between occupation and other aspects of life in a search for a general pattern and for basic principles.

070.4
R63
1931

ROGERS, CHARLES ELKINS, Journalistic Vocations.
New York, London, D. Appleton and Company, 1931.

Beginner's guide to editorial work, advertising, circulation, free lance writing, publicity, and related fields.

371.425
R723o

ROSENBERG, MORRIS, Occupations and Values.
Glencoe, Ill., Free Press, 1957.

Contents: (1) Criteria for career choice. (2) Faith in people and occupational attitudes. (3) Personality and career. (4) Social determinants of occupational choices and values. (5) Systems of occupational circulation. (6) Change in individual choices. (7) Ends and means of occupational action. (8) Reluctance and resolution.

374.1
R72
1924

ROSENGARTEN, WILLIAM, Choosing Your Life Work.
New York, McGraw-Hill Book Company, Inc., 1924.

Bibliography at end of most chapters. Choice of profession.

371.42
Sc416h
1959

SCIENCE RESEARCH ASSOCIATES. Guidance Publications and Services Dept., Handbook of Job Facts.
Chicago, Science Research Associates, 1959.

Vocational guidance. United States occupations.

371.425
Sh532o
1959

SHARTLE, CARROLL LEONARD, Occupational Information, Its Development and Application.
Englewood Cliffs, N.J., Prentice-Hall, 1959.

Includes bibliography. Differs from the first edition in that much material has been added about the uses of occupational information, particularly by counselors. Text emphasizes that the professional user of occupational information must receive sound training not only in what occupational information is, but also in how it is developed. Updated with regard to D.O.T., career leaders in the armed services, new critical occupations, and employment and training opportunities.

371.425
Sh24v

SHARTLE, CARROLL LEONARD, Vocational Counseling and Placement in the Community in Relation to Labor Mobility, Tenure, and Other Factors.
New York, 1948.

Includes selected bibliographies.

371.425
Sm654c

SMITH, LEONARD J., Career Planning.
New York, Harper, 1959.

Includes bibliography.

371.425
Sm6
1929

SMITH, LEWIS WILBUR, Planning a Career.
New York, Boston, American Book Company, 1929.

A vocational civics. Includes bibliography.

370
St6

STODDARD, JOHN SIDNEY, What Shall I Do?
New York, Hinds & Noble, 1899.

Fifty profitable occupations for boys and girls who are undecided as to how to earn their own living.

371.425
Su959p

SUPER, DONALD EDWIN, The Psychology of Careers.
New York, Harper, 1957.

An introduction to Vocational Development.

HF
5381
S934

SUPER, DONALD EDWIN, Vocational Development.
Teachers College, Columbia University, 1957.

A framework for research. Includes bibliography.

371.425
T365
1956

THOMAS, LAWRENCE GREGG, The Occupational Structure and Education.
Englewood Cliffs, N.J., Prentice-Hall, 1956.

Occupations in the United States. Vocational Guidance. Vocational education in the United States.

355.115
Un58m

U.S. VETERANS' ADMINISTRATION, Manual of Advisement and Guidance.
Washington, U.S. Govt. Print. Off., 1945.

Includes bibliographies. Veterans employment in the United States.

396.5
W18
1926

WANGER, RUTH, What Girls Can Do.
New York, H. Holt and Company, 1926.

Employment for women. Choice of profession.

646
W199
1939

WARBURTON, GERTRUDE, Fashion For a Living.
New York and London, McGraw-Hill Book Company, Inc.,
1939.

Choice of profession. Clothing trade.

374.1
W64
1923

WILEY, EDGAR JOLLS, Organizing the Liberal Arts College
for Vocational Guidance.
Middlebury, Vt., Author, 1923.

371.425
W676
1937

WILLIAMSON, EDMUND GRIFFITH, Students and Occupations.
New York, H. Holt and Company, 1937.

References and suggested readings at end of each chapter.
Contents: The first part of this text is devoted to
a discussion of the importance of the non-vocational
values of general education and further discussion of
the psychological problems involved in the making of
a vocational choice. The remainder of the book is
devoted to the following broad occupational fields:
medical occupations; agricultural, forestry; home
economics; engineering; chemistry; teaching; business;
law; journalism and writing occupations; social
welfare; the ministry; library; the various art
occupations; the skills trade; personal service; and
public service occupations.

396
W75

WISCONSIN. UNIVERSITY. UNIVERSITY EXTENSION DIVISION.
...Vocational Conference Papers and Vocational Prep-
aration, Including Correspondence Study.
Madison, The University, 1913.

This bulletin comprises a number of papers presented
at a vocational conference for women in the University
of Wisconsin.

371.425
W899
1938

WORTHINGTON, EDWARD HUMPHREY, Vocational and Educational
Choices of High School Pupils in Relation to Their
Subsequent Careers.
Philadelphia, 1938.

This dissertation concerns a study of a high school
graduating class and their subsequent educational and/
or occupational choices. Includes statistics and case
studies.

371.425
Z35o

ZAPOLEON, MARGUERITE (WYKOFF), Occupational Planning
For Women.
New York, Harper, 1961.

Includes bibliography. Vocational guidance.

396.5
Z35c

ZAPOLEON, MARGUERITE (WYKOFF), The College Girl Looks
Ahead to Her Career Opportunities.
New York, Harper, 1956.

Includes bibliography. Employment for women.

371.42082
Z58r

ZERFOSS, KARL P., Readings in Counseling.
New York, Association Press, 1952.

Contents: The Readings have been organized around an outline used currently by the editor in a guidance course. They are concerned with the general aspects of guidance, as to principles, content and method. In the main the selections apply to adolescents and young adults.

HF
5381
B63557

BOROW, HENRY, Man In a World at Work.
Boston, Houghton Mifflin, 1964.

Includes bibliographies. Vocational guidance addresses, essays, lectures.

A371.42
Ed24

EDUCATORS GUIDE TO FREE GUIDANCE MATERIALS.
Randolph, Wis., Educators Progress Service, 1962.

Vocational guidance film catalogs. Personnel service in education.

016.3714
L647
1938

LINGENFELTER, MARY REBECCA, Vocations in Fiction.
Chicago, American Library Association, 1938.

An annotated bibliography.

016.371425
N42g
GEN.
REF.

NEW YORK LIFE INSURANCE CO. CAREER INFORMATION SERVICE.
Guidance to Career Information.
New York, Harper, 1957.

Bibliography included. Vocational guidance.

371.425
Sw35
1946

SWEENEY, MARY AGNES, Rehabilitation.
Chicago, American Library Association, 1946.

Materials on today's problems for veterans and civilians. This pamphlet covers many areas some of which include: Rehabilitation - Readjustment - Training Opportunities - Placement for the Individual - Bibliography.

371.425
Sw35
1944

SWEENEY, MARY AGNES, Today's Handbook for Librarians.
Chicago, American Library Association, 1944.

Ready reference data with lists of sources of information about industrial employment and training opportunities, opportunities in the armed services and the qualifications they demand, rehabilitation, and other social and emotional problems involving individual readjustment and guidance.

371.425
Un3
1944

U.S. WAR MANPOWER COMMISSION. BUREAU OF TRAINING.
The Training of Vocational Counselors.
Washington, D.C., 1944.

Report represents the composite judgment of the Advisory committee on vocational counseling of the Professional and technical division, Bureau of training, and it is not to be regarded as an official expression of opinion or policy of any governmental agency. Includes bibliographies.

371.42
K79y

KOHLER, MARY CONWAY, Youth in the World of Work.
New York, Taconic Foundation, 1962.

Some demonstration of guidance, training and work programs for youth in the United States.

331.115
C153
GEN.
REF.

CALIFORNIA EMPLOYMENT DIRECTORY.
San Francisco, Calif.

Vocational guidance periodical. California manufacturers directory. Employment agencies in California.

150.05
Ed83

EDUCATIONAL AND PSYCHOLOGICAL MEASUREMENT, v.1- Jan. 1941.
Chicago, Ill., 1941.

Mental tests periodical. Vocational guidance periodical.

371.4205
P467

THE PERSONNEL AND GUIDANCE JOURNAL, v.1- Aug. 1921.
Easton, Pa., American Personnel and Guidance Association, 1921.

Vocational guidance periodical. Vocational education periodical.

371.425
V872

THE VOCATIONAL GUIDANCE QUARTERLY. v. 1- Autumn, 1952.
Ann Arbor, Michigan, 1952.

Vocational guidance periodicals.

374.1
Ed3
1926

EDGERTON, ALANSON HARRISON, Vocational Guidance and Counseling, Including Reports on Preparation of School Counselors.
New York, The Macmillan Company, 1926.

Includes bibliography. Contents: Need for vocational guidance - Problems - Survey - Vocational Counselors - Training and selecting vocational counselors - Organizing counseling.

374.1
D56
1919

DICKSON, MRS. MARGUERITE STOCKMAN, Vocational Guidance for Girls.
Chicago, New York, Rand, McNally & Company, 1919.

Young women. Choice of profession.

374.1
B75
1917

BREWSTER, EDWIN TENNEY, Vocational Guidance for the Professions.
Chicago, New York, Rand, McNally & Company, 1917 .

Choice of profession.

371.425
F55
1935

FITCH, JOHN ANDREWS, Vocational Guidance in Action.
Columbia University Press, 1935.

Contents: This study is of the practice of vocational guidance. The writer set out to discover what workers in this field do, and under what circumstances their work is performed. It consists of three main sections: Introductions - Counseling - Placement.

620.69
Am35
1933

AMERICAN ASSOCIATION OF ENGINEERS, Vocational Guidance in Engineering Lines.
Easton, Pa., The Mack Printing Company, 1933.

Nineteen chapters...are either of a general nature or else treat of the main divisions of engineering ...and forty chapters are devoted to the principal specialties in the several main lines of engineering.

371.426
V851p
V851f
V851j

HENKIN, SHEPARD, Opportunities in public relations, 1946.
MAXON, H.C., Opportunities in Free-Lance Writing. 1946.
SUGARMAN, E.E., Opportunities in Journalism. 1946.
Vocational guidance manuals.
New York Vocational Guidance Manuals, Inc.

These three articles are contained in three different booklets.

371.425
V872

THE VOCATIONAL GUIDANCE QUARTERLY. v. 1- autumn, 1952
Ann Arbor, Mich., National Vocational Guidance Association, 1952.

Vocational guidance periodicals.

780.071
J67y

JOHNSON, HARRIETT, Your Career in Music.
New York E.P. Dutton & Company, Inc., 1944.

Includes bibliography. Music as a profession.

VOCATIONAL INDUSTRIAL EDUCATION

371.426
F32
1938

FEE, EDWARD MEREDITH, The Origin and Growth of Vocational Industrial Education in Philadelphia to 1917.
Philadelphia, 1938.

Contents: Early colonial developments - Indentured industrial education - Transition to institutional forms of industrial education - Growth of institutions of vocational education - Industrial education in public schools.

VOCATIONAL INTERESTS

371.425
D249v

DARLEY, JOHN GORDON, Vocational Interest Measurement.
Minneapolis, University of Minnesota Press, 1955.

Theory and practice.

371.425
St88
1955

STRONG, EDWARD KELLOGG, Vocational Interest 18 Years After College.
Minneapolis, University of Minnesota Press, 1955.

Vocational interests. Interest scores 18 years after - differentiation of employed for non-employed - Permanence of interest scores - Nariability of scores - Changes in scenes - Satisfaction - interests and prediction - Abilities vs. interests.

371.42
Su959c

SUPER, DONALD EDWIN, Career Development: Self-Concept Theory.
New York, College Entrance Examination Board, 1963.

Essays in vocational development. Vocational interests.

371.425
Su959v

SUPER, DONALD EDWIN, The Vocational Maturity of Ninth-Grade Boys.
New York, Bureau of Publications, Teachers College, Columbia University, 1960.

Includes bibliography. Vocational interests.

HF
5381.5
T55

TIEDEMAN, DAVID V., Career Development: Choice and Adjustment.
New York, College Entrance Examination Board, 1963.

Bibliography included. Differentiation and integration in career development. Contents: The fact of career

development - A "language" for the analysis of career development - The data of career development - A framework for the study of career development. Time and occupation - Observation and career.

VOCATIONAL MATHEMATICS

510
D72
1915

DOOLEY, WILLIAM HENRY, Vocational Mathematics.
Boston, New York, D.C. Heath & Co., 1915.

Mathematics problems, exercises, etc.

640
D72

DOOLEY, WILLIAM HENRY, Vocational Mathematics for Girls.
Boston, New York, D.C. Heath & Co., 1917.

Arithmetic in 1901. Domestic economy.

VOCATIONAL NURSING

610.73
P931
1948

PRICE, ALICE LOUISE, Vocational Nursing for Home, School and Hospital.
St. Louis, C.V. Mosby Co., 1948.

Includes bibliographies. Nurses and nursing.

VOCATIONAL PLANNING

371.425
B736v

BOROW, HENRY, Vocational Planning for College Students.
Englewood Cliffs, N.J., Prentice-Hall, 1959.

A sequential project method.

VOCATIONAL PSYCHOLOGY

612.821
H72

HOLLINGWORTH, HARRY LEVI, Vocational Psychology.
New York, D. Appleton and Company, 1916.

Its problems and methods. Classified bibliography for vocational psychology.

VOCATIONAL REHABILITATION

331.59
L828v

LOFQUIST, LLOYD H., Vocational Counseling With the Physically Handicapped.
New York, Appleton-Century-Crofts, 1957.

Includes bibliography.

371.91
M665m

MINNESOTA. UNIVERSITY. INDUSTRIAL RELATIONS CENTER.
Minnesota Studies in Vocational Rehabilitation.
Minneapolis, 1958.

Includes bibliography. Pamphlets.

362.4
W425g

WEIR, GEORGE R., Government and the Handicapped.
University, Ala., Bureau of Public Administration, University of Alabama, 1960.

The Alabama vocational rehabilitation program. Development of vocational rehabilitation in Alabama - Current programs and services - Organization and management - Personnel administration - Fiscal administration - A challenge for Alabama.

VOCATIONAL SCHOOL GUIDE

f371.425
L897v
GEN.
REF.

LOVEJOY, CLARENCE EARLE, Vocational School Guide.
New York, Simon and Schuster, 1963.

A handbook of job training opportunities.

VOCATIONAL SELF-GUIDANCE

374.1
F94
1925

FRYER, DOUGLAS, Vocational Self-Guidance.
Philadelphia, Chicago, J.B. Lippincott Company, 1925.

Planning your life work. Also includes chapters upon the business professions by leading specialists of New York City and the business professions for women.

VOCATIONAL STUDIES IN JOURNALISM

070
P683
1931

PITKIN, WALTER BOUGHTON, Vocational Studies in Journalism.
New York, Columbia University Press, 1931.

Contents: Editorial judgment, and factors making for success in journalism.

VOCATIONS FOR GIRLS

396.5
L647
1939

LINGENFELTER, MARY REBECCA, Vocations for Girls.
New York, Harcourt, Grace and Company, 1939.

This book undertakes to present a picture of woman's place in the occupational world. Its purpose is to help young women to obtain a vision of the multitude of occupations open to them, the characteristics, and the steps to take, and rewards to expect.

396.5
W84

WOMEN'S EDUCATIONAL AND INDUSTRIAL UNION, Boston.
Department of research, Vocations for the Trained Woman.
Boston, Women's Educational and Industrial Union, 1910.

Opportunities Other Than Teaching.

396.5
P35
1933

PEIRCE, ADAH, Vocations for Women,
New York, The Macmillan Company, 1933.

Contents: This book has been written to aid the student and the counselor in making decisions regarding vocational interests and opportunities. Book contains valuable reference material for deans of women in colleges and advisors of girls in high school. The book has been designed for a possible text for orientation courses for women of the junior college level. It covers: (1) Health professions. (2) Natural sciences. (3) Business vocations. (4) Art vocations. (5) Social vocations.

VOCATIONS IN FACT AND FICTION

A371.42
H118
1953
GEN.
REF.

HAEBICH, KATHRYN A., Vocations in Fact and Fiction.
Chicago, American Library Association, 1953.

A selective, annotated list of books for career background and inspirational reading.

VOCATIONS OPEN TO COLLEGE WOMEN.

396
M66

MINNESOTA, UNIVERSITY ...Vocations Open to College Women.
Minneapolis, University of Minnesota, 1913.

Contents: Work in the associated charities. Commercial photography. Domestic art. Domestic science. Institutional management. Interior decoration. Librarianship. Municipal research. Work in newspaper offices. Nursing. Portrait photography. Probation work in the juvenile court. Secretarial work. Settlement work. Vocational art. Work in the Young women's Christian Association.

WAGES

HD
4909
C2
1965

CAREY, HENRY CHARLES, Essay on the Rate of Wages.
New York, A.M. Kelley, 1965.

Attempts to furnish the facts in regard to the policy of some of the principle nations of the earth, and its results, as seen in the rate of wages, or reward of labor. Examines the circumstances which tend to determine the rate of wages.

HD
4909
L23

LANHAM, ELIZABETH, Administration of Wages and Salaries.
New York, Harper & Row., 1963.

The purpose of this book is to provide information about the administration of wages and salaries as well as the philosophies and principles entering into that administration. An evaluation of several of the controversial areas is also included.

HB
301
M14
1963

MCCULLOCH, JOHN RAMSAY, A Treatise on the Circumstances Which Determine the Rate of Wages and the Condition of the Labouring Classes.
New York, A.M. Kelley, Bookseller, 1963.

Varieties of Labor. (1) Comparative Increase of Capital and Population. (2) Natural or Necessary Rate of Wages. (3) Disadvantage of Law Wages. (4) Different Rates of Wages in Different Employments. (5) Hiring by Time and Price-Work. (6) Interest of the Labourers Promoted and Their Condition Improved.

HB
301
S16

SALKEVER, LOUIS R., Toward a Wage Structure Theory.
New York, Humanities Press, 1964.

Purpose of this book is to supply a critique of wage structure theory within a frame of reference relevant to the construction of a continium of progressively enriched wages structure theory. Wage structure theory is an attempt to explain the existence of, and change in, a more or less explicit hierarchy of wage rates paid for the supply of labor power among various categories of suppliers.

HD
4909
T76

TURNER, HERBERT ARTHUR, Wage Trends, Wage Policies, and Collective Bargaining: The Problems for Underdeveloped Countries.
Cambridge, England, University Press, 1965.

Wage trends in Underdeveloped countries - The Wage Policy of the I.L.O. - and Collective Bargaining - Incomes Policy and Collective Bargaining in Underdeveloped Countries - Principles of Wage-Fixing in Underdeveloped Countries. Wage Fixing Machinery.

HD
4909
W45

WEINTRAUB, SIDNEY, Some Aspects of Wage Theory and Policy.
Philadelphia, Chilton Books, 1963.

The book is primarily concerned with problems involving the wage level, the price level, and the wage share, and with the implications of these upon economic phenomena generally. Contents include: Wages and Consumption Outlay - Decade of Wage Inflation - National Wage Policy.

HB
301
B55
1966

BODKIN, RONALD G., The Wage-Price-Productivity Nexus.
Philadelphia, University of Pennsylvania Press, 1966.

Analyzes the wage and price structure of an important segment of the American economy. Contains: (1) Emperical relationships between wage changes, unemployment, and price level changes. (2) A further examination of the wage adjustment equation. (3) Time patterns of the average product of labor and some full system parameter estimates. (4) Some limitations of aggregative analysis of wages and prices.

HD
4928
A5C4

CHERNICK, JACK, Guaranteed Annual Wages.
Minneapolis, University of Minnesota Press, 1945.

Co-author: George C. Hellickson. Bibliography. Annual wage.

HD
5017
G5

GILBOY, MRS. ELIZABETH (WATERMAN), Wages in Eighteenth Century England.
Cambridge, Harvard University Press, 1934.

Contents: Wages in London - London as a Metropolitan Area - Wages in the West - Determination of Real Wages - Laborer in the North Riding - Real Wages in the North.

HD
8236.5
R4

REYNOLDS, LLOYD GEORGE, Wages, Productivity, and Industrialization in Puerto Rico.
Homewood, Ill., R.D. Irwin, 1965.

"A joint publication of the Social Science Research Center of the University of Puerto Rico and the Economic Growth Center of Yale University." "Three related essays." Puerto Rico - Labor and Laboring Classes, Wages, Labor Supply.

HD
4926
D5

DIEMER, HUGO, Wage-Payment Plans That Reduced Production Costs.
Chicago, McGraw-Hill Publishing Co., 1929.

Basic Considerations Underlying the Installation of Wage Incentive Plans - Description of the Fundamental and Best Known Plans - Examples of the Installation, Administration, and Operation of Incentive Systems.

HJ
4653
E85H3

HALL, CHALLIS A., Effects of Taxation: Executive Compensation and Retirement Plans.
Boston, Division of Research, Graduate School of Business Administration, Harvard University, 1951.

"The third volume...in the general study of the effects of taxation on business conducted through the Harvard Graduate School of Business Administration." Bibliographical footnotes.

HD
5724
H3

HARDY, CHARLES OSCAR, Prices, Wages and Employment.
Washington, Board of Governors of the Federal Reserve System, 1946.

Projects of Inflation in the Transition Period - Employment and Wage Policies - Monopoly and Unemployment.

HJ
4653
E85S3

SANDERS, THOMAS HENRY, Effects of Taxation: On Executives.
Boston, Division of Research, Graduate School of Business Administration, Harvard University, 1951.

"The fourth volume to be published as a result of the research project on the effects of taxation on business conducted through the Harvard Graduate School of Business Administration."

HD
4975
T58

TOLLES, NEWMAN ARNOLD, Origins of Modern Wage Theories.
Englewood Cliffs, New Jersey, Prentice-Hall, 1964.

A defense of theory - Development of the accepted wage theory as of 1900 - Immigration and social service workers - Labor Unions, 1890-1920 - Scientific Management and Wage Theory - Welfare Capitalism - Minimum Wages - Government Spending and Tax Policies - Social Security Growth and Labor Union Power - Inflation - Emerging Theory of Wages.

179
D321o

DE GRAZIA, SEBASTIAN, Of Time, Work, and Leisure.
New York, Twentieth Century Fund, 1962.

Leisure. Work.

171.7
D687w

DONOHUE, JOHN W., Work and Education.
Chicago, Loyola University Press, 1959.

The role of technical culture in some distinctive theories of humanism. Contents: Part I - Three Theories of Work in Education: (1) Profile of the Problem. (2) The Marxian Apotheosis of Work. (3) Dewey's Theory of Work in Education. (4) Work, the Servant of Leisure.

301.435
F899m

FRIEDMANN, EUGENE A., The Meaning of Work and Retirement.
Chicago, University of Chicago Press, 1962.

This book reports a set of studies of the significance of work in the lives of people and of the relations between the significance of work and attitudes toward retirement. It aims to a partial basis for a retirement policy that is both satisfactory to the individual and wise for the general welfare. Parallel with these social-psychology studies has gone a study of flexible retirement practices in American business and industry.

301.243
F911aE

FRIEDMANN, GEORGES, The Anatomy of Work.
New York, Free Press of Glencoe, 1962.

Labor, Leisure, and the Implications of Automation. Contents: (1) Job Specialization: Some Recent Aspects (2) Decline of an Orthodoxy. (3) Towards Job Enlargement: American Experiments. (4) Towards Job Enlargement: British Investigations. (5) The General Practitioner, the Specialist and the Specialized. (6) Leisure and Dissatisfaction with work. (7) Milestones, Problems and Possibilities.

331.1
H432w

HERON, ALEXANDER RICHARD, Why Men Work.
Stanford, Stanford University Press, 1948.

Examines the reasons that induce men to work. Challenges the belief that financial rewards and penalties are wholly equal to the important task that we entrust to them - causing men to work.

331.01
H582m
1959

HERZBERG, FREDERICK, The Motivation to Work.
New York, Wiley, 1959.

Co-authors: Bernard Mausner and Barbara Block Snyderman. Job Satisfaction. Includes bibliography.

308.2
C153
v.2
no.4

JAMES, JOHN, An Experimental Study of Tensions in Work Behavior.
Berkeley, University of California Press, 1951.

The hypothesis for this empirical study can be stated as follows: Tension for any individual is a relation between the structure of desire measured by the dimensions of (1) Satisfaction - dissatisfaction; (2) Strength of feeling; (3) Age of Desire; (4) Certainty-uncertainty; (5) Expected Duration in the future before desire will be fulfilled; and, (6) Degree of control, and the difference between the available and desired desideration.

331.21
J36e

JAQUES, ELLIOTT, Equitable Payment.
New York, Wiley, 1961.

A general theory of work, differential payment, and individual progress. Contents: (1) Introduction; (2) Measurement of Level of Work; (3) Equity in Payment; (4) Individual Progress in Work; (5) Conditions for Psycho-Economic Equilibrium; (6) Problems of Implementation.

158.7
L816h

LOCKHEED AIRCRAFT CORPORATION. GEORGIA DIVISION. HUMAN FACTORS RESEARCH DEPARTMENT, Human Performance as a Function of the Work-Rest Cycle, a Review of Selected Studies.
Washington, National Academy of Sciences, National Research Council, 1961.

Work. Rest Periods. Performance. Flight Crews. A special report prepared for the Armed Forces-NRC Committee on Bio-astronautics, Panel on Psychology.

658.01
V83
1934

VITELES, MORRIS SIMON, The Science of Work.
New York, W.W. Norton and Co., Inc., 1934.

This book will be of interest to all who deal with human nature in industry. There has been a conscious attempt to evaluate present forms and conditions of work, and the contribution of psychology in improving these in the light of general economic and social forces that have played a part in the creation of our machine civilization. Should be helpful to vocational counciling employment offices, directors of placement bureaus, economists and others.

150
B64
1926

BOOK, WILLIAM FREDERICK, Learning How to Study and Work Effectively.
Boston, New York, Ginn and Co., 1926.

A contribution to the psychology of personal efficiency. The chief aim of this book is to delineate as clearly and accurately the exact road over which a person must travel in learning how to work at one's tasks in the most effective way.

150.13
G949iEa

GUITTON, JEAN, Make Your Mind Work for You.
New York, Macmillan, 1958.

Purpose of the book is to reveal a method whereby work can be simplified or the amount of human effort can be reduced whenever it wastes and loses itself in useless endeavor so that this exertion can be concentrated on essentials.

WORK AND AUTHORITY IN INDUSTRY

301.44
B433w
1956

BENDIX, REINHARD, Work and Authority in Industry.
New York, Wiley, 1956.

Ideologies of Management in the Course of Industrialization. Contents: Industrialization, Management, and Ideo-logical Appeals - Early Phase of Industrialization - American Aspects.

WORK AND EFFORT

658.5
R958
1947

RYAN, THOMAS ARTHUR, Work and Effort.
New York, Ronald Press Co., 1947.

The Psychology of Production. Book provides a systematic survey of men and women at work. It attempts to present an evaluated account of the knowledge that has been accumulating for many years, to give a survey of current progress in this field of investigation and to put the reader in position to realize the need for future development in researches of this character. Among the problems treated are training and learning, the control of accidents, establishment of pay levels for various jobs, and the design of efficient methods of work. Topics are treated broadly and with regard to the general rather than specific implications.

WORK AND LEISURE

179
An548w

ANDERSON, NELS, Work and Leisure.
New York, Free Press of Glencoe, 1961.

(1) Western Society Faces Leisure. (2) The Walk-Leisure Dichotomy. (3) Some Dimensions of Time. (4) The Provoking Gift of Leisure. (5) Some Pertinent Aspects of Leisure. (6) Youth and the Life Cycle. (7) Active Years of the Life Cycle. (8) With Time on Their Hands. (9) How Men Manage Their Behavior. (10) Time-Use Trends and Prospects.

WORK AND SOCIETY

331
G878w

GROSS, EDWARD, Work and Society.
New York, Crowell, 1958.

This book is written on the assumption that to understand any type of work, work must be looked at comparatively. Contents include: World of Work - Work in Other Societies - Occupations: Professional, White-collar, Blue-collar - Occupational System - Work Organizations - Two Major Problems: Unions and Races at Work.

WORK AND WEALTH

330
H65w

HOBSON, JOHN ATKINSON, Work and Wealth: A Human Valuation.
New York, The Macmillan Co., 1914.

The author presents a full and formal exposure of the inhumanity and vital waste of modern industry by the close application of the best-approved formulas of individual and social welfare, and to indicate the most helpful measures of remedy for a society sufficiently intelligent, courageous and self-governing to apply them.

WORK AND WORKERS

304
F15
1933

FAIRBURN, WILLIAM ARMSTRONG, Work and Workers.
New York, National Press Printing Co., Inc., 1933.

Essays and miscellaneous writings. Economics - Addresses, essays, lectures. Business, addresses, essays, lectures. Economic conditions - 1918. Success.

WORK EXPERIENCE IN HIGH SCHOOL

371.426
Iv3
1951

IVINS, WILSON H., Work Experience in High School.
New York, Ronald Press Co., 1951.

The aim of this volume is to define work experience, to describe its typical forms, and to clarify its nature and scope by portraying its development in schools. The general objectives and principles for any work experience are set forth, and ways are presented for correlating and enriching the present-day curriculum by adding such. Contents include: Backgrounds and Development of Work Experience - Needs for High School Work Experience - Work Experience in the Curriculum - Organization and Administration of Work Experience Program - Potential Opportunities for Further Development in Work Experience.

WORK FOR RIGHTS

331.889
Un3w

UNITED STEELWORKERS OF AMERICA, Work for Rights.
Pittsburgh, 1958.

The material presented in this brochure is a brief, factual, and documented analysis of the real anti-labor objective of the principal advocates of right-to-work laws. Contents include: A Historic Struggle - Union Security - Benefits from Union Security - Economic Picture - Ethical and Moral Arguments - Opposition - Facts vs. Fiction.

WORK IN EDUCATION

371
W89

Work in Education in Colleges and Universities, Rating, Placing and Promotion of Teachers, Lists of Investigations and Other Information of Interest to Members.
Chicago, Ill., The University of Chicago Press, 1915.

Aims of departments of education in colleges and universities, Facilities for teacher-training in colleges and universities. Credit granted by colleges and universities to graduates of normal schools. Recognition given college graduates in the granting of teachers' certificates. Committee on rating, placing, and promotion of teachers: some propositions and a plan for the improvement of conditions. Scholarship in relation to teaching efficiency. A method for guiding and controlling the judging of teaching efficiency. List of investigations by members.

WORK IN THE LIVES OF MARRIED WOMEN

331.4
C76w

CONFERENCE ON WORK IN THE LIVES OF MARRIED WOMEN, COLUMBIA UNIVERSITY, 1957, Work in the Lives of Married Women.
New York, Columbia University Press, 1958.

Womanpower in Todays World - Coming Problems in the Labor Force - Education, Training, and Guidance of Women for Reentry into the Labor Force - The Utilization of Womanpower - Income Earned by Married Women - Working Mothers and the Development of Children.

WORK MEASUREMENT

658.57
Ab164w

ABRUZZI, ADAM, Work, Workers, and Work Measurement.
New York, Columbia University Press, 1956.

Contents: Work Measurement: Theory, Practice and Fact - Work Measurement Theory: Procedure, Application, and Results - The Theory of Human Work: Beliefs, Codes, and Observations.

658.57
B261p

BARNES, RALPH MOSSER, Performance Sampling in Work Measurement.
Atlanta, American Institute of Industrial Engineers, 1955.

Studies seem to indicate that work sampling will give time standards for repetitive standardized manual tasks which are substantially the same as standards obtained by time study. Work sampling provides a valuable tool for measuring work, especially in areas where manual work is performed.

WORK OF THE MODERN HIGH SCHOOL

373
C447
1953

CHISHOLM. LESLIE LEE, The Work of the Modern High School.
New York, Macmillan, 1953.

The central purpose of this book is to develop a clear understanding of each part of the work of the modern secondary school. Chapter 14 - Educating for the Economic Life is applicable to the work of the R.C.U.

WORK RELIEF

338.54
C477m

CHARLES, SEARLE F., Minister of Relief.
Syracuse, Syracuse University Press, 1963.

Deals essentially with the three most important federal relief agencies during the years 1933 to 1938.
The Federal Emergency Relief Administration, the C.W.A., and the W.P.A. comprise the trio. The formation, administration, and relation to politics of each are described and analyzed.

WORK STOPPAGES IN WEST VIRGINIA

330.9754
W521b
v.5
no.3

SOMERS, GERALD GEORGE, Work Stoppages in West Virginia, 1951-55.
Morgantown, West Virginia University, 1957.

Trends in Work Stoppages - Industries and Unions Involved - Geographic Patterns - Size of Work Stoppages - Major Issues in Work Stoppages - Termination of Work Stoppages.

WORK-STUDY PROGRAMS

371.193
B947w

BURCHILL, GEORGE W., Work-Study Programs for Alienated Youth, A Casebook.
Chicago, Science Research Associates, 1962.

Descriptions of nine work-study programs for secondary students are presented. They are reported as examples of ways in which eight public school systems and one group of private individuals are combining classroom experience for certain youngsters to prevent them from becoming alienated from their society.

WORK, WAGES AND PROFITS

331
G15
1913

GANTT, HENRY LAURENCE, Work, Wages, and Profits.
New York, The Engineering Magazine Co., 1913.

This book is an effort to explain the principles of Modern Industrial Organization, and to give some idea how to utilize the methods of evolution in the introduction of a system of management based on these principles.

WORK, WEALTH AND HAPPINESS

302
W46
1931

WELLS, HERBERT GEORGE, The Work, Wealth and Happiness of Mankind.
Garden City, N.Y., Doubleday, Doran & Co., Inc., 1931.

This book gives a general conception of modern economic life, of industrial processes, trade and finance; a clear picture of the causes that produce the perplexities, pressures and conflicts of our time.

THE WORKER AND THE STATE

371.42
D34

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Annual Estimated Replacement Farmer Opportunities in Nebraska. (Departmental Report, no. 3).

Genereux, Douglas G.

Nebraska Univ., Lincoln. Dep. of Agr. Education

Mar67

EDRS Price MF-$0.09 HC-$0.56 14p.

*FARMERS, *FARM OCCUPATIONS, *EMPLOYMENT OPPORTUNITIES, *RURAL YOUTH, EMPLOYMENT TRENDS, MALES,

Nebraska,

An estimate of annual farmer replacement needs in the 93 counties of Nebraska was computed by a formula developed by Clarence Bundy at Iowa State University and applied to census data. The formula was used to determine the number of farmer retirements, or farmers leaving farming, and farm consolidation rates. It was estimated that 951 farming opportunities would be available annually to 34.9 percent of the estimated 2,725 seventeen year old rural males in Nebraska in 1969. Farming opportunities estimates ranged from 31.4 in Knox County to 18.0 in Douglas County with an average of 10.2 opportunities for each of the counties. The greatest need for replacements existed in the eastern and central sections of the state. (JM)

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ANNUAL ESTIMATED REPLACEMENT FARMER OPPORTUNITIES IN NEBRASKA

Douglas G. Genereux

Graduate Assistant in Agricultural Education

DEPARTMENTAL REPORT
#3
March 1967

DEPARTMENT of AGRICULTURAL EDUCATION

COLLEGE of AGRICULTURE and HOME ECONOMICS

UNIVERSITY of NEBRASKA

LINCOLN, NEBRASKA

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UNIVERSITY OF NEBRASKA

Lincoln, Nebraska

951 REPLACEMENT FARMER OPPORTUNITIES IN NEBRASKA ANNUALLY

A comprehensive study of annual farmer replacement needs for Nebraska and for each of the 93 counties has just been completed at the University of Nebraska. Douglas Genereux, graduate assistant in Agricultural Education reports that there are an estimated 951 opportunities for young men to go into farming annually. This figure represents 34.9 per cent of the 2725 seventeen-year-old rural males estimated for Nebraska in 1969.

The underlying reasons for conducting this study were: (1) previous estimates of farming opportunities have been made on the national or regional bases which may not have reflected the Nebraska situation accurately; (2) in doing local or state educational planning with any degree of accuracy, it is necessary to know just what replacement farmer opportunities are available now, and how many can be expected to open within the planning period 1964 to 1969. It was, therefore, believed that a study which would provide accurate information concerning farming opportunities was necessary.

The major emphasis of this study was placed upon the rate of farm consolidation and farmer retirement. Professor Clarence Bundy of Iowa State University designed a formula and conducted a study in Iowa which reflected the above trends at the county level. It was concluded that Professor Bundy's formula could be applied to Nebraska. This formula is based on available United States Population Census and United States Census of Agriculture data. Genereux is quick to point out that the formula produces estimates that reflect on census trends.

Several assumptions were made prior to conducting this investigation: (1) farmers, like other workers, tend to retire at age 65, making all or part of their farm units available to other farmers; (2) the projected farm consolidation rate can be based on the trend of the past five years; and (3) farmers under 55 years of age tend to leave the farm for reasons other than retirement at a rate of 1.5 per cent annually.

Midwest Agribusiness, prepared by Midwest Association of State Departments of Agriculture, October, 1966, reports that 44 per cent

of Nebraska's 550,000 man labor force are employed in production agriculture and agribusiness occupations. Of this 44 per cent (242,000 workers), 127,000 were employed in production agriculture (17,000 hired farm workers, and 110,000 family farm workers), while 115,000 were employed in non-farm agribusiness. These statewide figures suggest that production agriculture is one of the higher opportunity areas in Nebraska and includes only a part of the total occupational opportunities in agriculture. The "related" or "off-farm" agricultural occupations are becoming increasingly more important as a segment of Nebraska economy. The lack of qualified personnel in this area may become even greater, and the agricultural skills and competencies needed may become more complex in the future.

Census figures show that in Nebraska there were 100,846 farms in 1954; 90,475 farms in 1959; and 80,163 farms in 1964. Projecting from the individual county totals, farm numbers should decrease by just over 1800 farms each year. This would leave 71,145 farms in 1969.

New opportunities in farming develop from the death and retirement of farmers who are over 65 years of age and from the movement of farm operators under 55 years of age who will leave the farm to take up other employment. This exodus may be caused by health, dissatisfaction, finances, or many other reasons. In order to find the estimated number of farmer replacement opportunities for each county, the annual decline in farm numbers for the county was subtracted from the estimated number of all farmers leaving the farm each year. The state figure of an estimated 951 farmer replacement opportunities was determined by totaling the county figures. As can be seen from the accompanying table, these opportunities range from a high of an estimated 31.4 in Knox county to an estimated low of -18.0 in Douglas county. The average is 10.2 opportunities per county per year.

In McPherson county, for example, the data show an estimated 142 per cent of the rural seventeen-year-old males might find opportunities. This indicates there are more opportunities than available young men. In Pierce county 65.6 per cent may be needed while in Holt county the comparable figure is 23.5 per cent.

The study indicates the greatest need for replacement farmers is found in the eastern and central Nebraska. This may be the result of more intensive operations in general farming and livestock feeding. Because of larger farms in western Nebraska, a smaller need for replacement farmers is shown in these counties.

If we are to maintain our economy and increase our efficiency, it will be necassary to provide replacement personnel in areas of specific employment need. For this reason it is necessary that studies be made in all areas of employment to determine the need and to make certain that there are educational programs that will provide the man-power for the positions.

It is anticipated there will be reports in other employment areas as studies are funded and conducted.

County	Estimated Number of Farms in 1969	Estimated Number of Farmer Replacement Opportunities Annually	Persent of 17 year-old Rural Males for whom opportunities may exist
ADAMS	925	13	45.6
ANTELOPE	1246	18	36.9
ARTHUR	84	1	50.0
BANNER	186	2	17.0
BLAINE	133	4	121.2
BOONE	997	7	16.4
BOX BUTTE	595	18	81.9
BOYD	541	11	42.9
BROWN	368	8	60.2
BUFFALO	1380	18	42.5
BURT	930	13	37.0
BUTLER	1315	29	58.9
CASS	1137	20	46.4
CEDAR	1435	16	19.4
CHASE	395	2	14.9
CHERRY	624	12	34.2
CHEYENNE	709	8	27.3
CLAY	752	5	17.9
COLFAX	964	10	31.9
CUMING	1470	20	32.7
CUSTER	1699	22	35.1
DAKOTA	461	2	9.8
DAWES	488	11	62.9
DAWSON	1263	21	41.1
DEUEL	298	5	45.6
DIXON	932	15	34.4
DODGE	1265	19	32.9
DOUGLAS	509	-18	-64.5
DUNDY	382	6	37.3
FILLMORE	960	9	30.4
FRANKLIN	674	12	54.2
FRONTIER	524	1	7.2
FURNAS	743	21	77.5
GAGE	1561	3	5.0
GARDEN	399	8	60.0
GARFIELD	277	6	67.9
GOSPER	365	1	10.3
GRANT	53	0	10.8
GREELEY	494	4	17.1
HALL	926	5	12.4
HAMILTON	974	5	12.6
HARLAN	528	5	31.0
HAYES	323	3	21.5
HITCHCOCK	504	8	41.1
HOLT	1297	13	23.5
HOOKER	64	3	67.6

County	Estimated Number of Farms in 1969	Estimated Number of Farmer Replacement Opportunities Annually	Persent of 17 year-old Rural Males for whom opportunities may exist
HOWARD	878	20	60.1
JEFFERSON	1010	21	73.8
JOHNSON	765	14	59.5
KEARNEY	667	5	22.2
KEITH	425	8	51.9
KEYA PAHA	260	4	64.1
KIMBALL	307	-1	-4.7
KNOX	1645	31	44.6
LANCASTER	1522	13	23.9
LINCOLN	1102	16	34.8
LOGAN	151	3	53.3
LOUP	169	3	37.5
MCPHERSON	154	6	142.2
MADISON	1206	20	44.8
MERRICK	758	4	14.2
MORRILL	651	13	41.4
NANCE	638	11	42.7
NEMAHA	773	8	34.8
NUCKOLLS	735	3	12.4
OTOE	1212	10	21.7
PAWNEE	725	14	55.9
PERKINS	540	9	37.8
PHELPS	725	11	44.2
PIERCE	1165	27	56.6
PLATTE	1439	22	35.9
POLK	887	12	41.9
RED WILLOW	538	3	16.6
RICHARDSON	1044	13	34.4
ROCK	228	1	13.5
SALINE	1204	19	55.7
SARPY	532	9	42.7
SAUNDERS	1645	21	35.4
SCOTTSBLUFF	1209	6	9.4
SEWARD	1263	24	79.5
SHERIDAN	666	2	7.5
SHERMAN	665	5	15.2
SIOUX	367	3	18.4
STANTON	879	14	40.8
THAYER	891	7	22.0
THOMAS	105	6	96.5
THURSTON	677	9	41.9
VALLEY	667	10	37.2
WASHINGTON	1009	20	54.3
WAYNE	948	5	12.5
WEBSTER	606	1	4.0
WHEELER	187	3	38.5
YORK	1157	19	45.4
STATE TOTAL	71,145	951	34.9

EXPLANATION OF PROCEDURE IN DETERMINING ESTIMATED REPLACEMENT FARMER OPPORTUNITIES

The County Survey of Farmer Replacement Needs for each county was completed by Douglas Genereux and was based upon the 1964 United Stated Census of Agriculture. The primary objective of this survey was to provide the most up-to-date information available concerning the annual need for replacement farmers in each county. A secondary objective was to estimate the percentage of the 17 year old farm youth in your county needed as replacement farmers each year. Other pertinent agricultural data has been included in the information.

The major part of the data used was taken directly from the 1964 Census. For purposes of clarification, the various estimates were computed in the following manner:

1. The estimated number of farms in the county in 1969: The percentage decrease in number of farms for the five year period 1959-1964 was obtained using the census data. This percentage figure was then applied to the number of farms in 1964 to obtain the decrease in number of farms during the period 1964-1969.

2. The estimated average annual decrease in farm numbers anticipated, 1964-1969, was obtained by dividing the estimated decrease in farm numbers during 1964-1969 by five.

3. The estimated number of farm operators who will die or retire each year during 1960-1970: it was assumed that one-half of the farm operators between 55 and 64 years of age and all of the operators over 65 years of age would either die or retire within a ten-year period. This number was divided by ten to yield the annual figure.

4. The estimated number of farm operators who will leave the farm to take up other employment each year between 1960 and 1970 was computed by multiplying the number of farm operators 54 years of age and younger by 1.5 percent.

No census information concerning the percentage of farm operators leaving the farm annually to enter other occupations was available. The figure of 1.5 percent was purely an estimate. Therefore, if you have more reliable information for your county, it should be used in place of the 1.5 percent estimate.

5. The estimated total number of operators who will leave the farm annually from 1960 to 1970 was computed by adding the number of operators leaving due to death or retirement and the number of operators leaving the farm for other employment.

6. The estimated average number annual replacement farmers needed each year was obtained by subtracting the estimated average annual decrease in farms anticipated from the number of farm operators leaving the farm.

7. The estimated average number of young men 17 years of age on farms was computed by dividing the total number of rural farm males from 10 to 19 years of age by ten to yield the average number of 17 year old farm boys in the county. It was assumed that the number of 17 year old farm boys in the county was reduced during 1964-1969 by the same percentage as farm numbers were reduced.

8. The estimated percentage of 17 year old farm youth needed as replacement farmers was computed by dividing the number of annual replacement farmers needed by the number of 17 year old farm boys in the county.

It should by recognized that the data arrived at by calculations are purely estimates and should be treated as such.

VT 001 748

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Attitudes of Colorado Administrators on Guidance, Counseling and Vocational Education.

Cavnar, LeRoy B.

Colorado Vocat Educ Res Coordinating Unit, Fort Collins

Mar67

DOCUMENT NOT AVAILABLE FROM EDRS 31p.

*ADMINISTRATOR ATTITUDES, OCCUPATIONAL COUNSELING, *VOCATIONAL EDUCATION, *SUPERINTENDENTS, *PRINCIPALS,

Colorado,

This survey represents the second part of a 3-stage program designed to assess educational-vocational needs of students, attitudes of administrators, and eventual followup of high school graduates in regard to their interests and needs. From a possible 370 school administrators, 144 superintendents and 149 principals completed the questionnaire (97 percent return). Data are reported by superintendents, principals, district size, high school size, and geographic area. Some of the findings were -- (1) 50 percent of the respondents were concerned about the ability of their counselors to give vocational information, (2) More than 74 percent of the superintendents and 73 percent of the principals viewed their present vocational education programs as unsatisfactory relative to the needs of their students, (3) 70 percent of the administrators found their school curriculum was deficient in vocational education offerings, and (4) More than 70 percent of the principals felt that their guidance and counseling program emphasized college more than vocational preparation. (SL)

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ATTITUDES OF COLORADO ADMINISTRATORS

ON

GUIDANCE, COUNSELING AND VOCATIONAL EDUCATION.

Principal Investigation:

LeRoy B. Cavnar
Supervisor of Guidance Services
State Board for Vocational Education

Research Services:

The Vocational Education Research Coordinating Unit
Colorado State University
Fort Collins, Colorado

March, 1967

VT017418

Abstract

This survey was conducted by the State Board for Vocational Education with research services provided by the Occupational Research Center at C.S.U. This venture represents stage II of an original three stage program designed to asses (I) educational-vocational needs of students, (II) attitudes of administrators and (III) eventual follow-up of high school graduates in regard to their interests and needs. The purpose of the present survey was not only to acquire facts and attitudes concerning guidance and counseling on a state-wide level and subsequently to disseminate these data, but also to stimulate thought and provoke questions regarding the purpose and methods that produce and influence the effectiveness of these programs. To those 144 Superintendents and 149 Principals who, in spite of hectic schedules, contribed to the survey (79% return), it is hoped that the ensuing report will provide information that may prove to be helpful in determining the future function, worth and direction of guidance programs as they relate to the needs of all students. Unfortunately, not all who were mailed the survey responded. It is felt that if educators are to remain effective agents of democratic education, they must contribute and be sensitive to their colleagues ideas, attitudes and suggestions; these valuable resources may have implications for planning and problem-solving for other administrators as well as have a bearing on the future of all Colorado students.

Only 27% of the superintendents and 42% of the principals who had a guidance and counseling program perceived their present program as adequate. The main limitation of the present guidance programs was perceived by administrators to be a function of (1) small budget which

(2) did not make provisions for a sufficient number of counselors. Moreover, 60% of the respondents did not intend to increase their guidance services next year; this high percent however, primarily reflects the small district (0-1000 students) and small high school (0-499) intentions.

Over 60% of the respondents were satisfied with the qualifications of their present counselors, although a substantial percent (50%) of the administrators expressed concern over their counselors ability to adequately impart vocational information and roughly 50% desired more in-service training for their counselors. Almost half of the administrators required present counselors to be certified according to the state requirements. In short the emphasis appears to be on improving counselor skills and competencies.

Roughly one-third of the superintendents and principals believed the 1:300 ratio of counselor to students was too high. Moreover, 64% of the principals of large high schools felt guidance and counseling needs of students suffered because of the multi-roles part-time counselors were fettered with. To complicate the counselor's dilemma even more, only some 40% of the administrators had a written job descrption, outlining the duties, requirements, and responsibilities of counselors and their relation to guidance objectives.

These administrator perceptions of counselor burdens corroborates to an extent the counselor's view of their guidance-counseling role as determined by Nelson (1965). Nelson's report (Colorado School Counselor Problems) indicated that the problem that most plagued guidance counselors was the nebular state of their role, followed by a lack of knowledge and experience pertaining to vocational aspects of guidance

and counseling.

It would appear that these latter data reflect the uncertainty or perhaps even value placed upon a critical program in the educational process. If the counselor is instrumental to the effectiveness of a program, shouldn't he clearly know the objectives of the program and is he adequately trained to meet these objectives? Can he be effective in the 1:300 ratio or will the position of counselor develop or has it already developed into a frustrating grind that affects not only the counselor but also his many counselees? Is it necessary that all guidance counselors be teachers?

More than 74% of the superintendents and 73% of the principals viewed their present Voc-Ed programs as unsatisfactory relative to the needs of their students. Data from this survey also showed that 70% of the administrators found their school curriculum to be deficient in voc-ed offerings and more than 70% of the principals throughout the state agreed that their guidance and counseling program emphasized college moreso than vocational preparation. These latter data take on additional meaning when administrators indicate that approximately 50% of the students go on to college. On the surface at least, the vocational preparation and needs of the "other" 50%, the non-college bound, appear to be slighted relative to the preparation of the college bound.

Non-college bound as well as college bound student opportunities for socio-economic advancement along with the social by-products of recognition and self worth are predicated to a degree upon meeting social needs for quality and quantity of various skills. According to the Office of Manpower, Automation and Training (Wolfbein, 1964), this country needs five million more skilled workers; the possibility of filling such an

allocation is rather dim.

The purpose of this report is not to provide quick and easy answers to very complex factors peculiar to each district's and school's dilemma. However, it is hoped that these data, your thoughtful concentration, ingenuity and professional experience will be brought to bear on the "whys" underlying these significant guidance problems briefly stated in this abstract. For the interested, a detailed method and analysis of the survey follows:

Section I - Procedures and Return

With the ever increasing complexity of the structure of our society, there is an increasing demand for personnel with an advanced education or a technical skill. Some educators are under the misconception that the only way to meet this demand is by having students obtain a college education. Wolfbein (1964), the Director of the Office of Manpower, Automation and Training stated that the country needs five million more skilled workers and the possibility of getting these workers is dim.

The need for vocational guidance and education is a result of (1) the post World War II "baby boom", (2) automation, (3) advanced technology, (4) manpower needs, (5) the changing composition of the labor force, (6) a revamping of our educational system, and (7) overcrowded colleges. The need for guidance is dramatically revealed by Rosen (1966) when he said that the findings of the Project Talent study showed that between 50 and 60 percent of the 12th grade students in 1960 indicated that they had not discussed college or career plans with school counselors during the previous year. Furthermore, in a study (Vocational Education Interests of Colorado High School Students, 1966-67) soon to be released, involving more than thirty-six thousand high school students, the finding showed that 75% of the students desired vocational coursework.

The purpose of the present survey was to gather facts as well as important attitudes that reflect the status of the total Guidance and Counseling picture in Colorado, as it affects individual carrer as well as socio-vocational needs. One of the objectives of the survey was to raise questions in the mind of the administrator in relation to the philosophy and techniques presently employed in his district or school. It was hoped that a personal eval-

uation of some of the correct "answers" would provide a search for more effective solutions to problems influencing the effectiveness of local and state-wide guidance programs.

Survey Procedure:

A total of 416 administrators, (183 superintendents, and 233 secondary school principals) throughout the state were mailed the survey questionnaire. Of the 233 secondary principals, 46 also functioned as district superintendents, which reduced the total of 416 possible respondents to 370.

In order to collect and analyze the data into meaningful parts, ten divisions of data were used. These ten divisions were: (1) Superintendents regardless of size or area, (2) Superintendent of small student population (0-1000) districts; (3) Superintendents of large (1000-30,000) districts; (4) Secondary Principals regardless of size or area; (5) Principals of small (0-499) secondary schools; (6) Principals of large (500-2500) secondary schools and data according to the (7) Metro; (8) Western Slope (9) Platte Valley and (10) Arkansas Valley Areas. These areas compare favorably with those used by the Colorado Economic Council. Included in the Metro Area were Adams, Arapahoe, Boulder, Clear Creek, Denver, Douglas, Gilpin, and Jefferson Counties. The Western Slope contained Delta, Eagle, Garfield, Grand, Gunnison, Mesa, Moffat, Montrose, Rio Blanco, Routt Counties, Alamosa, Conejoes, Costilla, Delores, La Plata, Montezuma, and Rio Grande Counties. Included in the Arkansas Valley Area were the counties of Baca, Bent, Chaffee, Cheyenne, Crowley, Elbert, El Paso, Fremont, Huerfano, Kiowa, Kit Carson, Las Animas, Lincoln, Otero, Prowers, and Pueblo. The Platte Valley consisted of Larimer, Logan, Morgan, Phillips, Sedgqich, Washington, Weld, and Yuma Counties.

Of the possible 370 returns, 293 or 79% returned the questionnaire; included in the returns were the responses of 144 superintendents and 149 secondary school principals.

In order to achieve as many returns as possible, the original deadline date of October 25, was extended to November 7, 1966. During this interim, follow-up procedures in the form of letters and additional questinnnaires were sent to the potential respondents. Card punch operations ceased on November 15 followed by the initiation of computer facilities. Regrettably 16 returns arrived after November 15 and consequently are not reflected in the data analysis. However, the returns across the ten breakdowns contain an ample number of respondents in each division to ensure their representativeness.

Section II - Results

Table 1 reveals that less than one-third of the superintendents regarded their present guidance and counseling program as adequate. Similarly, less than half of the principals perceived their program as satisfactory. Closer inspection of Table 1 indicated a tendency for larger districts and high schools to view their program more favorably as opposed to programs in the smaller districts and high schools. In short, the data shows a general dissatisfaction with present programs by more than 50% of the administrators, regardless of size of student population or area.

The main limitation of present programs as shown in Table 2 was considered to be a lack of funds according to 40% or more of the superintendents, whereas principals attributed primary limitation to an insufficient number of counselors. Small district-school administrators who felt the limitation of their program was tied to inadequate funds tended to also report (72%) that they did not intend to increase their guidance and counseling staff in the coming year. Conversely, administrators of large districts-schools reported a greater percent (50%) of intention to increase the guidance staff in the coming year. Liklihood of increasing guidance services through staff appears then to be related to size of district and/or school.

Table 3 shows that 62 percent of the superintendents were satisfied with the qualifications of their counselors while 75 percent of the principals were satisfied. Larger school districts and schools were more satisfied with the qualification of their present counselors than smaller ones.

Approximately 50% of superintendents and principals felt that a counselor to student ratio of 1:300 was not too high. Table 4 also indicates that more superintendents of smaller districts tended to feel the ratio is too

high compared to superintendents of larger districts.

Table 5 indicates that approximately 50 percent of the respondents felt that the part-time counselor can't satisfy counseling needs of students due to the counselor's multi-role. Smaller school districts and schools tended to agree with this statement moreso than the larger districts and schools.

Additional data (see appendix) indicated that 34% of the superintendents thought that the most important function of their counselors was test administration and interpretation. The most important function of a counselor according to 36% of the princpals was curriculum placement of students. The majority of principals and superintendents thought that the least important function of their counselors was being responsible for discipline.

Table 6 shows that approximately 45% of all respondents agreed that their counselors need intensive in-service training.

Table 7 shows that only 32 percent of superintendents have a written job description for guidance counselors. 53% of the principals stated they have such a written job description. In general the larger school districts and schools were more likely to have a written job description for counselors than smaller ones.

Table 8 attempted to ascertain how principals and superintendents felt about the adequacy of their counselors in relation to being well informed on vocational changes, and needs of industry. Approximately 50% of all respondents indicated their counselors were adequately informed in this area. However, in the Metro area only 34% agreed while over 50% disagreed.

Approximately 75% of the respondents as shown in Table 9 regarded their present voc-ed programs as unsatisfactory relative to the needs of their students. This same finding is duplicated in terms of deficiencies in school

vocational curriculums as reported in Table 10. In general, a source of dissatisfaction with total guidance and counseling programs may be somewhat accounted for by deficiencies in the vocational area. It is not known whether those same respondents who perceived their guidance programs as inadequate, attributed inadequacy of the program solely to vocational aspects, nor is it possible with these data to describe successful guidance programs as those with adequate vocational components.

Administrators overwhelmingly agree (85%) as shown in Table 11 that more money is required to develop an effective voc-ed program. Data in Table 12 reveals that Career Guidance Centers housed in Area Vocational Schools were seen by the respondents as a possible remedy for solving some aspects of vocational and guidance problems in the future. With the exception of the Metro Area more than 60% of the administrators regarded career guidance centers in area vocational schools as highly desirable, whereas only a high of 20% disagreed.

A majority (73%) of the principals agreed that their guidance and counseling programs emphasize college moreso than vocational preparation as indicated in Table 13. When one considers that more than 71% of the respondents from large high schools state that approximately half of their students go on to college, (Table 14) it is quite evident that a remaining half do not attend college. In most cases the non-college bound are immediately confronted with the world of work. This latter group of 50% is further increased eventually by those students who do not survive the attrition rate at the college level. School curriculums and guidance programs weighted with a college orientation may or may not effectively prepare these workers for immediate occupational demands or more important, the workers own personal

needs for recognition and worth. The question of long term effectiveness and efficiency of total school programs in relation to the needs of the vocational as well as college bound students will necessarily have to be determined by future research.

Table 1. Responses to the Question: I Feel Our Present Guidance and Counseling Program is Adequate

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size					
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Platte Valley	Western Slope	Arkansas Valley
N	138	142	88	50	82	60	57	58	80	85
Agree	27	42	25	32	34	51	40	45	27	30
Neutral	12	8	10	14	9	7	14	8	11	6
Disagree	61	50	65	54	57	42	46	47	62	64
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 2. Responses to the Question: What is the Main Limitation of Your Guidance Program?

Responses	Main Limitation of Your Guidance Program									
	Superintendent	Prin.	Population Size				Area			
			District Size		High School Size					
			0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	131	131	73	58	74	57	49	78	54	81
Budget too small	40.8	34	43.4	34.0	40.2	28.8	41.6	37.3	27.6	42
Not enough counselors	33.3	26	29.9	40.4	33.3	42.3	27.1	41.3	42.5	30
Lacks student support	4.0	5	5.3	2.1	5.5	1.9	0.0	4.0	6.4	5
Little or no vocational counseling	13.8	19	10.5	19.1	16.6	19.2	25.0	12.0	12.7	17
Inadequacy of counselors	8.1	6	10.5	4.2	4.1	7.6	5.2	5.0	10.6	6
Total	100.0%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100%

Table 3. Responses to the Question: I am Satisfied with the Qualifications of Our Present Counselors

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size					
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Platte Valley	Western Slope	Arkansas Valley
N	132	138	82	50	78	60	56	55	76	84
Agree	62	75	56	72	70	85	75	73	67	64
Neutral	12	17	16	6	12	0	5	9	12	12
Disagree	26	18	28	22	18	15	23	18	21	24
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 4. Responses to the Question: The 1:300 Ratio of Counselors to Students is Not Too High

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size					
	Supt.	Princ.	0-1000	1000-30,000	0-499	500-2500	Metro	Platte Valley	Western Slope	Arkansas Valley
N	136	141	86	50	81	60	56	58	80	85
Agree	48	52	36	68	51	52	48	50	55	45
Neutral	13	13	17	7	16	10	9	19	13	13
Disagree	39	35	47	25	33	38	43	31	32	42
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 5. Responses to the Question: Part-time Counselors Due to Their Multi-Roles Can't Satisfy the Guidance and Counseling Needs of the Students

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Areas			
			District Size		High School Size			Platte	Western	Arkansas
	Supt.	Princ.	0-1000	1000-30,000	0-499	500-2500	Metro	Valley	Slope	Valley
N	138	142	88	50	81	60	57	58	81	85
Agree	47	58	41	54	53	64	64	40	54	51
Neutral	17	11	20	14	11	12	10	17	9	20
Disagree	36	31	39	32	36	25	26	43	37	29
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 6. Responses to the Question: Our Counselors Need Intensive In-Service training By Competent Psychometric, Vocational Education and Employment Personnel.

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size			Platte	Western	Arkansas
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Valley	Slope	Valley
N	134	140	84	50	80	60	57	58	78	83
Agree	47	45	48	48	45	48	49	40	41	45
Neutral	25	11	26	16	25	7	7	22	23	24
Disagree	30	44	26	36	30	45	44	38	36	31
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 7. Responses to the Question: Do You Presently Have a Written Description Outlining the Duties, Requirements and Responsibilities of A Guidance Counselor?

Response	Percent of Guidance Programs Having A Written Job Description									
			Population Size				Area			
	District Superintendent	High School Principal	District		High School			Western Slope	Platte Valley	Arkansas Valley
			0-1000	1000-30,000	0-499	500-2500	Metro			
N	130	131	80	50	74	57	49	78	54	81
Yes	31.5	53	16.2	56	37.8	73.6	69.4	30.7	40.7	38
No	68.4	47	83.8	44	62.2	16.4	30.6	69.3	59.3	62
Total	100.0%	100%	100.0%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100%

Table 8. Responses to the Question: I Feel Our Counselors Are Well Informed On Vocationals to Give Adequate Guidance.

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size			Platte Valley	Western Slope	Arkansas Valley
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro			
N	134	141	84	50	80	60	56	56	80	80
Agree	48	52	43	56	49	57	34	59	53	50
Neutral	20	16	26	10	19	13	14	16	19	21
Disagree	32	32	31	34	32	30	52	25	28	29
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 9. Responses to the Question: Is Your Present Vocational-Education Program Satisfactorily Relative to the Needs of Students?

Responses	Superintendent Vs. Principal		Population Size				Area			
			Supt. District Size		Prin.-High School			Platte	Western	Arkansas
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Valley	Slope	Valley
N	134	131	84	50	75	56	53	72	52	79
Yes	26	27	26	26	30	21	24	10	38	27
No	74	73	74	74	70	79	77	80	62	73
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 10. Responses to theQuestion: Our Curriculum is Deficient in the Area of Vocational Education

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size			Platte	Western	Arkansas
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Valley	Slope	Valley
N	138	142	88	50	82	60	57	58	80	85
Agree	68	75	66	72	77	75	72	70	77	67
Neutral	7	6	8	4	6	7	5	9	5	7
Disagree	25	19	36	24	17	18	23	21	18	26
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 11. Responses to the Question: In Order to Serve the Vocational Needs and Potential Of Our Students, More Money is Required to Develop an Effective Voc-Ed Program.

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size					
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Platte Valley	Western Slope	Arkansas Valley
N	138	141	88	50	81	60	57	58	81	85
Agree	85	89	82	90	83	89	78	88	89	85
Neutral	7	11	8	8	12	7	14	10	4	9
Disagree	8	8	11	2	5	12	7	12	7	6
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 12. Responses to the Question: A Career Guidance Center Housed in Area Vocational Schools, Staffed by Psychometricians and Vocational Counselors Would Be Highly Desirable.

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Area			
			District Size		High School Size					
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Platte Valley	Western Slope	Arkansas Valley
N	136	142	86	50	87	60	56	58	81	85
Agree	62	68	61	62	74	61	52	69	73	64
Neutral	21	17	24	16	12	22	28	14	17	18
Disagree	17	15	15	22	14	17	20	17	10	18
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 13. Responses to the Question: Our Guidance and Counseling Program Emphasizes College Preparation More Than Vocational Preparation

Attitude toward the statement	Superintendent Vs. Principal		Population Size				Size			
			District Size		High School Size					
	Supt.	Prin.	0-1000	1000-30,000	0-499	500-2500	Metro	Platte Valley	Western Slope	Arkansas Valley
N	135	140	85	50	80	60	57	57	78	84
Agree	52	73	51	54	70	76	63	67	53	60
Neutral	21	11	22	18	14	7	14	12	21	14
Disagree	27	16	27	28	16	17	23	21	26	18
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table 14. Percent of Students Who Go On To College

Percent of College Bound Students			Population Size				Area			
			Districts		High Schools					
	Superintendent	Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	137	137	89	48	79	58	55	83	52	84
0-24%	7	5	10	0	9	0	2	11	0	7
25-34%	13	11	11	17	15	5	22	13	6	8
35-44%	14	10	14	15	9	12	9	16	13	9
45-49%	7	10	3	12	9	12	11	8	6	8
50-54%	18	18	18	19	19	16	15	22	13	19
55-59%	8	7	8	8	7	7	9	6	12	6
60-69%	17	23	17	19	18	29	15	18	27	23
70+	16	16	19	10	14	19	18	6	23	20
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses	Most Important Function of Your Counselors									
			Population Size				Area			
			Districts		High School					
	Superintendent	Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	123	130	75	48	70	60	55	71	51	77
Test Administration & interpretation	34.1	18	50	10.4	27	9	7	17	29	47
Curriculum placement of students	26.0	36	17	29.6	17	58	50	28	21	27
Vocational Counseling	13.8	11	16	10.4	16	7	15	16	16	6
Responsible for Discipline	1.4	1	1	0.0	1	0	0	1	0	1
Family Counseling	1.3	2	1	2.0	0	5	4	3	2	0
In-Service training of other personnel	0.0	1	0	0.0	1	0	0	0	0	1
College Counseling	15.4	26	12	20.8	33	15	9	32	24	14
Personal-Social	8.0	5	3	16.6	5	6	15	3	8	4
Total	100.0%	100%	100%	100.0%	100%	100%	100%	100%	100%	100%

Responses	Least Important Function of Your Counselors									
			Population Size				Area			
			Districts		High Schools					
	Superintendent	Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	116	125	68	48	66	59	53	67	52	69
Test administration & interpretation	3.4	5	3	4.1	8	0	4	1	8	3
Curriculum placement of students	1.7	2	3	0.0	3	0	0	3	0	3
Vocational counseling	4.8	5	4	4	1	7	6	4	4	3
Responsible for Discipline	60.4	63	50	77	56	76	72	69	58	55
Family counseling	18.9	12	24	13	11	12	11	9	15	23
In Service training of other personnel	6.8	10	10	2	17	3	5	12	7	9
College Counseling	2.5	3	4	0	4	2	2	0	8	4
Personal-Social	1.5	0	2	0	0	0	0	2	0	0
Total	100.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses	Second Most Important Function of Your Counselors									
			Population Size				Area			
			Districts		High School					
	Superintendents	Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	121	125	71	50	67	58	53	68	52	73
Test administration & interpretation	19.8	24	17	24	29	18	15	29	29	15
Curriculum placement of students	27.2	17	25	30	12	23	26	22	15	23
Vocational counseling	21.4	21	21	22	24	19	28	21	23	16
Responsible for discipline	2.4	3	4	0	3	0	2	0	3	5
Family counseling	1.6	4	2	2	5	0	0	1	4	4
In-service training of other personnel	2.4	1	3	2	0	2	0	0	4	3
College counseling	22.3	28	27	16	24	37	27	24	17	34
Personal-social	2.4	2	1	4	3	1	2	3	5	0
Total	100.0%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Percent of Additional Hypothetical Money for Use in Guidance Program

Percent of $	Percent of Money for Your Guidance Program									
			Population Size				Area			
			Districts		High Schools					
	Superintendent	Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	85	84	53	32	47	37	39	42	33	
0-4%	25	25	21	31	28	22	23	28	18	29
5-9%	30	23	28	38	21	24	28	12	40	29
10-14%	18	25	17	19	28	24	26	28	9	21
15-24%	5	15	7	0	15	16	13	10	9	9
25-49%	8	7	9	6	2	13	5	10	12	5
50%	14	4	19	6	6	0	5	12	12	7
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Qualifications	Present Qualifications of Counselors									
	District	High School	Superintendent		High School		Metro	Western Slope	Platte Valley	Arkansas Valley
			0-1000	1000-30,000	Small	Large				
N	198	108	109	89	97	91	84	107	78	119
B.A. Non-Teacher	2.5	1	2	3.3	1.0	1.1	0.0	1.8	1.3	4
Teacher's Certificate	24.2	17	27	21.3	19.5	17.3	20.2	17.7	24.3	24
2 or more years of teaching	18.2	22	18	17.9	20.6	24.2	22.6	24.3	14.1	18
2 or more years of non-teaching work	4.5	3	6	2.2	2.0	3.3	2.3	1.8	2.5	8
M.A. Guidance	45.4	52	41	50.5	54.6	50.5	47.6	53.2	56.4	41
M.S. Psychology	1.0	1	1	1.1	1.0	1.1	2.3	1.8	0.0	1
North Central Requirements	4.0	2	5	3.3	1.0	2.2	4.7	1.8	1.3	4
Total	100.0%	100%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100%

N refers to number of responses <u>not number of respondents</u>. Respondents could check more than one category.

Responses	Main Limitation of Your Guidance Program									
	Superintendent	Prin.	Population Size				Area			
			District		High School		Metro	Western Slope	Platte Valley	Arkansas Valley
			0-1000	1000-30,000	0-499	500-2500				
N	131	131	73	58	74	57	49	78	54	81
Budget too small	40.8	34	43.4	34.0	40.2	28.8	41.6	37.3	27.6	42
Not enough counselors	33.3	36	29.9	40.4	33.3	42.3	27.1	41.3	42.5	30
Lacks student support	4.0	5	5.3	2.1	5.5	1.9	0.0	4.0	6.4	5
Little or no vocational counseling	13.8	19	10.5	19.1	16.6	19.2	25.0	12.0	12.7	17
Inadequacy of Counselor	8.1	6	10.5	4.2	4.1	7.6	5.2	5.0	10.6	6
Total	100.0%	100%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100%

Level	Percent of Non-Guidance Duties Performed											
	Supt.-# of Non-Guidance Duties						Prin.-# of Non-Guidance Duties					
	N°	1	2	3	4+	Total	N°	1	2	3	4+	Total
High School	53	40	23	28	9	100%	66	53	30	12	5	100%
Jr. High School	39	44	15	26	15	100%	22	55	18	23	4	100%
Elementary	14	43	0	36	21	100%	3	33	33	33	0	100%
No Breakdown*	25	56	8	20	16	100%	12	83	9	8	0	100%

Level	Percent of Non-Guidance Duties Performed											
	Dist. 0-1000-# of Non-Guid. Duties						Dist. 1000-30,000-# of Non-Guid.					
	N°	1	2	3	4+	Total	N°	1	2	3	4+	Total
High School	37	38	22	27	13	100%	16	44	25	31	0	100%
Jr. High School	15	27	20	27	26	100%	24	54	13	25	8	100%
Elementary	6	50	0	17	33	100%	8	38	0	50	12	100%
No Breakdown*	19	47	11	26	16	100%	6	83	0	0	17	100%

Level	Percent of Non-Guidance Duties Performed											
	HS 0-499-# of Non-Guidance Duties						HS 500-2500-# of Non-Guidance Duties					
	N°	1	2	3	4+	Total	N°	1	2	3	4+	Total
High School	41	41	37	17	5	100%	25	72	20	5	3	100%
Jr. High School	12	50	25	17	8	100%	10	60	10	30	0	100%
Elementary	3	33	33	33	0	100%	0	0	0	0	0	0%
No Breakdown*	8	75	13	12	0	100%	4	100	0	0	0	100%

Level	Percent of Non-Guidance Duties Performed											
	Metro Area-# of Non-Guidance Duties						Western Slope-# of Non-Guid. Duties					
	N°	1	2	3	4+	Total	N°	1	2	3	4+	Total
High School	22	55	9	27	9	100%	37	59	24	11	6	100%
Jr. High School	11	36	9	18	36	100%	19	53	5	37	5	100%
Elementary	2	0	0	50	50	100%	6	50	17	33	0	100%
No Breakdown*	6	84	0	0	16	100%	8	75	25	0	0	100%

Level	Percent of Non-Guidance Duties Performed											
	Platte Valley-# of Non-Guidance Duties						Arkansas Valley-# of Non-Guid. Duties					
	N°	1	2	3	4+	Total	N°	1	2	3	4+	Total
High School	25	36	32	28	4	100%	35	37	37	17	9	100%
Jr. High School	13	38	23	31	33	100%	18	56	28	11	5	100%
Elementary	3	33	0	33	33	100%	6	50	0	33	17	100%
No Breakdown*	9	33	11	33	23	100%	14	71	0	21	8	100%

* Respondents who preferred not to specify level.

° May be more than total number of respondents because more than 1 level could be checked.

Level	Counselor - Student Ratio																	
		% of Counselors in Each Ratio According to Supt.									% of Counselors in Each Ratio According to Prin.							
	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total
High School	89	14.6	20.2	25.8	25.8	11.1	1.1	1.1	100%	116	10	19	23	30	14	3	1	100%
Jr. High School	63	22.2	3.1	11.1	19.0	28.5	7.9	7.9	100%	49	20	20	4	20	10	10	16	100%
Elementary	20	0.0	15.0	0.0	5.0	5.0	0.0	75.0	100%	14	0	10	0	10	20	20	40	100%
No Breakdown*	33	36.3	15.1	6.0	6.0	24.2	3.0	9.0	100%	8	38	24	0	38	0	0	0	100%

Level	Counselor - Student Ratio																	
		% of Counselors - District Size 0-1000									% of Counselors - District Size 1000-30,000							
	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total
High School	40	32.5	32.5	17.5	15.0	2.5	0.0	0.0	100%	49	0.0	10.2	32.6	18.3	18.3	2.0	2.0	100%
Jr. High School	21	61.9	9.5	0.0	19.0	4.7	0.0	4.7	100%	42	2.3	0.0	16.6	19.0	40.5	11.9	9.0	100%
Elementary	5	0.0	40.0	0.0	20.0	0.0	0.0	4.0	100%	15	0.0	6.6	0.0	0.0	6.6	0.0	86.6	100%
No Breakdown*	31	39.1	16.0	0.0	6.0	23.0	3.0	6.0	100%	2	0.0	0.0	0.0	0.0	5.0	0.0	80.0	100%

Level	Counselor - Student Ratio																	
		% of Counselors-HS Size 0-499									% of Counselors-Size 500-2500							
	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total
High School	58	19.0	26.0	22.0	21.0	10.0	2.0	0.0	100%	58	1.7	12.0	23.7	39.6	17.2	3.4	1.7	100%
Jr. High School	23	30.0	26.0	4.0	13.0	8.0	8.0	8.0	100%	26	11.5	15.4	3.8	26.9	11.5	11.5	19.2	100%
Elementary	7	0.0	14.0	0.0	14.0	14.0	0.0	43.0	100%	4	0.0	0.0	0.0	0.0	25.0	50.0	25.0	100%
No Breakdown*	8	38.0	25.0	0.0	38.0	0.0	0.0	0.0	100%	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0%

Level	Counselor - Student Ratio																	
		% of Counselors - Metro Area									% of Counselors - Western Slope Area							
	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total
High School	48	6.2	12.5	27.0	39.5	14.5	0.0	0.0	100%	62	14.5	20.9	27.4	19.3	14.5	3.2	0.0	100%
Jr. HIgh School	24	20.8	4.1	8.3	25.0	29.1	8.3	4.1	100%	28	17.0	21.4	10.7	17.8	14.3	7.1	10.7	100%
Elementary	8	0.0	13.0	0.0	0.0	25.0	13.0	50.0	100%	8	0.0	25.0	0.0	0.0	12.0	12.0	50.0	100%
No Breakdown*	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%	12	16.6	16.6	8.0	8.0	50.0	0.0	0.0	100%

Level	Counselor - Student Ratio																	
		% of Counselors - Platte Valley Area									% of Counselors - Arkansas Valley Area							
	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total	N°	1-149	150-249	250-299	300-349	350-449	450-599	600+	Total
High School	46	2.1	28.2	17.2	30.4	6.5	0.0	2.1	100%	50	14.0	16.0	24.0	26.0	14.0	4.0	2.0	100%
Jr. High Sch.	34	32.3	5.8	2.9	2.6	14.7	5.8	11.7	100%	28	11.0	11.0	11.0	14.0	25.0	14.0	14.0	100%
Elementary	7	0.0	14.3	0.0	28.5	0.0	0.0	57.1	100%	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100%
No Breakdown*	8	25.0	25.0	12.0	25.0	6.0	12.0	0.0	100%	21	52.0	14.0	0.0	14.0	10.0	0.0	10.0	100%

* Respondents who preferred not to specify level.

° May be more than total of respondents because more than 1 level could be checked.

Level	Percentage of Number of Certified Counselors															
	Supt. - # of Counselors								Prin. - # of Counselors							
	N°	1	2	3-4	5-6	7-9	10+	Total	N°	1	2	3-4	5-6	7-9	10+	Total
High School	82	52	21	12	5	4	6	100%	106	42	24	20	19	4	0	100%
Jr. High Sch.	47	49	19	9	9	4	11	100%	42	57	21	10	2	5	5	100%
Elementary	13	69	15	0	0	0	16	100%	9	56	22	22	0	0	0	100%
No Breakdown*	15	87	7	6	0	0	0	100%	9	88	12	0	0	0	0	100%

Level	Percentage of Number of Certified Counselors															
	Dist. 0-1000 - # of Counselors								Dist. 1000-30,000 - # of Counselors							
	N°	1	2	3-4	5-6	7-9	10+	Total	N°	1	2	3-4	5-6	7-9	10+	Total
High School	35	91	9	0	0	0	0	100%	47	23	30	21	9	6	11	100%
Jr. High Sch.	12	92	9	0	0	0	0	100%	35	34	23	11	11	6	14	100%
Elementary	3	100	0	0	0	0	0	100%	10	60	40	0	0	0	0	100%
No Breakdown*	12	83	9	8	0	0	0	100%	3	100	0	0	0	0	0	100%

Level	Percentage of Number of Certified Counselors															
	HS 0-499 - # of Counselors								HS 500-2500 - # of Counselors							
	N°	1	2	3-4	5-6	7-9	10+	Total	N°	1	2	3-4	5-6	7-9	10+	Total
High School	52	77	19	4	0	0	0	100%	54	11	28	35	28	8	0	100%
Jr. High School	18	83	11	6	0	0	0	100%	24	38	29	13	4	8	8	100%
Elementary	5	60	20	20	0	0	0	100%	4	50	25	25	0	0	0	100%
No Breakdown*	8	88	12	0	0	0	0	100%	0	0	0	0	0	0	0	0%

Level	Percentage of Number of Certified Counselors															
	Metro Area - # of Counselors								Western Slope - # of Counselors							
	N°	1	2	3-4	5-6	7-9	10+	Total	N°	1	2	3-4	5-6	7-9	10+	Total
High School	45	18	13	27	27	9	6	100%	55	62	27	7	2	2	0	100%
Jr. High School	21	29	0	24	14	5	29	100%	19	63	32	0	0	5	0	100%
Elementary	7	57	15	14	0	0	0	100%	3	100	0	0	0	0	0	0%
No Breakdown	0	0	0	0	0	0	0	100%	4	100	0	0	0	0	0	100%

Level	Percentage of Number of Certified Counselors															
	Platte Valley - # of Counselors								Arkansas Valley - # of Counselors							
	N°	1	2	3-4	5-6	7-9	10+	Total	N°	1	2	3-4	5-6	7-9	10+	Total
High School	42	62	14	17	0	5	2	100%	46	46	33	17	2	0	2	100%
Jr. High Sch.	25	60	20	4	8	8	0	100%	24	58	29	8	0	0	5	100%
Elementary	6	33	50	12	0	0	0	100%	6	100	0	0	0	0	0	100%
No Breakdown*	5	100	0	0	0	0	0	100%	15	80	13	7	0	0	0	100%

* Respondents who preferred not to specify level.

° May be more than total number of respondents because more than one level could be checked.

Level	Percentage of Number of Full-Time Counselors											
	Supt.	# ofCounselors					Prin.	# ofCounselors				
	N°	1	2-4	5-6	7+	Total	N°	1	2-4	5-6	7+	Total
High School	61	49	28	11	11	100%	92	45	36	11	8	100%
Jr. High Sch.	34	38	26	12	24	100%	29	55	38	4	3	100%
Elementary	11	73	18	0	0	100%	7	71	29	0	0	100%
No Breakdown*	10	100	0	0	0	100%	3	100	0	0	0	100%

Level	Percentage of Number of Full-time Counselors											
		Dist. - # of Counselors						Dist 1000 - 30,000 # of Coun.				
	N°	1	2-4	5-6	7+	Total	N°	1	2-4	5-6	7+	Total
High School	14	100	0	0	0	100%	47	34	36	15	15	100%
Jr. High Sch.	3	100	0	0	0	100%	31	32	29	13	26	100%
Elementary	2	100	0	0	0	100%	9	67	22	11	0	100%
No Breakdown*	8	100	0	0	0	100%	2	100	0	0	0	100%

Level	Percentage of Number of Full-Time Counselors											
		HS 0-499 - # of Counselors						HS 500-2500 - # of Counselors				
	N°	1	2-4	5-6	7+	Total	N°	1	2-4	5-6	7+	Total
High School	35	97	3	0	0	100%	47	34	36	15	15	100%
Jr. High Sch.	9	89	11	0	0	100%	31	32	29	13	26	100%
Elementary	3	100	0	0	0	100%	4	50	50	0	0	100%
No Breakdown*	3	100	0	0	0	100%	0	0	0	0	0	100%

Level	Percentage of Number of Full-Time Counselors											
		Metro Area - # of Coun.						Western Slope - # of Counselors				
	N°	1	2-4	5-6	7+	Total	N°	1	2-4	5-6	7+	Total
High School	46	11	39	26	24	100%	39	68	26	3	3	100%
Jr. High Sch.	20	15	35	15	35	100%	11	82	9	9	9	100%
Elementary	8	62	25	13	0	100%	3	100	0	0	0	100%
No Breakdown*	0	0	0	0	0	100%	2	100	0	0	0	100%

Level	Percentage of Number of Full-time Counselors											
		Platte Valley - # of Coun.						Arkansas Valley - # of Coun.				
	N°	1	2-4	5-6	7+	Total	N°	1	2-4	5-6	7+	Total
High School	29	62	24	10	4	100%	40	55	38	4	3	100%
Jr. High Sch.	13	38	46	16	0	100%	19	63	37	0	0	100%
Elementary	4	50	50	0	0	100%	3	100	0	0	0	100%
No Breakdown*	3	100	0	0	0	100%	9	89	11	0	0	100%

* Respondents who preferred not to specify level.

° May be more than total number of respondents because more than 1 level could be checked.

Level	Percentage of Part-time Counselors													
		Supt. - # of Counselors							Prin. = # of Counselors					
	N°	1	2-4	5-6	7-9	10+	Total	N°	1	2-4	5-6	7-9	10+	Total
High School	54	70	19	4	2	6	100%	59	66	22	10	0	4	100%
Jr. High School	43	70	21	2	2	5	100%	27	67	19	4	4	6	100%
Elementary	15	70	7	0	0	13	100%	3	100	0	0	0	0	100%
No Breakdown*	23	87	13	0	0	0	100%	14	64	36	0	0	0	100%

Level	Percentage of Part-time Counselors													
		Dist. Size 0-1000 - # of Coun.							District Size 1000-30,000-# of Coun.					
	N°	1	2-4	5-6	7-9	10+	Total	N°	1	2-4	5-6	7-9	10+	Total
High School	30	87	13	0	0	0	100%	24	50	25	8	4	13	100%
Jr. High School	20	95	5	0	0	0	100%	23	48	35	4	4	9	100%
Elementary	8	88	12	0	0	0	100%	7	71	0	0	0	0	100%
NO Breakdown*	21	86	14	0	0	0	100%	2	100	0	0	0	0	100%

Level	Percentage of Part-time Counselors													
		HS 0-499 - # of Counselors							HS 500-2500 - # of Counselors					
	N°	1	2-4	5-6	7-9	10+	Total	N°	1	2-4	5-6	7-9	10+	Total
High School	38	74	26	0	0	0	100%	21	52	14	29	0	5	100%
Jr. High Sch.	15	72	27	0	0	0	100%	12	58	8	8	8	18	100%
Elementary	2	50	0	0	0	0	100%	4	100	0	0	0	0	100%
No Breakdown*	1	100	0	0	0	0	100%	5	80	20	0	0	0	100%

Level	Percentage of Part-time Counselors													
		Metro Area - # of Counselors							Western Slope - # of Counselors					
	N°	1	2-4	5-6	7-9	10+	Total	N°	1	2-4	5-6	7-9	10+	Total
High School	22	50	14	18	5	14	100%	35	74	26	0	0	0	100%
Jr. High School	13	54	8	0	15	23	100%	19	63	37	0	0	0	100%
Elementary	2	50	0	0	0	0	0%	4	100	0	0	0	0	100%
No Breakdown*	1	100	0	0	0	0	100%	5	80	20	0	0	0	100%

Level	Percentage of Part-time Counselors													
		Platte Valley - # of Counslors							Arkansas Valley - # of Counselors					
	N°	1	2-4	5-6	7-9	10+	Total	N°	1	2-4	5-6	7-9	10+	Total
High School	28	71	21	8	0	0	100%	28	71	18	11	0	0	100%
Jr. High Sch.	22	77	18	5	0	0	100%	16	75	13	12	0	0	100%
Elementary	5	80	20	0	0	0	100%	7	86	0	14	0	0	100%
No Breakdown*	9	100	0	0	0	0	100%	19	79	16	5	0	0	100%

* Respondents who preferred not to specify level.

° May be more than total number of respondents because more than 1 level could be checked.

Responses	Use of Matching Funds for Guidance									
			Population Size				Area			
			District		High School					
	District Superintendent	High School Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	128	125	80	48	75	50	49	76	51	78
Yes	96	96	96	96	95	98	100	92	96	97
No	4	4	4	4	5	2	0	8	4	3
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses	Increase Guidance & Counseling Staff									
			Population Size				Area			
			District		High School					
	District Superintendent	High School Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	140	134	83	50	80	54	55	84	54	86
Yes	41	36	29	60	26	52	54	41	29	33
No	59	64	71	40	74	48	46	59	71	67
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses	Survey of Students Vocational Needs and Interests									
			Population Size				Area			
			District		High School					
	District Superintendent	High School Principal	0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	140	138	89	51	80	58	55	84	54	86
Yes	79	72	77	82	75	81	78	77	87	74
No	21	28	23	18	25	19	22	23	13	26
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Responses	Interest in Conducting Interest Survey									
	District Superintendent	High School Principal	Population Size				Area			
			District		High School					
			0-1000	1000-30,000	0-499	500-2500	Metro	Western Slope	Platte Valley	Arkansas Valley
N	78	80	49	29	50	30	33	56	28	41
Yes	84	85	81	89	86	83	84	84	86	85
No	16	15	19	11	14	17	16	16	14	15
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Do You Systematically Follow Up Your Graduates?

Systematic Follow-Up of HS Graduates: College

	Supt.	Prin.
N	144	149
Yes	62	61
No	38	39
Total	100%	100%

Systematic Follow-Up of HS Graduates: Vocational

	Supt.	Prin.
N	144	149
Yes	45	47
No	55	53
Total	100%	100%

VT 001 749

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Annotated Bibliography of Current Research Related to Trade and Industrial Education.

Colorado Vocat Educ Res Coordinating Unit, Fort Collins

Aug66

EDRS Price MF-$0.09 HC-$2.08 52p.

*BIBLIOGRAPHIES, *TRADE AND INDUSTRIAL EDUCATION, *EDUCATIONAL RESEARCH, *STUDENTS, VOCATIONAL EDUCATION, *TEACHERS,

Research studies and articles were scanned to select information with implications for trade and industrial education. The annotations convey the general purposes of the studies, major findings, and conclusions. They are divided into four major groupings -- (1) experimental and comparative studies, (2) studies concerning the student, (3) studies involving the vocational education staff, and (4) studies of a general nature. There are 38 items published from 1960 to 1966. (EM)

ED015348

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ANNOTATED BIBLIOGRAPHY OF CURRENT RESEARCH RELATED TO TRADE AND INDUSTRIAL EDUCATION

prepared by

The Vocational Education Research Coordinating Unit

Colorado State University

Fort Collins, Colorado

August, 1966

VT001749

This bibliography was compiled by the Occupational Research Center with the hope that the information contained herein will be of use and interest to the vocational educator in his local situation and to the research oriented individual.

Research studies and articles of interest have been scanned to select fairly recent information that has implication for trade and industrial education. With the increased emphasis on vocational preparation and improvement, those directly involved with the training programs have an obligation to keep abreast of new developments and techniques in the field of vocational education.

These annotations have been written so that they could convey to the reader, the general purposes of the studies, as well as the major findings and conclusions. They have been divided into the four major groupings of (1) experimental and comparative studies, (2) the student, or various aspects concerning the student, (3) studies involving the vocational education staff, and (4) those studies that are quite general in nature, but considered interesting, informative, and worthy of inclusion.

It is hoped that the bibliography contains all of the information necessary, so that those interested can easily obtain the complete study. If there is a need or a desire for additional information, the Vocational Education Research Coordinating Unit will assist in locating sources for the information that is desired.

SECTION I

The studies contained in this section are those that deal largely with experimental and comparative research in areas of vocational education.

It is often valuable to know the outcomes of various techniques when they are applied to education. It is especially interesting to compare different methods of teaching and to understand the way these methods influence the learning situation and students.

James, Calvin E. "An Analysis of the Effectiveness of Vocational-Industrial Day-Trade Preparatory Programs in Arizona High Schools." Arizona State University, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5631, 1965.

The purpose of the study was to determine the adequacy and the effectiveness of vocational-industrial day-trade preparatory programs in Arizona high schools.

Data was gathered on 409 day-trade graduates and drop-outs, 166 employers, and also from instructors.

It is found that interest in shop or laboratory subjects was the factor that had the greatest influence on enrollment in the program. 53.3% completed the minimum requirements in their chosen area, the 40.8% entered the occupation for which they trained. 41.8% of the former students indicated a trade or occupation unrelated to their preparatory training as one they hoped to be engaged in within 10 years. At the time of the study 53% had pursued other additional education that was unrelated to their previous preparation.

On the basis of the findings, it was concluded that although the preparatory programs, themselves, were adequate, the selection, placement, and follow-up of students were inadequate.

Bournazos, Kimon. "A Comparative Study of the Effects of Vocational Training on the Career Patters of High School Graduates." Michigan State University, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 24: 4580.

This is a study of the career patterns of 116 Metropolitan Lansing high school graduates. The principle purpose of the study was to measure the influence of vocational education on the career patterns of these graduates.

It was found that those graduates from trade and industrial public high schools exhibited the greatest stability, while non-vocationally trained parochial high school graduates were least stable. It was also determined that there was a positive relationship between high school grades and current wages. Military service does not seem to be significant in vocational preparation. About 50% of the trade and industrial graduates were employed in jobs that were not related to their specialized training.

Recommendations included the suggestion that the military service assume a greater responsibility for the vocational training of its enlistees, and that there should be a greater integration between general and vocational education. Specialized training should be provided through expansion of post-high school educational facilities, and this increasing burden should be shared by adult and continuing educational facilities and management and labor.

Rowlett, John D. "A Experimental Comparison of Direct-Detailed and Directed-Discovery Methods of Teaching Orthographic Projection Principles and Skills." University of Illinois. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U. S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to compare the effectiveness of two selected methods of instruction as measured by learning, retention, and transfer in a situation involving problem solving with meaningful materials. It was also intended to test for interaction between teaching methods and high, average, and low ability levels.

The sample consisted of 168 ninth grade boys and girls, 72 receiving directed-discovery instruction, 72 direct-detailed instruction, and 24 received no instruction. Tests were administered immediately after instruction, 12 days afterward, and again after six weeks.

It was found that the two methods were equally effective in regard to initial learning, however, the directed-discovery method was superior regarding retention and transfer of principles and skills when measured 12 days and 6 weeks after instruction took place.

Moss, Jerome, Jr. "An Experimental Study of the Relative Effectiveness of the Direct-Detailed and the Directed-Discovery Methods of Teaching Letterpress Imposition." University of Illinois, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulleton No. 299.

The purpose of this study was to provide experimental evidence as to the relative effectiveness of two methods of verbal presentation for introducing nonmanipulative material to groups of students.

106 vocational-industrial students were divided into treatment and IQ level subgroups and equated on nine pre-experimental characteristics. They received a lesson of identical content by two methods which differed in the amount and kind of teacher guidance provided. Tests concerning learning, retention, and transfer were administered over a six-week period.

It was found that the direct-detailed and the directed-discovery methods were equally effective in all three areas as measured by the tests.

Horine, John William. "Relation of Experience in High School Drafting to Achievement in Engineering Drawing at the College Level." University of Missouri, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the relationship between high school drafting and college engineering drawing with respect to: skill development, visualizing ability, informational achievement, attitude, and final grades.

It was found that students with experience in high school drafting, even though they obtained lower scores on the Ohio State University Psychological Examination than those without the experience, obtained significantly higher skill grades, visualization ability, informational achievement, attitude, and final grades.

It was found that students with experience in high school drafting, even though they obtained lower scores on the Ohio State University Psychological Examination than those without the experience, obtained significantly higher skill grades, visualization scores, and final grades. Students with one or more semesters of high school drafting were superior to students without the experience.

Hawlk, Robert Henry. "A Comparative Study of Estimated Achievement by Industrial Arts Students of Cooperative Work Experience Selected from the Public Secondary Schools of Pennsylvania, Ohio, and Michigan." The Pennsylvania State University, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine and compare the estimated degree of attainment of validated arts abjectives by selected students of industrial arts, and selected students of cooperative work experience programs.

It appeared that the students of cooperative work experience achieved at a higher estimated level than students of industrial arts in regard to six of the nine validated objectives. The industrial arts students achieved at a higher estimated level in two of the validated objectives, and it was about equal in regard to one.

Under proper circumstances, the techniques of cooperative work experience could be suggested for adaptation by industrial arts instructors.

Moss, Jerome, Jr. "The Influence of Industrial Arts Experience on Grades Earned in Post-High School Trade and Technical Curriculums." Minneapolis, Minnesota: University of Minnesota, Minnesota Research Coordinating Unit in Occupational Education, 1966.

Because many educators have attempted to justify industrial arts in the senior high school on the basis of its prevocational value, the major purpose of this study was to estimate the effectiveness of industrial arts experience, in the senior high school, on the success in certain post-high school trade and technical curriculum. The study examined the effect of differences in amount of industrial arts taken, grades earned in those courses, the content of those courses in relation to the post-high school curriculum in which the student enrolled, and the primary purpose for which the industrial arts courses were offered.

The study raises serious questions about the value of senior high school industrial students entering post-secondary trade and technical curricula. It was found that differences in amount, content, and objectives of the industrial arts experience had no influence on the subsequent achievement of students in the four separate clusters of trade and technical curriculums of automotive, drafting, electrical, and machine shop, pursued on a post-high school basis. Academic courses, particularly the physical sciences, seem to be as effective in the preparation of students as was industrial arts.

This indicates that industrial arts educators perhaps should not rely too heavily on the prevocational value of senior high school industrial arts in their efforts to justify it.

Schanbacher, Eugene Murry. "Identification and Analysis of Elements, Versus the Conventional Approach in Teaching Drafting." University of Missourt, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrail Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the relative effectiveness of teaching beginning drafting by identification and analysis of elements versus the conventional approach.

Data were obtained by a comparison of the two approaches when used on 80 students.

It was found that the identification and analysis approach appeared to be more effective with respect to the number of correctly solved problems. The two approaches were about equally effective with respect to quality and quantity of drawings, attitude of students, and ability to solve sketching problems. In general, both methods are about equally effective and desirable, however, some teachers may teach more effectively using one approach or the other.

SECTION II

The student is of primary concern in all vocational education programs. This section deals fundamentally with the aspects of selection, enrollment and follow-up of students in relation to their vocational education program.

Of particular interest, perhaps, is the follow-up studies showing the comparative status of vocational education graduates and non-graduates.

Moss, John F., Jr. "A Follow-up of Drop-outs and Graduates of Schools in a Redevelopment Area with Implications for Vocational Education." University of Missouri, 1962. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5093, 1965.

The purpose of the study was to make available information concerning the educational and occupational experiences of a group of high school drop-outs and graduates of schools located in a labor surplus area.

1,399 former students of nine public high schools in Missouri were studied. These former students had either graduated or dropped out of high school. The ratio of drop-outs to graduates was roughly 1 to 6, however, the drop-outs accounted for one-half of those unemployed. Of the males that had graduated, the majority were employed in "skilled" and "service" occupations. The corresponding mean weekly wages for females was $55.40 for graduates and $22.60 for drop-outs.

A majority of the former students were interested in vocational training for upgrading, however, over one-half were not familiar with available local programs.

Of those that were unwilling to support vocational education, a majority demonstrated below average scholastic aptitude.

The author concludes, among other things, that the youth in the area studied were not being afforded equal educational opportunity, and, that as a whole, they would favor offering vocational education during the last two years of high school or on the junior college level.

The Vocational Education Research Coordinating Unit, A Follow-Up Study of 1963 Colorado High School Graduates. Fort Collins, Colorado: Colorado State University, July, 1966.

The purpose of the study was to determine the occupational and educational needs of graduates entering the labor market in comparison to how well these needs were being met by the educational facilities at the time of graduation. It was also desirable to determine how well the student was prepared for the types of occupations he would actually enter upon completion of school.

The sample studied was drawn randomly from the 1963 graduating class.

Some of the findings of the study are included in the following comments.

At the time the survey was conducted, about one-half of the sample were employed, however, only 8% of the sample had pursued a vocational major in high school. There was a tendency for the graduates to stay on a job for less than six months and the median number of jobs for the total sample was two jobs since leaving high school.

More than three-fourths of the graduates obtained additional education after leaving high school with the majority of these attending public universities and colleges. More than one-half of the sample did not consider their high school program helpful in obtaining work and one-third of the sample expressed interest in attending a local vocational school.

"High School Dropouts: Fate - Future - Identification." Southern Illinois University Research and Projects, 21-13-2-49170, January 1, 1966.

There were two main purposes of this study: 1) to study the fate and probable future of high school dropouts in Alexander County, and 2) to investigate tentative correlates which seemed to identify potential dropouts in this area. Both objective and subjective instruments were utilized as tentative correlates.

The study included the classes in the graduation years of 1963, 1964, and 1965. Some of the generalizations which were reached regarding "fate" and "future" are:

The high school graduate demonstrates more initiative than the drop-out, and the opportunities for continuing education are much greater for those with a high school diploma.

The high school graduate tends to delay commitments of marriage, employment, etc., at the same time demonstrating greater mobility and independence.

Graduates recommended high school graduation, and seemed involved in advanced studies.

Graduates have little trouble finding work after graduation, while the dropout required several months to find employment which, even then, was not lasting. The results are an uncertain future for the dropout.

Some generalizations concerning the identification of graduates and dropouts were:

(a) Graduates appeared to be more outgoing and conversant, with a better general attitude than dropouts.

(b) Poor housing as well as absenteeism at the seventh and eighth grade levels seem to be significant in identifying dropouts. The father's occupation was an especially good

measure of graduates and dropouts.

The greatest objective predictors are:

1) achievement, 2) reading placement, and 3) mathematics placement.

Lacy, Robert. "A Study of Factors Which Caused the Decline in Total Number of Students Enrolling in the Vocational Schools in the City of St. Louis in the Last Two Years." The Ohio State University, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine some of the reasons for the decline in the total number of vocational education enrollees in the City of St. Louis, Missouri.

Information was gathered from 200 students which revealed that 112 students had planned to enroll but did not because of influence of parents, teachers, and friends; lack of knowledge concerning the program; because of the idea that the resulting employment lacked security.

Dilts, Harold Eugene. "A Follow-up Study of Iowa Trade and Industrial Graduates for the Years 1957 and 1961." State University of Iowa, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 24: 4580.

The purpose of the study was to describe the nature of T & I programs in Iowa public high schools, and the relationship between this training and the jobs held by the graduates.

A sample of 1292 graduates of T & I programs was drawn from 24 Iowa schools. Evidence yielded by the study supports the conclusion that there are several inadequacies. These were in selection and placement of students, obsolecence of programs, and the opportunities for students in day trade programs.

30% of the graduates are working in the trade or an area related to the trade for which they trained, and these people expressed satisfaction with their high school program. Those not working in the area for which they trained also indicated satisfaction with their over-all high school program, but a higher proportion indicated that they would not repeat their trade training.

Coe, Burr D; and Zanzalair, Henry. "Vocational Technical School Graduates--Ten Years Later." American Vocational Journal. 40: 14-17, April, 1965.

This is a report on a follow-up study of the 1953 graduates of the three Middlesex County Vocational and Technical High Schools. A total of 108 graduates that had been enrolled in one of 16 pre-employment training programs were studied. 98 of the 108 responded to questionnaires.

The principal findings of the study were: (1) 81% of the graduates available for employment in June of 1953 obtained jobs in the occupation, or a related occupation, for which they trained. (2) those employed in their trades or occupations had a job turnover of 2.2 jobs in 10 years, while those not working in their trades had an average turnover of 3.2 jobs. (3) About one-fourth of those working in their trade had reached the foreman and/or superintendent ranking. (4) 67 of the 98 graduates were working full-time in June of 1963. (5) The majority of the graduates reported that their school training was of great help to them, and about one-third reported some form of formal schooling after high school.

The study generally indicated that this type of vocational education, provided in the high school was successful.

Livers, Davis Linn. " A Study of Relationships Between Selected Student Charachteristics and Educational-Vocational Success of Students Attending Trade, Technical, and Business Schools." State University of Iowa, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5631, 1965.

The basic purpose of this study was to examine the usefulness of some selected charachteristics from the high school record of students, in predicting the success of these students in trade, technical, and business schools, and in later vocational success.

The study was based on 300 students graduating from private schools during 1961.

The study indicates that high school grade point average and rank in class are the most reliable predictors of performance in business, trade, and technical schools. The grades themselves were the best predictors of success on the job and there is a positive relationship between academic training and vocational success. It was shown, however, that characteristics from high school records were more accurate in predicting training school success than they were in predicting success on the job which followed training.

Brown, Walter C. "Diversified Occupations Graduates of 1952: A Follow-Up Study." University of Missouri, 1959. Research in Industrial Education, Summary of Studies, 1956-1959. Washington: U. S. Department of Health, Education, And Welfare, 1961. Trade and Industrial Education Series No. 72. Vocational Division Bulletin No. 293.

The purpose of this study was to determine the relation of training received to employment status five years after graduation. This would help determine the effectiveness of the instruction in diversified occupations, and obtain suggestions from the graduate for improving the program.

Data were collected from 491 graduates of 52 schools. These data showed that after five years, 39 percent of the graduates were employed in the occupation they had trained for, and 14 percent were employed in related occupations. It was concluded that greater care should be exercised in selection and placement procedures, and job and related vocational training should be broader.

SECTION III

A quality vocational education program depends upon quality instruction. The key to quality instruction is the teacher, and the studies incorporated into this section concern staffing problems and teacher selection, preparation and development.

Vezzani, A. A. "The Vocational Teacher: Finding, Training, and Qualifing Him." School Shop, 24: 49-50, April, 1965.

The author discusses the problem facing school administrators, of obtaining qualified teachers for the many occupational programs that have been made possible by the new Act.

The basic problem, as he sees it, stems from the fact that people in vocational education are torn between the importance of occupational experience, and the college degree. In most cases, greater emphasis is placed on academic work, which can leave the educator without sufficient competence in his area to effectively teach his program, or retain the interest of students.

Several solutions have been proposed in the past, which have supplied some vocational educators, but these proposals could hardly be termed effective. The author proceeds to list some things that could be done, under existing conditions, that will provide qualified teachers. These are:

1. Establish a method of selection that will identify occupationally proficient people for the teaching program.
2. Establish a method of selection that will identify teachers, or other degree people, as candidates for employment in occupational preparation programs.
3. Divide the teacher-education courses for occupationally proficient people into the two areas of methodology and educational philosophy.
4. Revise the preservice teacher-education courses so they will be more practical.
5. Make more funds available for teacher education services.
6. Prepare more course materials for specialized areas of training.

7. Prepare and make available a greater amount of courses and services for in-service upgrading of teachers.

8. A reemphasis of itinerant teacher-education services on a larger scale is needed.

9. A complete separation of the general education and vocational education phases so that disharmony will not jeopardize the program.

The author concludes by stating that at the present time, the most practical solution is to work with the sources of teachers available, and this will mean the development of teacher-education programs to upgrade people to the level needed to fill the expanding need.

Brown, George J. "Manipulative Operations and Electronic Equipment Needed in Industrial TEacher Education, Based on Industrial Practices." University of Missouri, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of this study was to ascertain what manipulative operations the electrical worker should be able to perform in the areas of electricity and electronics. It was also intended to find out what type of electronic equipment was needed for this purpose, and to compare the manipulative operations and equipment with that in use in industrial teacher education.

Information was gathered from electronics equipment manufacturing companies, repairmen, and technicians employed in servicing electronics equipment, and college instructors teaching in departments offering two or more courses in electricity and electronics.

It was found that the sizes and types of equipment was quite similar, whether used in electronics manufacturing, servicing or in courses taught by college instructors.

Service manuals did not seem to be appropriate as textbooks in courses taught.

In contrast with industrial practices, electrical courses offered in industrial education departments, tend to include manipulative operations which are limited chiefly to electricity. There appears to be a rather close agreement between the extent to which various operations occurred in work performed by electronics production workers and repairmen, and the extent to which the same operations were found in courses taught by college instructors.

Cotrell, Calvin James. "A Study of Factors Essential to Staffing Post-Secondary Technical Education Programs." Ohio State University, 1960. Research in Industrial Education, Summaries Of Studies, 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of this study was to obtain information helpful to the administrators involved in recruiting and selecting technical teachers for post-secondary programs.

Information was compiled from selected administrators and technical teachers.

The major findings and conclusions pertain to: (a) Media for locating potential technical teachers, (b) the motives influencing persons to enter technical teaching, and (c) the tangible elements which should be considered in the selection of potentially competent and effective technical teachers.

Bender, Ralph E., "Teacher Preparation for Vocational Education." Theory into Practice, Ohio State University, College of Education, 3: 189-93, December, 1964.

Vocational education is facing some of the same problems of recruitment and training of teachers as other educational areas, and the quality and quantity of teachers will determine how well vocational education will be maintained, expanded, and extended.

Preparation of teachers has been more difficult for vocational education because of the wide diversity of objectives and educational levels of those served. They must have, not only considerable skill and knowledge of teaching technique, but also an outstanding competence in their own occupational field.

Pre-service education varies greatly from state to state and also between the services. Most states have utilized land-grant colleges, state departments of education and state boards for vocational education. These methods have not proven satisfactory in all cases.

In-service educational programs are becoming increasingly important and new and revised methods are being utilized.

Another development designed to increase the effectiveness of the teacher is the instructional-materials laboratories. Research is also emphasized, however, a great deal of development is needed in this area.

Ryan, Chester Maupin. "An Analysis of the Preparation, Selection and Training of Teachers in the Trade and Industrial Education Program of North Carolina with Implications for the Future." The University of North Carolina at Chapel Hill, 1963. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 4566, 1965.

The purposes of this study were to determine the teacher training needs, to evaluate the education program, and to make proposals for training programs relative to the trade and industrial education teachers of North Carolina.

60% of 174 respondents indicated 10 of 95 possible items as representing a problem that they experienced during their initial years of teaching. Among these ten items were: the philosophy underlying all vocational education, the relationship of the different levels of government to vocational education, and fitting a vocational program into a community educational program.

30% of the teachers that experienced problems on eleven items indicated that they received no help from their teacher training program.

The study also revealed that, because of varying backgrounds, education, and work experience, individual teachers may need individual help in solving their problems.

Walsh, John Patrick. "Qualifications, Preparation, and Competencies of Trade and Industrial Teachers." The George Washington University, 1958. Research in Industrial Education, Summary of Studies, 1956-1959. Washington: U.S. Department of Health, Education, and Welfare, 1961. Trade and Industrial Education Series No. 72. Vocational Division Bulletin No. 293.

The purpose of the study is to examine the existing requirements for certification and the elements of the programs for training trade and industrial teachers. Also to study the competencies considered necessary for successful teaching and to examine methods of developing the necessary levels of competencies.

Data were gathered from trade teachers, administrators and supervisors. Committee conferences, national association reviews, and interviews were also used to collect information and a national conference summarized and analyzed the findings.

It was discovered that wide variations exist across the nation with regard to requirements for certification for trade and industrial teachers. There was less variation in trade experience requirements than in professional education requirements, however, these were not clearly defined in any of the states.

Three basic organizational plans for preparing these teachers were: 1) Designation of a college or university as a State teacher training institution, 2) appointment of a State teacher training staff, and 3) teacher training functions assumed by the State supervisory staff.

It was recommended that there be some consideration given to standardizing teacher preparation and certification because of the mobility of the teachers. An effective program of teacher training should include the elements of general education, professional education and teaching field preparation, coupled with experiences to develop the competencies needed.

SECTION IV

This section contains those studies and articles that are generally trade and industrial education related, or of general interest to the teachers of trades and industry.

These entries are not wholly experimental, but tend more toward factual and theoretical presentations. These often deal with vocational education in a general way and not with a specific area.

Vantrump, William Fredrick. "Duties, Competencies, and Opportunities for Trained Licensed Practical Nurses Working in the Hospitals of Missouri, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the practice of Missouri hospitals in the use of licensed practical nurses, the competency of these nurses, and the employment opportunities in this vocation.

Information was gathered from hospital administrators, supervisors, and the licensed practical nurses.

It was found that though there were 723 practical nurses working in Missouri hospitals, there was an immediate need for 700 more, and a projected 3 year need for 1,100. These nurses were rated higher in competency by supervisors than they rated themselves. They were involved primarily in bed side nursing of both mildly and critically ill patients.

Salaries throughout the state were too low to attract desirable trainees in sufficient quantities to meet the needs.

Swanson, J. Chester. " Whither Vocational Education." National Education Association Journal, October, 1963, p. 58.

The political and social survival of this nation may depend on our ability to provide employment for our youth. Vocational Education can play a large part in providing a solution to the problem.

Vocational Education is that part of a school curriculum or those on-the-job activities designed to provide the skills and knowledge which will enable the student to obtain employment or to become more proficient as a worker, in providing economic security for himself and his family. It is often referred to as those educational programs subsidized by the federal government, though this does not include the training provided by business, industry, and merchandizing.

There will be an increase of nearly one million in the number of youth 18 years old seeking jobs. Many of the jobs demand skill and knowledge of those employed.

Vocational education must be readily available to youth in or out of school and to adults if it is to make its utmost contribution.

It is difficult to estimate how much vocational education is available in American high schools, however, a comparison between the curriculums existing for occupational training and the occupations in which employment is probable points out that realistic vocational education is unavailable in today's high schools.

The best placement results have occured in the cooperative work-study programs, however good vocational education serves the individual well. The North Atlantic Study shows that of the 1959 high school graduates who had been enrolled in trade and

industrial curriculums, only 5% were unemployed, while 15% of all 1959 high school graduates were unemployed.

A high school student must make the decision of entering a vocational curriculum or not, by the time he reaches the 10th or 11th grade. For this reason, good guidance personnel and programs are needed. They must supply the career information that the everage high school student lacks.

Some of the trends and needs of vocational education are:

a) Vocational education must be make available to those out of school, whether youth or adult.

b) High standards must be maintained in all programs of occupational training.

c) People with special needs, should have special vocational curriculums developed for them.

d)Vocational education must be a continuous process that does not terminate with completion of pre-employment training.

e) American high schools should do as much toward preparing students for work as they do toward preparing them for college. Vocational education is not just an ideal, it is a necessity.

Wenrich, Ralph C. "Vocational Education." National Education Association Journal, 50: 16-18. February, 1961.

College preparatory programs are no longer appropriate for a growing number of high school youth. While general education is essential to everyone, there is a growing realization that this is not enough. High School administrators and counselors are becoming more concerned about some kind of specialized education, for those youth who will not go on to college, which will prepare them for employment.

This concern is based on several trends in society and education: Advances in technology emphasize the need for skilled manpower; studies show that high school youth are quite concerned about vocational choice and preparation; polls indicate that laymen, particularly parents, expect high school to make a direct contribution to preparation for employment; though the percentage of high school youth not planning a college career is not increasing, the number of these people grows. Along with this growth is an increasing need to do something about the preparation of these young people.

If it is true that there is a greater need for better trained workers, and that youth have a need for job preparation, then either the schools of the future will do a better job of meeting these needs, or, there will develop a modern counterpart of the National Youth Administration to do the job.

The education needed to prepare youth for employment can be provided in either comprehensive high schools or in specialized vocational schools. The area school concept is growing more popular and then will concentrate on youth preparation for all types of employment.

Preparation for employment is the responsibility of all members of the school faculty, even the nonvocational teachers.

The training provided should be broad so that a wider range of employment possibilities exist, but it should be specific enough so that the student has a saleable skill. The program should also be a well-balanced program containing both vocational and general education courses. Even though the program bay be good, it cannot give the preparation that will last a lifetime. It should make possible satisfactory initial adjustments to the world of work, and continuing education can be provided in adult and post-high school programs.

Cornelsen, Leroy A. "The Economics of Training the Unemployed." School Life, October 1964. pp. 17-18.

A study made by the Office of Education produced further evidence that money spent on education is a sound investment.

A sample of nearly 13,000 persons that had received training during the first two years after the enactment of the Manpower Development and Training Act, were studied.

At the time these were referred for training, they were all unemployed. One-third of the sample was eligible for unemployment benefits, which, at the average rate, would have cost the public nearly $2 million a year. Public assistance to those eligible would amount to more than $1.5 million a year.

Under the Manpower Act, these people were trained for existing jobs in their states. Training costs, including salaries for staff, supplies, equipment, training allowances paid to those eligible, and transportation and subsistence allowances totaled $13.3 million or $1,045 for each trainee.

Two out of ten enrollees dropped out but 70% of those completing training found jobs immediately. During a 24 week period, this 70% earned a total of $13.7 million which is greater than that spent on the entire 13,000 for training.

The returns can be expressed in these other ways:

Assuming an average annual federal income tax of $220, the trainee will repay the cost of his training in 5 years.

In one year of employment, the average trainee will earn $3,135 more than the cost of his training.

Over a 5 year period, an investment of $13.3 million is expected to earn a gross return of over $148 million.

A gross return of $2.24 a year is expected from each dollar spent in training.

Wolfbein, Seymour L. "Employing the Next Generation." School Shop, 24: 25-26, February, 1965.

In this article on, "How to make the next generation employable," the author makes several points concerning educational attainment, that affects the employability of the individual.

One of every three unemployed persons never entered high school, and two of every three entered, but did not graduate. One of every six persons examined for entry into the armed services fails to pass the Armed Forces Qualification Test, which measures a persons ability at about the eighth grade level. A survey of these rejects showed that about 50% came from families of six or more children and 20% were from families that had been on relief during the past five years. 70% of them never went beyond grade school.

In 1963 the population explosion was felt in the labor force when the number of 16 year old people increased by one million. The unemployment rate for teenagers also increased to a record 18%.

The following recommendations are made to help make the next generation employable:

1. Begin earlier, in the elementary school, to provide a complete guidance and counseling program. A resurgence of interest in terms of substance and programs is needed at this level.
2. We must put an end to discrimination.
3. An improvement in the field of vocational education is needed. At the present, it does not have the dignity, up-to-datedness, or the status of other secondary school curriculums.
4. School systems must take on greater responsibility for the training and retraining of adults. A 20 year old American male

will make about six distinct job changes during his working life, and they will have to be taught the new skill they must have for continued employment.

5. An overall improvement is needed in education. 20% of the people failing to pass the Armed Forces Qualification Test, though they are high school graduates, cannot meet the eighth grade level requirements.

Automation, though decreasing the number of workers needed in some fields, is increasing those needed in others. The growth appears to be in those industries for those occupations requiring the greatest amount and the highest quality of training and education.

Prakken, Lawrence W. "Desegregating Vocational Education." School Shop, 24: 2, May, 1965.

The separation between vocational and general education is discussed in this short article.

The author states that most school administrators feel that the reading program is one of their most important responsibilities, but feel no sense of urgency or concern about vocational education. He lists two primary reasons for the off-handed treatment of vocational education. The first is the general-education problem. Where once, teaching of basic education programs had a basic occupational orientation, they have gradually drawn away from this and now are less occupationally oriented than ever before. The second is, the historic division of services within vocational education itself.

While the new Vocational Education Act provides for flexibility and reorganization of vocational education, that should bring the services closer together, the problem of reorienting general education occupationally is more difficult. Both must be worked at.

Rodehorst, Wayne LeRoy. "An Analysis of the Introduction of Vocational-Technical Education Programs in Michigan Community Colleges Established Before 1930." Michigan State University, 1964. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 25: 5093, 1965.

The main purpose of this study was to reveal the major causes that produced the vocational-technical programs now found in the colleges studied, and to arrive at some conclusions that may help those engaged in similar curriculum planning.

It was found that the major influence in establishing vocational-technical education in these colleges was the interest of persons in the colleges themselves.

Deterants to the development of these educational programs were listed as: Attitudes toward vocational-technical education, university influence, and apathy.

Arthur, Robert. "What Industry Expects of Youth." American Vocational Journal, 40: 18-20, April, 1965.

American industry is faced with everchinging problems and opportunities, changing markets, changing production methods, increases in capital requirement, different personnel needs, and a complete system of regulations and controls. Survival now depends, more than ever, in quality of human resources. Technological development is one facet of a sound economy, and manpower is the Key to Technological development. The ability of industry to grow depends on its willingness to go along with and develop technological change and to deal with the problems that result.

Fewer operators will be needed in the production of goods, but there will be an increase in the number of engineers and technicians needed. Job opportunities for young men with limited potential are rapidly disappearing. The industrial employee will be required to perform complex tasks, follow complicated directions, communicate his ideas, solutions and directions to others.

To be able to do this, industry expects the prospective employee to have determined his general field, to know what will be required of him in that field, and to have developed the basic skills that are needed.

Byran, Harold M. "Evaluating Vocational Education in the Public Schools." East Lansing Michigan: Michigan State University, College of Education. Educational Research Series, Number 32, October, 1965.

There were three major purposes of this study: 1) to develop a generalized procedure for making an evaluation in a public school system, 2) to utilize and further test the recommendations of the Michigan Vocational Education Evaluation Project study in the light of local community conditions, and 3) to assist selected public school systems to evaluate and replan their programs of vocational education.

Though there were several direct outcomes of the study, the one of most value to the staff and administration of the local public school, is the manual which was prepared for use in conducting local evaluations:

Byran, Harold M. "Evaluation of Local Vocational Education Programs - Manual for Administrators, Teachers, and Citizens." Bureau of Research and Publications, College of Education, Michigan State University, East Lansing, Michigan, 1965.

Moss, Jerome, Jr. "An Estimate of Quantitative Occupational Training Requirements for Indiana, 1960-1970." Purdue University, 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the number of people who would need some type of vocational education in Indiana between the years 1960 and 1970, with emphasis on trade and industrial occupations.

The number of persons needing retraining or upgrading, and the number of new entrants to the work force are reported separately for all major occupational groups, and for specific occupationally and educationally homogeneous groups of trade and industrial occupations.

Brydle, John Robert. "Analysis of Major Electronics Technician Training Problems Encountered by Leading Electronics Systems Manufacturers in the United States." Wayne State University. 1960. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to collect and analyze the major technical training problems of commercial organizations offering electronics technician training programs.

Information was collected from 50 leading electronics systems manufacturers in the United States.

The ten leading problems revealed by the respondents were:

1. The students often lack a good foundation in mathematics and basic sciences.
2. There was not enough time to train instructors in both theoretical and practical aspects of the equipment they taught.
3. Technical manuals were inadequate for training.
4. It was difficult to obtain enough laboratory equipment.
5. There was a shortage of instructors.
6. There was not enough time to train instructors in teaching techniques.
7. Better tests of the students ability to maintain equipment were needed.
8. Training supervisors were not close enough to training problems, and could not keep up to date on new equipment being taught.
9. Some students took their work too lightly.
10. Some instructors needed more field experience on the equipment they taught.

Kavieff, Melvin Charles. "Requirements for Selected Occupations in the Automotive Industry with Implications for Technical Education at the Postsecondary Level." Wayne State University, 1961. Research in Industrial Education, Summary of Studies 1960-61. Washington: U. S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of the study was to determine the requirements of selected occupations in the automotive manufacturing industry of the Detroit area, with implications for postsecondary technical education.

A survey was conducted to obtain a consensus from industrial and educational authorities concerning technical occupation configuration and growth in the years ahead.

It was found that the technician as now defined and described has no rigid delimitation with regard to his function, range of operation, and definition.

It was concluded that there is a need for postsecondary educational programs and facilities to prepare technicians for the Detroit automotive industry. In 1960, there were two technicians for every engineer in this Detroit industry.

Berlin, Theodore John. "Welding in the Junior High School." The Ohio State University, 1961. Research in Industrial Education, Summary of Studies 1960-1961. Washington: U.S. Department of Health, Education, and Welfare, 1962. Trade and Industrial Education Series No. 75. Vocational Division Bulletin No. 299.

The purpose of this study was to determine the status, and the reasons for such status, of welding in the junior high school industrial arts curriculum. Information was collected from 68 selected school systems.

Welding was incuded in only 32 percent of the school systems in their junior high school curriculum. More than one-half of the sample indicated that they did not feel it was an appropriate curriculum area in the junior high school. The reasons that were given for not including welding were: immaturity of the students, safety factors, cost, the relative importance compared to other areas, time, and the relative importance compared to other metal working areas.

The reasons for having it included were: It is a modern fabrication process, demonstration purposes, and for fabricating projects.

Koch, Harold Herman. "Educational Specifications for Secondary School Shops." University of Nebraska Teachers College, 1964. Dessertation Abstracts, AnnArbor, Michigan: University Microfilms, Inc. 25: 5682.

The purpose of the study was to determine basic educational specifications of modern school shops, that could serve as a guide to those involved in design. The study was limited to technical and comprehensive, midwestern secondary schools. Eight types of shops were studied: 1) general, 2) automotive, 3) drafting, 4) electricity, 5) graphic arts, 6) machine, 7) sheet metal, and 8) woodworking.

Evidence yielded by the study supported several conclusions among which are: Community needs, student needs, future enrollment, method of instruction, class size, objectives, types of activities, and program organization are factors that will influence planning.

Recommendations concerning size, shape, location, and auxiliary facilities are also included.

Prichard, Neal Wayne. "Selected Factors Affecting School Administrators' and School Board Members' Attitudes Toward Vocational Trade and Industrial Education in Pennsylvania." The Pennsylvania State University, 1962. Dissertation Abstracts, Ann Arbor, Michigan: University Microfilms, Inc. 23: 3738.

The purpose of the study was to analyze the relationship of selected personal characteristics with the attitudes of school board members and administrators toward vocational trade and industrial education.

A total of 64 administrators and 415 school board members were included in the study. Also selected randomly, were 16 schools that offered trade and industrial education and 16 schools that did not.

School board members, representing both types of schools, who had heard of the curriculum from counselors, industry, and labor organizations had a more favorable attitude than those that had not heard of it from these sources. In those schools offering T & I education programs, the older school board members with more years of experience had a more favorable attitude, however in schools that had no programs, these factors had no relationship to the attitudes.

Neither the occupation nor the educational background of those board members of schools having programs, were related to their attitudes, however in schools without programs, the board members in blue-collar occupations had a more favorable attitude than members in white-collar occupations.

Within the group of administrators, it was found that the superintendents had a better attitude than principals in schools having T & I programs. Those administrators having undergraduate education majors had the most favorable attitude. Several factors are also listed that had no significant relationship with their

attitudes.

The study suggests a need for more and better information and public relations for trade and industrial education. Amount and kind of information possessed by individuals appears to have a significant relationship to the attitudes toward trade and industrial education.

Van Tries, Robert P. "In Minnesota--A Status Report on Industrial Education." Industrial Arts and Vocational Education. 53: 18, December, 1964.

This is a report on the status of Industrial Education and the progress made, since Minnesota passed the Area Vocational-Technical School Law in 1945. The author states that during this period, 16 schools have been approved and are now operating. The Area Vocational-Technical School Law very closely parallels the philosophy expressed in the Vocational Education Act of 1963. Preparatory program enrollment has nearly reached 5000, and the evening extension and supplementary program enrollment nearly 50,000.

The administration of the area vocational-technical schools is working closely with the industrial arts, office training, and agriculture programs in the high schools, because they recognize its value as a counseling device for the area school programs.

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A Continuation of the 1963 High School Graduates Follow-up Study.

Colorado Vocat Educ Res Coordinating Unit, Fort Collins

Sep66

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*GRADUATE SURVEYS, *HIGH SCHOOL GRADUATES, VOCATIONAL INTERESTS, VOCATIONAL EDUCATION, *STUDENT CHARACTERISTICS, *COLLEGE ATTENDANCE, *EMPLOYMENT PATTERNS,

Colorado,

A sample of Colorado high school students graduating in 1963 was surveyed two years after graduation. Information was analyzed by dividing the sample into four groups which characterized the graduates post high school activities -- (1) 123 went directly to school, (2) 84 went directly to work, (3) 83 went to school and then to work, and (4) 59 went to work and then to school. Data are given for each group on -- (1) age, sex, education, mobility, marital status, their high school curriculum, father's occupation, (2) number of jobs held, full or part-time nature of the jobs, type of industry, type of job, reasons for leaving the job, (3) number of schools attended, type of school, major, length of time at school, and reasons for leaving, and (4) the interests and attitudes of the graduates toward vocational education. Subjects whose fathers were employed in skilled and semi-skilled occupations had more interest in vocational training, and less interest in higher education than their counterparts in the professional group. However, 58.4 percent of this group and 74.1 percent of the group whose fathers were professionals, desired a college education. (PS)

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A Continuation of the 1963 High School Graduates Follow-up Study.

Prepared By:

The Vocational Education Research Coordinating Unit
Colorado State University
Fort Collins, Colorado

September, 1966

VT001750

Introduction

This report is a continuation of the 1963 Colorado High School Graduates Follow-Up Study. The follow-up study was conducted by the Research Coordinating Unit at Colorado State University, and it was completed in June, 1966. Recommendations were made in that report to continue the analysis of the follow-up data by examining in depth several parts of the report.

This follow-up information can best be analyzed by dividing the sample into several different groups. These groups are to be based on differences in characteristics among the sample. One characteristic which appeared to differentiate the sample is their post high school activities. Four groups are identified by this procedure:

1) Those that went directly to school. This group is composed of those individuals who went directly to school after graduating and were still in school at the time of the survey.

2) Those that went directly to work. This group consists of graduates who went directly to work after graduation and they did not attend any other school after high school.

3) Those that went to school and then to work. These individuals went directly to school after graduation but were not in school at the time of the survey. It is assumed that most of this group got jobs after leaving school.

4) Those that went to work and then to school. This group of graduates began working after high school but then attended school at some later date.

These four groups of high school graduates were selected since they appear to represent the typical post high school activities of most graduating seniors. By surveying these 1963 graduates at a point more than two years since they

graduated, their job and school histories were more firmly established. By identifying their job and school history patterns the four groups can be studied individually. The group that went directly to school is most often thought of as the "college bound" graduates. This group is expected to have a limited job history and strong interests in completing their college education. The group that went directly to work is expected to have an extensive job history, and they are expected to lack interest in any further education. The group that went to school and then to work (school-to-work) is expected to be more oriented toward vocational education than the first two groups. The portion of the sample that went to work and then to school (work-to-school group) is expected to have a somewhat higher interest in completing college than the group that went directly to work or the school to work group.

Another characteristic that seemed to differentiate the sample was the father's occupation of the 1963 graduates. This characteristic measures the occupational background of the sample. Two groups are distinguished by this criteria. One is that group of graduates whose fathers have professional, technical, or managerial jobs, and the other is that group whose fathers have clerical, sales, skilled and semi-skilled occupations. It is expected that those graduates who come from professinnal or managerial background homes will exhibit different job and school history patterns from those who come from skilled and semi-skilled background homes.

These and other speculations concerning these different types of graduates will be examined by analyzing separate sources of information about each of the selected samples. These analyses will include: age, sex, education,

mobility, high school programs, and father's occupation. Another section will analyze the job history information and will include: number of jobs held, full or part-time nature of the jobs, type of industry, type of job, and reasons for leaving the job. Another analysis will investigate the school history data and will include: number of schools attended, type of school, major, length of time at school, and reason for leaving. In another section of the data analysis the interests and attitudes of the graduates toward vocational education will be examined.

An implications section is included to draw together some of the analyses found in the other sections of the report. It is hoped that an examination of this data will lead to a better understanding of the high school graduate in Colorado and his interest in vocational education.

Results of the Demographic Analysis

Introduction

Due to the fact that not all subjects answered all questions, the figures listed in all the following tables were computed by determining the number who responded to each portion of the item as the percentage of the total number who responded to the item. All percentage figures were rounded to the nearest tenth of one percent, therefore, the figures do not necessarily add to 100 percent.

The results of the sorting on the items listed on page one of the questionnaire have been summarized in Tables 2 through 8. These analyses will include: Mobility, age, sex, marital status, high school programs, employment status, and father's occupation.

Table 1. Gross Breakdown of the Data by the Post-High School Activities, Sample Size, and Percentage of the Total Respondents for each Post-High School Activity.

Post-High School Activities	N	Percent
Went Directly to School	123	35.2%
Went Directly to Work	84	24.1
Went to School Then to Work	83	23.8
Went to Work Then to School	59	17.0
Total	349	100.0%

Table 2. Mobility of Subjects Within State Areas and to Out-of-State Listed as a Percentage of Subjects From Each High School and Present Residence for Each Post-High School Activity.

Area	Post-High School Activities									
	Went Directly to School		Went Directly to Work		Went to School Then to Work		Went to Work Then to School		Total	
	High School	Present Residence	High School	Present Residence	High School	Present Residence	High School	Present Residence	High School	Present Residence
	N=123		N=84		N=83		N=60		N=350	
Denver Central	55.3	50.0	39.3	35.7	34.9	26.5	53.3	43.3	46.3	39.7
Western Mountain	4.9	4.1	13.1	9.5	16.9	9.6	5.0	3.3	9.7	6.6
Navajo Trail	3.3	3.3	7.1	6.0	4.8	2.4	3.3	1.7	4.6	3.7
Arkansas Valley	28.5	22.0	22.6	20.2	21.7	20.5	20.0	15.0	20.0	20.0
South Platte	8.1	14.0	17.9	17.9	21.7	15.7	18.3	11.7	15.4	14.9
Outside Colorado	0.0	7.3	0.0	0.0	0.0	24.1	0.0	25.0	0.0	15.1
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In Table 2 total percentage figures indicate that the majority of areas within the state lost subjects with the exception of the Arkansas Valley and South Platte Areas. Over 15 percent of the sample lived outside of the state. This fact is in line with a similar finding in a preliminary study of 1963 Colorado High School graduates.

Closer inspection of this table reveals a significant increase in present residence of subjects in the South Platte area within the group that continued their education directly after high school. Finally, the work only group sought employment within the state after high school with no emigration to other states noted.

Table 3. Age of Subjects Listed as a Percentage of the Total Respondents for Each Post-High School Activity.

Age	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=84	Went to School Then to Work N=83	Went to Work Then to School N=60	Total N=350
18	0.0	0.0	0.0	1.7	0.3
19	3.3	1.2	1.2	3.3	2.3
20	74.8	66.7	73.5	56.7	69.4
21	22.0	23.8	24.1	33.3	24.9
22	0.0	3.6	1.2	5.0	2.0
Other	0.0	4.8	0.0	0.0	1.1
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

The data of Table 3 indicates that a majority of the subjects, across post graduate activities, were 20 years of age at the time of the survey with a quarter of the respondents 21 years of age.

Table 4. The Sex of Subjects Listed as a Percentage of the Total Respondents For Each Post-High School Activity.

Sex	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=83	Went to School Then to Work N=83	Went to Work Then to School N=60	Total N=349
Male	62.6	37.3	42.4	56.7	50.7
Female	37.4	62.7	57.8	43.3	49.3
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

Analysis of the respondents by sex shows that more than half of the males sought further education while a majority of females went to work upon completing high school requirements. This trend is reversed in the last two groups.

Table 5. The Marital Status of Subjects Listed as a Percentage of the Total Respondents For Each Post-High School Activity.

Marital Status	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=83	Went to School Then to Work N=83	Went to Work Then to School N=58	Total N=347
Single	86.9	36.1	53.0	75.9	63.8
Married	13.1	62.7	44.6	22.4	34.0
Divorced	0.0	1.2	1.2	1.7	0.9
Widowed	0.0	0.0	1.2	0.0	0.3
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

Table 5 shows that a clear majority of the respondents are single. Almost 87 percent of the subjects who sought furthur education immediately after high school were single, while 63 percent of the group that began working after high school were married. Information in Table 4 would suggest that this latter group is predominately female. More than three-quarters of the work-to-school group are single.

Table 6. The High School Curriculum of Subjects Listed as a Percentage of Total Respondents for Each Post-High School Activity.

a) High School Curriculum	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=84	Went to School Then to Work N=82	Went to Work Then to School N=59	Total N=349
General	24.4	66.7	42.7	52.5	43.6
Vocational	2.4	16.7	8.5	3.4	7.4
Pre-Coll.	73.2	13.1	48.8	44.1	47.9
Other	0.0	3.6	0.0	0.0	0.9
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

b) High School Curriculum	Post-High School Activities				
	Went Directly to School	Went Directly to Work	Went to School Then to Work	Went to Work Then to School	Total %
General N=152	19.7	36.8	23.0	20.4	100.0
Vocational N=26	11.5	53.8	26.9	7.7	100.0
Pre-Coll. N=167	53.9	6.6	23.9	15.6	100.0
Other N=3	0.0	100.0	0.0	0.0	100.0
Total N=349	35.2	24.1	23.5	16.9	100.0

Total percentage data of Table 6a indicates that less than eight percent of the sample pursued a vocational major in high school, while over 47 percent took the college preparatory curriculum. Closer inspection of the table shows 73 percent of the group that continued their education immediately after high school took a college preparatory course with less than 3 percent pursuing a vocational curriculum. This is in contradistinction to the group that began working after completion of high school. Here over sixteen percent took a vocational course with a substantially larger percentage pursuing a general curriculum than in the former category.

Inspecting this same data (Table 6b) in terms of the particular curricula taken by these four groups, one observes that over 50 percent of the subjects who took a vocational curriculum immediately secured work after high school. In addition, more than 36 percent of the respondents who pursued a general course in high school went directly to work thereafter.

Table 7. The Present Employment Status of Subjects Listed as a Percentage of the Total Respondents for Each Post-High School Activity.

Presently Employed	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=84	Went to School Then to Work N=83	Went to Work Then to School N=60	Total N=350
Yes	32.5	64.3	66.3	63.3	53.4
No	67.5	35.7	33.7	36.7	46.6
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

Data in the above table show that a simple majority of the sample was employed at the time of the survey. However, over 67 percent of the group that went directly to school was not employed, whereas more than 64 percent of the working group was employed. Finally, over 60 percent of the latter two groups were employed.

Table 8. The Father's Occupation of Subjects Listed as a Percentage of the Total Respondents for each Post-High School Activity.

a) Father's Occupation	Post-High School Activities				
	Went Directly to School N=120	Went Directly to Work N=76	Went to School Then to Work N=77	Went to Work Then to School N=60	Total N=333
Technical, Professional	24.2	7.9	7.8	15.0	15.0
Managers	31.7	26.3	31.2	23.3	38.8
Clerical, Sales Secretarial	13.3	6.6	10.4	11.7	10.8
Craftsmen, Foremen	10.8	25.0	22.1	25.0	18.8
Service and Operative	13.3	10.5	10.4	10.0	11.4
Laborers	13.3	18.4	18.2	10.0	11.4
Unknown, None	3.3	5.3	5.2	5.0	4.5
Total percent	100.0%	100.0%	100.0%	100.0%	100.0

b) Father's Occupation		Post-High School Activities				
		Went Directly to School	Went Directly to Work	Went to School Then to Work	Went to Work Then to School	Total %
Technical, Professional	N=50	58.8	12.0	12.0	18.0	100.0
Managers	N=96	39.6	20.8	25.0	14.6	100.0
Clerical, Sales Secretarial	N=36	44.4	13.9	22.2	19.4	100.0
Craftsmen, Foremen	N=64	20.3	29.7	26.6	23.4	100.0
Service and Operative	N=38	42.1	21.1	21.1	15.8	100.0
Laborers	N=41	12.2	39.0	34.1	14.6	100.0
Unknown, None	N=15	26.7	26.7	26.7	20.0	100.0
Total	N=333	36.0	22.8	23.1	18.0	100.0

Information in Table 7a reveals that over one-third of the school only group have fathers employed in managerial capacities, while just over a quarter of the work only group have fathers employed in this occupation. However, this percentage increases to over one-third again in the school-to-work group. Finally, over 23 percent of the work-to-school group have fathers employed as managers and a full 25 percent whose fathers are craftsmen and foremen.

Analyzing the data in terms of specific occupational categories, Table 7b, one finds that 58 percent of the subjects, whose fathers fall in the technical, professional category, went directly to school. Just under 40 percent of the subjects whose fathers are managers sought higher education after high school, while almost a third of the subjects who began working after high school had fathers who were craftsmen and foremen. Interestingly , over 40 percent of the subjects whose father's occupations come under the category of service and operatives continued their educations directly after high school. And finally, 39 percent of the subjects whose father's were employed as laborers went directly to work after high school.

Summary of the Demographic Analysis

The following is a brief summary of significant points uncovered through analysis of the demographic characteristics of the sample.

Classifying the respondents in terms of post-high school activities indicated that a third of the respondents continued their education immediately after completing high school, while approximately a quarter were categorized into the work only and school-to-work groups. Less than 20 percent of the sample qualified for the work-to-school group.

Data in Table 2 reveals that most areas of the state lost subjects between 1963 and 1966 with over 15 percent emigrating to other states. A large part of the percentage is accounted for by subjects who continued their education, that is, the school only and work-to-school groups, with the remaining amount obtaining employment outside of Colorado.

Part of these two educating seeking groups attended schools outside of the state as seen in Table 18 and part in Colorado as evidenced by the increase in present residence areas over high school area in the South Platte region in which several institutions of higher education are located (Table 4).

This emigration is not meant to imply that the state is losing population because the immigration more than makes up for the people leaving Colorado. In addition, many of those who have left have done so on a temporary basis. Some will return to the state when they have completed the requirements of their schooling or armed forces obligation.

Finally, Table 2 shows the stability of the group that went directly to work upon completing high school requirements. All of these subjects were able to find employment in Colorado. No case of emigration to other states was noticed.

In further developing a demographic picture of these graduates, one finds that at the time of the survey, subjects were between 20 and 21 years of age (Table 3). The majority of respondents who continued their education directly

after high school were single males, while those subjects who sought employment after high school were married females (Tables 4 and 5).

Interestingly, those subjects who composed the work-to-school group predominately were single. It might be hypothesized that these respondents felt inadequately prepared, vocationally, and therefore held off marriage until they completed further education.

In terms of the curricula that these subjects took in high school (Tables 6a and b), it appears that almost half of the sample took a college preparatory course. Almost three-fourths of the group that continued their education directly after high school came under this category. This seems to reflect the national emphasis on higher education.

However, less than 8 percent of the sample pursued a vocational curriculum with two-thirds of the work only group having taken a general high school course (Table 6a). When these same data are analyzed in terms of the curricula taken by the subjects (Table 6b) it immediately becomes apparent that over 50 percent of those subjects who took a vocational course sought employment after high school.

Two-thirds of the group that sought higher education after high school were not employed at the time of the survey (Table 7). The remaining third primarily were employed on a part-time basis (Table 10), probably during summer vacations and after school. All other groups were employed at the time of the survey.

Finally, almost 60 percent of those subjects whose father's were classified in technical-professional occupations went directly on to school, while 39 percent of the respondents whose fathers were laborers went directly to work after high school (Table 8b). Here it may be inferred that many subjects patterned their educational or vocational pursuits after those of their fathers.

Results of the Job Characteristics Analysis

Introduction

The subjects' job history, since completing high school, was evaluated in this part of the survey and included the following analyses: Number of jobs held, the nature of the work, the industry and occupation in which employed, area of work, year started and length in months on the job(s), and reason for leaving the job(s). In dichotomizing the various jobs held after completing high school, the latest job refers to the current, or most recent one, followed by previous or second latest job. The other jobs category designates three but not more than five jobs.

Information concerning the respondents job has been compiled in Tables 9 through 16.

Table 9. The Number of Jobs held by Subjects Listed as the Percentage of the Total Respondents for Each Post-High School Activity.

Number of Jobs	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=84	Went to School Then to Work N=83	Went to Work Then to School N=59	Total N=349
None	8.1	13.1	4.8	6.8	8.3
One	20.3	34.5	19.3	23.7	24.1
Two	18.7	23.8	34.9	35.6	26.6
Three or More	52.8	28.6	41.0	33.9	41.0
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

Table 9 indicates that over 40 percent of the sample held three or more jobs, while a quarter of the sample each held at least one of two jobs. Closer inspection of the data shows that over 50 percent of the subjects, who sought higher education, held 3 or more jobs while more than a third of the working group held a single job since completing high school. The percentage of this latter group that did not hold jobs, since graduation, probably represents housewives, because a majority of this group was female, as shown in Table 4.

The results of Table 10 indicate that part-time employment was held primarily by subjects on their latest job in the school only group. In contrast, more than three-fourths of the work only group held full-time jobs on their latest job. This latter finding holds for both the school-to-work and the work-to-school groupa. At the time of the survey, almost three-quarters of the work-to-school group had found full-time employment after completing additional education.

Table 10. The Full or Part-Time Nature of the Job Listed as the Percentage of Respondents Who Held Each Number of Jobs for Each Post-High School Activity.

Nature of Work	Post-High School Activities														
	Went Directly to School			Went Directly to Work			Went to School Then to Work			Went to Work Then to School			Total		
	Latest Job N=111	Second Latest Job N=85	Other Jobs N=98	Latest Job N=70	Second Latest Job N=43	Other Jobs N=36	Latest Job N=79	Second Latest Job N=62	Other Jobs N=52	Latest Job N=53	Second Latest Job N=40	Other Jobs N=31	Latest Job N=313	Second Latest Job N=249	Other Jobs N=218
Full-Time	29.7	44.7	48.0	84.3	65.1	77.8	82.3	24.2	50.0	73.6	52.5	48.4	62.6	59.8	53.2
Part-Time	70.3	55.3	52.0	15.7	34.9	33.2	17.7	75.8	50.0	26.4	47.5	51.6	37.4	40.2	46.8
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Evaluation of Table 11 reveals that for the most part subjects were employed by three industries, namely, non-profit, hospital, education and government; business and service; and trade, retail and wholesale. A third of the sample was employed by the first named industry, as shown by the total percentage figures, while approximately 30 percent of the subjects each were employed on their second latest job as well as preceeding jobs, by the trade, retail and wholesale industry.

Trends of relative job stability and instability were noted within the agriculture, construction and mining, and manufacturing industries across jobs. For example, a trend of decreasing percentages from the other jobs category to latest job category is evidenced in three of the four post-high school activities. Relative stability is seen in the group that went directly to work in the trade, retail and wholesale, and business and service industries.

Appraisal of total percentage figures in Table 12 shows a trend of occupational mobility from other jobs to the latest job held. This may be a function of work experience (work only group) and/or further education (remaining groups). More detailed analysis reveals a significant percentage increase from the other jobs category to the latest job category across post-high school activities in the technical-professional, managerial and clerical, sales, and secretarial occupations.

Of those subjects who continued their education directly after high school one-third to almost one-half were employed as laborers. The inference is made that this was part-time or summer work which enabled the students to continue with their education.

Table 11. The Industries of Jobs Listed as the Percentage of the Total Respondents Who Held Each Number of Jobs for Each Post-High School Activity.

Industry	Post-High School Activities														
	Went Directly to School			Went Directly to Work			Went to School Then to Work			Went to Work Then to School			Total		
	Latest Job N=112	Second Latest Job N=88	Other Jobs N=114	Latest Job N=73	Second Latest Job N=44	Other Jobs N=37	Latest Job N=79	Second Latest Job N=63	Other Jobs N=52	Latest Job N=55	Second Latest Job N=40	Other Jobs N=30	Latest Job N=319	Second Latest Job N=235	Other Jobs N=232
Agriculture	3.6	1.1	7.0	5.5	2.3	8.1	2.5	0.0	1.9	0.0	2.5	6.7	3.1	1.3	6.0
Construction	5.4	6.8	6.1	2.7	13.6	10.8	0.0	1.6	3.8	5.5	2.5	0.0	3.8	6.0	5.6
Mining	1.8	2.3	1.8	1.4	0.0	0.0	3.8	7.9	0.0	3.6	2.5	0.0	2.5	3.4	0.8
Manufacturing (heavy)	4.5	5.7	5.3	2.7	6.8	2.7	3.8	1.6	3.8	5.5	2.5	0.0	3.4	4.3	3.4
Manufacturing (light)	2.7	4.5	2.6	10.4	0.0	8.1	5.1	4.8	1.9	3.6	7.5	3.3	5.3	4.3	3.4
Transportation Communication	24.1	29.5	33.3	19.2	25.0	18.9	19.0	27.0	44.2	12.7	27.5	40.0	19.7	27.7	34.5
Trade, Retail & Wholesale	15.2	14.8	24.6	27.4	27.3	29.7	27.8	31.7	17.3	20.0	30.0	23.3	21.9	24.3	23.7
Business and Service	37.5	21.6	10.5	16.4	15.9	10.8	26.6	12.7	19.2	36.4	17.5	16.7	30.1	17.4	13.4
Non-Profit, Education, Hospital, Gov't	1.8	1.1	0.0	2.7	0.0	0.0	3.8	0.0	0.0	7.3	0.0	0.0	3.4	0.4	0.0
Armed Forces	3.6	12.5	8.8	8.2	9.1	10.8	7.6	12.7	7.7	5.5	7.5	10.0	6.0	11.1	9.1
Other, None, Unknown	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total Percent															

Table 12. The Occupations of Jobs Listed as the Percentage of All Subjects Who Held Each Number of Jobs for Each Post-High School Activity.

Occupation	Post-High School Activities: Went Directly to School			Went Directly to Work			Went to School Then to Work			Went to Work Then to School			Total		
	Latest Job N=110	Second Latest Job N=87	Other Jobs N=101	Latest Job N=62	Second Latest Job N=41	Other Jobs N=35	Latest Job N=78	Second Latest Job N=61	Other Jobs N=52	Latest Job N=51	Second Latest Job N=39	Other Jobs N=28	Latest Job N=304	Second Latest Job N=231	Other Jobs N=[illegible]
Professional-Technical	10.0	6.9	1.0	8.1	4.9	0.0	16.7	5.0	1.9	13.7	5.1	0.0	11.5	5.6	1.5
Managerial	1.8	0.0	4.0	4.8	2.4	2.9	2.6	1.6	0.0	2.0	0.0	0.0	2.9	0.9	1.7
Clerical, Sales Secretarial	29.1	27.6	21.8	48.4	46.3	20.0	37.2	32.8	32.6	37.3	30.0	35.7	36.2	32.0	19.2
Craftsmen, and Foremen	5.5	4.6	6.9	8.1	2.4	11.4	3.8	5.0	3.8	5.9	5.1	3.6	5.6	6.1	4.3
Service and Operative	13.6	24.1	19.8	17.7	22.0	20.0	23.1	36.1	32.6	11.8	20.5	25.0	16.4	26.0	17.5
Laborers	40.9	36.8	25.5	17.7	22.0	45.7	14.1	16.4	25.0	25.5	35.9	35.7	25.3	28.1	29.2
Unknown, None	0.9	0.0	1.0	3.2	0.0	0.0	2.6	3.3	3.8	3.9	2.6	0.0	2.0	1.3	1.[illegible]
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 13. The Area of Work Listed as a Percentage of All Subjects Who Held Each Number of Jobs for Each Post-High School Activity.

Area of Work	Post-High School Activities														
	Went Directly to School			Went Directly to Work			Went to School Then to Work			Went to Work Then to School			Total		
	Latest Job	Second Latest Job	Other Jobs	Latest Job	Second Latest Job	Other Jobs	Latest Job	Second Latest Job	Other Jobs	Latest Job	Second Latest Job	Other Jobs	Latest Job	Second Latest Job	Other Jobs
	N=113	N=88	N=106	N=72	N=44	N=38	N=78	N=62	N=53	N=55	N=103	N=32	N=318	N=297	N=229
Denver Central	47.8	48.9	46.2	34.7	31.8	34.2	26.9	32.3	27.7	43.6	20.4	46.9	39.0	33.0	42.4
Western Mountains	7.1	5.7	8.5	9.7	9.1	13.2	10.3	19.4	20.8	0.0	2.9	0.0	7.2	8.1	10.9
Navajo Trail	3.5	2.3	1.9	4.2	4.5	5.3	3.8	4.8	5.7	1.8	1.0	3.1	3.5	2.7	3.5
Arkansas Valley	16.8	19.3	23.6	18.1	25.0	13.2	17.9	17.7	15.1	14.5	4.9	9.4	17.0	14.8	17.9
South Platte	11.5	9.1	9.4	18.1	18.2	21.1	15.4	8.1	9.4	12.7	5.8	15.6	14.2	9.1	12.2
Outside Colorado	13.3	14.8	10.4	15.3	11.4	13.2	25.6	17.7	11.3	27.3	4.9	25.0	19.2	11.4	13.1
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 13 shows that 33 to 43 percent of the sample worked in the Denver area. In the group that continued their education directly after high school, this figure approached 50 percent, ostensibly, because of the number of universities and institutions of higher education located in that area.

The Arkansas Valley is the second most populated work area; however, a decreasing trend, from other jobs to latest job held, is noted in the aforementioned group.

Relatively more stability of employment location, across jobs, was shown by the work only group than by the other three groups.

Both the Western Mountain and Navajo Trail areas lost a portion of the labor market as subjects progressed twoard their latest job.

Finally, a significant amount of out-of-state migration is evidenced by all groups. The trend to move out-of-state increases in the direction of the latest job, especially in the school-to-work and work-to-school groups.

The data of Table 15 indicate that a majority of the subjects were employed for six months or less on their respective jobs. This is especially true of the school only group. Here more than 80 percent were employed, across jobs, for this short period. These figures probably indicate summer positions.

An exception to the above finding is seen in the work only group. Almost 50 percent remained on their latest job between one and two and a half years.

It is further noted that the percentage of subjects decreases in the direction of the latest job in the six months or less and up to one year employment categories; however, the reverse trend is evidenced beyond one year's employment.

Table 14. The Year Started the Job Listed as a Percentage of All Subjects Who Held Each Number of Jobs for Each Post-High School Activity.

Year Started Job	Post-High School Activities														
	Went Directly to School			Went Directly to Work			Went to School Then to Work			Went to Work Then to School			Total		
	Latest Job N=109	Second Latest Job N=87	Other Jobs N=103	Latest Job N=70	Second Latest Job N=42	Other Jobs N=35	Latest Job N=77	Second Latest Job N=61	Other Jobs N=54	Latest Job N=52	Second Latest Job N=40	Other Jobs N=31	Latest Job N=308	Second Latest Job N=230	Other Jobs N=223
1960	0.0	2.3	1.9	0.0	2.4	0.0	0.0	1.6	1.9	0.0	0.0	0.0	0.0	1.7	1.3
1961	1.0	3.4	5.8	1.4	0.0	8.6	1.3	0.0	0.0	1.9	0.0	3.2	1.3	1.3	4.5
1962	2.8	2.3	3.9	1.4	4.8	0.0	0.0	4.9	7.4	5.8	0.0	3.2	2.3	3.0	4.0
1963	6.4	9.1	37.9	35.7	38.1	54.3	14.3	24.6	35.2	10.0	35.0	35.5	15.6	23.0	39.5
1964	13.8	42.5	44.7	21.4	30.9	20.0	22.1	23.0	28.9	15.4	27.5	35.5	17.9	32.6	38.1
1965	74.3	39.1	5.8	38.6	23.8	17.1	58.4	45.9	16.7	63.5	37.5	22.6	60.4	37.8	12.6
1966	1.8	1.1	0.0	1.4	0.0	0.0	3.9	0.0	0.0	3.8	0.0	0.0	2.6	0.4	0.0
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table 15. The Length of Time on the Job Expressed as a Percentage of All Subjects Who Held Each Number of Jobs for Each Post-High School Activity.

Length in Months	Post-High School Activities														
	Went Directly to School			Went Directly to Work			Went to School Then to Work			Went to Work Then to School			Total		
	Latest Job N=108	Second Latest Job N=82	Other Jobs N=89	Latest Job N=66	Second Latest Job N=40	Other Jobs N=32	Latest Job N=73	Second Latest Job N=59	Other Jobs N=51	Latest Job N=51	Second Latest Job N=39	Other Jobs N=31	Latest Job N=298	Second Latest Job N=219	Other Jobs N=204
0-6	81.5	80.5	82.0	36.4	65.0	65.6	61.6	84.7	90.2	62.7	69.2	80.6	64.4	78.9	80.0
7-12	3.7	6.1	[illegible]	16.7	[illegible]	[illegible]	19.2	10.2	7.8	15.7	18.0	16.1	12.4	11.5	14.2
13-30	14.8	13.4	3.4	47.0	15.0	14.5	16.4	5.0	2.0	21.6	12.8	3.2	23.2	9.6	4.6
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Total percentage figures of Table 16 indicate that most respondents left their jobs to continue their education. However, this trend decreases from other jobs held to the latest job where the majority of the subjects disclosed that they were still on the job. Closer inspection of specific post-high school activities reveals that going to school was the primary reason given for leaving the job in all groups except the work only group. In this group, between 11 and 19 percent each indicated they left earlier jobs to take better jobs, better pay, to move, or because the present job was completed. A majority of these subjects were still on their latest job at the time of this survey.

Table 16. The Reason for Leaving, If not Still on the Job Listed as a Percentage of all Subjects Who Held Each Number of Jobs for Each Post-High School Activity.

	Post-High School Activities														
	Went Directly to School			Went Directly to Work			Went to School Then to Work			Went to Work Then to School			Total		
	Latest Job N=112	Second Latest Job N=87	Other Jobs N=105	Latest Job N=69	Second Latest Job N=43	Other Jobs N=37	Latest Job N=75	Second Latest Job N=46	Other Jobs N=54	Latest Job N=53	Second Latest Job N=40	Other Jobs N=32	Latest Job N=309	Second Latest Job N=238	Other Jobs N=228
None	0.9	1.1	1.0	0.0	0.0	5.4	1.3	0.0	0.0	1.9	2.5	0.0	1.0	0.8	1.3
Still on Job	38.4	5.7	3.8	68.1	0.0	0.0	66.7	4.3	5.6	51.0	0.0	0.0	54.0	3.0	3.1
Go to School	44.6	56.3	57.1	0.0	2.3	2.7	12.0	28.3	37.0	28.3	47.5	31.3	24.0	38.7	40.0
Job Finished	0.0	3.4	4.8	1.4	11.6	18.9	0.0	4.3	1.9	5.7	2.5	3.1	1.3	4.6	6.1
Go to Service	0.0	1.1	1.0	0.0	0.0	0.0	1.3	6.5	1.9	1.9	10.0	0.0	0.6	3.4	0.9
Health	0.0	0.0	1.0	4.3	0.0	0.0	1.3	4.3	0.0	0.0	0.0	3.1	1.3	0.8	0.9
Temporary Seasonal	9.0	9.1	13.3	5.8	9.3	5.4	1.3	15.2	9.3	5.7	5.0	18.8	5.8	8.8	11.8
Discharges	0.0	5.7	3.8	1.4	7.0	10.8	1.3	6.5	3.7	0.0	2.5	3.1	0.6	5.0	4.8
Moved	0.0	1.1	2.9	2.9	19.0	13.5	0.0	9.0	11.1	1.9	7.5	12.5	1.0	6.7	7.9
Dissatisfaction	0.9	8.0	0.0	0.0	9.3	2.7	1.3	9.0	16.7	1.9	7.5	9.4	1.0	7.6	5.7
Marriage	0.9	0.0	0.0	5.8	7.0	8.1	1.3	9.0	1.9	0.0	0.0	0.0	2.0	3.0	1.8
Pregnant	0.0	0.0	0.0	5.8	0.0	0.0	6.7	4.3	0.0	0.0	0.0	0.0	3.0	0.8	0.5
Better Job	0.0	1.1	8.6	0.0	19.0	8.1	0.0	15.2	5.6	0.0	7.5	0.0	0.0	8.0	6.6
Better Pay	0.0	2.3	1.0	0.0	7.0	16.2	0.0	6.5	0.0	0.0	5.0	9.4	0.0	4.2	4.4
Advance	0.0	2.3	0.0	0.0	0.0	0.0	0.0	2.2	1.9	0.0	0.0	3.1	0.0	1.3	0.9
Other	5.4	2.3	1.9	4.3	9.3	8.1	5.3	9.0	3.7	1.9	2.5	6.3	4.5	4.6	4.0
Total Percent	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Summary of the Analysis of Job Characteristics

The following summarizes the findings of an analysis of the respondents job history since completing high school.

Over 50 percent of the school only group (predominately male) held three or more jobs (Table 9) and these, for the most part, were of a part-time nature as shown for this group in Table 10. In may be inferred that these jobs probably were summer or after school positions, the money from which assisted these subjects in meeting their school expenses.

The above findings are in contradistinction to those regarding the work only group (predominately female). Over a third of these respondents held a single job since graduation; an additional 24 percent held two jobs. All of these positions were of a full-time nature.

Considering the industry (Table 11) in which subjects were employed, one finds, that across activities and jobs held, three industries were the major employers, namely, non-profit hospital, education, and government; business and service; and trade, retail and wholesale.

A trend of job mobility is noted in the agriculture, construction and mining and manufacturing industries (Table 11). The percentage employed decreases from other jobs to latest job held. The reverse trend is evidenced in the major employing industries. These findings may be explained as a function of further educational attainment by the respondents, that is, with further training subjects are drawn away from lower paying jobs; e.g. non-profit, education, hospital, and government.

The greatest employment stability across jobs held was demonstrated by the working group. This was especially evident in the business and service industry. As previously noted, this group is predominately female in

composition with the largest percentage of subjects classified in the clerical, sales and secretarial occupation (Table 12).

Further pursuing the groups' occupational classification one finds that the largest percentage of the school only group are laborers. This supports the fact that the majority of these subjects are still in school (Table 16) finding available part-time work (Table 10) to defray school expenses.

The school-to-work and work-to-school groups, like the work only group, exhibited occupational stability across jobs held in the clerical, sales and secretarial occupation. An exception is found in the work-to-school group which is composed of slightly more males than females. A large percentage of this group are classified as laborers across all jobs held. Again it is inferred that part of this group is still in school and obtaining available part-time employment.

However, of greater importance is the finding of occupational mobility across jobs held. For example, the percentage of jobs held increases from other jobs to latest job in the professional-technical, managerial as well as the clerical, sales and secretarial occupations. The reverse trend was demonstrated in the remaining occupations. The tenative explanation offered is the same as that for the similar phenomenon found in the industrial classification of respondents. This holds for the entire sample except those subjects who have worked continuously since completing high school.

Information in Table 13 indicated that a large percentage of the sample worked in Colorado's largest industrial area, Denver. This is especially true of the school only group, ostensibly, because several institutions of higher education are located in this region. Secondly, the Western Mountain and Navajo Trail areas lost subjects as they progressed

toward their latest job.

More importantly, a significant amount of out-of-state migration was evidenced by all groups. The trend to move to another state increased in the direction of the latest job, especially in the school-to-work groups. Further training and/or work experience may be contributing to this emigration. However, the data in Table 16 suggest that a better position, job dissatisfaction, moving, etc. were also contributing factors.

Table 15 shows that the majority of the school only group held a greater number of temporary jobs (6 months or less) than did the stable, full-time working group in which 47 percent held their latest job between one and two and a half years.

Finally, Table 16 supports the preceeding findings in that a large percentage of the school only group left their latest job to pursue further education, while the larger percentages of the remaining groups were still on their latest job at the time of the survey.

Results of the School Characteristics Analysis

Introduction

This part of the survey investigated the respondents post-high school educational background and included the following analyses: the number of schools attended; the area, year started and type of school; the subject's major in school, degree earned and reason for leaving school. With the exception of the analysis of the number of schools attended, the work only group was eliminated from all analyses since the subjects who composed this group have no post-graduate school history. In the breakdown of post-graduate activities into latest and earlier schools attended, the former refers to the current or most recent school attended while the latter designates the one or two schools previously attended.

Information relating to the subjects school background has been compiled in Tables 17 through 23.

Table 17. The Number of Schools attended Expressed as a Percentage of the Total Respondents for Each Post-High School Activity.

Number of Schools Attended	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=83	Went to School Then to Work N=83	Went to Work Then to School N=60	Total N=349
0	0.0	100.0	0.0	0.0	23.8
1	69.0	0.0	77.1	60.0	53.3
2	26.0	0.0	21.7	31.7	19.8
3	4.1	0.0	1.2	8.3	3.2
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

Table 18. The Ares of School Attended Listed as a Percentage of the Total Respondents for Each Post-High School Activity.

Area	Post-High School Activities							
	Went Directly to School		Went to School Then to Work		Went to Work Then to School		Total	
	Schools Attended		Schools Attended		Schools Attended		Schools Attended	
	Latest N=122	Earlier N=42	Latest N=83	Earlier N=20	Latest N=62	Earlier N=30	Latest N=267	Earlier N=92
Denver Central	29.5	16.7	27.7	20.0	32.3	30.0	29.6	23.9
Western Mountain	5.7	4.8	9.6	5.0	6.5	3.3	7.1	4.3
Navajo Trail	4.9	9.5	4.8	0.0	1.6	3.3	4.1	5.4
Arkansas Valley	7.4	19.0	15.7	10.0	9.7	13.3	10.5	15.2
South Platte	28.7	23.8	22.9	30.0	16.1	13.3	24.0	21.7
Outside Colorado	23.8	26.2	19.3	25.0	33.9	36.7	24.7	29.3
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 19. The Year Started School Expressed as a Percentage of the Total Respondents for Each Post-High School Activity.

Year	Post-High School Activities							
	Went Directly to School		Went to School Then to Work		Went to Work Then to School		Total	
	Schools Attended		Schools Attended		Schools Attended		Schools Attended	
	Latest N=122	Earlier N=42	Latest N=82	Earlier N=20	Latest N=58	Earlier N=29	Latest N=262	Earlier N=91
1963	70.5	88.1	79.3	95.0	17.2	13.8	61.5	65.9
1964	15.6	9.5	15.9	5.0	41.4	72.4	21.4	28.6
1965	12.3	2.4	4.9	0.0	36.2	13.8	15.3	5.5
1966	1.6	0.0	0.0	0.0	5.2	0.0	1.9	0.0
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 20. The Type of School Attended Listed as a Percentage of the Total Respondents for Each Post-High School Activity.

Type of School	Post-High School Activities							
	Went Directly to School		Went to School Then to Work		Went to Work Then to School		Total	
	Schools Attended		Schools Attended		Schools Attended		Schools Attende	
	Latest N=123	Earlier N=42	Latest N=83	Earlier N=20	Latest N=60	Earlier N=30	Latest N=266	Earlie N=92
Public University	47.2	23.8	19.8	45.0	28.3	23.3	34.2	28.3
Private University	1.6	9.5	0.0	0.0	3.3	6.7	1.5	6.5
Public College	30.1	31.0	21.9	15.0	18.3	10.0	24.8	20.7
Private College	8.9	9.5	2.4	5.0	1.7	0.0	5.3	5.4
Technical School	0.0	0.0	0.0	0.0	1.7	0.0	0.4	0.0
Junior College	4.1	19.0	14.5	10.0	10.0	6.7	8.6	13.0
Public Vocational	0.0	2.4	3.6	5.0	1.7	10.0	1.5	5.4
Private Vocational	0.8	2.4	22.9	0.0	16.7	10.0	11.3	4.3
Extension School	1.6	0.0	4.8	0.0	1.7	6.7	2.6	2.2
Hospital	2.4	0.0	1.2	0.0	0.0	0.0	1.5	0.0
Armed Forces School	3.3	2.4	8.4	10.0	15.0	23.3	7.5	10.9
Company School	0.0	0.0	0.0	0.0	1.7	3.3	0.4	1.1
Other	0.0	0.0	1.2	10.0	0.0	0.0	0.4	2.2
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 20 shows that of the subjects who started school and later went to work, almost one-half (45%) started in a public university, but this figure drops to almost 20% for the latest school attended. The reverse situation is true for the group which went directly to school, with almost 24 percent starting in a public university and increasing to just over 47 percent for the latest school attended.

In all groups, there was an increase in the percentage attending a private vocational school as the latest school attended.

Table 21. The Major of Subjects Expressed as a Percentage of the Total Respondents for Each Post-High School Activity.

Major	Post-High School Activities							
	Went Directly to School		Went to School Then to Work		Went to Work Then to School		Total	
	Schools Attended		Schools Attended		Schools Attended		Schools Attended	
	Latest N=123	Earlier N=40	Latest N=79	Earlier N=19	Latest N=58	Earlier N=30	Latest N=260	Earlier N=89
General	4.1	10.0	6.3	5.3	5.2	16.7	5.0	11.2
Secretarial	1.6	2.5	19.0	0.0	13.8	10.0	9.6	4.5
Management	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Barber and Cosmetology	0.0	2.5	11.4	0.0	3.4	0.0	4.2	1.1
Technical Voc.	2.4	2.5	2.5	10.5	6.9	13.3	3.5	7.9
Medical Tech. & Nursing	8.1	7.5	7.6	0.0	5.2	0.0	7.3	3.4
Military	0.0	0.0	0.0	0.0	3.4	0.0	0.8	0.0
Religious	1.6	0.0	0.0	0.0	0.0	0.0	0.8	0.0
Science and Math	16.3	12.5	8.9	5.3	19.0	6.7	14.6	9.0
Engineering	13.0	12.5	6.3	10.5	3.4	3.3	8.8	9.0
Agriculture and Forestry	3.3	5.0	2.5	0.0	0.0	0.0	2.3	2.2
Humanities & Language	19.5	17.5	13.9	47.4	19.0	26.7	17.7	27.0
Social Science	21.1	10.0	7.6	10.5	10.3	6.7	14.6	9.0
Business	6.5	5.0	8.9	10.5	6.9	10.0	7.3	7.9
Physical Ed.	1.6	10.0	3.8	0.0	0.0	0.0	1.9	4.5
Home Economics	0.8	2.5	1.3	0.0	3.4	6.7	1.5	3.4
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Humanities and language has the largest percentage of majors in all classifications shown in Table 21, except the latest school attended by those subjects who went directly to school where more than 21 percent are in Social Science. The group that went to school, then to work is the only group showing a significant decrease in the Humanities and Language major from earlier schools attended to latest school attended.

Table 22. The Degree Earned Listed as a Percentage of the Total Respondents for Each Post-High School Activity.

Degree	Post-High School Activities							
	Went Directly to School		Went to School Then to Work		Went to Work Then to School		Total	
	Schools Attended		Schools Attended		Schools Attended		Schools Attended	
	Latest N=122	Earlier N=41	Latest N=76	Earlier N=19	Latest N=59	Earlier N=28	Latest N=257	Earlier N=88
None	3.3	85.4	63.2	78.9	35.6	60.7	28.4	76.1
Still in School	96.7	0.0	4.0	0.0	44.1	7.1	56.8	2.3
Graduate-no degree	0.0	0.0	2.6	0.0	0.0	0.0	1.1	0.0
Certificate	0.0	7.3	21.1	21.1	8.5	10.7	8.2	11.4
Diploma	0.0	4.9	9.2	0.0	3.4	3.6	3.5	3.4
Other	0.0	2.4	0.0	0.0	8.5	17.9	1.9	6.8
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 23. The Reason for Leaving School Expressed as a Percentage of the Total Respondents for Each Post-High School Activity.

Reason for Leaving	Post-High School Activities							
	Went Directly to School		Went to School Then to Work		Went to Work Then to School		Total	
	Schools Attended		Schools Attended		Schools Attended		Schools Attended	
	Latest N=123	Earlier N=41	Latest N=72	Earlier N=21	Latest N=62	Earlier N=25	Latest N=257	Earlier N=87
None	0.0	4.9	6.9	14.3	1.6	4.0	2.3	6.9
Still at School	100.0	0.0	0.0	0.0	38.7	0.0	57.2	0.0
Financial	0.0	17.1	9.7	19.0	11.3	4.0	5.4	13.8
Graduated	0.0	7.3	27.8	0.0	11.3	20.0	10.5	9.2
Go to Service	0.0	2.4	1.4	4.8	1.6	0.0	0.8	2.3
Ill Health	0.0	0.0	1.4	0.0	0.0	0.0	0.4	0.0
Temporary	0.0	0.0	1.4	4.8	1.6	12.0	0.8	4.6
Grades Inadequate	0.0	12.0	1.4	19.0	8.1	0.0	2.3	10.3
Transferred or Moved	0.0	24.4	2.8	4.8	3.2	16.0	1.6	17.2
Dissatisfaction	0.0	14.6	16.7	0.0	6.5	20.0	6.2	12.6
Marriage	0.0	0.0	9.7	9.5	0.0	0.0	2.7	2.3
Pregnancy	0.0	0.0	1.4	0.0	0.0	0.0	0.4	0.0
Offered Job	0.0	0.0	2.8	4.8	1.6	0.0	1.2	1.1
Family Difficulties	0.0	2.4	0.0	0.0	1.6	0.0	0.4	0.0
Completed Training	0.0	2.4	8.3	9.5	9.7	16.0	4.7	8.0
Other	0.0	12.2	8.3	9.5	3.2	8.0	3.1	10.3
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Summary of the School Characteristics Analysis

The following is a brief summary of significant points uncovered through analysis of the subjects school history background.

The data in Table 17 reveals that, with the exception of the work only group, the majority of the sample attended one school after completing high school requirements. More specifically, approximately 70 percent of the school only group attended one school in contrast to the work only group which did not pursue education beyond high school. It is assumed that this school is a four year public or private university or college, and further that these subjects are still in attendance. Interestingly, the work-to-school group showed the largest percentage of subjects attending two or three schools. Here it may be inferred that the group is heterogeneous in its educational/ vocational interests.

Since the major Colorado Universities are in the Denver Central and South Platte areas, the majority of subjects who are in school could be expected to be concentrated in these areas. This is supported by the data given in Table 18, which shows these two sections as the areas of latest school attended for a total of 58.2% of the group who went directly to school, 50.6% of the group went to school then to work, and 48.4% of the group who went to work and then to school.

This table also shows that approximately one-fourth of all respondents are attending an out-of-state school, with the largest percentage being the group who went to work upon completion of high school and started to some type of post-high school at a later date.

The procedure used to classify the subjects into groups would be the cause of the percentages given in Table 19 concerning the year stared to school. The school only and school-to-work groups would be expected to start school

at an earlier date than the work-to-school group.

Table 20 shows that of all subjects who went directly to school, almost one-half are currently attending a public university, with public colleges second. All other types of schools rank relatively low in this classification.

In the school-to-work group, the largest percentage attended a private vocational school as the latest school, with public colleges ranking second, and public universities ranking third. This group also had the highest percentage (14.5%) of any group attending a junior college.

In the work-to-school group, 28.3% attended a public university, 18.3% attended a public college, and 16.7% attend a private vocational school. A comparatively high percentage of this group (15%) attended an armed forces school.

The type of school attended may be related to the type of major chosen by subjects in the various categories. The respondents who went directly to school tend to follow a major in social science, humanities and language, and science and math, in that order. The school-to-work group is more diversified concerning the area of study, with more emphasis on vocational occupation majors.

Although the majority of all respondents are still in school or quit school without earning a degree, about 30% of the school-to-work group earned a certificate or diploma as shown in Table 22. Table 23 shows "graduated" to be the response given most frequently by this group for the reason for leaving the latest school attended. This again points out the tendency of this group to obtain vocational training and then go to work.

Results of the Analysis of Graduate Interests and Attitudes

Introduction

In this portion of the survey the subjects interests and attitudes were quantified toward high school curricula; occupations; parental, peer and school influence during high school; future educational or technical training; and vocational education. Again the data were categorized in terms of four possible post-high school activities.

Information concerning subject interests and attitudes has been compiled in Tables 24 through 30.

Table 24. Responses to the question: Were the major subjects you studied in high school helpful in obtaining a job? All Responses for Tables 24-30 Listed as a Percentage of the Total Respondents for Each Post-High School Activity.

Response	Post-High School Activities				
	Went Directly to School N=107	Went Directly to Work N=73	Went to School Then to Work N=77	Went to Work Then to School N=56	Total N=313
Yes	24.3	57.5	37.7	46.4	39.3
No	75.7	42.5	62.3	53.6	60.7
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 24 shows that those subjects who went directly to work and did not attend school were the only group which predominantly felt high school courses were beneficial in obtaining a job. Of the respondents who went directly to school, three-fourths indicated high school courses were not helpful.

Table 25. Responses to the Question: If there had been a school offering vocational classes in your hometown area when you graduated, would you have attended such a school if it had offered courses in which you were interested?

Response	Post-High School Activities				
	Went Directly to School N=120	Went Directly to Work N=80	Went to School Then to Work N=80	Went to Work Then to School N=56	Total N=336
Yes, wanted to attend such a school.	2.5	12.5	12.5	21.4	10.4
Yes, it would have cost less.	0.8	18.8	10.0	12.5	9.2
Yes, wanted to stay home while attending school.	0.0	8.8	5.0	3.6	3.9
No, wanted to attend school away from home.	5.0	5.0	10.0	5.4	6.3
No, interested in further schooling.	0.0	28.8	2.5	5.4	8.3
No, wanted to attend college.	86.7	10.0	50.0	42.9	52.4
Other	5.0	16.3	10.0	8.9	9.5
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Every classification shown in Table 25 indicated preference for attending college except the group which went directly to work where almost 29 percent indicated no interest in further schooling with only 10 percent stating a desire to attend college. This group also indicated the greatest interest in attending a vocational school (40.1%), followed closely by the work-to-school group (37.5%).

Table 26. Responses to the question: If a vocational school were started in the area where you live at this time and offered courses in fields of interest for you, how would you feel?

Response	Post-High School Activities				
	Went Directly to School N=120	Went Directly to Work N=77	Went to School Then to Work N=79	Went to Work Then to School N=57	Total N=333
Unhappy to see such a school	2.5	6.5	1.3	3.5	3.3
Indifferent to such a school	15.8	1.3	6.3	7.0	8.7
Happy to see it started, but not interested in enrolling	60.8	32.5	45.6	43.8	47.7
Interested in enrolling to increase present skills	8.3	32.5	20.3	19.3	18.6
Interested in enrolling to develop new skills	2.5	19.8	17.7	21.1	13.2
Other	10.0	7.8	8.9	5.3	8.4
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

Table 27. Responses to the Question: Where did you obtain the most information and knowledge about your present field of study or work activity prior to your beginning school or going to work? (Source of information) What has influenced you the most in your choice of major field or work activity?

Source	Post-High School Activities							
	Source of Information				Source of Influence			
	Went Directly to School N=101	Went Directly to Work N=57	Went to School Then to Work N=65	Went to Work Then to School N=44	Went Directly to School N=84	Went Directly to Work N=43	Went to School Then to Work N=50	Went to Work Then to School N=39
Family	22.8	22.8	33.8	20.5	25.9	27.9	24.0	23.1
Friends	18.8	22.8	26.2	25.0	26.2	23.3	36.0	35.9
Public Schools	49.5	52.6	35.4	40.9	39.4	46.5	38.0	28.2
Other	8.9	1.8	4.6	13.6	8.3	2.3	2.0	12.9
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 27 shows that the public schools were the greatest single source of information and influence in all categories, with the group that went directly to work having the largest percentage giving this response in both instances.

Table 28. Responses to the question: How did your parents (or guardians) feel about your choice of major field or work activity?

Response	Post-High School Activities				
	Went Directly to School N=123	Went Directly to Work N=69	Went to School Then to Work N=82	Went to Work Then to School N=55	Total N=329
Strongly Approved	51.2	39.1	42.7	34.5	43.8
Approved	39.0	49.3	45.1	41.8	43.2
Somewhat Indifferent	7.3	5.8	6.1	14.5	7.9
Dissaproved	1.6	2.9	3.7	3.6	2.7
Strongly Dissaproved	0.0	1.4	0.0	0.0	0.3
Not aware of my present Plans	0.8	1.4	2.4	5.5	2.1
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%

Table 29. Responses to the Question: As you plan for your occupational future do you have a preference for:

Response	Post-High School Activities				
	Went Directly to School N=122	Went Directly to Work N=76	Went to School Then to Work N=83	Went to Work Then to School N=57	Total N=338
Working with ideas?	14.8	1.3	10.8	10.5	10.1
Doing technical work?	2.5	11.8	10.8	12.3	8.3
Some phase of business?	8.2	17.1	19.3	14.0	13.9
Some phase of agriculture	4.1	5.3	2.4	0.0	3.3
Professional Occupations?	28.6	3.9	16.9	17.5	18.3
Social Service Occupations?	23.8	6.6	14.5	15.8	16.3
The Fine Arts?	2.5	3.9	2.4	1.8	2.7
Occupations centered around home & family?	2.5	21.1	12.0	12.3	10.7
Not given sufficient thought	5.7	22.4	8.4	3.5	9.8
Other	7.4	6.6	2.4	12.3	6.8
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table 30. Responses to the question: As you see your present situation, how much higher education or technical training would you like to have?

Response	Post-High School Activities				
	Went Directly to School N=115	Went Directly to Work N=76	Went to School Then to Work N=78	Went to Work Then to School N=53	Total N=322
ort vocational Course	1.7	30.3	15.4	11.3	13.4
e Year of Vocational School	3.5	11.8	10.3	1.9	6.8
o years of Vocational School	0.9	11.8	5.1	9.4	5.9
ur years College or Complete College	92.2	22.4	64.18	75.5	66.1
additional schooling desired	1.7	23.7	5.1	1.9	7.8
tal	100.0%	100.0%	100.0%	100.0%	100.0%

Table 30 shows that the group which went directly to work has a much greater interest in vocational schooling than any other group. This group also has the largest percentage indicating no desire for additional schooling.

Summary of the Analysis of Graduate Interests and Attitudes

The following is a summary of the findings of an analysis of survey questions concerning school and work interest of the respondents.

As shown in Table 24, about 60% of the total respondents felt that the high school curriculum was not helpful in obtaining a job. The data show that these subjects who have had no additional schooling since completion of high school went directly to work indicating high school sources were helpful in obtaining a job. There are several factors which would account for the responses received to this question. Most important of these might be the fact that the greatest majority of all subjects followed a college preparatory curriculum in high school (Table 6a). Another possible contributing factor may be the part-time nature of the jobs held by most subjects attending school. Table 10 indicates that over 70 percent of the school only group are holding part-time jobs. The job may or may not be related to the training the subject has had, but is merely a means of getting through school. On the other hand, the work only group is holding more full-time jobs and would therefore tend to go into jobs for which they are qualified. Table 10 shows that over 84 percent of this group were working full-time at the latest job held.

Although the majority of all students expressed a desire to attend college as shown in Table 25, all groups indicated a significant interest in vocational classes at the time of high school graduation except those who went directly to school. In that group, a total of over 3 percent indicated any desire to attend a vocational school.

The highest interest in vocational courses was shown by the group who went directly to work with a total of 40 percent indicating an interest for various reasons. A contrast that appears throughout the analysis in which this group is involved is that roughly one-fourth of the subjects definately indicated no interest in further schooling. This is pointed out in Table 25 and again in Table 30. In both tables the percentage indicating this lack of interest in further schooling is relatively high in comparison to the three major remaining groups.

Table 25 shows subject interest in vocational classes at the time of high school graduation while Table 26 indicates this same interest at the present time. Table 26 shows an increase in interest in all categories since completion of high school, with the greatest increase being in the group who went directly to work. Approximately 52 percent of this group indicates an interest in vocational training at the present as compared to 40 percent shown by Table 25. This is an increase of 12 percent, while the group going directly to school shows an increase of over 7 percent, the school-to-work group over 10 percent, and the work-to-school group with the least increase shows almost a 4 percent increase.

Table 27 reveals what appears to be a paradox in that public schools were reported as the greatest single source of information and influence concerning major field or work activity. Yet in response to the question, "Were the major subjects you studied in high school helpful in obtaining a job?" the majority answered no.

Table 29 shows that the group who went directly to school primarily is interested in working with ideas, professional occupations

and social service occupations while the group who went directly to work has very little interest in these things. The responses reported in this table seem to verify the opposing interest of these two groups while pointing out homogeneity within the groups. On the other hand, the school-to-work and work-to-school groups appear to be much more heterogeneous in interest. This is indicated by the relatively close percentage of interest in six out of eight interest responses for these two groups.

Almost 24 percent of the work only groups report that they do not desire any additional schooling in contrast to 1.7%, 5.1%, and 1.9% in the three remaining groups as shown in Table 30. At the same time over 30 percent of this group indicates a desire for vocational training as opposed to 1.7%, 15.4%, and 11.3% in other groups.

A desire to complete four years of college is expressed by a majority of all subjects in the group that went directly to school, the school-to-work group and the work-to-school group.

Results of the Father's Occupation Analysis

Introduction

After the survey data were differentiated and analyzed in terms of post-high school activities, the sample was analyzed a second time to determine its occupational background. Here the differentiating characteristics chosen was the father's occupation of the subjects. This characteristic helped delineate the sample into two groups: those graduates whose father's have professional, technical or managerial jobs (Professional-Managerial) and those whose fathers were employed in clerical, sales, skilled, and semi-skilled occupations (Skilled-Semi-Skilled). This investigation included the following general analyses: demographic, job characteristics, school history and interests and attitudes.

Information relating to this section has been compiled in Tables 31 through 44.

Table 31. The Present Employment Status of Subjects Listed as a Percentage of the Total Respondents Classified by their Father's Occupation.

Present Employment Status	Father's Occupation		
	Professional-Managerial N=172	Skilled-Semi-Skilled N=203	Total N=373
Yes	42.4	64.5	54.7
No	57.6	35.5	43.3
Total Percent	100.0%	100.0%	100.0%

Table 32. The High School Curriculum of Subjects Listed as a Percentage of the Total Respondents Classified by Their Father's Occupation.

a.

High School Curriculum	Father's Occupation		
	Professional-Managerial N=172	Skilled-Semi-Skilled N=201	Total N=373
General	40.1	47.8	44.2
Vocational	2.9	11.4	7.5
Pre-College	56.4	39.3	47.2
Other	0.6	1.5	1.1
Total Percent	100.0%	100.0%	100.0%

b. High School Curriculum		Father's Occupation: Professional-Managerial	Skilled-Semi-Skilled	Total %
General	N=165	41.8	58.2	100.0%
Vocational	N=28	17.9	82.1	100.0%
Pre-College	N=176	55.1	44.9	100.0%
Other	N=4	25.0	75.0	100.0%
Total	N=373	46.1	53.9	100.0%

Appraisal of the demographic data reveals that a majority of the professional-managerial groups was unemployed at the time of the survey, while over half of the skilled and semi-skilled group were employed (Table 31). One reason for the unemployment of the former group is found in Table 32a. Over half of the group, whose fathers are employed in professional-managerial occupations, pursued a pre-college curriculum. From this it may be inferred that many of these unemployed subjects were attending a college or university at the time of the survey.

Table 32b shows that 82 percent of those subjects who took a vocational course in high school came from families where the father was employed in a skilled or semi-skilled occupation. In addition, 58 percent of those subjects who pursued a general high school curriculum came from the same parental background. Over 64 percent of this group was employed at the time of the survey.

Finally, an interesting point is evident, in both Tables 32a and b, that is, a substantial percentage (40%) of the skilled-semi-skilled group took a pre-college curriculum.

In summary, the data suggests that the subjects who come from families with professional background are encouraged to prepare themselves in high school for a college education. Subjects whose fathers are employed in skilled and semi-skilled occupations, in contrast, take a general or vocational curriculum and seek employment after completing high school requirements. An exception to the above is evidenced in that a substantial percentage of the skilled-semi-skilled group do prepare themselves for a college education.

Table 33. The Area of Work of Subjects Expressed as a Percentage of the Total Respondents Classified by their Father's Occupation.

Area of Work	Father's Occupation								
	Professional-Managerial			Skilled-Semi-Skilled			Total		
	Latest Job N=157	Second Latest Job N=117	Other Jobs N=116	Latest Job N=186	Second Latest Job N=136	Other Jobs N=132	Latest Job N=343	Second Latest Job N=253	Other Jobs N=248
Denver Central	40.8	45.3	50.9	40.9	41.9	36.4	40.8	43.5	43.1
Western Mountain	10.2	13.7	10.3	4.8	8.8	10.6	7.3	11.1	10.5
Navajo Trail	3.8	3.4	6.0	2.7	2.9	0.8	3.2	3.2	3.2
Arkansas Valley	18.5	17.9	18.1	15.1	16.2	18.9	16.6	17.0	18.5
South Platte	11.5	9.4	6.0	14.5	12.5	17.4	13.1	11.1	12.1
Outisde Colorado	15.3	10.3	8.6	22.0	17.6	16.0	18.9	14.2	12.5
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 34. The Industry of Subjects Listed as a Percentage of the Total Respondents Classified by their Father's Occupation.

Industry	Father's Occupation								
	Professional-Managerial			Skilled-Semi-Skilled			Total		
	Latest Job N=156	Second Latest Job N=117	Other Jobs N=118	Latest Job N=177	Second Latest Job N=135	Other Jobs N=139	Latest Job N=333	Second Latest Job N=251	Other Jobs N=257
Agriculture	4.9	0.9	6.8	2.3	1.5	5.0	3.3	1.2	5.8
Construction & Mining	3.2	2.6	3.4	5.0	8.1	7.9	4.2	5.6	5.8
Manufacturing (heavy)	1.3	1.7	0.8	4.0	4.4	3.6	2.7	3.2	2.3
Manufacturing (light)	4.9	1.7	1.7	4.5	7.4	5.0	4.5	4.8	3.5
Transportation & Communication	2.5	5.1	3.4	7.9	4.4	7.2	5.4	4.8	3.5
Trade: Retail & Wholesale	24.4	33.3	39.8	15.8	22.2	28.8	19.8	27.5	33.9
Business & Service	24/4	27.4	19.5	22.0	22.2	22.3	23.1	24.7	21.0
Non Profit: Hospital Gov't Education	26.9	20.5	16.1	27.1	14.8	11.5	27.0	17.5	13.6
Armed Forces	1.3	0.0	0.0	5.6	0.7	0.0	3.6	0.4	0.0
Other, Unknown None	7.1	6.8	8.5	5.6	14.1	8.6	6.3	10.8	8.6
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 35. The Occupation of Subjects Listed as a Percentage of the Total Respondents Classified by Their Father's Occupation.

Occupation	Father's Occupation								
	Professional-Managerial			Skilled-Semi-Skilled			Total		
	Latest Job N=147	Second Latest Job N=119	Other Jobs N=113	Latest Job N=156	Second Latest Job N=129	Other Jobs N=140	Latest Job N=212	Second Latest Job N=244	Other Jobs N=264
Technical-Professional	11.6	4.2	1.8	14.1	7.0	0.0	18.4	5.7	0.7
Managers	3.4	0.0	1.8	1.9	1.6	2.1	3.8	0.8	5.7
Clerical, Sales Secretarial	40.8	34.5	32.7	26.3	29.5	7.1	47.6	32.4	29.5
Draftsmen, Foremen	4.8	4.2	0.9	7.7	7.0	10.7	9.0	5.7	6.1
Service & Operatives	15.6	25.2	27.4	18.6	24.0	18.6	24.5	25.0	21.6
Laborers	22.4	26.9	36.3	28.9	30.2	37.1	36.8	29.1	35.2
Unknown, None	1.4	1.7	0.0	2.6	0.8	2.1	2.8	1.2	1.1
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Analysis of the survey data in terms of the subjects job characteristics revealed that the majority of respondents were employed in the Denver area, across job categories (Table 33). In the professional category a significant influx of subjects, in the direction of the latest job, is noted in the South Platte area. Ostensibly this finding is due to the fact that several large cities are located in this area offering employment.

More importantly, a substantial amount of post-high school emigration is observed in both occupational categories again in the direction of the latest job held. The data show that emigration was more prevelant in the skilled-semi-skilled group. This finding may suggest a partial shortage of employment opportunities in the laboring and draftsmen-foremen occupations (Table 35) for this group forcing them to seek employment in other states.

Table 34 indicated, as in the previous analysis, that the majority of the sample was employed mainly by three industries, that is, trade, retail

and wholesale; business and service; and non-profit hospital, government, and education. In both occupational groups a decrease in the direction of the latest job held was noted in the trade, retail and wholesale industries accompanied by an increase in the same direction in the latter two industries. These trends may reflect the subjects' increase in educational attainment for the professional-managerial group and work experience for the skilled and semi-skilled group. This inference is partially supported by the data in Table 35. There the percentage employed on their latest job increases (over other jobs held) in the technical-professional, managerial and clerical occupations and decreases in the craftsmen, foremen, service and operatives, and laborer occupations. However, in both groups a large percentage were employed in the clerical and laborer occupations at the time of the survey.

Table 36. Responses to the Question: Were High School Courses Helpful in Obtaining a Job?

Response	Father's Occupation		
	Professional-Managerial N=140	Skilled Semi-Skilled N=183	Total N=323
Yes	28.6	47.0	39.0
No	71.4	53.0	61.0
Total	100.0%	100.0%	100.0%

Turning to the subjects post-graduate school history one finds that over 71 percent of the professional-managerial group felt that their high school curriculum was not helpful in obtaining employment (Table 36). In fact, a simple majority of the skilled-semi-skilled group were of the same opinion.

Table 37. The Number of Schools Attended Listed as a Percentage of the Total Respondents Classified by Their Father's Occupation.

Number of Schools Attended	Father's Occupation		
	Professional-Managerial-N=157	Skilled Semi-Skilled N=203	Total N=360
0	18.5	27.6	23.6
1	56.7	52.2	54.2
2	21.7	17.7	19.4
3	3.2	2.5	2.8
Total	100.0%	100.0%	100.0%

As shown in Table 37, a alightly higher percentage of subjects whose fathers are in the professional-managerial class attended some type of school after high school graduation and also attended more schools than those whose father's work at skilled and semi-skilled occupations.

Table 38. The Type of School Attended Expresses as a Percentage of the Total Respondents Classified by Their Father's Occupation.

Type of School	Father's Occupation					
	Professional-Managerial		Skilled-Semi-Skilled		Total	
	Latest School Attended N=128	Earlier Schools Attended N=43	Latest School Attended N=146	Earlier Schoola Attended N=46	Latest School Attended N=274	Earlier Schools Attended N=89
Public University	42.2	37.2	24.7	21.7	32.8	29.2
Private University	1.6	7.0	1.4	4.3	1.5	5.6
Public College	23.4	20.9	26.0	19.6	24.8	20.2
Private College	4.7	11.6	6.2	0.0	5.5	5.6
Technical School	0.8	0.0	0.0	0.0	0.4	0.0
Junior College	10.2	9.3	6.2	17.4	8.0	13.5
Public Vocational	0.8	0.0	2.1	8.7	1.5	4.5
Private Vocational	9.4	2.3	16.4	6.5	13.1	4.5
Extension School	2.3	4.7	2.7	2.2	2.6	3.4
Hospital	2.3	0.0	1.4	0.0	1.8	0.0
Armed Forces School	2.3	7.0	11.6	15.2	7.3	11.2
Company School	0.0	0.0	0.7	0.0	0.4	0.0
Other	0.0	0.0	0.7	4.3	0.4	2.2
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

This table reveals, as may be expected, that the professional-managerial group pursued higher education in greater numbers than the skilled-semi-skilled group, 42.2 verses 24.7 percent, respectively. However, an exception is found in that more subjects in the skilled and semi-skilled group attended public and private colleges, in the latest school attended, than did subjects in the professional group. Here it may be inferred that many children, whose fathers are employed in skilled occupations, aspire to higher socio-economic occupations than those held by their fathers. Finally, 28 percent of the skilled group attend either a private vocational or armed forces technical school.

Table 39. The Subjects Major Listed as a Percentage of the Total Respondents Classified by Their Father's Occupation.

Major	Father's Occupation					
	Professional-Managerial		Skilled-Semi-Skilled		Total	
	Latest School Attended N=125	Earlier Schools Attended N=43	Latest School Attended N=144	Earlier Schools Attended N=47	Latest School Attended N=269	Earlier Schools Attended N=90
General	5.6	4.7	6.9	21.3	6.3	13.3
Secretarial	9.6	2.3	11.8	6.4	10.8	4.4
Management	0.0	0.0	0.0	0.0	0.0	0.0
Barber and Cosmetology	1.6	0.0	6.9	2.1	4.5	1.1
Technical Voc.	2.4	2.3	4.2	8.5	3.3	5.6
Medical Tech. & Nursing	8.0	4.7	6.3	4.3	7.1	4.4
Military	0.0	0.0	0.7	2.1	0.4	1.1
Religious	0.0	0.0	1.4	0.0	0.7	0.0
Science & Math	18.4	11.6	11.8	8.5	14.9	10.0
Engineering	8.0	9.3	9.0	8.5	8.6	8.9
Agriculture & Forestry	3.2	2.3	1.4	2.1	2.2	2.2
Humanities and Language	16.8	30.2	18.1	23.4	17.5	26.7
Social Science	14.4	11.6	13.9	6.4	14.1	8.9
Business	9.6	11.6	4.9	4.3	7.1	7.8
Physical Education	1.6	9.3	2.1	0.0	1.9	4.4
Home Economics	0.8	0.0	0.7	2.1	0.7	1.1
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

The data of Table 39 indicate several trends in the major courses subjects took in post-graduate studies. For example, a third of the professional group took a humanities and language curriculum in earlier schools attended. This figure drops abruptly to less than 17 percent in latest school attended with over 18 percent pursuing a science and math course.

In the skilled and semi-skilled group over 44 percent took a general or humanities and language curriculum in earlier schools. This figure decreased almost by half in the latest school attended with more subjects (over 37%) pursuing secretarial, science and math and social science courses.

It appears that after completing high school, and perhaps obtaining some experience, subjects' education/vocational interests become crystalized and more practical and applied in nature.

Table 40. The Degree Status of Subjects Expressed as a Percentage of the Total Respondents Classified by their Father's Occupation.

Degree	Father's Occupation					
	Professional-Managerial		Skilled-Semi-Skilled		Total	
	Latest School Attended N=120	Earlier Schools Attended N=40	Latest School Attended N=143	Earlier Schools Attended N=43	Latest School Attended N=262	Earlier Schools Attended N=87
None	22.5	90.0	32.9	69.8	28.2	75.9
Still in School	67.5	0.0	47.6	0.0	56.9	4.6
Graduate-no degree	0.8	0.0	1.4	0.0	1.1	0.0
Certificate	5.0	5.0	11.2	16.3	8.0	10.3
Diploma	2.5	2.5	4.2	2.3	3.4	2.3
Other	1.7	2.5	2.8	11.6	2.3	6.9
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

At the time of the survey a majority of the professional group was still in school, (Table 40) ostensibly a four year college since the subjects completed high school two and a half years prior to filling out the

questionnaire. Less than half of the skilled group was still in school at the time of the survey, however, twice as many subjects in this group, as in the professional group, had received a certificate indicating they had completed a secretarial, barber and cosmetology, technical-vocational course, etc. at this time (Table 39).

Table 41. The Reason Subjects Left Their Job Listed as a Percentage of the Total Respondents Classified by Their Father's Occupation.

Reason for Leaving	Father's Occupation					
	Professional-Managerial		Skilled Semi-Skilled		Total	
	Latest School Attended N=121	Earlier Schools Attended N=40	Latest School Attended N=140	Earlier Schools Attended N=47	Latest School Attended N=261	Earlier Schools Attended N=87
None	0.8	2.5	3.6	8.5	2.3	5.7
Still at School	67.8	0.0	47.9	0.0	57.1	0.0
Financial	5.0	7.5	5.0	21.3	5.0	14.9
Graduated	8.3	7.5	14.3	10.6	11.5	9.2
Go to Service	0.0	0.0	1.4	4.3	0.8	2.3
Ill Health	1.7	0.0	0.0	0.0	0.8	0.0
Temporary	0.8	5.0	0.7	2.1	0.8	3.4
Grades Inadequate	1.7	17.5	2.9	6.4	2.3	11.5
Transferred or moved	0.8	25.0	1.4	10.6	1.1	17.2
Dissatisfaction	5.8	12.5	7.1	12.8	6.5	12.6
Marriage	2.5	5.0	2.9	0.0	2.7	2.3
Pregnancy	0.0	0.0	0.7	0.0	0.4	0.0
Offered Job	1.7	0.0	0.7	2.1	1.1	1.1
Family Difficulties	0.0	2.5	0.0	0.0	0.0	1.1
Completed Training	0.8	2.5	7.9	12.8	4.6	8.0
Other	2.5	12.5	3.6	8.5	3.1	10.3
Total Percent	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 41 supports preceeding tables by showing that the majority of the sample was still in school at the time of the survey. However, of those who left school substantially more subjects in the skilled group (14.3%) have graduated from the most recent school than in the professional group (8.3%). Appraisal of the reasons for leaving earlier schools attended reveals that many more subjects in the professional group left earlier

schools attended because of poor academic performance (17.5%) than in the skilled group (6.4%). In this group lack of finances was the primary reason given for leaving earlier schools attended. Apparently after working for a period of time or through other means of gaining necesary funds, these subjects were able to solve their financial problems because only 5 percent found it necesaary to leave the latest school attended for financial reasons.

Table 42. Responses to the Question: If there had been a school offering vocational classes in your hometown area when you graduated, would you have attended such a school if it had offered courses in which you were interested?

Response	Father's Occupation		
	Professional-Managerial N=168	Skilled Semi-Skilled N=196	Total N=354
Yes, wanted to attend such a school.	8.3	14.8	11.8
Yes, it would have cost less.	8.3	10.7	9.6
Yes, wanted to stay home while attending school.	4.2	3.6	3.8
No, wanted to attend school away from home.	5.4	6.6	6.0
No, not interested in further schooling.	6.0	9.7	8.0
No, wanted to attend college.	62.5	41.8	51.4
Other	5.4	12.8	9.3
Total	100.0%	100.0%	100.0%

Regarding subjects interest and attitudes after completing high school, information in Table 42 supports the trend shown throughout the snalysis forsubjects whose fathers are employed in skilled and semi-skilled occupations to have more interest in vocational training and less interest in higher education than the groups whose father's occupations is classified as professional-managerial.

However, as found in a previous table, a large percentage of the skilled group (41.8%) desired a college education. This may reflect the national emphasis on further education as well as parental and peer group influence.

Table 43. Responses to the Question: As you plan for your occupational future do you have a preference for:

Response	Father's Occupation		
	Professional-Managerial N=168	Skilled Semi-Skilled N=197	Total N=365
Working with ideas?	11.3	9.6	10.4
Doing technical work?	7.1	9.6	8.5
Some phase of business?	13.7	15.8	14.8
Some phase of agriculture?	6.0	1.5	3.6
Professional occupations?	21.4	16.2	18.6
Social Service occupations?	16.7	15.8	16.2
The fine arts?	2.4	2.5	2.5
Occupations centered around home & family?	6.0	13.7	10.1
Not given sufficient thought.	8.9	8.6	8.8
Other	6.5	6.6	6.6
Total Percent	100.0%	100.0%	100.0%

Subjects in the professional groups expressed slightly more occupational interest in the professional occupations than the skilled group, although this alternative received the highest percentage of responses in the skilled group supporting the thesis that a large part of this group is interested in improving their occupationsl status (Table 43). Secondly, the skilled group were substantially more interested in occupations centered around the home and family than the professional group. It is suggested that this finding reflects the female interests of this group. Both groups, aeemed about equally interested in pursuing business and social service occupations.

Table 44. Responses to the Question: As you see your present situation, how much higher education or technical training would you like to have?

Response	Father's Occupation		
	Professional-Managerial N=164	Skilled Semi-Skilled N=185	Total N=349
Short Vocational course	11.0	14.6	12.9
One year of vocational schooling	3.0	9.2	6.3
Two years of vocational schooling	4.9	7.6	6.3
Four years of college or complete college	74.4	58.4	65.9
No additional schooling desired	6.7	10.3	8.6
Total Percent	100.0%	100.0%	100.0%

Table 44 shows that well over half of both groups desired a four year college education, with a somewhat greater percentage of the professional group expressing this opinion. Less interest was given in pursuing additional schooling by the skilled than by the professinnal group. Finally, the skilled-decidedly, was more interested in vocatinnal training two and a half years after completing high school.

Summary of the Father's Occupation Analysis

The following is a summary of the findings of a re-analysis of the sample survey data employing the father's occupation of the subjects as a differentiating characteristic.

Appraisal of the demographic attributes of the subjects revealed that a majority of the professional-managerial group were unemployed at the time of the survey (Table 31). Many of these subjects pursued a pre-college curriculum during high school (Table 32a) and, as shown in Table 40, were attending a college or univeristy, ostensibly a four year school when the survey was administered. In contrast, a majority of the skilled and semi-skilled group were employed in January, 1966. Though only 11 percent of this group took a vocational curriculum, over 80 percent of these subjects came from families where the father was employed in a skilled or semi-skilled occupation. Over 55 percent of the subjects who took a pre-college course had fathers who were employed in professional-managerial occupations. These findings suggest the result of parental influence, direct or indirect, upon the occupational choices of their children. Interestingly, Table 32b revealed that a substantial percentage of subjects (40%) in the skilled group took a pre-college curriculum.

In considering the work history of the sample, it was noted that the majority of respondents were employed in the Denver area across job categories (Table 33). Of greater importance was the finding of a substantial amount of post-high school emigration in both occupationsl groups, but slightly more in the skilled group, from the earliest to latest job held in the direction of the latest job held.

Finally, Table 34 indicated that as subjects moved from other jobs to their latest job held in the trade, retail, and wholesale as well as the agriculture and mining industries, fewer of them continued employment in these industries. This was in contrast to an increase in the number of subjects employed in the business and service as well as non-profit industries. These trends may be a function of the subjects' increase in educational attainment and/or additional work experience.

Neither occupational group felt that their high school curriculum was helpful in obtaining employment (Table 36). This was especially true of the professional group, more than half of which attended colleges and universities (Table 38). However, slightly more subjects in the skilled group attended public and private colleges, in the latest school attended, than in the professional group. Here it was inferred that many children, whose father's occupation was classified as skilled or semi-skilled aspired to higher status (socio-economic) occupations than those held by their fathers. Finally, a substantially larger number of subjects in the skilled group attended a private vocational or armed forces school than in the professional group.

The data of Table 39 suggested the inference that after subjects have completed high school and perhaps obtained some work experience, their educational/vocational interests become crystalized, that is, more practical and applied in nature. For example, over a third of the professional group took a humanities and language curriculum in their earlier attended schools. This figure dropped to 17 percent in the latest school attended with 18 percent of the group pursuing a science and math course.

Concluding the summary of the subjects' school history, it was found

that the majority of the sample was still in school at the time of the survey (Table 41). However, of those subjects who left school more of the skilled group (14.3%) than the professional group (8.3%) have graduated from their most recently attended school, ostensibly a vocational-technical school. Other reasons given for leaving school were poor academic performance and lack of finances. The former was given for leaving earlier schools attended more often (17.5%) by the professional group than by the skilled group. However, only 2 percent of the professional group left their latest school for this reason possibly indicating increased achievement motivation either personally induced or family influenced. Financial reasons for leaving earlier attended schools were most often given by subjects in the skilled group. This figure also substantially decreases for the latest school attended group.

Turning, in conclusion, to the subjects' post-high school interests and attitudes, the data (Table 42) confirms the hypothesis that subjects whose fathers are employed in skilled and semi-skilled occupations have more interest in vocational training and less interest in higher education than their counterparts in the professional group. An exception is found, however, in that a large percentage (41.8%) of the skilled group desired a college education.

When asked for their future occupational preference (Table 43) slightly more professional groups subjects than skilled indicated a preference for professional occupations, however, this preference received the highest percentage of responses from the skilled group supporting previous findings that a substantial proportion of this group desire a college education and the upward socio-economic mobility associated with it.

Finally, the data of Table 44 furthur supports the contention that many of the skilled group (58.4%) desire a four year college education as well as the professional group (74.1%). However, less overall interest was expressed by the skilled group in pursuing additional schooling than by the professional group. As expected the skilled group was more interested in vocational training than the professional group.

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Educational and Occupational Aspirations and Expectations of High School Juniors and Seniors in the State of Washington. (Vocational-Technical Research and Development Project Report, no. 1).

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Washington State Univ., Pullman

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*ASPIRATION, *OCCUPATIONAL CHOICE, STUDENT ATTITUDES, *VOCATIONAL EDUCATION, GRADE 11, GRADE 12, GRADES (SCHOLASTIC), *HIGH SCHOOL STUDENTS, *COLLEGE ATTENDANCE, HIGH SCHOOLS, GRADUATION, SEX (CHARACTERISTICS), QUESTIONNAIRES, STUDENT INTERESTS, COCURRICULAR ACTIVITIES,

Washington,

Data were collected from a stratified random sample of 3,100 students through use of questionnaires administered by classroom teachers. Nearly all students aspired and expected to graduate from high school and get some post high school education. Over three-fourths (77.6 percent) aspired to attend a junior college, college or university and 75.9 percent expected to. However, 51.5 percent wanted to graduate from college and 43.5 percent expected to. Business aor vocational school was the apsiration of 14.6 percent and the expectation of 14.8 percent. Including the technical and business training in junior colleges, one quarter of the students wanted vocational education. Data indicated that college aspirations and expectations were higher than they were a decade ago. Considerable variation between schools was observed in college aspiration and expectation, popularity of vocational education, and expectation of finishing high school. Uncertainty about goals was not as frequent as uncertainty about plans. Student interests, activities and attitudes, and occupational aspirations are also reported. The questionnaire used for the survey is included, and tables of data show responses by sex and grade. (JM)

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EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS OF HIGH SCHOOL JUNIORS AND SENIORS IN THE STATE OF WASHINGTON.

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Roy T. Bowles

January 1967

Report Number One

Vocational-Technical Research and
Development Project

Departments of Education,
Sociology and Rural Sociology cooperating

Washington State University
Pullman, Washington

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INTRODUCTION*

This report presents selected data concerning the educational and occupational aspirations and expectations of boys and girls who were juniors and seniors in a sample of Washington high schools in the 1965-66 school year. It also describes the methods used in obtaining and processing the data.

This is the first of a number of reports based on form A of the classroom questionnaire; the data in it were selected primarily for the information of the high school principals, teachers, counselors and others who helped us make the study. Subsequent reports will present information concerning the characteristics, values and attitudes, and educational and occupational aspirations and expectations of students who do not expect to obtain a college degree.

METHOD

Information for this report was obtained from questionnaires filled out in their classrooms by juniors and seniors enrolled during 1965-66 in a sample of public high schools in the State of Washington.

Appendix A presents details concerning sample design, relationships with school authorities, and procedures followed in administering questionnaires.

Appendix B includes a sample copy of the classroom questionnaire.

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*This research was conducted as a part of the Washington State University Vocational-Technical Research and Development Project which is supported by the Bureau of Research, Office of Education, United States Department of Health, Education, and Welfare.

RESULTS

In this section we will present data derived from the answers of students to selected questions on form A of the student questionnaire. The principal purpose of this analysis is to provide administrators in the schools where form A instruments were administered with information about the responses of students. Accordingly, we have selected those questions which we thought would be of interest to local school personnel. This discussion is organized under three major headings: Educational Aspirations and Expectations, School Experiences and Attitudes, and Occupational Aspirations and Expectations.

Appendix C contains detailed tables presenting the responses of students to the questions included. Respondents are classified according to sex and grade in school. An overview of the data will be presented here, but the reader will probably be able to find in Appendix C data to answer many other questions. (The principal of each participating school will be provided with two copies of a computer print-out showing how the students in his school responded to the questions discussed in this report.)

EDUCATIONAL ASPIRATIONS AND EXPECTATIONS

Students were asked to indicate their educational aspirations and their educational expectations. Tables C-1, C-2, C-4, and C-5 in Appendix C present detailed tabulations of the responses to these questions. Table 1 shows the highest level of aspirations and expectations. In Table 2, figures have been combined to show the proportion of students who aim for or expect to acquire various types of education.

Nearly all students aspired and expected to graduate from high school <u>and</u> to get some kind of post-high school education. Only 0.2 percent of the respondents either desired or expected to leave high school before graduation. Six and one-half percent wanted to terminate their education with high school graduation and 8.5 percent expected to do so. Data presented in Appendix C show that boys and girls and juniors and seniors are very much alike in their desire to continue their education after high school.

Over three-fourths (77.6 percent) of the respondents aspired to attend college (including junior college) at some time during their educational careers. Nearly as many (75.9 percent) expected to do so. Not all of those who attend college will receive a degree. However, 51.5 percent of the respondents indicated that they wanted to graduate from college and 43.5 percent expected to do so.

One-fifth of the students (21.5 percent) said they would like to pursue graduate or professional studies. Fourteen percent expected to continue their education after receiving a bachelor's degree.

TABLE 1 - HIGHEST LEVEL OF EDUCATIONAL ASPIRATIONS AND EXPECTATIONS OF HIGH SCHOOL JUNIORS AND SENIORS IN WASHINGTON STATE, 1965-66.[a]

Educational Level	Aspirations Percent	Expectations Percent
Quit High School	0.2	0.2
Graduate from High School	6.5	8.5
Attend Business-Commercial School	4.7	4.6
Attend Technical-Vocational School	9.9	10.2
Attend Junior College - Business Course	6.3	6.5
Attend Junior College Vocational or Technical Course	6.0	6.9
Attend Junior College - Academic Course	6.0	8.1
Attend College or University	7.8	10.9
Graduate College or University	30.0	29.5
Graduate or Professional School	21.5	14.0
Nursing School	0.3	0.2
Other	0.6	0.5
Number of Respondents	3077	3059
Number of Nonrespondents	23	41

[a]Based on responses to questions 7 and 9 in form A of the student questionnaire.

TABLE 2 - HIGHEST LEVEL OF EDUCATIONAL ASPIRATIONS AND EXPECTATIONS OF HIGH SCHOOL JUNIORS AND SENIORS IN WASHINGTON STATE, 1965-66*

Educational Level	Aspirations Percent	Expectations Percent
Attend College **	77.6	75.9
Attend Junior College	18.3	21.5
Graduate from College - or More	51.5	43.5
Attend Business or Vocational School	14.6	14.8
Take Vocational Training	15.9	17.1
Take Business Training	11.0	11.1

*Data adapted from Table 1. **Includes those who marked attend junior college, attend college or university, graduate from college, attend graduate school.

The relatively high proportions who said that they wished or expected to attend a junior college show that the community college system is very important in Washington. Nearly one-fifth of the students (18.3 percent) expressed a desire to terminate their education with some junior college experience and slightly more than one-fifth (21.5 percent) expected to do so. The figures in Tables C-1 and C- 4 indicate that many other respondents also desired and expected to spend some part of their educational careers in junior colleges. Since students were permitted to check as many categories as they desired, the figures in Tables C-1 and C-2 cannot be combined. A special tabulation of the responses of a subsample of 666 cases showed, however, that 40.2 percent of the students desired and 40.5 percent of the students expected to attend a junior college at some time during their educational careers.

Emphasis on the findings that a large proportion of students are oriented toward college attendance should not be allowed to obscure the fact that the responses indicate that there is a substantial contingent of students who want and expect to get vocational training (in both the technical and the business fields) after leaving high school. Business or vocational school was the highest educational goal of 14.6 percent and the expectation of

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14.8 percent of the sample. When technical and business training in the junior colleges is combined with that in non-college institutions, it appears that over one-fourth of the sample chose post-high school vocational education as their highest goal and even more expected this type of education to be their ultimate educational achievement. That is, 15.9 percent of the students aspired to take vocational or technical training and 11.0 percent aspired to business or commercial training. When expectations are considered, 17.1 percent marked vocational or technical training as their highest expectation and 11.1 percent marked business training. When the information in Tables C-1 and C-4 is compared with that in Tables C-2 and C-5, it can be seen that many students desire and expect to acquire business or technical education without terminating their education at this stage.

While the aspirations and expectations reported by students in this study may seem high, they are comparable with results of other studies. Slocum and Garrett found in a study of students enrolled in thirty rural high schools in Washington in 1964 that 75.1 percent of the boys and 65.2 percent of the girls expect to attend college (9). Data collected by the United States Census in October of 1965 indicate that in the West, 72 percent of the students between the ages of 14 and 19 who were enrolled in public schools below the college level expected to attend college (6).

Data indicate that levels of educational expectations are higher now than they were a decade ago. In a study of rural and urban students in the State of Washington conducted in 1954-55, it was discovered that only 37.6 percent of high school seniors planned to attend a college or university the following fall (10).

While educational aspirations and expectations are high for the total sample used in the study, it would be erroneous to conclude that they are homogeneously high for all segments of the population. Table 3 shows the variations in levels of aspirations and by schools. (Schools are not identified by name, because school officials were promised that no information concerning individual schools would be released without the express written permission of superintendents.)

Aspirations to graduate from college or to get more education varied from 19.7 percent in one school to 72.4 percent in another. The pattern of expectations is generally comparable to that of aspirations although the gap between aspirations and expectations is larger in some schools than

TABLE 3 - EDUCATIONAL ASPIRATIONS AND EXPECTATIONS OF HIGH SCHOOL JUNIORS AND SENIORS IN WASHINGTON, BY SCHOOL[a]

Schools	Levels of Education											
	Grad. College or more		Attend College		Vocational Education		Business Education		High School Only		Total Respondents	
	Asp.	Exp.	Asp.	Exp.	Asp.	Exp.	Asp.	Exp.	Asp.	Exp.	Asp.	Exp.
	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	Pct	No.	No.
A	72.4	63.8	14.7	22.2	6.1	7.1	4.7	4.6	2.0	2.2	818	811
B	45.0	37.5	14.3	17.8	20.6	21.8	11.3	11.7	7.1	9.7	643	640
C	47.7	38.3	13.3	21.0	16.2	15.9	13.8	14.0	8.2	10.2	525	522
D	43.6	38.5	15.4	17.5	17.4	16.7	15.6	17.5	8.0	9.8	351	348
E	43.7	37.2	11.5	12.6	20.2	23.6	13.5	13.3	9.9	12.6	311	309
F	46.0	38.0	13.0	19.0	22.0	24.0	8.0	9.0	8.0	8.0	100	100
G	40.6	29.0	11.9	16.0	19.8	21.0	12.9	13.0	10.9	17.0	101	100
H	19.7	14.1	11.3	14.1	32.4	38.1	22.6	17.0	14.1	16.9	71	71
I	29.8	22.5	12.8	18.4	27.7	28.6	21.3	14.3	8.5	16.3	47	49
J	43.6	26.4	20.5	34.2	7.7	7.9	12.8	10.5	12.8	21.1	39	38
K	31.6	21.0	5.3	10.6	39.5	42.1	10.5	10.6	10.5	13.2	38	38
L	60.6	51.6	6.1	18.2	15.1	15.1	12.1	9.1	6.1	6.1	33	33

[a]Based on responses to questions 7 and 9 in form A of the student questionnaire. Percentages may not total 100 because categories "Nursing School" and "Other" are not included.

it is in others. The proportion of students expecting to at least graduate from college varies from a low of 14.1 percent to a high of 63.8 percent. The desire to go to college but quit before receiving a degree ranges from 5.3 percent to 20.5 percent. The expectation of doing this ranges from 10.6 percent to 34.2 percent. (Apparently many of those who want, but do not expect to receive a bachelor's degree, do expect to attend college.)

The popularity of vocational or technical education also varied greatly from one community to another. Aspirations for this type of training ranged from 6.1 percent to 39.5 percent. Expectations ranged from 7.1 percent to 42.1 percent. The desire to receive a business or commercial education ranged from 4.7 percent to 22.6 percent. The expectation to do so varied from 4.6 percent to 17.5 percent.

Only 2.0 percent of the students in one school desired to terminate their education with high school. In another school 14.1 percent desired to do so. Expectations for terminating education with high school ranged from 2.2 percent to 21.1 percent. In other words, students in one school were ten times as likely as those in another to think that they would get no further education after high school.

These differences between schools suggest that educational orientations of students and their families may vary greatly from one community to another. This variation is not a simple product of school size; the smallest school is second highest in proportion of students aspiring to attend college. This information is, of course, not new but it should remind the person who contemplates the introduction of a new program into a school that he will need specific information about the aspirations and expectations of students in that school.

Choosing an educational goal is a complex process involving doubt and constant reexamination for many students. Table C-3 reports answers to the question, "How certain are you that this is what you want to do about your future education?" Less than one-tenth of the students said that they were not at all sure. Therefore, uncertainty does not seem to be rampant. On the other hand, only 40.3 percent of the students reported that they were very sure. Apparently the majority of students were still in the process of making their choice of an educational goal. As would be expected, seniors were more likely than juniors to feel that they were certain of their educational choice.

Table G-6 reports responses to a question concerning certainty of educational expectations. A comparison of Tables G-3 and G-6 indicates that students are more likely to be certain of their goals than they are of their plans. (Only 31.7 percent were very sure that they would actually attain the highest level of education they expected.)

Students were asked how much thought they had given to their future educational needs and plans. The importance of educational decisions in the subjective life of a contemporary Washington adolescent is seen in the fact that very few students (only 4.2 percent) reported that they had given no thought or very little thought to their educational plans. Nearly half of the students reported that they had given a great deal of thought to this subject. Not surprisingly, seniors were more likely than juniors to report that they had given a great deal of thought to their educational plans. Girls were more likely than boys to have expressed great concern with this problem.

SCHOOL EXPERIENCES AND ATTITUDES

Students were asked several questions concerning their experiences in school and their attitudes toward school. Selected information drawn from their responses to these questions will be presented below.

School Grades

On the basis of self-reported grades, it appears that the great bulk of the students were doing satisfactory work. Only 3.9 percent reported receiving mostly D's or mostly D's and F's on their last report cards. High grades (defined as mostly A's or mostly A's and B's) were reported by a fourth of the students. More of the girls (31.5 percent) than of the boys (19.1 percent) reported high grades; this finding is consistent with previous studies conducted in the State of Washington by the Department of Rural Sociology at Washington State University.

Participation in Organized Activities

Students were asked to indicate the extent of their participation in organized activities of various types. Except for church youth groups, all of the organized activities listed are normally sponsored by the schools. The percentages of those responding who indicated that they were either "very active" or "quite active" in various activities are presented in Table 4.

TABLE 4 - PARTICIPATION IN ORGANIZED ACTIVITIES[a]

Activities	Proportion "Very Active" or "Quite Active"[b]				
	Boys		Girls		Total
	Juniors	Seniors	Juniors	Seniors	
Athletics	53.7	53.2	41.4	34.1	46.1
Music	19.9	20.0	33.5	29.8	25.8
Dramatics	5.1	8.5	16.8	12.3	10.7
Debate	4.2	5.7	5.1	3.7	4.7
School Paper or Annual	7.0	9.0	15.0	18.1	12.2
Student Government	15.1	25.3	19.8	25.4	21.2
FFA or FHA	4.6	3.6	3.5	2.8	3.7
Hobby Clubs	13.2	14.4	13.6	15.3	14.1
Pep Club or Pep Rallies	35.8	30.1	63.5	58.0	47.4
Church Youth Groups	30.7	29.8	50.7	48.4	40.0
Hi-Y or Tri-Hi-Y	7.0	7.2	15.7	18.1	11.8

[a]Based on responses to question 18 in form A of the student questionnaire.

[b]Percentages are based on responses of students who reported the extent of participation in each activity listed.

Athletics headed the list for boys, followed by participation in church youth groups for the senior boys and by pep club or pep rallies for the junior boys. A fourth of the senior boys and 15.1 percent of the junior boys participated actively in student government. A fifth of the boys were active in organized musical activities. Organized activities which were participated in on an active basis by less than 10 percent of the boys include dramatics, debate, school paper or annual, Hi-Y or Tri-Y, and Future Farmers of America.

Among the girls, active participation in pep club or pep rallies occupied the leading position, followed by church youth groups, athletics and music. A fourth of the senior girls and almost a fifth of the junior girls were active in student government. Other organized activities in which 10 percent or more of the girls were active included dramatics, school paper or annual, hobby clubs and Hi-Y or Tri-Y. The only organized activities listed in which less than 5 percent of the girls were active were debate and Future Homemakers of America. (Since the percentages above are based on responses of students who reported the extent of participation in each activity listed, the extent of participation may be overstated. It is quite possible that students who did not participate in a particular activity may have been more likely to leave the question unanswered.)

We asked the students, "Are there any activities you would like to take part in that you aren't now participating in?" In response to this question, a substantial number of students indicated that they did have such desires. We did not attempt to discover why these students are not active in existing programs of organized activities, nor do we have any specific suggestions concerning possible action by the schools to meet the apparent unmet demand.

The proportion reporting a desire to participate in specified activities were as follows: school paper or annual, 28.1 percent; student government, 26.8 percent; athletics, 20 percent; dramatics, 18.1 percent; music, 16.3 percent; hobby club, 12.4 percent; debate, 12.1 percent; pep club or rallies, 8.5 percent; Hi-Y or Tri-Hi-Y, 6.6 percent; FFA or FHA, 2.7 percent. Eight percent indicated a desire to participate in church youth groups. Only 21 percent failed to list at least one desired additional organized activity.

School administrators in the individual schools participating in the study will be provided with information concerning the apparent unmet demand for specific types of organized activities in their schools for such consideration as they may wish to give to it.

School Subjects Liked Best

Table C-15 shows the responses which students gave to the question, "What school subjects do you like best?" Students were permitted to mark more than one subject. Very few students (0.6 percent) manifested total alienation from school by stating that they like no school subjects. (In this connection we should recognize, however, that most of the completely alienated students leave school prior to the junior year of high school.) The six most popular subjects, in order of popularity are: history, physical education, English, art and music, biology, algebra. Four of these subjects are "solids." These data do not support the popular stereotype of the student as one who likes only easy subjects. Physics and chemistry appear at the bottom of the list. As would be expected, boys are more likely than girls to be interested in mathematics, physical sciences, shop, and agriculture. Girls are more likely than boys to like humanities courses, business, and home economics.

Vocational Training Students Think Should Be Available

Students were asked what types of vocational education they thought should be available in high school. Responses (see Table C-16) indicate that a large proportion of the students appreciate vocational courses in high school. The courses which received the most support are the most likely to result in marketable skills, namely, business training (64.3 percent) and training in skilled trades (58.5 percent). Differences between the patterns of responses of girls and boys suggest that students are most likely to be interested in courses which could be of direct benefit to them, but the large number of students endorsing vocational couses indicates that many students take a broader view.

Nearly half of the sample (45.9 percent) marked the response, "A course in careers so that I would know what is involved in various jobs." This seems to indicate that many students feel that they do not have adequate knowledge about occupations and feel that they could benefit from a systematic presentation of more information about the occupational world.

As would be expected, the demand for various types of vocational education varies from school to school. An examination of Table 5 makes this very clear. Only 8.2 percent of the students in one school thought that vocational agriculture should be offered, 62.5 percent of those in another school thought that it should. The range of the proportion thinking that each course sould be available is as follows: home economics, 35.1 percent

TABLE 5 - VOCATIONAL TRAINING STUDENTS THINK SHOULD BE AVAILABLE, BY SCHOOL[a]

Courses	Percent in Each School											
	A	B	C	D	E	F	G	H	I	J	K	L
Agriculture	8.2	16.1	12.7	31.2	40.1	21.6	53.6	62.5	22.4	29.7	26.5	44.1
Home Economics	55.4	50.8	40.7	42.4	48.0	37.3	55.7	59.7	51.0	35.1	41.2	55.9
Business Training	73.3	64.0	59.5	61.7	68.5	45.1	56.7	65.3	59.2	32.4	50.0	55.9
Industrial Arts	39.5	38.3	37.8	43.0	40.4	40.2	42.3	23.6	28.6	18.9	29.4	70.6
Skilled Trades	51.8	67.5	52.8	60.8	68.9	59.8	57.7	55.6	57.1	29.7	52.9	67.6
Trades for Girls	26.8	39.8	29.4	31.2	38.1	29.4	37.1	41.7	30.6	32.4	26.5	20.6
Course in Careers	48.3	41.2	47.0	45.4	41.7	54.9	49.5	50.0	57.1	56.8	32.4	35.3
Vocational Counseling	49.7	44.6	51.3	53.1	47.4	52.9	46.4	36.1	38.8	54.1	50.0	29.4
None	3.7	1.0	1.2	1.8	1.0	1.0	2.1	0.0	0.0	5.4	2.9	0.0
Number of Respondents	801	616	511	337	302	102	97	72	49	37	34	34
Number of Nonrespondents	22	34	17	14	10	0	5	0	0	2	4	0

[a]Based on responses to question 14 in form A of the student questionnaire. Percentages total to more than 100 because more than one response could be marked by the respondent.

to 59.7 percent; business training, 32.4 percent to 73.3 percent; industrial arts, 23.6 percent to 70.6 percent; training is skilled jobs, 29.7 percent to 68.9 percent; trades for girls, 20.6 percent to 41.7 percent; a course in careers, 32.4 percent to 57.1 percent; counseling, 29.4 percent to 54.1 percent.

The level of demand for a given vocational subject in a school probably reflects the student's perception of the benefit that that subject would be to him. This would, in part, reflect the occupational structure of the community and the attitudes of parents. The presence of a good and popular program could, however, create its own demand. Students in a school where a certain course is not offered may have failed to check that course because they were not aware of the benefits that they could derive from it.

Attitudes Toward Vocational Education

Students were asked to respond to a series of statements relevant to vocational education in the high school curriculum by indicating the proportion of the students in their school who held the attitude described in each statement. The responses appear in Tables C-17 through C-25.

An examination of these tables suggests that although vocational education was not ranked very high by most students, few students would exclude such courses from the curriculum. A substantial minority felt that their high school should concentrate more on vocational education than it currently does.

We were interested in learning the extent to which schools differ in the cultural definition of vocational education which is present among the students. Data relevant to this question are presented in Table 6.

Schools do differ in respect to the proportions of students having attitudes favorable or unfavorable to vocational education in the curriculum. This is indicated most clearly by the responses of students in two schools to the first four statements. The largest school (823 students) was lowest in the proportion of students feeling that the high school curriculum should be more closely related to specific jobs, lowest in proportion feeling that there should be more emphasis on vocational and technical courses, and lowest in proportion feeling that high school should concentrate more on skills useful in jobs. It was highest in the proportion saying that every student should try to go to college. The school with 312 student respondents was highest on the first three questions and lowest on the fourth.

TABLE 6 - PERCEIVED ATTITUDES OF STUDENTS TOWARD VOCATIONAL EDUCATION IN THE HIGH SCHOOL CURRICULUM, BY SCHOOL[a]

Statements	Percent saying "All of Them" or "Most of Them" Agree											
	A	B	C	D	E	F	G	H	I	J	K	L
The high school curriculum should be more directly related to specific jobs.	12.8	20.5	19.0	22.8	31.9	22.7	23.2	26.1	17.0	22.6	23.5	21.8
There should be more emphasis on vocational and technical courses and less on college preparation.	7.5	14.5	13.4	15.6	22.8	15.3	9.9	11.9	12.8	8.1	19.4	9.4
High school should do more to provide students with skills useful in jobs and should not worry so much about college preparation.	11.2	16.3	13.2	16.8	27.8	17.4	12.6	20.9	23.9	10.8	31.4	12.5
Every student should try to go to college. If he can't make it there he can always get an ordinary job.	68.6	45.0	49.2	49.2	33.4	39.8	41.1	34.4	41.3	35.1	36.1	35.1
Courses like welding and wood working have no place in today's high school.	8.7	2.4	5.8	2.6	5.1	9.2	6.6	4.5	2.1	10.8	0.0	6.0
Students enrolled in vocational courses generally don't have the ability to master college preparatory courses.	27.9	23.8	20.8	20.7	19.0	21.4	8.9	23.9	12.8	6.1	8.8	24.2
Business courses like typing and shorthand are as important for girls as are college preparatory courses.	61.4	64.9	64.1	67.3	66.3	62.2	59.1	77.3	70.2	56.7	75.8	59.4
Shop courses are good preparation for the kind of work many students will be doing.	42.7	60.8	47.3	50.0	40.5	42.9	49.4	62.7	38.3	32.4	47.0	58.1
In modern society the skilled craftsman is as important as the scientist or professional.	38.1	53.0	41.5	47.8	47.0	49.0	41.1	46.2	31.9	43.2	60.6	37.5
Number of students participating in study.	823	650	528	351	312	102	102	72	49	39	38	34

[a]Based on responses to question 62 in form A of the student questionnaire.

Attitudes Toward School

Students were asked to respond ("agree," "neither agree nor disagree," or "disagree") to a series of statements depicting attitudes toward various aspects of school. The statements (presented in order of the proportion agreeing) and the percent agreeing with each are presented below:

Statements	Percent
Education is important in preparing for a job	95.5
I appreciate the opportunity to learn more	76.9
Most of my teachers are very helpful	65.9
I like school very much	42.4
I often watch TV instead of doing homework	40.8
Classes are boring so I watch the clock	30.3
I enjoy lunch time most	21.6
Teachers are most helpful to good students	18.7
School is difficult for me	16.2
I would rather read than go to a movie	15.4
High school is 'serving time' until I get out and go to work	10.8
The most important aspect of school is the diploma	6.8

Nearly all students feel that education is important in preparing for a job. Most students displayed positive feelings about school by agreeing that they appreciate the opportunity which school provides them to learn and that their teachers are helpful. Less than half of the students agreed with the statement "I like school very much," but only 8.9 percent disagreed with it. Nearly one-third of the students indicated that they find classes boring. A minority of the students revealed some alienation from school by saying that lunch time is the most pleasant part of the day, and that teachers show favoritism to the best students. Only a very few students felt that the diploma is the most important thing that one gets from school. Most of today's high school students recognize the importance of education and apparently derive some satisfaction from it. Only a minority appear to be alienated from school, but this minority is large enough numerically to be the subject of serious concern.

OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS

To ascertain occupational aspirations and expectations, students were asked, "What occupation would you most like to have as your career if you could do whatever you chose?" They were also asked, "What occupation do you really expect to have as your life's work?" Responses to these questions, classified according to the census categories and shown separately for boys and girls and juniors and seniors, are presented in Tables C-8 and C-9. In Table 7 responses of the students are compared to the actual occupational distributions of the labor force in Washington and in the United States. (It should be noted that a large number of students did not respond to the questions on occupational aspirations and expectations. Eight and one-half percent of the total sample, and 11.5 percent of the boys, did not specify an occupational aspiration. Nineteen percent of the total sample, and 28.4 percent of the boys, did not answer the question on expectations. Since percentages in Table 7 are based on the number of respondents, they can be used to make generalizations about only those students who have specified occupational aspirations and expectations. The patterns might be quite different if those not answering were placed in the categories they will eventually select.)

Among the respondents, professional occupations were desired by 62.8 percent and 43.1 percent said that they expected to be professionals. The reduction was due principally to the expectations of many girls that said they will be housewives; fifty-seven percent of the boys who provided information said they expected to be professionals. (As noted in footnote C of Table 7, housewives have been classified as private household workers. The occupational expectations of girls will be described in greater detail later.)

The occupational aspirations and expectations of students who participated in this study differed relatively little from those of students who participated in the 1964-65 study of students in rural high schools. Slightly fewer students in that study desired or expected to be professionals. Fewer of the boys desired or expected to be managers. More of the boys desired and expected to be farmers and craftsmen. Fewer of the girls listed professional occupations as their aspirations, more listed housewife, and more listed clerical work (9).

Viewed over a longer time perspective, there appears to have been a considerable increase in preferences for professional occupations. A much smaller proportion (37 percent) of the 1954-55 Washington high school seniors aspired to enter professional occupations (10).

TABLE 7 - OCCUPATIONAL ASPIRATIONS AND EXPECTATIONS OF HIGH SCHOOL JUNIORS AND SENIORS IN WASHINGTON COMPARED TO OCCUPATIONAL DISTRIBUTION OF THE WASHINGTON[a] AND UNITED STATES[b] POPULATIONS

Occupational Categories	Aspirations Percent	Expectations Percent	Washington[a] Percent	United States[b] Percent
Professional	62.8	43.1	13.0	11.2
Farm Owners and Managers	1.0	0.8	3.0	3.9
Managers, Officials and Proprietors	6.2	5.2	9.7	8.4
Clerical Workers	8.3	8.8	14.6	14.4
Sales Workers	2.5	1.9	7.5	7.2
Craftsmen	6.9	8.7	14.8	13.5
Operatives	0.7	1.3	14.1	18.4
Service Workers:			11.3	11.1
Private Household[c]	1.5	22.7		
Other Service	9.3	6.0		
Farm Laborers and Foremen	0.0	0.0	2.7	2.2
Laborers, except Farm and Mine	0.6	1.5	5.9	4.8
Occupation Not Reported			3.4	4.9
Total Number of Respondents	2835	2508	1,001,909	64,639,247
Nonrespondents:				
Number	265	592		
Percent of Total Cases	8.5	19.1		

[a]United States Census of Population, 1960, Washington, Detailed Characteristics, Table 120.

[b]United States Census of Population, 1960, United States Summary, General Social and Economic Characteristics, Table 89.

[c]The occupation of housewife is included in this category. It would not be included in the census category of employed persons.

There were substantial differences among the schools included in the study. For example, the proportion of respondents aspiring to professional or technical occupations ranged from 48.9 percent to 70 percent and the proportions expecting to enter such occupations ranged from 18.6 percent to 47.5 percent. The proportions aspiring to be craftsmen ranged from 2.1 percent to 17.6 percent while the proportions expecting to be craftsmen ranged from 3.6 percent to 19.7 percent. Details are presented in Appendix Tables C-52 and C-53. These differences do not appear to be primarily due to size of school, but rather to other factors, including the socio-economic status and occupational composition of the community.

There were, as expected, differences between the occupational aspirations of girls and those of boys. Girls were less likely to be uncertain about their occupational goals or expectations. Only 5.5 percent of the girls, as opposed to 11.5 percent of the boys, failed to answer the question on aspirations. The proportion of girls not answering the question on expectations was only one-third as large (9.6 percent compared to 28.4 percent) as the proportion of boys failing to answer the same question. Girls were more likely than boys to say they aspired or expected to enter clerical and service occupations. Boys were more likely than girls to say they aspired or expected to enter managerial occupations or crafts.

Homemaking and Work Plans of Girls

During the past generation there has been a marked increase in the number of women working outside the home. In order to determine the role which high school girls expect work to play in their lives, the researchers asked girls answering the questionnaire to mark one of a group of categories which combined work and homemaking in various ways. Results are presented in Table C-11.

Only 3.8 percent of the girls indicated that they did not want to marry. Nearly three-fourths of the girls (72.7 percent) said that homemaking would be their major interest. Marriage and family life are apparently strong values for teenage girls. However, few girls feel that they will want to spend all of their lives at home. Only 12.1 percent said that they would not want to work at all after marriage. Girls were more likely to see themselves combining family life with occasional or part-time work than they were to think of any other combination. The most popular single combination (43.5 percent) was homemaking with occasional or part-time work. However if we add the responses to the last four categories in Table C-11, we find that 44.4 percent of the girls indicated that they would like to work much of the time.

Further information concerning the extent to which girls plan to participate in work outside the home can be found in Tables C-9 and C-10. Girls who had said that they expected to be housewives were asked whether they expected to have another occupation and if so what it was. About 40 percent of the girls listed housewife as their occupational expectation. Two-thirds of these girls said that they expected to have an occupation other than housewife. Thus only 13.3 percent of the girls who responded to the question on occupational expectations failed to indicate an expectation of participation in some occupation other than or in addition to that of housewife.

These data indicate that most Washington girls now nearing the age for marriage and/or entry into the labor force feel that work outside the home will play a major role in their lives.

Plans for Occupational Preparation

Once a student has selected an occupation he must formulate some plan for gaining entry into it. To gather information relevant to the question of how students conceptualized the problem of preparing for an occupation, the researchers included a question which asked students what they think they must do to prepare themselves for work. The results appear in Table C-12. Five percent of the students indicated that they had never thought of the problem, 1.9 percent felt that the job of their choice would require no special preparation, and 2.5 percent said they would wait until they found a job before worrying about preparation. Just over half of the respondents thought that their task would be to select a specific occupation and prepare for it. One-third of the respondents indicated a belief that they could postpone choice of a specific occupation while acquiring skills that would be useful in several jobs.

Occupational Plans and Mobility Expectations

Choice of an occupation affects and can be affected by choice of a place of residence. How do high school students, living in an era where geographic mobility is common, perceive the relationship between occupation and mobility and how do they feel about moving from their home community? Only about one-fourth of the students believed that they would be able to find the kind of a job they want and live the way they would like to live in the home community (see Table C-14). Nearly 40 percent indicated that they thought they would have to move to achieve these goals. Most students did not appear to be disturbed by the prospect of moving from their home community (see Table C-13). Over forty percent

said they would prefer to leave; another 28.7 percent did not care whether they would stay or leave; only 25.0 percent expressed a preference to stay; and a mere 3.5 percent said that they definitely want to stay.

DISCUSSION

Although we have not presented evidence to substantiate this view, it seems highly probable to the investigators that the high levels of educational and occupational aspirations and expectations revealed by these data reflect the hopes and expectations of parents as well as those of the students themselves. These, in turn, rest upon their perceptions of the occupational opportunity structure including educational requirements for occupational competition.

Granting that only a fourth of the respondents appeared to be primarily oriented to vocational-technical education, a much larger proportion indicated a desire to take some vocational education during their careers. An even larger number felt that high schools should offer vocational training of various types. In addition, it is evident from the responses that most students who expect to graduate from college feel this way. We do not know why this should be so, but it is possible that some of the college-bound wish to gain skills which they can use to earn their way through college. Perhaps some see the skills they will acquire as useful or enjoyable in their personal lives, apart from their occupational value.

A few comments should be made about the meaning and consequences of educational aspirations and expectations. The differences indicate that not all students expect to attain the goals they would like to attain. Experience also shows that many students who expect to get certain types of education will not do so. Responses to questions concerning certainty of decisions indicate that students themselves recognize that achievement of their goals is problematic. Nevertheless aspirations and expectations will influence the behavior of individuals. The student who expects to attend college or vocational school, for example, will probably plan his high school curriculum to make this possible. Interestingly, the findings of a 1962 nation-wide study conducted by the University of Pittsburgh show that of those students who indicated that they planned to attend college, 92 percent of the boys and 78 percent of the girls actually did so (3).

We noted earlier that a higher proportion were sure that they knew what further education they wanted than were sure that they would be able to get the education they planned to obtain. This may reflect a tendency of students to make plans conditional upon their success at each stage or it may indicate that some students who do not think that they can achieve that which they wish to achieve are unable to settle on an alternate goal.

Given the high occupational goals reflected in the percent of students who aspire or expect to enter the professions, it is somewhat anomalous that the proportion of students aspiring or expecting to enter the managerial ranks is less than the proportion of employed persons in this category. Perhaps some students who aspire to be managers phrased their answers in such a way that this fact could not be recognized. But it is also possible that managerial occupations are not as attractive to today's youth as are other high level occupations.

Very few students desired or expected to become farmers. This suggests that many are aware that the proportion of farmers in the labor force is decreasing, and there are relatively few attractive career opportunities on farms.

The fact that many students (especially boys) failed to name a specific desired or expected occupation suggests that many students leave high school without knowing what they want to do for a living and, even more, leave without knowing what they will actually do. Their uncertainty may be due in part to inadequate information coupled with half-truths about the probable impact of automation on unskilled and semiskilled occupations which in the past have been the predominant entry occupations for young people.

The finding that fewer girls than boys appeared uncertain about their occupational plans may reflect the fact that the choice of an occupation is less problematic for girls since nearly all will be homemakers (though many will have other jobs too). Girls are only a little less likely than boys to aspire to professional occupations but much less likely to expect to enter them. This difference should not be interpreted as showing a greater tendency for girls to scale down their expectations. Most of the shift results from the fact that many girls indicated professional occupations as aspirations but housewife (classified with private household workers) on expectations. Girls who said that they expected to be housewives were asked whether they expected to have some other occupation in addition, and if so, what. Half of those who responded to this question listed a professional occupation. The drop between girls' aspirations and their expectations may not be as great as it first appears. (Girls are more likely than boys to aspire or expect to enter clerical and service occupations. Boys are more likely than girls to aspire and expect to enter managerial occupations and crafts.)

We observed that there were substantial differences among the schools in our sample in respect to students' evaluations of vocational education. There were also differences among schools in the proportion of students aspiring and expecting to obtain each of the

various kinds of education and enter each of the various occupational fields. The list of possible reasons for these differences includes the socio-economic status of students' families, family and community values, the occupational structure of the community, and the attitudes of teachers and administrators toward vocational education. It is also probable that differences in student culture have an effect on the educational and occupational planning of students. If students who are equal in other respects are compared, we suspect that those in schools where many students hold negative attitudes toward vocational courses are less likely to be oriented toward vocational education (and the jobs for which it prepares) than are those in schools where few students hold negative attitudes toward vocational education.

CONCLUSIONS AND IMPLICATIONS

CONCLUSIONS

The results described above indicate that juniors and seniors in Washington high schools have very high levels of educational aspirations and expectations. Most of them apparently like school quite well and appear to be convinced that further education beyond high school is desirable.

Even though the great majority indicated a preference for a college education and a professional occupation, a substantial minority, nearly one fourth, appeared eager for further vocational-technical education.

Occupational aspirations and expectations were also found to be high. About six out of ten students aspired to enter professional occupations. More than four out of ten students expect to enter professions.

IMPLICATIONS

We found that very few students in our sample aspired or expected to become sales workers, operatives, or laborers. The proportion of respondents who aspired or expected to be clerical workers or craftsmen was also much smaller than the proportion of these occupations in the labor force. If the occupational structure does not change drastically, many students who neither desire nor expect to enter a blue-collar occupation or a lower-level white-collar occupation will actually do so.

More than six out of ten respondents aspired to professional or technical occupations. Even though there is a substantial drop between aspirations and expectations, the proportion of students expecting to be in the professional and technical occupations is nearly four times as large as the percent of United States labor force in this category and more than three times as great as the percent of the Washington State labor force in these occupations. Furthermore, as we have already noted, much of the drop between aspirations and expectations is accounted for by the fact that many girls who aspired to a professional occupation expect to be housewives.

If the structure of the existing labor force is used as a criterion, it appears that the desires and expectations of many young people are unrealistically high. At the same time, it should

be recognized that the occupational structure is likely to be greatly modified in the future so that there may be need for many more professionals than in the past.

Today's high school students have apparently accepted the models of success promulgated by society. These high levels of aspirations and expectations are, no doubt, functional for society in that they motivate a large number of young people to strive for positions which are important to the economy. We have yet to learn the consequences of filling many of the lower paid and less prestigeful occupations with people who were frustrated in their pursuit of higher occupational goals.

American educators and public leaders have, especially since the beginning of the space race, been attempting to motivate students to continue their education after high school. Data presented in this report indicates that this campaign has been successful. Educators and public leaders must now deal with the consequences of this success. Unless post-high school educational facilities are greatly increased, many students who wish to continue their education will be unable to find openings. The families of many students who aspire to college or other types of education will not have the resources to pay for it. Unless these problems can be overcome, many students will experience frustration and the society will not achieve the gains in skilled personnel and educated citizens which it otherwise might.

It appears that a counseling problem has been created by the high levels of aspirations. Many students may be aspiring or expecting to complete education for which they do not have the intellectual capability. Counselors are thereby presented with a great challenge in helping students assess their own abilities and select realistic goals without suffering a damaging loss of self-esteem in a society which emphasizes the importance of upward mobility and success.

Finally, since the majority of students apparently feel that it is important to make a fairly specific occupational choice before starting their training, it would seem wise to present sufficient information about occupations to permit well informed choices. This might well be done systematically through the curriculum.

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APPENDIX A:
METHODOLOGICAL DETAILS

SAMPLE DESIGN

The population for this study consists of all juniors and seniors enrolled in public high schools in the State of Washington during the 1965-66 school year, except those enrolled in the 30 rural high schools which participated in the 1964-65 study of farm youth conducted by the Department of Rural Sociology at Washington State University (8). Schools were divided into strata according to size of combined junior and senior classes as follows:

750 and above
500 to 749
250 to 499
100 to 249
50 to 99
0 to 49

Each of the four strata having less than 500 students was divided into two equal strata, according to the proportion of students enrolled in vocational courses.

The schools within each stratum were assigned numbers. Using a table of random numbers, schools were drawn from each stratum until the proportion of students drawn from that stratum equalled the proportion which that stratum was of the total population of juniors and seniors in the state.

The sample schools in each stratum were divided into two groups (A and B). This was accomplished by randomly assigning the first school to either A or B and then alternately assigning the remainder of the schools.

Two alternate schools were drawn from each stratum. If a sample school refused to participate, it was replaced by one of the alternates.

Questionnaires were administered to all of the juniors and seniors in each school who were willing to participate.

Only data obtained from the A sample are presented in this report.

ADMINISTRATION OF THE CLASSROOM QUESTIONNAIRE

Questionnaires were administered in the schools by classroom teachers.

The principal in each participating high school was asked to assume responsibility, or to designate some other person to do so, for receiving the questionnaires, arranging with teachers for their administration, collecting completed questionnaires, and returning them to Washington State University. The person who performed these tasks was paid a token honorarium of $20 (more in some of the larger schools) for his services.

Questionnaires to be used in a school were sent to the person in that school who had assumed responsibility for making local arrangements. He was asked to distribute the appropriate number of questionnaires to each teacher. He was also asked to explain the study to the teachers and to give them a set of written instructions prepared by the researchers.

Instructions emphasized that participation was voluntary and that the information provided by students would be given strict confidential treatment.

In an attempt to minimize the possible effect of intervention by teachers, teachers were asked to refrain from interpreting any question for the students and each questionnaire was accompanied by a letter explaining the study to the student.

OBTAINING THE COOPERATION OF THE SAMPLE SCHOOLS

An individually typed form letter was sent to the superintendent of each of the sampe schools requesting cooperation. The letter explained the objectives of the study and the procedures to be followed in the administration of the questionnaire, including precautions to be taken to insure confidentiality of information. The letter suggested that it might be disirable to contact the board of directors of the school. Copies of the project outline and copies of a near final version of the questionnaire were enclosed.

If no response was received from the superintendent within two weeks, the staff director either wrote to him again or called him on the telephone. In some cases, the staff director visited the schools and explained the study in more detail to school personnel.

All of the sample A schools which were contacted agreed to participate. However, one school decided not to proceed with the study because it was feared that an unrelated local incident might stimulate public opposition. In another school the specified administration procedures were not followed. Because of the timing it was not possible to select alternates for either of these schools.

APPENDIX B:

FORM A STUDENTS' QUESTIONNAIRE

WASHINGTON STATE UNIVERSITY
DEPARTMENT OF EDUCATION

Dear Student:

Washington State University is making a scientific study of the factors that influence the educational and occupational desires and plans of high school juniors and seniors in the State of Washington.

We are going to ask about 4,000 students in schools all over the state to fill out this questionnaire. The information you and other students provide will help teachers and school officials plan educational programs that meet the needs of students. This information will also provide answers to scientific questions.

Previous research has shown that students with similar scholastic ability may have very different educational plans. There may be several reasons for this. These include family background, the attitudes of friends, personal experiences in the classroom, other school related activities, and encouragement from teachers, counselors, or others. We hope to be able to determine the importance of each of these things on the basis of answers to the questions in this questionnaire.

Names and addresses are desired so that research workers can contact some students later to ask additional questions which have a bearing on educational and occupational plans. Special precautions have been set up to insure that your replies will be kept confidential and not revealed to anyone. After you write your name and address on the card which is attached to the front of the questionnaire, remove this card and send it to the front of the room. All name cards will be placed in an envelope which will be sealed immediately. It will not be opened until it is delivered to Washington State University.

WORK RAPIDLY. DO NOT MULL OVER ANY QUESTION. If you are not sure about the meaning of a question just answer it in keeping with your general impression of what the question means. If you are not sure what answer is best, give the one that is closest to your own feelings or opinion and move on. Your first impressions are generally the best. Do not change your answer unless you feel it is absolutely necessary. Work as rapidly as you can without feeling rushed.

You are not required to answer this questionnaire or any question in it if you do not wish to do so. Participation is entirely voluntary. However, we hope that you will decide to cooperate by answering the questions frankly and honestly.

Thank you very much.

December 1965
Form A

DEPARTMENT OF EDUCATION

WASHINGTON STATE UNIVERSITY

EDUCATIONAL AND OCCUPATIONAL PLANS OF HIGH SCHOOL STUDENTS

CONFIDENTIAL

[ ] [01]

1. Sex

_____(1) Boy
_____(2) Girl

2. What grade are you in?

_____(1) 11th
_____(2) 12th

3. How old are you at your nearest birthday?

_____(1) 14 or younger
_____(2) 15
_____(3) 16
_____(4) 17
_____(5) 18
_____(6) 19 or older

4. Where do you live?

_____(1) City (2,500 or more)
_____(2) Town (under 2,500)
_____(3) On a farm
_____(4) Country, but not farm

5. What is your race? (optional)

_____(1) White
_____(2) Negro
_____(3) Oriental
_____(4) American Indian
_____(5) Other (what?)_____

6. How much thought have you given to your future educational needs and plans?

_____(1) None at all
_____(2) Very little
_____(3) Some
_____(4) A great deal

7. Mark the boxes at the left of the phrases that best describe your desires for future education. (Check all that apply.)

_____(1) Quit high school and not go to any kind of school again
_____(2) Graduate from high school
_____(3) Attend a business or commercial school (not college level)
_____(4) Attend a technical or vocational school (not college level)
_____(5) Attend a junior college - take a business or commercial course
_____(6) Attend a junior college - take a vocational or technical course
_____(7) Attend a junior college - take a regular college course
_____(8) Attend a college or university
_____(9) Graduate from a college or university
_____(10) After graduating from college spend one or more years doing advanced study in a specialized field
_____(11) Other (what?)_____

8. How certain are you that this is what you want to do about further education?

_____(1) Very sure
_____(2) Fairly sure
_____(3) Not at all sure

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67. How do you like farm life?

_____(1) Like it greatly
_____(2) Like it
_____(3) Neutral
_____(4) Dislike it
_____(5) Dislike it greatly

68. What is the most important factor in the choice of farming as an occupation? Mark the one factor you consider most important. (Mark only one.)

_____(1) Farming background
_____(2) Desire to farm
_____(3) Availability of an adequate farm
_____(4) Adequate financing

69. Is there a farm available if you want to go into farming?

_____(1) Yes
_____(2) No
_____(3) I don't know

70. If "yes," where is the farm located?

_____(1) Present home address
_____(2) Farm in present locality
_____(3) Farm in other section of Washington
_____(4) In a nearby state

71. Does most of your family income come from farm or non-farm employment?

_____(1) Mostly from farm
_____(2) Mostly from non-farm

Thank you for your cooperation.

9. Mark the blanks at the left of the phrases which best describe that education you think you will actually be able to get. (Check all that apply.)

_____(1) Quit high school and not go to any kind of school again
_____(2) Graduate from high school
_____(3) Attend a business or commercial school (not college level)
_____(4) Attend a technical or vocational school (not college level)
_____(5) Attend a junior college - take a business or commercial course
_____(6) Attend a junior college - take a vocational or technical course
_____(7) Attend a junior college - take a regular college course
_____(8) Attend a college or university
_____(9) Graduate from a college or university
_____(10) After graduating from college spend one or more years doing advanced study in a specialized field
_____(11) Other (what?)_____

10. How sure are you that you will actually get the highest level of education you marked in question 9?

_____(1) Very sure
_____(2) Fairly sure
_____(3) Not at all sure

11. If you plan to get further education after high school, please name the school or schools you plan to attend. (Examples: Eastern Washington State College, Renton Vocational School, Spokane Beauty College.)

_____

11a. What subject do you plan to major in?

_____

12. Since completing the eighth grade, how many semesters will you have studied each of the following subjects by the end of high school? Circle the appropriate number.

(1) Agriculture	0	1	2	3	4+	(8) History	0	1	2	3	4+
(2) Art and music	0	1	2	3	4+	(9) Home economics	0	1	2	3	4+
(3) Biology	0	1	2	3	4+	(10) Mathematics	0	1	2	3	4+
(4) Business	0	1	2	3	4+	(11) Physical ed.	0	1	2	3	4+
(5) Chemistry	0	1	2	3	4+	(12) Physics	0	1	2	3	4+
(6) English	0	1	2	3	4+	(13) Shop	0	1	2	3	4+
(7) Foreign language	0	1	2	3	4+	(14) Social studies	0	1	2	3	4+

13. What school subjects do you like best? More than one can be marked.

_____(1) Agriculture
_____(2) Art and music
_____(3) Algebra
_____(4) Biology
_____(5) Business
_____(6) Chemistry
_____(7) English
_____(8) Foreign language
_____(9) Geometry
_____(10) History
_____(11) Home economics
_____(12) Physical education
_____(13) Physics
_____(14) Shop
_____(15) Social studies
_____(16) Trigonometry
_____(17) I don't like any of them
_____(18) Other (what?)_____

(6) OCCUPATION	(1) I would like this very much	(2) I would like this fairly well	(3) Indifferent	(4) I would dislike this a little	(5) I would dislike this very much
_____ Machine operator in factory	_____	_____	_____	_____	_____
_____ Maid - motel or hotel	_____	_____	_____	_____	_____
_____ Manager of department store	_____	_____	_____	_____	_____
_____ Manager of a loan company	_____	_____	_____	_____	_____
_____ Mechanical draftsman	_____	_____	_____	_____	_____
_____ Medical lab technologist	_____	_____	_____	_____	_____
_____ Minister, priest or rabbi	_____	_____	_____	_____	_____
_____ Nurse (R.N.)	_____	_____	_____	_____	_____
_____ Nurse's aide	_____	_____	_____	_____	_____
_____ Owner and operator of small business	_____	_____	_____	_____	_____
_____ Physical therapist	_____	_____	_____	_____	_____
_____ Physician	_____	_____	_____	_____	_____
_____ Plumber	_____	_____	_____	_____	_____
_____ Police officer	_____	_____	_____	_____	_____
_____ Psychologist	_____	_____	_____	_____	_____
_____ Radio announcer	_____	_____	_____	_____	_____
_____ Recreational programs supervisor	_____	_____	_____	_____	_____
_____ Reporter on daily newspaper	_____	_____	_____	_____	_____
_____ Restaurant host or hostess	_____	_____	_____	_____	_____
_____ Sales person of farm supplies	_____	_____	_____	_____	_____
_____ Sales person in retail store	_____	_____	_____	_____	_____
_____ Secretary	_____	_____	_____	_____	_____
_____ Social worker	_____	_____	_____	_____	_____
_____ Tailor or dressmaker	_____	_____	_____	_____	_____
_____ Taxi driver	_____	_____	_____	_____	_____
_____ Truck driver	_____	_____	_____	_____	_____
_____ Veterinarian	_____	_____	_____	_____	_____
_____ Waiter or waitress	_____	_____	_____	_____	_____
_____ Warehouse worker	_____	_____	_____	_____	_____
_____ Welder	_____	_____	_____	_____	_____
_____ X-ray technician	_____	_____	_____	_____	_____

ANSWER THE REST OF THE QUESTIONNAIRE ONLY IF YOU HAVE LIVED ON A FARM

65. How many years have you lived on a farm?

_____(1) Less than one
_____(2) One to three
_____(3) Four to seven
_____(4) Eight to twelve
_____(5) Thirteen or more

66. If you did live on a farm, when was that?

_____(1) Sometime between birth and 12 years of age
_____(2) After 12 years of age
_____(3) Most of my life
_____(4) All of my life
_____(5) Other (what?) _____

	02

14. What types of vocational training do you think should be available in your high school? Mark the types already available if you think they are important. More than one can be marked.

_____(1) Agriculture
_____(2) Home economics
_____(3) Business training
_____(4) Industrial arts
_____(5) Training in skilled trades - for example, electronics, carpentry and mechanics
_____(6) Training in trades for girls - for example, hair dressing and practical nursing
_____(7) A course in careers so that I would know what is involved in various jobs
_____(8) Vocational counseling to help me decide what job to choose
_____(9) None, school should concentrate on academic subjects
_____(10) Something else (what?)_____

15. How much of your school work are you interested in?

_____(1) All
_____(2) Most
_____(3) Some
_____(4) Little
_____(5) None

16. Circle a number to show how you feel about each of the statements below.

	(1) Agree	(2) Neither agree nor disagree	(3) Disagree	
(a)	1	2	3	I like school very much.
(b)	1	2	3	Most of my teachers are very helpful.
(c)	1	2	3	I often find myself watching the clock because my classes are so boring.
(d)	1	2	3	Lunch time is the most enjoyable time of the day.
(e)	1	2	3	School is difficult for me.
(f)	1	2	3	My teachers are the most helpful to the very good students.
(g)	1	2	3	The most important thing one gets out of high school is the diploma.
(h)	1	2	3	In my free time I would rather read than go to a movie.
(i)	1	2	3	In the evening I often find myself watching TV instead of doing my homework.
(j)	1	2	3	Education is important in preparing for a job.
(k)	1	2	3	High school seems to be little more than "serving time" until I can get out and go to work.
(l)	1	2	3	I appreciate the opportunity education gives me to learn more and broaden myself.

63. Which person expects you to accomplish the most in the future?

_____(1) Father
_____(2) Mother
_____(3) Older brother or sister
_____(4) A friend in school
_____(5) A person about my own age (who is not in my school)
_____(6) A teacher, counselor or principal
_____(7) An adult other than those listed
_____(8) No other person

	05

64. Please consider each occupation listed below and on the next page. Check a blank to show how well you think you would like that kind of work. Work quickly. Your first impression is the most valuable. (If you feel that you do not know enough about a particular occupation to make a realistic decision, place a check mark in the blank to the left of that occupation.)

(6) OCCUPATION	(1) I would like this very much	(2) I would like this fairly well	(3) Indifferent	(4) I would dislike this a little	(5) I would dislike this very much
_____ Agricultural research scientist	_____	_____	_____	_____	_____
_____ Aide in child care center	_____	_____	_____	_____	_____
_____ Airline pilot	_____	_____	_____	_____	_____
_____ Airline stewardess	_____	_____	_____	_____	_____
_____ Automobile salesman	_____	_____	_____	_____	_____
_____ Automobile mechanic	_____	_____	_____	_____	_____
_____ Banker	_____	_____	_____	_____	_____
_____ Bank teller	_____	_____	_____	_____	_____
_____ Bookkeeper	_____	_____	_____	_____	_____
_____ Carpenter	_____	_____	_____	_____	_____
_____ Certified public accountant	_____	_____	_____	_____	_____
_____ Cook (restaurant)	_____	_____	_____	_____	_____
_____ College professor	_____	_____	_____	_____	_____
_____ Commercial artist	_____	_____	_____	_____	_____
_____ County agricultural agent	_____	_____	_____	_____	_____
_____ Computer programmer	_____	_____	_____	_____	_____
_____ Dietician	_____	_____	_____	_____	_____
_____ Dentist	_____	_____	_____	_____	_____
_____ Electrician	_____	_____	_____	_____	_____
_____ Elementary school teacher	_____	_____	_____	_____	_____
_____ Engineer	_____	_____	_____	_____	_____
_____ Factory manager	_____	_____	_____	_____	_____
_____ Farm operator	_____	_____	_____	_____	_____
_____ Foreman in factory	_____	_____	_____	_____	_____
_____ Home demonstration agent	_____	_____	_____	_____	_____
_____ Hair dresser or cosmotologist	_____	_____	_____	_____	_____
_____ Hotel-motel clerk	_____	_____	_____	_____	_____
_____ Janitor	_____	_____	_____	_____	_____
_____ Lawyer	_____	_____	_____	_____	_____
_____ Life insurance salesman	_____	_____	_____	_____	_____

17. On your last report card did you get mostly: (Mark only one)

_____(1) A's
_____(2) A's and B's
_____(3) B's
_____(4) B's and C's
_____(5) C's
_____(6) C's and D's
_____(7) D's
_____(8) D's and F's

18. In which of the following organized activities do you participate? Circle a number to show how active you are in each.

	(1) Don't participate	(2) Not very active	(3) Quite active	(4) Very active	
(a)	1	2	3	4	Athletics
(b)	1	2	3	4	Music
(c)	1	2	3	4	Dramatics
(d)	1	2	3	4	Debate
(e)	1	2	3	4	School paper or annual
(f)	1	2	3	4	Student government
(g)	1	2	3	4	FFA or FHA
(h)	1	2	3	4	Hobby clubs
(i)	1	2	3	4	Pep club or pep rallies
(j)	1	2	3	4	Church youth groups
(k)	1	2	3	4	Hi-Y or Tri-Hi-Y
(l)	1	2	3	4	Others_____
(m)	1	2	3	4	_____
(n)	1	2	3	4	_____
(o)	1	2	3	4	_____

19. How many high office positions (president, vice president, captain) have you held in the organized activities that you marked in the question above?_____

20. Are there any activities you would like to take part in that you aren't now participating in? Mark all that apply.

_____(1) Music
_____(2) Athletics
_____(3) Dramatics
_____(4) Debate
_____(5) School paper or annual
_____(6) Student government
_____(7) Church youth groups
_____(8) Hi-Y or Tri-Hi-Y
_____(9) FFA or FHA
_____(10) Hobby club
_____(11) Pep rallies or pep club
_____(12) None of these

21. On the following items compare yourself to the rest of your classmates. Circle a number to show how you think your ability to do the things listed compares to the ability of your classmates.

	(1) Very much below average	(2) Somewhat below average	(3) About average	(4) Somewhat above average	(5) Very much above average	
(a)	1	2	3	4	5	Read and understand textbooks and other material assigned by teachers.
(b)	1	2	3	4	5	Memorize and remember facts and figures.
(c)	1	2	3	4	5	Write term papers, book reviews and short reports.

	(1) All of them	(2) Most of them	(3) About half of them	(4) Only a few of them	(5) None of them	
(g)	1	2	3	4	5	They are planning to go to college.
(h)	1	2	3	4	5	They are planning to take vocational training.
(i)	1	2	3	4	5	The boys are active in athletics.
(j)	1	2	3	4	5	They are leaders in school activities.
(k)	1	2	3	4	5	They are from farms.

62. Please circle a number to indicate the extent to which each of the statements below reflects the attitudes or feelings of the students you know at your school. (Think of all the students you know, not just your close friends.) How many of the students, in your opinion, have the feelings expressed in each of the statements?

	(1) All of them	(2) Most of them	(3) About half of them	(4) Only a few of them	(5) None of them	
(a)	1	2	3	4	5	The high school curriculum should be more directly related to specific jobs.
(b)	1	2	3	4	5	Every student should try to go to college. If he can't make it there he can always get an ordinary job.
(c)	1	2	3	4	5	There should be more emphasis on vocational and technical courses and less on college preparation.
(d)	1	2	3	4	5	Courses like welding and wood working have no place in today's high school
(e)	1	2	3	4	5	In modern society the skilled craftsman is as important as the scientist or the professional.
(f)	1	2	3	4	5	Students enrolled in vocational or technical courses generally don't have the ability to master college preparatory courses.
(g)	1	2	3	4	5	Shop courses are good preparation for the kind of work many students will be doing.
(h)	1	2	3	4	5	Business courses like typing and shorthand are as important for girls as are college preparatory courses.
(i)	1	2	3	4	5	High school should do more to provide students with skills useful in jobs and should not worry so much about college preparation.

	(1) Very much below average	(2) Somewhat below average	(3) About average	(4) Somewhat above average	(5) Very much above average	
(d)	1	2	3	4	5	Study and prepare for tests.
(e)	1	2	3	4	5	Use encyclopedias, dictionaries, and other types of reference.
(f)	1	2	3	4	5	Understand and use new materials presented in class such as: a theory in science, formula in math, the cause of a historical event.
(g)	1	2	3	4	5	Take good notes from lectures or out of class reading.
(h)	1	2	3	4	5	Recite in class: give oral reports, participate in class discussion.
(i)	1	2	3	4	5	Get along with most teachers.

22. On the scale below please circle the number which best represents the way you feel about yourself. EXAMPLES: I feel that I am slightly heavy, therefore, in the first sample (S-1) I circled the number "4" on the heavy side of the scale. In the next sample (S-2) I feel that I am very healthy; therefore, I circled the number "1" on the healthy side of the scale.

EXAMPLES:		Very	Slightly	Neutral	Slightly	Very	
S-1	light	1	2	3	(4)	5	heavy
S-2	healthy	(1)	2	3	4	5	unhealthy

	Very	Slightly	Neutral	Slightly	Very	
intellectual	1	2	3	4	5	not intellectual
fast	1	2	3	4	5	slow
successful	1	2	3	4	5	unsuccessful
sharp	1	2	3	4	5	dull
alert	1	2	3	4	5	not alert

03

23. GIRLS ONLY.
Which of the following statements best describes what you think your interests and desires will be for most of your adult life? (Mark only one.)

_____(1) Homemaking will be my major interest; I will not want to work at all after I am married.

_____(2) Homemaking will be my major interest, but I will want to work occasionally or part time.

_____(3) Homemaking will be my major interest, but I also want to work most of the time.

_____(4) Work will be my major interest, but I will also want to have a family and be a homemaker.

_____(5) Work will be my major interest. I will not want to spend much effort in homemaking.

_____(6) Work will be my only interest. I don't want to marry.

57. When you do things with these friends, do you usually do them together as a group or with only one of them at a time?

_____(1) As a group, usually
_____(2) One at a time, usually
_____(3) Sometimes as a group, sometimes one at a time

58. Did any of your close friends drop out of school before graduating?

_____(1) Yes
_____(2) No

59. If yes, how many? _____

60. Think for a minute about your close friends. Circle a number in front of each of the statements listed below to show how well you think it describes the feelings of your friends about formal education (high school and college). How many of your close friends feel this way?

	(1) All of them	(2) Most of them	(3) About half of them	(4) Only a few of them	(5) None of them	
(a)	1	2	3	4	5	They feel that formal education tends to take people away from their home communities and because of this it is undesirable.
(b)	1	2	3	4	5	They are opposed to formal education beyond high school.
(c)	1	2	3	4	5	They feel that a good education helps a person to lead a better life.
(d)	1	2	3	4	5	They think that formal education is very important.
(e)	1	2	3	4	5	They believe that the most important thing in formal education is the diploma or degree.
(f)	1	2	3	4	5	They expect the members of our group to get all of the education they can.

61. Think for a minute about your close friends. Think about the things they do in school. Mark the following statements according to how well you think they describe your group of friends. (Circle the appropriate number.)

	(1) All of them	(2) Most of them	(3) About half of them	(4) Only a few of them	(5) None of them	
(a)	1	2	3	4	5	They would probably quit school if they could find a way to quit without getting into an unpleasant situation.
(b)	1	2	3	4	5	They sometimes get into trouble with teachers and school officials.
(c)	1	2	3	4	5	For entertainment during out-of-school hours they generally run around with friends and do whatever seems interesting at the time, rather than go to school sponsored activities such as ball games, plays and dances.
(d)	1	2	3	4	5	They enjoy high school.
(e)	1	2	3	4	5	They participate in such activities as academic honor societies, science and language clubs, and other scholastic organizations.
(f)	1	2	3	4	5	High grades (A's and B's) are important to them.

24. Please circle a number to show whether or not each of the statements in this list agrees with your ideas of work.

	(1) Strongly agree	(2) Agree	(3) Neither agree nor disagree	(4) Disagree	(5) Strongly disagree	
(a)	1	2	3	4	5	Everyone who possibly can should work.
(b)	1	2	3	4	5	Even if I were financially secure and did not need a job I would probably work.
(c)	1	2	3	4	5	It is a person's duty to work.
(d)	1	2	3	4	5	If I did not work I would feel that I was not leading a "right life."
(e)	1	2	3	4	5	I find it hard to respect a man who doesn't work.
(f)	1	2	3	4	5	If I were financially well off, I think I could lead a perfectly happy and satisfying life without working.
(g)	1	2	3	4	5	A person who has never worked has missed a valuable experience.
(h)	1	2	3	4	5	If a person can live the way he wants to without working there is no reason for him to work.
	GIRLS ONLY:					
(i)	1	2	3	4	5	If I were married I would want my husband to do some kind of work even if he were financially secure and did not need a job.

25. Which of the following statements best describes the things you think you must do in order to prepare yourself for the kind of work you think you want to do?

_____(1) I have never thought much about what I should do.
_____(2) I must decide on a specific occupation and prepare myself for it.
_____(3) I will develop abilities or skills useful in a number of different jobs and later make my choice.
_____(4) I am not going to worry about preparing for a job until I see what type of job I can get.
_____(5) The type of job I will get doesn't require any special preparation.

26. After finishing your education do you want to live in the community you are living in now?

_____(1) Yes, definitely
_____(2) Yes, I would prefer to
_____(3) I don't care
_____(4) No, I would rather leave
_____(5) No, I definitely want to leave

27. Considering the kind of job and way of life you eventually wish to have, do you think it will be necessary for you to move from your present community?

_____(1) No
_____(2) I don't know
_____(3) Yes

52. What is the highest grade completed by your father?

_____(1) Grade school 1-7
_____(2) Grade school 8
_____(3) High school 9-11
_____(4) High school 12
_____(5) College 1-3
_____(6) College 4
_____(7) College 5 or more

53. What is the highest grade completed by your mother?

_____(1) Grade school 1-7
_____(2) Grade school 8
_____(3) High school 9-11
_____(4) High school 12
_____(5) College 1-3
_____(6) College 4
_____(7) College 5 or more

54. In which of the following would your parents be willing and able to help you financially? Mark all that apply.

_____(1) Farming
_____(2) College
_____(3) Vocational schooling
_____(4) Setting up a business of my own
_____(5) None of the above

55. Below is a list of statements dealing with your general feelings about yourself. Please circle a number to indicate your answer to each statement.

	(1) Strongly agree	(2) Agree	(3) Neither agree nor disagree	(4) Disagree	(5) Strongly disagree	
(a)	1	2	3	4	5	I feel that I am a person of worth at least on an equal plane with others.
(b)	1	2	3	4	5	I feel that I have a number of good qualities.
(c)	1	2	3	4	5	All in all, I am inclined to feel that I am a failure.
(d)	1	2	3	4	5	I am able to do things as well as most other people.
(e)	1	2	3	4	5	I feel I do not have much to be proud of.
(f)	1	2	3	4	5	I take a positive attitude toward myself.
(g)	1	2	3	4	5	On the whole, I am satisfied with myself.
(h)	1	2	3	4	5	I wish I could have more respect for myself.
(i)	1	2	3	4	5	I certainly feel useless at times.
(j)	1	2	3	4	5	At times I think I am no good at all.

56. About how many close friends do you have?

_____

28. What kind of occupation would you most like to have as your career if you could do whatever you chose? (Please be as specific as you can.)

_____

29. How sure are you that this is the occupation you really would want as your life's work?

_____(1) Very sure
_____(2) Fairly sure
_____(3) Not at all sure

30. For the occupation mentioned in question 28, the one you would most like as your life's work, do you think your abilities are:

_____(1) Very much above average
_____(2) Above average
_____(3) Just average
_____(4) Below average
_____(5) Very much below average
_____(6) I don't know yet because I have not yet made a choice

31. If an opportunity occurred to work in the occupation you listed in question 28, would you be willing to complete the training and education necessary to get the job?

_____(1) Yes
_____(2) No
_____(3) No occupation listed

32. What do you think are the possibilities that you might actually work at the occupation you listed in question 28?

_____(1) Very probable
_____(2) Quite probable
_____(3) Chances are 50-50
_____(4) Unlikely
_____(5) None at all

33. What would be your father's (or stepfather's) attitude if you told him you were going to choose the occupation you listed in question 28 as your life's work?

_____(1) Very favorable
_____(2) Favorable
_____(3) Indifferent
_____(4) Unfavorable
_____(5) Very unfavorable
_____(6) I don't know
_____(7) Does not apply

34. What would your mother's (or stepmother's) attitude be if you told her you were going to choose the occupation you listed in question 28 as your life's work?

_____(1) Very favorable
_____(2) Favorable
_____(3) Indifferent
_____(4) Unfavorable
_____(5) Very unfavorable
_____(6) I don't know
_____(7) Does not apply

48. With what kind of firm or outfit is your father associated in his work?

_____(1) Own business
_____(2) Own farm
_____(3) Own professional office
_____(4) Small private firm, organization or factory (50 employees or less)
_____(5) Large private firm, organization or factory (over 50 employees)
_____(6) Educational institution
_____(7) Social agency
_____(8) Other non-profit organization (what?) _____
_____(9) Government bureau or agency
_____(10) Other (what?) _____
_____(11) Don't know

49. Does your mother work outside the home for pay?

_____(1) Yes, full time
_____(2) Yes, part time
_____(3) No

50. In terms of income or wealth in my community, I think my family is:

_____(1) Considerably above average
_____(2) Somewhat above average
_____(3) Average
_____(4) Somewhat below average
_____(5) Considerably below average

	04

51. Think for a minute about your family (father, mother, brothers and sisters). Some or maybe all of them have expressed certain attitudes concerning formal education (high school and college). When you look at the following statements, think of the members of your family and respond to the statements on the basis of your knowledge of the attitudes of those members. Mark only one answer for each statement.

	(1) All of them	(2) Most of them	(3) About half of them	(4) Only a few of them	(5) None of them	
(a)	1	2	3	4	5	They feel that formal education tends to take people away from their home community; and because of this is is undesirable.
(b)	1	2	3	4	5	They are opposed to formal education beyond high school.
(c)	1	2	3	4	5	They expect the younger members of the family to get all the education they can.
(d)	1	2	3	4	5	They think formal education is very important.
(e)	1	2	3	4	5	They believe that the most important thing in formal education is the diploma or degree.

35. How much education do you think you would need to qualify for the occupation that you think you would really like to be in? (the one mentioned in question 28).

_____(1) Don't know
_____(2) I have enough now
_____(3) High school graduate
_____(4) Vocational or technical school
_____(5) Business or commercial school
_____(6) Some college, but not graduate from college
_____(7) Graduate from college
_____(8) Advanced study after graduation from college

36. Name some other occupations you would like almost as much as the occupation you listed in question 28.

a. _____

b. _____

c. _____

37. What occupation do you really expect to have as your life's work? (Please be as specific as you can.)

_____

38. How sure are you that you will actually have the occupation named in question 37 as your life's work?

_____(1) Very sure
_____(2) Fairly sure
_____(3) Not at all sure

38a. GIRLS WHO LISTED HOUSEWIFE OR HOMEMAKER IN QUESTION 37: Do you also expect to have some other job or occupation? If yes, what occupation do you have in mind?

_____

39. For the occupation mentioned in question 37, do you think your abilities are:

_____(1) Very much above average
_____(2) Somewhat above average
_____(3) Just average
_____(4) Somewhat below average
_____(5) Very much below average
_____(6) I don't know yet because I have not yet made a choice

40. How much education do you think you would need to qualify for work in the occupation that you say you expect to have? (the one mentioned in question 37).

_____(1) I don't know
_____(2) I have enough now
_____(3) Vocational or technical school
_____(4) Business or commercial school
_____(5) High school diploma
_____(6) Some college, but not graduate from college
_____(7) College degree
_____(8) Specialized study after graduation from college

This is not the end of the questionnaire. Please turn it around and answer the succeeding pages.

41. What would be your father's (or stepfather's) attitude if you told him you were going to choose the occupation you listed in question 37 as your life's work?

_____(1) Very favorable
_____(2) Favorable
_____(3) Indifferent
_____(4) Unfavorable
_____(5) Very unfavorable
_____(6) I don't know
_____(7) Does not apply

42. What would be your mother's (or stepmother's) attitude if you told her you were going to choose the occupation you listed in question 37 as your life's work?

_____(1) Very favorable
_____(2) Favorable
_____(3) Indifferent
_____(4) Unfavorable
_____(5) Very unfavorable
_____(6) I don't know
_____(7) Does not apply

43. What is the marital status of your mother and father?

_____(1) Both alive, living together
_____(2) Both alive, separated
_____(3) Both alive, divorced
_____(4) Father not living
_____(5) Mother not living
_____(6) Neither father nor mother living

44. Mark all of the following who live in your house at present.

_____(1) Father
_____(2) Mother
_____(3) Stepfather
_____(4) Stepmother
_____(5) Brothers
_____(6) Sisters
_____(7) Grandmother
_____(8) Grandfather
_____(9) Husband
_____(10) Wife
_____(11) Other relatives
_____(12) Persons who are not relatives

45. How many living brothers and sisters do you have?

_____

46. Are you:

_____(1) The oldest child in your family
_____(2) The youngest child
_____(3) In between
_____(4) The only child

47. What kind of work does your father (or stepfather) do for a living? What is his job called, what kind of business or industry does he work in, and what does he do? (For example: "Carpenter, works on a construction crew building new houses"; "Sales clerk, waits on customers in a department store"; "Owner and operator of a grocery store.")

_____

APPENDIX C:

TABLES

Table C-1: All Levels of Educational Aspirations by Sex and Grade

Table C-2: Highest Level of Educational Aspirations by Sex and Grade

Table C-3: Certainty of Educational Aspirations by Sex and Grade

Table C-4: All Levels of Educational Expectations by Sex and Grade

Table C-5: Highest Level of Educational Expectations by Sex and Grade

Table C-6: Certainty of Educational Expectations by Sex and Grade

Table C-7: Extent of Thought Given to Educational Plans, by Sex and Grade

Table C-8: Occupational Aspirations by Sex and Grade

Table C-9: Occupational Expectations by Sex and Grade

Table C-10: Occupational Expectations in Addition to Homemaking for Girls, by Grade

Table C-11: Homemaking and Work Interests of Girls, by Grade

Table C-12: Perception of Occupational Preparation Needed, by Sex and Grade

Table C-13: Desire to Live in Home Community after Finishing Education, by Sex and Grade

Table C-14: Perceived Necessity of Moving from Home Community to Follow Desired Occupation and Way of Life, by Sex and Grade

Table C-15: School Subjects Liked Best, by Sex and Grade

Table C-16: Vocational Training Students Think Should Be Available in High School, by Sex and Grade

Table C-17: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "The high school curriculum should be more directly related to specific jobs."

Table C-18: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "Every student should try to go to college. If he can't make it there he can always get an ordinary job."

Table C-19: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "There should be more emphasis on vocational and technical courses and less on college preparation."

Table C-20: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "Courses like welding and wood working have no place in today's high school."

Table C-21: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "In modern society the skilled craftsman is as important as the scientist or the professional."

Table C-22: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "Students enrolled in vocational or technical courses generally don't have the ability to master college preparatory courses."

Table C-23: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "Shop courses are good preparation for the kind of work many students will be doing."

Table C-24: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "Business courses like typing and shorthand are as important for girls as are college preparatory courses."

Table C-25: Perceived Attitudes of Other Students Toward High School Curriculum, by Sex and Grade: "High school should do more to provide students with skills useful in jobs and should not worry so much about college preparation."

Table C-26: Proportion of School Work in Which Students Are Interested, by Sex and Grade

Table C-27: Attitude Toward School, by Sex and Grade: "I like school very much."

Table C-28: Attitude Toward School, by Sex and Grade: "Most of my teachers are very helpful."

Table C-29: Attitude Toward School, by Sex and Grade: "I often find myself watching the clock because my classes are so boring."

Table C-30: Attitude Toward School, by Sex and Grade: "Lunch time is the most enjoyable time of the day."

Table C-31: Attitude Toward School, by Sex and Grade: "School is difficult for me."

Table C-32: Attitude Toward School, by Sex and Grade: "My teachers are the most helpful to the very good students."

Table C-33: Attitude Toward School, by Sex and Grade: "The most important thing one gets out of high school is the diploma."

Table C-34: Attitude Toward School, by Sex and Grade: "In my free time I would rather read than go to a movie."

Table C-35: Attitude Toward School, by Sex and Grade: "In the evening I often find myself watching TV instead of doing my homework."

Table C-36: Attitude Toward School, by Sex and Grade: "Education is important in preparing for a job."

Table C-37: Attitude Toward School, by Sex and Grade: "High school seems to be little more than 'serving time' until I can get out and go to work."

Table C-38: Attitude Toward School, by Sex and Grade: "I appreciate the opportunity education gives me to learn more and broaden myself."

Table C-39: Grades on Last Report Card, by Sex and Grade

Table C-40: Participation in Athletics, by Sex and Grade

Table C-41: Participation in Music, by Sex and Grade

Table C-42: Participation in Dramatics, by Sex and Grade

Table C-43: Participation in Debate, by Sex and Grade

Table C-44: Participation in School Paper or Annual, by Sex and Grade

Table C-45: Participation in Student Government, by Sex and Grade

Table C-46: Participation in FFA or FHA, by Sex and Grade

Table C-47: Participation in Hobby Clubs, by Sex and Grade

Table C-48: Participation in Pep Club or Pep Rallies, by Sex and Grade

Table C-49: Participation in Church Youth Groups, by Sex and Grade

Table C-50: Participation in Hi-Y or Tri-Hi-Y, by Sex and Grade

Table C-51: Additional Activities in Which Students Would Like to Participate, by Sex and Grade

Table C-52: Percent of Respondents Aspiring to Enter Each Occupation, by School

Table C-53: Percent of Respondents Expecting to Enter Each Occupation, by School

TABLE C-1 ALL LEVELS OF EDUCATIONAL ASPIRATIONS BY SEX AND GRADE[a]

Levels of Education		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Quit High School	No.	4	2	3	2	11
	Pct	0.5	0.3	0.4	0.3	0.4
Graduate from High School	No.	813	729	809	701	3052
	Pct	99.0	98.9	99.3	99.7	99.2
Attend Business-Commercial School	No.	25	23	128	94	270
	Pct	3.0	3.1	15.7	13.4	8.8
Attend Technical-Vocational School	No.	129	127	88	76	420
	Pct	15.7	17.2	10.8	10.8	13.7
Attend Jr College Business Course	No.	71	76	144	89	380
	Pct	8.6	10.3	17.7	12.7	12.4
Attend Jr College Vocational or Technical Course	No.	115	104	56	52	327
	Pct	14.0	14.1	6.9	7.4	10.6
Attend Jr College Academic Course	No.	187	157	156	115	615
	Pct	22.8	21.3	19.1	16.4	20.0
Attend College or University	No.	493	438	462	421	1814
	Pct	60.0	59.4	56.7	59.9	59.0
Graduate from University	No.	440	416	382	346	1584
	Pct	53.6	56.4	46.9	49.2	51.5
Graduate or Professional School	No.	207	202	132	122	663
	Pct	25.2	27.4	16.2	17.4	21.6
Other	No.	63	56	29	27	175
	Pct	7.7	7.6	3.6	3.8	5.7
Respondents	No.	821	737	815	703	3076
Nonrespondents	No.	4	5	11	4	24

[a]Based on responses to question 7 in form A of the student questionnaire. Percentages total to more than 100 because more than one response could be marked by the respondent.

TABLE C-2 - HIGHEST LEVEL OF EDUCATIONAL ASPIRATIONS BY SEX AND GRADE[a]

Levels of Education		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Quit High School	No.	2	2	2	1	7
	Pct	0.2	0.3	0.2	0.1	0.2
Graduate from High School	No.	57	54	37	53	201
	Pct	6.9	7.3	4.5	7.5	6.5
Attend Business-Commercial School	No.	14	6	76	50	146
	Pct	1.7	0.8	9.3	7.1	4.7
Attend Technical-Vocational School	No.	88	91	71	56	306
	Pct	10.7	12.3	8.7	8.0	9.9
Attend Jr College Business Course	No.	31	24	86	54	195
	Pct	3.8	3.3	10.6	7.7	6.3
Attend Jr College Vocational or Technical Course	No.	68	63	29	26	186
	Pct	8.3	8.5	3.6	3.7	6.0
Attend Jr College Academic Course	No.	62	49	39	34	184
	Pct	7.5	6.6	4.8	4.8	6.0
Attend College or University	No.	56	26	81	76	239
	Pct	6.8	3.5	9.9	10.8	7.8
Graduate from University	No.	233	215	251	224	923
	Pct	28.3	29.2	30.8	31.9	30.0
Graduate or Professional School	No.	206	201	132	122	661
	Pct	25.1	27.3	16.2	17.4	21.5
Nursing School	No.	0	0	5	5	10
	Pct	0.	0.	0.6	0.7	0.3
Other	No.	5	6	6	2	19
	Pct	0.6	0.8	0.7	0.3	0.6
Respondents	No.	822	737	815	703	3077
Nonrespondents	No.	3	5	11	4	23

[a]Based on responses to question 7 in form A of the student questionnaire.

TABLE C-3 - CERTAINTY OF EDUCATIONAL ASPIRATIONS BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Very Sure	No.	285	330	301	329	1245
	Pct	34.7	44.5	36.5	46.9	40.3
Fairly Sure	No.	468	353	465	329	1615
	Pct	57.0	47.6	56.4	46.9	52.3
Not at All Sure	No.	68	58	58	44	228
	Pct	8.3	7.8	7.0	6.3	7.4
Respondents	No.	821	741	824	702	3088
Nonrespondents	No.	4	1	2	5	12

[a]Based on responses to question 8 of the form A student questionnaire.

TABLE C-4 - ALL LEVELS OF EDUCATIONAL EXPECTATIONS BY SEX AND GRADE[a]

Levels of Education		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Quit High School	No.	4	3	4	0	11
	Pct	0.5	0.4	0.5	0.	0.4
Graduate from High School	No.	802	722	807	699	3030
	Pct	98.5	98.8	99.0	99.7	99.0
Attend Business-Commercial School	No.	29	18	119	90	256
	Pct	3.6	2.5	14.6	12.8	8.4
Attend Technical-Vocational School	No.	124	118	87	74	403
	Pct	15.2	16.1	10.7	10.6	13.2
Attend Jr College Business Course	No.	68	76	129	81	354
	Pct	8.4	10.4	15.8	11.6	11.6
Attend Jr College Vocational or Technical Course	No.	116	106	61	49	332
	Pct	14.3	14.5	7.5	7.0	10.8
Attend Jr College Academic Course	No.	196	161	172	128	657
	Pct	24.1	22.0	21.1	18.3	21.5
Attend College or University	No.	437	408	426	391	1662
	Pct	53.7	55.8	52.3	55.8	54.3
Graduate from University	No.	357	366	311	295	1329
	Pct	43.9	50.1	38.2	42.1	43.4
Graduate or Professional School	No.	135	136	83	74	428
	Pct	16.6	18.6	10.2	10.6	14.0
Other	No.	42	42	23	22	129
	Pct	5.2	5.7	2.8	3.1	4.2
Respondents	No.	814	731	815	701	3061
Nonrespondents	No.	11	11	11	6	39

[a]Based on responses to question 9 in form A of the student questionnaire. Percentages total to more than 100 because more than one response could be marked by the respondent.

TABLE C-5 - HIGHEST LEVEL OF EDUCATIONAL EXPECTATION BY SEX AND GRADE[a]

Levels of Education		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Quit High School	No.	3	2	2	0	7
	Pct	0.4	0.3	0.2	0.	0.2
Graduate from High School	No.	63	60	63	73	259
	Pct	7.7	8.2	7.7	10.4	8.5
Attend Business-Commercial School	No.	15	5	71	50	141
	Pct	1.8	0.7	8.7	7.1	4.6
Attend Technical-Vocational School	No.	94	88	72	58	312
	Pct	11.6	12.0	8.8	8.3	10.2
Attend Jr College Business Course	No.	36	34	78	50	198
	Pct	4.4	4.7	9.6	7.1	6.5
Attend Jr College Vocational or Technical Course	No.	78	71	33	28	210
	Pct	9.6	9.7	4.0	4.0	6.9
Attend Jr College Academic Course	No.	81	58	61	47	247
	Pct	10.0	7.9	7.5	6.7	8.1
Attend College or University	No.	83	43	115	93	334
	Pct	10.2	5.9	14.1	13.3	10.9
Graduate from University	No.	221	230	229	222	902
	Pct	27.2	31.5	28.1	31.7	29.5
Graduate or Professional School	No.	135	136	83	73	427
	Pct	16.6	18.6	10.2	10.4	14.0
Nursing School	No.	0	0	3	4	7
	Pct	0.	0.	0.4	0.6	0.2
Other	No.	4	4	5	2	15
	Pct	0.5	0.5	0.6	0.3	0.5
Respondents	No.	813	731	815	700	3059
Nonrespondents	No.	12	11	11	7	41

[a]Based on responses to question 9 of the form A student questionnaire.

TABLE C-6 - CERTAINTY OF EDUCATIONAL EXPECTATIONS
BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Very Sure	No.	226	215	249	276	966
	Pct	27.7	29.4	30.6	40.0	31.7
Fairly Sure	No.	509	446	491	363	1809
	Pct	62.5	61.0	60.3	52.6	59.3
Not at All Sure	No.	80	70	74	51	275
	Pct	9.8	9.6	9.1	7.4	9.0
Respondents	No.	815	731	814	690	3050
Nonrespondents	No.	10	11	12	17	50

[a]Based on responses to question 10 of the form A student questionnaire.

TABLE C-7 - EXTENT OF THOUGHT GIVEN TO EDUCATIONAL PLANS BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
None at All	No.	6	3	2	1	12
	Pct	0.7	0.4	0.2	0.1	0.4
Very Little	No.	61	18	30	6	115
	Pct	7.6	2.5	3.7	0.9	3.8
Some	No.	480	312	387	222	1401
	Pct	59.9	43.7	48.3	32.4	46.7
A Great Deal	No.	255	381	383	456	1475
	Pct	31.8	53.4	47.8	66.6	49.1
Respondents	No.	802	714	802	685	3003
Nonrespondents	No.	23	28	24	22	97

[a]Based on responses to question 6 in form A of the student questionnaire.

TABLE C-8 - OCCUPATIONAL ASPIRATIONS
BY SEX AND GRADE[a]

Occupational Categories		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Professional	No.	496	429	431	424	1780
	Pct	69.1	64.1	55.3	63.4	62.8
Farmers and Farm Managers	No.	16	8	2	2	28
	Pct	2.2	1.2	0.3	0.3	1.0
Managers, Officials, and Proprietors	No.	57	77	26	17	177
	Pct	7.9	11.5	3.3	2.5	6.2
Clerical	No.	6	1	133	96	236
	Pct	0.8	0.1	17.1	14.3	8.3
Sales Workers	No.	18	9	22	22	71
	Pct	2.5	1.3	2.8	3.3	2.5
Craftsmen	No.	80	106	9	2	197
	Pct	11.1	15.8	1.2	0.3	6.9
Operatives	No.	8	9	1	2	20
	Pct	1.1	1.3	0.1	0.3	0.7
Private Household[b]	No.	0	0	19	23	42
	Pct	0.	0.	2.4	3.4	1.5
Service Workers	No.	23	25	136	81	265
	Pct	3.2	3.7	17.5	12.1	9.3
Farm Laborers	No.	1	0	0	0	1
	Pct	0.1	0.	0.	0.	0.0
Laborers, except Farm and Mine	No.	13	5	0	0	18
	Pct	1.8	0.7	0.	0.	0.6
Respondents	No.	718	669	779	669	2835
Nonrespondents	No.	107	73	47	38	265

[a]Based on responses to question 28 in form A of the student questionnaire.

[b]Includes "housewives."

TABLE C-9 - OCCUPATIONAL EXPECTATIONS
BY SEX AND GRADE[a]

Occupational Categories		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Professional	No.	335	305	224	218	1082
	Pct	57.1	57.0	30.1	33.9	43.1
Farmers and Farm Managers	No.	15	5	0	1	21
	Pct	2.6	0.9	0.	0.2	0.8
Managers, Officials, and Proprietors	No.	57	53	12	8	130
	Pct	9.7	9.9	1.6	1.2	5.2
Clerical	No.	7	4	127	82	220
	Pct	1.2	0.7	17.1	12.8	8.8
Sales Workers	No.	14	17	8	8	47
	Pct	2.4	3.2	1.1	1.2	1.9
Craftsmen	No.	103	109	4	2	218
	Pct	17.5	20.4	0.5	0.3	8.7
Operatives	No.	16	13	2	1	32
	Pct	2.7	2.4	0.3	0.2	1.3
Private Household[b]	No.	0	0	295	275	570
	Pct	0.	0.	39.7	42.8	22.7
Service Workers	No.	15	16	71	48	150
	Pct	2.6	3.0	9.6	7.5	6.0
Farm Laborers	No.	1	0	0	0	1
	Pct	0.2	0.	0.	0.	0.0
Laborers, except Farm and Mine	No.	24	13	0	0	37
	Pct	4.1	2.4	0.	0.	1.5
Respondents	No.	587	535	743	643	2508
Nonrespondents	No.	238	207	83	64	592

[a]Based on responses to question 37 in form A of the student questionnaire.

[b]Includes "housewives."

TABLE C-10 - OCCUPATIONAL EXPECTATIONS IN ADDITION TO HOMEMAKING FOR GIRLS, BY GRADE[a]

Occupational Categories		Junior Girls	Senior Girls	Total
Professional	No.	90	103	193
	Pct	47.1	53.4	50.3
Farmers and Farm Managers	No.	0	0	0
	Pct	0.	0.	0.
Managers, Officials, and Proprietors	No.	1	2	3
	Pct	0.5	1.0	0.8
Clerical	No.	52	54	106
	Pct	27.2	28.0	27.6
Sales Workers	No.	13	9	22
	Pct	6.8	4.7	5.7
Craftsmen	No.	1	1	2
	Pct	0.5	0.5	0.5
Operatives	No.	0	1	1
	Pct	0.	0.5	0.3
Private Household	No.	1	0	1
	Pct	0.5	0.	0.3
Service Workers	No.	32	23	55
	Pct	16.8	11.9	14.3
Farm Laborers	No.	0	0	0
	Pct	0.	0.	0.
Laborers, except Farm and Mine	No.	1	0	1
	Pct	0.5	0.	0.3
Respondents	No.	191	193	384
Nonrespondents	No.	103	82	185

[a]Based on responses to question 38a in form A of the student questionnaire.

TABLE C-11 - HOMEMAKING AND WORK INTERESTS OF GIRLS, BY GRADE[a]

Responses		Junior Girls	Senior Girls	Total
All Homemaking, No Work	No.	98	82	180
	Pct	12.2	12.0	12.1
Mostly Homemaking, Some Work	No.	335	311	646
	Pct	41.8	45.5	43.5
Homemaking Major Interest, yet Much Work	No.	123	131	254
	Pct	15.4	19.2	17.1
Work Major Interest, yet Much Homemaking	No.	182	128	310
	Pct	22.7	18.7	20.9
Mostly Work, Some Homemaking	No.	25	14	39
	Pct	3.1	2.0	2.6
All Work, No Homemaking	No.	38	18	56
	Pct	4.7	2.6	3.8
Respondents	No.	801	684	1485
Nonrespondents	No.	25	23	48

[a]Based on responses to question 23 in form A of the student questionnaire.

TABLE C-12 - PERCEPTION OF OCCUPATIONAL PREPARATION NEEDED, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Have Not Thought About it	No.	66	28	42	18	154
	Pct	8.8	4.2	5.2	2.6	5.3
Must Decide on an Occupation	No.	331	339	445	379	1494
	Pct	44.3	50.5	55.1	55.4	51.3
Shall Train for a Number of jobs, Then Decide	No.	265	245	254	222	986
	Pct	35.4	36.5	31.4	32.5	33.9
Not Going to Worry, but See What I Can Get	No.	26	12	18	16	72
	Pct	3.5	1.8	2.2	2.3	2.5
My Occupational Choice Won't Need Preparation	No.	9	9	21	15	54
	Pct	1.2	1.3	2.6	2.2	1.9
More Than One of The above Responses	No.	51	38	28	34	151
	Pct	6.8	5.7	3.5	5.0	5.2
Respondents	No.	748	671	808	684	2911
Nonrespondents	No.	77	71	18	23	189

[a]Based on responses to question 25 in form A of the student questionnaire.

TABLE C-13 - DESIRE TO LIVE IN HOME COMMUNITY
AFTER FINISHING EDUCATION
BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Yes, Definitely	No.	42	28	15	19	104
	Pct	5.6	4.1	1.9	2.7	3.5
Yes, I Would Prefer to	No.	224	198	167	145	734
	Pct	29.7	29.0	20.7	20.9	25.0
I Do Not Care	No.	228	204	229	182	843
	Pct	30.3	29.9	28.3	26.2	28.7
No, I Would Rather Leave	No.	175	161	246	212	794
	Pct	23.2	23.6	30.4	30.5	27.0
No, I Definitely Want to Leave	No.	84	92	151	136	463
	Pct	11.2	13.5	18.7	19.6	15.8
Respondents	No.	753	683	808	694	2938
Nonrespondents	No.	72	59	18	13	162

[a]Based on responses to question 26 in form A of the student questionnaire.

TABLE C-14 - PERCEIVED NECESSITY OF MOVING FROM HOME COMMUNITY TO FOLLOW DESIRED OCCUPATION AND WAY OF LIFE, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
No	No.	200	166	224	193	783
	Pct	26.1	24.1	27.3	27.4	26.3
I Do Not Know	No.	296	260	259	204	1019
	Pct	38.7	37.8	31.5	29.0	34.2
Yes	No.	269	262	339	307	1177
	Pct	35.2	38.1	41.2	43.6	39.5
Responses	No.	765	688	822	704	2979
Nonresponses	No.	60	54	4	3	121

[a]Based on responses to question 27 in form A of the student questionnaire.

TABLE C-15 - SCHOOL SUBJECTS LIKED BEST
BY SEX AND GRADE[a]

Subjects		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agriculture	No.	43	39	1	4	87
	Pct	5.2	5.3	0.1	0.6	2.8
Art and Music	No.	181	195	388	352	1116
	Pct	22.0	26.4	47.0	49.9	36.1
Algebra	No.	292	252	174	133	851
	Pct	35.5	34.1	21.1	18.9	27.5
Biology	No.	291	223	286	261	1061
	Pct	35.4	30.1	34.7	37.0	34.3
Business	No.	105	120	267	226	718
	Pct	12.8	16.2	32.4	32.1	23.2
Chemistry	No.	191	167	68	97	523
	Pct	23.2	22.6	8.2	13.8	16.9
English	No.	218	156	419	327	1120
	Pct	26.5	21.1	50.8	46.4	36.2
Foreign Language	No.	129	72	246	173	620
	Pct	15.7	9.7	29.8	24.5	20.1
Geometry	No.	240	175	110	88	613
	Pct	29.2	23.6	13.3	12.5	19.8
History	No.	424	364	357	254	1399
	Pct	51.6	49.2	43.3	36.0	45.2
Home Economics	No.	15	21	393	338	767
	Pct	1.8	2.8	47.6	47.9	24.8
Physical Education	No.	413	348	322	234	1317
	Pct	50.2	47.0	39.0	33.2	42.6
Physics	No.	81	111	12	12	216
	Pct	9.9	15.0	1.5	1.7	7.0
Shop	No.	312	289	12	13	626
	Pct	38.0	39.1	1.5	1.8	20.2
Social Studies	No.	106	188	121	184	599
	Pct	12.9	25.4	14.7	26.1	19.4
Trigonometry	No.	81	119	22	48	270
	Pct	9.9	16.1	2.7	6.8	8.7
I Do Not Like Any of Them	No.	8	4	4	3	19
	Pct	1.0	0.5	0.5	0.4	0.6
Respondents	No.	822	740	825	705	3092
Nonrespondents	No.	3	2	1	2	8

[a]Based on responses to question 13 in form A of the student questionnaire. Percentages total to more than 100 because more than one response could be marked by the respondent.

TABLE C-16 - VOCATIONAL TRAINING STUDENTS THINK SHOULD BE AVAILABLE IN HIGH SCHOOL, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agriculture	No.	194	175	116	136	621
	Pct	24.7	24.3	14.4	20.0	20.8
Home Economics	No.	240	254	503	462	1459
	Pct	30.6	35.3	62.3	67.8	48.8
Business Training	No.	423	406	572	524	1925
	Pct	54.0	56.4	70.9	76.9	64.3
Industrial Arts	No.	362	351	223	230	1166
	Pct	46.2	48.7	27.6	33.8	39.0
Training in Skilled Jobs	No.	542	528	341	340	1751
	Pct	69.1	73.3	42.3	49.9	58.5
Training in Trades for Girls	No.	118	145	393	313	969
	Pct	15.1	20.1	48.7	46.0	32.4
Course in Careers	No.	317	283	427	345	1372
	Pct	40.4	39.3	52.9	50.7	45.9
Vocational Counseling	No.	368	326	422	332	1448
	Pct	46.9	45.3	52.3	48.8	48.4
None, School Should be Academic	No.	20	23	7	7	57
	Pct	2.6	3.2	0.9	1.0	1.9
Respondents	No.	784	720	807	681	2992
Nonrespondents	No.	41	22	19	26	108

[a]Based on responses to question 14 in form A of the student questionnaire. Percentages total to more than 100 because more than one response could be marked by the respondent.

TABLE C-17 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"The high school curriculum should be more directly related to specific jobs."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	20	23	24	28	95
	Pct	2.7	3.4	3.2	4.3	3.4
Most of Them	No.	120	117	112	114	463
	Pct	16.3	17.3	15.0	17.4	16.5
About Half of Them	No.	290	237	309	253	1089
	Pct	39.5	35.1	41.4	38.6	38.7
Only a Few of Them	No.	242	264	249	230	985
	Pct	33.0	39.1	33.3	35.1	35.0
None of Them	No.	62	34	53	31	180
	Pct	8.4	5.0	7.1	4.7	6.4
Respondents	No.	734	675	747	656	2812
Nonrespondents	No.	91	67	79	51	288

[a]Based on responses to question 62a in form A of the student questionnaire.

TABLE C-18 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"Every student should try to go to college. If he can't make it there he can always get an ordinary job."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	76	64	57	51	248
	Pct	10.2	9.3	7.4	7.6	8.6
Most of Them	No.	305	308	331	270	1214
	Pct	40.9	44.9	42.9	40.2	42.2
About Half of Them	No.	232	187	260	224	903
	Pct	31.1	27.3	33.7	33.3	31.4
Only a Few of Them	No.	114	115	106	109	444
	Pct	15.3	16.8	13.7	16.2	15.4
None of Them	No.	19	12	17	18	66
	Pct	2.5	1.7	2.2	2.7	2.3
Respondents	No.	746	686	771	672	2875
Nonrespondents	No.	79	56	55	35	225

[a]Based on responses to question 62b in form A of the student questionnaire.

TABLE C-19 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"There should be more emphasis on vocational and technical courses and less on college preparation."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	20	21	11	19	71
	Pct	2.7	3.1	1.4	2.9	2.5
Most of Them	No.	73	77	75	74	299
	Pct	9.9	11.3	9.9	11.3	10.5
About Half of Them	No.	267	240	275	225	1007
	Pct	36.3	35.2	36.1	34.3	35.5
Only a Few of Them	No.	329	306	341	297	1273
	Pct	44.7	44.9	44.8	45.3	44.9
None of Them	No.	47	38	59	41	185
	Pct	6.4	5.6	7.8	6.2	6.5
Respondents	No.	736	682	761	656	2835
Nonrespondents	No.	89	60	65	51	265

[a]Based on responses to question 62c of the form A student questionnaire.

TABLE C-20 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"Courses like welding and wood working have no place in today's high school."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	5	10	6	6	27
	Pct	0.7	1.4	0.8	0.9	1.0
Most of Them	No.	36	40	26	28	130
	Pct	4.9	5.8	3.4	4.3	4.6
About Half of Them	No.	71	74	77	56	278
	Pct	9.6	10.7	10.2	8.5	9.8
Only a Few of Them	No.	337	271	308	270	1186
	Pct	45.4	39.3	40.8	41.2	41.7
None of Them	No.	293	295	337	296	1221
	Pct	39.5	42.8	44.7	45.1	43.0
Respondents	No.	742	690	754	656	2842
Nonrespondents	Pct	83	52	72	51	258

[a]Based on responses to question 62d in form A of the student questionnaire.

TABLE C-21 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"In modern society the skilled craftsman is as important as the scientist or the professional."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	82	85	76	59	302
	Pct	11.2	12.5	10.2	9.2	10.8
Most of Them	No.	277	243	226	201	947
	Pct	37.8	35.6	30.3	31.2	33.8
About Half of Them	No.	211	216	253	227	907
	Pct	28.8	31.7	33.9	35.2	32.3
Only a Few of Them	No.	129	122	160	129	540
	Pct	17.6	17.9	21.4	20.0	19.3
None of Them	No.	33	16	31	28	108
	Pct	4.5	2.3	4.2	4.3	3.9
Respondents	No.	732	682	746	644	2804
Nonrespondents	No.	93	60	80	63	296

[a]Based on responses to question 62e in form A of the student questionnaire.

TABLE C-22 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"Students enrolled in vocational or technical courses generally don't have the ability to master college preparatory courses."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	18	23	14	15	70
	Pct	2.5	3.4	1.9	2.3	2.5
Most of Them	No.	159	159	128	109	555
	Pct	22.2	23.5	17.2	17.0	20.0
About Half of Them	No.	242	222	235	171	870
	Pct	33.8	32.8	31.6	26.7	31.3
Only a Few of Them	No.	229	206	256	241	932
	Pct	32.0	30.4	34.5	37.6	33.6
None of Them	No.	68	67	110	105	350
	Pct	9.5	9.9	14.8	16.4	12.6
Respondents	No.	716	677	743	641	2777
Nonrespondents	No.	109	65	83	66	323

[a]Based on responses to question 62f in form A of the student questionnaire.

TABLE C-23 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"Shop courses are good preparation for the kind of work many students will be doing."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	67	94	74	65	300
	Pct	9.2	13.8	10.0	10.1	10.7
Most of Them	No.	285	255	280	237	1057
	Pct	38.9	37.4	37.7	36.9	37.8
About Half of Them	No.	223	205	223	175	826
	Pct	30.5	30.1	30.0	27.2	29.5
Only a Few of Them	No.	137	110	147	151	545
	Pct	18.7	16.2	19.8	23.5	19.5
None of Them	No.	20	17	19	15	71
	Pct	2.7	2.5	2.6	2.3	2.5
Respondents	No.	732	681	743	643	2799
Nonrespondents	No.	93	61	83	64	301

[a]Based on responses to question 62g in form A of the student questionnaire.

TABLE G-24 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"Business courses like typing and shorthand are as important for girls as are college preparatory courses."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	81	96	151	114	442
	Pct	11.2	14.3	19.9	17.5	15.8
Most of Them	No.	353	322	373	311	1359
	Pct	48.9	47.9	49.3	47.6	48.5
About Half of Them	No.	218	188	174	183	763
	Pct	30.2	28.0	23.0	28.0	27.2
Only a Few of Them	No.	56	60	54	43	213
	Pct	7.8	8.9	7.1	6.6	7.6
None of Them	No.	14	6	5	2	27
	Pct	1.9	0.9	0.7	0.3	1.0
Respondents	No.	722	672	757	653	2804
Nonrespondents	No.	103	70	69	54	296

[a]Based on responses to question 62h in form A of the student questionnaire.

TABLE G-25 - PERCEIVED ATTITUDES OF OTHER STUDENTS TOWARD HIGH SCHOOL CURRICULUM, BY SEX AND GRADE[a]

"High school should do more to provide students with skills useful in jobs and should not worry so much about college preparation."

Proportion of Students		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All of Them	No.	35	32	22	23	112
	Pct	4.8	4.8	2.9	3.6	4.0
Most of Them	No.	90	73	92	73	328
	Pct	12.4	10.9	12.2	11.4	11.7
About Half of Them	No.	239	224	252	199	914
	Pct	32.9	33.3	33.5	31.0	32.7
Only a Few of Them	No.	288	284	310	283	1165
	Pct	39.6	42.3	41.2	44.1	41.7
None of Them	No.	75	59	76	64	274
	Pct	10.3	8.8	10.1	10.0	9.8
Respondents	No.	727	672	752	642	2793
Nonrespondents	No.	98	70	74	65	307

[a]Based on responses to question 62i in form A of the student questionnaire.

TABLE G-26 - PROPORTION OF SCHOOL WORK IN WHICH STUDENTS ARE INTERESTED, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
All	No.	81	71	133	133	418
	Pct	9.9	9.6	16.2	18.9	13.6
Most	No.	439	400	493	438	1770
	Pct	53.5	54.1	59.9	62.4	57.4
Some	No.	237	209	166	104	716
	Pct	28.9	28.3	20.2	14.8	23.2
Little	No.	56	54	30	24	164
	Pct	6.8	7.3	3.6	3.4	5.3
None	No.	7	5	1	3	16
	Pct	0.9	0.7	0.1	0.4	0.5
Respondents	No.	820	739	823	702	3084
Nonrespondents	No.	5	3	3	5	16

[a]Based on responses to question 15 in form A of the student questionnaire.

TABLE C-27 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"I like school very much."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	298	256	397	355	1306
	Pct	36.3	34.7	48.4	50.4	42.4
Neither Agree Nor Disagree	No.	434	411	368	290	1503
	Pct	52.9	55.8	44.8	41.2	48.8
Disagree	No.	88	70	56	59	273
	Pct	10.7	9.5	6.8	8.4	8.9
Respondents	No.	820	737	821	704	3082
Nonrespondents	No.	5	5	5	3	18

[a]Based on responses to question 16a in form A of the student questionnaire.

TABLE G-28 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"Most of my teachers are very helpful."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	536	484	539	476	2035
	Pct	65.2	65.4	65.5	67.5	65.9
Neither Agree Nor Disagree	No.	232	202	230	173	837
	Pct	28.2	27.3	27.9	24.5	27.1
Disagree	No.	54	54	54	56	218
	Pct	6.6	7.3	6.6	7.9	7.1
Respondents	No.	822	740	823	705	3090
Nonrespondents	No.	3	2	3	2	10

[a]Based on responses to question 16b in form A of the student questionnaire.

TABLE C-29 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"I often find myself watching the clock because my classes are so boring."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	263	236	252	184	935
	Pct	32.0	32.1	30.7	26.1	30.3
Neither Agree Nor Disagree	No.	359	329	377	329	1394
	Pct	43.7	44.7	45.9	46.7	45.2
Disagree	No.	200	171	193	192	756
	Pct	24.3	23.2	23.5	27.2	24.5
Respondents	No.	822	736	822	705	3085
Nonrespondents	Pct	3	6	4	2	15

[a]Based on responses to question 16c in form A of the student questionnaire.

TABLE C-30 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"Lunch time is the most enjoyable time of the day."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	200	161	188	119	668
	Pct	24.4	21.7	22.9	16.8	21.6
Neither Agree Nor Disagree	No.	351	317	341	268	1277
	Pct	42.8	42.8	41.5	37.9	41.3
Disagree	No.	270	263	293	320	1146
	Pct	32.9	35.5	35.6	45.3	37.1
Respondents	No.	821	741	822	707	3091
Nonrespondents	No.	4	1	4	0	9

[a]Based on responses to question 16d in form A of the student questionnaire.

TABLE G-31 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"School is difficult for me."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	157	115	140	88	500
	Pct	19.1	15.6	17.1	12.5	16.2
Neither Agree Nor Disagree	No.	346	319	360	261	1286
	Pct	42.2	43.2	43.8	37.1	41.7
Disagree	No.	317	304	321	355	1297
	Pct	38.7	41.2	39.1	50.4	42.1
Respondents	No.	820	738	821	704	3083
Nonrespondents	No.	5	4	5	3	17

[a]Based on responses to question 16e in form A of the student questionnaire.

TABLE C-32 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"My teachers are the most helpful to the very good students."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	161	155	144	117	577
	Pct	19.6	20.9	17.6	16.6	18.7
Neither Agree Nor Disagree	No.	313	297	316	263	1189
	Pct	38.1	40.1	38.6	37.4	38.6
Disagree	No.	347	288	359	323	1317
	Pct	42.3	38.9	43.8	45.9	42.7
Respondents	No.	821	740	819	703	3083
Nonrespondents	No.	4	2	7	4	17

[a]Based on responses to question 16f in form A of the student questionnaire.

TABLE C-33 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"The most important thing one gets out of high school is the diploma."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	56	70	51	32	209
	Pct	6.8	9.5	6.2	4.6	6.8
Neither Agree Nor Disagree	No.	96	104	95	60	355
	Pct	11.7	14.1	11.6	8.5	11.5
Disagree	No.	667	564	675	610	2516
	Pct	81.4	76.4	82.2	86.9	81.7
Respondents	No.	819	738	821	702	3080
Nonrespondents	No.	6	4	5	5	20

[a]Based on responses to question 16g in form A of the student questionnaire.

TABLE C-34 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"In my free time I would rather read than go to a movie."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	99	81	153	141	474
	Pct	12.1	11.0	18.7	20.1	15.4
Neither Agree Nor Disagree	No.	295	231	328	263	1117
	Pct	36.0	31.4	40.1	37.5	36.3
Disagree	No.	425	423	337	298	1483
	Pct	51.9	57.6	41.2	42.5	48.2
Respondents	No.	819	735	818	702	3074
Nonrespondents	No.	6	7	8	5	26

[a]Based on responses to question 16h in form A of the student questionnaire.

TABLE C-35 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"In the evening I often find myself watching TV instead of doing my homework."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	397	363	293	207	1260
	Pct	48.3	49.1	35.6	29.3	40.8
Neither Agree Nor Disagree	No.	230	186	246	199	861
	Pct	28.0	25.1	29.9	28.2	27.9
Disagree	No.	195	191	284	300	970
	Pct	23.7	25.8	34.5	42.5	31.4
Respondents	No.	822	740	823	706	3091
Nonrespondents	No.	3	2	3	1	9

[a]Based on responses to question 16i in form A of the student questionnaire.

TABLE C-36 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"Education is important in preparing for a job."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	781	711	787	677	2956
	Pct	94.9	96.0	95.6	95.8	95.5
Neither Agree Nor Disagree	No.	29	24	27	25	105
	Pct	3.5	3.2	3.3	3.5	3.4
Disagree	No.	13	6	9	5	33
	Pct	1.6	0.8	1.1	0.7	1.1
Respondents	No.	823	741	823	707	3094
Nonrespondents	No.	2	1	3	0	6

[a]Based on responses to question 16j in form A of the student questionnaire.

TABLE C-37 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"High school seems to be little more than 'serving time' until I can get out and go to work."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	102	80	82	66	330
	Pct	12.5	10.9	10.0	9.4	10.8
Neither Agree Nor Disagree	No.	173	156	178	124	631
	Pct	21.1	21.3	21.7	17.7	20.6
Disagree	No.	543	495	559	509	2106
	Pct	66.4	67.7	68.3	72.8	68.7
Respondents	No.	818	731	819	699	3067
Nonrespondents	No.	7	11	7	8	33

[a]Based on responses to question 16k in form A of the student questionnaire.

TABLE C-38 - ATTITUDE TOWARD SCHOOL, BY SEX AND GRADE[a]

"I appreciate the opportunity education gives me to learn more and broaden myself."

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Agree	No.	578	550	664	587	2379
	Pct	70.1	74.4	80.6	83.3	76.9
Neither Agree Nor Disagree	No.	224	161	149	110	644
	Pct	27.2	21.8	18.1	15.6	20.8
Disagree	No.	22	28	11	8	69
	Pct	2.7	3.8	1.3	1.1	2.2
Respondents	No.	824	739	824	705	3092
Nonrespondents	No.	1	3	2	2	8

[a]Based on responses to question 16L in form A of the student questionnaire.

TABLE C-39 - GRADES ON LAST REPORT CARD
BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
A's	No.	46	52	79	86	263
	Pct	5.7	7.1	9.7	12.3	8.6
A's and B's	No.	91	105	162	149	507
	Pct	11.2	14.3	20.0	21.4	16.6
B's	No.	105	98	143	133	479
	Pct	13.0	13.4	17.6	19.1	15.7
B's and C's	No.	201	181	174	173	729
	Pct	24.8	24.7	21.4	24.8	23.9
C's	No.	192	153	134	101	580
	Pct	23.7	20.9	16.5	14.5	19.0
C's and D's	No.	125	109	94	45	373
	Pct	15.5	14.9	11.6	6.5	12.2
D's	No.	31	25	19	8	83
	Pct	3.8	3.4	2.3	1.1	2.7
D's and F's	No.	18	9	7	2	36
	Pct	2.2	1.2	0.9	0.3	1.2
Respondents	No.	809	732	812	697	3050
Nonrespondents	No.	16	10	14	10	50

[a]Based on responses to question 17 in form A of the student questionnaire.

TABLE G-40 - PARTICIPATION IN ATHLETICS, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	149	168	211	224	752
	Pct	19.6	25.0	29.2	37.6	27.4
Not Very Active	No.	203	146	212	168	729
	Pct	26.7	21.8	29.4	28.2	26.5
Quite Active	No.	232	201	193	137	763
	Pct	30.6	30.0	26.7	23.0	27.8
Very Active	No.	175	156	106	66	503
	Pct	23.1	23.2	14.7	11.1	18.3
Respondents	No.	759	671	722	595	2747
Nonrespondents	No.	66	71	104	112	353

[a]Based on responses in question 18a in form A of the student questionnaire.

TABLE C-41 - PARTICIPATION IN MUSIC, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	463	419	347	319	1548
	Pct	68.5	68.6	50.5	54.6	60.5
Not Very Active	No.	79	70	110	91	350
	Pct	11.7	11.5	16.0	15.6	13.7
Quite Active	No.	70	45	100	79	294
	Pct	10.4	7.4	14.6	13.5	11.5
Very Active	No.	64	77	130	95	366
	Pct	9.5	12.6	18.9	16.3	14.3
Respondents	No.	676	611	687	584	2558
Nonrespondents	No.	149	131	139	123	542

[a]Based on responses to question 18b in form A of the student questionnaire.

TABLE C-42 - PARTICIPATION IN DRAMATICS, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	564	497	468	421	1950
	Pct	87.3	83.5	70.7	74.1	78.9
Not Very Active	No.	49	47	83	77	256
	Pct	7.6	7.9	12.5	13.6	10.4
Quite Active	No.	20	30	68	42	160
	Pct	3.1	5.0	10.3	7.4	6.5
Very Active	No.	13	21	43	28	105
	Pct	2.0	3.5	6.5	4.9	4.2
Respondents	No.	646	595	662	568	2471
Nonrespondents	No.	179	147	164	139	629

[a]Based on responses to question 18c in form A of the student questionnaire.

TABLE C-43 - PARTICIPATION IN DEBATE, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participation	No.	583	526	579	491	2179
	Pct	90.4	88.7	91.2	89.9	90.1
Not Very Active	No.	35	33	24	35	127
	Pct	5.4	5.6	3.8	6.4	5.3
Quite Active	No.	11	13	15	6	45
	Pct	1.7	2.2	2.4	1.1	1.9
Very Active	No.	16	21	17	14	68
	Pct	2.5	3.5	2.7	2.6	2.8
Respondents	No.	645	593	635	546	2419
Nonrespondents	No.	180	149	191	161	681

[a]Based on responses to question 18d in form A of the student questionnaire.

TABLE C-44 - PARTICIPATION IN SCHOOL PAPER OR ANNUAL, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	563	500	523	433	2019
	Pct	87.6	84.6	79.1	76.9	82.1
Not Very Active	No.	35	38	39	28	140
	Pct	5.4	6.4	5.9	5.0	5.7
Quite Active	No.	15	21	49	43	128
	Pct	2.3	3.6	7.4	7.6	5.2
Very Active	No.	30	32	50	59	171
	Pct	4.7	5.4	7.6	10.5	7.0
Respondents	No.	643	591	661	563	2458
Nonrespondents	No.	182	151	165	144	642

[a]Based on responses to question 18e in form A of the student questionnaire.

TABLE C-45 - PARTICIPATION IN STUDENT GOVERNMENT, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	396	302	362	257	1317
	Pct	60.3	49.6	56.2	44.5	52.9
Not Very Active	No.	162	153	154	174	643
	Pct	24.7	25.1	23.9	30.1	25.8
Quite Active	No.	80	96	100	95	371
	Pct	12.2	15.8	15.5	16.4	14.9
Very Active	No.	19	58	28	52	157
	Pct	2.9	9.5	4.3	9.0	6.3
Respondents	No.	657	609	644	578	2488
Nonrespondents	No.	168	133	182	129	612

[a]Based on responses to question 18f in form A of the student questionnaire.

TABLE C-46 - PARTICIPATION IN FFA OR FHA, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	569	534	544	476	2123
	Pct	91.3	93.2	91.0	93.3	92.1
Not Very Active	No.	25	18	33	20	96
	Pct	4.0	3.1	5.5	3.9	4.2
Quite Active	No.	14	14	14	7	49
	Pct	2.2	2.4	2.3	1.4	2.1
Very Active	No.	15	7	7	7	36
	Pct	2.4	1.2	1.2	1.4	1.6
Respondents	No.	623	573	598	510	2304
Nonrespondents	No.	202	169	228	197	796

[a]Based on responses to question 18g in form A of the student questionnaire.

TABLE C-47 - PARTICIPATION IN HOBBY CLUBS, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	464	421	442	381	1708
	Pct	72.6	72.1	72.6	71.8	72.3
Not Very Active	No.	91	79	84	69	323
	Pct	14.2	13.5	13.8	13.0	13.7
Quite Active	No.	53	58	55	53	219
	Pct	8.3	9.9	9.0	10.0	9.3
Very Active	No.	31	26	28	28	113
	Pct	4.9	4.5	4.6	5.3	4.8
Respondents	No.	639	584	609	531	2363
Nonrespondents	No.	186	158	217	176	737

[a]Based on responses to question 18h in form A of the student questionnaire.

TABLE C-48 - PARTICIPATION IN PEP CLUB OR PEP RALLIES, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	247	232	105	95	679
	Pct	37.4	38.3	14.4	15.5	26.0
Not Very Active	No.	177	192	160	163	692
	Pct	26.8	31.7	22.0	26.5	26.5
Quite Active	No.	161	121	214	176	672
	Pct	24.4	20.0	29.4	28.7	25.8
Very Active	No.	75	61	248	180	564
	Pct	11.4	10.1	34.1	29.3	21.6
Respondents	No.	660	606	727	614	2607
Nonrespondents	No.	165	136	99	93	493

[a]Based on responses to question 18i in form A of the student questionnaire.

TABLE C-49 - PARTICIPATION IN CHURCH YOUTH GROUPS, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	321	284	181	169	955
	Pct	47.5	47.0	25.9	28.4	37.1
Not Very Active	No.	148	140	163	139	590
	Pct	21.9	23.2	23.4	23.3	22.9
Quite Active	No.	112	92	157	122	483
	Pct	16.6	15.2	22.5	20.5	18.8
Very Active	No.	95	88	197	166	546
	Pct	14.1	14.6	28.2	27.9	21.2
Respondents	No.	676	604	698	596	2574
Nonrespondents	No.	149	138	128	111	526

[a]Based on responses to question 18j in form A of the student questionnaire.

TABLE C-50 - PARTICIPATION IN HI-Y OR TRI-HI-Y, BY SEX AND GRADE[a]

Responses		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Do Not Participate	No.	528	487	463	395	1873
	Pct	89.3	88.1	80.9	79.5	84.6
Not Very Active	No.	22	26	19	12	79
	Pct	3.7	4.7	3.3	2.4	3.6
Quite Active	No.	21	21	30	29	101
	Pct	3.6	3.8	5.2	5.8	4.6
Very Active	No.	20	19	60	61	160
	Pct	3.4	3.4	10.5	12.3	7.2
Respondents	No.	591	553	572	497	2213
Nonrespondents	No.	234	189	254	210	887

[a]Based on responses to question 18k in form A of the student questionnaire.

TABLE C-51 - ADDITIONAL ACTIVITIES IN WHICH STUDENTS WOULD LIKE TO PARTICIPATE, BY SEX AND GRADE[a]

Activities		Junior Boys	Senior Boys	Junior Girls	Senior Girls	Total
Music	No.	77	83	150	159	469
	Pct	10.2	12.4	19.1	23.8	16.3
Athletics	No.	188	191	88	109	576
	Pct	24.9	28.5	11.2	16.3	20.0
Dramatics	No.	73	71	222	156	522
	Pct	9.7	10.6	28.3	23.4	18.1
Debate	No.	83	84	106	74	347
	Pct	11.0	12.5	13.5	11.1	12.1
School Paper or Annual	No.	176	125	304	203	808
	Pct	23.3	18.7	38.7	30.4	28.1
Student Government	No.	205	174	218	173	770
	Pct	27.2	26.0	27.8	25.9	26.8
Church Youth Groups	No.	44	33	81	75	233
	Pct	5.8	4.9	10.3	11.2	8.1
Hi-Y or Tri-Hi-Y	No.	38	30	73	50	191
	Pct	5.0	4.5	9.3	7.5	6.6
FFA or FHA	No.	16	16	27	19	78
	Pct	2.1	2.4	3.4	2.8	2.7
Hobby Club	No.	124	61	91	80	356
	Pct	16.4	9.1	11.6	12.0	12.4
Pep Rallies or Pep Club	No.	41	25	111	68	245
	Pct	5.4	3.7	14.1	10.2	8.5
None of These	No.	191	188	112	114	605
	Pct	25.3	28.1	14.3	17.1	21.0
Respondents	No.	754	670	785	668	2877
Nonrespondents	No.	71	72	41	39	223

[a]Based on responses to question 20 in form A of the student questionnaire. Percentages total to more than 100 because more than one response could be marked by the respondent.

TABLE C-52 - PERCENT OF RESPONDENTS ASPIRING TO ENTER EACH OCCUPATION, BY SCHOOL[a]

Occupation	Schools											
	A	B	C	D	E	F	G	H	I	J	K	L
Professional, Technical	70.0	60.4	62.0	59.1	60.9	52.6	64.9	50.0	48.9	65.6	61.8	64.7
Farmers and Farm Managers	0.9	0.3	1.5	0.6	0.4	3.2	4.3	0.0	0.0	6.2	0.0	0.0
Managers, Officials and Proprietors	10.1	4.5	4.5	4.6	6.8	7.4	1.1	6.1	4.3	6.2	0.0	5.9
Clerical	4.3	8.7	8.3	12.4	10.7	8.4	10.6	15.2	17.0	3.1	8.8	8.8
Sales Workers	3.2	2.2	2.3	2.5	2.8	0.0	4.3	0.0	2.1	3.1	0.0	0.0
Craftsmen	2.1	9.8	8.9	7.4	5.0	15.8	5.3	10.6	14.9	3.1	17.6	8.8
Operatives	0.0	1.5	0.6	1.2	1.1	0.0	0.0	0.0	0.0	0.0	2.9	0.0
Private Household[b]	1.4	1.9	1.1	2.2	0.4	1.1	3.2	1.5	0.0	3.1	0.0	2.9
Service Workers	7.9	10.1	10.2	9.3	11.0	9.5	5.3	15.2	10.6	6.2	8.8	5.9
Farm Laborers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9
Laborers, except Farm and Mine	0.1	0.5	0.6	0.6	1.1	2.1	1.1	1.5	2.1	3.1	0.0	0.0
Number of Respondents	774	584	471	323	281	95	94	66	47	32	34	34
Number of Nonrespondents	49	66	57	28	31	7	8	6	2	7	4	0

[a]Based on responses to question 28 in form A of the student questionnaire.

[b]Includes "housewives."

TABLE C-53 - PERCENT OF RESPONDENTS EXPECTING TO ENTER EACH OCCUPATION, BY SCHOOL[a]

Occupation	Schools											
	A	B	C	D	E	F	G	H	I	J	K	L
Professional, Technical	47.5	43.7	42.6	43.8	41.7	32.9	41.3	34.4	18.6	42.9	35.7	38.7
Farmers and Farm Managers	0.4	0.4	1.2	0.7	0.8	2.6	3.3	1.6	0.0	0.0	0.0	3.2
Managers, Officials and Proprietors	9.9	4.5	3.2	2.5	4.8	0.0	2.2	1.6	2.3	3.6	0.0	3.2
Clerical	4.1	9.6	11.0	14.2	11.9	6.6	6.5	16.4	4.7	10.7	0.0	3.2
Sales Workers	3.2	0.9	1.5	1.8	1.6	2.6	2.2	0.0	2.3	0.0	0.0	0.0
Craftsmen	4.1	10.4	9.7	10.7	8.3	19.7	8.7	9.8	18.6	3.6	17.9	6.5
Operatives	0.1	1.5	0.7	1.4	2.0	3.9	2.2	4.9	2.3	0.0	7.1	0.0
Private Household[b]	26.7	19.5	19.5	19.9	20.2	22.4	31.5	18.0	39.5	32.1	21.4	32.3
Service Workers	3.8	7.9	8.2	2.8	7.9	7.9	1.1	9.8	7.0	0.0	7.1	9.7
Farm Laborers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Laborers, except Farm and Mine	0.1	1.5	2.2	2.1	0.8	1.3	1.1	3.3	4.7	7.1	10.7	0.0
Number of Respondents	686	529	401	281	252	76	92	61	43	28	28	31
Number of Nonrespondents	137	121	127	70	60	26	10	11	6	11	10	3

[a]Based on responses to question 37 in form A of the student questionnaire.

[b]Includes "housewives."

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Priority Problems in Vocational Education for the Nation's Big Cities, Developed by Participants of the Research Training Institute, December 5-9, 1966, Denver, Colorado.

Christensen, Virgil E.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

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*VOCATIONAL EDUCATION, *EDUCATIONAL RESEARCH, *RESEARCH PROBLEMS, *RESEARCH METHODOLOGY, CITY PROBLEMS, STATUS, ATTITUDES, CAREER CHOICE, ADMISSION CRITERIA, CURRICULUM, WORK EXPERIENCE, VOCATIONAL INTERESTS, HIGH SCHOOL STUDENTS, VOCATIONAL GUIDANCE, TEACHER EDUCATION, SCHOOL COMMUNITY RELATIONSHIP,

The statement of the problem, the purposes and objectives, the procedures needed to achieve the objectives, resources (leadership, institutions, sources of funds) and expected results are outlined for 10 proposed research studies -- (1) "Design for Career Choice," (2) "Early Identification and Selection Procedures to Assure a Greater Degree of Success in Secondary Vocational Programs," (3) "Using Occupational Tasks as a Vehicle for Facilitating Basic Education and Occupational Learning," (4) "The Problem of Finding Properly Supervised Work Experience Situations for Students not Prepared for O.V.T. Programs," (5) "Motivation of Students in Developing Attitudes Toward Vocational Goals," (6) "The Relationship of Image to Choice of a Vocational Program, Performance in That Program, and Performance in the Field," (7) "A Survey to Determine the Attitudes of Select Groups in Regards to Vocational Technical Education," (8) "Identification and Location of Low Status Attitudes Affecting Decision Making in Vocational Education," (9) "Development of Realistic Understanding Within the Community Concerning Vocational Education," and (10) "Outline of Pre-Service Training." (SL)

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PRIORITY PROBLEMS IN VOCATIONAL EDUCATION FOR THE NATION'S BIG CITIES

The Center For RESEARCH AND LEADERSHIP DEVELOPMENT IN Vocational and Technical Education

VT 014757

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PRIORITY PROBLEMS IN VOCATIONAL EDUCATION FOR THE NATION'S BIG CITIES

Developed by Participants
of the
RESEARCH TRAINING INSTITUTE

December 5-9, 1966

Denver, Colorado

1967

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V. E. Christensen,
Institute Director

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APPENDIX

THE GUIDE USED IN OUTLINING THE PROPOSED STUDIES

DESIGN FOR CAREER CHOICE*

I. Statement of the problem

The problem is one of inadequate information on the part of students in order to make realistic tentative career decisions while in school--and in time to receive vocational training while in the public secondary school. There is a responsibility on the part of the school system to provide this information.

The problem not only involves providing students with adequate information but would logically transcend into changing some misconceptions on the part of parents or others who might influence students in occupational choice.

This is a problem because the large majority of students in the large-city systems (60 to 70%) do not go on to advanced academic training and are seeking entry level employment immediately upon graduation from high school. To make his high school experience more meaningful, this career choice must be made in time to receive adequate training. (This does not imply that student will not change careers in the future).

Student, school, employers, parents, and society in general are all affected if a waste in talent occurs because of lack of information and occupational guidance.

At present many of the avenues used for the presentation of occupational information to students are of a "helter-skelter" or unplanned nature. These may include career day programs, in class vocational guidance by subject or vocational teachers, vocational counselors (in the few areas where they exist), regular counselors to a limited degree, home room situation, career units in academic subjects such as Social Studies and English, field trips, part time or cooperative work experience and by other informal methods.

II. Purposes and objectives

What if any are the desired behavioral objectives? What do you predict the results will show?

The general purpose is:

To provide the student (college bound or vocational) with adequate career and occupational information with the hope that this information will then be used in making career choices.

II. Purposes and objectives - continued

A more specific objective would be:

To provide the methods and procedures by which this information may reach the student and to determine the proper timing and approaches.

The behavioral objectives desired include:

(1) Self-realization of potential on the part of the student in terms of matching abilities with career requirements.

(2) Greater motivation on the part of the student to stay in school to pursue self-formed objectives.

(3) Better attendance at school.

(4) Successful job-entry and growth.

(5) More satisfied employees and employers.

III. Procedures needed to achieve the objectives

This would be defined as an action-research project or one leading toward the continuum of action research.

Phase I. Design instrument and gather data pertaining to present methods of presenting students with occupational information. (What they actually know at different intervals of school life).

(a) Formal methods.
(b) Informal methods.

Phase II. Analize and interpret data and formalize pilot programs. Provide feedback to those involved in making plans. Develop a demonstrative project.

Phase III. Implementation of model.
IV. Evaluation and dissemination of information.
V. Adjustments necessary to overcome limitations of study, etc.
VI. Decisions--as to expansion of the program, etc.

This would be a one city effort with two or more schools being involved. Testing would be in one city for ease of coordination but would be of application to all cities.

The subjects should be those students selected for the study in the pilot schools. Emphasis on students below 11th grade but with all years down through middle school (6 through 12) being involved.

III. Procedures needed to achieve the objectives

Instruments would need to be developed to determine if students subjected to the pilot program actually do receive more occupational information than those students who have not had the same procedures available to them.

(NOTE) A separate study could be conducted to determine if students do make more realistic career choices when provided with these raw materials or if their horizons are materially enlarged in respect to wide variety of potential careers.

Phase I could begin anytime. At least one year would be needed for the planning stage for the collection of data and the development of the model. For proper implementation and evaluation a 4 or 5 year longitudinal study would be involved.

The outcomes could be evaluated by a measurement of increase of occupational information possessed by students participating in project. (Pre-test, post test, controlled group or other designs).

The pilot and/or demonstration phase could be carried out in any urban area in which a large number of students are non-college bound.

IV. Resources

(a) Survey of current literature is needed to determine specialists who have done considerable study and writing on the topic of occupational choice (ex. Ginsberg).

(b) Possible agency or institution assistance might be obtained from colleges and universities, ERIC (information retreival centers) The Center for Vocational and Technical Education, The Ohio State University.

(c) The following are possible funding sources:

1. Local school districts (research and pupil services funds).

2. Federal programs.

3. State ancillary funds.

4. Foundations (Ford, other).

V. Results

(a) What are the expected outcomes?
(b) How will they be implemented?
(c) Who takes the lead on getting the findings into practice?
(d) How will the big city vocational education program benefit?

V. Results - continued

(e) How will the students benefit?

(a) Expected outcomes

Improved and more effective methods of providing occupational information to students.

(b) Steps for implementation

Dissemination of results. Conduct pilot effort. Provide a set of guidelines.

(c) Program benefits

More motivation on part of students. Better acceptance of vocational programs on the part of industry.

(d) Student benefits

A more knowledgeable basis for career decisions. Self-realization and increased awareness on the part of the students.

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* This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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Pittsburgh, Pennsylvania
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Torrance, California
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East Central Illinois Educational Center
Charleston, Illinois
Mr. Carl Q. Roberts,
Colorado Department of Employment
Denver, Colorado

EARLY IDENTIFICATION AND SELECTION PROCEDURES TO ASSURE A GREATER DEGREE OF SUCCESS IN SECONDARY VOCATIONAL PROGRAMS*

I. Statement of the problem

The problem is that of proper student selection to assure a greater degree of success in vocational programs and on the job.

This is a problem throughout the entire vocational education program. The problem is unusual because a majority of the students are affected either by improper counseling or erroneous selection.

II. Purposes and objectives

Purpose: To develop and test a practical process which will facilitate realistically the identification of student potential, in terms of interests, attitudes and capabilities, and which in turn could provide a sound basis for guidance prior to entrance in vocational programs.

Specific objectives:

(a) Develop valid early identification procedures.
(b) To assure success in program rather than failure resulting from misplacement.
(c) To encourage a realistic approach by student to their limitations.
(d) To provide means whereby the student plays a more active part in program selection.

Behavioral objectives:

(a) To develop an attitude of belonging, self worth, and acceptance within student.
(b) To provide knowledge that students efforts are worthwhile, respectable, and self-rewarding.
(c) To increase positive acceptance of vocational education in society in which he lives.

III. Procedures needed to achieve the objectives

(a) This should be a multiple city - multiple state effort.

(b) It should be a longitudinal study involving all students (6 year minimum).

(c) Measurements need to be developed and used with 7th and 9th graders to depict:

III. Procedures needed to achieve the objectives - continued

1. Aptitudes for specific skill areas.
2. Interests and attitudes toward skill areas.
3. Self salesmanship.
4. Social values within community.

(d) Pilot efforts would need to be carried out in at least one school per state.

IV. Resources

Team comprised of:

Academicians
Vocational educators
Psychometricians
Sociologists
Psychologists
Industry

V. Results

(a) Expected outcomes:

1. Develop selection procedures leading to appropriate vocational placement.

2. Develop attitudes of worth on the part of the student, parent, teacher and community.

3. Lead to a greater degree of successful job placement.

(b) Implementation:

Implemented by state and local administration with primary leadership by the Guidance Counselor.

(c) Program benefits:

Retention of students until public education is completed or until set of skills obtained. Decrease in unemployment.

(d) Student benefits:

Democratic educational opportunity guaranteeing a greater degree of success in educational programs and vocational placement.

*This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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USING OCCUPATIONAL TASKS
AS A VEHICLE FOR FACILITATING BASIC EDUCATION
AND OCCUPATIONAL LEARNING*

The project is influenced by three major ideas: (1) business and industry people continue to criticize the product of vocational program with "Your students can't communicate, can't compute, can't solve problems"; (2) the essence of major thought on goals of education may be summed by Woodring's words that the end product of an educational experience, regardless of the content, is the ability to make wise decisions and to communicate those decisions; and (3) with appropriate strategy, the lag from innovation to wide acceptance by schools has been decreased, e.g. "new" mathematics program was accepted by 75 percent of the schools in Allegheny County and West Virginia within five years.

1. Statement of the problem

The problem is one of providing a model for developing curriculums in numerous occupational fields in which the job task becomes the vehicle for contributing to basic education: problem solving, communication, computation, and relatedness of the occupational task to the social-economic scene in which a pupil functions.

Evidence of the problem is expressed by many employers in most occupational areas who indicate that students, with or without occupational skills, are frequently deficient in basic educational competence to justify their employment and/or advancement, with or without training. Further, students frequently lack the basic education skills to participate successfully (or even to want to participate) in retraining or special programs of occupational preparation.

The problem exists, we assume, because many students, though exposed to the usual classes of English, mathematics, social studies, have not found reason for developing the general education skills so necessary to participating and adapting to a changing work world. Yet, in the vocational field, the obsession toward teaching the job task has frequently blinded the vocational instructor from seeing the rich potential of getting students to talk, read, listen, write and manipulate numbers in solving problems related to that task. Frequently, too, these practical instructors have failed to capitalize upon this technique to show relatedness in the total world of work; the social, economic, and political world in which the vocational student must learn to adjust.

I. Statement of the problem - continued

We believe that the model could be demonstrated in any one of a number of occupational fields in which there was strong national leadership in an occupational area from education, labor and business.

In addition to comparisons of adaptation to work of students from a new curriculum, the model lends itself to such hypotheses as the following:

(1) Students from the new curriculum will be as proficient, if not more so, in performing tasks and adjusting to new tasks of a particular occupation as those from traditional programs.

(2) Tests of communication, computation, and problem solving will show a significant edge for those following the "new" versus current.

Built into this model must be a strategy for dissemination and acceptance by administrators and their vocational teachers.

II. Purposes and objectives

The objective is to bring about the development and adoption of curriculums in which occupational tasks are utilized as a vehicle for facilitating basic education and occupational learning.

Specific objectives are to gain cooperation, endorsement, and acceptance from necessary leaders, administrators, and classroom practitioners to develop, demonstrate, test, disseminate this broader approach to purpose for teaching a vocational task.

Behavioral objectives are in several classes and must be defined separately for each of the following groups: (1) educational leaders, (2) lay leaders interested in education, (3) media representatives, (4) educational administrators, (5) teachers, (6) students, and (7) the employment community (both labor and business).

III. Procedures needed to achieve the objectives (by phases)

(a) A demonstration of the model must emanate from or be promoted by some national group acting as a catalyst for planning and implementation. Such an organizing force we see in The Center for Vocational and Technical Education or the Great Cities Research Council.

III. Procedures needed to achieve the objectives - continued

(b) A national task force composed of leadership from business, labor, education and allied disciplines has the responsibility for defining current job tasks of an occupation for which the curriculum is to be constructed.

(c) A subgroup of the task force has the responsibility for developing specifications of speaking, listening, writing, reading, computing, and problem solving activities related to a job task. Also, specifications of the social, economic, political relatedness of the task are drawn by the subgroup.

(d) Writers, media specialists and practitioner groups are assigned to development of instructional units and methodology based on the specifications. As a strategy for later adoption, we propose that the instructional package be as nearly self-instructional as possible with many alternative media of presentation to fit a wide range of classroom situations. Assumed in the preparation is pilot testing, evaluation, and revision.

(e) Prior to demonstration in from 5 to 25 classrooms, we propose a summer workshop for instructional staff to (1) build in some "Hawthorne" effect, (2) to examine materials and develop classroom strategy, (3) to help the demonstrators define their goals and their role in the new system.

(f) Demonstration, evaluation, revision, dissemination phase. Obviously, criteria of selection and patterns of working with demonstrators and evaluation are critical.

(g) Concurrent with the total program development must come the development and implementation of a strategy pointed toward local school and community acceptance.

(h) We consider the continuing evaluation and modification of the curriculum to be the only realistic means of adjusting to the change we are encountering and will encounter.

Evaluation and Testing

It is beyond our scope to spell out the evaluation and testing necessary. We recognize the areas of evaluation, however, to be defined in our purposes:

1. Proficiency of graduate from these curriculums to get, hold and adapt in the changing market place for jobs.

THE PROBLEM OF FINDING PROPERLY SUPERVISED
WORK EXPERIENCE SITUATIONS FOR STUDENTS
NOT PREPARED FOR O.V.T. PROGRAMS*

I. Statement of the problem

In large cities a major problem is finding properly supervised work experience situations for students that are not prepared for O.V.T.[1] programs.

In the "great cities" there is a need to become actively concerned with the development of plans for the employment of many school age students who must either enter college or become absorbed in the labor market. Large minority groups of low economic status must be prepared to enter the labor market.

Numerous opportunities exist for employment of qualified youth in the "World-of-Work" and many of the youth aspire to work opportunities. However, far too few of the inner-city youth have been able to obtain maximum benefit from the wide variety of vocational course offerings because they lack the prerequisites in basic skills and educational aspirations necessary for success in the courses.

The youth (the other American) live in virtual isolation from the larger affluent society. The isolation is accompanied by a poverty of experience, and, as a result, their full development of prerequisites necessary for attaining high standards of living, learning, and working in the broad society has been inhibited. The underdeveloped prerequisites include:

(a) A level of understanding, expectation and aspiration needed to support the school's efforts to promote intellectual growth and values and attitudes conducive to success in the world of work.

(b) Adequate communication skills, particularly reading skills, including an understanding of what reading is and the motivation to read for information and pleasure.

Before the youth can be adequately trained through regular vocational programs for positions, the schools must somehow provide for them an educational program supplementary in nature.

1. OVT - Occupational, Vocational, Technical

II. Purposes and objectives

(a) To develop a program that will upgrade the basic attitudes needed by youngsters to work effectively and adjust to society through a systematic program designed to offer realistic work experiences within a school situation.

The laboratory will be located within the school's jurisdiction and will be staffed by competent, well trained, certified school personnel.

(b) Develop a course of study and realistic experiences that would assist the students in developing for himself acceptable skills, standards, compentencies in the cluster of automotive occupations:

(1) Remedial work in basic academic disciplines.

III. Procedures needed to achieve the objectives

Before implementing a program of this type the following must be considered:

(a) Financing.

(b) Student selection.

(c) Staffing.

(d) Course of study.

(e) Facilities.

(f) Equipment.

(g) Scheduling.

The age limit would depend on State Labor Laws, and the age of Junior and Senior High students available.

Measurement:

(a) Ability and achievement test.
(b) Interest test and inventories.
(c) Differential aptitude.
(d) Minn. Vocational Inventory.

It should begin as soon as possible.

III. Purposes and objectives - continued

Evaluation:

Constant evaluation, built in change and evaluation.

Objective and subjective evaluation.

Time:

At least three to five years to bring a work situation within school jurisdiction.

IV. Resources

Leadership - A person interested in and dedicated to helping this type of youth.

Agency - Oil and automotive industries.

(a) Ford foundation.

(b) P.L. 88-210.

(c) P.L. 89-10.

(d) O.E.O.

(e) State Department.

(f) Rehabilitation.

V. Results

We expect to see changed student behavior as reflected in:

(a) Changed attitudes

(b) Increased understandings.

(c) Improved skills.

Disseminate this report by operating in-service training sessions with guidance, teaching, and administrative staff.

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*This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

Mr. Warren A. Collier, Coordinator of Work Orientation
Township High School - District #214, Mt. Prospect, Illinois

Dr. K. M. Eaddy, Director
Vocational Program Research Coordinating Unit
Tallahassee, Florida

Mr. Edgar J. Hollwedel, Director of Vocational
Curriculum Development - City School District
Rochester, New York

Mr. Robert V. Keck,
Oklahoma City Public School System, Oklahoma

MOTIVATION OF STUDENTS
IN DEVELOPING ATTITUDES TOWARD
VOCATIONAL GOALS*

I. Statement of the problem

The problem focuses upon the motivation of students in developing attitudes toward vocational goals.

1. (Where) The problem asserts itself at different grade levels depending upon locality, but primarily at entry into high school when the parents and student are planning career objectives.

2. (Who) It affects approximately 80% of the students in urban centers who do not go on to college and are faced with an immediate vocational choice.

3. (Alternatives) Traditional guidance methods are ineffective because of counselor-student ratio and because of the counselor's preoccupation with the academically-oriented student. Vocational counseling is generally neglected because most school counselors are themselves academically oriented.

4. (Is it possible?) Yes, the proposal would include the development of a program employing new ways and means of changing attitudes, establishing realistic objectives for each individual, and providing for successful experiences in general education and vocational exploratory subjects.

II. Purposes and objectives

(a) To raise the aspiration level of the student through the development of new ways and means of providing successful experiences.

(b) To develop learning situations that are real and are immediately meaningful and useful to the student.

(c) Attitude change toward -

1. Career objectives.
2. The student's role in a social setting.
3. A true understanding of self and an understanding of his potentials and limitations.

(d) Testing of proposed methods and means which should provide evidence to indicate more effective ways of reaching the student identified earlier (who generally has a limited exposure to cultural, social and occupational information).

III. Procedures needed to achieve the objectives

Steps to be carried out

(a) Research the literature to determine methods already used and found successful in - military services, industrial training organizations, MDTA, NYC, Adult education, Job Corps and lay and community agencies.

(b) Determine how these methods may be improved upon with other media such as programmed learning, CAI and other means such as clear explanation to other ethnic groups.

(c) Development of material sources and arrangement for social and cultural exposure.

(d) Test with a pilot program of dissemination of information.

(e) Evaluate individual and group changes as a result of this program participation at three and five year intervals.

Stages a, b, and c are nationwide in scope.
Stages d and e could be tested locally.

This program could be carried out in urban communities with 100,000 population or more.

Subjects - Upper elementary (6,7,8) or junior high school grade levels. The program is designed for the educationally disadvantaged and measurement criteria are needed to identify these students.

When - When student needs in a school system warrant such a study. In urban centers immediately.

Evaluation -

1. Observable data such as lowering of the drop-out rate.
2. Making realistic choices as compared to a profile based on the best guidance tools available.
3. Follow-up studies indicating the effectiveness of the student to adjust to work and social setting.

IV. Resources

(a) Personnel

See Stage (a) under procedures where materials and methods are being researched.

(b) Funds

ESEA, Title I

* This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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Mr. N. Gunnar Fransen, Director
Division of Adult and Occupational Services
Rockford Public Schools,
Illinois

THE RELATIONSHIP OF "IMAGE" TO CHOICE OF A VOCATIONAL PROGRAM, PERFORMANCE IN THAT PROGRAM, AND PERFORMANCE IN THE FIELD*

I. Statement of the problem

Generally, the problem is that, while we believe the "image" of different vocations and of related vocational education affects the numbers and types of students who choose different programs and affects the performance of these students in the program and in the actual vocation in later life, we have no hard data (at least in our system) as to how image operates and how it can be changed.

To clarify the remainder of this paper, a definition of "image" is needed. We see image as having two components, one informational in nature and one affective. Under informational we include:

(a) Knowledge of what the vocation actually involves, that is, what a person engaged in it actually does, the conditions under which he works, his opportunities for advancement, the salary he is likely to begin with and to attain later.

(b) Knowledge of entry requirements in the vocation and of further educational needs for advancement in the vocation. What are the demands of a person wishing to enter?

Under affective we include:

(a) The prestige level of this vocation relative to other vocations. The perceived desirability of being engaged in this vocation.

(b) Subconscious reaction to the vocation or general feelings toward the vocation. We mean here the kind of response which could probably be measured with the semantic differential.

We propose to delimit our study at this point to a specific vocation--cosmetology. We chose this arbitrarily as a popular vocation with a sizeable number of students in the program. We propose to conduct a "pilot" study at first to test the feasibility of the approach. If it proves to be meaningful in the cosmetology area, we will expand our efforts across a broad spectrum of vocations.

I. Statement of the problem - continued

We feel that the lack of knowledge of the relationship of image to entry and later performance is widespread. We assume for purposes of the assignment that it is a problem in the school district in which we work.

We know of no alternatives that are being tried to solve the problem.

We feel the problem is researchable, and we will demonstrate why in the remainder of this paper.

II. Purposes and objectives

Generally, the purpose is to determine the relationship of image of cosmetology to behavior at different times in the student's career and through this determination to give the vocational department of our school district some information on the kinds of image building activities which are desirable. The points in time in which we are interested are: prior to the choice of a vocational program (at 10th grade in our district), shortly after entering the cosmetology program, just before completing the cosmetology program, and after a year at work in the field.

Specifically, the objectives are to determine how the two components of image, informational and affective, relate to:

(a) Whether or not the cosmetology program is selected.

(b) Performance in the cosmetology program after selection in terms of 1) staying with the program through graduation and 2) performance on tests and other measures of success in the program.

(c) Performance in the vocation after graduation in terms of 1) success in quick entry into the vocation, 2) level of beginning salary, 3) success in holding a job, and 4) quality of performance on the job according to the employer.

Another specific objective is to determine changes in the student's image of cosmetology before, during, and after training and after experience in the field and to relate these changes to the types of behavior indicated above.

Desired behavior objectives are twofold. At a methodological level, the objective is to validly and reliably measure image as we have defined it. At a substantive level, we hope the

II. Purposes and objectives - continued

information we gain will assist our vocational department to achieve these behavioral objectives:

(a) Selection of cosmetology by a "desirable" number of students.

(b) A high rate of retention of students in the program or, if they leave this specific program, a move into another program in the school.

(c) A high level of performance by students in the program in terms of their mastery of needed skills and knowledge and of the scores they achieve on tests.

(d) Success by graduates in getting a job, at a satisfactory salary level, soon after completing the program.

(e) Success by graduates in holding a job and in performing at an acceptable level in it.

We predict that the two components of image will relate at a significant level to each other. We also predict that each will relate positively (factually accurate and affectively desirable) and at a significant level to selection of the program and to satisfactory performance in it and on the job.

III. Procedures needed to achieve the objectives

The study can be broken down into stages as follows:

(a) All 10th graders will be asked to indicate probable areas of emphasis (including cosmetology) in September of 1967.

(b) All of those indicating a possible intention to enroll in cosmetology will be given the image measure in November of 1967.

(c) A random sample of those who do not indicate intention to enroll in cosmetology will also be given the measurement. This sample will be approximately equal in size to the group indicating a possible intention to enroll.

(d) Test scores, course and grade data, life-record data, etc. will be collected on the two groups during the 1967-68 school year from school records.

III. Procedures needed to achieve the objectives - continued

(e) Students enrolling in cosmetology will be retested in October of 1968, that is, shortly after entering the program in 11th grade.

(f) Students nearing completion of the program will be retested in April of 1970.

(g) Those employed as cosmetologists will be tested again in April of 1971.

This information will give a longitudinal study of a single group. To get an early indication of the relationships, students in 11th grade, in 12th grade, and employed will be tested in 1967-68. This will give indications at the desired developmental points, but with different groups of students at each point.

Data to be collected for each subject include:

(a) Results on various administrations of the image measuring instrument.

(b) GPA.

(c) Life-record data, e.g. socio-economic status, age, sex, etc.

(d) Interest score on a suitable test.

(e) Attendance rate and other indications of inschool behavior.

(f) Intelligence score or other indication of general ability.

Analysis techniques will include:

(a) Factor analytic techniques will be used to identify the basic dimensions of "image" and to assist in designing and scoring the measuring instruments.

(b) General linear hypothesis tests will be conducted to answer the following questions, controlling for test scores, GPA, etc: 1) Has the image of successfully employed cosmetologists changed since 12th grade? Since 11th grade? Since pre-enrollment? 2) Do enrollees and non-enrollees in cosmetology hold different images? 3) Do those completing the program hold different images toward cosmetology than those not completing it?

III. Procedures needed to achieve the objectives - continued

(c) Correlational techniques will also be used to test the relationship of image, measured at different points in time, to indications of relevant behavior such as performance on tests and employer's ratings.

IV. Resources

Responsibility for this effort will be vested in the Research Division of our district. However, the study will be a joint effort of the Research Division and the Division of Vocational Educational, and resources of both groups will be merged in the effort.

Others may be used on a consulting basis, though we feel that actual conduct of the study should be internal to our district, that is, we do not feel this is the type of study which lends itself to joint conduct. Persons or agencies who may be useful on a consulting basis include:

(a) The State Licensing Board for Cosmetology.

(b) Staff members of the State Department of Public Instruction.

(c) Vocational and research specialists in our neighboring university.

(d) Local employers of cosmetologists.

(e) Members of the psychology division of the district and/or of the university.

We feel that the school district should be able to fund this study internally, though we are not adverse to outside help if we can get it. We feel the effort is important enough, however, that it should not depend on outside funding. Possible outside sources include:

(a) Title III of ESEA.

(b) The Cosmetology Association.

(c) The State Department of Public Instruction.

(d) Vocational Act of 1963.

(e) State Vocational Department Ancillary Funds.

V. Results

From this study we hope to learn:

(a) The difference in image of cosmetology between those who select this program and those who do not; whether this difference is related to other characteristics of pupils, such as SES and past performance in school.

(b) The change in image over time.

(c) The relationship of the image of cosmetology and its change in time to degree of success in the vocational program; whether or not this relationship is affected by other student characteristics.

(d) The relationship of image to opportunities and promotion on the job.

Results of the study will be discussed with vocational education personnel and the implications, conclusions, and recommendations agreed to. A joint report, satisfactory to both vocational educational and research, will be prepared and will be distributed to the top administration and board members of the district and to such other persons as the vocational education division may desire. The vocational educational division will, of course, be responsible for implementing new programs or any changes in current programs which results indicate are needed.

Results of the study will give the vocational education division and the district guidance on the kinds of information which should be given to pupils prior to their selection of a vocational education program. It will show how the image of vocational education on the part of students relates to success both in the program and on the job, and this will give leads on both the kinds of information offered in the program and the manner of instruction. The district will learn how the image of cosmetology differs among students of different backgrounds and whether these differences interact with background on success achieved later in the program and in the field.

One of the most important outcomes of this particular study will be an indication of the feasibility of the approach. This is a pilot study, deliberately limited to a single field. If the approach seems practical and the results useful to vocational education personnel, it can be broadened over a wide range of vocational education programs.

V. Results - continued

Students in our district will benefit from this study because a realistic number of them will be guided into cosmetology as a vocation, because the program of instruction in cosmetology will be improved to some extent, and because chances for success in the field of cosmetology will be increased.

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*This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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Mr. Carroll B. Coakley, Assistant Director
Vocational Education, Madison Public Schools, Wisconsin
Dr. John L. Hayman, Jr., Director of Research
School District of Philadelphia, Pennsylvania
Mr. Vernon L. Hendrix
University of Minnesota - Minneapolis, Minnesota

A SURVEY TO DETERMINE THE ATTITUDES OF SELECT GROUPS IN REGARDS TO VOCATIONAL-TECHNICAL EDUCATION*

I. Statement of the problem

The problem is to determine the attitudes of select groups in regard to vocational education, i.e., high school students, counselors, parents, the lay public, college and university professors, board of education members, business and industry leaders, vocational education instructional staffs, and school administrators.

Some criteria indicating that a problem exists are:

(a) The number of students enrolled in vocational education at the high school level.

(b) The amount of financial support allocated to vocational education compared to general education.

(c) The type and capabilities of students now enrolling in vocational education.

(d) The increasing demands of industry for the more competent technically trained individual.

II. Purposes and objectives

The general purpose of the study is to secure objective information which will provide a basis for appropriate action based upon what is learned. The eventual aim is to raise the status of vocational education programs. It is predicted that the results will indicate:

(a) That the attitude of high school students toward vocational education will be that the status of vocational education training is less than that of the college-bound student.

(b) That the attitude of the parents toward pupils enrolled in vocational education will be less favorable than toward those students enrolled in college-bound curriculum.

(c) That counselors will be more apt to show favorable attitudes towards the academically inclined students and enroll the slower learners in the vocational education courses.

II. Purposes and objectives - continued

(d) That school board members will be more inclined to stress reading, writing, and arithmetic and the academic college-bound track than support for the vocational education non-college-bound track.

(e) That the lay public will put greater stress on developing college-track curricula than vocational education curricula.

(f) That institutions of higher learning will select more high academic achieving general education track students than high achieving vocational education track students.

(g) That the attitudes of vocational education students themselves and of vocational education teachers will be lower than that of high achieving college track students and their teachers.

III. Procedures needed to achieve the objectives

The study can be broken down into stages or phases; e.g., attitudes of students at stages such as sixth grade or seventh grade, ninth grade or tenth grade, and twelfth grade, correlated with the educational programs such as 6-3-3-, 6-4-4-, and so forth.

The study could be broken into three operational phases. During the planning stage phase, the instruments to be used would be perfected and selected. Detailed plans for the random selection of subjects to be interviewed would be made. Previous on-going vocational education research would be studied and interviewees trained. A Pilot program would permit the improvement of techniques to be used in the second operational stage which would deal with the gathering of information. Those approaches found to be feasible during the pilot study would be utilized in the operational phase, and information gathered which could be evaluated in ways which would give meaningful answers to the questions to which we were seeking answers.

During phase three, the data would be processed, the report analyzed, and guidelines established for implementing the study. Information gathered would provide a basis for determining necessary steps to maintain a change or improve the image discovered. The proposed study could well be a one-city effort or could be carried on in selected cities of similar size, geographic area, and with similar problems.

III. Procedures needed to achieve the objectives - continued

It is conceivable that cities such as Topeka, Oklahoma City, and Denver might be involved, although the subjects of the survey will be the lay public, the board members, the teachers, the counselors, the administrative personnel, members of vocational education groups, the students, business, and industry. The primary methods of getting at attitude would be:

(a) Pupil preferences on standardized tests such as Kuder-Strong and others at grades nine, possibly seven, ten, and twelve.

(b) The number of students counselors recommend for the vocational education track versus the number recommended for the academic track.

(c) The analysis of the student's academic achievement, comparing those recommended for non-vocational educational pursuits with those recommended for vocational education pursuits.

(d) An evaluation of the criteria utilized by counselors in institutions of higher learning in the selection of entering college freshmen other than the usual testing procedures; i.e., academic tracks of academic subjects opposed to the vocational education tracks.

The unique aspect of the proposed study would involve the currency or timing of the study, the recent information provided, and the locales in which these data would be gathered.

IV. Resources

No pilot or demonstration effort in existence is presently known; however, the regional educational laboratory should be consulted for any on-going source material.

Leadership in this effort might be provided by such professional groups as the American Association of School Administrators, the National Association of Secondary School Principals, the American Vocational Association, the various regional educational laboratories, the ESEA grant, the Center for Vocational and Technical Education of the Ohio State University, and various local and state vocational educational institutions.

V. Results

It is anticipated that the information gathered will provide an objective factual basis by which the status of vocational education can be determined. Such information will then provide direction for local action.

The selection and choice of a problem cannot in any way be construed as a primary interest of this committee of four. It is recognized that such a brief formulation as that contained in the present working draft constitutes at best a tentative proposal. Much more work and effort would of necessity be required before operational methodology and procedures could be formulated.

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*This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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Dr. Joseph E. Brzeinski, Director of Research
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Mr. Max D. Hartdegen,
East Side Union High School District, San Jose, California

IDENTIFICATION AND LOCATION OF LOW STATUS ATTITUDES AFFECTING DECISION MAKING IN VOCATIONAL EDUCATION*

I. Statement of the problem

Historically vocational education has been relegated a low status position in the total educational arena. In the last decade new focus has been brought to bear on vocational education with great increases in amounts and sources of funds and accompanying expansion of programs. However the attitudes of low status seems to remain among vocational education staff members and also is reflected by a reluctance of students to accept vocational training.

The problem as we see it centers around the effects that attitudes of low status have on decision-making at various levels of vocational instruction, supervision and administration.

The problem of attitudes seems to be universal both horizontally and probably vertically in school systems, but at varying degrees. We feel it has adverse effects in the total vocational program, and specifically in areas of budget, teacher recruitment, student participation, community acceptance and faculty interpersonal relationships.

The ability to research this problem would be dependent on the development of a useable instrument. We would suggest that the development of suitable instruments be a concerted effort of educators, psychologists and sociologists.

II. Purposes and objectives

The general purpose of the proposal is to determine whether, in fact, feelings of low status do exist, who holds these feelings or attitudes, and to what degree, how they are perpetuated and by whom, and, how these feelings effect decision-making.

We hypothesize that attitudes of low status <u>do</u> exist and at varying degrees at different staff levels; and that they do affect decision-making in relation to the intensity of the attitude held.

III. Procedures needed to achieve the objectives

Possibly the proposal could be developed in stages as follows:

III. Procedures needed to achieve the objectives - continued

(a) Determination whether low status attitudes do exist, where (at what staff level), and to what degree or intensity;
(b) The effect of the attitudes on decision-making; and
(c) Possible development of approaches to counteract or dispell the attitudes.

This effort would probably best lend itself to a multi-city approach, and encompassing all school personnel. Cities of somewhat approximate size would probably create a better data bank.

Instruments should be designed to measure a continuum of attitudes, and a pilot test should, of course, be made of the instrument.

IV. Resources

Such a study would seem to lend itself to a regional educational research laboratory for implementation.

V. Results

Efforts to eliminate attitudes of low status held by vocational educators must come from within, and would have to be psychological in nature. The eventual recipient of improvement must be the student. Increased attitudes of status would reflect from staff to students.

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*This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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Dr. Bruce Reinhart, Supervisor of Research and Service
Division of Vocational Education - UCLA, Los Angeles
Mr. Carl H. Turnquist, Division Director,
Vocational Education
Detroit, Michigan

DEVELOPMENT OF REALISTIC UNDERSTANDINGS WITHIN THE COMMUNITY CONCERNING VOCATIONAL EDUCATION*

I. Statement of the problem

(a) To effectively develop a program of realistic understanding within the community concerning vocational education.

(b) This is a national problem.

(c) This is a problem because it prevents potentially qualified students from taking advantage of vocational education in terms of their real abilities and interests.

Statistics show that approximately 80% of all students are affected.

II. Purposes and objectives

(a) General

To develop a program of realistic understandings within the community concerning vocational education.

(b) Specific

To disseminate information relative to the educational opportunities available in vocational education to the community.

Vocational classes offered in the schools.
Orientation programs offered in the schools.
Guidance opportunities and programs offered in the schools.
Qualifications necessary for entrance into various Vocational Courses.

To provide an understanding of the relationship between Academic Education and Vocational Education - a truly comprehensive Career Oriented education.

To disseminate information relative to the present job market.

To provide the community with information relative to the future scope of vocational education.

II. Purposes and objectives - continued

(c) Behavioral

To create an acceptable attitudinal climate within the community towards vocational education.

(d) Predictions

No hypotheses.

III. Procedures needed to achieve the objectives

(a) The study could be broken down into these stages:

1. Formation of research council
2. Community identification -

parents	business
students	schools
industry	other

3. Identification of existing data
4. Formulation of research procedure
5. Evaluation

(b) This would not necessarily be a one city effort - any city that feels the need might participate.

(c) The primary measurements to be made would be:

1. Attitudinal measurements of the community before and after the study.

2. Number of students involved in vocational education before and after the study.

(d) The growth of the vocational education program within the community would be the evaluation.

IV. Resources

(a) Leadership

Industrial leaders of the community
Advertising media of the community
Research and development centers
State Departments of Education
Universities, colleges, schools
Labor organizations
Government agencies
Churches and Councils
Social agencies
Other

IV. Resources - continued

(b) Funding

Public or private agencies
Grants - local, state, or federal

V. Results

Expected outcomes

(a) A realistic understanding of vocational education within the community.

(b) A measureable change in community attitude as reflected in increased participation in vocational education.

(c) A more desireable and satisfying vocational choice for the student.

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* This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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Omaha Public Schools,
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Cincinnati Public Schools,
Ohio
Miss Margery Trott, Supervisor
Detroit, Michigan

OUTLINE OF PRE-SERVICE TRAINING*

I. Statement of the problem

The shortage of trained teachers of T. & I. subjects and the introduction of many federally funded projects such as ESEA and MDTA, make it necessary for school districts to recruit teachers from industry. The short supply of teachers seems to be nationwide in scope, therefore, a pre-service instructional period is necessary to inform the skilled industrial worker about teaching. The problem is what kind or type of training should be given.

II. Purposes and objectives

The development of an effective training program in teaching skills and techniques for people from industry who will teach in the T. & I. areas. The objective of this training program would be to orient the industrial employee into the teaching profession.

III. Procedures needed to achieve the objectives

A survey of training methods used in cities with 500,000 population or more (approximately 25 cities) would be conducted by contacting the Director of Vocational Education in these cities. A survey of the State Director of Vocational Education in the states in which these approx. 25 cities are located to find the certification requirements in the several states would be conducted. An analysis of the two surveys should be prepared.

IV. Resources

Using the resources and resource personnel of The Center for Vocational and Technical Education at The Ohio State University or Wisconsin University to help evaluate a composite training program.

V. Results

A proposed training program that could serve as an outline for a course for instructing new teachers of T. & I. subjects, who had not had previous teaching

V. Results - continued

experience. This outline might lead to co-operation between states for the entry of teachers into that state from the other state.

With the shortage of teachers in the T. & I. areas, this outline program should provide a way to instruct skilled workers who wish to become teachers in their trade area.

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* This proposed study of a big city problem in vocational education was drafted by the following individuals at the Research Training Institute, Denver, Colorado, December 5-9, 1966:

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Des Moines Independent Comm. Schl. Dist., Iowa
Mr. Thomas A. Roche, Director - Vocational Education and
Industrial Arts, Boston Public Schools, Mass.

A P P E N D I X

THE GUIDE USED

IN

OUTLINING THE PROPOSED STUDIES

Identify a Big City problem in Vocational-Technical or Occupational Education.

I. Statement of the problem

What is the problem? Where is it a problem? Why is this a problem - who is affected? List alternatives that are now being tried to solve the problem. Is it researchable?

II. Purposes and objectives

What is the general purpose? The specific objectives?
What if any are the desired behavorial objectives?
What do you predict the results will show?

III. Procedures needed to achieve the objectives

Can the study be broken down into stages or phases? What are they ?
Is this a one city effort?
What cities do you suggest as study sites?
Who are the subjects?
What measurements need to be made?
When should this begin? What is your time schedule?
How would you evaluate the effort?
Where might the pilot and demonstration efforts be carried out?
What is unique about this approach?

IV. Resources

Who do you know that could give leadership to this effort?
What agencies, institutions, funding sources do you suggest?

V. Results

What are the expected outcomes?
How will they be implemented?
Who takes the lead on getting the findings into practice?
How will the big city vocational education program benefit?
How will the students benefit?

*****

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VT 001 762

VT 001 762 ED 010 655

Major Task and Knowledge Clusters Involved in Performance of Electronic Technicians' Work. (Project no. ERD-257-65).

Mills, Boyd C.

Washington State Univ., Pullman. Dept. of Education

Washington State Board for Vocational Educ., Olympia

Dec66

EDRS Price MF-$0.18 HC-$2.84 71p.

JOB SKILLS, *ELECTRONIC TECHNICIANS, *EDUCATIONAL NEEDS, *JOB ANALYSIS, ELECTRONICS, TASK PERFORMANCE, QUESTIONNAIRES,

Washington, Knowledge Clusters,

A questionnaire was developed which contained 637 items of knowledge arranged by categories -- (1) basic electronic concepts, (2) components, (3) electronic measurements, (4) simple electronic circuits, (5) electronic systems, (6) waves and wave propagation, and (7) construction and related knowledge. The items were edited by three electronic professors and pretested on 67 second and third year college students in electronics. A final version was prepared and administered to 154 electronics technicians selected by a variable sampling technique from technicians employed in 549 firms in the Puget Sound area. A major finding was that 84 of the 637 items were deemed essential for six of the eight principal tasks of technicians. The items represented competencies for entry jobs and were presumed to increase occupational adaptability and mobility. These 84 items constitute basic elements of content for introductory electronics courses. (EM)

ED015348

FINAL REPORT
Project No. ERD-257-65
Contract No. OE-5-85-109

MAJOR TASKS AND KNOWLEDGE CLUSTERS INVOLVED IN PERFORMANCE OF ELECTRONIC TECHNICIANS' WORK

December 1966

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

VT 01762

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MAJOR TASK AND KNOWLEDGE CLUSTERS INVOLVED IN PERFORMANCE OF ELECTRONIC TECHNICIANS' WORK

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by

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INTRODUCTION

Background and Rationale

Constantly, new occupations emerge from the development of electronic knowledge and equipment. Electronics has developed in sophistication and reliability to such an extent that applications are widespread. Electronic knowledges are utilized by growing numbers of workers. In the past such workers have been drawn from many sources, but today they are being increasingly trained in schools and colleges. Originally, scientists and engineers provided assistants with understandings necessary to assist with electronic work. As electronics became more widely applied, a shortage of highly trained engineers and scientists developed. As engineers became more highly trained in mathematics and science, a steadily widening gap between them and electronic assistants emerged. Today, fuller utilization of engineers and scientists requires a more adequate supply of technical workers. Such personnel need knowledge and skills essential for application of theoretical principles. This middle range of technical tasks is generally performed by technicians.

Electronics is a rapidly changing field. New devices and processes constantly emerge. Schools seeking to meet present-day needs are confronted with problems of adjusting, deleting, and adding material in order to satisfactorily train students for employment. Some electronic workers have become specialized, requiring additional training in various aspects of electronics not required for all workers. These factors complicate the problem of providing useful training.

Work force mobility affects the content of instruction. Technicians trained in one locality seek and obtain employment in other distant localities. Consequently, schools are faced with the additional problem of preparing students for work in other geographic regions where requirements may differ from those of local firms. Under these circumstances, all local curriculum planners have need for information about knowledges and skills most generally useful in the electronics industry.

Purpose and Hypothesis

The purpose of this study is to identify specific knowledges and clusters of knowledges most widely utilized in major types of work commonly done by electronic technicians.

It is hypothesized that many of the knowledges required for work in electronic technician occupations will be essential for effective performance of a substantial portion of major tasks. It is assumed that identification of commonly useful knowledges will provide a partial base for curriculum development.

REVIEW OF RELATED RESEARCH

Definitions of "Technicians"

Numerous researchers have noted the difficulty of defining a "technician" due to the wide range of positions to which the term is applied. The term is generally used to denote workers who perform a wide range of tasks under various conditions. This diversity of functions has caused considerable variation in definitions. Some authorities derive definitions from the work performed; others formulate definitions oriented to training required for particular types of work. Regardless of which basis is used, at least three levels, or types, of technicians may be identified: the engineering technician, the industrial technician, and the technical specialist.

The technician who serves directly under the supervision of an engineer or scientist in the performance of duties is often termed an engineering technician. He may carry a number of job titles and classifications as determined by employers. He is normally trained in mathematics and science, particularly physics, beyond the high school level. He is skilled in processes and methods of industry and performs tasks of considerable complexity.

The technician who is somewhat further removed from scientific supervision and performs his duties in areas more closely related to production is often termed an industrial technician. Such technicians, operating under general but indirect supervision of engineers and scientists, generally perform tasks involving measurement, construction, and layout. These functions require a knowledge of scientific and mathematical principles similar to, but differing in degree from, those of engineering technicians.

The technicians who are most remote from supervision of engineers and scientists are the technical specialists. They have need for a more specific knowledge of scientific principles necessary to perform somewhat more specific tasks. They may perform their functions with little or no scientific direction, except in the form of occasional written instruction or directions. Due to the nature of their work, remote from scientific direction, they, of necessity, need considerable knowledge of scientific principles of a specialized nature in addition to general knowledges.

Harris[1] notes the imprecise use of the term "technician." Swanson and Kramer provide a definition based on the job requirements and activities of technical workers.

The activities as technician require a person:

a. to possess and use extensive specialized knowledge and/or
b. to make very accurate measurements, and/or
c. to use delicate and complex instruments, and/or

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[1]Norman C. Harris, "Content Distribution in Engineering-Related and Industrial-Related Technician Curriculums," Selected Papers (Washington: American Association of Junior Colleges, 1964). (Mimeographed.)

d. to accept unusual responsibilities for the safety and welfare of persons and equipment.

The technician works:

a. directly as an assistant to a very highly skilled person, or
b. in a process or with equipment developed by a very highly skilled person.[1]

In terms of electronics, these requirements identify any electronic worker performing tasks involving advanced electronic knowledges and performing a wide range of tasks.

The term technician is widely used in the Dictionary of Occupational Titles.[2] While the principal classification of the electronic technician is 003.181, Electronic Technician, specific uses of the title reflect a range of functions performed by specialized technicians. Titles include: Electronic Scale Assembler, 825.251; Electronics Assembler, 726.781; Electronics Technician, Automated Process, 726.281; and Commercial Engineer (Radio and Television Broadcast), 003.187.

The broad range of training and functions is reflected in the study of the United States Office of Education that serves as a base for a course of study in Electronic Technology:

> Graduates of Electronic Technology may work in two broad areas--the field of communications (where they specialize in radio, radar, and television) or in manufacturing (where they specialize in design, modification, and installation of complex electronic units used in controlling and activating various mechanical systems, such as analog or digital computers, serve-machanisms, missile guidance systems, and machine tools; in evaluating the operating characteristics of electronic equipment; or in performing trouble-shooting functions to locate and correct malfunctioning of electronic equipment.)[3]

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[1] J. Chester Swanson and Ernest G. Kramer, "Vocational Education Beyond the High School," Vocational Education, ed. Melvin Barlow, Part I, Sixty-fourth N.S.S.E. Yearbook (Chicago: University of Chicago Press, 1965), p. 176.

[2] U. S. Department of Labor, Office of Manpower Administration, Dictionary of Occupational Titles, Vol. I and II (Washington: Government Printing Office, 1965).

[3] U. S. Department of Health, Education, and Welfare, Office of Education, Electrical and Electronic Technologies: Job Descriptions and Suggested Techniques for Determining Courses of Study in Vocational Education Programs, OE-80004 (Washington: Government Printing Office, 1960).

In a study of navy electronics workers Schultz and Siegel[1] identified four types of tasks of differing nature. Using factor analysis, they showed wide spearations of tasks ranging from routine to complex. They classify tasks into categories of electro-comprehension, routine operation and inspection, electro-repair, and electro-safety.

The United States Office of Education[2] recognizes the following eight task areas for Electronic Technicians in a publication to assist schools in constructing courses of study: Research Technician, Electronic Systems; Electronic Layout Technician; Electronic Technician, Multiplexing; Electronic Technician, Printed Circuits; Electronic Technician, Telemetering; Instrumentation Technician, Electronic; Test Technician, Guidance Systems; and Transducer Development Technician. For these classifications of workers, no differences of training in electronics was suggested.

Emerson[3] identified nine areas of work in which technicians are employed: Research, Design, Development, Testing, Manufacture, Sales, Installation, Operation, and Service.

The Bureau of Labor Statistics has prepared the following definition in terms of training.

> All persons engaged in work requiring a knowledge of physical, life engineering, and mathematical sciences comparable with knowledge acquired through technical institute, junior college, or other formal post-high school training or through equivalent on-the-job training or experience. Some typical job titles are: Laboratory assistants, Physical aids, and Electronics technicians. All employees in positions requiring the indicated levels of knowledge and training should be included regardless of job title and company department in which employed. Exclude craftsmen such as machinists and electricians.[4]

The President's Committee on Scientists and Engineers has produced a comparable definition in terms of technicians' functions.

> The engineering or scientific technician is usually employed in (1) research, design or development; (2) production, operation or control; (3) installation, maintenance or sales. When serving

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[1] Douglas G. Schultz and Arthur I. Siegel, "The Analysis of Job Performance by Multi-Dimensional Scaling Techniques," Journal of Applied Psychology, 48 (October, 1964), 329-335.

[2] U. S. Office of Education, OE-80004.

[3] Emerson, p. 16.

[4] U.S. Bureau of Labor Statistics, The Long Range Demand for Scientific and Technical Personnel: A Methodological Study, Prepared by the U. S. Department of Labor for the National Science Foundation, N.S.F. 61-65.

in the first of these functional categories, he usually follows a course prescribed by a scientist or engineer but may not work closely under his direction. When active in the third category, he is frequently performing a task that would otherwise have to be done by an engineer.

> In executing his function, the scientific or engineering technician is required to use a high degree of rational thinking and to employ postsecondary school mathematics and principles of physical and natural science. He thereby assumes the more routine engineering functions necessary in a growing technologically based economy. He must effectively communicate scientific or engineering ideas mathematically, graphically, and linguistically.[1]

Either a definition based on the preparation of the technician, or one based on the duties or tasks he performs affords meaning to schools in terms of preparation and to employers in terms of employment. It is desirable to limit the definitions to workers who have training backgrounds equivalent to those being prepared by schools to assure useful application of findings of the study. Similarly, it is useful to limit the definition to positions in which schools may normally expect to place their graduates.

Both definitions quoted above describe a worker who makes applications of principles of science in the performance of technical tasks. In this report, therefore, electronic technicians are defined as those workers who possess a knowledge of certain electronic principles acquired through post-high school study or its equivalent and who perform tasks requiring an application of such knowledge. This definition permist identification of the tasks performed and identification of the knowledges utilized by technicians.

Knowledge--This study identifies items of information adjudged needed by employed technicians. Bloom and his colleagues have defined knowledge in a useful way:

> Knowledge, as defined here involves the recall of specifics and universals, the recall of methods and processes, or the recall of a pattern, structure, or settings.... In an analysis of the various knowledges, those of specifics, terminology, specific facts, ways and means of dealing with specifics, conventions, criteria, methodology, universals, and abstractions, principles and generalizations and theories are included.[2]

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[1] U.S. Department of Health, Education and Welfare, Office of Education, Organized Occupational Curriculums in Higher Education (Washington, D.C.: Office of Education, 1961), p. 3.

[2] Benjamin S. Bloom (ed.), Taxonomy of Educational Objectives, Handbook I, The Cognitive Domain (New York: David McKay Co., 1956), pp. 201-204.

That definition is utilized for this study.

Skill--Good defines skill as "anything that the individual has learned to do with ease and precision. It may be either a physical or mental performance."[1] This definition is used in this study.

Principle--Bloom and his colleagues define the term as pertaining to generalizations. "These are abstractions which are of greatest value in explaining, describing, predicting, or in determining the most appropriate and relevant action or direction to be taken."[2] Principles of operation of electronic devices imply those electronic principles which underlie the utilization of an electronic abstraction. This definition is used for this study.

Principal tasks--For this study this term is defined as tasks most commonly performed by technicians in industries in which major percentages of such workers are employed. This term is used to conceptualize various clusters of tasks performed. If, for example, a technician is engaged mainly in repairing devices or replacing faulty components, his principal task is defined as that of servicing. All other tasks associated with repair or component replacement are classified as service functions. If the technician services more than one-half time, that is considered to be his principal task.

Studies of Knowledge Needed for Work

The Second Annual Report of the Secretary of Health, Education, and Welfare to the Congress noted that:

> Manpower training programs too often have identified employment opportunities in narrowly defined occupations.... These specialized courses have the advantage of allowing the training to be rapid and relevant to specific opportunities in the local community. However, individuals trained in a group of related skills in general occupational fields have a wider opportunity for obtaining employment and can more easily adapt to changing job requirements than those given narrow occupational training.[3]

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[1] Carter V. Good, Dictionary of Education (New York: McGraw-Hill Book Co., 1959).

[2] Benjamin S. Bloom (ed.), Taxonomy of Educational Objectives, Handbook I, The Cognitive Domain (New York: David McKay Co., 1956), pp. 75.

[3] U. S. Department of Health, Education, and Welfare, Education and Training: Key to Development of Human Resources, Second Annual Report to the Congress of the Secretary of Health, Education, and Welfare, April 1, 1964, p. 41.

This emphasis on breadth of training is intended to increase adaptability of the worker in the changing job world.

Most studies devised to determine occupational curriculum have followed a time-tested format. The occupation is defined, a job or position analysis is performed, and skills and knowledges are abstracted from the identified tasks performed by the workers. Shartle has written a concise procedure for occupational analysis.[1] He examines methods of analysis and through the use of examples shows the methods for testing and procedures for occupational grouping. The outcome of such analysis is a list of tasks, which may be used to form the basis for educational planning. On bases of such task descriptions, educators must build educational plans to teach abilities required for employment.

The United States Office of Education identified broad categories of knowledges as advisable or essential for certain types of electronic technologists.[2] Job descriptions were related to very specialized tasks which would serve a limited portion of the employed technicians.

Fields notes that occupations tend to push up the educational ladder, and that technical occupations become increasingly complex.[3] Curricula should stress principles which can be used in settings of change over extended periods of time. Arnstein agrees with this concept of increasing complexity.[4] He suggests that the manual and manipulative aspects of the occupations may be of lesser importance than the skills and knowledges which are likely to be useful over a long period of time under conditions of change.

Roney analyzed the interrelationship of mathematics, science, and other subject matter in certain technical institutes.[5] He studied 35 curricula

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[1]Carroll L. Shartle, "Occupational Analysis, Worker Characteristics, and Occupational Classification Systems," Man in a World at Work, ed. Henry Borow (Boston: Houghton Mifflin Co., 1964), pp. 285-309.

[2]U.S. Department of Health, Education, and Welfare, Office of Education, Electrical and Electronic Technologies: Job Descriptions and Suggested Techniques for Determining Courses of Study in Vocational Education Programs, OE-80004 (Washington: Government Printing Office, 1960).

[3]Ralph R. Fields, The Community College Movement (New York: McGraw-Hill Book Co., 1962), p. 301.

[4]George E. Arnstein, "The Technological Context of Vocational Education," Vocational Education, ed. Melvin Barlow, Part I, Sixty-fourth N.S.S.E. Yearbook (Chicago: University of Chicago Press, 1965), p. 61.

[5]Maurice W. Roney, "An Analysis of the Interrelationship of Mathematics, Science, and Subject Matter in Selected Technical Institute Curricula" (unpublished Ed.D. dissertation, University of Maryland, 1964).

from 12 technical institutes. In this research, ways of coordinating instruction in mathematics and science with the technical instruction were illustrated. The curricula analyzed included electronics technology. His method assists schools in improving related instruction in mathematics and science for electronic technician training programs.

Schill[1] devised a special method of using Q-sort technique to determine the necessary mathematics content for students in electronics in certain California schools.

In another application of the Q-sort technique Schill[2] examined the knowledges related to certain technologies. His sample was drawn from selected industries in the state of Illinois. The study utilized cards bearing descriptions of subject matter similar to course descriptions used in schools. Subjects sorted cards bearing these descriptions, choosing those cards thought to be most related to their work. A factor analysis was performed, and as a result, a core program was identified. He also identified potential programs in Electronic, Electro-Mechanical, Mechanical, Chemical-Mechanical, Chemical, and Electro-Chemical Technologies. Knowledges functionally related to all the technologies were found to include technical writing, engineering graphics, mathematics through trigonometry, and the use of test equipment. The knowledges specific to electronics were identified through seven card descriptions. This research provides a descriptive picture of the technician, his functions in manufacture, his educational background, and his occupational background.

Substantial concurrence of technician and management judgments about knowledges relating to technical work was found by Schill and Arnold.[3] They reported agreement to be strong on items assessed on an index of specificity--generality. They obtained an $r = 0.959$ as a measure of agreement between managers and employees, which exceeded the 0.001 probability level.

The relationship between what a technician must know and what he does has been studied by Phipps and Fuller who used a principle axis factor analysis with varimax rotation to cluster certain occupations in a study of industrial technical needs in Illinois. They said, in part: "Clusters of job titles, for example with a relatively high factor score for an 'x'

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[1]William J. Schill, "The Use of the Q-Technique in Determining Curriculum Content," California Journal of Educational Research, 12 (September, 1961), 178-184.

[2]William J. Schill, Curricula Content for Technical Education, College of Education, University of Illinois, and U.S. Office of Education, Cooperative Research Project 2048.

[3]William J. Schill and Joseph P. Arnold, Curricula Content for Six Technologies, College of Education, University of Illinois, Urbana, 1965, pp. 61-91. (Mimeographed.)

factor of activities and a 'y' factor of knowledge areas will provide considerable information helpful in designing curricula for technicians and other workers needing some technical education."[1]

Walsh and Selden concluded that more research in what knowledges are needed is desirable. They said: "Knowledge acquired of what a worker must know and what he must be able to do, supplemented by advice from occupational advisory groups, will provide the raw materials and ingredients for the several courses that will make up the occupational skill and knowledge development program."[2]

Schill and Arnold recognize the need for further research in their summary:

> A cursory examination of the curricula in various institutions designed to prepare technicians must result in the conclusion that the training programs for any specific technology have little similarity. Now that research has been completed on the basic terms, occupational groupings, and areas of manpower needs, it is time to identify more precisely the curricula content common to a variety of technical training programs.[3]

Purpose and Objectives

The purpose of this study is to identify clusters of knowledge and specific knowledges most widely utilized in major types of work commonly done by electronic technicians. This purpose is derived from observations and inquiries indicating that such information is needed by (1) community colleges and technical schools providing instruction for electronic technicians and (2) high schools offering pre-vocational education serving as a basis for continued study in community colleges or technical schools.

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[1] Lloyd J. Phipps and Gerald R. Fuller, Technical Education in and for Rural Areas: Technicians and Other Workers Who Need Technical Knowledge. Vocational and Technical Education Department, University of Illinois, Urbana, 1964, p. 57.

[2] John P. Walsh and William Selden, "Vocational Education in the Secondary Schoo," Vocational Education, ed. Melvin Barlow, Part I, Sixty-fourth N.S.E.E. Yearbook (Chicago: University of Chicago Press, 1965), p. 91.

[3] William J. Schill and Joseph P. Arnold, Curricula Content for Six Technologies, College of Education, University of Illinois, Urbana, 1965, p. 92.

METHOD

Method is based on reasoning as follows: Educators planning instructional programs need accurate information about knowledges and competencies for preparation of electronic technicians. Knowledges and competencies associated with performance of the principal tasks constituting major portions of technicians' work are most likely to be most essential. Therefore, principal tasks should be conceptualized, and information about the extent to which workers perform each task should be obtained. Then knowledges associated with performance of principal tasks should be identified. Knowledges common to performance of two or more principal tasks, and those associated only with performance of specific tasks, should be identified. Such information will provide a partial basis for planning both basic and specialized courses.

Definitions of Principal Tasks

Definitions of principal tasks were derived mainly from the work of Emerson,[1] and Phipps,[2] and from discussions with technicians and their employers. Analysis indicated that electronic technicians' major tasks can be classified into eight categories as follows: diagnosing trouble in systems; adjusting and/or operating; servicing; assembling; installing; designing and computation; application, distribution, and sales; and quality control and testing.

Definitions of those concepts of principal tasks follow.

Diagnosing Trouble in Systems: This work definition refers to tasks involving measurements and decisions leading to replacement of, or repairs to, units in electronic systems or devices. While the worker may routinely make adjustments and repairs, his principal tasks are associated with diagnosing failures or malfunctions of units of a system, the isolation of the trouble, and replacement or repair of components within a system.

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[1]Emerson, Lynn A., Education for a Changing World of Work, Appendix I. Report of the Panel of Consultants on Vocational Education, U. S. Department of Health, Education, and Welfare, Office of Education, OE-80022, Washington: Government Printing Office, 1963.

[2]Phipps, Lloyd J., and Gerald Fuller, Technical Education in and for Rural Areas: Technicians and Other Workers Who Need Technical Knowledge, Vocational and Technical Education Department, University of Illinois, Urbana, 1964.

Adjusting and/or Operating: This definition refers to tasks principally involved in routine operation of electronic equipment. While the identification of malfunctions of equipment and minor component replacements may be a portion of such a worker's responsibility, his main function is one of performing tasks related to operation.

Servicing: This definition refers to those tasks principally involved in replacement of components constituting electronic assemblies. While considerable diagnostic work is associated with this task, the actual part-for-part replacement more precisely describes the nature of the work.

Assembling: This definition refers to those tasks principally related to production of electronic assemblies, subassemblies, parts, and similar assembling.

Installing: This definition refers to tasks principally devoted to installing electronic assemblies, and to associated interconnections. Testing and adjusting portions of assemblies to assure proper operation as part of the installing process are elements of this task.

Designing and Computation: This definition refers to tasks principally involved in application of scientific and electronic principles to design of electronic devices. Workers performing such tasks may routinely assemble prototypes, measure and adjust performance of devices, make necessary calculations, and perform functions related to specification development for electronic devices. Such workers may also perform some drafting functions.

Application, Distribution, and Electronic Sales: This definition refers to tasks principally associated with applications of developed devices, components, and services, and those associated with sales and distribution of electronic devices.

Quality Control and Testing: This definition refers to tasks principally involved in measurements and adjustments of electronic devices to verify operating tolerances and specifications and to make minor modifications necessary for proper performance.

The validity of these categories was verified by conducting informal discussions with management representatives and employees of establishments engaged in a wide range of electronics work. Firms studied represent aerospace, electronic controls, communications, industrial applications, defense installations, and service industries. Management representatives interviewed included owners, planning managers, personnel managers, engineers, and directors of maintenance. The representatives were asked: "Do the descriptions accurately describe the principal tasks performed by the technicians employed in your establishment?" In all cases,

management representatives classified technicians as performing the principal tasks with little or no difficulty. The slight difficulties that did occur appeared to be due to the fact that a task was not performed or was performed infrequently in a particular establishment.

The Knowledge Questionnaire Used for Data Collection

A questionnaire check list was designed to enable employed technicians to identify knowledges necessary for performance of their principal tasks. Knowledges were identified by review of textbooks, courses of study, the suggested curriculum guide prepared by the United States Office of Education,[1] instructors, and technicians themselves. Six hundred and thirty-seven knowledge items so identified were utilized to construct a preliminary list.

To facilitate analysis of responses, check list items were then arranged in seven major categories: (1) basic electronic concepts, (2) components, (3) electronic measurements, (4) simple electronic circuits, (5) electronic systems, (6) waves and wave propogation, and (7) construction and related knowledges. In each category, items were listed in orders descending from general to the more specific. General items signified broad areas of knowledge. Under each general item more detailed ones were listed. Respondents were instructed to omit response to detailed items under a general head if the general knowledge was not needed in their work. These lists were submitted to a jury of three electronics professors to check the relevance of items. On the basis of those critiques, the check list was revised and reviewed by technicians employed at Washington State University to determine if wording of items was clear. By this method, a first version of the instrument was completed.

The instrument was then pre-tested by electronics technology instructors in three community colleges. Sixty-seven students completing the second or third year of electronics study participated in the pre-test. Instructors made notes about questions asked by students. Those notes were utilized as bases for final revision of the instrument. All items not deemed important by at least four per cent of the students were eliminated. Three knowledges recently introduced and not included in current texts were added.

The final version of the instrument is reproduced in Appendix A.

Sources of Data

Definition of Population: An objective of the study was to sample a population representative of the major tasks performed by electronic technicians

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[1]Office of Education, Electronic Technology, A Suggested 2-Year Post High School Curriculum, U.S. Department of Health, Education, and Welfare, OE-80009 (Washington, D.C.: Government Printing Office, 1960).

in the United States. An examination of the kinds, establishments, and numbers of workers in Washington State reported by the Employment Security Agency indicated that manufacturing, operation, communications, marine and mobile installations, and aircraft-aero-space industries are located in the Puget Sound area of Washington State.[1] A further definition of the population was possible by restricting the classification of industries represented to certain classification of the Standard Industrial Classification numbers.[2] Those Classification numbers and descriptions are:

3571 Manufacture of computing machines, accounting machines, including electronic and cash registers

3611 Electric measuring instruments and test equipment

3622 Industrial controls

3662 Radio and television transmitting, signaling, and detecting equipment and apparatus

4830 Television and radio broadcasting

5065 Radio and television stores

7622 Radio repair shops, television repair shops

Analysis of employment available to electronics workers represented in this population indicated that the above classifications excluded significant numbers of technicians employed by the Federal Government to maintain and modernize electronic systems. Consequently, the population was extended to include technicians employed to maintain and modernize governmentally owned electronic installations.

Identification of the Population: A listing of 549 firms, establishments, and agencies in the Puget Sound area was obtained. To determine the numbers of employed technicians to be queried in representative installations, facts about the nature of work performed by technicians and numbers employed were obtained by personal interviews with employers. By this method, an estimate of the number of technicians performing each of the principal tasks was obtained. A composite list of each group of technicians performing each principal task was prepared for sampling.

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[1] Sidney E. Smith, Commissioner, Employment and Payrolls in Washington State by County and by Industry, No. 74, First Quarter, 1965, Research and Statistics Section, Employment Security Department, State of Washington, October 8, 1965.

[2] Technical Committee on Industrial Classification, Standard Industrial Classification Manual, Bureau of the Budget, Executive Office of the President, (Washington, D.C.: U.S. Government Printing Office, 1957).

Sampling: The population identified consisted of unequal numbers of electronic technicians performing the defined principal tasks. A random sample, drawn from the population as a whole, would not include large enough numbers of technicians performing principal tasks unless the total sample was large. Methods were sought and adopted to divide the total population into sub-populations performing each principal task and to sample each sub-population separately. A method of variable sampling developed by the Research Division of the National Education Association was used.[1] The process consists of determining, by a planned process, a homogeneous sub-population and of sampling in such a fashion as to include as many of the characteristics of the sub-population as possible. This method utilizes heterogeneous sampling within the homogeneous sub-population.

A sample of 20 technicians performing each principal task was selected. This sample size was chosen to allow as much choice as possible in the selection of technicians from the smaller sub-populations.

The samples were taken from the lists of electronics technicians prepared during the assessment of the population. The numbers of technicians to be questioned in each establishment were determined by use of a table of random numbers. Each individual performing a principal task was assigned a number; and the numbers 25 to 33 were drawn, the larger samples being drawn from the groups including greater numbers of technicians performing principal tasks.

When the respondents were so selected, management representatives personally explained the purpose of the study and requested their cooperation.

One hundred and fifty-four (154) usable questionnaires were returned.

Analysis of Population and Sample: Table 1 shows the total number of technicians performing each principal task, the proportion of this sub-population sampled, and the number and per cent of questionnaire returned.

The numbers of technicians employed in establishments employing one to nine and in those employing ten or more, and the numbers performing principal tasks was tabulated. Those facts are shown in Table 2.

The data obtained from employers were examined to determine the products or services resulting from tasks performed by technicians. Individual manufacturers, the industrial classification, the number of technicians sampled, and the number and per cent return is shown in Table 3. A similar analysis of technicians employed by non-manufacturing establishments grouped by services is contained in Table 4.

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[1] Research Division of the National Education Association, Sampling and Statistics Handbook for Surveys in Education, (Washington: National Education Association, 1965, Mimeograph).

TABLE 1

TASK ASSIGNMENTS OF POPULATION

Task Number	Technicians Employed	Technicians Sampled	Percentage Subpopulation Sampled	Questionnaires Returned	Percentage Returned
1	99	33	30.0	25	83.3
2	170	31	18.3	24	77.5
3	381	28	7.4	20	71.5
4	54	27	50.0	20	74.1
5	36	26	72.3	19	73.1
6	57	25	43.9	19	76.0
7	68	27	39.7	17	62.9
8	85	25	29.4	20	80.0

TABLE 2

ESTABLISHMENT SIZE BY TASKS PERFORMED

	Establishments	No. of Technicians by Task Number							
		1	2	3	4	5	6	7	8
Population	Establishments employing:								
	10 or more technicians	89	104	12	39	9	53	24	80
	1 - 9 technicians	10	66	369	15	27	4	44	5
	Total	99	170	381	54	36	57	68	85
Sample	Establishments employing:								
	10 or more technicians	26	15	7	15	8	22	4	22
	1 - 9 technicians	7	16	21	12	18	3	23	3
	Total	33	31	28	27	26	25	27	25
Returned	Establishments employing:								
	10 or more technicians	18	11	7	7	7	16	2	17
	1 - 9 technicians	7	13	13	13	12	3	15	3
	Total	25	24	20	20	19	19	17	20

TABLE 3

PRODUCTS PRODUCED BY MANUFACTURERS

Standard Industrial Code	Products	Number Sampled	Returned	
			No.	%
3611	Precision instruments	3	0	0
3622	Industrial controls	2	2	100
3622	Power controllers	2	2	100
3622	Sonar systems, controls	13	11	85
3662	Radio telephones	3	3	100
3662	Aircraft and portable radio systems	5	5	100
3662	Depth finders, ultrasonics	2	2	100
3662	Aerospace control systems	19	16	84
3679	Electronic instrumentation	5	5	100
5065	Strain gauges, power supplies	3	3	100
5065	Telephone test sets, heat controls	2	2	100
3571	Data transmission, processing	5	0	0
3571	Controls, analog computers	4	4	100
3611	Precision measuring instruments	19	9	45
5065	Power supplies, intercoms	7	3	43
5065	Telephone test sets, power supplies	1	1	100
5065	Medical electronic devices	2	2	100
	Totals	97	70	72.2

TABLE 4

TYPES AND NUMBERS OF NONMANUFACTURING FIRMS

Specialization	No. of Estab-listments	No. of Techni-cians	No. Sampled	Returned	
				No.	%
Radio and television stations	25	170	31	24	77.5
Electronic installers, two-way radio, other installers	7	27	15	11	73.3
Wholesale distributors and manufacturer's representatives	6	60	25	15	56.0
Electronic servicing, maintenance	92	360	49	39	81.3
Electronic research	1	37	5	5	100.0
Totals	113	654	125	94	75.8

Analysis of Data

The data from the returned questionnaires was coded and punched on data processing cards for analysis. A computer program based on a modification of "cross classification with subdivision" method[1] and the programming language Fortran II on the International Business Machines 709 computer was utilized to process data.

A master table listing all responses of the technicians performing each principal task was prepared. From this data Appendices B and C were prepared. Appendix B, pages 51-53, lists knowledge items that 90 per cent of the respondents deemed necessary for performance of principal tasks. Appendix C, pages 54-59, lists items deemed to be essential by 60-89 per cent of the respondents. Table 5, derived from those lists, shows knowledges associated with performance of six or more principal tasks. Table 6 shows those associated with three to five tasks.

Interpretation

As previously noted, the knowledge check list was designed to facilitate analysis of responses in frameworks of seven major categories: (1) basic electronic concepts, (2) components, (3) electronic measurements, (4) simple electronic circuits, (5) electronic systems, (6) waves and wave propogation, and (7) construction and miscellaneous related knowledges.

Analysis of data presented on Tables 5, 6, 7, and 8 shows that the knowledges reported to be needed by technicians performing different principal tasks was greatest for general knowledge items. Extent of usefulness tends to decrease as knowledge items became more specific. (Descriptive and non-mathematical items are widely useful. The importance of mathematical competence is discernible from this decreasing agreement. Differences between knowledges perceived to be useful by individual technicians performing various principal tasks appear to be partly due to differences in the complexity of knowledge involved.)

This study was undertaken to identify those knowledges which were needed by technicians in performing principal tasks. Data indicate that there are a substantial number of common elements in instructional programs necessary to prepare technicians for widely performed types of tasks and for tasks performed by relatively few specialists.

Basic Electronic Concepts: All technicians report need for knowledge of electronic definitions and (units.) Similarly, most technicians report need for knowledge of combinations of circuit elements such as resistors in series and parallel. Only those technicians performing Principal Task 6, however, report need of knowledge of mesh and nodal analysis. All technicians expressed

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[1] Ronald Anderson, Cross Classification with Subdivision, Institute for Sociological Research, University of Washington, Seattle, Washington, 1964, (Mimeographed).

TABLE 5

KNOWLEDGE ITEMS NECESSARY FOR PERFORMANCE OF SIX OR MORE PRINCIPAL TASKS

Item Number See Check List, pages 33 - 50 for names of items denoted by numbers	Knowledge	Principal Tasks 1 Diagnosing trouble	2 Adjusting and/or operating	3 Servicing	4 Assembling	5 Installing	6 Designing and computation	7 Application, distribution and sales	8 Quality control and testing
1	Basic electronic knowledges	x	x	x	x	x	x	x	
2	Units and definitions	x	x	x	x	x	x	x	x
3	Volts, amperes, watts, prefixes	x	x	x	x	x	x	x	x
4	Resistance of conductors	x	x	x	x	x	x		x
5	Temperature effects on resistors, conductors	x	x	x		x	x		x
6	Conductance	x	x	x		x	x		x
7	Power in resistors	x	x	x	x	x	x		x
8	Circuit and netword laws	x	x	x	x	x	x		x
9	Ohm's law	x	x	x	x	x	x		x
10	Resistors in series and parallel	x	x	x	x	x	x		x
13	Electrical symbols	x	x	x	x	x	x		x
15	Component symbols for electronics	x	x	x	x	x	x		x
17	Capacitances; currents and voltages	x	x	x		x	x		x
25	Capacitors in series and parallel	x	x	x	x	x	x		x
26	Inductances; currents and voltages	x	x	x		x	x		x
80	Individual components	x	x	x	x	x	x	x	x
81	Capacitors	x	x	x	x	x	x	x	x
82	Ratings of capacitors	x	x	x	x	x	x	x	x
83	Capacitor color codes	x	x	x	x	x	x	x	x
84	Tolerances of capacitors	x	x	x	x	x	x	x	x

TABLE 5 CONT.

Item	Knowledge	Principal Tasks							
		1	2	3	4	5	6	7	8
85	Types of capacitors	x	x	x	x	x	x	x	x
88	Symptoms of failure of capacitors	x	x	x		x	x		x
101	Transformers	x	x	x		x	x		x
102	Power transformers for electronics	x	x	x		x	x		x
103	Ratings of transformers	x	x	x		x	x		x
104	Symptoms of failure of transformers	x	x	x		x	x		x
110	Output transformers	x	x	x		x	x		x
116	Chokes	x	x	x		x	x	x	x
117	Choke types	x	x	x		x	x		x
118	Filter chokes	x	x	x		x	x		x
130	Rectifying devices	x	x	x	x	x	x	x	x
131	Solid state diodes	x	x	x	x	x	x	x	x
132	Ratings of diodes	x	x	x	x		x	x	x
133	Signal rectifiers	x	x	x	x		x	x	x
134	Zener diodes	x	x	x	x		x	x	x
135	Power rectifiers, solid state	x	x	x			x	x	x
137	Diode markings and codes	x	x	x	x	x	x	x	x
138	Failure of diodes	x	x	x	x	x	x		x
152	Semi-conductors	x	x		x	x	x		x
221	Electro-mechanical devices	x	x	x	x		x		x
222	Relays	x	x	x	x	x	x		x
223	Direct current relays	x	x		x	x	x		x
232	Switches	x	x		x	x	x		x
264	Fuses	x	x	x	x	x	x	x	x
265	Types of fuses	x	x	x		x	x	x	x
266	Characteristics of fuses, time, current	x	x	x		x	x		x
267	Fuse limits	x	x	x		x	x		x
269	Measurement techniques and devices	x	x	x	x	x	x		x
270	Voltage measurements	x	x	x	x	x	x		x
271	Low impedance voltage measurements	x	x	x	x	x	x		x
272	High impedance voltage measurements	x	x	x	x	x	x		x
275	Measurement of very low voltages	x	x		x	x	x		x
276	Radio frequency voltage measurements	x	x	x		x	x		x
277	Audio voltage measurements	x	x	x	x	x	x		x
279	Current measurements	x	x	x	x	x	x		x

TABLE 5 CONT.

Item	Knowledge	Principal Tasks 1	2	3	4	5	6	7	8
280	Direct current measurements	x	x	x	x	x	x		x
281	Alternating current measurements	x	x	x		x	x		x
294	Types and uses of measuring instruments	x	x	x	x	x	x		x
295	Use of volt-milliammeter	x	x	x	x	x	x		x
296	Applications of volt-milliammeter	x	x	x	x	x	x		x
297	Limits of accuracy of volt-milliammeter	x	x	x	x	x	x		x
298	Vacuum tube voltmeter	x	x	x	x	x	x		x
299	Applications of vacuum tube voltmeter	x	x	x	x	x	x		x
300	Accuracy of vacuum tube voltmeters	x	x	x	x	x	x		x
301	Symptoms of failure of vacuum tube voltmeters	x	x	x	x	x	x		
302	Use of oscilloscopes	x	x	x	x	x	x		x
303	Use of single trace of oscilloscopes	x	x	x	x	x	x		x
304	Principles of use of oscilloscopes	x	x	x	x	x	x		x
305	Limitations of oscilloscopes	x	x	x	x		x		x
306	Frequency measures by oscilloscope	x	x	x	x		x		x
311	Amplitude measures by oscilloscope	x	x	x	x		x		x
339	Uses and types of signal generators	x	x	x		x	x		x
340	Radio frequency signal generators	x	x	x		x	x		x
341	Audio frequency signal generators	x	x	x		x	x		x
359	One or two active element circuits, applications	x	x	x	x	x	x		x
360	General circuit applications of amplifiers	x	x	x	x	x	x		
370	Transistor amplifiers	x	x	x	x	x	x		x
371	Operating levels of transistor amplifiers	x	x	x	x	x	x		x
444	Power supplies	x	x	x	x	x	x		x
445	Rectifier circuit types	x	x	x		x	x		x
446	One-half wave rectifiers	x	x	x		x	x		x
447	Full wave rectifiers	x	x	x	x	x	x		x
456	Filter methods	x	x	x		x	x		x
589	Resistor color code	x	x	x	x		x		x

TABLE 6

KNOWLEDGE ITEMS NECESSARY FOR PERFORMANCE OF THREE TO FIVE PRINCIPAL TASKS

Item Number See Check List, pages 33 - 50 for names of items denoted by numbers	Knowledge	Principal Tasks 1 Diagnosing trouble	2 Adjusting and/or operating	3 Servicing	4 Assembling	5 Installing	6 Designing and computation	7 Application, distribution and sales	8 Quality control and testing
14	Power component symbols	x	x						x
16	Time varying current circuits	x	x			x	x		
18	Capacitance of plates, wires	x	x				x		
19	Charge on capacitors	x	x				x		x
20	Capacitive reactance	x	x				x		x
21	Calculation of capacitive reactance		x				x		x
22	Phase and impedance of resistance-capacitance	x	x				x		x
23	Current lead in resistance-capacitance circuits	x	x				x		x
24	Time constants of resistance-capacitance	x	x				x		x
27	Self-inductance of wires and coils	x	x				x		x
28	Inductance in series and parallel	x	x	x			x		x
29	Mutual inductance, coupling		x				x		x
30	Time constant of resistance-inductance circuits	x	x				x		x
31	Reactance of inductors	x	x		x		x		x
32	Impedance of resistance-inductance networks	x	x				x		x

TABLE 6 CONT.

Item	Knowledge	Principal Tasks							
		1	2	3	4	5	6	7	8
33	Current lag in resistance-inductance circuits		x				x		x
34	Q of coils	x	x				x		
35	Impedance in alternating current circuits	x	x				x		x
36	Tuned circuits	x	x				x		x
37	Impedance, currents, voltages in tuned circuits	x	x				x		
42	Special reactive networks	x	x				x		x
44	L, Pi, and T networks, impedance changes	x	x				x		
45	Signal frequency filter networks	x	x	x			x		x
46	Alternating current circuit theory	x	x				x		x
48	Addition and subtraction of vectors	x	x				x		
52	Wye and delta circuits	x	x			x			
55	Current generation principles	x	x				x		x
61	Electromagnetism, magnetism	x	x						x
71	Transients, special wave shapes	x	x				x		x
72	Characteristics of non-sine waves	x	x				x		x
73	Harmonics generated in non-sine waves	x	x				x		x
74	Wave analysis	x	x				x		x
75	Square waves	x	x				x		x
76	Pulses	x	x				x		x
77	Sawtooth waves	x	x				x		x
78	Wave shaping	x	x				x		x
86	Capacitor dielectrics	x	x				x		x
89	Signal frequency inductors	x	x				x		x
90	Inductor types and specifications		x				x		x
95	Core effects in inductors		x				x		x
98	Inductance formulas and calculations		x				x		x
105	Transformer color coding		x	x		x	x		
106	Electronic transformers	x	x			x	x		x
107	Input transformers	x	x			x	x		x
108	Impedance transformation by transformers		x			x	x		
113	Impedance matching using output transformers		x			x	x		
115	Color codes of output transformers		x	x		x			
122	Ratings of filter chokes		x	x			x		
123	Radio frequency chokes	x	x	x		x	x		
127	Audio frequency chokes		x	x		x			

TABLE 6 CONT.

Item	Knowledge	Principal Tasks							
		1	2	3	4	5	6	7	8
136	Load characteristics of solid state rectifiers		x	x			x		x
139	Vacuum diodes	x	x	x		x		x	
140	Ratings and types of vacuum diodes	x	x	x		x		x	
142	Failure symptoms of vacuum diodes	x	x	x		x			
153	Semi-conductor characteristics	x	x				x		x
155a	Field effect transistor operation		x				x		x
155b	Silicon controller rectifier operation		x				x		x
155c	Unijunction devices		x				x		x
158	Bias requirements of transistors		x				x		x
159	Receiving tubes	x	x	x		x		x	
160	Triode tube characteristics	x	x	x		x			
161	Internal construction of vacuum tubes		x	x		x			
163	Characteristics of tetrodes and pentodes	x	x	x		x			
164	Applications of pentodes and tetrodes		x	x		x			
165	Characteristics of multi-grid vacuum tubes	x	x	x		x			
166	Cathode ray and display tubes	x	x	x			x		
170	Electron beam deflection methods	x	x	x					
178	Electro-mechanical devices, transducers	x	x						x
197	Speakers and other reproducers		x	x		x			
201	Frequency characteristics of cone speakers	x	x	x					
211	Maintaining frequency		x			x	x		
224	Coil resistance of relays	x	x				x		x
225	Relay contact capabilities and limits	x	x				x		x
226	Current, voltage requirements, speed of relays	x	x				x		x
228	Alternating current relays	x	x				x		x
233	Signal and power switch types	x	x				x		x
236	Specifications and uses of multi-contact switches		x		x		x		x
237	Current and voltage capabilities of switch types	x	x				x		x
238	Switch insulation and isolation	x	x				x		x
257	Vibrators		x	x				x	

TABLE 6 CONT.

Item	Knowledge	Principal Tasks							
		1	2	3	4	5	6	7	8
268	Replacement standards of fuses	x	x	x		x			x
273	Measurement of special voltages	x	x			x	x		x
274	High voltage measurements	x	x	x			x		x
278	Decibel signal measurements	x		x		x	x		x
282	Measurement of special wave shape currents		x				x		x
284	Measurement of very small currents	x					x		x
288	Principles of power measurement	x	x			x	x		
293	Power measurements in decibels		x			x	x		
307	Oscilloscope measurement of pulses, phase, time	x	x		x		x		x
308	Direct current measurements by oscilloscope	x	x				x		x
309	High frequency oscilloscope measurements	x	x		x		x		x
310	Triggering, control methods for oscilloscopes	x	x		x		x		x
312	Dual trace oscilloscopes	x	x		x		x		x
313	Phase, time measures on dual trace oscilloscopes	x	x				x		x
314	Gain, wave shape on dual trace oscilloscope	x	x				x		x
315	Moderate accuracy measuring equipment	x	x				x		x
316	Resistance, inductance, capacitance checkers		x				x		x
320	Operation of tube checkers		x	x		x			
325	Use of precision measuring equipment		x				x		x
342	Operation of pulse generators	x	x				x		x
343	Operation and uses of sweep generators	x	x	x					
361	Operating conditions of amplifiers	x	x	x		x	x		
372	Transistor biasing calculations		x	x			x		x
374	Transistor amplifier voltage and current gain		x	x	x		x		x
375	Transistor frequency limits		x				x		x

TABLE 6 CONT.

Item	Knowledge	Principal Tasks							
		1	2	3	4	5	6	7	8
377	Common emitter, base, collector circuits		x	x			x		x
378	Transistor coupling methods		x	x		x	x		
380	Tuned amplifiers	x	x	x		x	x		
381	Single tuned amplifiers		x	x		x			
386	Very high frequency circuits		x	x		x			
399	Direct coupled amplifiers	x	x				x		
402	Modulation, detection, mixing principles	x	x				x		
403	Detectors	x	x	x					
428	Oscillator operating principles	x	x	x			x		
429	Oscillator types	x	x	x			x		
435	Multivibrator circuits	x	x	x					
437	Oscillator stabilization	x	x	x			x		
438	Wave shaping circuitry, counters	x	x				x		x
440	Clipping, biasing diodes for wave shaping	x	x				x		
448	High voltage rectifiers	x	x	x					
457	Filter effects on power supply regulation	x	x			x	x		
458	Condenser input filters	x	x	x		x	x		
459	Choke input filters	x	x	x		x	x		
460	Bleeders for power supplies		x	x			x		
461	Principles of rectifier controls	x	x				x		
462	Methods and circuits for voltage control	x	x				x		x
463	Methods and circuits for current control	x	x				x		x
466	Transistor power supplies	x	x	x					x
468	Operation of electronic systems	x	x			x	x		
469	Amplifier systems operation	x	x	x		x			x
470	Operation of audio amplifier units	x	x	x		x			
472	Fixed tuned intermediate frequency amplifier units	x	x	x					
474	Direct coupled amplifier systems	x	x				x		
555	Antenna types and selection		x	x		x			

TABLE 6 CONT.

Item	Knowledge	Principal Tasks							
		1	2	3	4	5	6	7	8
557	Dipole antennas		x	x		x			
558	Folded dipole antennas		x	x		x			
559	Broad-band antennas		x	x		x			
560	Multi-element and parasitic element antennas		x	x		x			
578	Electronic construction procedures		x		x		x		
579	Tools, materials, methods of construction		x		x		x		x
580	Chassis, cabinet, and panel preparation		x		x		x		
581	Drill sizes		x		x		x		
582	Tap sizes and tapping in construction		x		x		x		
583	Hole punches, saws, and nibblers		x		x		x		
587	Stamping, marking, screening, labeling panels		x		x		x		
588	Wiring and cabling	x	x		x	x	x		
590	Condenser color codes		x	x	x		x		
591	Transformer and choke color codes		x	x	x		x		
592	Conductor identification in cables, wire codes		x		x		x		
593	Printed circuit boards			x	x		x		
594	Assembly methods for printed circuit boards		x		x		x		
595	Parts assembly on printed circuit boards		x		x		x		
599	Electronic drafting, illustrating		x		x		x		
611	Principles of noise reduction		x		x	x	x		

need of knowledges of tuned circuits in moderate detail. Grouping of students for instruction in basic concepts, definitions, and elementary theory appears feasible.

Workers performing adjusting and/or operating, diagnostic, servicing, and quality control tasks report need for various combinations of inductance and capacitance knowledges as they apply to alternating currents. These same groups report need for special knowledges relating to transients and special wave shapes. Technicians trained for performance of those tasks need special training in the more theoretical aspects of time-varying currents and voltages.

Components of Electronics: All technicians report agreement on need for detailed knowledges of capacitors, transformers, solid state rectifiers, and fuses. Need for a general knowledge of transistors, vacuum tubes, and relays is also reported needed by all. Those performing adjusting, operating, design, computation, quality control, and testing tasks report need of detailed knowledges of inductors, transistors, relays, and switches. Performance of Principal Task 2 is associated with more detailed knowledge of gas-filled tubes, mercury vapor rectifiers, transmitting tubes, motors, generators, and frequency controlling crystals. Technicians performing adjusting and operating tasks indicate need for knowledge of sound reporducing devices. Those performing installation tasks emphasize need for knowledge of microphones. Knowledge of techniques of impedance matching are reported needed by technicians performing adjusting, operating, installation, design, and computation tasks.

The greater need for more mathematically related knowledges is again exhibited by technicians performing diagnostic, adjustment, operational, design, computation, quality control, and testing tasks.

General knowledge of all components is required by all technicians. Accordingly, students being prepared for performance of those tasks may be grouped for much mathematics and components instruction.

Electronic Measurements: All technicians except those performing task distribution and sales tasks expressed a need for knowledge of alternating and direct voltage and current measurements. All reported frequent use of volt-ohm-milliammeters, the vacuum tube voltmeters, and single trace oscilloscopes. Those performing diagnostic, adjustment, operational, assembling, design, computation, quality control, and testing tasks indicate need for knowledges of advanced models of oscilloscopes utilizing triggering circuits and dual beams. Knowledge essential for use of moderate accuracy equipment was reported to be needed by technicians performing adjustment, operational, diagnostic, computation, quality control, and testing tasks. Knowledge of transistor characteristics, display equipment and choices of transistors were reported needed by those engaged in design, computation, quality control, and testing tasks. Those performing design and computation tasks expressed need for knowledge of low frequency parameters of transistors. Need for knowledges of pulse generating equipment was indicated by technicians

performing diagnostic, adjustment, operational, design, computation, quality control, and testing tasks. Knowledge of common signal sources was reported to be necessary by all technicians except those performing assembling and sales tasks. Knowledge of distortion analyzers are reported needed by technicians performing diagnostic, design, and computation tasks.

Table 5 includes names of electronic instruments with which all technicians need familiarity. The substantial importance of the oscilloscope should be noted.

Simple Electronic Circuits: All technicians except those performing distribution and sales tasks report need for general knowledges of applications of electronics principles to amplifiers and rectifier circuits. Knowledge of Filter circuits was needed by technicians performing diagnostic, adjustment, operational, installation, servicing, design, and quality control tasks. Knowledge of principles of detection, modulation, and mixing were reported to be needed by technicians performing adjustment, operational, and service tasks. Those performing diagnostic, adjustment, and operational tasks reported need for knowledge of methods and circuits of wave shaping. Those performing adjustment and operational tasks signified need for detailed knowledge of rectifier circuits. Those performing diagnostic, adjusting, operational, and servicing tasks also need knowledge of high voltage rectifiers.

Sufficient commonality of need exists for grouping students studying electronic circuits. Emphasis on certain types of circuits are indicated for the preparation of workers for performance of specific principal tasks.

Electronic Systems: All technicians reported some need for knowledge of electronic systems, but most agreement was reported by those working on amplifier systems, particularly audio systems. Only workers performing adjustment and operational tasks reported need for extensive knowledge of transmitters, speech, and video systems. Those engaged in servicing work indicated need for knowledges of receiving systems.

(Schools need provide little electronic systems instruction except for technicians preparing to perform adjustment and operational tasks.)

Waves and Wave Propogation: Knowledges of waves and wave propogation were reported necessary by technicians engaged in adjustment, operational, service, and installation work. Those engaged in adjustment and operational tasks reported need for detailed knowledges of waves. Those performing Principal Task 3 reported need for knowledges of reception of very high and ultra-high frequency waves. Knowledges of lines, matching methods, and antennas were reported necessary by technicians performing adjustment, operational, and installation tasks.

Study of wave transmission and wave propogation is necessary mainly for preparation to perform adjustment, operational, servicing, and installation tasks. The training program for all technicians needs to include

knowledges of waves at an elementary level as indicated by the responses of the sampled technicians.

Construction and Miscellaneous Knowledges: Technicians performing adjustment, operational, assembling, design, and computation tasks need knowledge of mechanical and electrical construction, drafting and graphic display. Knowledge of noise-reducing procedures for installation of portable or mobile systems is essential for those engaged in adjustment, operational, assembling, installation, design, and computation tasks. (Knowledges required to obtain a first- or second-class radio-telephone license issued by the Federal Communications Commission are required for technicians performing adjustment, operational, and installation tasks.)

DISCUSSION

A major finding of this study is that 84 of the 637 knowledges identified as useful in some phase of electronic technicians' work are deemed essential for six of the eight principle tasks they perform.

Those knowledges are commonly useful in major parts of the work all electronic technicians do. They represent competencies that contribute to work in a variety of entry jobs and those that provide a partial basis for more advanced training. For both reasons acquisition of those knowledges can be presumed to increase a student's occupational adaptability and mobility.

Consequently, it can be assumed that the 84 most commonly useful knowledges listed on Table 5 constitute basic elements of content for introductory electronic courses.

CONCLUSIONS AND RECOMMENDATIONS

On the basis of the above facts and assumptions, it can be concluded that schools and community colleges can productively focus energy on development of introductory courses designed to help pupils acquire the 84 widely useful knowledges listed on Table 5. Instructors planning more advanced courses offered by technical schools, community colleges, or adult programs can reasonably consider means of enabling students to acquire the additional knowledges listed on Table 6.

Obviously, particular schools, community colleges, and industries will need to outline content for other instructional programs designed to prepare electronic technicians for specialized types of work.

As rapidly as possible, colleges, universities, Regional Laboratories, and other research agencies should proceed with development and experimental use of instructional materials designed to help students acquire the knowledges listed on Tables 5 and 6. In cooperation with the Northwest Regional Educational Research Laboratory, the staff of Project ERD-257-65 plans to develop and test instructional systems designed to fulfill part of that need. Implementation of those plans is contingent of approval of necessary funds.

SUMMARY

The objective of this study was to identify specific knowledges and clusters of knowledges most widely useful in major types of work commonly done by electronic technicians.

Principal tasks were defined as those most commonly performed by electronic technicians in industries in which major percentages of such workers are employed. Electronic technicians' work was divided into eight principal tasks as follows: diagnosing trouble in systems; adjusting and/or operating; servicing; assembling; installing; designing and computing; application, distribution, and sales in electronics; and quality control and testing.

A questionnaire permitting technicians to identify knowledges needed in performance of their work was utilized to obtain data. A population of electronic technicians was defined as those technicians employed in 64 establishments within certain industrial classifications. Employees of these establishments perform tasks broadly representative of the national pattern of electronics work. The number and percentage of technicians performing each principal task was determined. A stratified sampling was identified by use of disproportional sample sizes. Samples were drawn from electronic manufacturing, broadcasting, servicing, general maintaining, and research establishments. The data was provided by 154 usable questionnaires.

Knowledge items were defined as necessary for performance of a principal task if 60 per cent of the respondents indicated them to be needed in their work. Six hundred forty-three knowledge items were investigated, resulting in identification of knowledges necessary for the performance of six to eight tasks, three to five tasks, and one or two tasks.

Eighty-four of the 643 knowledges were found to be associated with the performance of six or more of the eight tasks. One hundred fifty-four knowledges were found to be associated with three to five tasks.

Knowledges reported to be necessary for performing tasks are grouped to assist schools in planning training for electronics technicians. Knowledges specific to smaller groups of principal tasks were identified and similarly grouped.

APPENDIX A

THE KNOWLEDGE SURVEY CHECK LIST

INSTRUCTIONS: Choose and check (✓) the task description that most nearly describes the type of work you do.

☐ DIAGNOSING TROUBLE IN SYSTEMS: This work definition refers to tasks involving measurements and decisions leading to replacement of, or repairs to, units in electronic systems or devices. While the worker may routinely make adjustments and repairs, his principal tasks are associated with diagnosing failures or malfunctions of units of a system, the isolation of the trouble, and replacement or repair of components within a system.

☐ ADJUSTING AND/OR OPERATING: This definition refers to tasks principally involved in routine operation of electronic equipment. While the identification of malfunctions of equipment and minor component replacements may be a portion of such a worker's responsibility, his main function is one of performing tasks related to operation.

☐ SERVICING: This definition refers to those tasks principally involved in replacement of components constituting electronic assemblies. While considerable diagnostic work is associated with this task, the actual part-for-part replacement more precisely describes the nature of the work.

☐ ASSEMBLING: This definition refers to those tasks principally related to production of electronic assemblies, subassemblies, parts, and similar assembling.

☐ INSTALLING: This definition refers to tasks principally devoted to installing electronic assemblies and to associated interconnections. Testing and adjusting portions of assemblies to assure proper operation as part of the installing process are elements of this task.

☐ DESIGNING AND COMPUTATION: This definition refers to tasks principally involved in application of scientific and electronic principles to design of electronic devices. Workers performing such tasks may routinely assemble prototypes, measure and adjust performance of devices, make necessary calculations, and perform functions related to specification development for electronic devices. Such workers may also perform some drafting functions.

☐ APPLICATION, DISTRIBUTION AND ELECTRONIC SALES: This definition refers to tasks principally associated with applications of developed devices, components, and services, and those associated with sales and distribution of electronic devices.

☐ QUALITY CONTROL AND TESTING: This definition refers to tasks principally involved in measurements and adjustments of electronic devices to verify operating tolerances and specifications and to make minor modifications necessary for proper performance.

In questions 1-4 please fill in the blank with the necessary information.

1. Name _____

2. Present Job Title _____

3. Name of Employing Firm _____

4. Address of Employing Firm _____

In questions 5-6 check all the answers that apply to you.

5. In which area do you work?

6. Where did you receive your specialized occupational training?

____ 1. On the job (not apprentice)
____ 2. Apprentice
____ 3. Military
____ 4. Business College
____ 5. Trade or technical school
____ 6. Correspondence
____ 7. Specialized school (for example: private electronics school)
____ 8. High School
____ 9. Junior College
____ 10. Self taught
____ 11. Other (please list)

_____
_____
_____
_____
_____
_____

In questions 7-11 please circle the one answer which applies.

7. What was the highest grade of school you completed (not specialized)?

8 or less, 9, 10, 11, 12, 13, 14, 15, 16 or more

8. Sex? Male Female

9. Age? Under 20 20-30 31-50 Over 50

10. For how many years have you been in your present occupation:

Less than 1 year 1-5 years More than 5 years

11. How many times have you changed occupations in the past 5 years? (for example: plumber to electronics worker to sales = 2 changes)

0 times 1-2 times 3 or more times

EXPLANATION AND INSTRUCTIONS

Many schools offer training leading to employment in the field of electronics technology. To more clearly understand what must be known by practicing technicians, the State Boards for Vocational Education of Washington and Idaho, the University of Idaho, and Washington State University have agreed to study this important field. It is the purpose of this portion of the study to determine what facts are used by electronic technicians in their work. A questionnaire of knowledges has been prepared to determine the relationships of knowledges used in certain tasks in electronics. You will know and understand most of the knowledges listed, but we need to find which knowledges you actually need to use in the performance of your duties. By matching these knowledges with your tasks, better and more meaningful training may be planned in our schools. May we express our sincere appreciation for your cooperation in this study, and our hope that many students will benefit from your assistance.

HOW TO MARK THE QUESTIONNAIRE

If a knowledge is needed in your work, place a check (✓) in the box provided. Proceed to the next consecutive question. If a knowledge is not needed in your work, do not make any marks on that knowledge. You should then proceed to the next consecutive question. To reduce the time for filling out this questionnaire, a method of skipping "not needed" knowledges has been devised. If a number occurs adjacent to the knowledge in the "not needed" column, and the knowledge is not needed for your work, skip to the indicated number, without answering the skipped questions.

SAMPLE:

Knowledge NOT NEEDED, Go to#	Number	Knowledge NEEDED	
152	130	✓	Rectifying devices, tube and solid state
139	131		Solid state diodes, types and indicated application
	132		Ratings of solid state diodes
	133		Operating characteristics of solid state diodes, ratings and limits
	134		Characteristics of Zener diodes
	135		Ratings and limitations of solid state power rectifiers
	136		Load characteristics and regulation of solid state diodes
	137		Markings and lead identification of solid state diodes
	138		Symptoms of failure of solid state diodes
143	139	✓	Vacuum tube diodes and rectifiers
	140	✓	Ratings, types and applications of vacuum tube diodes

	141	✓	Load characteristics of vacuum tube diodes, regulation, etc
	142		Symptoms of failure of vacuum tube diodes
152	143	✓	Gas filled tubes
147	144		Characteristics of mercury vapor rectifiers

This technician needed to know about rectifying devices, but not solid state, so that he skipped from question 131 directly to 139. He did need to know about vacuum tube diodes, except that he was not concerned about tube failure in question 142. The technician is skipping to question 147 as a result of the blank in question 144. The same results would be obtained if he had not skipped, but considerable time would be spent.

Please use the blanks in the "Knowledge needed" columns on the following sheets to check (✓) the knowledges you need to do your work.

Knowledge NOT NEEDED, Go to	Number	Knowledge NEEDED	
81	1		Basic knowledges--units, currents, voltages, AC, DC, effects, etc.
16	2		Electrical units and definitions, electrical calculations
	3		Definitions of volts, amperes, watts, prefixes
8	4		Resistance of conductors
	5		Temperature effects on resistors
	6		Conductance
	7		Power consumption in resistors
13	8		Circuit and network laws
11	9		Ohm's law
	10		Series and parallel resistances
13	11		Kirchhoff's laws (mesh and nodal equations)
	12		Mesh reductions, equivalent resistances, superposition
16	13		Electrical symbols
	14		Component symbols in power applications
	15		Component symbols in electronic applications
80	16		Time-varying (AC) voltages and currents in components or circuits
26	17		Capacitances; currents, voltages, DC and AC
	18		Capacitance of plates, wires, etc.
	19		Charge on capacitors, energy stored, etc.
24	20		Reactance of capacitors
	21		Capacitive reactance calculations
	22		R-C impedance, phase effects, etc.
	23		Phase of currents and voltages in R-C circuits
	24		Time constants of R-C networks
	25		Capacitors in series, parallel, etc.
35	26		Inductances; currents, voltages, DC, and AC
	27		Self-inductance of coils, wires, etc., formulas
	28		Inductances in series and parallel

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	29		Mutual inductance, coupling, coefficients, etc.
	30		Time constants of R-L circuits
35	31		Reactance of inductors
	32		Impedance of R-L circuits
	33		Magnitude and phase of currents in R-L circuits
	34		Q of coils, effects, calculations
42	35		Impedance, voltage, current relations in R-L-C AC circuits
42	36		L-C tuned circuits
	37		Impedance, current, voltages of tuned circuits
	38		Natural frequency of tuned circuits
	39		Q of resonant circuits, Q adjustments
	40		Q of loaded resonant circuits, effects, etc.
	41		L-C ratios and effects on resonant circuits
46	42		Voltage, current effects in reactive networks, special networks, etc.
	43		Power factor
	44		L, Pi, and T networks, impedance changes, transformations
	45		Filter networks at signal frequency
	46		Voltage, currents, power in AC circuits
55	47		AC vector representations, j notation, polar forms, etc.
	48		Addition and subtraction of vectors
	49		Multiplication of vectors in j or polar form
	50		Reactive power, volt-ampere reactive
55	51		2-phase, 3-phase AC circuits, voltages, currents, line and phase
	52		Wye and Delta systems, connections, power, currents, etc.
	53		Phase currents, angles, voltages, etc., in 2- or 3-phase circuits
	54		Commercial power sources, KVA, KW, currents, regulation, etc.
71	55		Voltage, power, current generation
61	56		Batteries, cells, electrochemistry
	57		Storage batteries, operation, maintenance, limits
	58		Primary cells, internal R, life expectancy, limits, etc.
	59		Fuel cells, energy sources, internal R, operating limits, maintenance
	60		Electroplating, etching, materials, current density, etc.
71	61		Electromagnetism, permanent magnets
	62		Magnetic circuits, flux density, magnetization, total flux, mmf.
67	63		Induced voltages from magnetism
	64		Eddy currents
	65		Voltages in generators, voltage control
	66		Generators, types, windings, operation, load characteristics
71	67		Forces due to electromagnetism
71	68		Motors, starting, speed, power, operation, load characteristics
	69		Speed control of electric motors
	70		Characteristics of polyphase motors
80	71		Transient and special wave shape voltages and currents

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
82	72		Characteristics of non-sine waves, ramp, sawtooth, square, etc.
78	73		Harmonics generated in non-sine waves, rise time, overshoot, etc.
	74		Wave analysis to determine harmonic components
	75		Characteristics of square waves
	76		Characteristics of pulses, requirements, etc.
	77		Characteristics of sawtooth waves, requirements, generation, etc.
80	78		Wave shaping methods
	79		Fourier analysis
269	80		Electrical characteristics, types and kinds of individual components
89	81		Capacitors, types, characteristics
85	82		Ratings of capacitors
	83		Color codes for capacitors
	84		Tolerances for capacitors of various types
88	85		Types of capacitors
	86		Dielectrics for capacitors, advantages,of each, etc.
	87		Life expectancy of types of capacitors
	88		Symptoms of failure of various capacitor types
101	89		Inductors operated above power frequencies
	90		Types and specifications of signal frequency inductors
95	91		Winding methods for inductors, transformers
	92		Use of wire charts, insulations
	93		Use of inductance charts
97	94		Types and kinds of insulation for inductor windings
	95		Effects of cores in inductors, core types
	96		Core adjustments in inductors, effects on L, Q, etc.
	97		Distributed capacity of inductors
	98		Inductance formulas and calculations
	99		Resistance of coils of wire for inductances, skin effects, etc.
	100		Calculation of Q of coils from physical characteristics
116	101		Transformers, types, characteristics, principles
	102		Power transformers
	103		Ratings and loads for power transformers
	104		Symptoms of failure of power transformers
	105		Color coding schemes for power transformers
116	106		Electronic transformers, signal frequency
110	107		Input transformers
	108		Impedance transformation by transformers
	109		Color codes of electronic transformers (interstage, i.f., etc.)
116	110		Output transformers, characteristics, types and uses
	111		Power ratings and tolerances of output transformers
	112		Leakage reactance of output transformers, effects
	113		Impedance matching methods using output transformers
	114		Frequency effects and limits of output transformers
	115		Color coding and lead identification of output transformers

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
130	116		Chokes and other inductors
123	117		Types of chokes, effects of frequency, various applications
123	118		Chokes for power supplies
	119		Characteristics of swinging chokes
	120		Characteristics of smoothing chokes
	121		Resistances of windings of filter chokes, DC characteristics, effects
	122		Current and inductance ratings of filter type chokes
127	123		Radio frequency chokes
	124		Ratings and inductance values of types and kinds of RF chokes
	125		Tolerances of values for RF chokes
	126		Frequency effects of RF chokes, self resonance, etc.
130	127		Audio frequency chokes
	128		Ratings and inductance values of types and kinds of AF chokes
	129		Tolerances of values for AF chokes
152	130		Rectifying devices, tube and solid state
139	131		Solid state diodes, types and indicated applications
	132		Ratings of solid state diodes
	133		Operating characteristics of solid state diodes, ratings and limits
	134		Characteristics of zener diodes
	135		Ratings and limitations of solid state power rectifiers
	136		Load characteristics and regulation of solid state rectifiers
	137		Markings and lead identification of solid state rectifiers
	138		Symptoms of failure of solid state rectifiers
143	139		Vacuum tube diodes and rectifiers
	140		Ratings, types and applications of vacuum tube diodes
	141		Load characteristics of vacuum tube diodes, regulation, etc.
	142		Symptoms of failure of vacuum tube diodes
153	143		Gas filled tubes
147	144		Characteristics of mercury vapor rectifiers
	145		Load characteristics, limits and regulation of mercury vapor rectifiers
	146		Special precautions and operation of mercury vapor rectifiers
152	147		Thyratrons, similar gas or vapor filled tubes
	148		Ignition characteristics of thyratrons
	149		Precautions and limitations of thyratron operation
	150		Failures and detection of failure of thyratrons
	151		Characteristics and applications of voltage regulator tube types
159	152		Semi-conductor operation and construction
159	153		Operating characteristics of semi-conductors (curves, etc.)
	154		Determination of "r" parameters and their uses
	155		Determination of "h" parameters and their uses
	155a		Field effect transistor operation
	155b		SCR operation, requirements, limits, uses
	155c		Unijunction devices, techniques, applications
	156		Determination of high frequency parameters and their uses
	157		Capacitive effects of junctions, control

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	158		Bias requirements for transistor operation, thermal requirements
172	159		Receiving types of vacuum tubes and applications
	160		Characteristics of triode vacuum tubes
	161		Internal construction of vacuum tubes
	162		Internal construction of special vacuum tubes (uhf, compactrons, etc.)
	163		Characteristics of vacuum tube tetrodes and pentodes
	164		Applications of tetrodes and pentodes
	165		Characteristics and applications of multi-grid type vacuum tubes
172	166		Cathode ray and other display tubes
	167		Internal construction and requirements of cathode ray type tubes
	168		Electron ballistics in cathode ray tubes, electrostatic, electro-magnetic
	169		Phosphors for display purposes in various cathode ray tubes
	170		Deflection methods and characteristics for deflection of electron beams
	171		Construction and applications of special display tubes
178	172		Transmitting tube types, applications, operation
	173		Transmitting tube characteristics, design curves, etc.
	174		Power requirements, limits of transmitting type tubes
	175		Cooling methods and protections for transmitting type tubes
	176		Special precautions and limits of operation of transmitting tube types
	177		Symptoms of failure and replacement requirements of transmitting types
188	178		Electromechanical devices and transducers, reproducers, signal sources
183	179		Microphones, signal levels, limits and operation methods
	180		Internal construction of various types of microphones
	181		Applications for various types of microphones, advantages, requirements
	182		Advantages of types of microphones, maintenance and operation
188	183		Phono pick-ups, types and uses
	184		Methods of signal sensing in phono pick-ups
	185		Output characteristics of various types of pick-ups
	186		Maintenance and care of phono pick-ups
	187		Mechanical requirements, mounting, tracking, etc., of phono pick-ups
197	188		Mechanical sensors
	189		Strain sensors, types and characteristics, signals
	190		Pressure sensors, types and characteristics
194	191		Temperature sensors
	192		Characteristics and operation of bi-metal sensors
	193		Types and operation of continuous signal sensors
197	194		Optical sensors
	195		Spectral characteristics of optical sensors
	196		Electrical characteristics of optical sensors
211	197		Speakers and other reproducers
	198		Cone type loudspeakers
	199		Magnet types and sices in loudspeakers, electrical characteristics
	200		Cone types and mountings in loudspeakers
	201		Frequency characteristics of types of loudspeakers of cone type

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	202		Baffles and resonators for cone type speakers
	203		Speaker maintenance and repair, adjustments, failure symptoms
	204		Power capabilities of cone speakers
208	205		Electrostatic speakers, operation, construction
	206		Frequency characteristics and limitations of electrostatic speakers
	207		Power requirements and supply for electrostatic speaker operation
211	208		Horns and compression type speakers
	209		Frequency characteristics of horns and horn type speakers
	210		Power capabilities and requirements for horn type speakers
221	211		Devices and methods of maintaining frequency
217	212		Piezo-electric resonators (quartz crystals for frequency control)
	213		Crystal cuts, characteristics and standards
	214		Temperature effects of quartz crystals
	215		Frequency control and adjustment of quartz crystals
	216		Crystal ovens, requirements and adjustment of operation
221	217		Methods of frequency control by magnetostriction
	218		Excitation requirements for magnetostriction oscillators
	219		Types and materials of magnetostriction frequency controls
	220		Temperature effects on magnetostriction frequency controls
257	221		Electro-mechanical devices in electronics, switches, relays, motors
232	222		Relays, types and characteristics, capacity
228	223		DC relays
	224		Coil resistance and impedance of relays
	225		Contact capabilities and limits
	226		Current and/or voltage requirements, speed of operation of relays
	227		Special DC relay types (dual winding, differential, etc.)
232	228		AC relays
	229		Coil impedance of AC relays, coil loadings, etc.
	230		Methods and principles of buzz reduction in AC relays
	231		Special types of AC relays (high current, signal frequency, reed types)
239	232		Switches
	233		Types and kinds of signal and power switches
	234		Specifications, tolerances and loads for power switches
	235		Specifications, tolerances for signal switches
	236		Special multi-contact switches, specifications and uses
	237		Current and voltage capabilities of switches and switch contacts
	238		Insulation and isolation of switches of various types
257	239		Motors, generators, DC and AC, control, speed structure
245	240		Operating characteristics of DC motors
	241		Speed control, torque control of DC motors
	242		Power requirements of DC motors, overload, cooling, etc.
	243		Maintenance requirements of DC motors
	244		Structural and winding features of DC motors
251	245		AC motors
	246		Speeds and loads of AC motors
	247		Types of motor start, characteristics (shaded pole, AC-DC, condenser)

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	248		Characteristics of types of AC motors (induction, synchronous, etc.)
	249		Maintenance requirements of AC motors, procedures
	250		Power requirements for single or polyphase motors
257	251		Principles of servo-motors and servo-devices
	252		AC selsyn servo-motors and generators, operation and supply requirements
	253		Sensitivity of servo-devices, accuracy, etc.
	254		Error detectors for servos, feedback equations, stability
	255		Gearing and other mechanical requirements for servo operation
	256		Lash reduction, effects of lash
264	257		Vibrators for power supplies
264	258		Types and operation of vibrators (synchronous and non-synchronous)
	259		Power capabilities and requirements for vibrators
	260		Load characteristics of vibrators
	261		Symptoms of failure and repair of vibrators
	262		Frequency control and adjustment of vibrators
	263		Output characteristics of vibrators
269	264		Fuses and the applications
	265		Types of fuses, limits and tolerances
	266		Fuse characteristics, time, overcurrent, protections
	267		Limitation of fuses and fused circuits
	268		Replacement standards for fuses
359	269		Knowledge of measurement techniques and devices in electronics
279	270		Principles of voltage measurement
	271		Low impedance voltage measurement techniques, AC and DC
	272		High impedance voltage measurement techniques, AC and DC
279	273		Measurement of special voltages, frequency or impedance effects
	274		Measurement of high voltages, e.g., thousands of volts
	275		Measurement of very low voltages, e.g., microvolts
	276		Measurement of RF voltages
	277		Measurement of audio frequency voltages
	278		Measurement of signals in Db or Vu
288	279		Principles of current measurement
	280		Principles of direct current measurement
	281		Alternating current measurements, audio power frequencies
288	282		Measurement of special currents, (non-sine, very small, large, etc.)
	283		Current measurements in high voltage circuits
	284		Very small current measurements (fractions of microamperes)
	285		Very large current measurements (hundreds of amperes)
	286		Video frequency current measurements
	287		Radio frequency current measurements
294	288		Principles of power measurement, AC, DC, RF, Audio, special methods
	289		DC and AC wattmeter methods
	290		Measurement of power by indirect methods
	291		Measurement of RF power

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	292		Measurement of audio or video power
	293		Measurement of power in Db
359	294		Knowledge of the uses of electronic measuring instruments
298	295		Familiarity and skill in the use of the V-O-M
	296		Applications for which V-O-M is indicated
	297		Limits of accuracy and precautions in use of V-O-M
302	298		Familiarity and skill in use of the V-T-V-M
	299		Applications for which the VTVM is indicated
	300		Limits of accuracy of the VTVM
	301		Symptoms of failure of the VTVM
315	302		Familiarity and skill in the use of the oscilloscopes
315	303		Applications of single trace oscilloscopes
	304		Principles of operation of oscilloscopes, loading, impedance, etc.
	305		Limitations on uses, accuracy, frequency response of oscilloscopes
	306		Methods of frequency measurement by oscilloscope
	307		Methods of measurement of pulse times, phase, etc., by oscilloscope
	308		Measurements of DC by oscilloscope
	309		High frequency oscilloscope measurement
	310		Triggering methods, control methods, etc., in operating oscilloscopes
	311		Peak to peak measurements and interpretations on the oscilloscope
315	312		Applications and operation of dual trace oscilloscopes
	313		Measurement methods of time, phase, distortion, etc., on dual trace oscilloscope
	314		Methods of measuring gain, wave shape, etc., on dual trace oscilloscope
325	315		Operation of bridges and special measuring equipment (moderate accuracy
	316		Operation of R-L-C checkers
	317		Operation of simple Q meters
	318		Operation of grid dip meters
	319		Operation of standing wave meters or bridges, SW ratio meters
	320		Operation of tube testers
	321		Operation of absorption frequency meters
	322		Operation of field strength meters
	323		Operation of modulation index indicators, modulation meters
	324		Operation of frequency deviation meters
339	325		Operation of precision measuring equipment, precision measurements
	326		Operation of precision RF bridge
330	327		Operation and uses of transistor characteristics display apparatus
	328		Measurement of low frequency parameters of transistors
	329		Measurements for transistor selection of matching
	330		Measurements of high frequency transistor parameters, jigs, etc.
335	331		Measurement of tube characteristics on oscilloscope
	332		Measurement of mu, plate resistance, transconductance by precise means
	333		Measurement of emission of vacuum tubes
	334		Measurement of interelectrode capacitance

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	335		Measurement of R, L, and C by the precise type Q meter
	336		Operation and measurements by using distortion analyzers, meters
	337		Harmonic amplitude measurements using wave analyzers
	338		Operation and measurements by phase meter
344	339		Operation and applications of laboratory standards, precision measures
	340		Operation of RF generator
	341		Operation of AF generator
	342		Operation of pulse generators
	343		Operation and uses of sweep generators
359	344		Operation and applications of laboratory standards, precision measures
348	345		Uses and types of frequency standards
	346		Calibration and standardization of frequency using frequency standards
	347		Operation and normal adjustment of laboratory local frequency standard
	348		Care and application of resistance standards
	349		Standardization and precision resistance measurements
354	350		Care and application of capacitance standards
	351		Standardization and precision capacitance measurements
	352		Precision measures of L, k, and M using precision capacitance
	353		Calibration and standardization of instruments using standard capacitor
356	354		Care and application of standards of inductance
	355		Precision measures of L, k, and M by comparison methods
359	356		Care and application of standard cells
	357		Precision voltage measurements using bridges or potentiometer
	358		Instrument calibration by using precision voltage sources
468	359		Knowledges of circuits, applications (one or two tubes or transistors)
399	360		Knowledge of circuits for amplifiers with tubes
370	361		Operating conditions for amplifier circuits with tubes
	362		Calculations and methods to obtain grid bias
	363		Calculations and methods to obtain screen supply
	364		By-passing calculations to obtain desired frequency response
	365		Calculations to obtain gain of tube amplifiers
	366		Requirements and controls to gain stability of circuits
	367		Methods and requirements for coupling tube circuits
	368		Uses of resistance coupled amplifier charts
	369		Input and output impedance calculations of vacuum tube amplifiers
380	370		Knowledge of circuits for semi-conductor amplifiers
380	371		Operating conditions of transistor amplifiers
	372		Bias methods and calculations for transistor amplifier biasing
	373		Stabilization calculations and methods for transistor amplifiers
	374		Current and voltage gains in transistor amplifiers
	375		Frequency limits and causes in transistor amplifiers
	376		Blocking and by-pass requirements and calculations in transistor circuits
	377		Gain, impedance, of common emitter, base, or collector circuits

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	378		Coupling methods in transistor amplifiers
	379		Methods of determining input, output, and transforming impedances with transistor amplifiers
399	380		Operating principles of tuned amplifiers, pass band, broad band
389	381		Principles of operation of single tuned amplifiers, bandwidth, etc.
	382		Principles of operation of narrow band amplifiers
	383		Broad-band amplifier principles, peaking methods, single tuned
	384		Coupling methods for tuned amplifiers
	385		Neutralizing tuned amplifiers, singly tuned
	386		VHF circuit principles and special techniques
	387		UHF circuit principles and special techniques
	388		Parasitics and oscillations, sources, suppression, etc.
399	389		Principles of multiple tuned amplifiers
	390		Impedance matching, coupling in multiple tuned amplifiers
	391		Tuning methods, Pi sections, cavities, lines
	392		Broad-band amplifier principles, multiple tuned, frequency centers for stagger tuning
	393		Biasing methods in tuned transmitting circuits
	394		Excitation methods and requirements in transmitting circuits
	395		Driving and output impedances of transmitting circuits
	396		Neutralization methods in multiple tuned transmitting circuits
	397		Balanced RF amplifier principles
	398		Limiter amplifier principles
402	399		Principles of direct coupled amplifiers
	400		Methods of stabilization of direct coupled amplifiers
	401		Special applications of direct coupled amplifiers
428	402		Principles of detection, modulation and mixing
413	403		Detector operating principles
	404		Types of diode demodulators
	405		Methods of DC recovery from demodulated signals
	406		Biased detector operating principles
	407		Grid or base detection principles
	408		Plate or collector detection principles
	409		Discriminators and FM detection methods and circuits
	410		Ratio detection and FM detection methods
	411		Linear detector principles
	412		Square-law detector principles
419	413		Heterodyning principles and methods
	414		Pentagrid converter operation
	415		Transistor first detector methods and circuits, problems
	416		Vacuum tube first detector methods and circuits
	417		Signal filtering methods
	418		Crystal controlled converter circuits and operation
428	419		Modulator operating principles
	420		Methods of plate (collector) modulation and principles

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	421		Methods of grid (base) modulation and principles
	422		Suppressor and/or screen modulation principles
	423		Determination of modulation impedance, and modulation power
	424		Phase or frequency modulation methods and circuit operation
	425		Reactance tube circuit operation, principles
	426		Determination of modulation index, modulated power, etc.
	427		Velocity modulation methods and circuit operation
438	428		Oscillator operating principles
438	429		Types of self-excited oscillator circuits
	430		Principles of crystal controlled oscillators
	431		R-C and negative resistance oscillators, operating principles
	432		Principles and operation of klystron oscillators
	433		Special high frequency oscillator circuits
	434		Tunnel diode oscillator circuits
	435		Principles of multivibrator circuits
	436		Principles of relaxation oscillator circuits
	437		Principles of stabilization of oscillators
444	438		Wave shaping circuitry, counters and flip-flop circuit operation
	439		Principles of differentiators and integrators
	440		Methods of clipping and biasing of diodes for wave shaping
	441		Methods of clipping with multielement tubes or transistors
	442		Methods of DC restoration, clamp circuits
	443		Circuits suitable for counting, logic (and, nand, nor, etc.)
468	444		Knowledges of power supplies, rectifier circuits
456	445		Types and kinds of rectifier circuits
	446		Operation of one-half wave rectifiers
	447		Operation of full-wave rectifiers
	448		Operation of high voltage rectifiers, special circuits, etc.
454	449		Operation of higher current rectifiers
	450		Operation of mercury vapor rectifiers
	451		Determination of inverse voltages in rectifiers, tube choice, etc.
	452		Insulation and safety requirements for power supply systems
	453		Circuits for overcurrent and undervoltage protection
	454		Operation of multiphase rectifiers
	455		Operation of voltage multiplier rectifiers
461	456		Principles of operation of power supply filters
	457		Effects upon regulation of filters in power supplies
	458		Principles of operation of condenser input filters, regulation
	459		Principles of operation of choke input filters, regulation
	460		Determination of bleeder requirements and effects
464	461		Principles of rectifier controls
	462		Methods and circuits for voltage control
	463		Methods and circuits for current control
468	464		Principles and methods of operation of inverters

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
	465		Operation of vibrator supplies
	466		Operation of transistor supplies
	467		Operation of motor-generator or genemotor power supplies
521	468		Knowledges of electronic systems, operation, installation, etc.
476	469		Principles of operation of amplifiers and amplifier systems
	470		Applications and operation of audio amplifier units
	471		Applications and operation of video amplifier units
	472		Applications and operation of IF amplifier units
	473		Applications and operation of operational amplifiers
	474		Applications and operation of DC amplifiers
	475		Applications and operation of VHF distribution amplifiers
	476		Principles of operation of power supply systems, units
484	477		Principles of operation of radio transmitters
	478		Operation and adjustment of AM communication transmitters
	479		Operation and adjustment of AM broadcasting transmitters
	480		Operation and adjustment of FM communication transmitters
	481		Operation and adjustment of FM broadcasting transmitters
	482		Operation and adjustment of microwave transmitters
	483		Operation and adjustment of translators and broadcast repeaters
	484		Principles of operation and adjustment of speech and video systems
	485		Operation of speech consoles
	486		Operation of video consoles
	487		Operation of TV cameras
	488		Operation of monitor systems
	489		Operation of disk recorders
	490		Operation of audio magnetic recording systems
	491		Operation of video magnetic recording systems
	492		Operation of digital magnetic recording systems
	493		Operation of tone keyers and other signal systems
502	494		Principles of operation and adjustment of receiving equipment
	495		Operation of AM receiver systems
	496		Operation of FM receivers
	497		Operation of TV receivers
502	498		Operation of communications and special receivers
	499		Operation of communications AM receivers (complex types)
	500		Operation of communications FM receivers (complex types)
	501		Operation of pulse reception systems
521	502		Operation principles and adjustment of special receivers
510	503		Operation of computing and computing type control systems
	504		Operation of digital electronic systems
	505		Operation of analog electronic systems
	506		Operation of electronic-hydraulic control systems
	507		Operation of electronic-mechanical control systems
	508		Operation of special manufacturing electronic control systems
	509		Operation of servo-mechanical systems
516	510		Principles of operation and adjustment of wired communications or entertainment systems

Knowledge NOT NEEDED. Go to #	Number	Knowledge NEEDED	
	511		Operation of community antenna television systems
	512		Operation of complex inter-communication systems
	513		Operation of sound and/or video laboratory systems
	514		Operation of telephone communication systems
	515		Operation of music distribution systems
521	516		Principles of operation of wired or wireless pulse systems
	517		Operation of radar systems
	518		Operation of sonar systems, depth-finder systems
	519		Operation of ranging or rangefinder systems
	520		Operation of aids to navigations systems, air or marine
577	521		Knowledge of waves, transmission lines and propagation of waves
529	522		Knowledge of the nature and characteristics of electromagnetic waves
	523		Effects of polarization of electric waves
	524		Effects of reflection of electric waves
	525		Effects of refraction of electric waves
	526		Effects of spreading of waves, strength of signals with distance, etc.
	527		Absorption characteristics of electric waves
	528		Field strength characteristics of waves
550	529		Principles of transmission lines
538	530		Determination and understanding of characteristic impedance of lines
	531		Determination of characteristic impedance of co-axial lines
	532		Characteristic impedance of open wire lines
	533		Choice of conductor size and effects on characteristic impedance
	534		Choice of dielectric and effect on characteristic impedance of lines
	535		Characteristics and limitations in use of flat lines
	536		Transmission characteristics of waves in guides
	537		Effects and determination of critical frequency in wave guide transmission
547	538		Principles of line termination
	539		Methods of measurement and calculation of input impedance in lines
	540		Termination methods and principles of tuned lines
	541		Termination methods and principles of untuned lines
	542		Methods of impedance matching for input and output of lines
	543		Methods of impedance matching using baluns
	544		Methods of impedance matching using stub lines
	545		Measurement, detection and control of standing waves on lines
	546		Principles of impedance transformation by lines
550	547		Principles involved in making applications of lines
	548		Calculations and considerations involving line attenuation
	549		Determinations necessitating use of pre-amplifiers and line boosters
554	550		Principles, methods and construction in using wave guides and horns
	551		Factors limiting frequency in wave guides and horns
	552		Operation of attenuators in wave guides
	553		Techniques for tuning and matching wave guides

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
577	554		Principles of wave propagation by antennas and antenna systems
564	555		Characteristics of antenna types and selection of antenna types
	556		Electrical characteristics of open wire antennas
	557		Electrical characteristics of simple dipole antennas
	558		Electrical characteristics of folded dipole antennas
	559		Electrical characteristics of broad band and array antennas
566	560		Principles of multi-element and parasitic element antennas
	561		Electrical characteristics of Yagi antennas
	562		Types of special high frequency transmitting antennas
	563		Characteristics and operation of dish reflector type antennas
	564		Electrical characteristics of vertical antennas and systems
	565		Electrical characteristics of mobile and small power antennas
576	566		Characteristics of radiation from antennas and antenna systems
	567		Radiation angle effects of antennas
	568		Radiation patterns of antennas and antenna systems
	569		Impedance and impedance adjustment of antennas
	570		Balancing and matching of antennas and antenna systems
	571		Radiation resistances of antennas and antenna systems
	572		Measurement and plotting field strength of antenna systems
	573		Loading methods and techniques of antennas
	574		Operation and principles of loading coils in antennas
	575		Techniques of matching vertical antennas
	576		Standards and codes for antenna installation and construction
631	577		Electronic-related knowledges, procedures, methods, construction
605	578		Procedures of electronic construction
594	579		Tools, materials and methods of electronic construction
588	580		Methods of chassis or cabinet and panel preparation
	581		Drill sizes for various materials, various purposes
	582		Taps and methods of using taps in electronic construction
	583		Use of hole punches, saws, and nibblers in chassis preparation
	584		Techniques of sheet metal forming, bending
	585		Use of welders and welding techniques in chassis or cabinets
	586		Uses and applications of paints, finishes in electronics
	587		Methods of stamping, marking, screening and/or electronic labeling
593	588		Techniques of wiring and cabling in electronic construction
	589		Knowledge of resistor color code
	590		Knowledge of condenser color codes
	591		Systems of lead identification of transformers, chokes, etc.
	592		Systems of conductor identification and cable and wire codes
599	593		Uses, preparations and methods for use in printed circuits
	594		Assembly methods for printed circuit boards
	595		Parts assembly on printed circuit boards, hand or machine
	596		Preparation or production of printed circuit boards
	597		Chemical treatment and methods of circuit board manufacture
	598		Inspection and protection of printed circuit boards

Knowledge NOT NEEDED, Go to #	Number	Knowledge NEEDED	
609	599		Knowledge of electronic drafting, illustrating, other drafting
604	600		Principles of mechanical drawing
	601		Production of chassis layout drawings, panel drawings, etc.
	602		Design drawings of parts and components
	603		Pictoral drawings used in electronics
608	604		Knowledge of electronic or electrical circuit drafting
	605		Pictoral or schematic circuit drafting principles and techniques
	606		Techniques and methods for printed circuit drafting
	607		Methods of curve plotting and similar technical displays
	608		Methods and materials of print making and reproduction
619	609		Knowledge of principles of mobile, aircraft or marine installations
	610		Techniques and requirements of grounding and bonding
614	611		Principles of noise reduction
	612		Methods of shielding for noise reduction
	613		Methods and materials for ignition noise reduction
619	614		Knowledges related to mobile and similar power sources
	615		Principles of battery maintenance, choice and installation
	616		Principles of motor-generator maintenance, choice and installation
	617		Principles of transistor supplies, maintenance and operation
	618		Principles of vibrator supplies, maintenance, operation or installation
630	619		Special knowledges for electronic writing, written communication
	620		Techniques of descriptive writing for electronics
	621		Techniques of data presentation used in electronic writing
	622		Techniques in writing equipment specifications
626	623		Techniques and principles in writing instructions
	624		Techniques of writing equipment operation instructions
	625		Techniques of writing assembly and/or construction instructions
	626		Techniques and methods of writing reports
	627		Uses of photography and drawings in technical writing
	628		Special techniques in writing technical electronic reports
	629		General techniques of report writing
	630		Specific knowledges leading to licensing, and possession of license
637	631		Special knowledges leading to licensing, and possession of license
	632		Use of first-class phone commercial license
	633		Use of second-class phone commercial license
	634		Use of third- or other similar federal license
	635		Use of first or second radiotelegraph license
	636		Use of local or state or other non-federal license
	637		Knowledge of procedures or methods for instrument movements
	638		Methods of repair of instrument movements
	639		Methods and techniques of instrument recalibration

APPENDIX B

KNOWLEDGE ITEMS DEEMED NECESSARY FOR PERFORMANCE BY 90 PER CENT OF RESPONDENTS

Item Number	Principal Tasks 1 Diagnosing trouble	2 Adjusting and/or operating	3 Servicing	4 Assembling	5 Installing	6 Designing and computation	7 Application, distribution and sales	8 Quality control and testing
See Check List, pages 33-50 for names of items denoted by numbers								
1	x	x	x	x	x	x	x	
2	x	x			x	x	x	
3	x	x	x			x	x	
4	x	x			x	x		
5						x		
7		x				x		
8	x	x				x		
9	x	x	x		x	x		x
10	x	x			x	x		x
13	x		x		x	x		x
15	x		x		x	x		x
16						x		
17	x	x				x		x
20		x				x		
21						x		
22		x						
24		x				x		x
25		x				x		
26		x				x		
30		x						
31		x				x		
32		x						

Item Number	Principal Tasks 1 Diagnosing trouble	2 Adjusting and/or operating	3 Servicing	4 Assembling	5 Installing	6 Designing and computation	7 Application, distribution and sales	8 Quality control and testing
See Check List, pages 33-50 for names of items denoted by numbers								
35		x				x		
36		x				x		
45		x						
46		x						
72						x		
75						x		
80	x	x				x		x
81	x	x				x	x	x
82	x	x				x	x	x
83		x				x		
84		x				x		
85		x				x		
86						x		
88		x						x
89		x						
101		x				x		
102								x
106		x						
107		x						
108		x						
110		x						
114		x						

Item	Principal Tasks 1	2	3	4	5	6	7	8
116		x						
117		x						
118		x						
121		x						
130	x	x				x	x	x
131		x				x		x
132		x				x		
133		x						
134		x				x		
135		x						
136		x						
137		x					x	
138		x						
139		x					x	
140		x						
141		x						
142		x						
152		x				x		
153		x				x		
159		x						
160		x						
163		x						
164		x						
165		x						
166		x						
172		x						
175		x						
176		x						
177		x						
179		x						
197		x						
211		x						
212		x						
216		x						
222		x						x
223	x	x						x
228		x						
232		x						x
233		x						
264		x				x		
265		x				x		
268		x						
269	x	x	x			x		x
270		x	x			x		x
271								x

Item	Principal Tasks 1	2	3	4	5	6	7	8
274	x	x						
277		x						
279		x				x		
280		x				x		
288		x				x		
291		x						
293		x						
294		x				x		
295		x						
298		x			x	x		
299		x	x			x		
300		x				x		
301		x						
302	x	x				x		x
303		x				x		x
304		x				x		x
305						x		
306						x		x
307						x		
310						x		x
311						x		x
312						x		x
313						x		
315						x		
316						x		
320		x						
322		x						
339		x				x		
341		x				x		
359		x				x		
360		x						
361		x						
362		x						
363		x						
364		x						
371						x		
380		x						
381		x						
398		x						
399		x						
402		x						
403		x						
406		x						
413		x						
416		x						

Item	Principal Tasks 1	2	3	4	5	6	7	8
417		x						
419		x						
428		x						
430		x						
444		x	x			x		
445		x	x			x		
446		x				x		
447		x				x		
448		x						
450		x						
452		x						
456		x						
457		x						
458		x						
459		x						
460		x						
468		x						
469		x						
470		x						

Item	Principal Tasks 1	2	3	4	5	6	7	8
477		x						
485		x						
490		x						
495		x						
529		x						
531		x						
538		x						
578						x		
579		x				x		
580						x		
581						x		
582						x		
583						x		
584						x		
588		x				x		
589		x				x		
590		x						
593						x		
631		x						
632		x						

APPENDIX C

KNOWLEDGE ITEMS DEEMED NECESSARY FOR PERFORMANCE OF PRINCIPAL TASKS BY 60-89 PER CENT OF RESPONDENTS

Item Number	Principal Tasks 1 Diagnosing trouble	2 Adjusting and/or operating	3 Servicing	4 Assembling	5 Installing	6 Designing and computation	7 Application, distribution and sales	8 Quality control and testing
See Check List, pages 33-50 for names of items denoted by numbers								
1	x	x	x	x	x	x	x	x
2	x	x	x	x	x	x	x	x
3	x	x	x	x	x	x	x	x
4	x	x	x	x	x	x		x
5	x	x	x		x	x		x
6	x	x	x		x	x		x
7	x	x	x	x	x	x		x
8	x	x	x	x	x	x		x
9	x	x	x	x	x	x		x
10	x	x	x	x	x	x		x
11						x		
12						x		
13	x	x	x	x	x	x	x	x
14	x	x						x
15	x	x	x	x	x	x		x
16	x	x			x	x		x
17	x	x	x		x	x		x
18	x	x				x		x
19	x	x				x		x
20	x	x				x		x

Item Number	Principal Tasks 1 Diagnosing trouble	2 Adjusting and/or operating	3 Servicing	4 Assembling	5 Installing	6 Designing and computation	7 Application, distribution and sales	8 Quality control and testing
See Check List, pages 33-50 for names of items denoted by numbers								
21		x				x		x
22	x	x				x		x
23	x	x				x		x
24	x	x				x		x
25	x	x	x	x	x	x		x
26	x	x	x		x	x		x
27	x	x				x		x
28	x	x	x			x		x
29		x				x		x
30	x	x				x		x
31	x	x		x		x		x
32	x	x				x		x
33		x				x		x
34	x	x				x		
35	x	x				x		x
36	x	x				x		x
37	x	x				x		
38	x	x			x	x		x
39		x				x		
40		x				x		

Item	Principal Tasks 1	2	3	4	5	6	7	8
41		x				x		
42	x	x				x		x
43		x				x		
44	x	x				x		
45	x	x	x			x		x
46	x	x				x		x
47		x				x		
48	x	x				x		
49		x						
50		x						
51	x	x						
52	x	x			x			
53		x						
54		x						
55	x	x				x		x
56		x		x				
57		x						
58		x						
61	x	x						x
62		x						
63		x				x		
68		x						
71	x	x				x		x
72	x	x				x		x
73	x	x				x		x
74	x	x				x		x
75	x	x				x		x
76	x	x				x		x
77	x	x				x		x
78	x	x				x		x
80	x	x	x	x	x	x	x	x
81	x	x	x	x	x	x	x	x
82	x	x	x	x	x	x	x	x
83	x	x	x	x	x	x	x	x
84	x	x	x	x	x	x	x	x
85	x	x	x	x	x	x	x	x
86	x	x				x		x
87		x				x		
88	x	x	x		x	x		x
89	x	x				x		x
90		x				x		x
91		x				x		
92		x				x		
93		x				x		
94						x		
95		x				x		x

Item	Principal Tasks 1	2	3	4	5	6	7	8
96		x						
97		x				x		
98		x				x		x
99		x						x
101	x	x	x		x	x		x
102	x	x	x		x	x		x
103	x	x	x		x	x		x
104	x	x	x		x	x		x
105		x	x		x	x		
106	x	x			x	x		x
107	x	x			x	x		x
108	x	x			x	x		
109			x		x			
110	x	x	x		x	x		x
111		x	x					
113		x			x	x		
114		x					x	
115		x	x		x			
116	x	x	x		x	x	x	x
117	x	x	x		x	x		x
118	x	x	x		x	x		x
119		x						
120		x						
121		x				x		
122		x	x			x		
123	x	x	x		x	x		
124		x				x		
125		x						
126		x				x		
127		x	x		x			
128		x						
129		x						
130	x	x	x	x	x	x	x	x
131	x	x	x	x	x	x	x	x
132	x	x	x	x		x	x	x
133	x	x	x	x		x	x	x
134	x	x	x	x		x	x	x
135	x	x	x			x	x	x
136		x	x			x		x
137	x	x	x	x	x	x	x	x
138	x	x	x	x	x	x		x
139	x	x	x		x		x	
140	x	x	x		x			
141		x						
142	x	x	x		x			
143	x	x						

Item	Principal Tasks 1	2	3	4	5	6	7	8
144		x						
145		x						
146		x						
147	x	x						
148		x						
149		x						
150		x						
151	x	x						
152	x	x		x	x	x		x
153	x	x				x		x
155						x		
155a		x				x		x
155b		x				x		x
155c		x				x		x
157						x		
158		x				x		x
159	x	x	x		x		x	
160	x	x	x		x			
161		x	x		x			
162		x	x					
163	x	x	x		x			
164		x	x		x			
165	x	x	x		x			
166	x	x	x			x		
167		x	x					
169		x						
170	x	x	x					
172		x						
173		x						
174		x						
175		x						
176		x						
177		x						
178	x	x						x
179		x			x			
180		x						
181		x			x			
182		x			x			
183		x	x					
184		x	x					
185		x	x					
186		x	x					
187		x	x					
191							x	
197		x	x		x			
198		x	x					

Item	Principal Tasks 1	2	3	4	5	6	7	8
199		x	x					
200		x	x					
201	x	x	x					
202		x	x					
203		x	x					
204		x	x					
208		x	x					
209			x					
211		x			x	x		
212		x						
213		x						
214		x						
215		x						
216		x						
221	x	x	x	x		x		x
222	x	x	x	x	x	x		x
223	x	x		x	x	x		x
224	x	x				x		x
225	x	x				x		x
226	x	x				x		x
227		x						x
228	x	x				x		x
229	x	x						
230		x						
231		x						x
232	x	x		x	x	x		x
233	x	x				x		x
234		x						
235		x				x		
236		x		x		x		x
237	x	x				x		x
238	x	x				x		x
239		x						
243		x						
245	x	x						
246		x						
247		x						
248		x						
249		x						
250		x						
251	x							
257		x	x			x		
258			x					
264	x	x	x	x	x	x	x	x
265	x	x	x		x	x	x	x
266	x	x	x		x	x		x

Item	Principal Tasks 1	2	3	4	5	6	7	8
267	x	x	x		x	x		x
268	x	x	x		x			x
269	x	x	x	x	x	x		x
270	x	x	x	x	x	x		x
271	x	x	x	x	x	x		x
272	x	x	x	x	x	x		x
273	x	x			x	x		x
274	x	x	x			x		x
275	x	x		x	x	x		x
276	x	x	x		x	x		x
277	x	x	x	x	x	x		x
278	x		x		x	x		x
279	x	x	x	x	x	x		x
280	x	x	x	x	x	x		x
281	x	x	x		x	x		x
282		x				x		x
283		x						x
284	x					x		x
287		x						
288	x	x			x	x		
289		x				x		
290		x				x		
291		x						
292		x						
293		x			x	x		
294	x	x	x	x	x	x		x
295	x	x	x	x	x	x		x
296	x	x	x	x	x	x		x
297	x	x	x	x	x	x		x
298	x	x	x	x	x	x		x
299	x	x	x	x	x	x		x
300	x	x	x	x	x	x		x
301	x	x	x	x	x	x		
302	x	x	x	x	x	x		x
303	x	x	x	x	x	x		x
304	x	x	x	x	x	x		x
305	x	x	x	x		x		x
306	x	x	x	x		x		x
307	x	x		x		x		x
308	x	x				x		x
309	x	x		x		x		x
310	x	x		x		x		x
311	x	x	x	x		x		x
312	x	x		x		x		x
313	x	x				x		x
314	x	x				x		x

Item	Principal Tasks 1	2	3	4	5	6	7	8
315	x	x				x		x
316		x				x		x
317		x				x		
318		x						
319		x						
320		x	x		x			
321		x						
322		x						
323		x						
324		x						
325		x				x		x
326		x						
327						x		x
328						x		
329						x		
336	x					x		
339	x	x	x		x	x		x
340	x	x	x		x	x		x
341	x	x	x		x	x		x
342	x	x				x		x
343	x	x	x					
344						x		
359	x	x	x	x	x	x		x
360	x	x	x	x	x	x		
361	x	x	x		x	x		
362		x	x					
363		x	x					
364		x						
365		x						
366		x						
367		x	x					
368		x						
369		x			x			
370	x	x	x	x	x	x		x
371	x	x	x	x	x	x		x
372		x	x			x		x
373						x		
374		x	x	x		x		x
375		x				x		x
376		x				x		
377		x	x			x		x
378		x	x		x	x		
379		x				x		
380	x	x	x		x	x		
381		x	x		x			
382		x						

Item	Principal Tasks 1	2	3	4	5	6	7	8
383		x	x					
384		x	x					
385		x						
386		x	x		x			
387		x						
388		x	x					
389		x						
390		x						
391		x						
392		x						
393		x						
394		x						
395		x						
396		x						
397		x						
398		x						
399	x	x				x		
400		x				x		
401		x						
402	x	x				x		
403	x	x	x					
404		x	x					
405		x			x			
406		x						
407		x						
408		x						
409		x	x					
410		x	x					
411		x						
412		x						
413		x	x					
414		x	x					
415		x						
416		x						
417		x						
418		x						
419		x						
420		x						
421		x						
422		x						
423		x						
424		x						
425		x						
428	x	x	x			x		
429	x	x	x			x		
430		x	x					

Item	Principal Tasks 1	2	3	4	5	6	7	8
431		x						
435	x	x	x					
436		x				x		
437	x	x	x			x		
438	x	x				x		x
439			x			x		
440	x	x				x		
441	x	x						
442	x	x						
443					x			
444	x	x	x	x	x	x		x
445	x	x	x		x	x		x
446	x	x	x		x	x		x
447	x	x	x	x	x	x		x
448	x	x	x					
449		x				x		
450		x						
451		x						
452		x						
453		x						
454		x						
455		x						
456	x	x	x		x	x		x
457	x	x			x	x		
458	x	x	x		x	x		
459	x	x	x		x	x		
460		x	x			x		
461	x	x				x		
462	x	x				x		x
463	x	x				x		x
464		x						x
465		x	x					
466	x	x	x					x
467		x						
468	x	x			x	x		
469	x	x	x		x			x
470	x	x	x		x			
471		x	x					
472	x	x	x					
473		x				x		
474	x	x				x		
475		x						
476		x	x					
477		x						
478		x						
479		x						

Item	Principal Tasks 1	2	3	4	5	6	7	8
480		x						
481		x						
482		x						
484		x						
485		x						
486		x						
488		x						
490		x						
491		x						
494		x	x					
495		x	x					
496		x	x					
497		x	x					
498		x						
500		x						
521		x				x		
522		x						
523		x						
524		x						
525		x						
527		x						
528		x						
529		x			x			
530		x						
531		x			x			
532		x			x			
533		x						
534		x						
535		x						
538		x			x			
539		x						
540		x			x			
541		x						
542		x			x			
544		x						
545		x						
546		x						
547		x						
548		x						
554		x			x			
555		x	x		x			
556		x						
557		x	x		x			
558		x	x		x			
559		x	x		x			
560		x	x		x			
561			x		x			

Item	Principal Tasks 1	2	3	4	5	6	7	8
566		x			x			
567		x						
568		x	x					
569					x			
572		x						
573		x						
577				x		x		
578		x		x		x		
579		x		x		x		x
580		x		x		x		
581		x		x		x		
582		x		x		x		
583		x		x		x		
584				x		x		
586				x		x		
587		x		x		x		
588	x	x		x	x	x		
589	x	x	x	x		x		x
590		x	x	x		x		
591		x	x	x		x		
592		x		x		x		
593			x	x		x		
594		x		x		x		
595		x		x		x		
596				x				
598		x		x				
599		x		x		x		
600						x		
601				x		x		
602				x				
603				x		x		
604		x				x		
605				x		x		
607		x				x		
610		x				x		
611		x		x	x	x		
612		x				x		
615		x						
617		x						
618		x						
619						x		
623						x		
630		x						
631		x						
632		x						
637		x						
639	x							

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Final Report (6/65 - 12/66)

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Purpose: To identify specific knowledges and clusters of knowledges most widely useful in major types of work commonly done by electronic technicians.

Procedure: Principle tasks of technicians were classified as diagnosing trouble in systems; adjusting and/or operating; servicing; assembling; installing; designing and computing; application, distribution, and sales in electronics; and quality control and testing. A questionnaire listing 643 knowledges extracted from textbooks, curriculum guides, and courses of study was administered to a sample of workers in 64 establishments broadly representative of the national pattern of electronic technicians' work.

Results: Technicians deemed 84 of the 643 knowledges essential for performance of six of the eight principle tasks and 154 essential forperformance of three to five principle tasks.

16. RETRIEVAL TERMS (Continue on reverse)

	Knowledge clusters Task clusters Electronic technician Vocational education Curriculum, Vocational Ed. Curriculum, Vocational		Curriculum, community college Technician, electronic

17. IDENTIFIERS

Vo-Tech. R and D Project ERD-257-65	

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16. RETRIEVAL TERMS (Continued)

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73 of 105

VT 001 763

VT 001 763 ED

Effects of Cooperative Overhead Projection Master Development, An Experiment in Use of a Summer Workshop to Stimulate Development and Use of Visual Aids by Vocational Agriculture Teachers. (Project no. ERD-257-65).

Magisos, Joel H. * Sleeth, Stanford

Washington State Univ., Pullman. Dep. of Education

Washington State Board for Vocat. Educ., Olympia

30Nov66

EDRS Price MF-$0.09 HC-$2.24 56p.

*VOCATIONAL AGRICULTURE, OVERHEAD PROJECTORS, *TRANSPARENCIES, INSERVICE TEACHER EDUCATION, *TEACHER PARTICIPATION, INSTRUCTIONAL AIDS, VOCATIONAL AGRICULTURE TEACHERS, *WORKSHOPS,

The effects of involving vocational agriculture teachers in the development and experimental use of visual instructional materials were studied. Sixteen teachers examined preliminary versions of overhead projection transparency masters during a 1-week workshop. They suggested improvements, considered utilization, planned experimental use, suggested additional development, explored means of combining different instructional aids, and planned another workshop. Of the 16 teachers, 14 utilized the masters, 11 suggested further improvements, nine suggested specific transparency development in eight areas, and seven wanted to attend another workshop. The preliminary versions of the transparency masters and instructions for local reproduction and use are included. (JM)

ED015348

FINAL REPORT
Project Number ERD-257-65
Contract Number OE5-85-109

EFFECTS OF COOPERATIVE OVERHEAD PROJECTION MASTER DEVELOPMENT

An Experiment in Use of
a Summer Workshop to
Stimulate Development and
Use of Visual Aids by
Vocational Agriculture
Teachers

November 30, 1966

U.S. DEPARTMENT OF
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EFFECTS OF COOPERATIVE OVERHEAD PROJECTION MASTER DEVELOPMENT

An Experiment in Use of a Summer Workshop to Stimulate Development and Use of Visual Aids by Vocational Agriculture Teachers

Project Number EDR-257-65
Contract Number OE5-85-109

by
Joel H. Magisos and Stanford Sleeth

November 30, 1966

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Department of Education, Washington State University, Pullman, Washington
State Board for Vocational Education, Olympia, Washington

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INTRODUCTION

Purpose

The purpose of this project is to ascertain the effects of involving teachers in development of visual instructional materials.

For decades vocational educators have utilized various devices to actively engage teachers in improvement of curricula and instructional materials.

At present, in circumstances which cause rapid change in requirements for successful work, wide-spread teacher participation is of unprecedented importance.

Related Research

Vocational teacher supervisors seeking to stimulate curriculum development and use of modernized instructional materials have long recognized the values of involvement. Psychologists and sociologists have researched processes by which involvement increases interest and a sense of identification with new developments and a desire to participate in their use. Curriculum supervisors have explored arrangements and processes designed to enlarge dimensions of participation in developmental processes.

The rationale for this experiment was derived from research indicating the influence of group effort and resultant group relationships on (1) participation, (2) the sense of identification derived from participation and (3) the effects of participation and personal identification on use of innovations.

The research and observations of Katz and Lazarsfeld,[1] Cohen,[2] Sherif and Hovland[3] indicate that cognitive and personal involvement in a process (1) enlarges peoples' sense of identity, (2) increases their comprehension, (3) stimulates purposeful personal effort and (4) activates a will to pursue purposes derived from consensus of group thought. Zander and Medow[4] add evidence that improvements of performance impell individuals and groups to continue sustained efforts to make further improvements.

This experiment was designed to test the degrees to which such interpersonal group-oriented relationships could be utilized to stimulate development and utilization of visual aids by vocational agriculture teachers. It was

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[1]Katz, Elihu, and Paul F. Lazarsfeld, Personal Influence, Free Press, 1955.

[2]Cohen, Arthur R., Attitude Change and Social Influence, Basic Books, 1964.

[3]Sherif, Muzafer, and Carl I. Hovland, Social Judgment, Yale University Press, 1961.

[4]Zander, Alvin, and Herman Medow, "Individual and Group Levels of Aspiration," Human Relations, 16:89-104, February 1963.

hypothesized that group work on development of overhead projection masters would activate use of those devices and enlarge interest in development and use of related materials.

METHOD

State supervisors discussed the values and potentials of visual aids with vocational agricultural teachers. On the basis of teachers' suggestions the supervisors prepared preliminary versions of the overhead projection masters reproduced in this report. These items served as a partial basis for a one-week workshop sponsored by the State Board for Vocational Education at Washington State University during the summer of 1966.

At the workshop 16 teachers:

1. Critically examined the substance and design of the graphics.
2. Made suggestions for improvement.
3. Exchanged views about ways modified versions might best be used.
4. Formulated plans for experimental use of modified versions.
5. Suggested other content that should serve as a basis for development of additional materials of similar nature.
6. Were led by supervisors to explore means of combining the use of projection masters, programmed materials and other teaching devices into instructional systems.
7. Formulated preliminary plans for a 1967 summer workshop.

On the basis of agreements reached by workshop members, visuals were revised and provided to each member for experimental use during the 1966-67 school year.

The following information about ways of reproducing projection masters for local use were provided and discussed by workshop members.

Plastic

Any of the following three materials can be used for tracing the masters directly on plastic.

1. China marking pencils, plastic inks or felt pens may be used on clear acetate of .005 or .010" thickness.
2. Treated or coated acetate permits the use of transparent colored drawing inks and lettering aids.
3. A fine tooth frosted (matte) acetate permits the use of inks, felt pens, and transparent colored pencils. A clear plastic spray should be applied carefully and lightly on the frosted side on which the tracing has been placed.

Heat Sensitive Film

The use of heat sensitive film to produce transparencies permits completely dry and immediate results. The film is placed directly on the master and infra-red light is passed through the film to the master. The dark portions on the master absorb the heat and the increased temperature affects the film and produces the images. Actually, the process is as simple as following the manufacturer's directions in placing the film on the master and running the two through a dry copy machine (ie. Thermofax).

Photocopy Film

This procedure, involving a reflex exposure, is a contact photographic process usable in subdued room light. Light is passed through the negative film and is reflected back from the lighter surfaces of the master to expose the negative. Placed in contact with positive film and developed in a chemical solution, a positive transparency is produced. A copy machine, negative and positive films, and a chemical solution are necessary.

Diazo Film

Transparencies may be produced in ten brilliant colors by use of dye coated diazo films. Exposure to ultraviolet light chemically changes the dye coating so that no image will appear on the exposed surfaces when the film is developed in ammonia fumes. Ultraviolet light is passed through a translucent master to the film. Ink images on the translucent master shield the diazo film. When developed the film will reproduce the image in colors corresponding to those on the master. Diazo film is developed in a jar or tank in which ammonia has been allowed to evaporate. By the diazo process overlays may be produced in colors different than those of the basic transparency.

The masters reproduced in this report are suitable for diazo processing. Other techniques are constantly being developed by commercial firms.

EXPERIMENTAL USE OF TRANSPARENCY MASTERS

Transparency masters may be utilized by the teacher in a variety of ways. The flexibility of use of the transparency master is probably as diverse as the talents of the teacher using it. Described herein are several suggestions for use of the overhead projection transparency master.

Presentations

Most teachers will first use transparency as an aid in the presentation of

material to a class. The masters in this initial series are arranged in sets allowing the preparation of a basic transparency to which may be hinged one or more overlays to illustrate special features, teach nomenclature. These sets can also be used for drill, review or testing.

During its use any transparency may be modified with the use of a wax pencil, felt pen, or special overhead pencil. During a presentation the teacher may mark, shade, draw or write on the transparency. This can be done on a cover sheet of clear acetate to avoid leaving permanent scratches on the transparency. The clear acetate cover sheet may be cleaned and reused.

The transparency may be presented in consort with other media. For example, a movie projector or filmstrip projector might be focused on the same screen prior to the presentation and used at an appropriate time in the sequence.

Spirit Duplicated Copies of Masters for Student Use

Spirit duplicated copies of masters may be produced by a thermal transfer process in a dry copier (ie. Thermofax) and multiple copies prepared on a spirit type duplicator. These multiple copies of the overhead projection transparency masters will afford the teacher with the opportunity of providing each student with a copy of the material being presented on the screen. Thus, each student can label, take notes, review and test himself. When overlays are involved, an additional spirit duplicating master might be prepared for each overlay, possibly in different colors, and used to develop a multi-colored multiple copy.

Self-instruction

Students may use the overhead projection transparency on the machine themselves (individually or in groups) for enrichment, remedial or study purposes.

Chalkboard and Display Patterns

An overhead projection transparency may be used to project an enlarged image on a chalkboard so that the teacher might work up a satisfactory sketch or diagram for variety or for referral when using the overhead projector for other purposes in the same presentation.

As a means of preparing displays for fairs, bulletin boards and posters, the transparency is appropriate for the projection of an enlarged image which can be quickly traced with accuracy. The distance of the projector from the paper may be adjusted to enlarge or reduce the size of the image. The opaque projector is also suitable for this purpose, especially in projecting material not prepared as transparencies.

Review and Testing

Some of the items presented here include an overlay which provides a set of numbers. These numbers may be used in reviewing nomenclature without the benefit of the labels (on another overlay). The teacher may wish to use these numbers for testing of the students' knowledge of the nomenclature. If so, he should avoid using the numbers prior to the test as students may have a tendency to memorize numbers rather than parts. Additional sets of numbers may be prepared with pencil or pen on clear acetate.

RECOMMENDATIONS

In view of the above apparent results the author and the Project staff recommend that State and local vocational teacher supervisors:

Consult with researchers and advisory committees to identify areas in which need for development and use of up-dated instructional materials is urgent.

Discuss needs and developmental procedures with teachers.

Organize and conduct workshops at which teachers can participate in development of new materials

Cooperate with State Departments of Vocational Education and Regional Educational Research Laboratories and publishers to arrange wide-spread dissemination of materials so developed.

RESULTS

Fourteen of the 16 teachers who attended the summer workshop have reproduced and utilized the overhead projection masters reproduced in this report.

Eleven of the 14 have already made suggestions for further improvement.

Nine members of the workshop group have suggested development of similar masters in areas of genetics, animal nutrition, plant nutrition, tree pruning, landscape design, forest trees, forest cruising and welding symbols.

Seven members have signified a desire to participate in a 1967 summer workshop organized to develop comprehensive instructional systems. That workshop is scheduled to be held at Washington State University. Some members will continue work on development of additional overhead projection masters.

Some will participate in development of programmed materials. Others indicate tentative desires to work on objectives and materials for comprehensive instructional systems.

Apparently, workshops providing opportunity to work on instructional materials related to expressed interests of teachers evoke substantial amounts of effort and broaden concepts of instruction.

DISCUSSION

Preliminary results indicate that vocational agriculture teacher participation in development of visual aids increases use of such aids and activates wide-spread effort to develop additional aids. The effects hypothesized on the basis of the research and concepts of Katz, Lazarsfeld, Cohen, Sherif, Hovland and Zander appear to materialize from workshop activities. To the degree that such is the case instructional materials workshops offer promise as means of engaging large numbers of vocational teachers in the analytical thought processes necessary to keep instruction congruent with swiftly changing needs. Such efforts can also contribute to substantial and wide-spread enlargement of vocational teachers' capabilities to meet modern needs.

SUMMARY

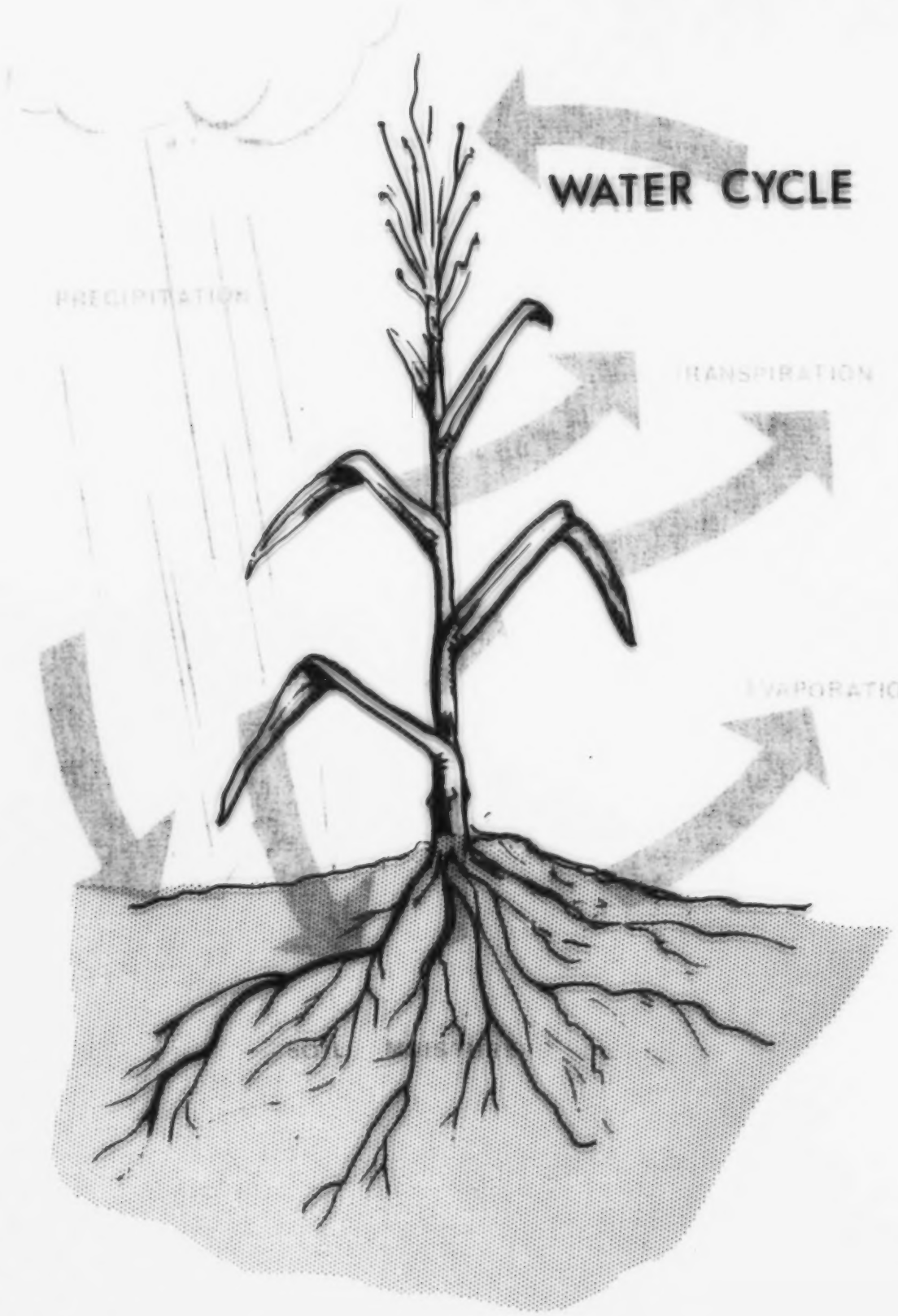
The purpose of this project was to test effects of involving Vocational Agricultural Teachers in development and experimental use of instructional materials.

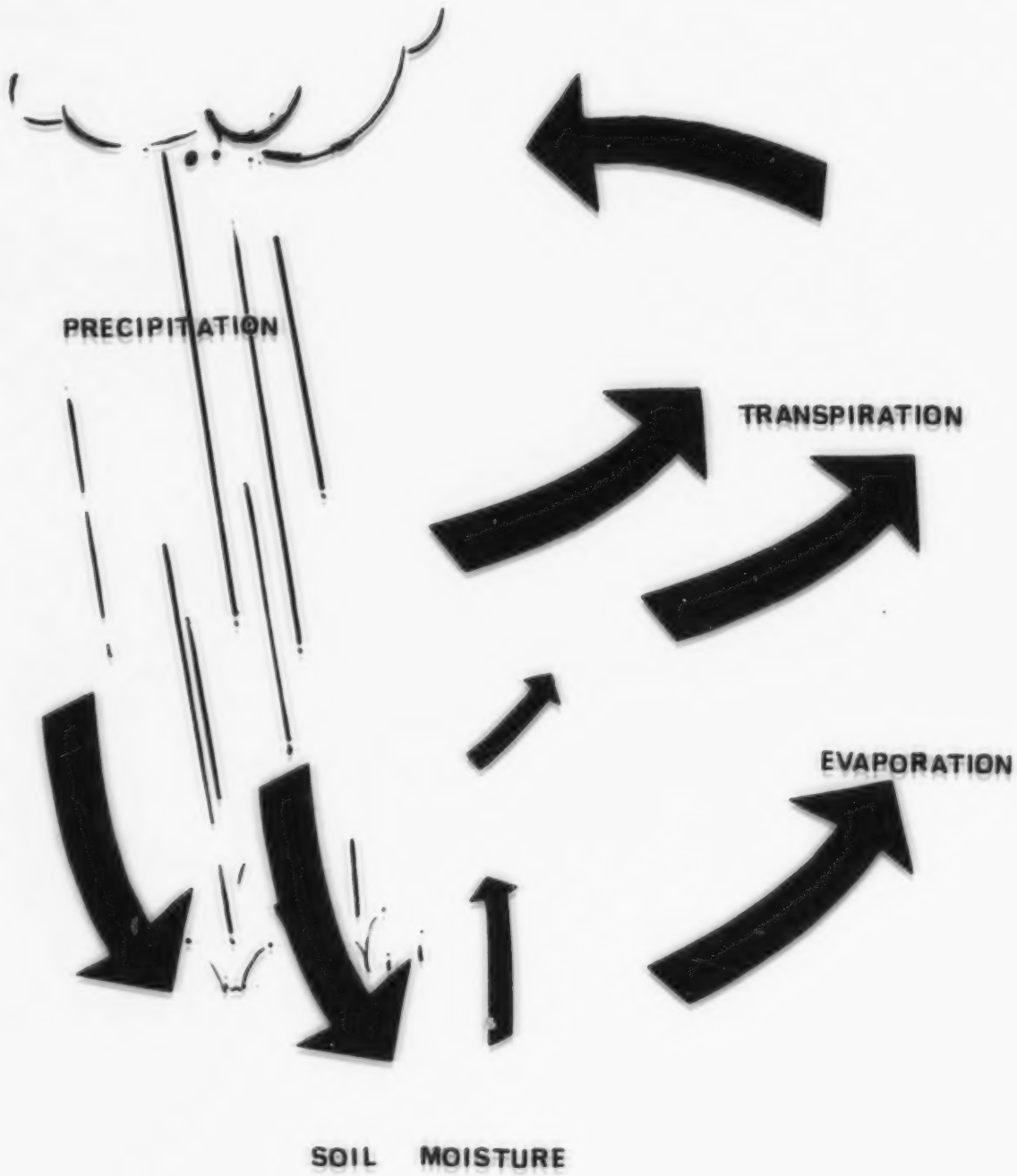
A group of 16 teachers at a summer workshop, participated in planning content and design for 13 overhead projection masters and made plans for using them experimentally. They also agreed to examine their instruction programs and to send the project director suggestions for content for other useful projection masters.

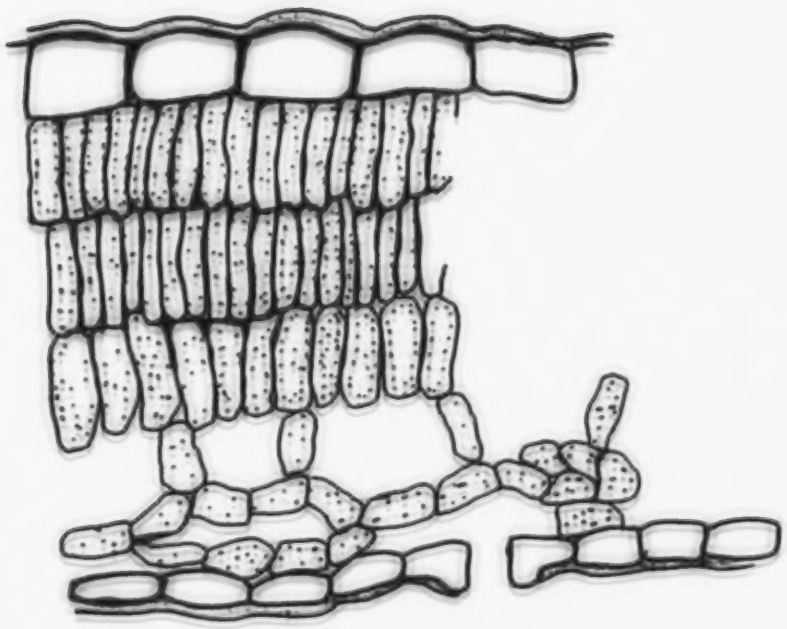
Fourteen of the 16 teachers are presently using the materials in experimental fashion. None have provided suggestions for development of other projection masters. Seven have signified a desire to attend another instructional materials development workshop.

THE PROJECTION MASTERS

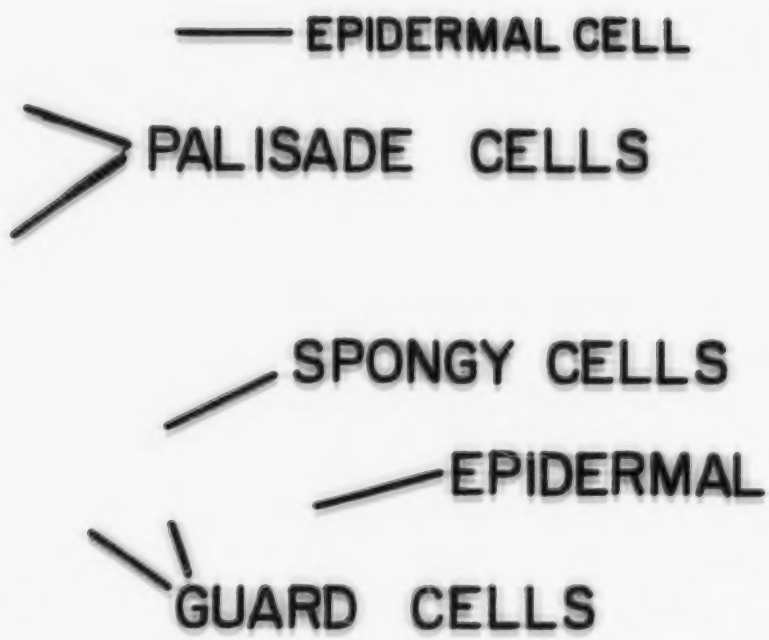
Reproductions of the projection masters follow.

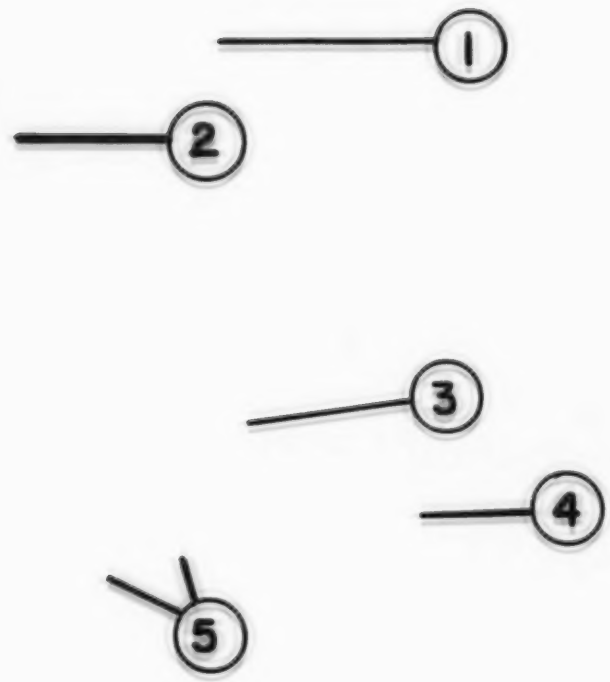

WATER CYCLE
PRECIPITATION
TRANSPIRATION
EVAPORATION


PRECIPITATION
TRANSPIRATION
EVAPORATION
SOIL MOISTURE

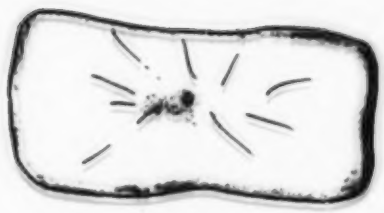


CROSS SECTION OF APPLE LEAF

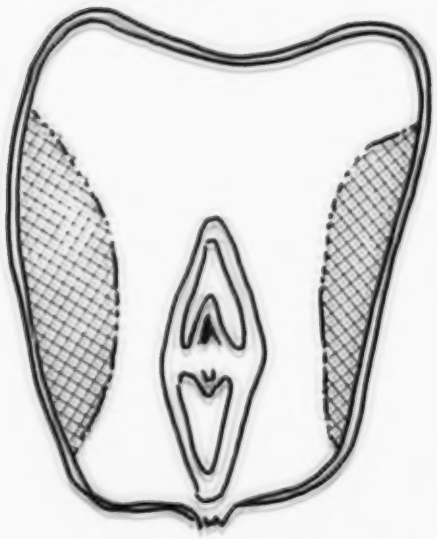

EPIDERMAL CELL
PALISADE CELLS
SPONGY CELLS
EPIDERMAL
GUARD CELLS



NAME THE PARTS

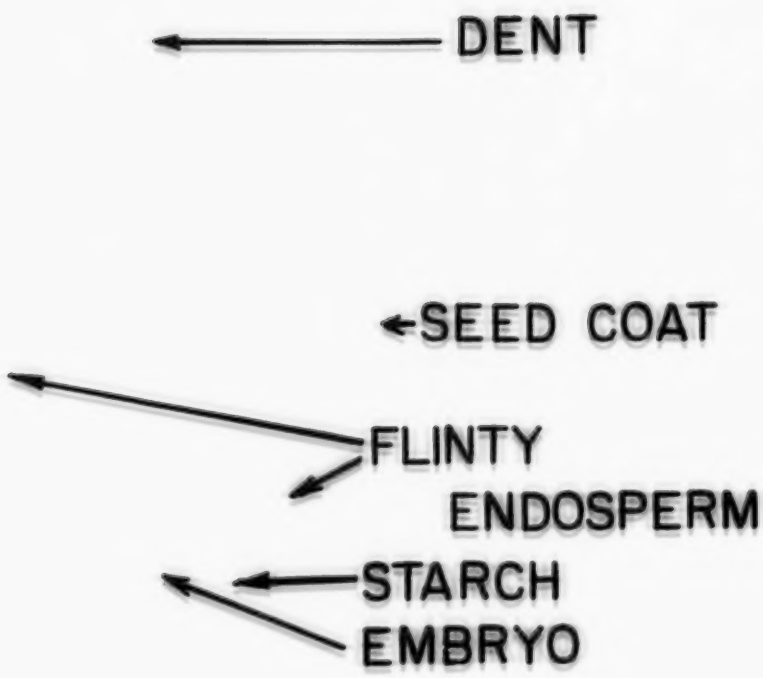


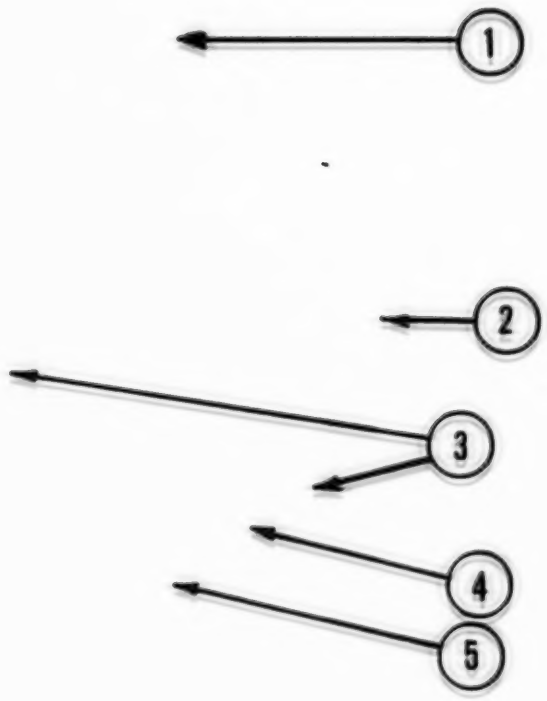
TOP



CROSS SECTIONAL VIEW

CORN


DENT
SEED COAT
FLINTY
ENDOSPERM
STARCH
EMBRYO



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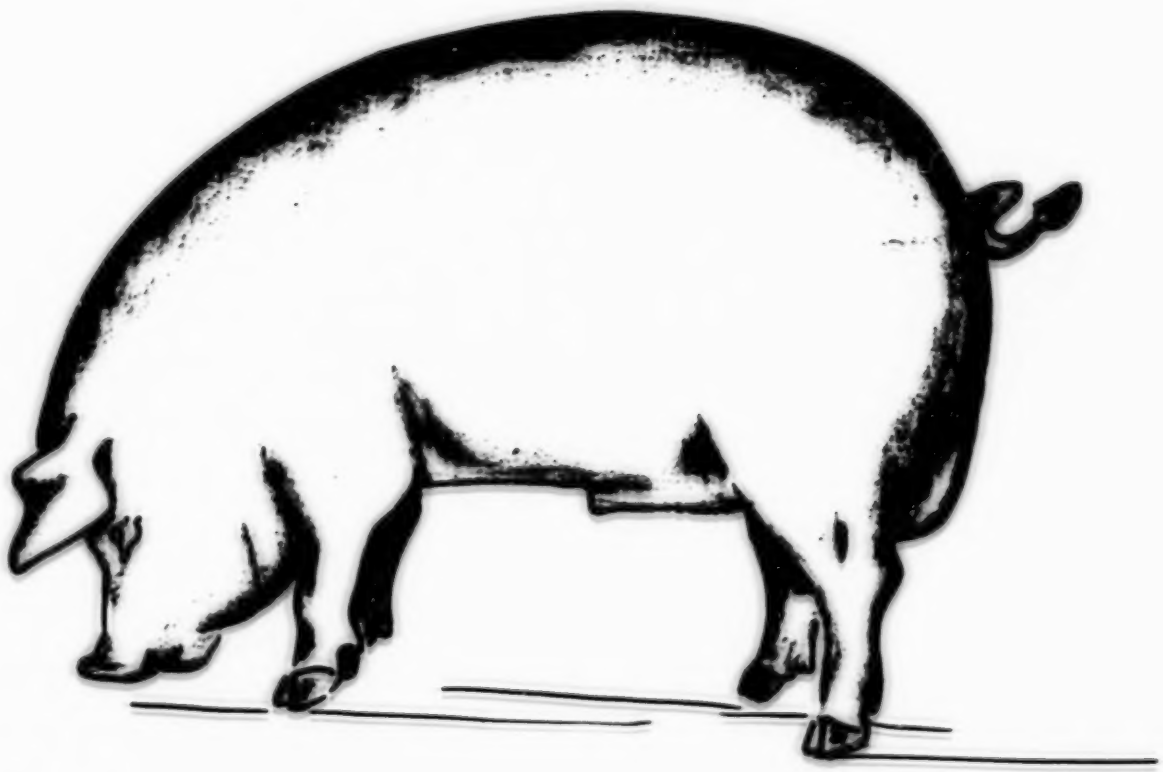


PARTS OF BOAR

BACK LOIN

RUMP

TAIL

SHOULDER

HAM

NECK

POLL

SCROTUM

BELLY

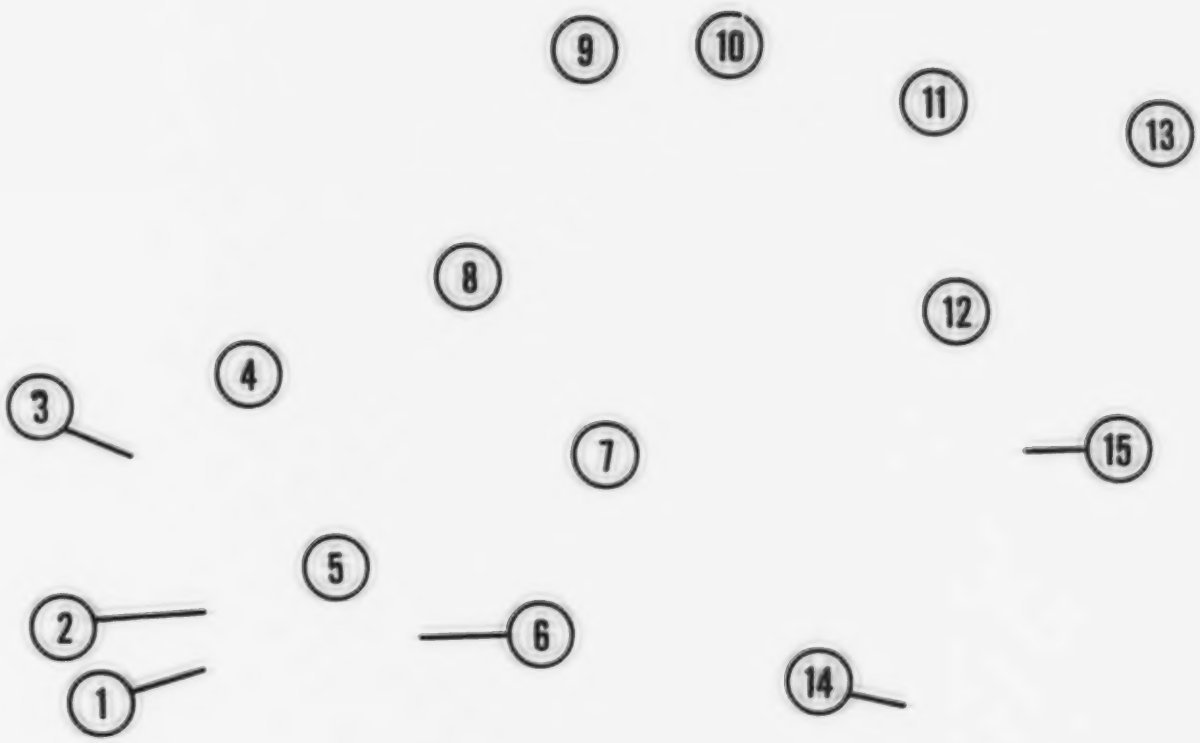
JOWL

FACE

PASTERN

SNOUT

TOES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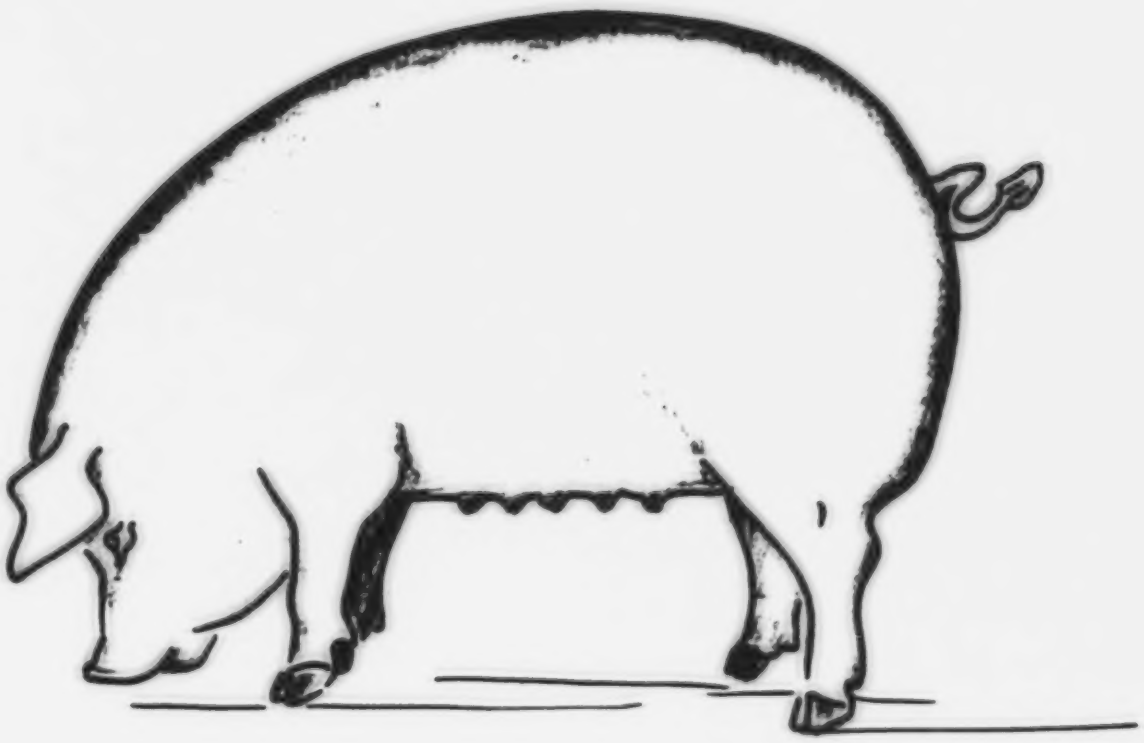
6
1
14



PARTS OF A SOW

BACK LOIN

RUMP

TAIL

SHOULDER

HAM

NECK

POLL

BELLY

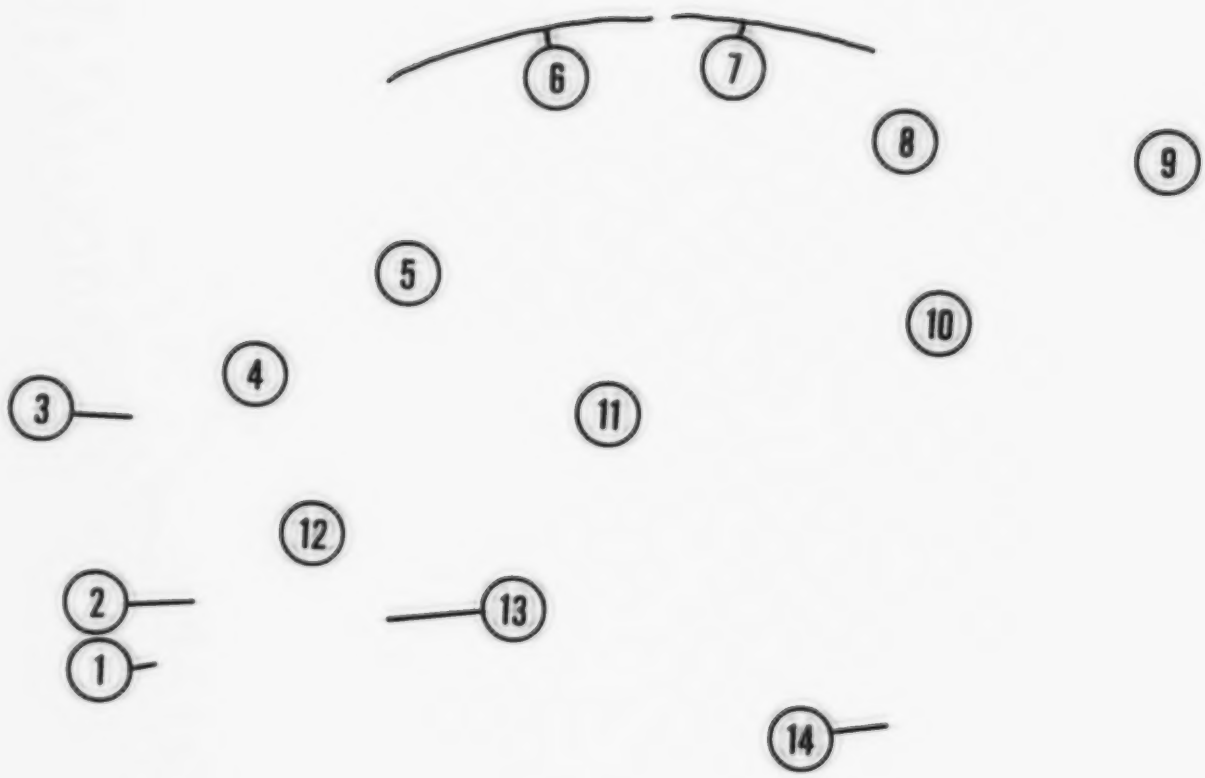
JOWL

FACE

PASTERN

SNOUT

TOES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1
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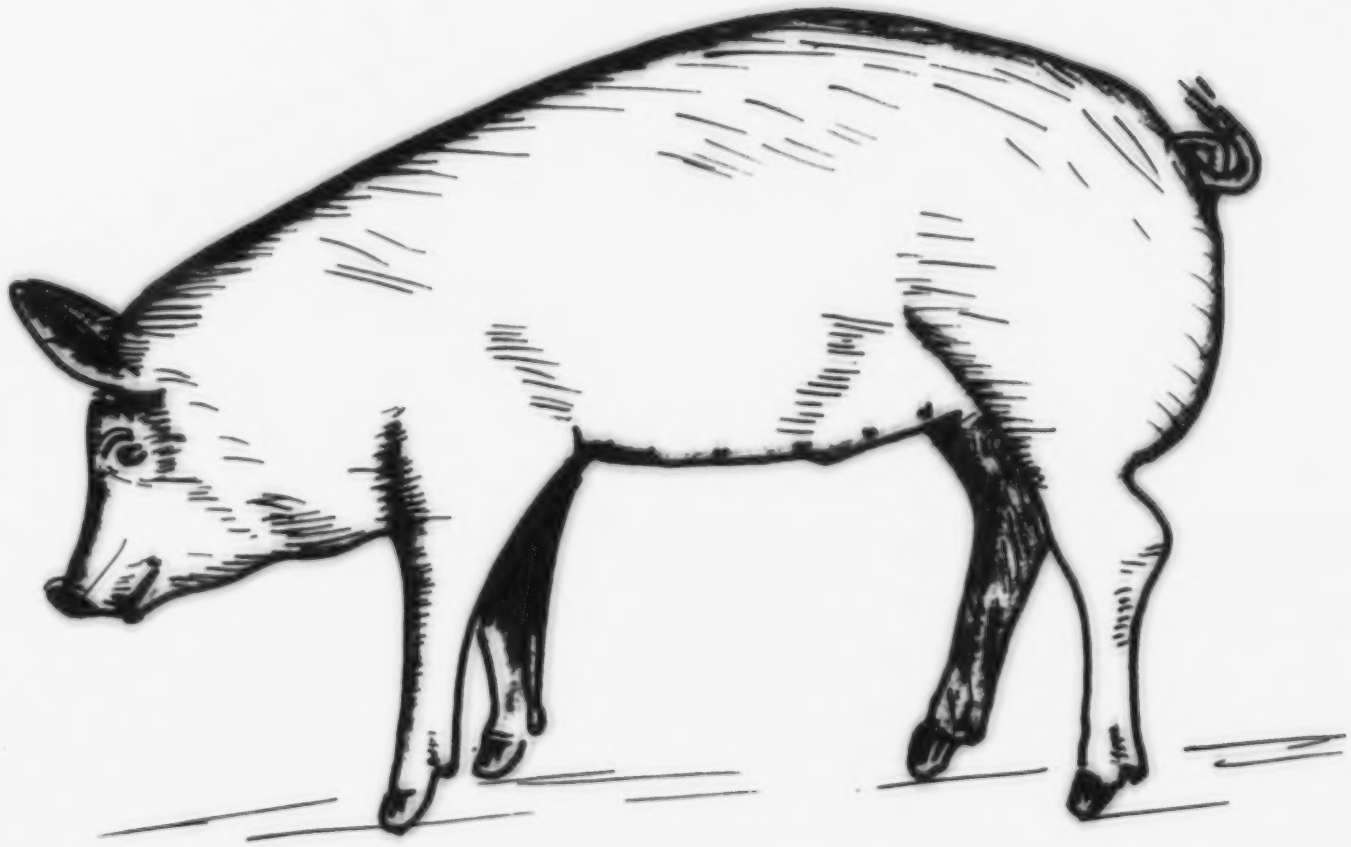
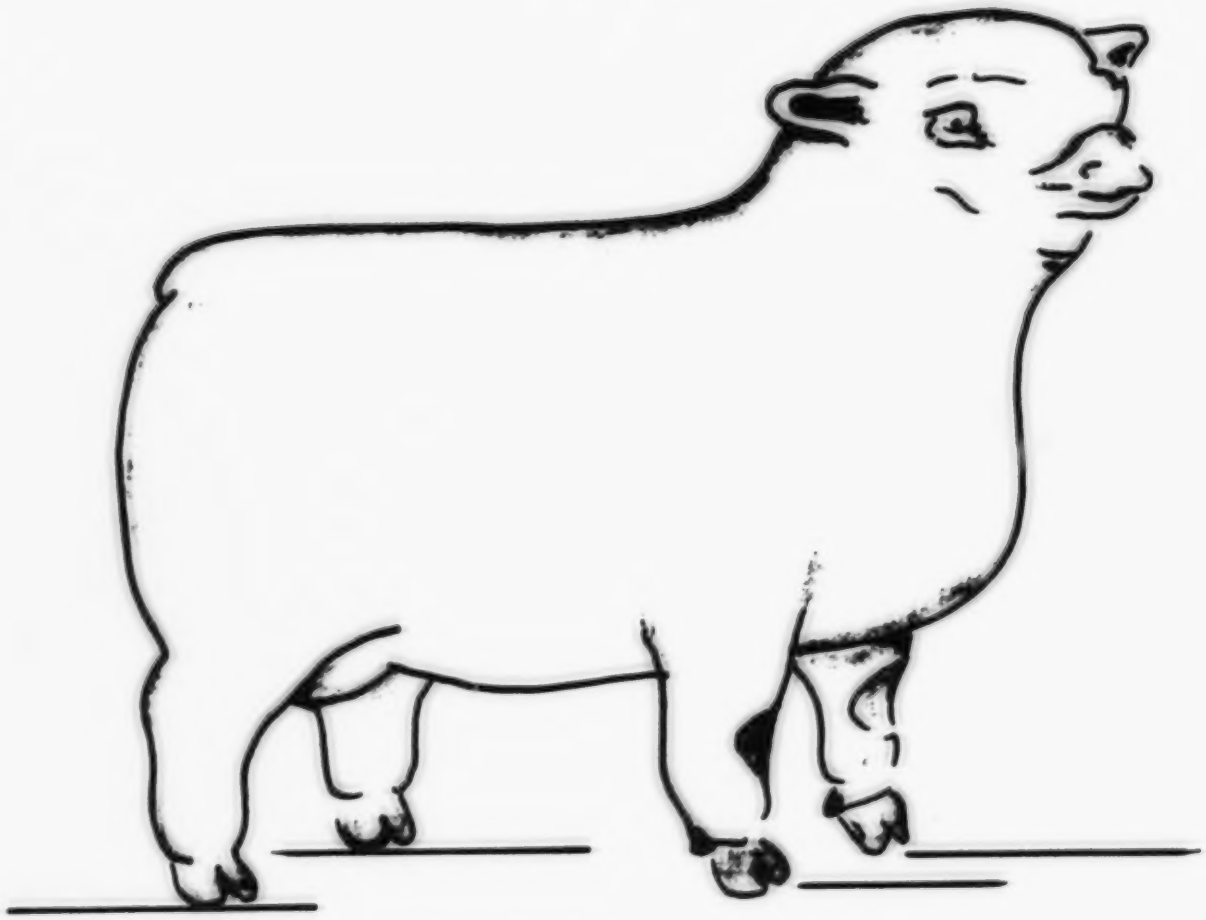


SELECTING PIGS



SHEEP

FOREHEAD

DOCK — RUMP LOIN BACK NECK
HIP

RIBS

THIGH

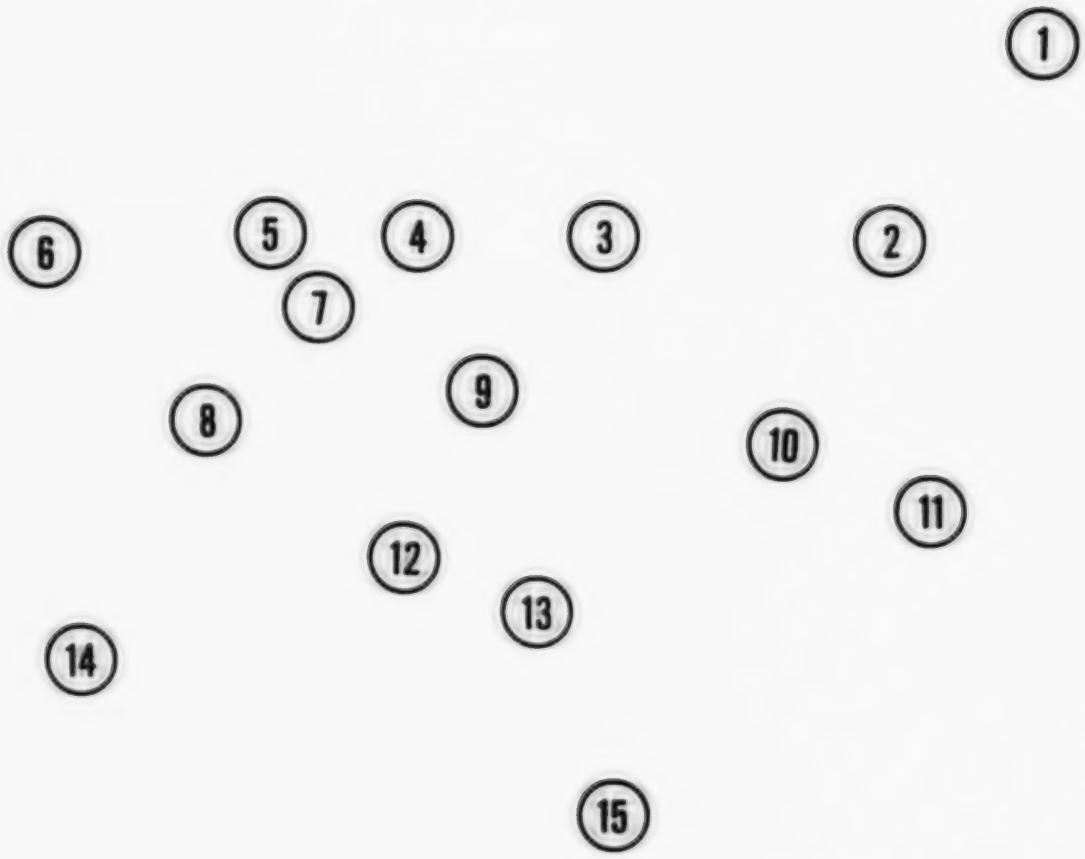
SHOULDER

BREAST

FLANK
BELLY

HOCK —

DEW CLAW —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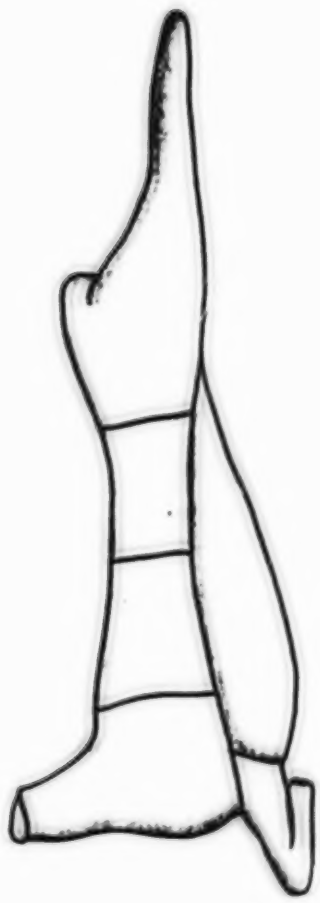


LAMB CARCASS

WHOLESALE
CUTS

LEG →

LOIN →

BREAST →

RACK →

SHOULDER →

SHANK →

1 →

2 →

3 →

4 →

5 →

6 →

NAME THE WHOLESALE CUTS

RETAIL CUTS

← LEG OF LAMB

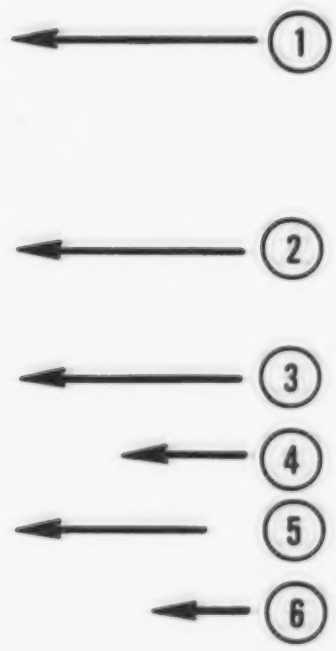
← LOIN CHOPS

← RIB CHOPS

← STEW MEAT

← ROLLED SHOULDER

← LAMB SHANKS



NAME THE RETAIL CUTS

BEEF CARCASS

WHOLESALE
CUTS

ROUND →

RUMP →

LOIN →

FLANK →

SHORT LOIN →

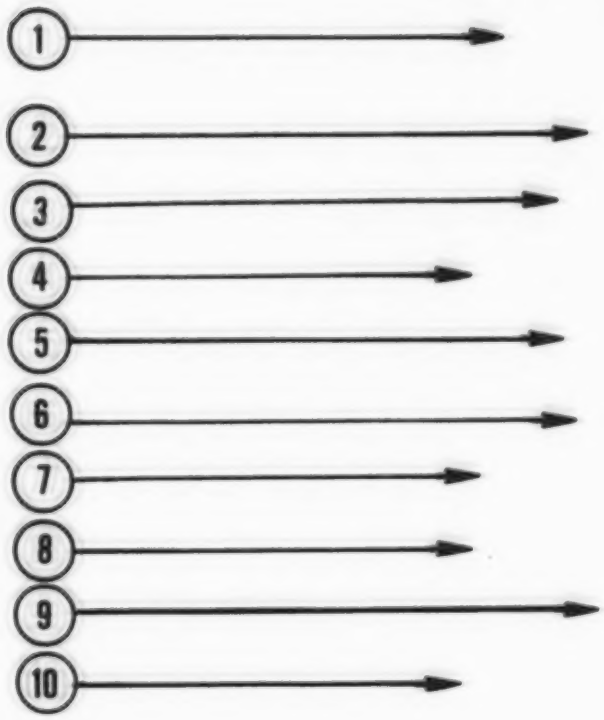
RIB →

PLATE →

BRISKET →

CHUCK →

SHANK →



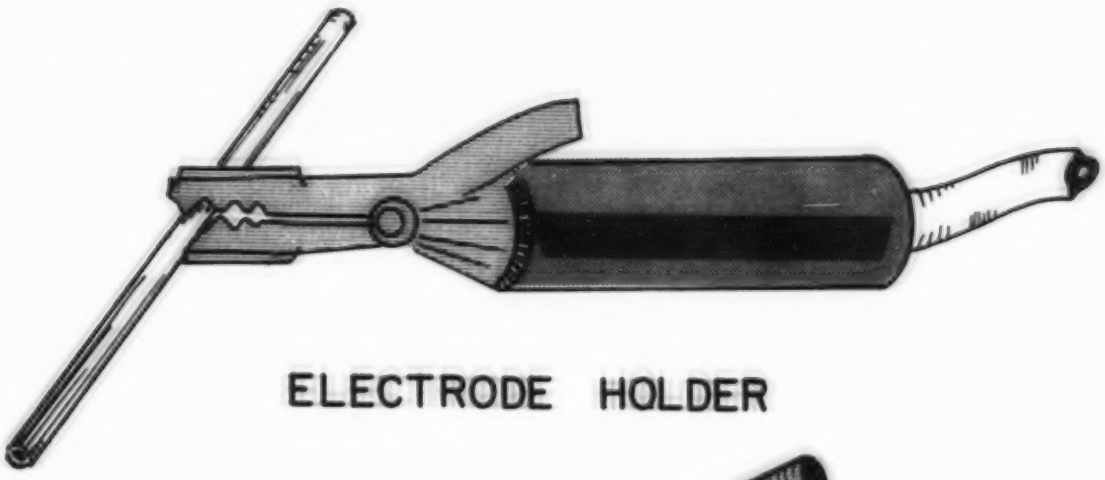
NAME THE WHOLESALE CUTS

RETAIL
CUTS

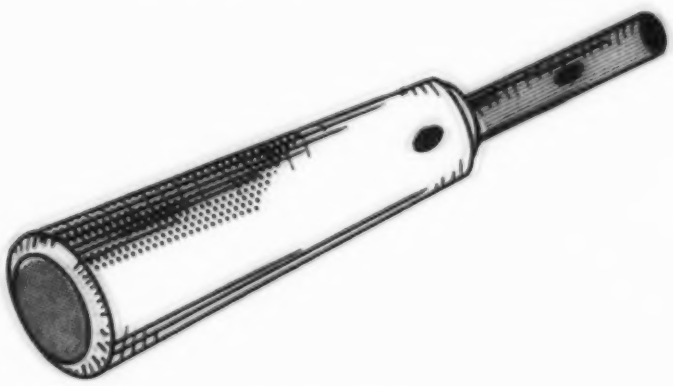
ROUND STEAK
RUMP
SIRLOIN STEAK
FLANK
"T" BONE
ROLLED PLATE
SHORT RIBS
RIB STEAK
CORNED BEEF
POT ROAST
STEW

NAME THE RETAIL CUTS

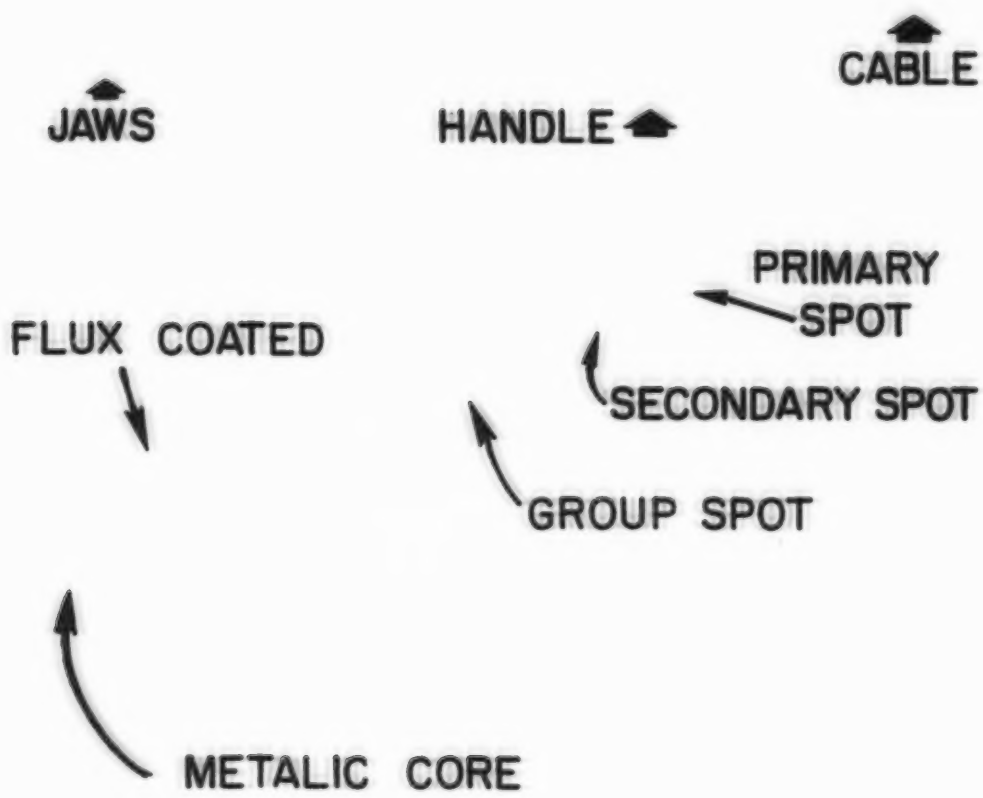
ARC WELDING (3)

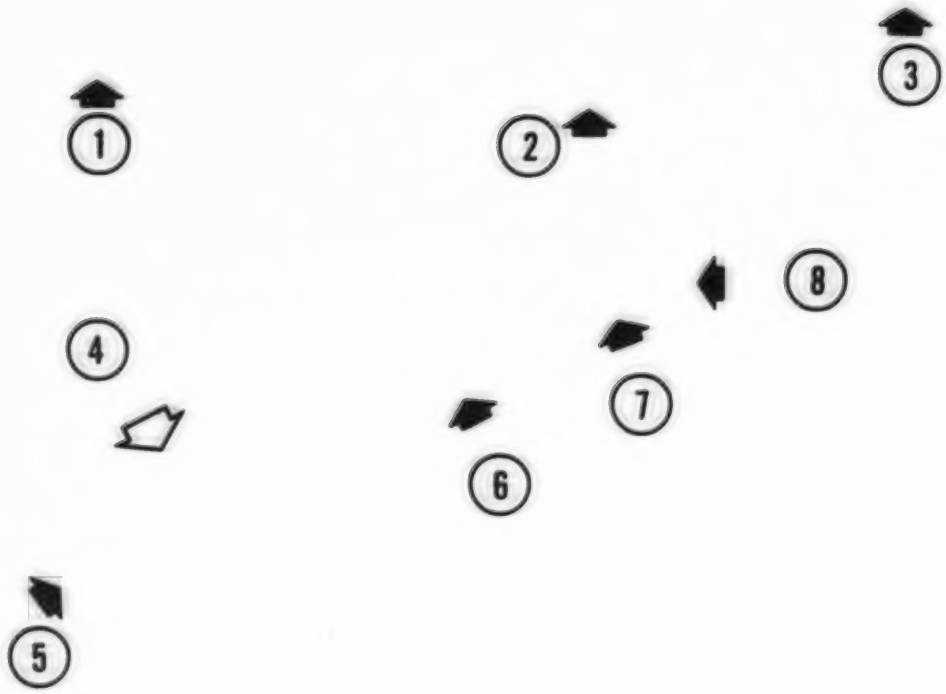


ELECTRODE HOLDER



ELECTRODE

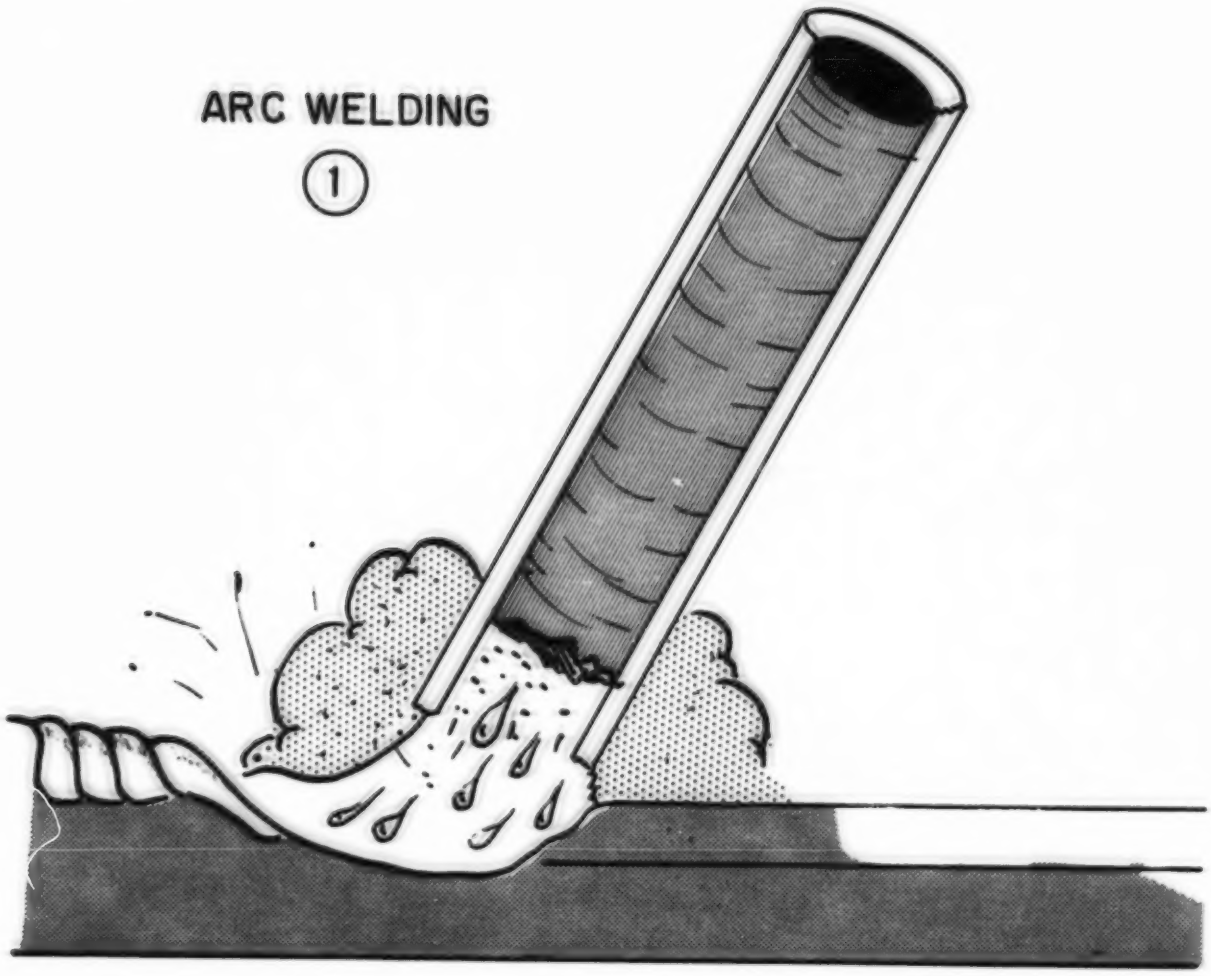

CABLE
JAWS
HANDLE
PRIMARY SPOT
FLUX COATED
SECONDARY SPOT
GROUP SPOT
METALIC CORE

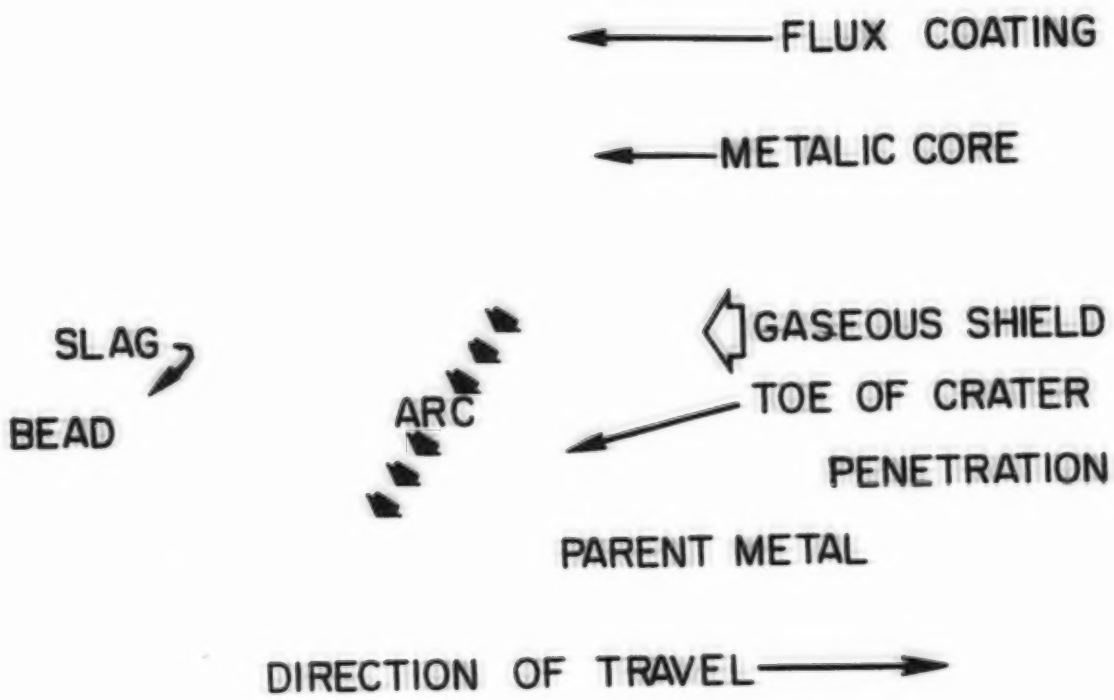


NAME THE PARTS

ARC WELDING

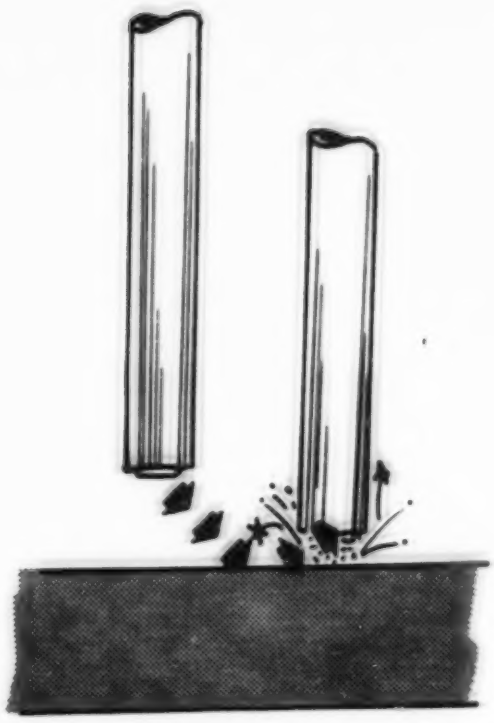
1



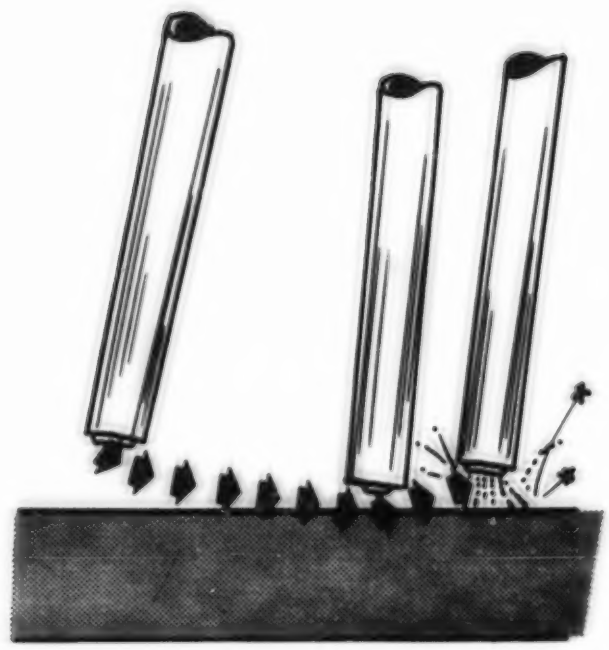

FLUX COATING
METALIC CORE
SLAG
BEAD
ARC
GASEOUS SHIELD
TOE OF CRATER
PENETRATION
PARENT METAL
DIRECTION OF TRAVEL

ARC WELDING

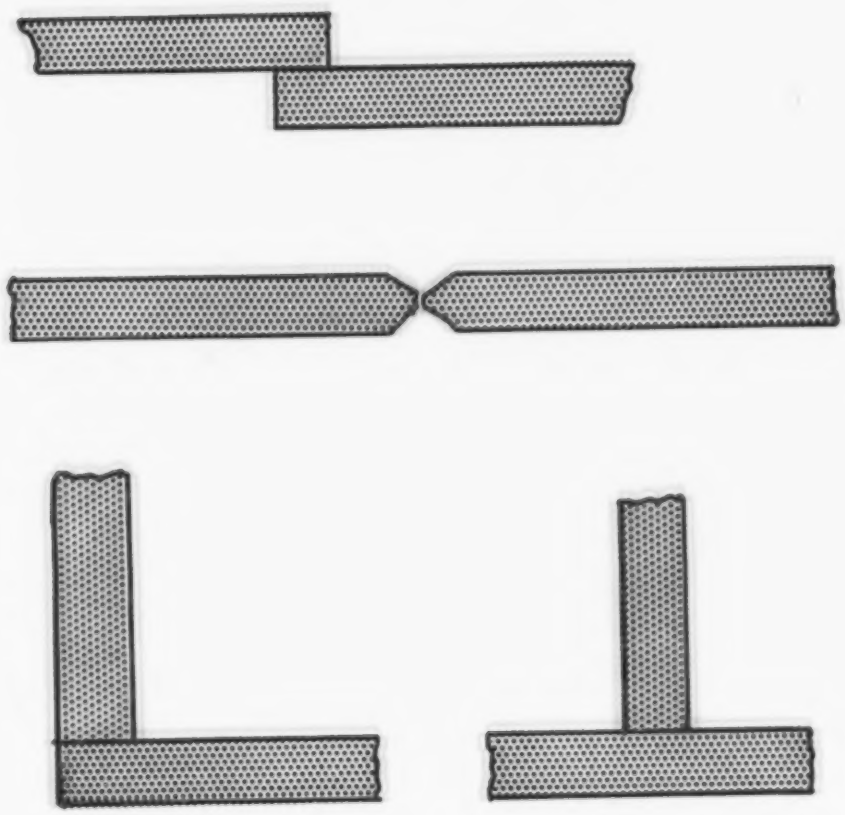
(2)



TAP START



SCRATCH START



WELDING JOINTS

LAP JOINT

BUTT JOINT

FILLET JOINT "T" JOINT

1

2

3

4

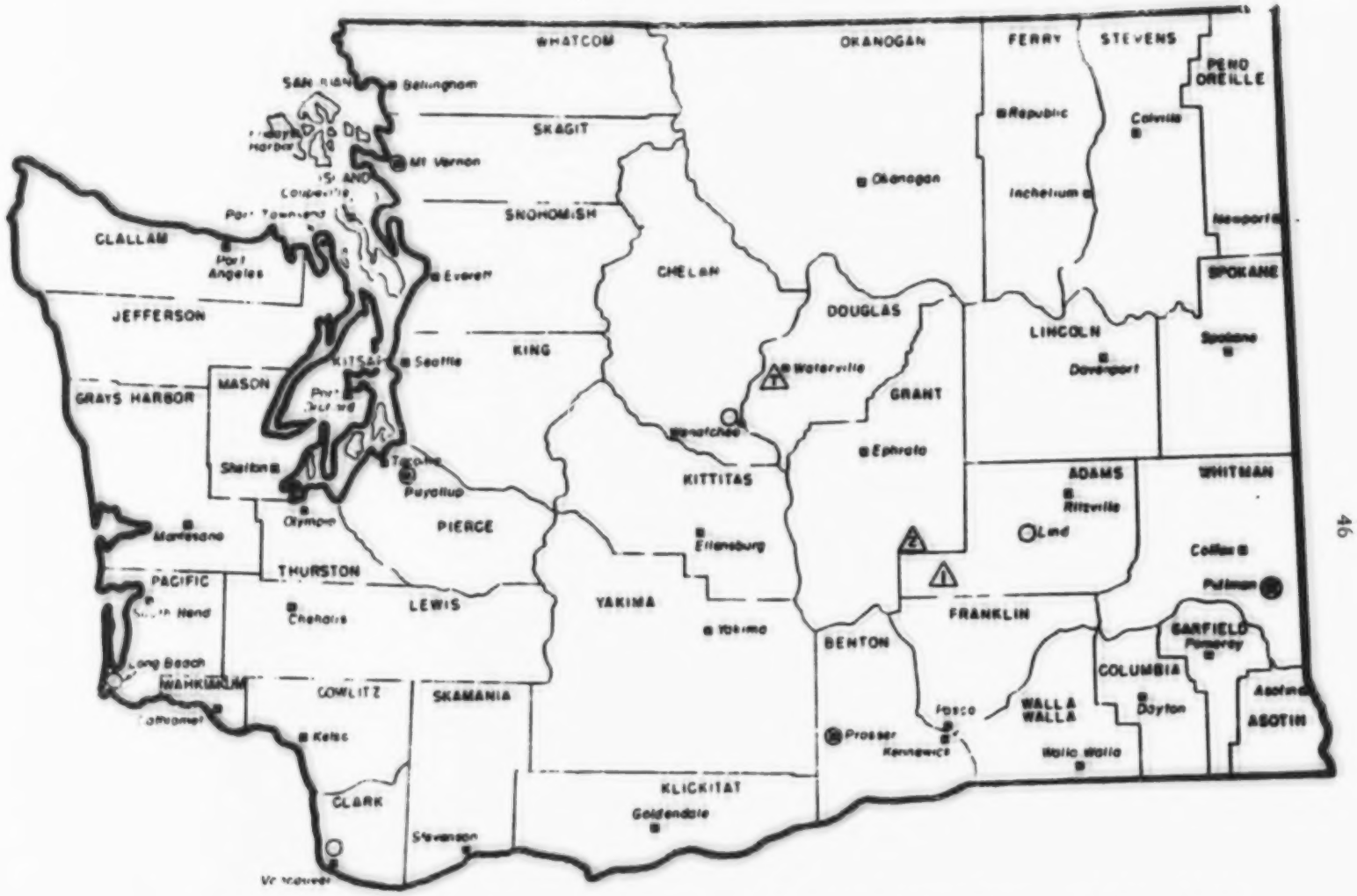
NAME THE JOINTS

WORK

GOOD or BAD

TRAITS DESIRED

ATTITUDES
INITIATIVE
WORK WITH OTHERS
TAKE CRITICISM
LOYALTY
SERVICE
ALL ATTRIBUTES OF GOOD CITIZENSHIP.....



LEGEND

- WASHINGTON STATE UNIVERSITY
  Headquarters: Institute of Agricultural Sciences
  Agricultural Experiment Stations
  Agricultural Extension Service
  College of Agriculture
- Outlying Agricultural Experiment Stations
- Agricultural Extension Service County Offices
- Outlying Experiment Stations and Extension Service Units Combined
- Columbia Basin Research Units of Irrigation Experiment Station (Nos 1 and 2)
- Columbia View Plots of Tree Fruit Experiment Station

REFERENCES

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Katz, Elihu and Paul F. Lazarsfeld, Personal Influence. Free Press, 1955.

Sherif, Muzafer and Carl I. Hovland, Social Judgment. Yale University Press, 1961.

Zander, Alvin and Herman Medow, "Individual and Group Levels of Aspiration," Human Relations, 16:89-104, February 1963.

OE 6000 (9-65)

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
OFFICE OF EDUCATION
WASHINGTON 25, D.C.

ERIC DOCUMENT RESUME

DATE OF RESUME: December, 1966

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12. PUBLICATION TITLE Effects of Cooperative Overhead Projection Master Development
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14. PUBLISHER Dept. of Education, Wash. State U. Pullman, Wash.

15. ABSTRACT (250 words max.)

The purpose of this project was to test effects of involving Vocational Agriculture Teachers in development and experimental use of instructional materials.

A group of 16 teachers at a summer workshop, participated in planning content and design for 13 overhead projection masters and made plans for using them experimentally. They also agreed to examine their instruction programs and to send the project director suggestions for content for other useful projection masters.

Fourteen of the 16 teachers are presently using the materials in experimental fashion. None have provided suggestions for development of other projection masters. Seven have signified a desire to attend another instructional materials development workshop.

16. RETRIEVAL TERMS (Continue on reverse)

Teacher involvement
Overhead projection techniques
Agricultural curriculum planning
Visual aids, agriculture
Teacher education, agriculture

17. IDENTIFIERS

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16. RETRIEVAL TERMS *(Continued)*

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VT 001 765

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Mathematics Clusters in Selected Areas of Vocational Education. (Project no. ERD-257-65, Report no. 8).

Rahmlow, Harold F. * Winchell, Leonard

Washington State Univ., Pullman. Dep. of Education

Washington State Board for Vocat Educ., Olympia

30Nov66

EDRS Price MF-$0.09 HC-$0.60 15p.

*MATHEMATICS, *JOB SKILLS, OFFICE OCCUPATIONS, SALES OCCUPATIONS, AGRICULTURAL OCCUPATIONS, CONSTRUCTION OCCUPATIONS, CHILD CARE OCCUPATIONS, *TASK PERFORMANCE,

The objective was to identify clusters of mathematical knowledges which were useful in occupations likely to employ substantial numbers of noncollege bound youth. Occupational areas selected for study were office, general merchandise retailing, building trades, electronics, food service, and child care. Employers, employees, and vocational teachers were consulted and checklists were prepared to identify specific major tasks actually performed by the workers. Questionnaires were administered to representative samples of workers in each occupational area. Each test item was analyzed by a mathematics expert and practitioners who worked in each occupation. Five clusters of mathematics knowledges were found to be useful in all the areas -- (1) operations with fractions, (2) operations with decimals, (3) conversion of fractions to decimals, (4) concept of percentage, and (5) ratio and proportion. Future study was planned. (PS)

ED015348

FINAL REPORT
Project No. ERD-~~257-85~~ 5-0096
Contract No. OE-5-85-109
Report No. 8

MATHEMATICS CLUSTERS IN SELECTED AREAS OF VOCATIONAL EDUCATION

November 30, 1966

U.S. DEPARTMENT OF
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MATHEMATICS CLUSTERS IN SELECTED AREAS OF VOCATIONAL EDUCATION

Project No. ERD-257-65
Contract No. OE-5-85-109
Report No. 8

by
Harold F. Rahmlow and Leonard Winchell

November 30, 1966

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Department of Education, Washington State University, Pullman, Washington
State Board for Vocational Education, Olympia, Washington

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ACKNOWLEDGEMENTS

We appreciate the valuable assistance given us throughout the project by Ranae Rantanen and Marilyn May.

INTRODUCTION

Background and Rationale

One major purpose of our research is to identify clusters of knowledge and competencies most likely to maximize the career-long occupational opportunity, competence, and choice on non-college bound youth in an evolving technological society.

Our research is rooted in the philosophic premise that occupational freedom involves both informed choice of alternatives and competence to work effectively. The economy needs constantly larger numbers of workers possessing new capabilities. But youth are free to ponder only the occupational choices they perceive. They are free to perform only the kinds of work for which they acquire competence.

Choice and acquisition of competence may be needlessly impaired by limited outlooks and motivations. For those reasons, studies of occupational perceptions, aspirations constitute interrelated dimensions of our research.

The objective of our clusters research is to obtain facts about what major types of tasks are actually performed in occupations most likely to provide employment opportunity for substantial percentages of non-college bound youth and to identify major types of knowledge most likely to prepare them for such work. On the basis of Bureau of Labor Statistics projections, the following occupational areas were selected for study: office, general merchandise retailing, building trades, electronics, food service, and child care.

To obtain task and knowledge data for clustering, the staff, in consultation with employers, employees, and vocational teachers, prepared questionnaire check lists designed to identify specific major tasks actually performed by workers in each of the occupational areas listed above.

Questionnaires were designed to obtain from employees data on age, sex, major types of tasks presently performed, length of time on present job, and other types of work done in the past five years.

Those questionnaires have been administered to representative samples of workers in each occupational area. To maximize the predictive value of data, questionnaires were administered to employees in modern firms in which the tasks performed are most likely to represent those prevailing in the foreseeable future.

Results provide data on (1) combinations of major tasks groups of workers on a construction job or in a firm or agency presently perform, (2) combinations of major tasks performed on entry jobs, and (3) combinations of tasks generally performed by workers with various degrees of experience, and (4) some data on 5-year combinations of worker experience.

From analysis of the above data, we have obtained up-to-date facts about combinations of major tasks performed by major categories of workers.

Knowledges associated with performance of each task are being identified by juries of employees, supervisors, and vocational teachers.

Both task and knowledge items are being coded so various patterns of relationships can be identified rapidly by computer.

From analysis of the above data, we are obtaining definitions of both tasks and knowledges involved in entry jobs and in positions into which workers can move as they get experience. We are identifying (1) some clusters of knowledge useful within each occupational area and (2) some clusters that are commonly useful in two or more areas.

Facts about currently useful tasks and knowledge are being supplemented by studies of ways they will be affected by equipment, processes, and materials now being developed by leading-edge industries.

Objective and Hypothesis

The objective of this phase of the project is to conceptualize and identify mathematical knowledges commonly useful for work in occupations most likely to provide employment for substantial numbers of non-college bound youth. On the basis of U. S. Bureau of Labor Statistics projections, occupations selected for study include office, retail sales, building trades, electronics, food service, and child care.

It is hypothesized that some clusters of mathematical knowledge can be identified as essential for entry and later-career work within and among those occupations. It is assumed that if such is the case, instruction that helps youth acquire such knowledge will increase their capabilities to begin work and to pursue further training essential for adaptability and upward mobility.

Related Research

A survey conducted by the President's Committee on Scientists and Engineers (4) revealed that the scope of mathematics was the most critical determinant for both level and quality of technological curriculum. Observations by mathematics teachers (5) who have worked in industry reveal a significant need for employees who have knowledge of basic mathematics and skill to apply concepts to problems in a variety of situations. The introduction of a report of mathematics authorities working in schools and industry provides evidence regarding the vocational importance of mathematics today (6):

> There is no disagreement today--nor will there be in the foreseeable future--on the vital importance of mathematics, both to the scientist, engineer, or other specialist called upon

to use mathematics in his work, and to the intelligent layman in his everyday life. Mathematical education, to fulfill the needs of an advanced and advancing community, must be under continual scrutiny and undergo constant change, and it is the responsibility of all mathematicians, working in university, school or industry, to concern themselves with the problem of keeping mathematical education vital and up-to-date.

Other studies have identified some commonalities of occupationally useful mathematics knowledge. Maley (3) discovered that the routine arithmetic operations of addition, subtraction, multiplication, and division were common to many areas in the construction industry. Laws and Silvius (2) found in a study of technicians that arithmetic skills predominated the mathematics knowledges required. They also found a need for some knowledges in algebra, geometry, trigonometry, and calculus to a minor degree. However, it must be recognized that this study concerned itself with technicians whose qualifications would normally be beyond the high school level. A study by Barlow and Schill (1) in California considered clusters of mathematics knowledges. Their study analyzed the work of electronic technicians who utilized relatively high levels of mathematics.

METHOD

Each task item in the questionnaires was carefully analyzed by a mathematics expert and practitioners who work in each occupation under study. For example, if the task pertained to bricklaying, mathematicians and building trades workers jointly identified items of mathematical knowledge essential for that task. By similar processes, mathematical knowledges related to all tasks on other questionnaires were identified. The data presented on Table I was derived from a frequency count of the task items with which each mathematical knowledge is associated.

By analyzing the items on the data-gathering instruments, the following preliminary clusters of mathematics knowledges were identified. Table I shows the frequency with which mathematics knowledges occurred on the questionnaires and the percentages of tasks requiring each knowledge.

If both fractions and decimals are required for a particular task, it was assumed that a knowledge of conversion was also necessary.

It is educationally significant that these six clusters of mathematics knowledge overlap. Numerous items are included in more than one cluster.

There are isolated instances where other mathematics knowledges such as graphing or basic statistics are useful, but these do not cluster to the degrees indicated on Table I.

RESULTS

Table I

NUMBERS AND PER CENTS OF TASKS IN SIX OCCUPATIONAL AREAS REQUIRING KNOWLEDGES OF FRACTIONS, DECIMALS, PERCENTAGE AND PROPORTION FOR PERFORMANCE *

	Office		Child Care		Building Trade		Agriculture		Retail Sales		Food Service	
	No	%	No	%	No	%	No	%	No	%	No	%
Operations with fractions	66	11.4	2	1.4	39	26	24	18.2	41	14.1	3	4.4
Operations with decimals	155	26.8	3	2.1	38	25.3	30	22.7	69	23.8	8	11.8
Conversion: fraction decimal	57	9.9	2	1.4	38	25.3	24	18.2	41	14.1	3	4.4
Concept of Percent	103	17.8	2	1.4	5	3.2	23	17.4	40	13.8	2	2.9
Ratio and Proportion	49	8.5	1	0.7	3	2.0	19	14.4	23	7.9	1	1.5

*It is assumed that ability to add, subtract, multiply and divide integers are necessary for utilization of fraction, decimal and proportion knowledges.

DISCUSSION

The preceeding results are preliminary. The clusters are based on frequency counts of task items on the data-gathering instruments and not upon actual data. Since a frequency count method was used, the preliminary clusters are maximal in nature. When actual data is collected, clusters obtained by frequency counts can be no more inclusive than those presented here. Eventually, more inclusive clusters can be identified by techniques such as factor analysis.

The relatively low percentages of child care and food service tasks requiring knowledge of fractions, decimals, percentages and proportions should not be interpreted as indications that those knowledges are unimportant. The tasks that do require such knowledge represent major portions of work performed by employees.

The data presented in this report are in agreement with the findings of Maley (3). He found that workers in the building trades were required to possess only minimal knowledges in mathematics. Because the present study considers other areas in addition to construction, it can be considered to be more general than the Maley study.

Even though this preliminary analysis does not reveal a requirement for

extensive mathematics knowledges on the part of many workers, it should not be assumed that somewhat higher levels of mathematics are not occupationally useful. The clusters noted above denote only knowledges an employee needs for his present work. In view of the facts that many tasks are becoming more technical and that technical developments force growing percentages of workers to change jobs more frequently, it can reasonably be assumed that additional mathematics competence will facilitate essential retraining, enlarge a person's opportunity for advancement within an occupation, and increase his capability to enter related occupations. A thorough investigation of these probabilities will have educational value.

CONCLUSIONS

Preliminary Conclusions

This preliminary study indicates that clusters of vocational mathematics knowledges and their present and near-future usefulness can quite precisely be identified. On a heuristic basis, these clusters provide data upon which meaningful curriculum for vocational education can be based. Obviously, such clusters also contain elements whose usefulness transcends their vocational significance.

Recommendations

Since clusters so far identified are of a preliminary nature, it is recommended that data at hand and additional data pertaining to other occupations be obtained and analyzed. When knowledge studies in the other occupational areas are completed, they can be incorporated with existing data. This will provide a more comprehensive base for clustering.

The above clusters definitions are sufficiently verified to justify inclusion in vocational education programs and to indicate the importance of developing and testing improved methods of instruction. Only by experimental teaching of clusters and evaluation of results can their educational value be ascertained.

After clusters of essential mathematics knowledges are more precisely defined, it will be useful to investigate their role in vocational curriculum enrichment. Vocational curriculum planners need more information about what knowledges, in addition to minimum essentials add most to competence and enlargement of opportunity. They also need information about the extent to which additional mathematical capabilities improve quality of work and affect mobility, advancement, and satisfaction derived from work.

Further Study Planned

Clusters: Congruent with the recommendation for further analysis of

data, plans are being made to analyze the questionnaire data. Likewise, as studies preceed in other occupational areas (eg., marine occupations, wholesaling), additional data on vocationally useful mathematics will be obtained.

Curriculum: In cooperation with the Northwest Regional Educational Research Laboratory, plans are under way to develop and evaluate curriculum based upon some of the preliminary clusters. Systems of instruction in fractions and decimals are now under development. These systems are being developed using two closely related methods. One method will utilize computer-aided instruction and the other will be utilized independently of a computer. These materials will be used experimentally at both the high school and junior college levels, and results will be evaluated.

SUMMARY

It is hypothesized that clusters of mathematical knowledges most widely useful in occupations most likely to employ substantial percentages of non-college bound youth can be more precisely identified. Approximate identification of some clusters useful in some major occupational areas has been accomplished. More precise identification of more broadly useful clusters will come from more detailed analysis of data in hand and from additional data pertaining to other occupational areas. While more data collection and analysis are in progress, work on development and testing of experimental instructional systems for teaching fractions and decimals is proceeding.

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Progress Report 6/65 - 12/66

5. TITLE: Mathematics Clusters in Selected Areas of Vocational Education. Project No. ERD-257-65

6. AUTHOR(S): Rahmlow, Harold F. and Winchell, Leonard T.

7. DATE: 12/66
8. PAGINATION: 7
9. REFERENCES: 6

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12. PUBLICATION TITLE: Mathematics Clusters in Selected Areas of Vocational Education.

13. EDITOR(S): N.A.

14. PUBLISHER: Dept. of Ed. Wash. State U., Pullman, Washington

15. ABSTRACT (250 words max.)

It is hypothesized that clusters of mathematical knowledges most widely useful in occupations most likely to employ substantial percentages of non-college bound youth can be precisely identified. The objective of this study is to conceptualize and idenitfy mathematical knowledges commonly useful for work in occupations most likely to provide employment for substantial numbers of non-college bound youth.

Task items from questionnaires used in office, general merchandise retailing, building trades, electronics, food service, child care and agriculture studies were examined for mathematical knowledge content. Five clusters of mathematics knowledges were found to be useful in all the areas studied. These clusters were: operations with fractions, operations with decimals, conversion of fractions to decimals, concept of percentage, ratio and proportion.

The results of this study should be considered preliminary in nature. Further study in this area is planned. While more data collection and analysis are in progress, work on development and evaluation of experimental instructional systems for teaching concepts in the fractions and decimals clusters is proceeding.

16. RETRIEVAL TERMS (Continue on reverse)

Vocational Mathematics
Clusters of Mathematical Knowledge

17. IDENTIFIERS

Vo-Tech. Ed. R and D Project
ERD-257-65

Figure 3. ERIC Document Resume

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Also enter journal citations by name of journal, volume number, and pagination. (Example: NAEB Journal, v. II, pp. 52-73.) Do not include date; date is entered in field #7.

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16. RETRIEVAL TERMS *(Continued)*

GPO 908-451

VT 001 766

VT 001 766 ED 010 654

A Forced-Choice Procedure for Measurement of Pupils' Attitudes Toward Major Dimensions of Work. (Project no. ERD-257-65, Report no. 3).

Heiner, Harold G. * and others

Washington State Univ., Pullman. Dep. of Education

Washington State Board for Vocat. Educ., Olympia

Dec66

EDRS Price MF-$0.09 HC-$1.32 33p.

*STUDENT ATTITUDES, *SKILLED OCCUPATIONS, *ATTITUDE TESTS, *WORK ATTITUDES, TEST CONSTRUCTION, VOCATIONAL INTERESTS,

Selected Occupational Attitudes Inventory,

A forced-choice occupational attitudes inventory was developed for measuring pupils' attitudes toward component dimensions or parts of nonprofessional level work in office, retail, health service, and construction occupations. Dimensions for which attitudes were measured were -- (1) tools, (2) materials, (3) nature of tasks performed, (4) personal relationships, and (5) physical environment. The inventory was designed so that each subject arrived at 9 preferences derived from 9 groups of questions each having 10 forced-choice questions. The pilot sample consisted of 153 pupils in grades 7, 8, and 9. The responses indicated definite attitudes towards the dimensions even though occupational choices by job title seemed quite unrealistic. Students indicated that the nature of tasks performed was the most important consideration in their job preferences. Environment appeared to be relatively unimportant. The instrument appeared to be an effective device for stimulating interest in occupational choice. It was concluded that it had sufficient promise to justify future validation. A copy is included. (EM)

ED015348

FINAL REPORT
Project No. ERD-257-65
Contract No. OE-5-85-109
Report No. 3

A FORCED-CHOICE PROCEDURE FOR MEASUREMENT OF PUPILS' ATTITUDES TOWARD MAJOR DIMENSIONS OF WORK

December 1966

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
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VT 01766

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A FORCED-CHOICE PROCEDURE FOR MEASUREMENT OF PUPILS' ATTITUDES TOWARD MAJOR DIMENSIONS OF WORK

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by

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INTRODUCTION

Background and Rationale

Attitudes, perceptions, and aspirations constitute a complex of motivational factors influencing pupils' occupational interest and their willingness to pursue educational programs requisite for successful careers. Motivational factors also affect the satisfactions people derive from work. In a free and increasingly diversified society educators have an obligation to help pupils make occupational choices most likely to yield reasonable amounts of success and satisfaction. To fulfill that obligation, teachers and counselors need means of obtaining information about the occupational attitudes, perceptions, and aspirations of individuals and groups. Information about factors affecting those elements of motivation are essential for effective guidance and teaching. Such facts will provide teachers and counselors with more precise definitions of pupils' present states of mind. Such facts will also help teachers and counselors define the behavioral changes necessary for pupils to make vocational choices congruent with modern opportunities and to acquire occupational competence.

For those reasons five staff members of Project ERD-257-65 and four graduate assistants have made interrelated efforts to develop questionnaires and interview procedures designed to provide facts about pupils' occupational aspirations, attitudes, and perceptions.

Walter L. Slocum, Roy Bowles, and William A. Rushing[1] have developed and utilized two questionnaires that provide exceptionally comprehensive facts about pupils' occupational aspirations and expectations. Those instruments also identify social-economic factors with which aspirations and expectations are associated. Roy T. Bowles is presently at work on an instrument that will provide similar data pertaining to pupils' perceptions of occupational opportunities.

LeRoy C. Olsen,[2] assisted by three doctoral students, is developing a projective technique procedure that will measure pupils' attitudes toward major dimensions of some male occupations most likely to provide employment opportunity for substantial percentages of non-college bound youth. The dimensions measured are tools, materials, nature of tasks performed, personal relationships, and physical environment. A series of ten symbolic drawings and interview questions used to evoke pupil responses has been developed and is presently being validated.

Purpose and Objective

Development and pilot testing of this Selected Occupational Attitudes Inventory constitutes an effort to develop a forced-choice instrument that

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[1]See Project ERD-257-65, Report No. 1, by Walter L. Slocum and Roy T. Bowles, "Educational and Occupational Aspirations and Expectations of High School Juniors and Seniors in the State of Washington with Special Reference to those Not Planning to Obtain a College Degree."

[2]See Project ERD-257-65, Report No. 2, by LeRoy C. Olsen, "Development and Standardization of a Projective Occupational Attitudes Test."

will provide similar measures of pupils' attitudes toward component dimensions of non-professional level work involved in office, retail, health service, and construction occupations. Bureau of Labor Statistics projections indicate that these are some of the occupations in which substantial percentages of non-college bound youth will find employment opportunities. The occupational dimensions toward which attitudes are measured are tools, materials, nature of tasks performed, personal relationships, and physical environment. Comparison of results obtained by this procedure with those obtained by the projective technique described above will help validate both procedures.

Related Research and Concepts

Measures of young people's attitudes toward various kinds of work are commonly based on responses to names of occupations, or to phrases presumed to connote general types of work. Examples are "nursing," "retailer," "civil engineer," "secretary," "repairing a clock," "interviewing clients," "repairing automobiles."

What is known about perception and semantics indicates that to most pupils such words and phrases are likely to connote misleading perceptions of the occupational realities involved. The extent of this hazard is documented by the work of Quine (6), Hayakawa (4), Schramm (7), and Wertheimer (4).

For example, few high school girls have had actual experience with the specific tasks, materials, equipment, working conditions, or human relationships involved in being a "nurse" or an "airline stewardess." Few boys are familiar with those dimensions of the work actually done by a "baker," an "engineer," a "laboratory technician," or a "banker." Responses to verbal or pictorial symbols for which the respondent has no experience referent are likely to be biased and misleading. Consequently, pupil attitudinal responses to items such as "nurse," "stewardess," "baker," or "engineer" probably are quite imprecise measures of their attitudes toward the actualities of work involved in the occupations.

Substantiated principles of perception and semantics and the work of Breer (1) indicate that more precise measures of attitudes toward specific tasks involved in various occupations require instruments designed to obtain responses to stimuli (words, pictures) that symbolize specific task components familiar to the respondent--items for which he has experience referents.

Likewise, it appears necessary to obtain responses to major interrelated dimensions of the occupations symbolized. Consequently, instruments must be designed not only to evoke responses to single acts, tools, and/or equipment, materials, working environment, and personal relationships involved in occupations, but also to combinations of those dimensions.

The Strong Vocational Interest Blank (SVIB), the Kuder Preference Record, and the Occupational Interest Inventory by Lee and Thorpe are examples of interest inventories which provide means of measuring occupational interests and thus have some similarities to this forced-choice instrument. Strong (8) tried to select activities or topics that adolescents would be

able to imagine, such as work in a laboratory, being an aviator, or repairing a clock. This forced-choice technique differs from that of Strong in both concept and procedure. It is designed to evoke responses to more precisely defined component elements of work situations rather than to generalities, the actualities of which, pupils may only vaguely, or unrealistically, comprehend. Consequently, this instrument avoids both the use of job titles and Strong's empirical keying. In keying, this instrument is more similar to that which Cronbach (2) refers as logical keying. Kuder (5) in the construction of his inventory conceptualized clusters of traits, to which pupils could be matched. The primary distinction between these three previous approaches and the instrument and procedures reported here is that the latter is designed to measure singly, and in combination, attitudes toward specific acts, tools, materials, working environment, and human relationships involved in occupations. Such measures can provide teachers and counselors with more precise information about pupils' present attitudes towards types and tasks and situations constituting the increasing diversity of occupational alternatives and requirements confronting modern youth.

The educational significance of instruments providing more precise information about attitudes toward the actual components of occupational functions and requirements is highlighted by Dugan's definition of vocational guidance as the "process of helping an individual to understand accurately both himself and the world of work--in particular, the specific educational and job requirements of occupations in which he may be interested and for which he may be qualified" (2).

METHOD

A basic assumption in the development of this inventory is that when an experienced worker states that he "likes" his job, he actually means that he likes more dimensions of the job than he dislikes, or at least that one dimension may be much more important than other dimensions as perceived by the individual. Accepting this assumption, it is logical to hypothesize the possibility of measuring individual attitudes toward dimensions and combinations of dimensions in such a way that the subject may be forced to accept a previously rejected dimension in order to accept one that he desires. By continually combining dimensions, the subject can be induced to indicate a current job choice based on consideration of acts, tools, materials, working environment, and human relationships involved in an occupation.

This instrument and procedure provides a means of confronting subjects with theoretically "total" work situations and measuring their preferences for "total situations" even though they may have reservations about some dimensions. This is done by first obtaining subjects' preferences for statements denoting pairs of separate variables (dimensions). Then, in sequence, subjects' preferences for statements including more dimensions are obtained until, finally, subjects indicate preferences for statements embodying all of the five-dimension combinations of "entire" job situations. The entire job choice can then be compared with each of the five single dimension choices to ascertain which, if any, of the single dimensions remain in the final, total job choice.

Each choice in the inventory is a forced choice reflecting positive or negative attitudes.

Data are then organized to show a ranking of preferences for each variable, for combinations of variables, and for "total work situations." Only after this point has been reached should any reference be made to specific job titles, such as nurse or automobile mechanic, since the instrument attempts to avoid general responses to such titles.

Design and Experimental Use of the Instrument

The inventory is designed so that each subject arrives at nine answers (preferences) derived from nine groups of questions, having ten forced-choice questions in each group--a total of 90 questions.

The first ten questions deal with the dimension, "tools." For example, representative tools utilized in the construction occupations are paired against those used in office work, and the subject states which tools he prefers. This procedure is continued until reponses to items indicating tools used in each occupation have been compared with responses to those tools used in the other occupations. In order for a subject to have a stated preference for office tools he must have chosen office tools each of the four times in which office tool choices were presented in the first ten questions--those which deal only with tools.

After the series of tool questions are answered, the same procedure is repeated for the dimensions of environment, materials, acts, and relationships. After 50 questions, the subject has selected enough dimensions separately to constitute a total job, but his individual choices are not necessarily from the same occupational area since he is selecting what amounts to his "ideal" job choice and, in actual life, such a combination of dimensions may not exist. Appendix A shows the representative occupational areas and dimensional examples used to construct this inventory.

Theoretically, the inventory now asks, "If you must give up one or more of your ideal dimensional choices in order to keep another dimension, which will you keep?" In other words, beginning with item 51, the questionnaire presents the subject with various combinations of occupational dimensions which continually accrue until he is forced to choose one of the five total job areas. The five dimensions chosen individually in the first 50 questions may then be compared with the subject's total job choice as indicated by his responses to the final ten items of the questionnaire. The result is determined by which dimensions the subject retained or rejected as he was being forced to choose one of the five occupational areas.

Beginning with item 51 the final 40 questions, in series of ten, require a subject to choose combinations of tools and acts; environments and relationships; tools, acts, environments, and relationships; then the total combinations of tools, acts, materials, environments, and relationships. If a subject had chosen tools that go with construction, and acts which go with office, for example, the combinations of tools and acts then force him to choose between tools or acts as being most meaningful to him since each of the combinations is from only one occupational area rather than the two he prefers as single dimensions. The cumulative combination

of dimensions forces the subject to continue such choices until some total job area is chosen. At that stage a counselor is able to analyze the data to determine which of the five dimensions were sufficiently meaningful to the subject to be retained in the final job choice. Data showing which dimension or dimensions--tools, environment, materials, acts, or relationships--were retained as part of the total job choice, will indicate which have the most psychological value to the subject. The First Preference Recording Form (Appendix C) is an example of a scored response sheet which the counselor may examine. This example was scored by hand but a comparable method could be developed for machine scoring.

Pilot Test of Inventory

The subjects used for testing the Selected Occupational Attitudes Inventory were 72 females and 81 males from the seventh, eighth, and ninth grade classes of three Washington school districts in Skagit and Whatcom counties. Table 1 shows the composition of the population by schools, grade level, and sex.

TABLE 1

Population of Students Involved in Pretesting the Selected Occupational Attitudes Inventory

School	Grade	Sex	Number
Whatcom	Ninth	Female	8
Burlington	Ninth	Female	11
Whatcom	Eighth	Female	8
Lincoln	Eighth	Female	13
Whatcom	Seventh	Female	15
Jefferson	Seventh	Female	17
Whatcom	Ninth	Male	14
Burlington	Ninth	Male	6
Whatcom	Eighth	Male	9
Lincoln	Eighth	Male	10
Whatcom	Seventh	Male	13
Jefferson	Seventh	Male	23
Total			153

The students are believed to represent a broad cross-section of ability since they were all unselected members of general education classes which were not grouped according to ability or performance.

Each pupil was furnished with an I.B.M. answer sheet and a booklet containing directions and questions for the Selected Occupational Attitudes Inventory (see Appendix B).

Directions were read aloud by the test administrator, who was careful to be sure that each student understood what to do. A sample question was then asked while the administrator demonstrated the answering procedure. The test administrator collected the papers immediately after each group was finished. Administration of the inventory required about 30 minutes.

A reliability measure for the inventory was obtained by using it to interview 20 adults with several years of work experience. An adult population was used for this purpose because it was assumed that adult attitudes toward various occupational dimensions are probably more stable than those of young people with no work experience.

PILOT TEST RESULTS

None of the groups tested appeared to have significant difficulty following directions or responding to the items with meaningful results. One answer sheet had to be discarded due to illegible answers.

An array of interesting information was collected regarding the importance of the various dimensions in occupational selection. This is most meaningful when examining the results of individual subjects since the cumulative group results tend to cancel each other out to a certain extent. There were, however, some interesting group results which will be reported here.

Primarily of interest was the fact that the attitudes of the young students questioned appear to be quite definite with regard to the dimensions of occupations, even though their occupational choice by job title may seem quite unrealistic. The inventory appears to be an effective device for stimulating interest in occupational choice. Of the 67 students who were asked before answering the questionnaire to state their occupational preference, 26 per cent listed no preference. On the other hand, only 7 per cent of the 87 stating an occupational preference after answering the questionnaire were unable, or lacked the desire, to do so. When calculated using Chi-square, this difference is shown to be highly significant. The resulting figure of 12.8, with one degree of freedom, is significant well beyond .001.

The meaning here, presumably, is not that the latter group was more realistic but rather that they were more disposed to examine the world of work after being stimulated by the inventory. This implies that use of the inventory activates thoughtful evaluation of occupational alternatives.

It was also found that among students and adults alike, occupational dimensions take on new meaning when presented as combinations of possible alternatives. For example, many subjects expressed preference for tools used in one occupation, but acts associated with another. This indicates they like certain tools utilized in an occupation better than the types of acts involved in the use of the tools.

The analysis of results, to see which dimensions--acts, tools, materials, environment, and relationships--function as the main factor affecting a person's total job preference indicate that subjects show considerable

variation in what is the most significant factor in final choice. Table 2 shows the percentages of subjects indicating preferences for each of the occupational dimensions. In order for a dimension to be tabulated as a preference, it had to be selected by the subject as an individual dimensional preference and also remain as part of the total job preference.

TABLE 2

Per Cent of Subjects Indicating Preferences for Each of the Occupational Dimensions

Group	Tools	Environments	Materials	Acts	Relationships
9th Grade Females	42	26	32	53	32
9th Grade Males	42	47	68	63	26
8th Grade Females	29	5	57	62	38
8th Grade Males	28	32	36	36	44
7th Grade Females	47	31	30	[illegible]	47
7th Grade Males	36	31	47	[illegible]	22
Total Females	40	21	[illegible]	[illegible]	39
Total Males	31	35	46	[illegible]	31
Mean--All	38	29	47	57	35

Junior high school students serving as subjects indicated that acts were the most important consideration in their job preferences. The mean of 57 per cent is considerably higher than the mean of any other dimension. On the other hand, environment appears to be relatively unimportant by comparison. By comparing the means of tools and acts it may be assumed that, to this group of students, the two seemingly closely related dimensions are actually quite unrelated psychologically.

Due to the nature of the forced-choice instrument, subjects were required to choose a preferred dimension in each of ten questions. If the subject is inconsistent even once in his preference responses, the result may be that no single answer can be computed for that ten-question series. If his inconsistencies are among choices with his low preference the results will not be affected since all low preferences cancel out. On the other hand, carelessness or inability to distinguish between values of high preference result in two or three answers to that ten-question series. In this case, no one preference can be singled out as contributing to the total job choice.

Some inconsistencies did enter into the answers of junior high school students interviewed for this study, and thus resulted in one or more of the nine final answers being unanalyzable. There is no way to determine with certainty whether this was caused by an honest inability to make choices, or by lack of concern. If lack of concern was the cause, it would be possible for a person to end up with none of the nine final questions answered. It was found, however, that the mode was nine out of nine

answered. The mean was 1.02 unanswered, with a standard deviation of 1.1. By running an additional study, it was determined that the probability of a person obtaining answers to eight out of nine of the complex final answers, on the basis of response sets, is about .003. This figure was obtained from 25 college students who were asked to mark the answer sheet without seeing the questions. Their sheets were then scored and used as an indication of response sets, and compared with the norm group.

Validity

Since the Selected Occupational Attitudes Inventory measures attitudes toward dimensions of occupations rather than specific occupations, there has been no serious need to determine the validity of the examples used to represent occupational areas. Since validity has not been fully established, the instrument cannot be used as a predictor of attitudes toward specific occupations, or as the basis for urging subjects to enter specific occupations. It is intended only to help the subject understand himself in terms of his attitudes toward dimensions of occupations which he may be considering, or will consider.

Reliability

Reliability was established by the test-retest method with a three-day interval. As mentioned earlier, an adult group of 20 subjects was used for measuring reliability because it was assumed that their attitudes are more stable than those of young people with no experience in the world of work.

Reliability is high, with 71 per cent of the final nine answers being unchanged. Table 3 shows the reliability for each of these final nine answers. When computed in composite groups, it can be seen that the instrument shows increasing reliability as the questions come closer to simulating a total job choice. Total stability for the single dimensions of a job is 68 per cent while combinations of dimensions are 72 per cent stable and the final job choice is 83 per cent stable.

Follow-up study by the test-retest method would provide useful data regarding the stability of young people's interests, but it would not be a valid indicator of the instrument's reliability if their attitudes are found to be unstable.

The Inventory is reproduced in Appendix D.

DISCUSSION

This study was conducted for the purpose of developing an instrument which will aid counselors to help pupils better analyze and understand their occupational interests. Preliminary tests of the instrument reveal several qualities indicating its potential suitability for that purpose. It is also possible that the inventory can be used to determine socio-economic status, age, and sex differences in attitudes toward occupational dimensions.

TABLE 3

Per Cent of Stability of Dimensions and Their Combinations

Dimensions	Per Cent
Tools	67
Acts	92
Materials	75
Environments	25
Relationships	83
Tools-Acts	58
Environments-Relationships	75
Tools-Acts-Environments-Relationships	83
Tools-Acts-Materials-Environments-Relationships	83

The Inventory provides a means for obtaining meaningful results from junior high school age pupils as well as from adults. On the basis of limited use with elementary school children, there are also indications that even younger students are capable of understanding and answering the inventory, although no lower age limit was determined. The only noticeable difference in the performance of various age groups was in their test-taking attitudes. Adults realize that many of the questions are equally applicable to men and women since their roles in society are often interchangeable. The younger students often do not perceive the relevance of some questions, however, and possibly discount some choices as seemingly suitable only to the opposite sex. They refer to some items as being boy's jobs or girl's jobs.

The author's experience indicates that results are more valid if the method of test administration forces the subject to respond without opportunity to review previous answers. It was found that a separate group of adults who were asked to answer the questions in their spare time tended to try so hard for consistency that they often changed their original preferences, or referred to earlier answers as a basis for making choices. They seem then to be more concerned with consistency than with valid results.

There is little reason to believe that results obtained by individual or group administration would be substantially different. Certainly, group administration has the advantage of efficiency in time; but individual administration gives the subject greater individual attention. So far, however, the use of the Inventory has been too limited to justify comparison of the two methods.

The test is so constructed that it may be scored by machine or by hand. A person trained to do so can score a questionnaire by hand in about two minutes.

RECOMMENDATIONS

The inventory shows sufficient promise to justify further validation and standardization. Such effort will be conducted by Warren K. Garlington during the second stage of Project ERD-257-65 work.

In the process of validation and standardization the inventory can be utilized to obtain facts about ways in which individual and group attitudes are influenced by age, sex, ethnic identification, and social-economic background. Doctoral student John Beasley is proceeding with one phase of that work. Experimentation to ascertain degrees to which results might be influenced by different arrangements of items in inventory questions might help validate the instrument.

The inventory should be expanded to include similar choice questions pertaining to other occupations likely to provide employment opportunities for substantial numbers of non-college bound youth. Examples: food service, child care, domestic service, custodial repair service.

A similar inventory for use with youth aspiring to professional and managerial-level work might prove useful.

SUMMARY

This project developed a forced-choice occupational attitudes inventory designed to measure pupils' attitudes toward component dimensions of non-professional level work involved in office, retail, health service, and construction occupations. Dimensions measured are tools, materials, nature of tasks, personal relationships, and physical environment.

Pilot testing indicates that the inventory has substantial potential to provide counselors and teachers with facts about pupils' existing attitudes. Plans for further validation and standardization are in progress.

APPENDIX A

OCCUPATIONS INCLUDED IN INVENTORY, DIMENSIONS AND DIMENSIONAL EXAMPLES

A. CONSTRUCTION

(T) Tools	1. Hammer, paint brush, welder.
(E) Environment	2. Both in and outdoors and fairly dirty.
(M) Materials	3. Wood, steel, paint.
(A) Acts	4. Pound nails, weld, paint.
(R) Relationship	5. Two or more people who must help each other.

B. OFFICE

(T) Tools	1. Typewriter, filing cabinet.
(E) Environment	2. Indoors and clean.
(M) Materials	3. Paper, pencils.
(A) Acts	4. Type, answer telephones, take messages.
(R) Relationship	5. One or more people start a job and turn it over to you.

C. SERVICE-AUTO

(T) Tools	1. Wrench, screwdriver.
(E) Environment	2. Indoors and greasy.
(M) Materials	3. Gasoline, oil.
(A) Acts	4. Find out why a car won't run, make repairs.
(R) Relationship	5. More with machines than people.

D. HEALTH AID

(T) Tools	1. Thermometers, food trays.
(E) Environment	2. Indoors and extremely clean.
(M) Materials	3. Water, bedding, medicine.
(A) Acts	4. Give medication, give baths, change beds.
(R) Relationship	5. Help people who can't help themselves.

E. RETAIL SERVICE

(T) Tools	1. Cash register, marking stamp.
(E) Environment	2. Indoors and pretty clean.
(M) Materials	3. Money, completed products.
(A) Acts	4. Give people change, handle store merchandise.
(R) Relationship	5. Wait on people, as does a store clerk.

APPENDIX B

DIRECTIONS FOR ADMINISTERING AND SCORING THE SELECTED OCCUPATIONAL ATTITUDES INVENTORY

If administered to a group, each person should be furnished with an I.B.M. or similar answer sheet, and a booklet containing the instructions and questions. The instructions are read aloud by the test administrator who should proceed slowly so that each subject will understand what is expected of him.

A sample question is asked by the administrator who demonstrates how the subject should proceed when actual questioning begins. An appropriate example is "would you rather play baseball or basketball?" If the subject prefers baseball, he would darken the space below "A" beside example 1; if basketball, he would darken the space below "B."

When administered individually, the test administrator should give the subject a booklet and proceed as stated except for a difference in scoring. In this case, the administrator may score the subject's responses himself, directly on the First Preference Recording Form (Appendix C). The subject merely responds aloud by saying either "A" or "B" to indicate his preference for the first or second half of the forced-choice question.

The administrator records the subject's responses according to the following example. The interviewer uses "A1xB1" when asking whether the person prefers (A1) a hammer, paint brush, and welder, or (B1) a typewriter and filing cabinet. If he answers in favor of the first choice, it would be scored as "A1xB1." If the second half of the question were preferred "B1" would have been circled instead. This procedure is followed for each of the 90 questions.

To score an answer sheet, the answers should be transferred to the First Preference Recording Form where each ten answers can be analyzed in order to contribute a final answer. Each subject will have nine final answers which are then interpreted to him.

To determine which of the job areas is preferred in the dimensional group being analyzed, the administrator must examine the circled answers to that ten-question series. The preferred job area must be circled all four times in which it is offered. For example, to show a preference for construction tools in the first group, "A1" must be circled all four times. If none of the preferences for a group is circled four times, you may assume that the subject was unable, or lacked the desire, to show a preferred response for an occupational area for that particular dimension.

Interpretation to the subject is accomplished by showing him which job area was selected for each of the dimensional groups, and which job area was selected for each of the dimensional groups, and which job area was selected as the final "total" job choice. The significance to the subject is <u>not</u> in the job titles shown in each of the nine answers, but in the dimensions represented by them. He is able to see which dimension or dimensions was meaningful enough to him to be carried into the final "total" job chosen. He can also see the relative value which he placed on each dimension.

APPENDIX C

FIRST PREFERENCE RECORDING FORM

(T) A (E) C (M) D (A) B (R) C
(TA) B (ER) C
(TAER) B
(TAMER) B

(T)	A2xB2	A2xC2	A2xD2	A2xE2
	B2xC2	B2xD2	B2xE2	
	C2xD2	C2xE2		
	D2xE2			
(E)	A4xB4	A4xC4	A4xD4	A4xE4
	B4xC4	B4xD4	B4xE4	
	C4xD4	C4xE4		
	D4xE4			
(M)	A3xB3	A3xC3	A3xD3	A3xE3
	B3xC3	B3xD3	B3xE3	
	C3xD3	C3xE3		
	D3xE3			
(A)	A1xB1	A1xC1	A1xD1	A1xE1
	B1xC1	B1xD1	B1xE1	
	C1xD1	C1xE1		
	D1xE1			
(R)	A5xB5	A5xC5	A5xD5	A5xE5
	B5xC5	B5xD5	B5xE5	
	C5xD5	C5xE5		
	D5xE5			
(TA)	A21xB21	A21xC21	A21xD21	A21xE21
	B21xC21	B21xD21	B21xE21	
	C21xD21	C21xE21		
	D21xE21			
(ER)	A45xB45	A45xC45	A45xD45	A45xE45
	B45xC45	B45xD45	B45xE45	
	C45xD45	C45xE45		
	D45xE45			
(TAER)	A2145xB2145	A2145xC2145	A2145xD2145	A2145xE2145
	B2145xC2145	B2145xD2145	B2145xE2145	
	C2145xD2145	C2145xE2145		
	D2145xE2145			
(TAMER)	A21345xB21345	A21345xC21345	A21345xD21345	A21345xE21345
	B21345xC21345	B21345xD21345	B21345xE21345	
	C21345xD21345	C21345xE21345		
	D21345xE21345			

APPENDIX D

SELECTED OCCUPATIONAL ATTITUDES INVENTORY

_____ 1. Sex
A. Male
B. Female

_____ 2. Race
A. Caucasian
B. Negroid
C. Mongoloid
D. American Indian
E. Other (Specify _____)

_____ 3. Age at nearest birthday

_____ 4. Education--highest grade completed

_____ 5. Father's occupation--if not living, list last occupation

_____ 6. Mother's occupation--if not living, list last occupation

_____ 7. How much thought have you given to your future work or job plans?
A. None at all
B. Very little
C. Some
D. A great deal

_____ 8. What occupation would you most like to enter?

INSTRUCTIONS

Please choose between the two choices offered in each of the following questions. I will read each question aloud while you also read it to yourself. Some choices may seem easy while others are difficult, but make your decisions being as honest with yourself as possible. Which choice would you prefer if those two choices were the only ones you had?

Please make a choice for each question. Mark an x in the square ☒ beside each of your choices.

1. Do you prefer to work with:
   - ☐ a hammer and paint brush
   - or
   - ☐ a typewriter and filing cabinet

2. Do you prefer to work with:
   - ☐ a typewriter and filing cabinet
   - or
   - ☐ wrenches and screwdrivers

3. Do you prefer to work with:
   - ☐ wrenches and screwdrivers
   - or
   - ☐ thermometers and food trays

4. Do you prefer to work with:
   - ☐ thermometers and food trays
   - or
   - ☐ a cash register and marking stamp

5. Do you prefer to work with:
   - ☐ a hammer, paint brush, and welder
   - or
   - ☐ wrenches and screwdrivers

6. Do you prefer to work with:
   - ☐ a typewriter and filing cabinet
   - or
   - ☐ thermometers and food trays

7. Do you prefer to work with:
   - ☐ wrenches and screwdrivers
   - or
   - ☐ a cash register and marking stamp

8. Do you prefer to work with:
   - ☐ a hammer, paint brush, and welder
   - or
   - ☐ thermometers and food trays

9. Do you prefer to work with:
   - ☐ a typewriter and filing cabinet
   - or
   - ☐ a cash register and marking stamp

10. Do you prefer to work with:
- ☐ a hammer, paint brush, and welder
- or
- ☐ a cash register and marking stamp

11. Would you rather work:
- ☐ both indoors and outdoors and be fairly dirty
- or
- ☐ indoors and be clean

12. Would you rather work:
- ☐ indoors and be clean
- or
- ☐ indoors and be greasy

13. Would you rather work:
- ☐ indoors and be greasy
- or
- ☐ indoors and be extremely clean

14. Would you rather work:
- ☐ indoors and be extremely clean
- or
- ☐ indoors and be pretty clean

15. Would you rather work:
- ☐ both indoors and outdoors and be fairly dirty
- or
- ☐ indoors and be greasy

16. Would you rather work:
- ☐ indoors and be clean
- or
- ☐ indoors and be extremely clean

17. Would you rather work:
- ☐ indoors and be greasy
- or
- ☐ indoors and be pretty clean

18. Would you rather work:
- ☐ both indoors and outdoors and be fairly dirty
- or
- ☐ indoors and be extremely clean

19. Would you rather work:
- ☐ indoors and be clean
- or
- ☐ indoors and be pretty clean

20. Would you rather work:
- ☐ both indoors and outdoors and be fairly dirty
- or
- ☐ indoors and be pretty clean

21. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ paper and pencils

22. Would you rather work with:
- ☐ paper and pencils
- or
- ☐ gasoline and oil

23. Would you rather work with:
- ☐ gasoline and oil
- or
- ☐ water, bedding, and medicine

24. Would you rather work with:
- ☐ water, bedding, and medicine
- or
- ☐ money and completed products

25. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ gasoline and oil

26. Would you rather work with:
- ☐ paper and pencils
- or
- ☐ water, bedding, and medicine

27. Would you rather work with:
- ☐ gasoline and oil
- or
- ☐ money and completed products

28. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ water, bedding, and medicine

29. Would you rather work with:
- ☐ paper and pencils
- or
- ☐ money and completed products

30. Would you rather work with:
- ☐ wood, steel, and paint
- or
- ☐ money and completed products

31. Would you rather:
- ☐ pound nails, weld, and paint
- or
- ☐ type, answer telephones, and take messages

32. Would you rather:
- ☐ type, answer telephones, and take messages
  or
- ☐ find out why a car won't run and make repairs

33. Would you rather:
- ☐ find out why a car won't run and make repairs
  or
- ☐ give medication, give baths, and change beds

34. Would you rather:
- ☐ give medication, give baths, and change beds
  or
- ☐ give people change and handle store merchandise

35. Would you rather:
- ☐ pound nails, weld, and paint
  or
- ☐ find out why a car won't run and make repairs

36. Would you rather:
- ☐ type, answer telephones, and take messages
  or
- ☐ give medication, give baths, and change beds

37. Would you rather:
- ☐ find out why a car won't run and make repairs
  or
- ☐ give people change and handle store merchandise

38. Would you rather:
- ☐ pound nails, weld, and paint
  or
- ☐ give medication, give baths, and change beds

39. Would you rather:
- ☐ type, answer telephones, and take messages
  or
- ☐ give people change and handle store merchandise

40. Would you rather:
- ☐ pound nails, weld, and paint
  or
- ☐ give people change and handle store merchandise

41. Would you rather work with:
- ☐ one or more people who must help each other
  or
- ☐ one or more people who start a job and turn it over to you

42. Would you rather:
- ☐ work with one or more people who start a job and turn it over to you
  or
- ☐ work more with machines than people

43. Would you rather:
- ☐ work more with machines than people
  or
- ☐ help people who can't help themselves

44. Would you rather:
- ☐ help people who can't help themselves
  or
- ☐ wait on people as does a store clerk

45. Would you rather work:
- ☐ with one or more people who must help each other
  or
- ☐ more with machines than people

46. Would you rather:
- ☐ work with one or more people who start a job and turn it over to you
  or
- ☐ help people who can't help themselves

47. Would you rather:
- ☐ work more with machines than people
  or
- ☐ wait on people as does a store clerk

48. Would you rather:
- ☐ work with one or more people who must help each other
  or
- ☐ help people who can't help themselves

49. Would you rather:
- ☐ work with one or more people who start a job and turn it over to you
  or
- ☐ wait on people as does a store clerk

50. Would you rather:
- ☐ work with one or more people who must help each other
  or
- ☐ wait on people as does a store clerk

51. Would you rather:
- ☐ pound nails, weld, paint, and use a hammer, welder, and paint brush
  or
- ☐ type, answer telephones, take messages, and use a typewriter and filing cabinet

52. Would you rather:
- ☐ type, answer telephones, take messages, and use a typewriter and filing cabinet
  or
- ☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

53. Would you rather:
- ☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

or

- ☐ give medication, give baths, change beds, and use thermometers and food trays

54. Would you rather:
- ☐ give medication, give baths, change beds, and use thermometers and food trays

or

- ☐ give people change, handle store merchandise, and use a cash register and marking stamp

55. Would you rather:
- ☐ pound nails, weld, paint, and use a hammer, welder, and paint brush

or

- ☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

56. Would you rather:
- ☐ type, answer telephones, take messages, and use a typewriter and filing cabinet

or

- ☐ give medication, give baths, change beds, and use thermometers and food trays

57. Would you rather:
- ☐ find out why a car won't run, make repairs, and use wrenches and screwdrivers

or

- ☐ give people change, handle store merchandise, and use a cash register and marking stamp

58. Would you rather:
- ☐ pound nails, weld, paint, and use a hammer, welder, and paint brush

or

- ☐ give medication, give baths, change beds, and use thermometers and food trays

59. Would you rather:
- ☐ type, answer telephones, take messages, and use a typewriter and filing cabinet

or

- ☐ give people change, handle store merchandise, and use a cash register and marking stamp

60. Would you rather:
- ☐ pound nails, weld, paint, and use a hammer, welder, and paint brush

or

- ☐ give people change, handle store merchandise, and use a cash register

61. Would you rather:
- ☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

- ☐ stay clean working indoors with one or more people who start a job and turn it over to you

62. Would you rather:
- ☐ stay clean working indoors with one or more people who start a job a turn it over to you

or

- ☐ get greasy working indoors with machines more than with people

63. Would you rather:
- ☐ get greasy working indoors with machines more than with people

or

- ☐ stay extremely clean working indoors helping people who can't help themselves

64. Would you rather:
- ☐ stay extremely clean working indoors helping people who can't help themselves

or

- ☐ stay pretty clean working indoors waiting on people as does a store clerk

65. Would you rather:
- ☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

- ☐ get greasy working indoors with machines more than with people

66. Would you rather:
- ☐ stay clean working indoors with one or more people who start a job and turn it over to you

or

- ☐ stay extremely clean working indoors helping people who can't help themselves

67. Would you rather:
- ☐ get greasy working indoors with machines more than with people

or

- ☐ stay pretty clean working indoors waiting on people as does a store clerk

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- ☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

- ☐ stay extremely clean working indoors helping people who can't help themselves

69. Would you rather:

- ☐ stay clean working indoors with one or more people who start a job and turn it over to you

  or

- ☐ stay pretty clean working indoors waiting on people as does a store clerk

70. Would you rather:

- ☐ get fairly dirty working both indoors and outdoors with one or more people who must help each other

  or

- ☐ stay pretty clean working indoors waiting on people as does a store clerk

71. Would you rather:

- ☐ pound nails, weld, paint, use a hammer, welder, paint brush, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

  or

- ☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay clean working indoors with one or more people who start a job and turn it over to you

72. Would you rather:

- ☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay clean working indoors with one or more people who start a job and turn it over to you

  or

- ☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, and get greasy working indoors with machines more than with people

73. Would you rather:

- ☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, and get greasy working indoors with machines more than with people

  or

- ☐ give medication, give baths, change beds, use thermometers, food trays, and stay extremely clean working indoors helping people who can't help themselves

74. Would you rather:

- ☐ give medication, give baths, change beds, use thermometers, food trays, and stay extremely clean working indoors helping people who can't help themselves

  or

- ☐ give people change, handle store merchandise, use a cash register, marking stamp, and stay pretty clean working indoors waiting on people as does a store clerk

75. Would you rather:

- ☐ pound nails, weld, paint, use a hammer, welder, paint brush, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

  or

- ☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, and get greasy working indoors with machines more than with people

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- ☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay clean working indoors with one or more people who start a job and turn it over to you

  or

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  or

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- ☐ type, answer telephones, take messages, use a typewriter, filing cabinet, and stay pretty clean working indoors with one or more people who start a job and turn it over to you

  or

- ☐ give people change, handle store merchandise, use a cash register, marking stamp, and stay pretty clean working indoors waiting on people as does a store clerk

80. Would you rather:

- ☐ pound nails, weld, paint, use a hammer, welder, paint brush, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

  or

- ☐ give people change, handle store merchandise, use a cash register, marking stamp, and stay pretty clean working indoors waiting on people as does a store clerk

81. Would you rather:

- ☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

  or

- ☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

82. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

83. Would you rather:

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

or

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

84. Would you rather:

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

85. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

86. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

87. Would you rather:

☐ find out why a car won't run, make repairs, use wrenches, screwdrivers, gasoline, oil, and get greasy working indoors with machines more than with people

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

88. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ give medication, give baths, change beds, use thermometers, food trays, water, bedding, medicine, and stay extremely clean working indoors helping people who can't help themselves

89. Would you rather:

☐ type, answer telephones, take messages, use a typewriter, filing cabinet, paper, pencils, and stay clean working indoors with one or more people who start a job and turn it over to you

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

90. Would you rather:

☐ pound nails, weld, paint, use a hammer, welder, paint brush, wood, steel, paint, and get fairly dirty working both indoors and outdoors with one or more people who must help each other

or

☐ give people change, handle store merchandise, use a cash register, marking stamp, money, completed products, and stay pretty clean working indoors waiting on people as does a store clerk

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15. ABSTRACT (250 words max.)

This project developed a forced-choice occupational attitudes inventory designed to measure pupils' attitudes toward component dimensions of non-professional level work involved in office, retail, health service, and construction occupations. Dimensions measured are tools, materials, nature of tasks, personal relationships, and physical environment.

Pilot testing indicates that the inventory has substantial potential to provide counselors and teachers with facts about pupils' existing attitudes. Plans for further validation and standardization are in progress.

16. RETRIEVAL TERMS (Continue on reverse)

Measurement
Attitudes
Occupational interests
Vocational interests
Forced-choice instruments
Occupational dimensions

17. IDENTIFIERS

Vo-Tech. Ed. R and D Project
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A Survey Instrument for Identifying Clusters of Knowledge and Competencies Associated with Performance of Child Care Work. (Project no. ERD-257-65, Report no. 10).

Rahmlow, Harold F. * Cavanagh, Catherine

Washington State Univ., Pullman. Dep. of Education

Washington State Board for Vocat. Educ., Olympia

Dec66

EDRS Price MF-$0.09 HC-$0.88 22p.

*CHILD CARE, *QUESTIONNAIRES, *OCCUPATIONAL HOME ECONOMICS, *CHILD CARE WORKERS, JOB SKILLS, CURRICULUM DEVELOPMENT,

Many agencies and institutions employ nonprofessional personnel to provide child care services. Vocational educators need accurate means of identifying major types of tasks involved in child care work and the knowledges and competencies involved. A team of home economists and day care center employees and supervisors conceptualized and field tested a survey instrument to obtain up-to-date facts about major types and combinations of tasks performed by child care workers. A representative sample of child care workers is being identified. The instrument will be utilized to obtain data that will -- (1) provide up-to-date facts about combinations of work done by various categories of child care workers, (2) provide a base for identification of clusters of knowledges and competencies essential for effective performance of tasks constituting work patterns, and (3) ascertain the degree to which such knowledges and competencies are congruent with those essential for work in other nonprofessional occupations. The instrument is included. (MS)

ED015348

FINAL REPORT
Project No. ERD-~~257-65~~ 5-0046
Contract No. OE-5-85-109
Report No. 10

A SURVEY INSTRUMENT FOR IDENTIFYING CLUSTERS OF KNOWLEDGE AND COMPETENCIES ASSOCIATED WITH PERFORMANCE OF CHILD CARE WORK

December 1966

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

VT 01767

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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A SURVEY INSTRUMENT FOR IDENTIFYING CLUSTERS OF KNOWLEDGE AND COMPETENCIES ASSOCIATED WITH PERFORMANCE OF CHILD CARE WORK

Project No. ERD-257-65
Contract No. OE-5-85-109
Report No. 10

by

Harold F. Rahmlow
Catherine Cavanagh

December 1966

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

Department of Education, Washington State University, Pullman, Washington
State Board for Vocational Education, Olympia, Washington

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INTRODUCTION

Purpose and Rationale

One major purpose of this project is to identify clusters of knowledge and competencies most likely to maximize the career-long occupational opportunity, competence, and choice of non-college bound youth in an evolving technological society.

This research is rooted in the philosophic premise that occupational freedom involves both informed choice of alternatives and competence to work effectively. The economy needs constantly larger numbers of workers possessing new capabilities. But youth can evaluate only those occupational choices that they perceive. They are free to perform only the kinds of work for which they acquire competence.

Choice and acquisition of competence may be needlessly impaired by limited outlooks and motivations. For those reasons, studies of occupational perceptions, aspirations constitute other dimensions of this project.

The objective of our clusters research is to obtain facts about what major types of tasks are actually performed in occupations most likely to provide employment opportunity for substantial percentages of non-college bound youth and to identify major types of knowledges most likely to prepare them for such work. On the basis of Bureau of Labor Statistics projections, the following occupational areas were selected for study: office, general merchandise retailing, building trades, electronics, food services, and child care.

To obtain task and knowledge data for clustering, the staff, in consultation with employers, employees, and vocational teachers, prepared questionnaire check lists designed to identify specific major tasks actually performed by workers in each of the occupational areas listed above.

Questionnaires were designed to obtain from employees data on age, sex, major types of tasks presently performed, length of time on present job, and other types of work done in the past five years.

Those questionnaires have been administered to representative samples of workers in each occupational area. To maximize the predictive value of data, questionnaires were administered only to employees in modernized leading-edge firms in which tasks are most likely to represent those prevailing in the foreseeable future.

Results provide data on (1) combinations of major tasks groups of workers on a construction job or in a firm or agency presently perform, (2) combinations of major tasks performed on entry jobs, and (3) combinations of tasks generally performed by workers with various degrees of experience, and (4) some data on 5-year combinations of worker experience.

From analysis of the above data, we have obtained up-to-date facts about combinations of major tasks performed by major categories of workers.

Knowledges associated with performance of each task are being identified by juries of employees, supervisors, and vocational teachers.

Both task and knowledge items are being coded so various patterns of relationships can be identified by computer.

From analysis of the above data, we are obtaining definitions of both tasks and knowledges involved in entry jobs and in positions into which workers can move as they get experience. We are identifying (1) some clusters of knowledge useful within each occupational area and (2) some clusters that are commonly useful in two or more areas.

Facts about currently useful tasks and knowledges are being supplemented by studies of ways they will be affected by equipment, processes, and materials now being developed by leading-edge industries.

Social-Economic Significance of Out-of-home Child Care

The immense psychological and social values of adequate child care are becoming more widely recognized. Technological, economic, and institutional developments steadily enlarge resources and mechanisms for providing services more congruent with fulfillment of need and potential.

In recent years employment of non-professional personnel in agencies and institutions providing child care services has increased substantially. The number of child day care centers is growing. An increased number of schools are employing people to perform non-professional services for children. There is a similar growth in the number of public and private institutions providing special services for mentally and physically handicapped children.

At least a gradual acceleration of such developments is in prospect. There is reason to expect that they will result in considerable expansion of non-professional employment. In addition, in-home child rearing will continue to be the largest occupation in the world.

The social-economic-cultural importance of effective child care work in and out of homes and the immense human costs of inadequate performance are obvious.

Objectives

Vocational educators need accurate means of identifying major types of non-professional tasks involved in child care work and the knowledges and competencies involved in their performance.

The objective of this phase of Project ERD-257-65 is to develop a survey instrument for identification of major tasks performed by non-professional workers employed by organizations, institutions, and agencies providing child care service. The instrument will be utilized to obtain data that will (1) provide up-to-date facts about combinations of work done by various categories of child care workers, (2) provide a base for identification of clusters of knowledges and competencies essential for effective performance of tasks constituting work patterns, and (3) ascertain the degrees to which such knowledges and competencies are congruent with those essential for work in other non-professional occupations.

Hypotheses

Drawing on the experience of others, it seems reasonable to assume that various segments of the child care services share many elements in common. It is hypothesized that certain clusters of knowledges and competencies are common to performance of several categories of child care work and that some are more specialized tasks. For example, it is likely that many persons in a wide variety of child care jobs would need to have knowledge of the normal physical development of children. However, it is unlikely that many persons employed in child care occupations would need to know about types of insurance desirable for a child day care center. Vocational educators need facts about types of knowledges and competencies associated with major types of child care work.

Related Research and Thought

The number of mothers working is continually increasing. U. S. Department of Labor reports show that the percentages of women in the labor force has risen from 20 per cent in 1920 to 32 per cent in 1960. This trend is expected to continue. Of the women in the working force in 1964, 3.5 million were mothers of children under six and 2 million had children under three.(1).

The National Association for Nursery Education (2) has set forth reasons why day care services should be provided for children whose parents cannot care for them during the day. Dennis (3) and Buchanan (4) provide additional data on the need for child care service workers and imply that many could be trained at para-professional levels. Pope and Crump (5) like others, note that the effectiveness of teachers can be increased by para-professional assistants. Schnell and Mills (6) report the nature of a program in an Oakland, California, high school to train such persons.

McLennan (7) describes a program conducted by the Harvard University Center for Youth and Community Studies to train, and report the availability of, disadvantaged youth to work as school aids. That experience indicates the importance of combining work experience with general education and basic training.

Costin (8) analyzes results of the University of Illinois' series of training programs attempting to train para-professionals for child welfare work for social work aspects of child welfare services.

Some evidence of the feasibility of child care training programs is provided by Confay's (9) report on employment records of youth trained in an Arlington, Virginia, high school.

With a National Institute of Mental Health grant (MH-631-6), Van G. Bromadka (10) recently studied the capabilities of employees presently staffing institutions providing residential services for children. He concluded that "In no institutions were the workers trained sufficiently for what was expected of them. In many instances they were put to work without any basic understanding of their tasks.... Child care method, of course, needs further conceptualization, refinement, and improvement; and it needs to be transcribed into units of work prescription before it can be communicable and teachable. This calls for a collaborative effort on the part of institutional and educational institutions."

Bromadka also conceptualized some major types of non-professional tasks involved in child care services as follows:

Participating in planned routine.
Supervising provision of food, clothing, bedding.
Providing first aid and nursing care.
Providing emotional security.
Planning and supervising recreation.
Stimulating children to learn.

Maajass (11) reports on a study designed to ascertain child development and guidance knowledges needed by mothers and employees in three occupations related to child care.

METHOD

Conceptualization of Tasks

A team composed of home economists and employees of nursery schools and day care centers conceptualized items listed on the survey instrument (See Appendix A). The tasks were worded to be comprehensible by employees and arranged in functional categories. Throughout the conceptualization process, there was constant checking and rechecking of items. Child care service personnel offered many helpful suggestions.

Field Testing

The initial instrument was field tested with employees of the Mary Brake Playschool, Walla Walla, Washington, and the Seattle Day Nursery Association, Seattle, Washington, serving as subjects. Those institutions included a variety of employees sufficient for adequate testing. The questionnaire was administered to a sample of employees in those institutions. Later it was also used as a bases for personal interviews with the same persons. Results obtained by both methods were compared. Differences were slight, indicating that, with some revisions, the questionnaire could be used to obtain accurate data. Comments of interviewees were used as a basis for revising the questionnaire.

RESULTS

The instrument for gathering data on the tasks performed by child care workers is reproduced in Appendix A.

DISCUSSION

The major types and combinations of tasks performed by various categories of non-professional care service workers can be conceptualized and identified. Experience derived from other phases of Project ERD-257-65 work indicate that the task items listed on the questionnaire can be utilized to identify clusters of knowledges and competencies common to entry and later-career work patterns. Those unique to specialized tasks can also be identified. That information will provide partial bases for planning curriculum and developing instructional materials that will increase pupils' vocational capabilities.

The cooperative nature of this project has increased communication between vocational educators and personnel directing child care agencies. This closer working relationship provides a base for more mutually beneficial working relationships in the future.

RECOMMENDATIONS

It is recommended that the instrument be administered to a representative sample of non-professional employees performing child care services in well-operated day care centers, nursery schools, and hospitals. Data obtained in that manner should be utilized as a base for identifying knowledgessand competencies associated with major categories of child care work. The congruence of those knowledges and competencies with those contributing to effective work in other occupations should also be determined.

SUMMARY

Out-of-home child care work offers occupational opportunity for a steadily growing number of non-college bound youth.

A team of home economists and employees and supervisors of day care centers and nursery schools conceptualized and field tested a survey questionnaire to identify major types of tasks performed by various categories of child care workers. The instrument will be utilized to obtain data that will (1) provide up-to-date facts about combinations of work done by various categories of child care workers, (2) provide a base for identification of clusters of knowledges and competencies essential for effective performance of tasks constituting entry and later-career work patterns, and (3) ascertain the degrees to which such knowledges and competencies are congruent with those essential for work in other non-professional occupations.

APPENDIX A

CHILD CARE SERVICE TASK SURVEY INSTRUMENT

You can help our schools give your sons and daughters the kinds of education they need to earn good incomes.

As you know, many changes are taking place in the kinds of work people do. Schools need up-to-date facts about exactly what kinds of work are being done. Those facts will help schools provide useful training.

You have been selected to help with a nation-wide study to show what actual kinds of work people in various occupations do.

The information will be STRICTLY CONFIDENTIAL.

Your cooperation is appreciated and will help your schools prepare young people to earn good incomes.

After you have completed the attached questionnaire, return it promptly, in the enclosed self-addressed envelope. No postage is necessary.

This Project is sponsored by:

Washington State University
University of Idaho
Washington State Board for Vocational Education
Idaho State Board for Vocational Education

1. Name _____

2. Present Job Title _____

3. Name of Employing Agency _____

4. Address of Employing Agency _____

5. ☐ Male ☐ Female

6. Age: ☐ Under 20 ☐ 20-30 ☐ 31-50 ☐ Over 50

7. Draw a circle around the highest grade you completed in school:

grade 6	High school graduate
grade 7	1 year of college
grade 8	2 years of college
grade 9	3 years of college
grade 10	College graduate
grade 11	

8. For how many years have you been in your present occupation?

Less than 1 year 1-5 years More than 5 years

9. How many times have you changed jobs in the past 5 years? Check the correct box below.

☐ 0 times

☐ 1 - 2 times

☐ 3 or more times

10. Please list other types of work you have done in the past 5 years.

_____

_____

_____

_____

_____

INSTRUCTIONS

The following pages list tasks some people who work in child care occupations do.

Please read each task listed.

Check (✓) "YES" for all of the tasks you perform as part of your work. Check (✓) "NO" beside all of the tasks you do not perform as part of your work. PLEASE CHECK ALL ITEMS.

DO NOT CHECK A TASK "YES" UNLESS YOU HAVE ACTUALLY PERFORMED IT IN THE LAST TWO (2) YEARS.

PLEASE BE SURE TO CHECK EACH ITEM EITHER "YES" OR "NO."

Here is an example of how to check items:

YES	NO	
✓	___	Set up and arrange beds (A check of "YES" means that you do that as part of your work.)
___	✓	Wash dishes (A check of "NO" means that you do not wash dishes as part of your work.)

CHILD CARE SERVICES

PLEASE CHECK EACH ITEM EITHER "YES" OR "NO"

Housekeeping

YES	NO	
___	___	Arrange and rearrange furniture
___	___	Set up and arrange beds
___	___	Make beds and change bed linens
___	___	Clean floors, walls, woodwork, cabinets, storage areas, windows, tables, etc.
___	___	Wash toys and equipment (blocks, dolls, puzzles, etc.)
___	___	Clean cages, pens, or containers for animals
___	___	Feed animals and/or water plants
___	___	Wash doll clothing, dressup clothing, towels, rest mats, etc.
___	___	Make minor repairs or part replacements
___	___	Make major repairs or part replacements
___	___	Repair locks
___	___	Store equipment and materials
___	___	Dispose of wastes
___	___	Sand and paint furniture
___	___	Supervise cleaning service
___	___	Supervise maintenance staff
___	___	Cooperate in administrative staff discussion on operation and maintenance of building and grounds

Food Preparation

YES	NO	
___	___	Plan meals and snacks
___	___	Plan food for special occasions
___	___	Prepare snacks
___	___	Prepare meals
___	___	Prepare foods for special occasions
___	___	Help children prepare foods for special occasions
___	___	Set table
___	___	Serve food
___	___	Clear away food
___	___	Clean up soiled dishes, etc.
___	___	Wash dishes
___	___	Order groceries
___	___	Inventory supplies and food
___	___	Plan seating arrangement for children
___	___	Care for equipment
___	___	Store equipment

PLEASE CHECK EACH TASK EITHER "YES" OR "NO"

Assisting Children with Routines

YES	NO	
___	___	Help children dress and undress
___	___	Supervise rest time
___	___	Perform daily health inspection
___	___	Administer first aid
___	___	Supervise bathroom procedures (toileting, washing, personal grooming, etc.)
___	___	Supervise snack time and/or mealtime
___	___	Introduce new child to center
___	___	Supervise and help children isolated because of emotional upset
___	___	Care for sick or injured children
___	___	Bathe children

Preparation of Materials

YES	NO	
___	___	Make art materials (paint, dough, clay, etc.)
___	___	Gather equipment and materials for activities
___	___	Arrange materials and equipment ready for use
___	___	Store equipment and materials
___	___	Dispose of left-over scraps
___	___	Clean work tables, equipment, floors, etc.

Secretarial, Clerical, etc.

YES	NO	
___	___	Answer telephone
___	___	Take messages
___	___	Accept and deliver supplies
___	___	Type reports, correspondence, etc.
___	___	Keep records
___	___	Take notes (at staff meetings, etc.)
___	___	Greet guests

Directing or Assisting with Activities

YES	NO	
___	___	Help to plan and evaluate activities and programs
___	___	Balance individual activity against group activity
___	___	Administer first aid when necessary
___	___	Store supplies and equipment in central storage area

PLEASE CHECK EACH TASK EITHER "YES" OR "NO"

Directing or Assisting with Activities (cont.)

YES	NO	
		Store supplies and equipment in own room
___	___	Routine clean-up
___	___	Supervise creative activities (painting, playing with clay, etc.)
___	___	Teach and lead singing and rhythmic activity
___	___	Supervise dramatic play activities (blockbuilding, housekeeping, play, etc.)
		Assist children individually
___	___	Assist children with group play
___	___	Assist children with problems
___	___	Dispose of wastes
___	___	Identify child's state of health
___	___	Select children's clothing appropriate for temperature and activity
___	___	Arrange equipment and materials to be used
___	___	Supervise special activities (field trips, animals, etc.)
___	___	Read or tell stories
___	___	Select recorded music
___	___	Supervise manipulative play (puzzles, woodworking, etc.)
___	___	Supervise outdoor play
___	___	Observe children (for example, observe in order to help plan the program to meet their needs or to plan the schedule so it will be more efficient)
		Demonstrate techniques for above
___	___	Lead staff discussion related to above
___	___	Supervise teachers in above responsibilities

Planning Activities and Programs

YES	NO	
		Plan goals for year's program
___	___	Help plan goals for year's program
___	___	Plan activities to be offered every day
___	___	Balance individual activity against group activity
___	___	Evaluate plans often and change them when needed
___	___	Plan daily schedule
___	___	Plan special activities (field trips, animals, growing plants, etc.)
___	___	Plan special activities for children with special problems or needs
___	___	Assist teacher staff in program planning
___	___	Assist teacher staff with techniques for meeting special needs of individual children
___	___	Make charts and outlines of ideas for program

PLEASE CHECK EACH TASK EITHER "YES" OR "NO"

Administration (cont.)

YES	NO	
		Collect fees
___	___	Interview prospective employees
___	___	Schedule and allocate work for entire center
___	___	Schedule and allocate work for own group in center
___	___	Conduct staff meetings
___	___	Participate in staff meetings
___	___	Report accidents and other important happenings
___	___	Make observations for use by administrators
___	___	Supervise safety
___	___	Evaluate and supervise teaching staff
___	___	Train teaching staff
___	___	Assist with in-service training
___	___	Interview prospective clients
___	___	Interpret functions of center to community
___	___	Provide public tours
___	___	Collaborate to write proposals
___	___	Prepare budgets
___	___	Supervise social service personnel

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15. ABSTRACT (250 words max.)

A team of home economists and day care center employees and supervisors conceptualized and field tested a survey instrument to obtain up-to-date facts about major types and combinations of tasks performed by child care workers.

A representative sample of child care workers is being identified. The instrument will be utilized to obtain data that will (1) provide up-to-date facts about combinations of work done by various categories of child care workers, (2) provide a base for identification of clusters of knowledges and competencies essential for effective performance of tasks constituting work patterns, and (3) ascertain the degrees to which such knowledges and competencies are congruent with those essential for work in other non-professional occupations.

16. RETRIEVAL TERMS (Continue on reverse)

Child care
Clusters of knowledge
Home economics, curriculum
Curriculum, child care

17. IDENTIFIERS

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16. RETRIEVAL TERMS *(Continued)*

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Manpower Projections and Training Needs Forecast to 1975 for the Terre Haute Area. Interim Report. (Project no. 6-2717).

Indiana Res. and Develop. Coordg. Unit, Terre Haute

Nov66

EDRS Price MF-$0.09 HC-$1.04 26p.

*OCCUPATIONAL SURVEYS, *EMPLOYMENT TRENDS, *EDUCATIONAL NEEDS, EMPLOYMENT OPPORTUNITIES, PROFESSIONAL OCCUPATIONS, TECHNICAL OCCUPATIONS, CLERICAL OCCUPATIONS, SALES OCCUPATIONS, SKILLED OCCUPATIONS, SEMISKILLED OCCUPATIONS, SERVICE OCCUPATIONS, FARM OCCUPATIONS, UNSKILLED OCCUPATIONS, MANAGERIAL OCCUPATIONS,

Terre Haute, Indiana,

Using U.S. Census Bureau and Indiana Employment Security Division data, a previous study was updated to include projections of manpower and training needs for the Terre Haute area. Graphs show trends for eight occupational groups in the United States, the nation's urban areas, Indiana, and the Terre Haute Standard Metropolitan Area. Manpower needs are shown for specific occupations and graphically displayed for 1960, 1965, 1970, and 1975 for the following occupational groups -- (1) professional and technical, (2) clerical and sales, (3) craftsmen and foremen, (4) operatives and trainees, and (5) service. Replacement, preparatory, inservice, and total training needs are forecast for selected occupations. Rising manpower needs are forecast in professional, technical, and service occupations. Steadily decreasing needs are forecast for proprietors, managers, clerks, salesmen, operatives, trainees, laborers, farmers, and farm laborers. Needs are expected to remain steady for craftsmen and foremen. (JM)

MAR 22 1967

ED015348

INTERIM REPORT
Project No. 6-2717
Grant No. OEG3-6-062717-2144

MANPOWER PROJECTIONS AND TRAINING NEEDS FORECAST TO 1975 for THE TERRE HAUTE AREA

November, 1966

U.S. DEPARTMENT OF
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Project No. 6-2717
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Indiana Research Coordinating Unit

Indiana Research and Development Coordinating Unit for Vocational and Technical Education, Terre Haute.

November, 1966

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Indiana State University

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MANPOWER PROJECTIONS AND TRAINING NEEDS
FORECAST TO 1975
for
THE TERRE HAUTE AREA

Indiana Research Coordinating Unit

November, 1966

This Report was Supported by a Grant
from the U. S. Department of Health, Education, and Welfare
Office of Education

The Research Coordinating Unit, working with the 1950[1] and 1960[2] census figures taken from the Bureau of Census Report for the Terre Haute Standard Metropolitan Statistical Area (SMSA) and information taken from Indiana Manpower Trends to 1975 prepared by the Indiana Employment Security Division, has attempted to update Part III of the Survey of Terre Haute Industries as a Basis for Vocational-Technical Education Planning in the Public Schools, which was prepared and written by Dr. L. W. Yoho.

Figure 1 shows the work force, broken into percentages by major areas, for the United States, United States Urban Areas, Indiana, and the Terre Haute Standard Metropolitan Area. The 1940, 1950, and 1960 percentages were taken from the Bureau of Census Reports for those years. Please note that no percentage is shown for the Terre Haute SMSA for 1940, since no figures were given for that year. The 1965 percentage for Indiana is an estimate taken from Indiana Manpower Trends to 1975, and the Terre Haute figure for 1965 is also an estimate, based on the information furnished by the Indiana Employment Security Division. The 1970 and 1975 figures for Indiana and Terre Haute are projections from the 1965 figures. No attempt was made to forecast or predict for the United States as a whole or for the urban areas of the United States. The forecasts for the 1970 and 1975 Indiana figures

---

[1] U. S. Census, 1950, Vol. II, Part 14, Table 73, pp. 201-218.

[2] U. S. Census, 1960, Vol. I, Part 1, U. S. Summary Table 87, p. 216; and Vol. I, Part 16, Table 121, pp. 419-436.

were taken from Indiana Manpower Trends to 1975 and the forecasts for 1970 and 1975 for the Terre Haute area were made by applying the percentages of increase or decrease for each major division, as given in the Indiana Manpower Trends to 1975, to the Terre Haute area.

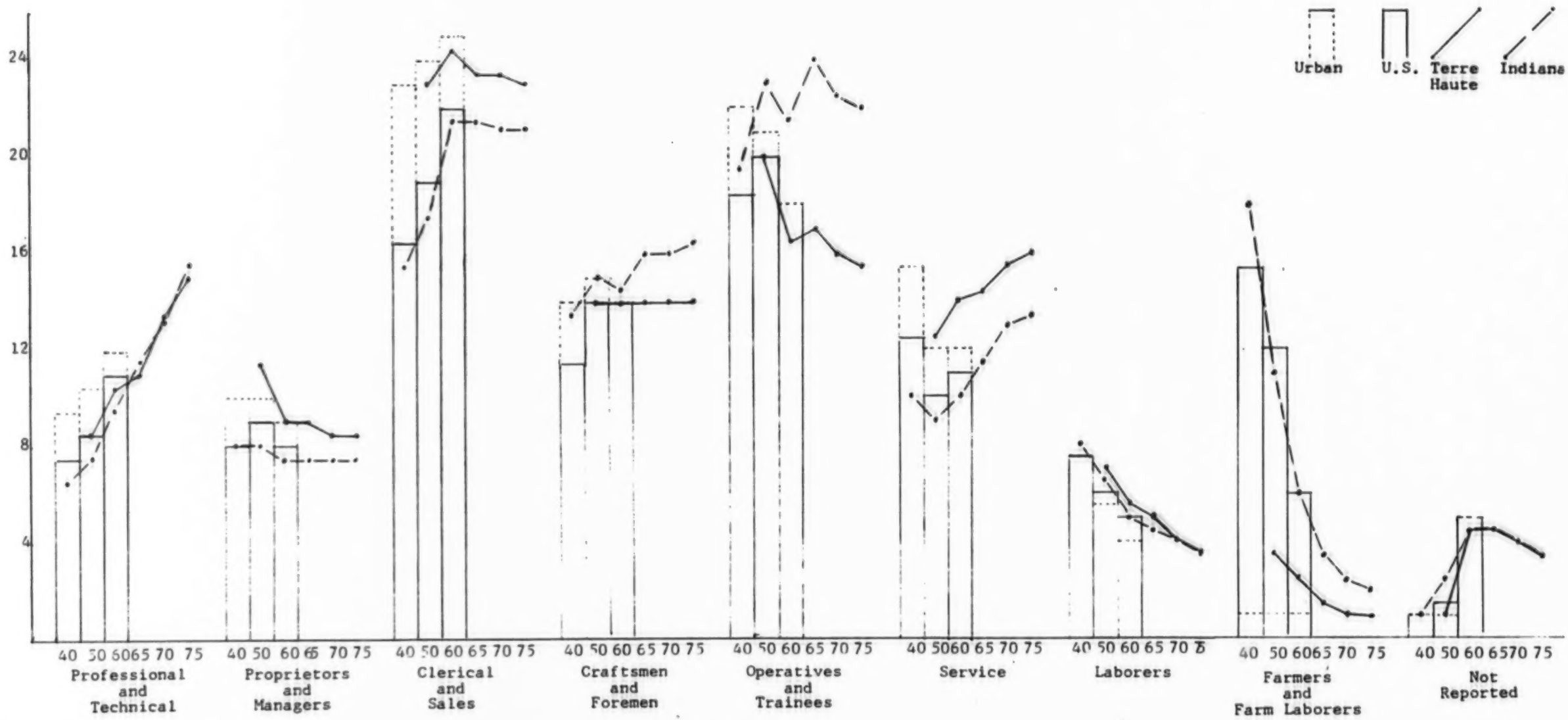

Urban
U.S.
Terre Haute
Indiana
24
20
16
12
8
4
40 50 60 65 70 75
Professional and Technical
Proprietors and Managers
Clerical and Sales
Craftsmen and Foremen
Operatives and Trainees
Service
Laborers
Farmers and Farm Laborers
Not Reported

Figure 1

Figure 2 shows the graphic history and specific number in each occupation included in the Professional and Technical division. The six narrow bars on the left represent the Indiana workforce and the line graph above them represents Terre Haute. The 1940, 1950, and 1960 figures are census figures and the 1965, 1970, and 1975 figures are estimates and projections.

The broad bar over 1960 contains the numbers in each specific occupation making up the total of 3,855 in the Professional and Technical Division in the Terre Haute area as recorded in census records. The proportions from the 1960 bar were projected to the 1965, 1970, and 1975 bars. The number for each specific occupation was then recorded as a proportion of the total estimate. The numbers assigned to specific occupations in 1965 represent estimates; the numbers assigned to 1970 and 1975 represent a forecast of the occupational needs for these years.

PROFESSIONAL AND TECHNICAL
Figure 2

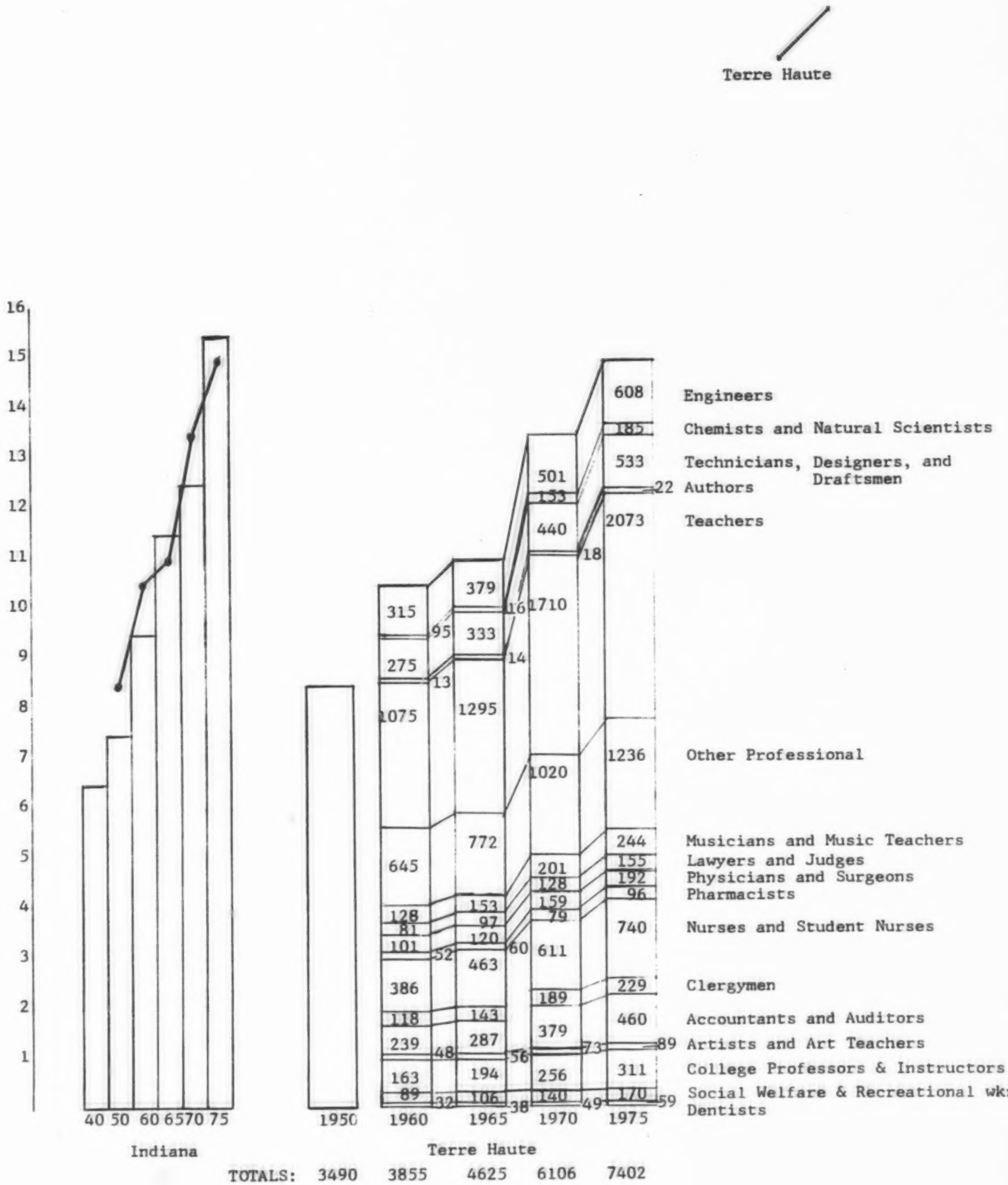


Figure 3

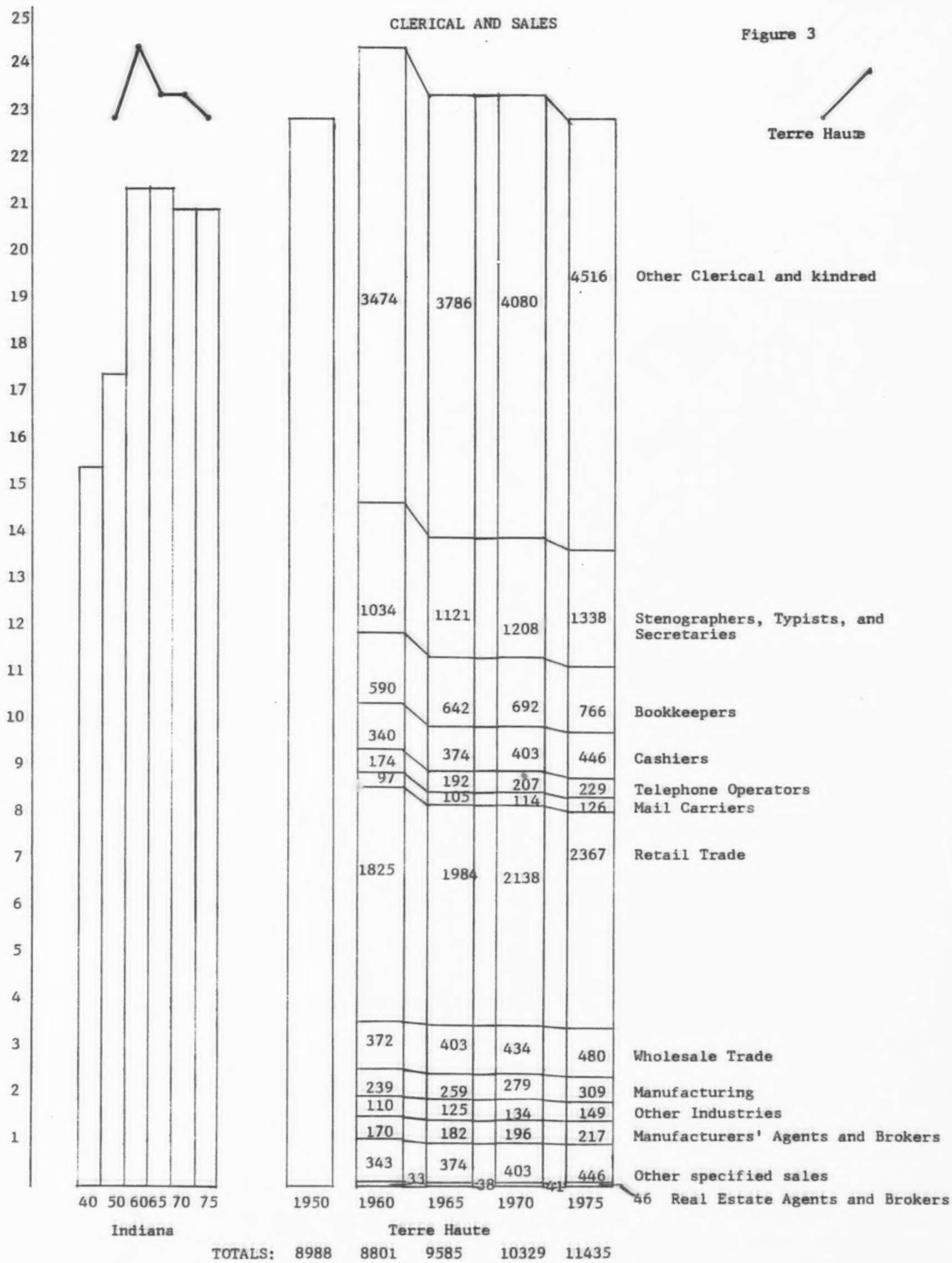
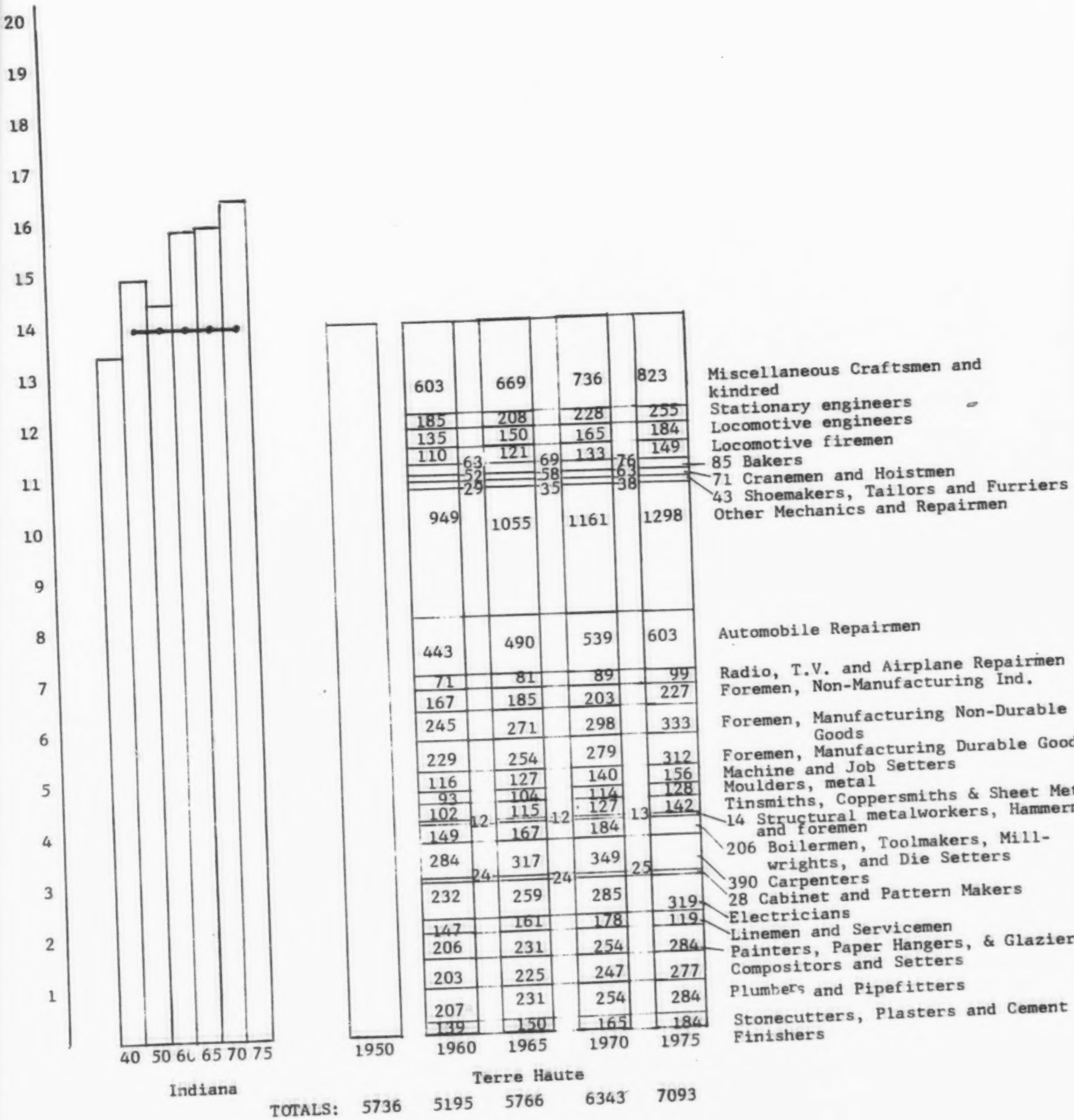

CLERICAL AND SALES
Terre Haute
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
3474
3786
4080
4516
Other Clerical and kindred
1034
1121
1208
1338
Stenographers, Typists, and Secretaries
590
642
692
766
Bookkeepers
340
374
403
446
Cashiers
174
192
207
229
Telephone Operators
97
105
114
126
Mail Carriers
1825
1984
2138
2367
Retail Trade
372
403
434
480
Wholesale Trade
239
259
279
309
Manufacturing
110
125
134
149
Other Industries
170
182
196
217
Manufacturers' Agents and Brokers
343
374
403
446
Other specified sales
33
38
41
46 Real Estate Agents and Brokers
40 50 6065 70 75
Indiana
1950
1960
1965
1970
1975
Terre Haute
TOTALS: 8988 8801 9585 10329 11435

Figure 4

CRAFTSMEN AND FOREMEN



OPERATIVES AND TRAINEES

Figure 5

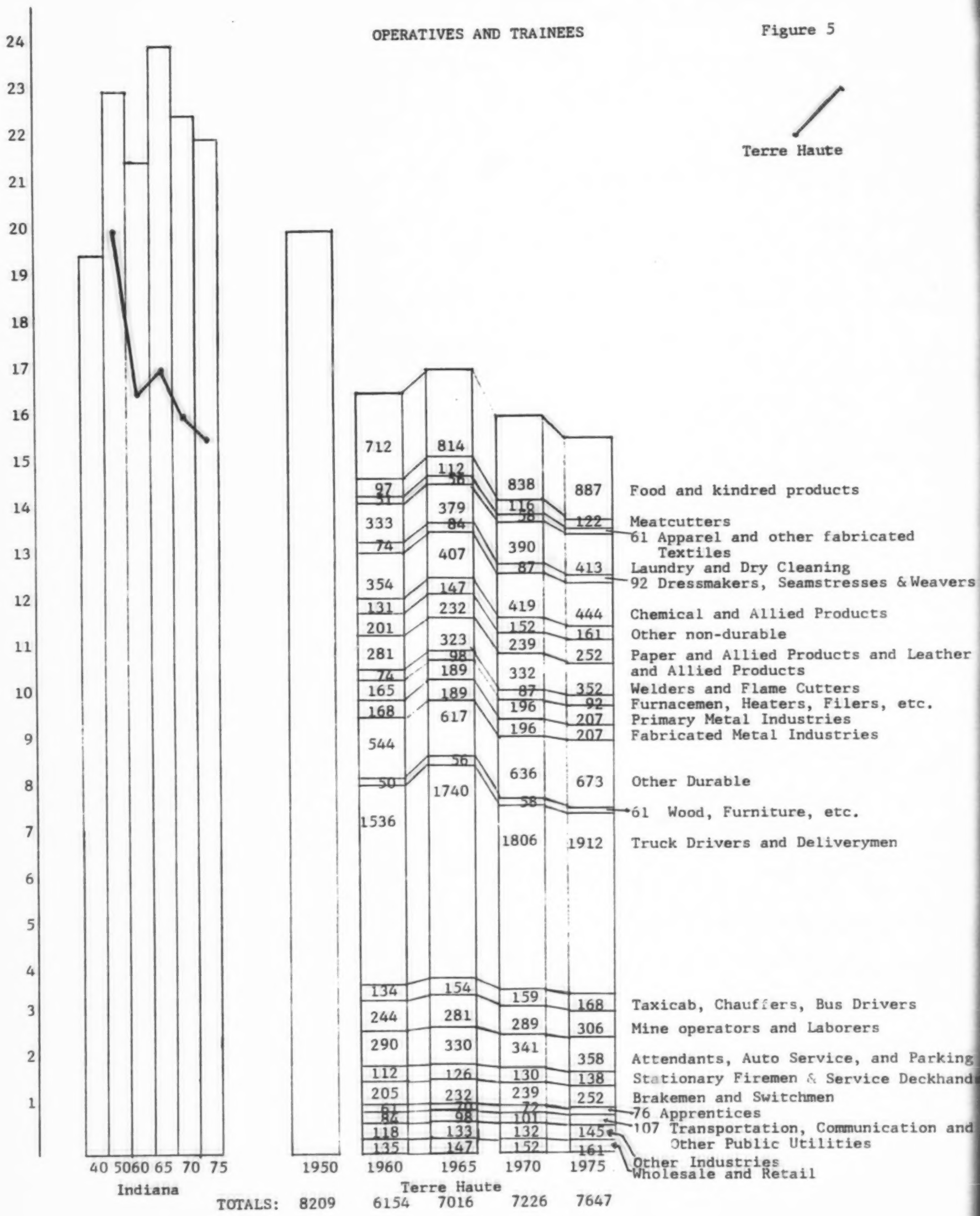
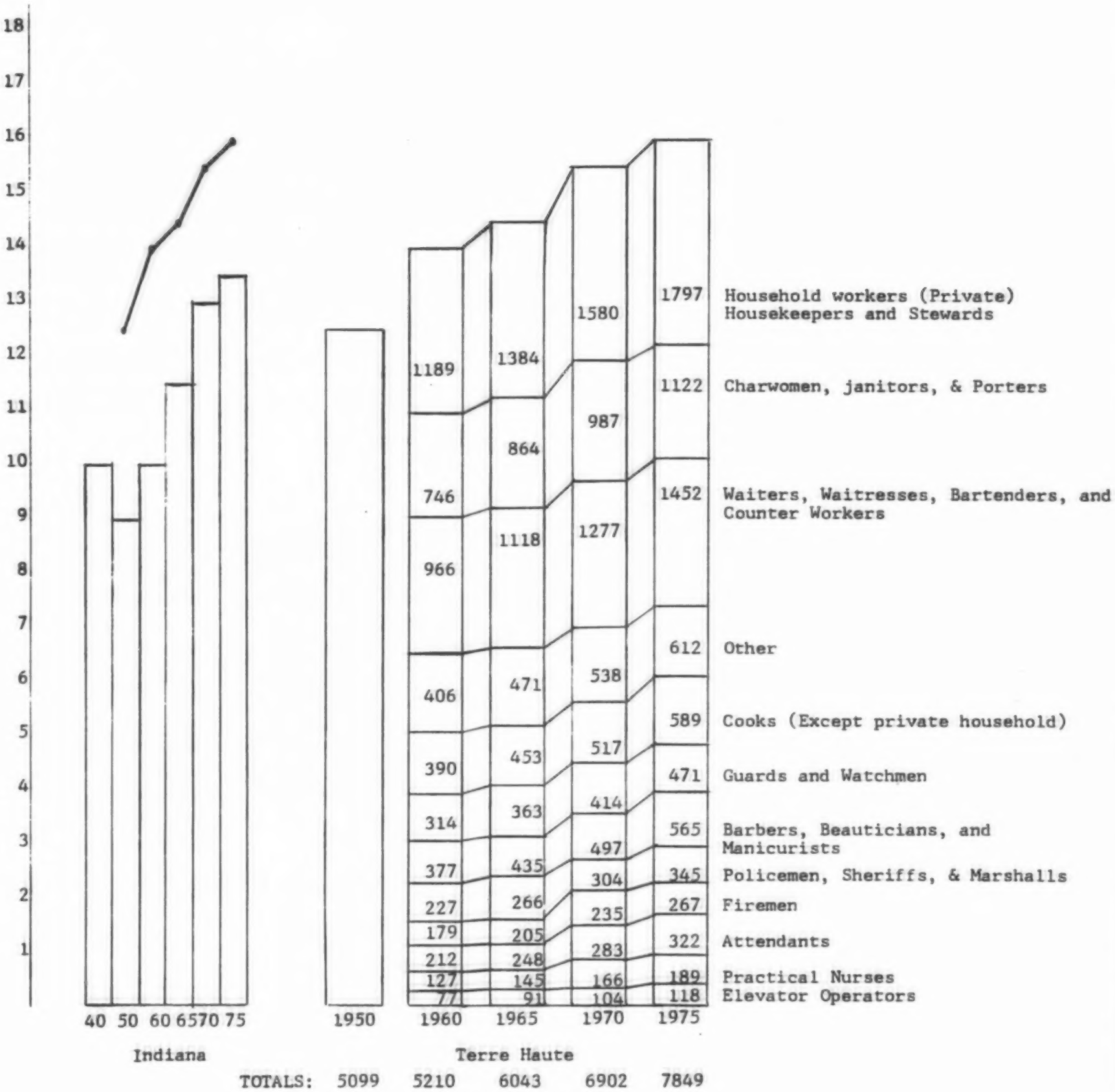


Figure 6

SERVICE WORKERS



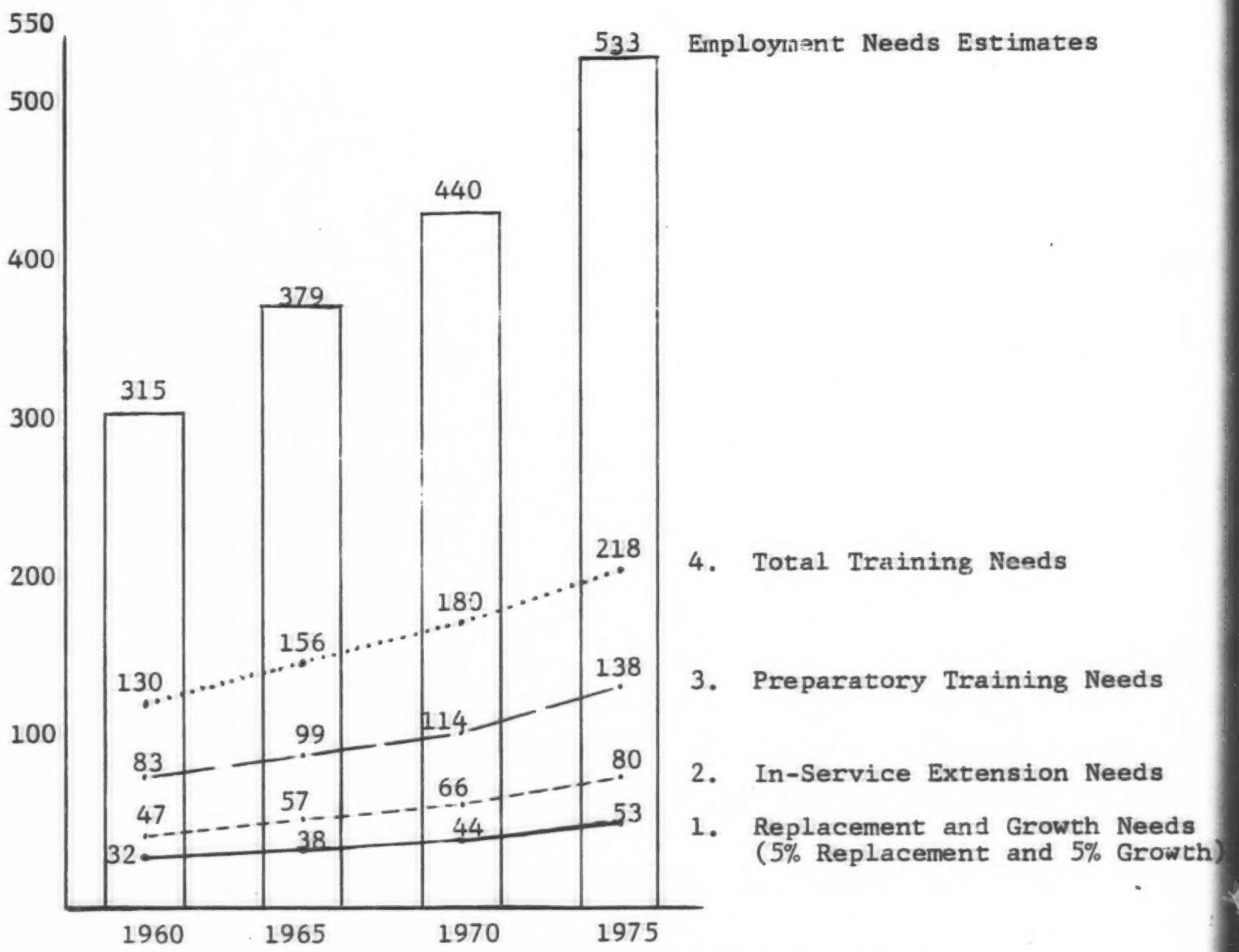
The projections for the Clerical and Sales Division (Fig. 3), Craftsmen and Foremen Division (Fig. 4), Operatives and Trainees Division (Fig. 5), and Service Division (Fig. 6) were made in the same manner as the projections for the Professional and Technical Division.

Although it was assumed that each occupation within a division would maintain the same percentage of that division for 1965, 1970, and 1975 as shown for 1960, it can be said that this probably will not be so. For example, with the increasing emphasis given to education and the existing teacher shortage, the percentage of teachers in the Professional and Technical Division will probably increase.

Projecting future manpower and training needs is a difficult task. There are many variables that must be considered. The preceding projections are offered as a guide in planning training programs and dealing with other manpower and educational problems and the training needs forecasts which follow are also offered as guides.

A graphic forecast of training needs based upon the occupational needs for technicians, designers, and craftsmen is presented in Figure 7. These specific occupations were selected from the projections developed in Figure 2. The forecast reveals a need for approximately 83 in training during 1960, 99 by 1965, 114 by 1970, and 138 by 1975. Approximately 43% of the trainees should be in drafting and design and the remaining 57% in other technical occupations.

GRAPHIC FORECAST OF TRAINING NEEDS FOR TECHNICIANS, DESIGNERS AND DRAFTSMEN

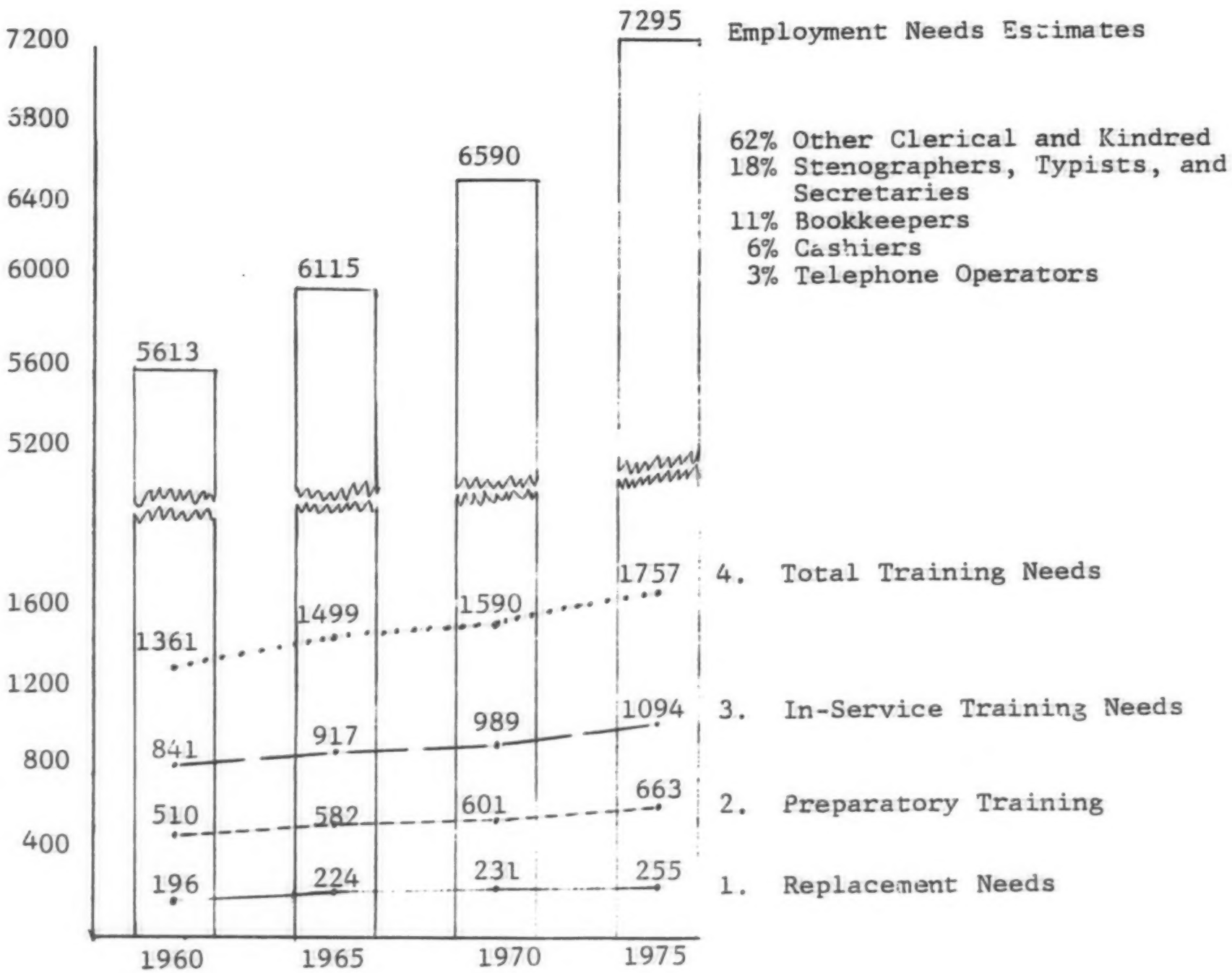


1. Estimates based on work life and rapidly increasing occupation.
2. Estimates based on realistic percentage for states having highest percentage of enrollments--15% of occupational group.
3. Assuming a 2-year training period and 30% drop out.
4. Preparatory training and in-service training estimates.

Figure 7

Figures 8, 9, 10, 11, 12, 13, 14, and 15 are training forecasts for various occupations. The charts were developed by selecting the specific occupations from the projections developed in Figures 3, 4, 5, and 6. The training forecast charts are self-explanatory. To determine the training needs for specific occupations within each training forecast chart, simply apply the percentage for that group to the total training needs forecast. For example, the total training needs forecast for Clerical occupations is 1757. Of that total, 193 should be preparing for bookkeeping work. (1757 x .11 = 193)

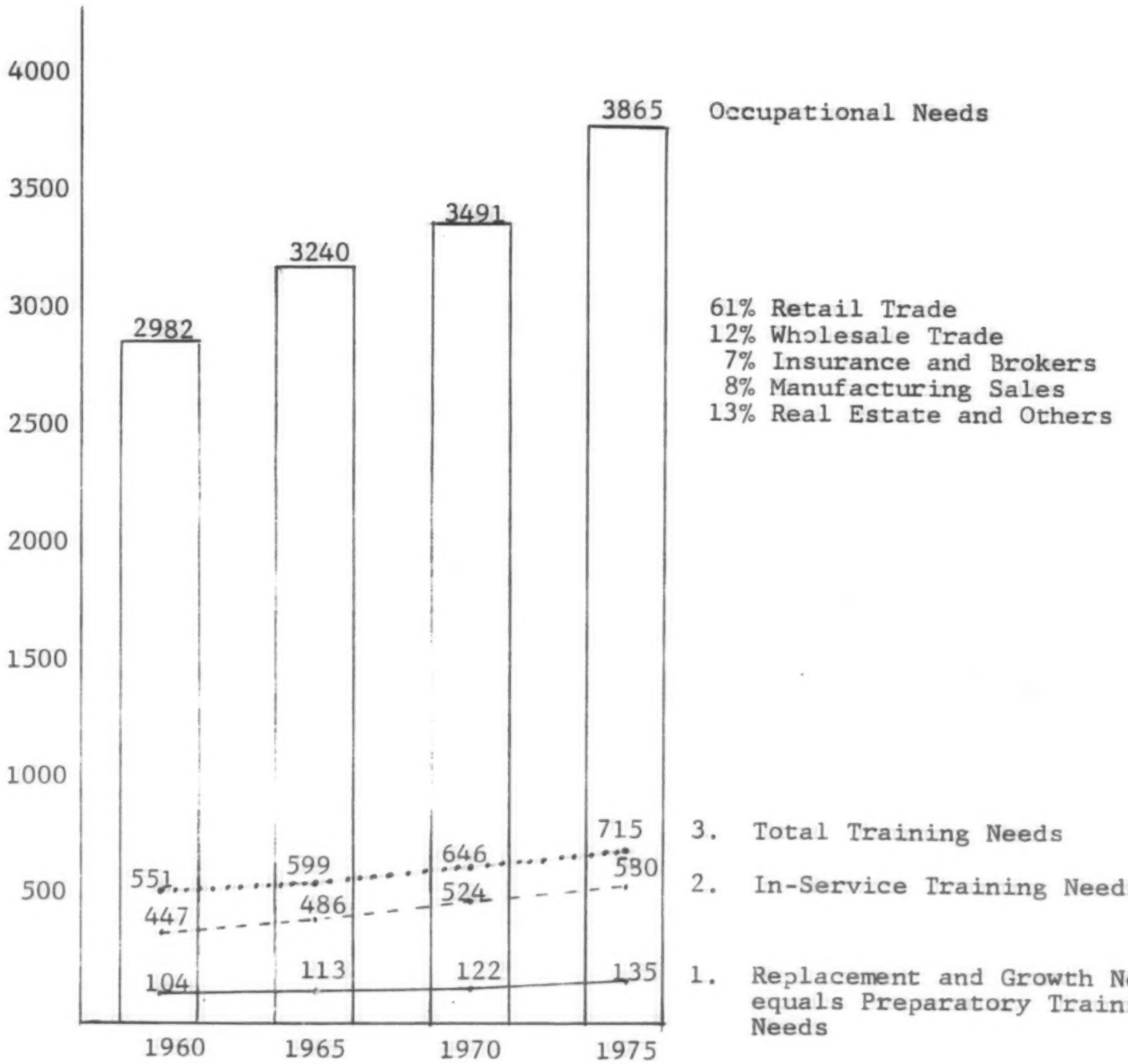
GRAPHIC FORECAST OF TRAINING NEEDS
FOR SELECTED CLERICAL OCCUPATIONS
(2 year training assumed)



1. 2% by Jaffe and Carleton an 3.4% by Moss (Av. 2.7%) Growth rate .8%
2. Assumed 2 year training period plus 30% trainee drop-out
3. 15% of total work force.
4. In-service plus Preparatory = Total Training

Figure 8

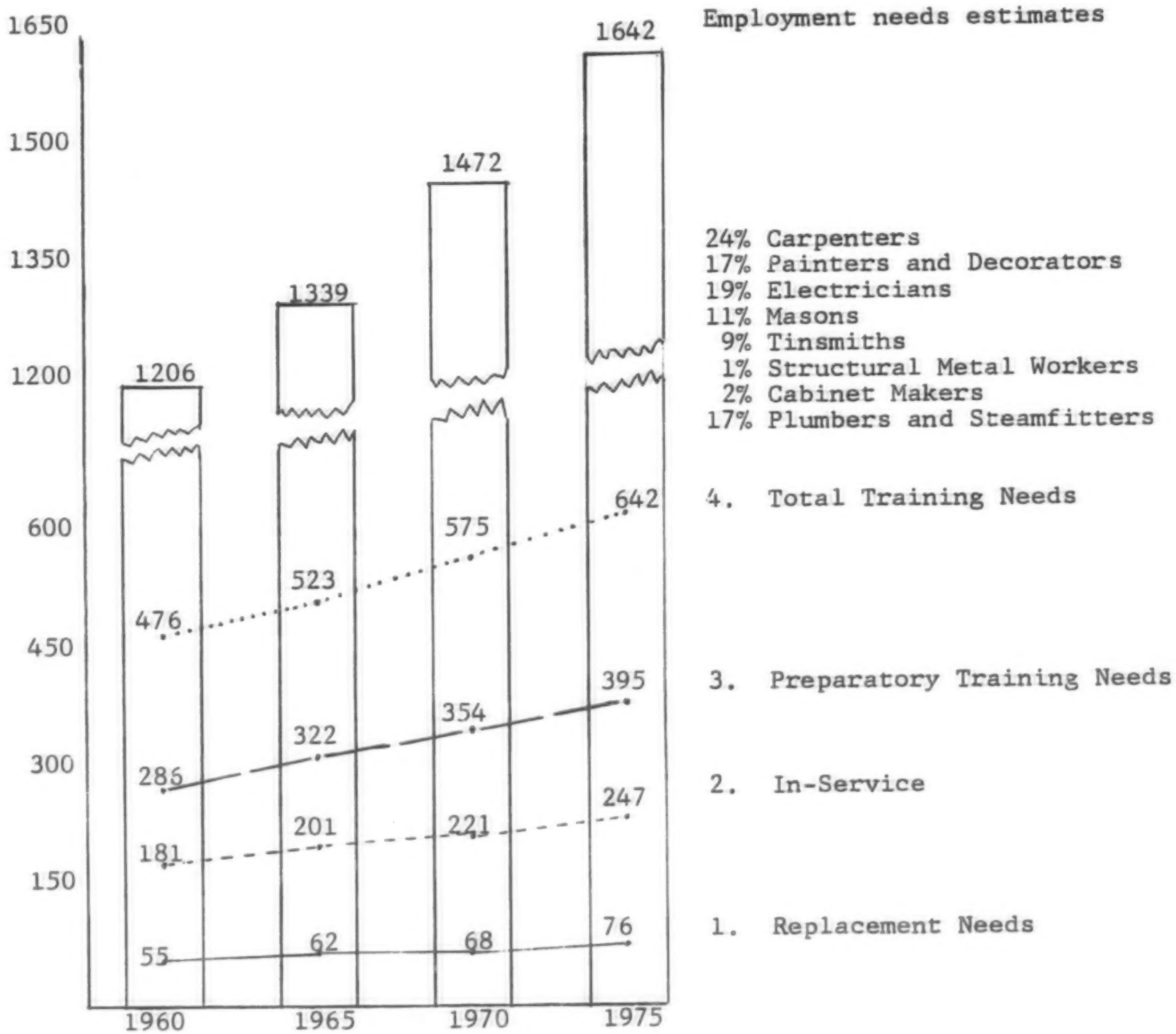
GRAPHIC FORECAST OF TRAINING NEEDS
FOR SELECTED SALES OCCUPATIONS
(1 Year Training Assumed)



1. 2% by Jaffe and Carleton and 3% by Moss (Av. 2.5%). Growth rate .1% (Replacement 2.5 plus 1.0 = 3.5%)
2. 15% of total group
3. Preparatory plus in-service

Figure 9

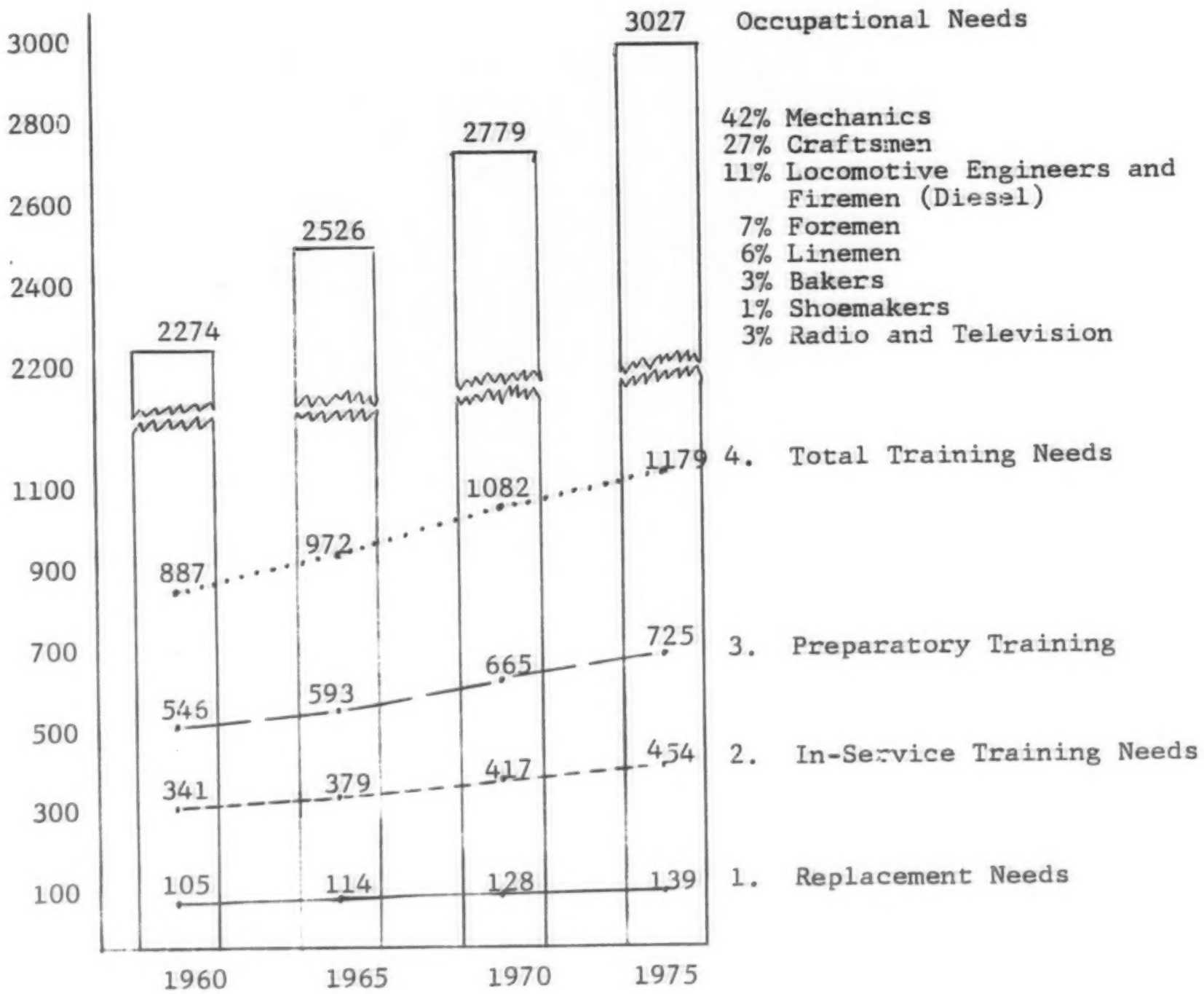
GRAPHIC FORECAST OF TRAINING NEEDS FOR
BUILDING TRADES OF TERRE HAUTE



1. 2.3% by Jaffe and Carleton and 3.3% by Moss (average 2.8%). Growth rate 1.8% annually (replacement 1.8 plus 2.8 = 4.6%)
2. 15% of total group
3. Assumed 4-year training period plus 30% trainee drop-out
4. Preparation and in-service

Figure 10

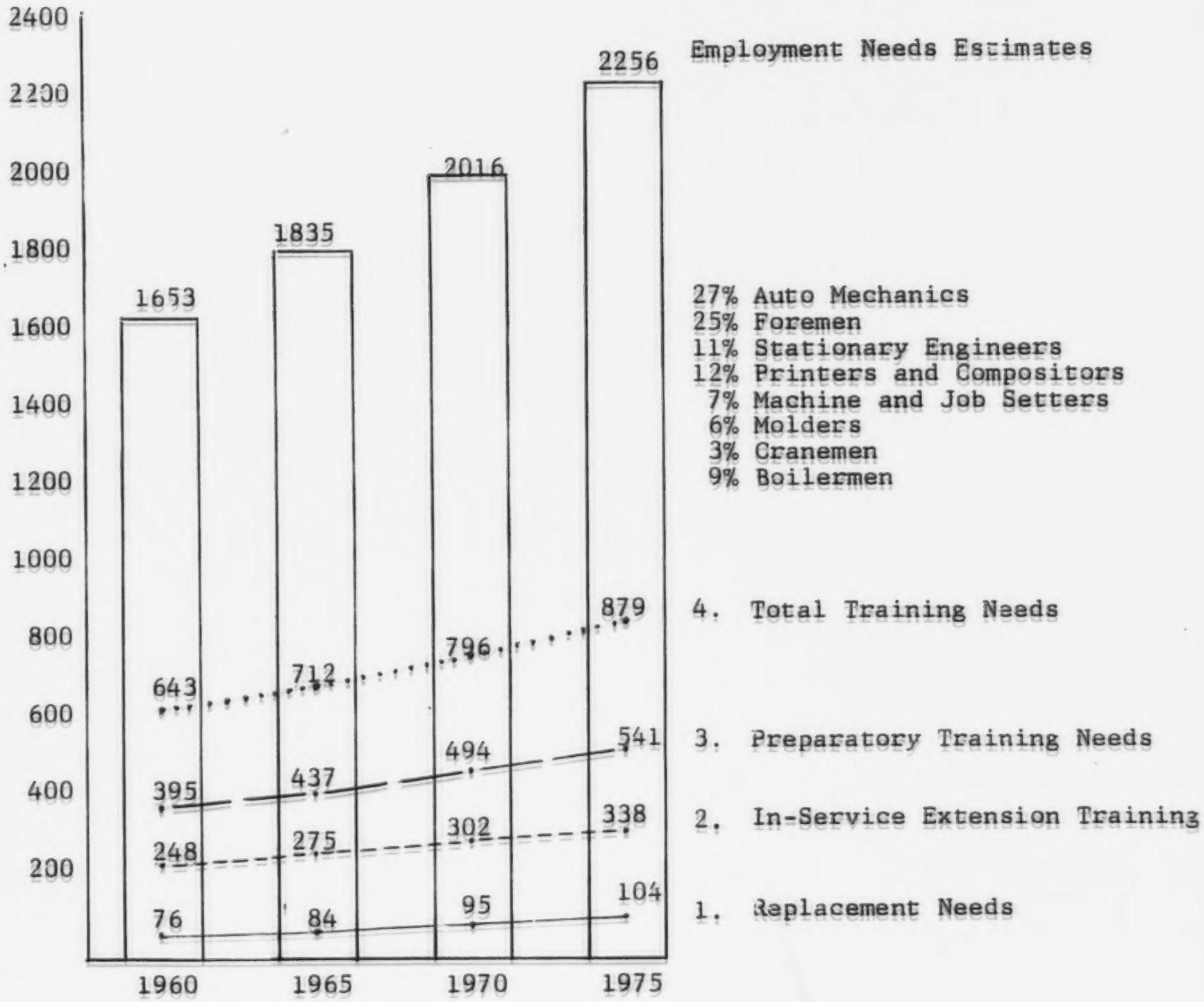
GRAPHIC FORECAST OF TRAINING NEEDS FOR
MISCELLANEOUS SKILLED TRADES



1. 2.3% by Jaffe and Carleton an 3.3% by Moss (Av. 2.8%). Growth rate 1.8% annually (Replacement 1.8 plus 2.8 = 4.6%)
2. 15% of total group
3. Assumed 4-year training period plus 30% trainee drop-out.
4. Preparatory plus in-service

Figure 11

GRAPHIC FORECAST OF TRAINING NEEDS FOR
INDUSTRIAL TRADES

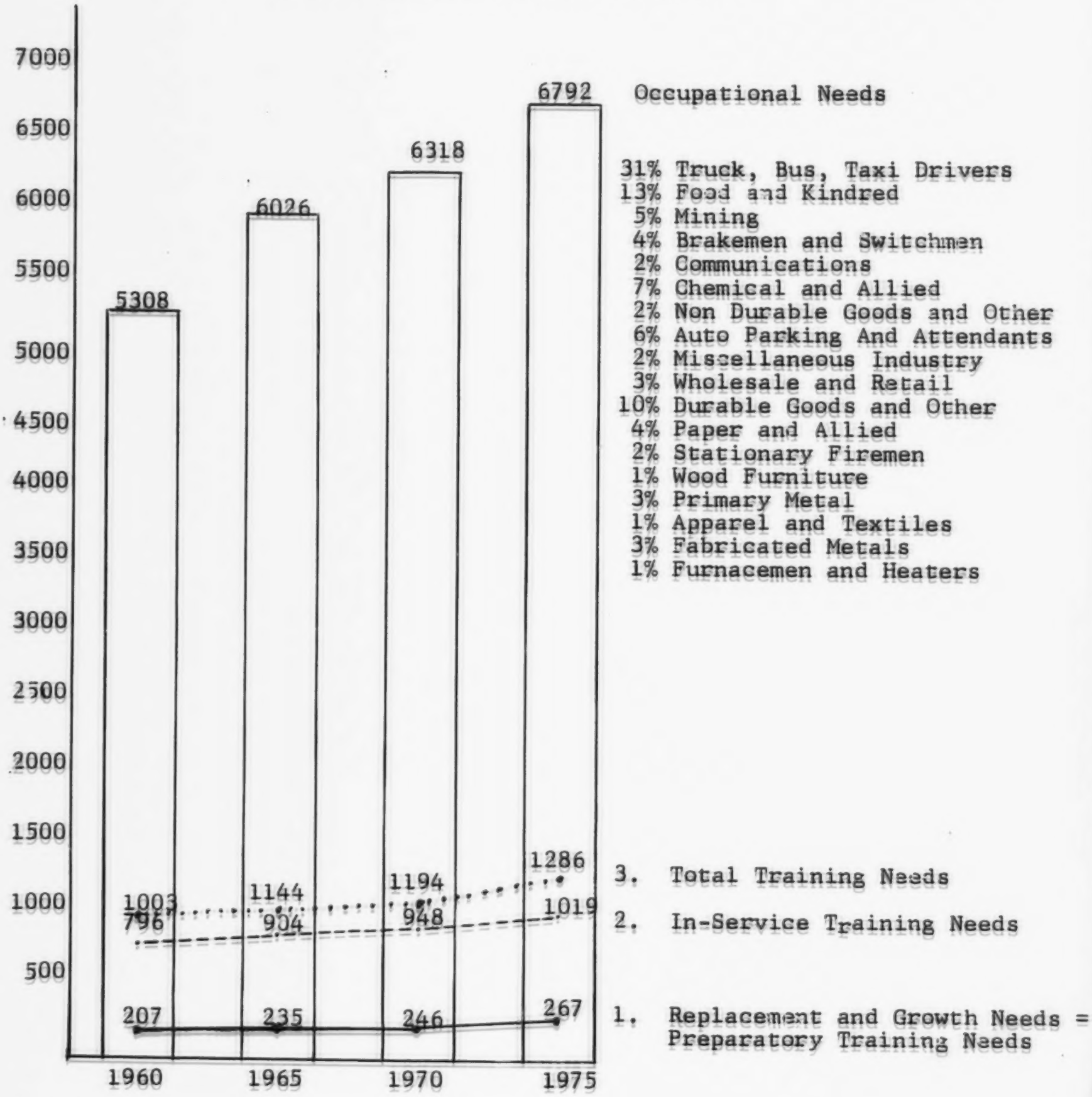


1. 2.3% by Jaffe and Carleton and 3.3% by Moss (average 2.8%). Growth rate 1.8% annually (replacement 1.8 plus 2.8 = 4.6%).
2. 15% of total group
3. Assumed 4-year training period plus 30% drop-out
4. Preparatory plus in-service

Figure 12

5 01 to SL

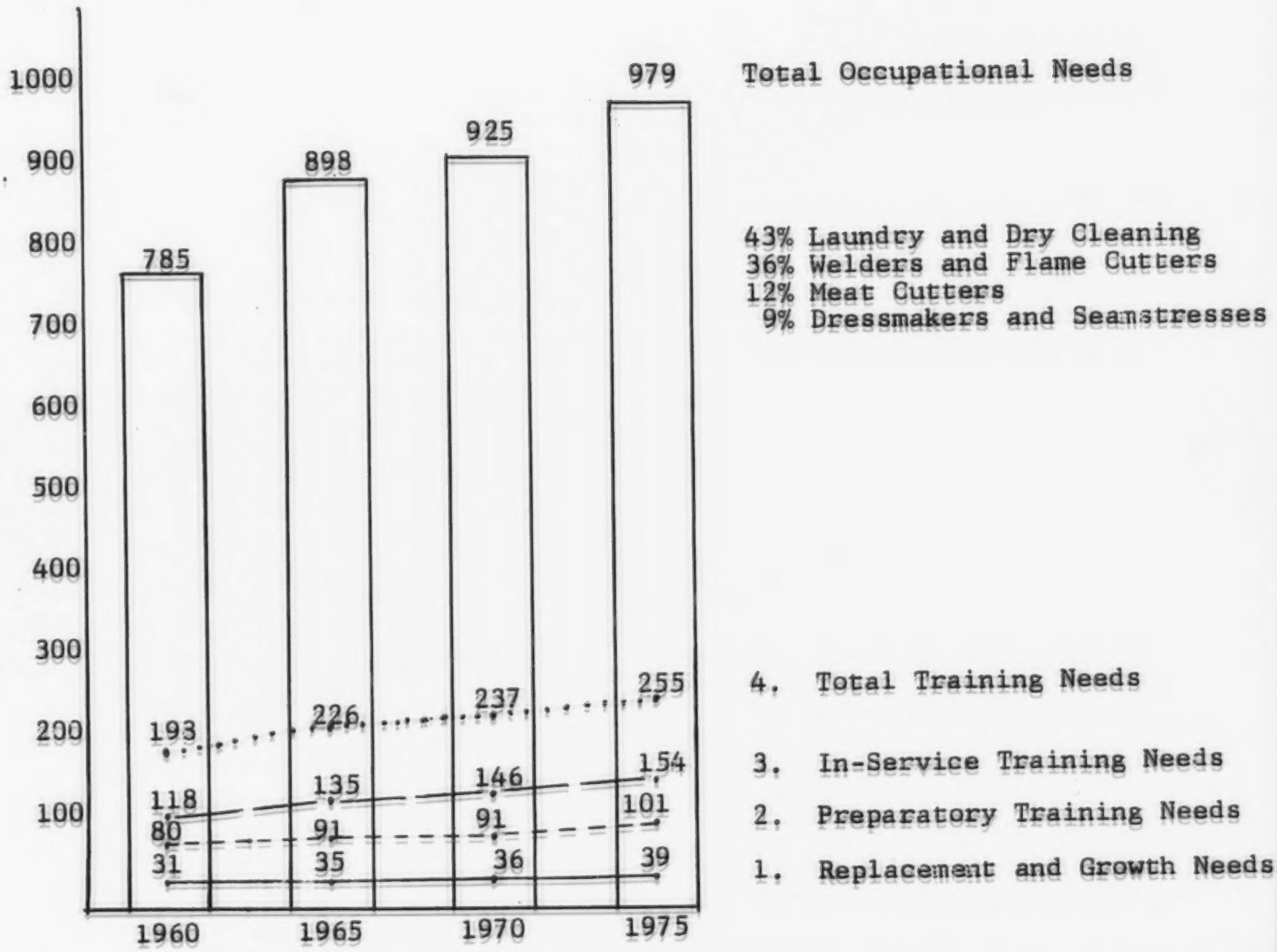
GRAPHIC FORECAST OF TRAINING NEEDS
FOR SELECTED OPERATIVE OCCUPATIONS
(1 year or less training assumed)



1. 2.2% by Jaffe and Carleton and 3% by Moss (Av. 2.6%). Growth rate 1.3% (Replacement 1.3 plus 2.6 or 3.9%)
2. 15% of total group
3. Preparatory plus In-Service

Figure 13

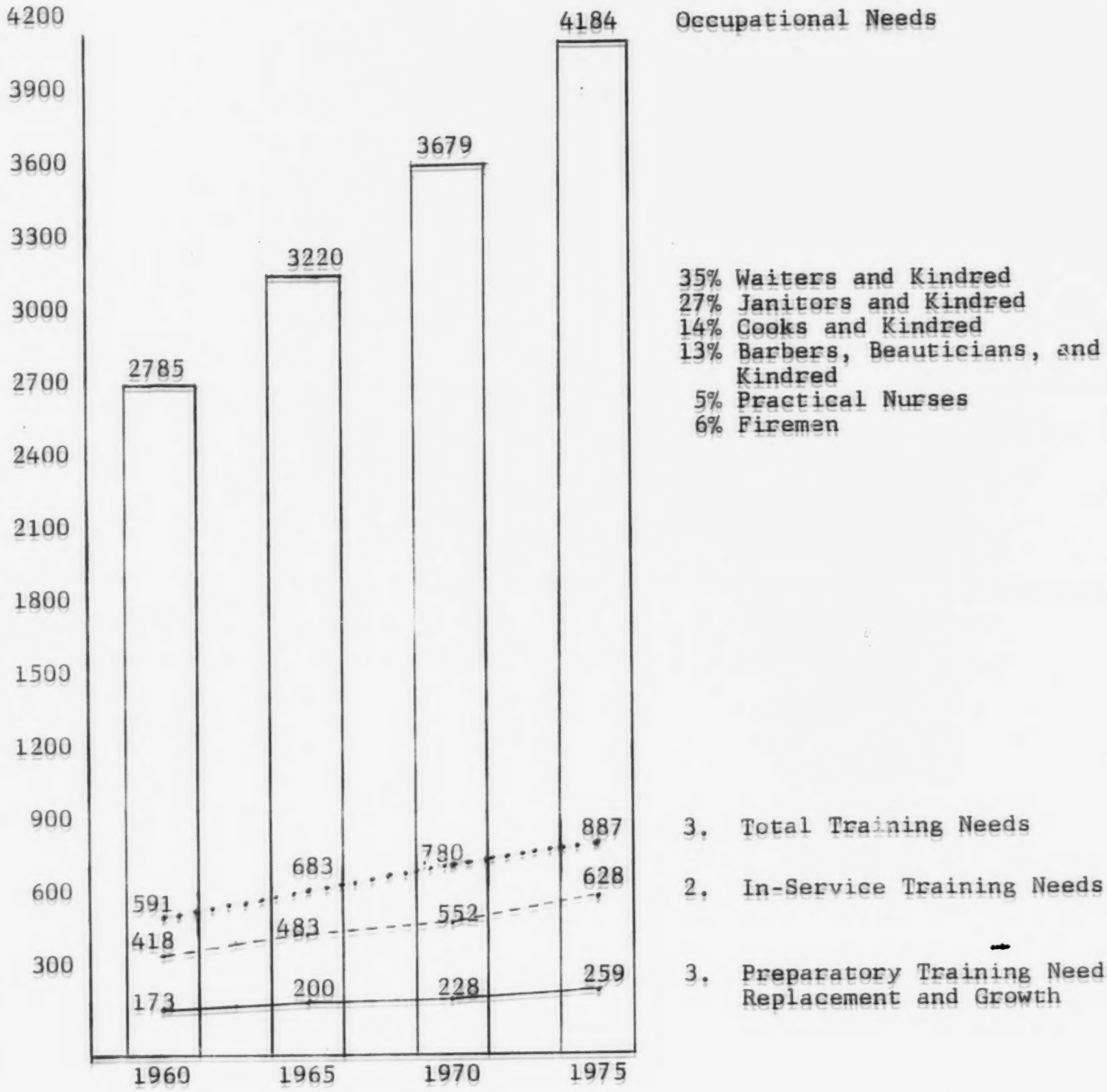
GRAPHIC FORECAST OF TRAINING NEEDS FOR
SELECTED OPERATIVE OCCUPATIONS
(2 Year Training Assumed)



1. 2.2% by Jaffe and Carleton and 3% by Moss (Av. 2.6%). Growth rate 1.3% (Replacement 1.3 plus 2.6 or 3.9%)
2. Assumed 2 year training period plus 30% drop-out
3. 15% of total group
4. Preparatory plus in-service

Figure 14

GRAPHIC FORECAST OF TRAINING NEEDS FOR WAITERS, JANITORS, COOKS, BARBERS, PRACTICAL NURSES, FIREMEN, AND KINDRED



1. 3.5% annual growth, plus an average of 2.7% annual replacement (an averag of separations found by Moss in average years in work force found by Jaff and Carleton). The training period was assumed to be one year or less.
2. Based on a realistic goal for the state having the highest percentage of enrollment. U. S. Office of Education, Report, Table 29, 1960.
3. Preparatory, plus in-service

Figure 15

Summary: A summary of the forecasts for preparatory and in-service training needs for 5-year intervals from 1960 to 1975 is presented in Table 1.

Table 1

Summary of Training Needs Forecasts

OCCUPATIONAL DIVISION	TRAINING NEEDS FORECASTS							
	PREPARATORY				IN-SERVICE			
	1960	1965	1970	1975	1960	1965	1970	1975
PROFESSIONAL & TECHNICAL								
Technical	83	99	114	138	47	57	66	80
CLERICAL & SALES								
Clerical	510	582	601	663	841	917	989	1094
Sales	104	113	122	135	447	486	524	580
CRAFTSMEN & FOREMEN								
Building Trades	286	322	354	395	181	201	221	247
Industrial Trades	395	437	494	541	248	275	302	338
Misc. Skilled Trades	546	593	665	725	341	379	417	454
OPERATIVES & TRAINEES								
Operatives, 2-year	80	91	91	101	118	135	146	154
Operatives, 1-year	207	235	246	267	796	904	948	1019
SERVICE								
Service	173	200	228	259	418	483	552	628
TOTALS	2184	2672	2915	3224	3437	3837	4165	4594

VT 001 813

VT 001 813

Eight Cities' Share of Ohio Schools.

Ohio State Dep. of Educ., Columbus. Div. of Vocat. Educ.

66

DOCUMENT NOT AVAILABLE FROM EDRS 5p.

*STUDENT ENROLLMENT, *URBAN SCHOOLS,

Ohio,

In the spring of the 1965-66 school year a study was conducted to determine the number of students in the eight major cities of Ohio. A 1-page chart shows the share that these major cities have in the state school enrollment for kindergarten through grade 12 and special education classes. They represent approximately one quarter of the total enrollment. (PS)

ED015348

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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EIGHT CITIES SHARE OF OHIO SCHOOLS

1966

VT 01813

Division of Vocational Education Ohio State Department of Education
Columbus, Ohio 43215

INTRODUCTION

In the spring of the 1965-66 school year a study was conducted to determine the numbers of students in the eight major cities of Ohio. This study, as reported by means of the following chart, shows the share that these major cities have in the total state school enrollment for grades kindergarten through twelve and special education. In total they represent approximately one quarter of the school enrollment for the given grades.

EIGHT CITIES SHARE OF OHIO SCHOOLS

Categories	Grades				
	9-12	1-12	Kinder-garten	Special	Grand Total
Akron	15,812	51,673	5,150	880	57,703
Cincinnati	17,766	74,651	8,669	2,877	86,197
Columbus	21,192	89,483	9,993	2,398	101,874
Canton	6,108	19,794	1,818	424	22,036
Dayton	14,539	52,374	4,930	1,560	58,864
Cleveland	34,917	128,929	14,522	7,544	150,995
Toledo	14,364	46,940	5,359	1,005	53,304
Youngstown	7,824	24,978	2,470	677	28,125
Sum of Eight Cities	132,522	488,822	52,911	17,365	559,098
Ohio Total	591,536	2,048,663	162,016	35,234	2,245,913
% Eight Cities of Ohio	22.4	23.9	32.7	49.3	24.9

VT 001 977

VT 001 977

The Need to Establish a Marine Sciences Technology Program at Shoreline Community College.

Teel, Ward * and others

Shoreline Community College, Seattle, Washington

66

DOCUMENT NOT AVAILABLE FROM EDRS 39p.

*SCHOOL SURVEYS, EDUCATIONAL PLANNING, *MARINE TECHNICIANS, MARINE TECHNOLOGY, TECHNICAL EDUCATION, EMPLOYMENT TRENDS, PROGRAM PLANNING, *EDUCATIONAL NEEDS, FEASIBILITY STUDIES, COMMUNITY COLLEGES, *OCCUPATIONAL SURVEYS,

Shoreline Community College, Washington, Seattle,

The purposes of this study were to -- (1) provide employment information, (2) assess existing training facilities, and (3) determine the feasibility of establishing community college programs. Employers in industries, governmental agencies, and institutions were personally interviewed. Information was collected on -- (1) the types of technicians employed, (2) jobs done by the technicians, (3) equipment used, (4) training of present technicians, (5) approximate salaries, (6) number presently employed, (7) personnel turnover, and (8) future employment plans. Responses indicated that 157 marine biology technicians, 111 physical oceanographic technicians, and 767 general biological technicians would be needed through 1969. Educational programs were needed for these technicians. The results of the job analysis are given. (EM)

OCEANOGRAPHY TECHNICIANS

ED015348

A Report

to the

Vocational Division

of the

Department of Education

Olympia, Washington

1966

VT 016277

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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THE NEED TO ESTABLISH A MARINE SCIENCES TECHNOLOGY PROGRAM AT SHORELINE COMMUNITY COLLEGE

by

Ward Teel
Donald R. McVay
John C. Serwold

Supported by a Grant from

The Division of Vocational Education

Ernest G. Kramer, Assistant Superintendent of Public Instruction

Olympia, Washington

INTRODUCTION

Recent advances in the industrial, institutional and governmental areas have made it increasingly evident that there is a great demand for personnel with specialized training in Marine Science Technology.

During the summer of 1966, Faculty members of Shoreline Community College conducted a survey to determine the feasibility of establishing a Marine Science Technology program at a two-year institution. This survey was financed through funds from the State Office of Vocational Education, Olympia, Washington

Although the term technician often refers to a person with a Baccalaureate degree, in this report it is used to designate a person without a degree, who is trained to use instruments and record and handle data.

This report is divided into the following sub-sections.

I. Purpose
II. Procedure
III. Summary of data
IV. Job analysis
V. Assessment of existing training facilities
VI. Conclusions

I. PURPOSE

PURPOSE

At a preliminary meeting with Dr. Ray Jongeward and Dr. Fred Miner, Office of Vocational Research, Division of Vocational Education, the authors of this report outlined the purposes as follows:

> a survey of industries, institutions and governmental agencies concerned with the fields of Oceanography and Marine Biology.
>
> a tabulation of the jobs performed by technicians in these fields.
>
> an assessment of those facilities which are already established to train these technicians.
>
> the feasibility of setting up a Marine Technician training program at the community college level.

II. PROCEDURE

PROCEDURE

A survey form was developed to collect the following information: agency and person interviewed; type of technicians employed; jobs done by technicians; equipment used and training of present technicians; approximate salary, number presently employed, personnel turnover; and plans for future employment.

A survey was made of industries, governmental agencies and institutions that employ marine-related technicians.

The number of employees in the following three categories was totaled:

marine biological technicians
physical oceanographic technicians
general biological technicians[1]

A job analysis was made from the data collected in these three categories.

Information on the interview sheets was analyzed to find where the technicians are now being trained.

From the job analysis, the feasibility of setting up a program at the community college was assessed.

In addition, at the end of each interview, the interviewee was asked to suggest other employers in the Marine Sciences or related fields. These suggestions were followed up whenever feasible.

This survey was conducted using the personal interview technique. It is felt that a better response would be obtained and more information collected by using this method.

[1]This latter category was included, because it appeared to be large in scope, related to the marine work, and undeveloped by any schools.

III. SUMMARY OF DATA

SUMMARY OF DATA

The summary is divided into:

I. Marine Biology Technicians

II. Physical Oceanographic Technicians

III. General Biological Technicians

IV. Other employees needed in the marine related industries, and an alphabetized list of all agencies interviewed.

I

Marine Biology Technicians Needed In The Next Three Years

EMPLOYER	FULL TIME	PART-TIME
Battelle Northwest	5 per year	
Essa Pacific Oceanographic Lab.	1 per year	
Metro	4 per year	
Oregon State University	4 per year	
Pulp Mills	1 per year (per mill)	
Rayonier Laboratories	2 per year	5 per year
San Juan Fish and Packing	1 per year	
Seattle Public Aquarium		4 per year (summer)
Standard Oil Co. Exploration	1 per 2 years	
State Dept. of Fisheries	1 - 2 per year	
State Shellfish Lab	1 - 2 per year	
U.S. Bureau of Commercial Fisheries, Portland, Ore.	13 Fisheries Aids 3 Physical Science Aids	
U.S. Bureau of Commercial Fisheries, Seattle, Wn.	2 per year	
U.S. Dept. of Health, Purdy, Washington	10	
U.S. Fish & Wildlife	1 for 2 years exploratory fish 1 per year fish technology lab 5 Biology lab	3 per year
U.S. Fish & Wildlife Fish Disease Lab.	3	
U.S. Fish & Wildlife Marine Mammal Lab.		9 per year

EMPLOYER	FULL TIME	PART-TIME
U.S. Water Pollution Fed. Control Board	1 per year	
U. of W. Oceanography	2 - 3 per year	
U. of W. Rad. Biology	3 per year	
Weyerhauser	10	

Jobs to open up in Marine Biology in the next three years

TOTAL: 157

Part-time - 26 per year - openings.

TOTAL: 78

II

Physical Oceanographic Technicians Needed In The Next Three Years

EMPLOYER	NEED PER YEAR	PART-TIME
Applied Physics Lab.	2	
Oregon State U. Oceanography	2	
U.S. Coast & Geodetic Survey	30	
U. of W. Oceanography	2 - 3	
Total hired in three years ---	111	

III

General Biological Technicians Needed In The Next Three Years

EMPLOYER	FULL TIME	PART-TIME
Arden Farms	1 per 2 years	
Bar S Foods	12	
Carnation Dairy	1 per 2 years	
City Public Health Dept.	3 per year	8 per year
Crescent Manufacturing Co.	1 per year	
Doctors Hospital	1 per year	
Enzomedic Laboratories	15 per year	
Foremost Dairy	1 per 2 years	
H & N Hatcheries	2 per year	
King County Public Health, Pollution Control Board	Great demand	
Libby McNeill Libby Co.	5 per year	50 per year
Lyndon Farms & Western Farmers Association	1	
Nalley's Inc.	2 per year	4 per year
Pathologists Central Lab.		5 per year
Physicians Clinical Lab.	5 per year	
U.S. Dept. of Agriculture	3 per year	
U.S. Dept. of Health Ed. & Welfare	4 per year	
U.S. Public Health Hosp.	Estimates six per hospital in 2 - 3 years.	
U.S. Water Pollution, Fed. Control Board	8 per year	
U. of W. Professional Placement Office	180 per year (could double with new facility)	
Vitamilk Dairy	1 per year	

EMPLOYER	FULL TIME	PART-TIME
Weyerhauser	20 per year	

Need for General Biology Technicians in the next three years

TOTAL: 767

Part-time need - openings

TOTAL: 201

IV

Other Employees Needed In The Marine Related Industries

EMPLOYER	NEED	TYPE OF EMPLOYEE
Alaska Steamship Co.	Great need	Machinists, seamen, stewards, pipe fitters, firemen, auto mechanics, metal workers, and deck and engine room officers
Battelle Northwest	3 - 4 per month	Instrumentation techs. electricians, machinists, engineering ass ts.
Bonneville Power Admin.	Large turnover	Power systems control, electronic tech, craftsmen, meter & relay, maintenance
Foss Launch & Tug	100	Deck & engine room officers
Marine Construction & Design	2 per year	Mechanical engr. tech.
Northwest Laboratories	1 per year	Chemical tech.
Pacific Maritime Assoc.	Many longshoremen	Crane operators, vehicle operators, winch operators, cargo supervisors.
Port of Seattle	100	Marine engineers, deckhands, officers
San Juan Fish & Packing Co.	100	A need for refrigeration techs. was pointed out.
Standard Oil Co.	2 per year	Geological techs. Paleontological techs.
U.S. Army Corp of Engrs.	10 - 15 per year	Engr. Aids, Survey Aids
U.S. Bureau of Mines	Several per year	Metalurgical Chem. techicians

EMPLOYER	NEED	TYPE OF EMPLOYEE
U.S. Navy Facilities Engr. Command	Expanding	Cartographers, electronic & engr. ass'ts.
U.S. Navy Shipyard	50 per year	Electronics techs. Engr. Aids.
U.S. Weather Bureau	Several per year	Meteorological electronic techs.

Alphabetized List Of All Agencies Surveyed

EMPLOYER	NON-DEGREED EMPLOYEES	PROJECTED NEED IN THREE YEARS	TYPE
Alaska Steamship Co.	50 or 60 (all categories)	Great need for people in all capacities	Machinists, Seamen Stewards, Pipe fitters Auto mechanics Deck and Engine room Officers, Metal workers.
Applied Physics Lab.	33	3 Elect. per year 2 Engr. per year 2 Phys. Oceanogr.	20 Electronic 12 Engineering 1 Instr. Repair
Arden Dairy Association	3	1 per 2 years	Biological Lab.
Battelle N.W.	1000 Plus new force to be at Sequim, Wn.	Need 3 - 4 per month Now in all categories Could increase to 15 - 20 per month	75 Instrument 50 Electrician 50 Machinists 4 - 500 Engr. Ass'ts. (Included in this are Chem. Ass'ts. & Biol. Ass'ts.)
Bonneville Power Admin.	100	Large turnover and growing	Power System Control Electrician, Craftsmen Meter & Relay maintenance.
Carnation Dairy Co.	3	1 per 2 years	Biological Lab.
City Health Sanitation Department	30		
City Public Health Dept. Lab. Seattle, Wn.	30	5 per summer, part-time 2 - 3 per year, full time	Biological Lab.

EMPLOYER	NON-DEGREED EMPLOYEES	PROJECTED NEED IN THREE YEARS	TYPE
Crescent Mfg. Co.	1	1 per year	Biological Lab.
Doctors Hospital	Few	Slight	Nurses Aids X-Ray
Enzomedic Laboratories	Several	Will hire 2 - 4 in a year and a half. Once mfg. begins 10 - 15 per year.	Quality Control
Fisher Flour Mills		None	Quality Control
Foremost Dairy	2	1 per 2 years	Quality Control
Foss Launch & Tug	100 (All hired through Union)	Several hundred licensed men could be used right now. (Deck & Engine Room Officers) Foss needs 20 licenses men now.	Deck & Engine room Officers.
H & N Hatcheries	5	2 per year (Many Labs. throughout U.S. 6 Techs. needed constantly)	General Lab.
Honeywell Corporation Seattle Development Lab.	100	5 per year 5 per year 5 per year 2 per year 5 per year 2 per year 2 per year 2 per year andexpanding operations	Engr. Ass't. Engr. Aids Engr. Techs. Project planners Assemblers, Product Engr. Aids Sales Tech. Writers
King County Public Health Pollution Control Board	Great demand		

EMPLOYER	NON-DEGREED EMPLOYEES	PROJECTED NEED IN THREE YEARS	TYPE
Libby, McNeill, Libby	100	50 part-time per season plus 5 per year	
Lyndon Farms & Western Farmers Assoc.	2	Slight	General Biol. Lab.
Marine Construction & Design:	10	2 per year	Welders Mech. Engr. Tech.
Metro	9	Up to 27 if they go to a 24 hour shift, if not, about 4 per year	Marine Biological
Nalley's Inc.	6 full-time 4 part-time	2 per year 4 part-time summer	Quality Control
National Park Service	0	0	Professional Oceanogr. only
Northwest Consultant Oceanographers	0	0	Use only 4-year College Graduates.
Northwest Laboratories	0	1 per year	Chem. Tech. Use only Grad in Chem. at this time.
Ocean Marine Corporation	0	0	Shipwrights, Carpenters, and Welders only. No Technicians.
Ocean Systems Inc.	0	Possibility of hiring several if Seattle becomes an Oceanographic Center.	John Lundberg heads operation. No Technicians at present. Would want Marine Biol. & Oceanogr. Tech.

EMPLOYER	NON-DEGREED EMPLOYEES	PROJECTED NEED IN THREE YEARS	TYPE
Oregon State University Fish & Game Dept.	10 - 13	Hire only own students	General Biol.
Oregon State University Oceanography Dept.	30	Up to 9 per year covering turnover and new hiring.	Marine Biol. will need 16 seamen, also, and Oceanogr. Tech.
Pacific Maritime Assoc.	1300 Longshoremen	On-the job training	Drivers, Crane oper.
Pacific Oceanographic Laboratory	3	1 per year In process of planning new facility.	Marine Biological
Pathologists Central Lab.	2 full-time 5 part-time	5 part-time per year	General Biological
Physicians Clinical Lab.	5	5 per year	Gen. Biol. Tech., with Histolo. & Cystology.
Port of Seattle	Very great number	A desperate need for Marine Engrs. & Deck-hands in both apprentice-ship and upper grades on ships right now.	Marine Engrs. Deck Officers, Deckhands.
Pulp Mills (Confirmed by Rayonier & Weyerhauser)	All mills need Quality Control people and at least 1 lab. Gen. Biol. Tech.	1 per mill	General Biol. Lab.
Rayonier Laboratories	2 permanent 5 part-time	2 permanent each year 5 part-time, summer, per year	Marine Biol.
San Juan Fish & Packing Company	1	1 - tremendous need for Refrigeration Engr. Tech. 100	Quality Control Refr. Engr. Tech.

EMPLOYER	NON-DEGREED EMPLOYEES	PROJECTED NEED IN THREE YEARS	TYPE
Seattle Public Aquarium	4	4 per year, seasonal	Aquarist Marine Biol.
Standard Oil Co. Exploration Dept.	6	2 per year	Phys. Ocean. Gen. Biol.
United Control	Information coming	-------	
U.S. Army Corp of Engrs. Portland, Oregon	100	10 - 15 per year	Engineers, Surveying Tech.
U.S. Bureau of Commercial Fisheries, Seattle, Wn.	6	12 (2 per year turnover)	3 Marine Biol. 3 Phys. Sci. Aids
Harvey Moore, Director Private Research	300 +	25 per year	Commercial Fishermen
U.S. Bureau of Commercial Fisheries, Portland, Ore.	16	Need is growing and need many during summer	13 Fisheries Aids GS4's - 65's 2 Phys. Sci. Aids.
U.S. Bureau of Mines	455	Turnover small in this area. Greater in Albany, Ore. & Spokane	Metalurg. Rsch (Chem. Tech.)
U.S. Bureau of Outdoor Ed.	0	0	Use only 4 year Graduates.
U.S. Coast Guard	(Letter sent)		
U.S. Coast & Geodetic Survey	100	30 per year	29 Surveying 1 Marine Biol.
U.S. Dept. of Agriculture	24	3 per year	Conservation or General Lab.
U.S. Dept. of Interior U.S. Fish & Wildlife Fish Disease Lab.	6	3	Marine Biol.

EMPLOYER	NON-DEGREED EMPLOYEES	PROJECTED NEED IN THREE YEARS	TYPE
U.S. Dept. of Interior (continued)			
U.S. Fish & Wildlife Montlake Blvd. Exploratory Fishing	5	1 per 2 years	Marine Biol.
U.S. Fish & Wildlife Montlake Blvd. Technology Lab.	3	1 per year (3 per yr. part-time summer)	Marine Biol.
U.S. Fish & Wildlife Montlake Blvd. Biology Lab.	4	4	Marine Biol.
U.S. Fish & Wildlife Marine Manual Lab.	9 part-time	9 per year part-time	Marine Biol.
U.S. General Services Admin.	1	0	Data Processing
U.S. Health Ed. & Welfare Food & Drug Admin.	5	4 per year	General Biol.
U.S. Navy, N.W. Division Naval Facilities Engr. Command	10	Expanding	Cartographers Electronic Aids Engr. Aids
U.S. Navy Shipyard	700	50 per year	Electronics Engr. Aids, Craft Electric Mechanical
U.S. Public Health	10	10	Marine Biology
U.S. Public Health Hosp.	Very few	Up to 6 per hosp. when they are hired again.	General Biol.

EMPLOYER	NON-DEGREED EMPLOYEES	PROJECTED NEED IN THREE YEARS	TYPE
U.S. Water Pollution Fed. Control Board	10	2 per year	Marine Biol.
U.S. Weather Bureau, Seattle, Wn.	13	1 per year	Meteorologist Tech.
U. of W. Food Technology School of Fisheries	Dr. Pigott "Demand is overwhelming -- 50 - 100 Technicians with back ground in Chem., Biol., and Micro-Biol., and Statistics, could be used immediately.		
U. of W. Oceanography	21	4 - 6 per year	Marine Biol. Lab.
U. of W. Prof. Placement Office	530	15 per month	General Biol. Aids, Ass'ts.
U. of W. Radiation Biology	13 (8 Marine Biol. 5 Hatchery)	3 per year	Marine Biol.
Virginia Mason Hospital	0	0	All 4 - year people.
Vitamilk Dairy Inc.	0	1	General Biol. Lab.
Washington State Dairy Association	0	0	Only 4 - year people.
Dept. of Fisheries	150	15 per year 1 - 2 per year	Hatchery Tech. General Marine Biol.
Shellfish Lab. Quilcene, Washington	4 permanent 5 part-time	1 - 2 permanent 5 part-time per year summer	Marine Biol. Lab.
Weyerhauser, Inc.	200	30 per year (20 per year 10 per year)	General Biol. Lab. Marine Biol. Lab.

IV. JOB ANALYSIS

JOB ANALYSIS

From the actual interview sheets the jobs performed were summarized in each of three categories:

1. Marine Biology Technicians: do laboratory work which relates directly to the biological aspect of marine environments. These technicians work in laboratories, such as radiation biology laboratories, shellfish research laboratories, etc.

2. Physical Oceanographic Technicians: work with physical processes which occur in the marine environment. These technicians work for the Coast and Geodetic Survey, the Oceanography Department of the University of Washington, etc.

3. General Biological Technicians: do routine laboratory work relating to the biological sciences but not necessarily the Marine Sciences. These technicians work in food processing plants, for institutions such as the University of Washington research labs, etc.

All of the technicians surveyed were proficient in certain common skills. In general, they were all able:

1. to communicate with people.
2. to record scientific material and follow directions.
3. to record and organize data, draw graphs and prepare preliminary reports.
4. to solve linear equations.
5. to do simple statistics, (mean, goodness of fit, chi^2).
6. to use calculators and slide rules.
7. to understand the basic use of computers and to punch information on cards.
8. to prepare chemical solutions, using concepts of molarity and normality with gravimetric and volumetric methods.
9. to perform simple repair of electronic instruments by using schematic diagrams and electronic testing equipment.

THE SPECIFIC JOBS PERFORMED BY TECHNICIANS WERE:

Marine Biology Technicians

1. To prepare and sterilize media and instruments, using sterile handling techniques, incubators and autoclaves.

2. To maintain pure culture lines; protozoan, algae, bacterial and tissue.

3. To maintain sterile conditions within a laboratory.

4. To prepare tissues for microtome, use microtome and prepare and stain slides.

5. To measure acidity, using the P^H meter.

6. To analyze unknowns with colorimeters.

7. To use microscopes: compound, monocular, binocular, dissecting and phase microscopes.

8. To operate microprojectors.

9. To operate cameras for microscopes.

10. To develop film and print, using enlarger.

11. To identify chemicals with spectrophotometers (light and ultra violet); to make spectrographs.

12. To analyze gases with gas analyzers and chromatographs.

13. To weigh, using all kinds of balances.

14. To separate suspensions by using various kinds of centrifuges.

15. To read and operate oscilloscopes and impscopes.

16. To operate a kymograph.

17. To operate timers and recorders: barometric, temperature and others.

18. To measure volts, ohms, milliamperes.

19. To measure radioactivity, using counters, films and dosimeters.

20. To operate fluorometers.

21. To read photometers.

22. To measure refraction with refractometers.

23. To set up and use samplers

24. To use transducers to measure flow, temperature and pressure in living organisms.

25. To measure conductivity with conductometers.

26. To record respiration, using respirometers or Warburg apparatus.

27. To count blood with hemocytometers or electric counters.

28. To distill liquids and read Ion exchange columns.

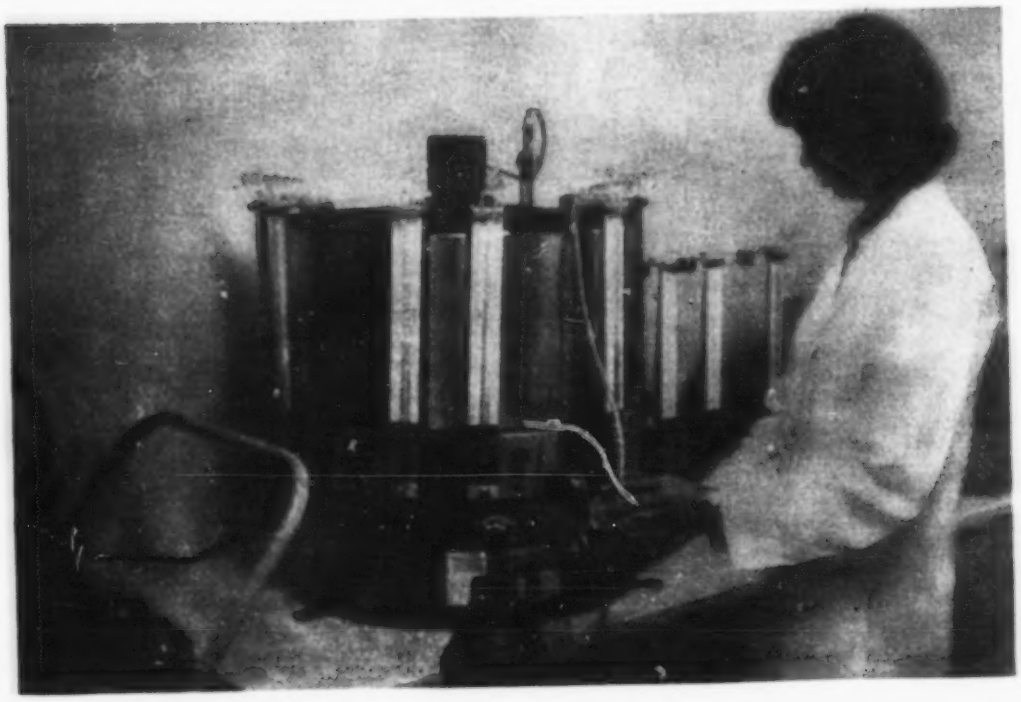
29. If sea-going, to do shipboard duty and be acclimatized to the sea.

30. To clean, using ultrasonic devices.

31. To apply knowledge of reproduction, symbiosis, metabolism, respiration, evolution, energy cycles, and other basic biological principles to the job at hand.

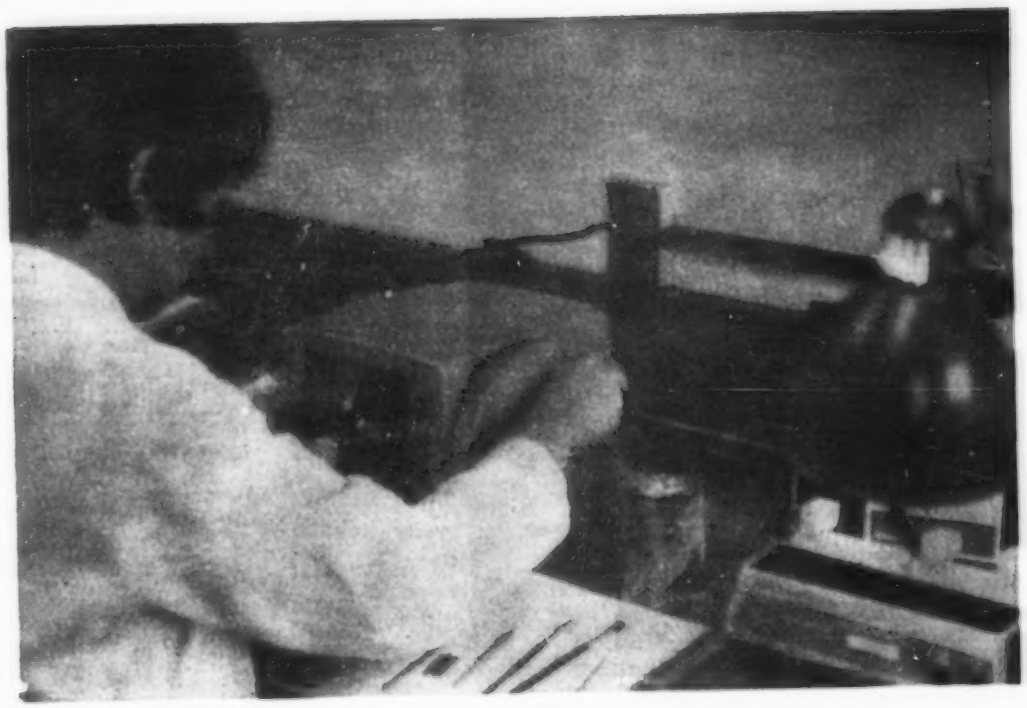
32. To identify common marine fauna and flora.

33. To apply knowledge of Physical Oceanography: currents, tides, temperature curves, effects of geological formation, etc., to the job at hand.



Left: Marine Biology Technician operating a Warburg Respirometer. Instruments of this type are important in obtaining data relative to the metabolic activities of biological material.

Right: Technician operating a Microtome in the preparation of microscope slide. The Microtome slices tissue preparatory to mounting and staining on a glass slide.



Physical Oceanographic Technician

1. To read the compass, tie knots, practice shipboard ethics, swim, skin dive, scuba dive, practice first aid, work on a ship without getting sea sick, and to cook in emergency.

2. To take water samples with Nansen bottles, Van Doren bottles, drogues, drift bottles.

3. To record temperatures with bathythermographs.

4. To record pressure with barographs.

5. To use pyrheliometers.

6. To record current with Robert current meters, and Eckman current meters.

7. To record depths with fathometers.

8. To locate sound sources with hydrophones.

9. To determine location, reading radar, shoran, loran.

10. To determine bottom contours with sonar.

11. To probe water salinity, alkalinity, density, acidity, oxygen content and phosphate content, with proper instruments.

12. To take core samples with Phleger corer and Kullenberg piston corer.

13. To take a bottom sample with clam shell grab, orange peel grab, Peterson grab, dredges and anchor dredge.

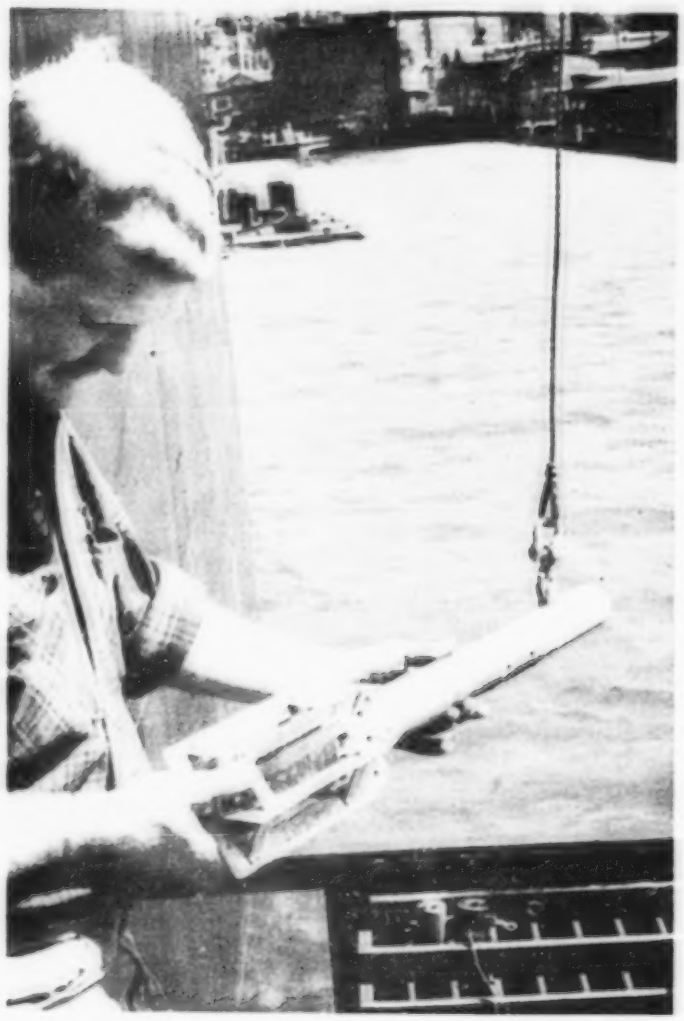
14. To collect samples with otter trawl, ring trawl, beam trawl and midwater trawl.

15. To collect plankton of different sizes with plankton nets.

16. To read charts, maps, and plot a map from aerial photographs.

17. To develop a negative, print a picture, and operate a camera.

18. To apply knowledge of Oceanography (currents, tides, temperature curves, effects of geological formation, etc.) to problems at hand.



Left: Physical Oceanographic Technician adjusting a Bathythermograph. This instrument records temperature against pressure usually in the upper 150 meters of the area to be sampled

Right: One of the Technician's jobs on ship is taking water from Nansen bottles. These devices take water samples at sub-surface levels for physical and chemical studies. The Technicians perform routine analysis on the water samples to obtain this data.

General Biological Technicians' Jobs

1. To prepare and sterilize media and instruments, using sterile handling techniques, incubators and autoclaves.
2. To maintain pure culture lines: protozoa, algae, bacteria and tissue.
3. To maintain sterile conditions within a laboratory.
4. To identify organisms, using keys.
5. To prepare tissues for microtome, use microtome, and prepare and stain slides.
6. To recognize human tissues.
7. To analyze blood and urine.
8. To measure P^H with P^H meters.
9. To analyze chemicals using colorimeter.
10. To operate microscopes: compound, monocular, binocular dissecting and phase microscopes.
11. To operate microprojectors.
12. To take pictures of microscope slides.
13. To develop film, use an enlarger, and print pictures.
14. To analyze matter with spectrophotometers (ultra violet and light).
15. To analyze gas, using a gas analyzer.
16. To weigh with all kinds of balances.
17. To separate suspensions by using centrifuges.
18. To apply knowledge of reproduction, symbiosis, metabolism, respiration, evolution, energy cycles, to the job at hand.

V. ASSESSMENT OF EXISTING TRAINING FACILITIES

ASSESSMENT OF EXISTING FACILITIES

Technical support personnel in the Marine Sciences are currently trained in several ways. The most common training method is "on the job training." This on the job training consumes much time and involves great expense. Of course, some on the job training is invaluable, but training in basic skills could well be done elsewhere, saving employers this time and expense. Many technical support personnel are trained in military service. Personnel with specific training in electronics, instrumentation, vessel operation and maintenance, as well as many other areas, are employed as a result of military training.

The employers emphasized that the work done by these technicians can not be done by a person trained in the conventional science courses in a university. At present, people with this background are found on these jobs but are only valuable after long training periods on the job and then are often unhappy with the routine aspect of the work.

At the community college level, Penninsula College, Port Angeles, Washington, and Clatsop College, Astoria, Oregon, are the only two institutions, on the Pacific Coast, which have technical training programs related to the Marine Sciences. The program at Penninsula is Fisheries Technology. The Clatsop program is marine technology.

VI. CONCLUSIONS

CONCLUSIONS

The total need for new employees in the next three years is:

Marine Biology Technicians	157
Physical Oceanographic Technicians	111
General Biological Technicians	767

There is also a need by marine industries for diesel engineers, refrigeration technicians, cooks, stewards, yeomen, trained commercial fishermen, net makers, and licensed Merchant Marine officers.

Some of the reasons for the phenomenal demand for these technicians are:

A. Improved environmental prediction and modification.

B. Pressure for development of new sources of raw materials.

C. Interest in more exploitation of biological resources in the sea, ranging from fish yields to biomedical applications.

D. Concern with pollution of beaches, estuaries, and other waters.

E. Improvement in ocean navigation, ship design and ports.

F. National defense.

G. Awareness of the lag in ocean exploitation by the U.S. compared to other countries of the Pacific Rim.

H. Replacement of engineers and scientists by technicians, where routine data taking is done, freeing the high salaried professional scientist or engineer to do work for which he alone is qualified.

The data gathered in this report indicates that there is a need for the establishment of at least one Marine Biology lab technician training program and, in conjunction with this because they are so closely related, the establishment of a training program for Physical Oceanographic technicians.

The data indicate that there is a great need for General Biology Technician training programs in the Puget Sound area.

Community colleges and vocational schools should be aware of the need for the other types of training listed above.

The existing training programs and resources are not sufficient to train the technicians needed by industry and research today.

Curricula should be developed at the community college level to train students to do these jobs. Because of location, enthusiastic interest by the present faculty, (eight of who have been employed in these areas recently) and community and school board support and approval, Shoreline Community College is an ideal choice to proceed with the task of training marine related technicians. Already large numbers of students, sufficient to begin a pilot program, have indicated interest in enrolling in these programs and are waiting for them to be developed.

A laboratory facility to train personnel in Marine Science technologies should be planned and developed around the curricula for these programs. A main feature of this laboratory facility should be the inclusion of an instrumentation section to be used in the training of technicians. The latest instruments used in the marine sciences should be available to teach their operation and maintenance to prospective technicians. The other unique feature of the facility should be flowing salt water to provide living specimens and actual operation of instruments under the fresh and salt water conditions students will meed on the job.

Included in our survey were twenty-eight of the major Marine Science laboratories on the Pacific Coast. The operation of each

laboratory was observed. Although they were sea water labs, none of these provided the type of training we envision. The good points, as well as problem areas, were noted. It is hoped that with this information at hand, the design and operation of the laboratory facility at Shoreline Community College will be optimal.

Facilities such as those described above would attract trainees and would develop a program by providing:

> courses for adult education in the fields of natural history and conservation of marine resources. Courses would also be offered to local fishermen to update their knowledge of the latest electronic gear available.
>
> Teacher In-Service courses. These courses would be aimed primarily toward elementary, high school teachers and counselors, so they may teach the importance of the Marine Sciences to the students, and acquaint them with career opportunities.
>
> a Marine Science field trip center for elementary, junior high and senior high schools to introduce students to the Marine Sciences. This facility could also be used during the summer for interested students to participate in Marine Science Institutes.
>
> a study facility for those portions of other programs such as: Biology, Botany, Chemistry, Electronics, Engineering, Geography, Geology, and Physics, which pertain to the Marine Sciences.
>
> a small, local aquarium and museum for the Marine Sciences and industries.

In view of the above data it is evident that a pilot program in Marine Technology should be established as soon as possible at Shoreline Community College.

VT 001 994

VT 001 994

A Praxiological Contribution to a Liberal Education. (Speech to American Council on Industrial Arts Teacher Education, Philadelphia, Pa., March 14, 1967.).

Lux, Donald G.

67

DOCUMENT NOT AVAILABLE FROM EDRS 9p.

*INDUSTRIAL ARTS, *EDUCATIONAL OBJECTIVES, *CURRICULUM DEVELOPMENT, *GENERAL EDUCATION, *EDUCATIONAL PHILOSOPHY,

Industrial Arts Curriculum Project, Industrial Praxiology,

The school's primary objective is to communicate man's accumulated knowledge. Industrial arts can contribute by teaching how to graphically communicate a material product design. The disciplined knowledge of industrial arts can be organized and taught with the major focus on its conceptual framework. Industrial arts has a primary responsibility to effectively communicate its body of knowledge. A study of industrial arts will enable pupils to -- (1) understand the concepts, principles, generalizations, problems, and strategies of industrial technology, (2) appreciate industry as that element of the economic system which provides material goods to satisfy human wants, and (3) demonstrate knowledge and skills that will be useful in occupational, recreational, consumer, and sociocultural significance. A new program framework is needed which includes knowledge of planning, organizing, and controlling an industrial production system consisting of preprocessing, processing, and post processing and knowledge of efficient personnel practices within this system. The program of the Industrial Arts Curriculum Project is designed to teach students that management and production practices combined yield industrial material goods. (EM)

ED015348

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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ACIATE
General Session
Tuesday, March 14, 1967
Philadelphia

Program Title: Philosophical Bases of Industrial Arts - Four Poles?

Subtopic: A Praxiological Contribution to a Liberal Education

Donald G. Lux
The Ohio State University

VT 01994

The twenty minutes allotted to me will be used to establish a point of view about industrial arts as an essential element in a well-balanced liberal education program for all citizens in an industrialized free enterprise social system.

The rationale I am presenting is my personal one, but it is inextricably interwoven with the formal rationale of the Industrial Arts Curriculum Project. I will not try to distinguish between personal convictions and those of the Project. Some of the points of this paper, and points which we may discuss here, may not have been treated in published Project materials. For those, others of the Project staff should bear no burden.

Some initial assumptions are essential to place my rationale within the broader context of a total school program. Some of these are:

1. The primary objective of the school program is to communicate to future generations man's accumulated disciplined knowledge.

2. Industrial arts can make a distinct contribution to an integrated total program of studies, e.g., it may teach how to graphically communicate a material product design as a supplement to other program areas which teach communication as a central focus.

3. The disciplined knowledge which is studied in industrial arts can be related to man's total knowledge and also can be organized and taught with the major focus on its own conceptual framework.

4. Industrial arts has a primary responsibility to effectively communicate its body of knowledge.

At this point, some definitions will provide for more efficient communication. Some definitions basic to this rationale are:

1. Liberal education: that required education for at least a majority at a given level of educational attainment.

2. Industry: a societal institution, that subcategory of the economic institution which produces materials in response to man's wants for goods, therein also providing the knowledge of how to efficiently use and service these goods.

3. Discipline: a branch of organized knowledge.

4. Praxiological discipline: a branch of organized knowledge of efficient action (practice) as opposed to knowledge of form, value, or natural phenomena.

5. Industrial arts: a study of the disciplined knowledge of the practices of industry.

6. Industrial technology: a common term which may be equated with industrial praxiology, that is, knowledge of efficient industrial practice.

In an attempt to synthesize, within the above assumptions and meanings, I am suggesting that industrial arts fundamentally is an essential part of a total school liberal education program, that its subject matter relates to other school subject matter, and that the focus of industrial arts studies is upon the knowledge of efficient action in industry. To quote from Industrial Arts Curriculum Project materials:

> The Objectives (of industrial arts) cover the cognitive, affective, and psychomotor domains of educational objectives, and emphasizes both mastery and transfer dimensions. A study of industrial arts will enable pupils to:

1. understand the concepts, principles, generalizations, problems, and strategies of industrial technology.

2. have an interest in and an appreciation for industry as that element of the economic system that provides industrial material goods for the satisfaction of human wants for those goods.

3. demonstrate knowledge and skills that will be useful in life situations of occupational, recreational, consumer, and socio-cultural significance.

What has been presented to this point offers ample points for discussion for the balance of our professional lives, but to even further promote the discussion our presentations are supposed to stimulate, I shall shift now to two major discussion areas: 1. What are the implications of this verbiage for program, and 2. What are some points of conflict with other "poles"?

It is no secret that much of what has been stated and written in our profession has had little implication for program if the degree of program change in the past half-century is a criterion. We have changed much in what we say we are doing. We have changed relatively little in what we are doing. Despite this troublesome observation, it is a common contention that our programs must better reflect our objectives or the demands for more efficient use of student time to master our expanding disciplined knowledge will force handicrafts (i.e., woodworking, metalworking, and drafting) outside the formal school program. What is the alternative? Provide an effective program of study of industrial technology

which can be defended as a program essential not only for today, but for the foreseeable future.

What should this program provide for the student? It should give him a firm grasp on an intellectual "road map" of industrial technology, a framework which has meaning based upon first-hand use of the fundamental concepts and principles in life-like situations. More specifically, students can gain fundamental knowledge in the disciplines which are developing to provide American man with his unmatched material standard of living. The branches of engineering, industrial psychology, industrial labor relations, industrial management and other disciplines will provide him with important knowledge which largely has been kept hidden in existing school programs from nursery school through advanced graduate work, except for those few who major in one of the disciplines in college. These disciplines provide only part of our body of knowledge. Much of industrial practice remains to be organized and codified. "Experts" may be used to fill this gap.

Within this program, students must come to grips with the knowledge of planning, organizing, and controlling an industrial material production system; the knowledge of pre-processing, processing, and post-processing as entities in the production part of the managed industrial input, process, output system; and the knowledge of efficient personnel practices within the system. This knowledge needs a new program framework other than

one of drafting, metal working, and woodworking. It further implies quite a different program for the professional preparation of industrial arts teachers.

The program being developed by IACP is designed to teach students that industrial management practices when combined with industrial production practices yield industrial material goods. Within that major conceptual framework, ever more specific concepts are developed within the time and ability limitations of the students, the limitations of the teachers, and the environmental limitations. The instructional system, based on developed criteria for the selection of learning activities, may complement other learning activities in the school, but the focus will remain on industrial technology.

There are a number of points of similarity between other rationales for industrial arts and the one advanced by IACP. Points of divergence also exist. The principal points of contention hinge on delimitations and basic assumptions. Therefore, I would suggest that subsequent discussion and our attention focus on these. We can discuss countless details or we can focus on the major underlying premises. I favor the latter approach.

I will now point up some of the major issues which should be considered. I cannot speak with authority about the relative stands on these pivotal issues, but I will advance the IACP position for comparison with statements by experts on other points of view.

Issue:	Position:
1. Is industrial arts general or special education?	1. Industrial arts offers programs which are fundamentally general education, but the body of knowledge from which industrial arts draws its subject matter may be taught and studied for many purposes; liberal, professional, or vocational.
2. Is industrial arts a suitable name or is it time for a change?	2. Let's work for the further acceptance of industrial arts.
3. Are we discipline oriented or something else (process, material, activity, etc.)?	3. We derive our body of knowledge from selected disciplines to the extent they are developed, and work for their further explication.
4. Is industry focused on material production or on production of any economic value?	4. Industry is defined as the societal element which exists to produce constructed and manufactured goods.
5. Is the ability to do essential to industrial arts or is cognitive development the essential?	5. The proof of praxiological achievement is the ability to do. Ability to do is essential.
6. Is there a "service industry" for servicing industrial goods or does a disciplined knowledge approach to curriculum deny any intellectual distinction?	6. The knowledge of how to service industrial goods is one with production knowledge, and, for purposes of study, distinctions need not be made except as to time and place.
7. Are there two or more major subdivisions of industrial activity?	7. Construction and manufacture constitute the major subelements of industry.
8. Are transportation, communications, advertising, money and banking and other subelements of the economic system part of industrial arts subject matter or not?	8. All of these are technologies but none of them substantially change the form of materials. Thus, they are peripheral to the central focus of industrial arts.

VT 002 014

VT 002 014

List of Approved Agricultural Course Titles.

New York State Education Dept., Albany

Jun65

DOCUMENT NOT AVAILABLE FROM EDRS 5p.

*COURSES, *SECONDARY SCHOOLS, *VOCATIONAL AGRICULTURE,

New York,

Agricultural courses taught in New York include -- (1) Exploration in Agriculture, (2) Introduction to Agriculture, (3) Applied Science and Mechanics in Agriculture, (4) Conservation, (5) Ornamental Horticulture, (6) Agricultural Business, (7) Agricultural Mechanization, (8) Farm Production and Management, and (9) Farm Mechanics. The listing gives grade level, credit, number of periods, and brief descriptions for each course. (JM)

ED015348

THE UNIVERSITY OF THE STATE OF NEW YORK
The State Education Department
Bureau of Secondary Curriculum Development
Albany, New York 12224

LIST OF APPROVED AGRICULTURAL COURSE TITLES

June 1965

Agriculture in Grades 7 and 8

Agriculture 7 and 8: Exploration in Agriculture

These courses aid in the development of appreciations of agricultural processes and provides opportunities for students to make a start in developing mechanical and scientific skills in agriculture. Students are provided an opportunity to explore the broad field of agriculture and gain an understanding of agriculture in modern society.

Agriculture may be offered in the seventh and eighth grades as one of the courses in practical arts. It is suggested that classes in these two courses be scheduled for two or three periods a week throughout the year or as a block of time for ten weeks or more during the year.

Agriculture in Grades 9 and 10

Agriculture 1, Introduction to Agriculture; single period, one unit credit

This is an introductory course which deals with career opportunities in agriculture. The importance and types of agriculture and an introduction to agricultural science and mechanics.

Agriculture 2, Applied Science and Mechanics in Agriculture; single period, one unit credit

This course deals with the application of the science of crop production, livestock production, conservation and mechanics to the various fields of agriculture.

Agriculture 1 and 2 may be combined into a single course, in which case it would be taught on a double period basis for two units of credit.

Conservation 1; single period, one unit credit

Conservation 2; single period, one unit credit

These are introductory and preparatory courses that may be offered in schools in which conservation is the only agricultural course offered in the eleventh and twelfth grades.

VT002014

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Ornamental Horticulture 1; single period one unit credit

Ornamental Horticulture 2; single period one unit credit

These are introductory and preparatory courses that may be offered in schools in which Ornamental Horticulture is the only agricultural course offered in the eleventh and twelfth grades.

Agriculture in Grades 11 and 12

Prior to the end of the second year of agriculture, each student will be aided in the selection of a program in agriculture to be completed during the 11th and 12th year in preparation for the vocation of the students choice. The variety of courses available will depend on the interests and needs of students, size of school or area served, facilities available and number of teachers employed.

Agricultural Business 3; Single or double period; one or two units credit

Agricultural Business 4; Single or double period; one or two units credit

These courses are designed to provide the training required for entrance into agricultural sales and service occupations. Instruction includes - agricultural business finance, insurance, law, selling, record keeping, business management, and other appropriate areas.

Agricultural Mechanization 3; double period, two units credit

Agricultural Mechanization 4; double period, two units credit

These courses are designed to provide training needed for entrance into positions with agricultural equipment or construction agencies. Instruction includes operation, service and repair of agricultural power units and equipment, agricultural construction and other appropriate areas.

Conservation 3; double period, two units credit

Conservation 4; double period, two units credit

These courses include instruction in production, operation and management in forestry, wildlife, outdoor recreation, soil and water and the mechanics related to these fields. Training is provided for entry positions in the field of conservation.

Farm Production and Management 3; single or double period, one or two units credit

Farm Production and Management 4; single or double period, one or two units credit

Farm Mechanics 3; single period, one unit credit

Farm Mechanics 4; single period, one unit credit

When Farm Production and Management 3 or 4 is offered on a single period basis, Farm Mechanics 3 and/or 4 must also be offered.

Farm Production and Management 3 or 4 when offered on a double period basis must include the content of Farm Mechanics 3 or 4.

Farm Mechanics 3 or 4 may be offered only when Farm Production and Management 3 or 4 is offered on a single period basis.

These courses are designed to train students for farm employment, management and ownership. Instruction includes farm management, production of crops and livestock products, soil management and other appropriate areas.

Farm Mechanics instruction includes farm shop, farm power and machinery selection, service and operation, farm structures and soil and water management. This instruction designed to meet the mechanical training needed in farming.

Ornamental Horticulture 3; double period, two units credit

Ornamental Horticulture 4; double period, two units credit

These courses are designed to train for entry occupations in the production and marketing of cut flowers, potted plants, house plants, bedding plants, ornamental trees and shrubs, turf and ground covers and other related occupations. Instruction is provided in selected horticultural areas including marketing, business practices and mechanics.

Agriculture 11; single period, one unit credit

This is a non-vocational course for students who desire an elective course in agriculture. The content includes instruction useful to students who plan to enter occupations other than agriculture.

Agricultural Experience Programs

Appropriate agricultural experience programs will be required of all students enrolled in these courses. This experience may be gained with an agricultural business, farm, greenhouse, forest or other which is appropriate to the students' training program. Some of the experience may be gained under controlled conditions on a school farm, land laboratory or forest and in the shop, laboratory or greenhouse.

VT 002 116

VT 002 116 ED

Factors Relating to Occupational and Educational Decision-Making of Rural Youth, Research Summary. (Dept. of Agricultural Education Report, no. 1).

Horner, James T. * and others

Nebraska Agricultural Experiment Station, Lincoln

Nebraska Univ., Lincoln. Dept. of Agricultural Education

Apr67

EDRS Price MF-$0.09 HC-$1.80 45p.

*LITERATURE REVIEWS, BIBLIOGRAPHIES, *RURAL YOUTH, EDUCATIONAL OBJECTIVES, *RESEARCH, *DECISION MAKING, *OCCUPATIONAL CHOICE, SOCIAL INFLUENCES, ECONOMIC FACTORS, PSYCHOLOGICAL PATTERNS, ASPIRATION, MIGRATION, MOBILITY, SOCIOECONOMIC INFLUENCES, FAMILY INFLUENCE, COLLEGE ATTENDANCE,

Studies of sociological, economic, educational, and psychological factors influencing the occupational and educational decision-making by rural youth were reviewed. Included were studies of aspirations, migration and mobility, socioeconomic scale, occupational choice, cost and benefit of education, education factors, educational and occupational attainment and achievement, and pursuit of higher education. Conclusions included -- (1) Fewer capable rural males attend college than urban males, (2) Economic factors generally do not appear to be a major decision-making factor. Occupation of father, attitudes of parents towards education, and education of parents are influencing factors, (3) Rural-urban migration is greater near large cities than in remote rural areas, (4) Farming is transmitted from father to son in larger proportions than other occupations, and (5) On-the-job experience is an important factor influencing decision making. A 149-item bibliography is included. (JM)

ED015348

Department of Agricultural Education Report no. 1

RESEARCH SUMMARY

Factors Relating to Occupational and Educational Decision Making of Rural Youth

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VT 02116

FACTORS RELATING TO OCCUPATIONAL AND EDUCATIONAL DECISION-MAKING OF RURAL YOUTH

Research Summary

by

James T. Horner, James G. Buterbaugh, and M. Judith Carefoot

for

North Central Region Agricultural Experiment Station Committee (NC 86)

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April 1967

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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Factors Relating to Occupational and Educational
Decision-Making of Rural Youth

Introduction

American youth occupy much of their daily existence in thought and in preparation for future adult roles. The attainment of an occupation will have an important influence on realization of other status goals, social rank, and the over-all life satisfaction the individual will experience. In the past, future-oriented behavior toward occupations has been of minor concern. In most societies, for the most part, a person inherited his job as an ascribed feature of his family rank in the community. However, in our contemporary American Society, a great amount of freedom is granted the individual in finding his way thought a maze of job possibilities. The type of employment obtained is thought to be influenced by the motivation and direction provided by occupational aspirations, expectations, and interest of adolescence.

These phenomena are crucial for the occupation attainment of rural youth, especially those who migrate into urban areas. Possibly low level occupational aspirations explain to some extent the disadvantaged position of rural migrants in the urban occupational structure. The importance attributed to the occupational orientations of youth as an explanatory variable for subsequent status attainment is evidenced by the extensive research literature on this subject and the increasing amount of attention being currently given to the study of these phenomena.

Decision making, a broad and comprehensive term, takes many forms. As the term is viewed in this context, decision making should be regarded as a process of occupational and/or educational choice along with factors which influence this process and its results.

Ginzberg found that occupational choice is developmental over a ten year period of time. Following three periods of choice, this process usually ends in a compromise. A theory developed by Super relates that preferences and competencies change constantly, thus causing a continuous process of choice and adjustment. Definite life stages include growth, exploration, establishment, maintenance, and decline. Each of these periods is divided into stages of fantasy, tentative, and realistic choices.

In light that persons differ, each is qualified for a number of occupations. Each occupation requires a pattern of interests and abilities with wide tolerance. The nature of the career pattern is determined by an individual's aptitudes, background, and intelligence. Satisfaction actually depends on the individual's finding an adequate outlet for his talents.

Super, author of Psychology of Careers, makes the following statement:

> Work and occupation play an important part in determining the social status, values, attitudes and style of an individual's living. Occupation is not merely a means of earning a livelihood, but also a way of life, a social role.

Roe's theory of vocational choice considers individual experiences the child has in childhood and early adolescence as the major variable in occupational selection. According to this theory, three basic parental attitudes prevail: acceptance, concentration, or avoidance. This theory has been researched by both Grigg and Hagen, and their studies both found no significant differencee in parental orientation.

College students have been tested to determine what effect college experience has had on their career attitudes. They identify four basic needs: those of achievement, affiliation, dominance, and exhibition.

Data collected by O'Hara and Tiedeman relates that the process of occupational choice may be characterized by the self-concept with a vocational identity. This identity, an interest stage seemingly terminates by grade 10. Then a work-values stage proceeds through a secondary phase in grade 12. Reduction of discord in a person's belief about himself and his environment is the major motivation of career decision-making. These results agree essentially with Ginzberg's stages of vocational choice.

Tiedeman, in his discussion of vocational development, has divided the decision-making process into two areas, (1) the period of anticipation with exploration, crystallization and choice; (2) the period of implementation and adjustment with stages of induction and maintenance.

This brief survey of major theories of vocational choice is intended as background information to this bibliography. Concerning what constitutes vocational choice, disagreement prevails among the major theorists, however. In consideration of the sociological, economic, educational and psychological factors influencing educational and occupational choices of rural youth, theorists generally agree on several points:

1. Occupational choice is not a sudden, once-in-a-lifetime phenomenon. Occupying most of the first half of one's life, occupational choice is a gradual process.

2. Occupational choice is difficult to separate from aspiration and attainment. Because aspiration is not always fulfilled, attainment must be regarded as a separate aspect.

3. Occupational choice is a portion of the basic life process of growing. Realistically looking at one's potentialities and accepting personal limitations, a student is able to develop a clearer recognizable image of himself - the self-concept.

Reviewed literature in this discussion of factors is divided into four major sections: sociological factors, economic factors, educational factors, and psychological factors. Some overlapping exists in the separation of these four categories, particularly in the sciological and economic spheres.

A proposal states that "innate human abilities and aptitudes are distributed normally in the population, without reference to whether youth are reared in rural or urban environments, and that any differences which may be disclosed from standardized tests are functions of the cultural orientations of the tests." Keeping this tenet in mind, a summary of studies of occupational decision-making by youth generally, without particular reference to rural youth is included. However, the sociological and economic sections deal heavily with rural youth.

Three main headings of sociological, economic, and educational factors contain material gathered under seven headings including: studies (1) of aspirations, (2) of migration and mobility, (3) on occupational choice of rural youth (4) of educational and cccupational attainment and achievement, (5) of pursuit of higher education by rural youth, (6) of cost and benefit of ecucation for rural youth, and (7) of the scio-economic scale.

I. Sociological Factors Influencing Vocational and Educational Decision-Making of Rural Youth

The group of factors identified as sociological is the largest of the four categories. Reviewed studies are considered in chronological order and isolated factors are listed in the summary.

Anderson studied in 1934 the changes in residence and in occupation of married couples in rural Benesee County, New York. In this era prior to World War II, he finds a social stability characteristic of rural communities. In 1937 he reviewed the activities, interests, and problems of rural youth. Several conclusions which he determines are that the lack of vocational training prevalent in rural youth is becoming an increasing employment problem and that there is increasing dissatisfaction with the values of rural life among rural young people.

In a study conducted by Holmes (1937), factors of the modifying influence of the family farm upon the choice of occupation he concludes that:

1. Many farm families hope that their offsprings will continue the family occupation.

2. Both sentimental and practical reasons are involved by parents.

3. Choices are frequently modified by a negative attitude toward those who leave and by family praise of the soundness and honesty of country life.

4. Some parents are opposed to their sons' farming.

Sisson (1941) studied the differences in vocational choice among college students from cities, towns, and farms. He concludes that the locality of residence in an important factor for college freshman, and that vocational choices of rural freshmen appears less stable than those of urban freshmen.

Swell, in 1940, developed a Farm Family Socio-Economic Status Scale. Using three tests, this scale is validated and its validity established. It is recommended for use in all practical situations where an easily available objective and quantitative description of the socio-economic status of farm families is needed.

Studying the territorial and occupational mobility of Washington youth, Landis in 1944 reaches the following conclusions:

1. The dominant pattern of territorial mobility in the state is migration from rural to urban areas, with the larger cities having the greatest drawing power.

2. The large cities have more than twice as many of the youth generation as are native, while rural areas have lost over one-quarter of theirs.

3. The pattern of rural to urban migration indicates a need for rural schools to prepare their youth for urban life.

4. While a minority of sons follow their father's occupation, the highest proportions are in the professional, laboring and farming groups with the professional leading.

5. In the area of inter-occupational mobility, the contributions of farm boys to other occupations is high, while the contribution of other occupations to farming continues to be negligible.

6. Farming has the highest proportion of self-replacements than other occupations.

7. Rural youth are frequently at a disadvantage because of the limitations imposed by their lack of educational opportunities.

8. The average farm family in the state can expect a minority of its sons to enter agricultural occupations, with a majority entering non-agricultural occupations.

Levin found in 1949 that status anxiety status is accepted, with qualification, as a primary motivation for occupational and educational choice.

In another 1949 study, Bateman concludes that young persons who hold jobs tend to reduce or modify vocational interests, or that experience tends to increase vocational choice realism.

In a 1950 study, Schwarzweller examined the sociolcultural factors and career aspirations and plans of rural Kentucky high school seniors. He finds nine percent difference between the levels of aspiration and plan. While over half of the seniors would like to go to college, only about a third of them expect to. Forty-two percent of the boys and fifty-one percent of the girls actually plan to leave their home county. Over two-thirds of the girls and one-half of the boys from these rural areas definitely preferred to live in an urban area.

"Why don't they go to college?", was asked in 1953 by Berdie. Randomly sampling 2,700 Minnesota high school graduates, he has determined that college attendance depends largely upon the family and home factor. Secondary forces come from peers, teachers, and non-home forces.

Anderson's 1953 study of high school youth and rural living values finds that groups from northwest New York and several Northern states are more favorable than unfavorable to rural living. His effective 80-item opinion scale finds the aspects of rural life agreed upon are finding healthful living, obtaining facilities for a good level of life, and rearing children.

Exploring the educational and occupational aspirations of "common man" boys, Kahl in 1953 concludes:

1. A general way of life identifies the "common man" class. Some of its members are satisfied; some are not.

2. Discontented parents produce ambitious children, motivated to get ahead with an education.

3. The American Creed of unlimited opportunity for all is not universal.

4. Education is a key to success.

Analyzing the relationship between ten independent variables and attitudes toward high school education, Sewell, et. al. (1955) find seven factors are significant:

1. Educational attainment

2. Socio-economic status

3. Ethnic background

4. Sex

5. Occupational status

6. Size of farm

7. Age

Rusalem's 1954 study suggests that the proximity of the individual to the actual job of his choice may influence realistic or unrealistic occupational choice.

Youmans, with a 1954 examination, finds an indication of work attitudes and interests of youth are related to numerous social factors. Some of which include social stratification, work experiences and "informal" school experiences.

Lipset's 1955 study of social mobility and urbanization indicates that the size of a person's home community influences his upward-mobility. Narrowness of the visible horizons and the lack of knowledge of opportunities, retains students in small community.

Orzack in 1956 concludes that substantial preference and prejudice between rural and urban students for each other exists along residential lines. Urban students tend to place minority group status upon rural students who accept it.

Studying the differences between social strata in attitude toward achievement, Rosen's 1956 findings relate:

1. Members of the middle class show higher need achievement scores than those of the lower social strata.

2. The middle class is characterized by a large proportion of persons with achievement oriented values, the higher the class the higher the value score.

3. A relationship exists between achievement motivation and values, particularly in the educational aspiration level, academic achievement, and social class.

4. Value orientations are more likely to be acquired later in life than are achievement motivations.

In a 1956 study by Slocum and Empey, the following factors are identified in occupational planning of girls:

1. Girls tend to exceed boys sholastically, but women rarely exceed, or even equal, men occupationally.

2. The majority of girls prefer traditional womens' work.

3. More girls want professional occupations but will not be able to achieve them because of present labor conditions.

4. Experience is rated as the most important influence in decision-making.

5. Parents are frequently the most vital influence in decision-making; teachers are second; and close friends are third.

6. Tradition is a great influence, both in the choice of occupations and marriage-career decisions.

7. Girls have less interest in monetary rewards of occupations than boys.

Studying occupational plans of high school senior from farm and non-farm homes, Slocum determines that farm boys planning to enter the occupation of their father have higher preparation in comparison with those entering non-farm occupations. He also finds that actual working experience and influential persons are important factors in crystallizing occupational choices.

A longitudinal New York State study was published in 1956 by Anderson, Larson and Halloul. They find that between 1926 and 1951 that more non-farmers are moving into rural areas, and they continue with their urban employment. Rural isolation disappears with better roads, cars, and bus service. With an increase of more than 50 per cent in population count, more organizations with social opportunities exist in these rural communities.

Sociologists Mack, Murphy, and Yellin are unable to reject the null hypothesis because of limited samplings concerning relation to level of aspiration and social mobility. They have determined, however, that no significant differences will be found either in social mobility patterns or in aspiration level between samples of Protestant and Catholic citizens in several occupations.

Empey in 1956 study determines:

1. The absolute occupational status aspirations of male high school seniors from the middle and upper classes are significantly higher than those of seniors from the lower classes.

2. The relative occupational status aspirations of lower-class seniors indicate that they prefer and anticipate having significantly higher occupational statuses than their fathers.

These findings seem to indicate that the lower level seniors have a different level of aspiration from upper level seniors, although they may aspire above their present social class.

Zimmer found in 1956 that rural migrants entering an urban setting participate in city life less than urban natives. High social status tends to mitigate the effect of a rural background.

Haller in 1957 finds that if a boy plans to farm, he is most generally deterred from planning to go to college. Farm boys who plan to farm have higher intelligence test scores than those who do not.

In another 1957 study, Haller and Sewell find that aspirations of girls are not affected by residence and, that among boys, occupational aspiration is not affectual. However, educational aspiration is affected by residential background.

Walker's 1958 study determines that occupational and educational decision-making stereotypes are no stronger than ethnic (a distinct cultural group) sterotypes.

Surveying the educational status, college plans, and occupational status of farm and non-farm youth, Cowhig (1959) divides his findings into three sections:

A. <u>High school seniors</u>

1. About half of all non-farm high school seniors, but only about a third of farm seniors, report definite plans to attend college next year (1960).

2. Students from families in which the head of the household is a white-collar worker more often report definite college plans than those from blue-collar homes.

3. Over two-thirds of students from high-income families, but only one-fourth from low income families have definete college plans.

4. In October, 1959, over a fifth of high school seniors who plan to attend college have not yet decided on their major field or study.

5. About 25 per cent of all males planning to attend college plan majors in engineering, and 22 per cent of females plan educational majors. Two per cent of males plan agricultural majors.

6. A large proportion of seniors with no college plans name economics as a reason.

7. Economic raasons for not attending college are more frequent among farm than among non-farming seniors.

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B. College students

1. Of the 3.3 million persons under 35 enrolled in college in October, 1959, six per cent are farm residents.

2. About six-tenths of college students report some financial assistance from parents, and more farm than non-farm students are receiving such assistance.

3. Engineering and business are the major fields most often reported, for males, and education is the field often reported by females.

4. Less than two per cent are majoring in agriculture.

C. Persons 16-24 years of age who are not enrolled in school

1. Two-tenths of high school graduates in this group who have not attended college report a lack of money as their reason.

2. More farm than non-farm males report no desire to attend college.

3. Forty-five per cent of non-whites, and 16 per cent of whites report lack of funds as their reason for not attending college.

4. Among college drop-outs in this group, males most often give economic reasons, and females marriage, as reasons for dropping out.

5. There is more unemployment, and more employment in unskilled and semi-skilled jobs among males without high school graduation than among those who have finished high school.

6. Farm males without high school graduation are most frequently employed as farm laborers, whereas urban males at the same level are concentrated in semi-skilled occupations.

7. There is more unemployment among non-whites, and more employment in manual and service jobs, than among whites of the same educational level.

This study indicates that lower educational level, lower aspirations, and more economic difficulties among rural young persons are contrasted with special problems encountered by non-white rural and urban youth.

Elias studied in 1959 the self-appraisal concept in determining adjustment of farm-youth as compared with other youth. His findings show more social maladjustment with farm youth while they experience better adjustment with family.

In a 1959 personality differentials study, Munson finds significant differences in personal and social adjustment among urban, suburban, town, and rural children. Exhibiting the greatest degree of adjustment, the suburban youth lead with urban, rural, and town children following in that order. These findings challenge the popular belief that rural life is more "wholesome" and leads to better adjustment.

Wilson investigated in 1959 significant normative references which influence an individual's values within a school. He finds that the climate of the school tends to affect aspirations, academic achievement, occupational aspirations, and political preferences.

Hathaway, Monachesi, and Young (1959) sampled 15,000 in a study of social and psychological adjustment. Findings show that rural children are shyer, more self-depreciating, more suspicious of others, and less rebellious against authority than urban and town youth.

Surveying four rural communities in Michigan, Cowhig, Artis, Beeble, and Goldsmith (1960) sought residential and occupational plans of high school seniors.

The following findings are reported:

1. Seven-tenths of the students plan to leave the community following graduation. Boys are most favorable disposed toward the community; girls least. Attendance in college and military service are the main reasons.

2. If jobs are available in their locale, a majority of the seniors are willing to remain.

3. Most students prefer to live in the same type of areas as that in which they are living.

4. About four-tenths of the males and seven-tenths of the females prefer white-collar work. About one-tenth of the males plan to farm.

5. Thirty per cent plan to attend college, with no significant asscciation between college plans and family income of father's occupation.

6. There is a close assoication between father's education and occupational and educational plans of students. More males than females plan on college, and less farm residents than rural non-farm plan.

Through a series of studies, Burchinal (1960) investigated farm youth plans. His findings tend to indicate factors including the unavailability of land, machinery, and working capital were major for those planning to farm. A certain amount of conflict exists between the desirability of rural or urban life among boys deciding not to farm.

Burchinal believes that there is still too little occupational information available to farm youth. Completing his series of rural youth studies, he feels that farm parents show too little encouragement or interest in education and occupational plans for their children.

In his study of 80 Iowa farm girls, Burchinal reveals that 69 per cent expect to become farm wives, 31 per cent plan to leave the farm.

A 1960 farm population circular released by the U. S. Department of Commerce Census Bureau and the U. S. Department of Agricultural Marketing Service lists agriculture as having 1.4 per cent of the distribution of major field college study. Engineering, biology, and education are listed with highest percentages and numbers of students.

Kanel in 1960 finds since World War I, two major reasons for the limitation of opportunities for beginning farmers. First, lack of working capital to start farming is preventative. Secondly, many families have not been able to enlarge the acreage of their farm because of land prices and of credit being more difficult to obtain. The result of these two drawbacks is that fewer youth are entering farming.

Edlefsen and Crowe (1960) studied occupational aspirations of teenagers.

They find:

1. There is more preference for the higher and middle status jobs than for blue-collar occupations, with children of fathers in higher and middle status occupational groups preferring to enter the same occupational groups as their fathers.

2. Actual work experience in the field is the paramount reason for the student's interest in his preferred occupations.

3. Although the majority of students prefer higher status jobs, many do not expect to reach this occupational level.

4. Residence appears to be important in the occupational outlook. Residents of towns prefer to work with people, while residence does not appear to affect work involving ideas.

5. Students who have definite college plans are uncertain about occupational choice.

6. Students who are certain of their choice make the choices on their own, or with only subtle, unnoticed, parental guidance.

7. Aspiring to higher and middle status occupations, students are also very interested in advanced education and technical training.

8. As the education boys advances, the preference for higher status occupations increases.

9. Decreasing parental influence is found to be a pattern in analyzing the comparison between the grade of the students and their choosing an occupation corresponding with their parents' choice.

Analyzing work experience of Wisconsin rural youth, Straus (1962) finds no evidence that farm boys having more work and less money than non-farm youth impeds the acquiring of financial skills. The fact exists that farm boys have less opportunity than non-farm boys to learn how to handle money.

Testing the hypothesis that certain personal and social characteristics are associated with educational achievement and their characteristics can be observed in relation to the various levels of educational achievement, in a 1960 study of rural young people by Wilson and Buck. Their work dealt with four levels of formal education: High school dropouts, high school graduates, vocational school students, and college students. Generally the following characteristics are significant: sex, residence, academic interest in science, hobby interests in athletics, position in family, reading habits, student's choice of white-collar employment, blue-collar work of father, white-collar occupation as high status, blue-collar work as lowest status, and family status.

Buck and Bible in 1961 identified some personal and social factors associated with varying amounts of formal education more than 2,000 young adults reared in rural areas of Pennsylvania. Findings of sampling from this study show 15 percent do not finish high school; 39 percent terminate their formal education at high school graduation; 31 percent engage in some posthigh school education below college level; and 15 percent attend college. Boys frequently cite lack of interest as a reason for dropping out; girls cite being needed at home. The number of years of parents' schooling is directly related to the amount of education of their children. Occupation of the father is related to continuing education. Occupational aspirations are also related to continuing education.

Burchinal (1962), in a review of available literature concerning career choices of rural youth in a changing society, cites four factors related to choice between farming and non-farming occupational choice:

1. Boys planning to farm come from farm families with higher net assets, greater capital resources, or incomes. Family farm ownership, number of acres owned or operated, previous employment of parents are also important factors.

2. Usually high economic resources of parents are associated with high educational and occupational aspirations for their children.

3. Boys planning to farm usually cited their fathers as the greatest influence on their occupational plans. Boys planning not to farm tended to cite mothers, teachers, or vocational counselors as being most influential.

4. There was little or no relationship between various community-related variables and farm or non-farm choices.

Burchinal sees several implications in his findings:

1. It is becoming more and more necessary and desirable to rural youth to move to urban areas in pursuit of satisfying careers.

2. There is frequently a wide disparity between aspiration and fulfilment.

3. Rural youth appear to be at a disadvantage in the urban labor market. This is probably due to their lack of skills, training, value orientation and personality characteristics necessary for success in an urban environment. Farm youth appear to be at a greater disadvantage than do non-farm rural youth.

4. There appearad to be a strong negative influence on plans to attend college and intention to farm.

5. Occupational choices appear to be a combination of tentative choices and occupational role-taking, related to the social and psychological development of the individual.

6. Rural youth from lower socioeconomic levels face special problems in occupational decision-making, although the differences are not solely due to economic factors, but may involve parental attitudes.

A study of role expectations in Mexican and U. S. high school students was conducted in 1962 by Hall. His findings show that Mexican nationals show more particularistic-type role expectations than do U. S. students. The U. S. groups show more collectivity orientation toward the peer group.

Nan and Cowhig in a 1962 study relate factors concerning college attendance of farm and non-farm high school graduates:

1. Three out of ten youths do not graduate from high school, and the factors most closely related are low scores on ability measures, families with low socioeconomic status, and color.

2. Eleven percent fewer high school graduates attend college than had previously indicated plans to attend college.

3. Rural-farm high school graduates are more realistic in college plans than are non-farm graduates.

4. A majority of graduates in the top quartiles in I. Q. tests and scholastic standing attend college. About one-fifth of those in the bottom quartile also attend.

5. About twice as many graduates from white-collar homes attend college as from blue-collar homes.

6. About seven out of ten of the graduates are in the college preparatory course, while only two out of ten of those in other courses, attend college.

Kaldor, et. al, completed a 1962 study of career plans of farm boys in Iowa.

A. Nearly 38 per cent of the 870 boys surveyed plan to farm.
58 per cent plant to enter non-farm occupations.
1 per cent plan to combine two jobs, farm and non-farm.
3 per cent have no long-range plans.

B. Parental career plans are reported by a slightly larger number of boys planning to farm than of boys planning non-farm jobs.

C. Of the boys planning not to farm, the following reasons are given:
   1. Farming requires too much capital
   2. Unfavorable working conditions in farming
   3. Dislike of farming
   4. Poor income opportunity
   5. Lack of opportunity

D. Influences which govern boys in making their occupational plans include:
   1. Boys planning to farm
      a. Parents
      b. Work experience
      c. FFA experience
      d. Close friends
      e. 4-H experience
   2. Boys not planning to farm.
      a. Parents
      b. Close friends
      c. Reading
      d. Study at school
      e. Work experience
      f. Teachers
      g. Occupations of other persons admired by the boy.

E. Boys planning non-farm careers are more likely to plan post-high school education or training.

Christiansen, Payne, and Brown (1963) in an effort to account for the relatively high achievement of rural youth in Utah, find that Mormon religious values are positively associated with educational achievement.

A study by McDilland Coleman (1963) uncovers some paradoxical findings. Midwestern high school students are likely to have a positive orientation toward attending college and a negative orientation toward academic achievement.

Buck's interpretation of rural values views rural America as essentially pragmatic toward social and economic policies.

Haller, Burchinal, and Taves (1963) find that the young person is dependent upon many persons in termination of occupational choices.

Mierzwa (1963) supports the concept of multi-determinants of a young person's career choice.

Sewell's evidence (1963) indicates that the school is an important force in the determination of the aspirations and achievements of youth. He suggests that everything possible should be done to improve the rural high schools' quality. An extensive program of educational and vocational guidance should be especially useful in adequately informing rural students.

Miller and Haller (1964) have studied measurement level of occupational aspiration, which they see as the level of the occupational prestige hierarchy viewed as a goal by the individual. Using an Occupational Aspiration Scale, they conclude it is a practicable and reliable measure of occupational aspiration level.

Sewell (1964) examined the relationships between community of residence and college plans of Wisconsin high shcool seniors. He finds that as the community increases in size, the percentage of students with college plans also increases.

In a study of Florida rural areas in transition, Alleger (1964) finds that economic opportunity is twice as great in the industrialized area as in strictly farm zones. Farm income improvement appears to be related to an increase in manufacturing income in a given area.

Stensland studied in 1964 community change on the Canadian prairies and finds that a trend from rural life and agriculture is toward industrialization and urban living. He ascribes several factors:

1. Limited space available for new agricultural enterprise.

2. A new pattern of settlement imposed by technology and science.

3. Level and standard of living

4. Organization for use of resources

5. Participation patterns

6. Purposes and values

Alexander and Campbell (1964) find a definite influence on adolescents by the plans of best friends to attend college.

A study by Goldsmith, Fliegel, Copp, and Johnson (1964) criticizes the Straus Rural Attitudes Profile of 1959.

In a 1964 study by Gottfried and Jones, the importance of expanding opportunities for high school students to work with exceptional children is stressed. The necessity for gaining a better understanding to the relationship between motivational patterns, career choice, and career satifaction is considered.

Perrone (1964) determines that if an individual is going to match himself with a job, he needs assistance in knowing several aspects of himself as well as knowing more about various occupations.

Eckland (1965) finds that graduation from college is a dominant factor in occupational choice. This experience tends to remove the limitations of class structure and assures upward mobility.

Lionberger, Gregary, and Chong (1965) attempt to determine the nature, conditions, and circumstances of high school seniors in making college and alternative occupational choices in Missouri rural and urban areas. In the student's selection of a job, the following reasons are cited as important in decision-making:

1. Security

2. Beginning pay

3. Working conditions

4. Sources of occupational information

McCall's magazine carried findings of a study made by Grafton (1965), and it discusses the reasons for wrong occupational choices:

1. Consideration of remuneration only

2. Accepting ideas of parents or friends without investigating their worth.

3. Limiting choice to white-collar work

4. Looking at only one aspect of an occupation--glamor, etc.

5. Playing hunches

6. Confusing interest with ability

7. Keeping rigidly to a childhood dream, without considering alternatives.

8. Unrealistic view, ignorance of the actualities of the labor market.

Haller's study (1966) focusses mainly on boys who plan to leave farming. This study suggests that a boy who has planned to farm and then shuts himself off from further vocational information combined with the geographic isolation of rural life tends to increase the tendency toward farming as a career.

II. Economic Factors in Occupational and Educational Decision-Making of Rural Youth

Because of the difficulty of separating sociological from economic factors and because of the extensiveness of the sociological section, this division will be shorter. An attempt has been made to deal with those focusing on economics, with peripheral interest in sociological aspects.

Conducting a basic study in this area in 1942, Boynton and Woolwine questioned 2,548 high school girls from the Southern and Southeastern sections of the nation. Two-thirds from rural areas and one-third from urban settings, these girls were questioned concerning vocational preference and expectations. Results reveal a definite relationship between the economic background of the girls and their vocational interests. The thinking of lowest status girls tends to fall into a kind of occupational stereotype pattern.

Metzler in 1959 developed the hypothesis that in low income areas subsistence level farm and rural families have little desire to have high incomes. If limited in desire to advance with technological advances, young persons tend to shift from agriculture because of technique improvements in farming. The major shift is to employment in a large city. Inherent values of these persons are a strong handicap in their urban life adjustment. Metzler concludes that a need exists for general education along with occupational skills for urban livelihood.

Eldridge, Kaldor, Burchinal, and Arthur (1962) studied the occupational plans and preferences of Iowa farm boys to find how much influence capital needs affect vocational plans. Findings seem to indicate that the amount of personally owned capital is not a great factor upon the vocational objectives of the boys. Other general conclusions from this 1962 study include:

1. Boys who planned to farm come from families with an average net worth of slightly more than $40,000, while those who plan to enter non-farm occupations come from families with an average net worth of $29,000. The difference is even greater for boys "certain" of their plans. The parents of boys planning to farm are able to provide more financial assistance.

2. Family financial resources also affect plans to attend college, with boys in the high-income group more likely to plan on college, and boys in the group planning not to farm more interested in college.

3. Nearly 72 percent of the boys planning to farm expect some family help in getting started, compared with 58 percent of the boys planning non-farm careers. There is little difference in the proportions expecting help in the form of money loans. The aid is in the form of parental gifts, with the boys planning to farm expecting considerably more than the non-farm group.

4. Little difference exists between the proportion of boys planning to farm who thought they could expect family assistance in entering a non-farm job and the boys from the non-farm group who expect a similar assistance. Both groups feel that they could expect less assistance in farming than in non-farming occupations.

These conclusions may indicate that farm families influence boys toward farming or that farm family resources are more likely to be used to assist entry into farming than other occupations.

In another 1962 study, Burchinal, Kaldor, Eldridge, and Arthur find that boys planning to farm anticipate greater income than boys planning not to farm. Boys planning to farm are generally more optimistic and make higher estimates for necessary capital and resources for farming than boys not planning to farm.

Clawson and Held (1963) project long-range national needs, concentrating or rural poverty and the prospects for the future of agriculture. They project present conditions to the year 2000 A. D., and conclude that fewer farmers will be needed; however, production must increase. They see an urgent need for off-farm employment opportunities for rural youth. Less capital investment in farming or more return to the farmer in relation to his investment are seen as necessary to the future of agriculture. This means a need for a relative decrease in land values and capital investment in farming.

In analyzing the characteristics of 1,074 employed male houselold heads, Taylor and Glasgow (1963) studied occupations and low-income rural citizens. Findings of this study reflect that ambition transfer to the younger generation from the current generation is mainly interest in more security and a higher income, but not occupational advancement.

From a 1964 study by Moore, Baum, and Glasgow, economic factors which influencing educational attainments and aspirations of farm youth reveal the following rural economic factors:

1. Inadequate educational and training facilities result from an unequal share in the national growth. Small school districts, low population density, and low income are responsible.

2. Limited financial resources available to provide higher education.

3. Educational attainment and aspirations of parents.

4. Occupational status of the head of the household.

5. A positive influence on post-high school education of farm youth is the variety of sources available for educational loans: private banks, colleges or schools, National Defense Educational Act, miscellaneous scholarships and gifts. Many of these sources, of course, are available only to farmers with a large acreage, and relatively high income level.

Focusing upon a population of young men reared in a low-income rural situation, Schwarzweller (1964) studied eastern Kentucky occupational placement and economic life changes. One of the unusual findings reveals that non-migrant high school graduates enjoy less material success than migrant drop-outs who had migrated to industrial areas. He also finds that high school education apparently does not function as a selective mechanism for job placement, although it may be a necessary criteria for advancement.

Rude (1964) tested 45 rural Hill County (Indiana) employed males and found their level of abilities is equal, or better than the U. S. Male population. A lack of training in the communications skills and conceptual factors is necessary for these rural persons to compete for jobs. Only a change in the educational system brought about by a change in economics can help this situation.

Focusing on unemplcyment and income problems, Janssen and Rude (1964) identify the following problems:

1. Low-income rural areas usually have a steady loss of population.

2. Low-income rural areas rarely have job opportunities to attract new population.

3. There is a marked difference in the populations of rural and urban areas, with a larger proportion of older people concentrated in the rural areas.

4. A lack of good employment opportunities is probably the principal reason for out migration from rural areas, and the prcblem is increased with proximity to a prcsperous urban area.

5. Solutions suggested include persuading firms to locate in the area, a solution complicated by lack of water, transportation, raw materials, and training of young people to seek employment and to fill available jobs.

III. Educational Factors Influencing Vocational and Educational Decision-Making of Rural Youth

This section of the review deals with those factors associated with education--college, vocational school, high school and school dropouts. As with the previous two sections of sociological and economic factors, some overlapping and repetition is also to be found in this educational factors section.

Concentrating upon the educational selectivity of rural-urban migration and its bearing on wage and occupational adjustments, Landis (1941) concludes:

1. Rural youth migrating to urban areas are far better educated than rural youth remaining behind, but less well educated than urban youth with whom they compete for jobs.

2. Urban youth moving to rural areas are less well educated than urban youth who remain in cities, but are better educated than rural youth.

3. Despite educational disadvantages, rural youth who move to cities excel urban youth in income.

4. Urban youth who move to rural areas have better incomes than rural youth who remain in rural areas. This is especially true of girls.

Sewell, Marshall, Haller, and Dehart (1953) analyzed factors associated with attitude toward high school education in rural Wisconsin. Seven determining factors are: educational attainment, socio-economic status, ethnic background, sex, occupational status, size of farm, and age.

Berdie in 1953 asked the question, "Why don't they go to college?" Factors affecting his answer include:

1. Home situation

2. Outside forces such as teachers and counselors

3. The acts and related attitudes of primary interest relevant to the development of the continuing behavior of "attending college." The constancy and strength of the forces within the field are vital to the final decision.

4. The cultural background of the family

5. The family's experience with college attendance

6. Family information about college and alternatives

7. Family values concerned with college and the alternatives

Marshall, Sewell, and Haller (1953) find five factors significantly correlated with high school attendance. The most important and significant

factor is nationality background with its attendant value system and cultural outlook.

To examine cultural characteristics with the acceptance of educational programs and practices, Duncan and Kreitlow (1954) matched homogeneous and heterogeneous neighborhoods. Findings show that heterogeneous neighborhoods are consistently more favorable toward a majority of the educational practices and indices. Significant attitude differences concerning amount of formal education required by a farm population exists.

Case in his 1950 study of college as a factor in occupational choice finds that more farm boys, as compared with non-farm boys, regard college as a step toward life's work, but do not regard grades important to future endeavor. Farm boys show more family influence on their choice of vocation and college courses, and tend to make earlier occupational choices.

Youmans (1959) finds that differences in socio-economic status are associated with differences in educational attainments. Youth from rural high-status families make better use of opportunities than those from lower-status families.

In a study of educational aspirations and parental emphasis on college, Bordua (1960) finds sex, religious affiliation, and socio-economic status are related to the presence or absence of college plans.

Characteristics of School Dropouts and High School Graduates, authored by Cowhig in 1960, presents the following generalizations:

1. Dropout rates are lowest in urban areas and highest in rural non-farm areas.

2. When parental income, education, and occupation are considered, rural-urban differences largely disappear.

3. There are substantial differences between Negroes and whites, and between residence categories.

4. Chinese and Japanese youth show the lowest dropout rate, followed by youth from homes whose parents were born in Europe, youth of American-born parents, and Negro and Indian youth.

5. There are differences between graduates and dropouts in the proportions in the labor force, in whitecollar jobs and in the unemployed, with the differences in favor of the graduates.

6. There are differences between graduates and dropouts in the proportions in the labor force, in whitecollar jobs and in the unemployed, with the differences in favor of the graduates.

7. Dropout rates are disproportionately high among low-income families; income differences are high, and become more so with age.

8. A high proportion of female dropouts marry and have children.

9. For males, higher incomes are related to level of education, the difference increasing with age, indicating a cumulative effect of education.

Wilson and Buck (1960) studied certain personal and social characteristics of rural young people that are associated with continued educational achievement. Findings indicate that educational achievement has a definite effect on personality and social adjustment. Logically then, educational achievement also affects occupational and educational choice.

In a similar 1961 study conducted by Buck and Bible, two findings are of particular interest. First, how students believe their parents wish them to be employed as adults is related to continuing education. Secondly, educational aspirations of yotth are related to continuing education.

Weisbrod (1962) discusses education and investment in human capital. A benefit of education is defined as anything that pushes outward the utility possibility function for society. In addition to income and employment prospect benefits for the individual, Weisbrod examines the broader effects on the community and on society.

A 1963 Iowa study by Burchinal, Kaldor, Eldridge, and Arthur states that education affects farm boys' career plans. Their findings show that:

1. Boys planning to farm are less likely to plan to continue their education beyond high school than boys planning not to farm.

2. When asked their preference as to what they would like to do rather than what they planned to do, a majority show an interest in working at jobs that they would enjoy doing, with a greater percentage of boys planning non-farm careers interested in further education - college or vocational. The authors feel that this indicates a need for more area vocational schools in Iowa, in order to provide more variety of educational and occupational opportunity to the youth of the area.

3. Educational plans are, naturally, affected by the resources available to the boy and his family. However, this alone does not account for the differences in educational plans of farm and non-farm boys. There is some evidence that boys planning to farm consider education less necessary than do those not planning to farm. The concern is expressed that, in case the boys planning to farm are not able to do so, their lack of education will prove a handicap in choosing an alternate occupation.

4. A majority of the parents of boys planning to farm have shown little interest in further education for their sons.

5. Other factors, in addition to educational plans, are related to occupational plans - I. Q. scores, scholastic achievement scores, school grades, and ratings of leadership ability. In all cases, the boys planning not to farm rank higher than those planning to farm.

Discussing significant gaps in education and training, Willis (1964) uses the expression "equality of educational opportunity as to need." He contrasts the spreading urban centers and the increased emphasis on urban life with the diminishing rural areas. He sees a need for more work experience for the urban child to test vocational skills and interests. He makes the point that educational opportunities are not adequate to increase the scope and range of occupational choice.

Schultz (1964) relates criticisms of the education for rural youth. He finds that farm people are generally guilty of under-investment in educating their children. He also indicates that the agricultural establishment is too inactive in respect to the education of rural children. As a result of these inadequacies, rural youth is handicapped in career choice because of the lack of adequate educational opportunity.

Anderson, Mawby, Miller, and Olson (1965) find the plans and interests of parents help to determine the child's ambitions and self-concept.

Burchinal (1965) relates that farm-reared parents still lag behind urban parents in their educational opportunities concept perception. An inability to motivate or support their children's efforts to continue education is a possible failure of rural parents.

Eckland in 1965 conducted a study on the interrelated effects of class origin, academic ability, and college graduation on occupational achievement. He finds that college graduation is the dominant factor in occupational success.

IV. Psychological Factors Influencing Occupational and Educational Decision-Making of Rural Youth

This section of the report deals with internal factors affecting the individual's decision-making. Certain considerations of intelligence aptitudes, and related factors cannot be ignored in such a discussion.

In a 1939 study, Byrns concludes that occupational preferences have some relation to scholastic ability. A great range of ability level is observed within each occupational-choice group studied.

Concluding that there are significant relationships between vocational preferences and opinionnaire items, Lentz and Nickel (1941) find that vocational preference is a function of character.

Trow (1941) concludes that high school students generally are realistic in distinguishing between vocational probability, possibility, and phantasy. Little discrepancy is generally shown between aspirations and expectations.

Rubisoff's 1942 study indicates that the influence of values as well as interests are involved in vocational choice selection.

Motives advanced for choosing a particular occupation by Fleege and Malone (1946) include: interest in the work; desire to help mankind; personal advancement; feeling of aptitude; adventure; occupation of family members; favorable work conditions; desire for home and children; enjoyment and happiness; security and independence; opportunity for work; social advancement; desire for work experience; persuasion; gratitude to the family; love of nature; desire for fame; love of God; easy work; and no motive.

Studying the personality adjustment of rural and urban children, Mangus (1948) concludes that farm children differ favorably from urban youngsters. They have more self-reliance; greater sense of personal worth; greater sense of belonging; greater freedom from withdrawing tendencies and nervous symptoms; greater social skills; and superior qualities in school and community relations.

Forer (1953) lists four personality factors in occupational choice:

1. Vocational choice is somewhat blind and implusive, and not primarily rational or logical.

2. Interests and references have unconscious roots which cannot always be rationalized.

3. Choice is an expression of basic needs and personality, with economics secondary.

4. Choice is a personal process, culminating the unique psychology of the individual.

He concludes that personality type frequently determines vocation.

A similar 1953 study, conducted by Small finds that better-adjusted boys are found to be consistently more realistic in their vocational choices than are disturbed boys. Disturbed subjects show more of the needs associated with environment-avoidance.

The scores of adolescent boys on the SVIB test are related to the degree to which they identify with their mothers is a finding of Steward (1959).

French (1959) asks the question, "Can a man's occupation be predicted?" He finds three dimensions from college students:

1. Outcome heavily weighted by somatotype and psychotype.

2. Outcome determined by previous education and family background.

3. Outcome influenced by essentially psychotype.

These results imply that there are forces working to direct vocational choices long before college entrance. Occupational choice can be predicted from a variety of apparently unrelated variables.

O'Hara and Tiedeman (1959) indicate termination of an interest stage by grade ten and a work-value stage proceeding through a secondary phase in grade twelve.

Simpson and Simpson confirmed the hypothesis that values, personal influence, and occupational choice are systematically interrelated. Their findings also show more tendency for students to be influenced by persons in their chosen fields. None of their groups show much parental influence.

In a 1961 study, Blocher and Schutz conclude that vocational interests may result from attempts to develop and implement satisfying self-concepts in relation to work. It is important for adolescents to become acquainted with successful individuals in a test of stereotypes of various occupations.

Nix and Bates (1962) study indicates the importance of role and self-concept in vocational development and satisfaction.

Utton's study (1962) of four groups of professional women has not supported Roe's hypothesis. That is, non-support of subjects employed in person-oriented occupations in recalling childhood home atmosphere as being warmer than those subjects employed in non-person-oriented occupations.

Straus in a 1964 study finds that boys who choose farming as a group, are dependent, shy, and interested in stability.

In 1965, Anderson and Olsen, studying four-year college students and potential junior college terminal students, found data which indicate a significantly greater number of the former group select more realistic occupations than do the latter group.

Summary

Factors Influencing Decision-Making of Rural Youth

Discussing factors influencing the decision-making of rural youth, the review of literature is divided into four main sections: sociological factors, economic factors, educational factors, and psychological factors. Relating to the factors involved, the materials have been gathered and arranged in chronological order. An attempt has been made to list in this summary specific factors which identified in each section. The approximate arrangement is outlined:

I. Sociological Factors

1. Studies of aspirations
2. Studies of migration and mobility
3. Studies on the socio-economic scale
4. Studies on occupational choice of rural youth

II. Economic Factors

1. Studies of occupational choice
2. Cost and benefit studies of education for rural youth
3. Socio-economic scale material

III. Educational Factors

1. Studies of occupational choice
2. Studies of educational and occupational attainment
3. Studies of pursuit of higher education by rural youth

IV. Psychological Factors

1. Studies of occupational choice
2. Studies of aspirations

In summary, a list of the factors discussed in the studies considered is given:

I. Sociological Factors Influencing Occupational and Educational Decision-Making of Rural Youth

1. Sex - different interests, aptitudes, traditional attitudes, discrimination against women
2. Previous work experience - on-the-job experience, creating more realistic attitudes
3. Ethnic group
4. Community of residence--town, village, farm
5. Value system - rural VS urban values

6. Need for status - expanded mobility, associated with factor seven
7. Socio-economic position of family - the most comprehensive factor
8. Parental attitudes toward higher education
9. "Informal" school experiences
10. Extent of knowledge about possibilities and opportunities
11. Realism about relationship between aspiration and probability of achievement
12. Degree to which ideas of occupations are stereotyped
13. Mobility and migration of society in general, and the community of residence in particular - the shift to urban living
14. Family tradition
15. Heterogeneity of social contacts of the family
16. Peer group pressures
17. Social changes - wars, depressions, rural-urban migration

The following skeletal list of economic factors influencing occupational and educational choice includes factors previously mentioned as sociological in nature. Some factors have both social and economic aspects and cannot be excluded from either list.

II. <u>Economic Factors Influencing Occupational and Educational Decision-Making of Rural Youth</u>

1. Socio-economic status of the family - income, prospects of future income, etc.
2. Quality and quantity of the financial resources of the family and relatives
3. Quality and quantity of the financial resources of the individual
4. Quality and quantity and variety of financial resources available outside of the family - banks, scholarships, NDEA, etc.
5. Capital investment necessary for chosen occupation - this is especially applicable to farming.
6. Occupational status of the head of the household, and his attitude toward it - is the father satisfied with his occupation?
7. Attitude of the parents - are they encouraging toward ambition? Are they willing to make sacrifices to help children obtain higher education?
8. Stereotyped thinking which may result from low-status environment
9. Level of income aspiration
10. Economic condition of the area - depressed, low-income; prosperous, middle income.
11. Educational system as determined by economic conditions - Is the educational system depriving the youth of the area of needed training?
12. The trend away from small, individually operated farms and businesses, toward large, highly organized operations

The following influencing factors are educational in nature for rural youth decision-making:

III. Educational Factors Influencing Occupational and Educational Decision-Making of Rural Youth

1. The amount and quality of education attained
2. The prospects for the attainment of further education
3. The attitude toward educational achievement of parents
4. Past school experiences
5. The general inferiority of rural schools as compared to urban schools
6. The traditional attitude regarding the non-necessity of higher education to farmers

A list of the psychological factors influencing decision-making of rural youth include the following factors:

1. Character - This includes moral traits, such as selfishness, desire for service, etc.

2. Personality - Such traits as gregariousness, interest in people or things, shyness, dependeney, self-confidence, etc.

3. Self-concept - This is interpreted as the individual's view of his own personality, character, abilities and potential.

4. Ideal self - The individual as he would like to be - his personal aspirations.

5. The value system - Instilled in the individual by his environment, and tempered by his own character, personality, etc.

6. Adjustment - The terms on which the individual lives with himself and his environment.

7. Needs - A function of personality, and basic to individual development; the needs of each individual are in some part unique, and have a direct bearing on his choice of a life work.

8. Identification - With peers, parents, "significant others."

9. Psychotype and somatotype

10. Role concept - A function of self-concept and ideal self - the individual must seek and find an appropriate role.

Considering all factors from each of the four selected categories, certain generalizations are drawn regarding factors which influence rural youth decision-making.

Broad generalizations are made for the positive correleation of college attendance and male sex population cencentration of residence (proximity to colleges) and scholastic aptitude. Relatively fewer capable rural males pursue programs of higher education than urban males.

Social class has been well established as a primary factor in college plans.

Economic factors generally do not appear to be a major decision-making factor. Family background, including occupation of father, aptitudes of parents toward education, and education of parents are observed as influencing factors. Parents who have progressed far in school are more likely to have college aspiring children. Forces of primary importance in decision-making come from one's home and family. Secondary forces come from age peers, teachers, and individuals within the community.

A majority of the authorities are in agreement concerning the dominant patterns of territorial mobility. Observing migration from rural to urban areas, this trend is more prolific near larger cities than in remote rural regions.

Sociological studies find that farming is transmitted from father to son in larger proportions than other occupations. However, economic factors relate that fewer young people are entering farming because of combined economic and technological influences now present. Economists see an urgent need for off-farm employment opportunities for rural youth. In addition to educational factors; economic factors point to a need of greater emphasis being given to preparing youth for employment outside the home community.

Several sociological studies relate the act of planning to farm is a deterrent to rural youth planning to attend college. Educational researchers express the same basic theory. However rural youth members participating in post-high school training are more concerned with learning a specific vocation and less concerned with achieving high grades when compared with urban youth.

Marked differences concerning the influences of rural and urban youth exist in the sociological and psychological sections. Psychological factors of rural youth include: more self-reliance, greater sense of personal worth, greater sense of belonging, greater freedom from withdrawing tendencies and nervous symptoms, greater social skills, etc. Sociological studies on the other hand find significant differences in personal and social adjustment. They propose that suburban youth exhibit a greater degree of adjustment than youth.

On-the-job experience is rated highly by all categories as being an important influence in decision-making.

Religion appears to be an important factor which influences decision-making.

As reported, some disagreement exists among the major theorists in the field as to what constitutes educational and vocational choice. Authorities are essentially in agreement on several points. Occupational choice is not sudden, but it is a gradual process which occupies most of the first half of a person's life. The exact time required is not definite but flexible. Occupational choice is difficult to separate from aspiration and attainment. Aspiration may not be realistic and thus is not always fulfilled. Aspiration, occupational choice, and attainment must be regarded as separate aspects of the whole process, occupational or vocational development.

Expressing occupational choice differently, most theorists view it as a part of the life process of growing into maturity. To develop a realistic outlook at one's potentialities, a person must accept the internal and external limitations imposted by environment. The development of a clear, recognizable image of oneself, the "self-concept" is most important in the decision-making process.

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Important Factors Concerning Human Resources in Mississippi.
(Preliminary Report, no. 11).

Wall, James E.

Mississippi Res Coordg Unit for Vocat Educ, State College

Mississippi State Dep of Educ., Jackson

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*HUMAN RESOURCES, *LABOR FORCE, *POPULATION TRENDS, ACADEMIC ACHIEVEMENT, *VOCATIONAL EDUCATION, STUDENT ENROLLMENT, ENROLLMENT TRENDS, DROPOUTS, EXPENDITURES,

Mississippi,

The more important characteristics of the state's human resources and information concerning vocational education programs are presented. Mississippi's population increased 21.6 percent between 1920 and 1960. Census data indicated -- (1) Birth rates are higher than national average, (2) Death rates are close to the national average, (3) The shift from rural-agriculture to urban-industrial continues, and (4) Migration losses have been depleting young adults, especially nonwhites. Vocational programs in the secondary and postsecondary schools are designed for entry jobs and the retraining and upgrading of youth and adults. Courses are offered in -- (1) agricultural education, (2) distributive education, (3) health occupations education, (4) home economics education, (5) trade and industrial education, (6) technical education, (7) business and office occupations, and (8) manpower training. The median for school years completed in 1960 was 8.9 years. School enrollment for 1964-65 was 606,200 and is projected as 602,700 for 1970-71. In 1964-65, $9,413,100 was spent for vocational education. Other tabular data are given for the population and vocational education. (EM)

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MISSISSIPPI STATE UNIVERSITY

SOCIAL SCIENCE RESEARCH CENTER

INFLUENTIAL FACTORS CONCERNING HUMAN RESOURCES IN MISSISSIPPI

James E. Wall

Preliminary Report No. 11

Research Coordinating Unit for
Vocational-Technical Education

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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IMPORTANT FACTORS CONCERNING HUMAN RESOURCES IN MISSISSIPPI

by

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Mississippi State University
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In cooperation with:
The Division of Vocational and Technical Education
Mississippi State Department of Education
Jackson, Mississippi

and with a grant from:
The U.S. Department of Health, Education, and Welfare
Office of Education

PREFACE

The various segments of our human resources are many in number, diverse in characteristics, and fully understood by too few. This report is aimed at bringing to the reader's attention some of the more prominent aspects of human resources in Mississippi. The report may indicate areas in which research studies should be conducted. It also may be used to help in determining what training programs should be emphasized or de-emphasized. For persons outside Mississippi, it should serve to partially familiarize them with the existing situation in human resource development in the state. The report is by no means complete or comprehensive, thus its designation as a "preliminary" report. Revisions of the report will be made as up-to-date information becomes available, as new trends are identified, and as new sources of information are developed.

This is the first "situational" report of the newly established Research Coordinating Unit (RCU) for Vocational and Technical Education. The RCU is located in the Social Science Research Center of the Mississippi State University. The activities of the RCU are conducted in close cooperation with the Division of Vocational and Technical Education of the Mississippi State Department of Education. A grant from the United States Department of Health, Education, and Welfare, Office of Education supports the activities of the RCU. The activities of the RCU include the stimulation, coordination, implementation, and dissemination of research and research findings in the broad area of occupational education and related disciplines. The RCU provides consultative and coordinative services for other persons who desire to plan and conduct research in occupational education.

The information contained in this report came from many sources, and as a result, it represents the efforts of many people. There are certain persons who contributed much in the way of statistical data for the report. For their special efforts, the writer wishes to acknowledge Mr. A. G. Shepherd, Jr., Research Coordinator in the Division of Vocational and Technical Education of the Mississippi State Department of Education; and Mr. John Rankin, Research Assistant on the RCU staff in the Social Science Research Center of Mississippi State University. Mrs. Mary Beth Moore, Secretary on the RCU staff, coordinated the typing and reproduction of the report.

J.E.W.

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IMPORTANT FACTORS CONCERNING HUMAN RESOURCES IN MISSISSIPPI

INTRODUCTION

It is axiomatic that of all the resources of a nation, region, state, or community, the human resources are by far the most important. The extent to which the human resources are developed determines rate of progress. Natural resources can neither be properly utilized nor conserved without the adequate development of the human resources. The extent to which and rate at which areas become industrialized are dependent upon human resource development in the areas.

A knowledge of the characteristics of human resources is a necessary prerequisite to their development. The main purpose of this paper, therefore, is to bring to light a few of the more important characteristics of the human resources of Mississippi. Detailed characteristics may be obtained from reports of the various local, state, and federal government agencies.

Another purpose of this paper is to present pertinent information concerning Mississippi's vocational education programs since they play such an influential role in the development of human resources, expecially the labor force. This paper also should serve as a benchmark from which future changes can be discerned in human resource characteristics and vocational education programs.

TOTAL POPULATION

The total population for Mississippi is the basic reserve from which all other data are taken for analysis, such as the study of the labor force, persons in the educational system, migratory trends, and the like. Data concerning the total population for the state are shown in Table 1. Mississippi's population has remained approximately the same since 1940, but a slight decline can be discerned which apparently may be partly attributed to the outmigration of nonwhites aged 14 years and over, the greatest migration occuring among those aged 20 to 29, who probably were seeking better economic opportunity elsewhere that would be commensurate with their ability and training. The state's total population increased 21.6 percent between 1920 and 1960. The white population for the same period increased 47.3 percent, while the nonwhite population decreased 1.7 percent. Since 1940 Mississippi's population has been predominantly white.

Other Mississippi population trends that become apparent through study

Table 1. General population characteristics by color for Mississippi: 1920-1960 and estimates to 1964[1], 2, 3, and 1965[4]
(In thousands and percent. Minus sign (-) denotes decrease.)

Year	Population (000's)	Percent change	Persons 14 yrs.& over	Percent change for persons 14 yrs. & over	Deaths (000's)	Deaths per 1,000
All Classes						
1920	1,791	- 0.41	1,150			
1930	2,010	12.24	1,344	16.84		
1940	2,184	8.7	1,520	13.10	23.3	10.7
1950	2,179	- 0.22	1,481	- 2.53	20.8	9.5
1960	2,178	- 0.04	1,439	- 2.81	21.7	10.0
1961	2,224	Average			21.2	10.5
1962	2,275	annual in-			22.7	10.0
1963	2,286	crease: 1960-			23.4	10.2
1964	2,314	1964 = 1.4%			22.4	9.7
1965	2,320	6.5				
White						
1920	854		546			
1930	998	16.88	670	22.67		
1940	1,106	10.85	792	18.21		
1950	1,189	7.44	852	7.61		
1960	1,258	5.80	895	4.95		
Nonwhite						
1920	937		604			
1930	1,012	8.02	673	11.56		
1940	1,077	6.50	727	8.01		
1950	990	- 8.09	629	-13.58		
1960	921	- 7.04	545	-13.33		

1. U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States: 1965, 86th Annual Edition (Washington: U.S. Government Printing Office, 1965), pp. 11-13, and 57-58.

2. Frank Etheridge Cotton, Jr., "Major Changes in the Mississippi Labor Force, Their Causes and Effects," (unpublished Doctor's dissertation, University of Pittsburgh, Pittsburgh, Pennsylvania, 1962), pp. 10 and 248.

3. Wilber, George L. and Bryant, Ellen S. Illustrative Projections of Mississippi Population: 1960 to 1985. Sociology and Rural Life Series No. 14, Agricultural Experiment Station, Mississippi State University, September, 1964. pp. 1-5.

4. Rand McNally Commercial Atlas and Marketing Guide. Rand McNally Co., New York, 96th Edition, January, 1965. pp. 4-7.

of census data are: (1) birth rates for Mississippi have been relatively high compared to the national average, (2) death rates have been close to the national average, (3) population continues to change from a rural-agricultural into an urban-industrial complex, and (4) migration losses have been depleting the young adult ages, especially among monwhites.

Data in Table 2 show county population figures and changes which took place from 1950 to 1960 with estimated changes from 1960 to 1965. Eleven counties showed population changes between 1950 and 1960 of over 20 percent, seven showing a decrease and four an increase. Based on economic areas, counties in Areas 5, 7, 8, and A show relatively consistent increases in population, whereas other areas show decreases in almost all counties.

Information is available regarding the migratory trends which cause the population shifts noted in Table 2. Bryant and Wilbur[1] point out that Mississippi over the past two decades has had one of the highest rates of outmigration of any of the Southern states, exceeded only by Arkansas and West Virginia. They cite the influences that acute population losses have on industrial and economic expansion, on taxation rates, on educational development, and on governmental functions in the state. Likewise, Mississippi's population changes are closely related to socio-economic activities in the rest of the nation. The nonwhite outmigration rate from Mississippi is almost three times greater than the white outmigration rate.

Population shifts have given rise to the following generalizations: (1) men are more mobile than women, (2) nonwhites are more mobile than whites, (3) peak mobility occurs at the ages of the early 20's, when the tendency is strong to leave parents, find employment, get married, etc., (4) mobility rate declines as age increases, (5) unemployment contributes to mobility (short-distance moves) and to migration (long-distance moves), (6) unemployed have higher mobility rate than the employed, (7) men with incomes less than $5,000 have higher rates of mobility than those with incomes of $5,000 or more, (8) local mobility (move within counties) rises as economic status declines, (9) for each white person moving to Mississippi, 2.5 whites moved from the state, and (10) for each nonwhite person moving to Mississippi, 16 nonwhites moved from the state.[2]

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1. Ellen S. Bryant and G. L. Wilbur, Net Migration in Mississippi: 1950 to 1960 (Agricultural Experiment Station Bulletin No. 632. State College: Mississippi State University, 1961). 14 p.

2. Mississippi Farm Research. Agricultural Experiment Station, Mississippi State University, State College. November, 1965.

Table 2. Mississippi population by economic area, county, and color: 1950 to 1960[1] and estimates to 1965[2]

County	White 1950	White 1960	White Percent Change	Nonwhite 1950	Nonwhite 1960	Nonwhite Percent Change	Total Population 1950	Total Population 1960	Total Population Percent Change	Percent Nonwhite 1950	Percent Nonwhite 1960	Estimates to 1965 (000)	Estimates to 1965 Percent Change
The State	1,188,632	1,257,546	5.8	990,282	920,595	- 7.0	2,178,914	2,178,141	- 0.04	45.4	42.3	232.0	7
Area 1													
Bolivar	19,868	16,667	-16.1	43,136	36,701	-14.9	63,004	53,368	-15.3	68.5	68.8	58.0	6
Coahoma	13,702	13,741	0.3	35,659	31,510	-11.6	49,361	45,251	- 8.3	72.2	69.6	51.0	10
Humphreys	7,013	5,696	-18.8	16,102	13,306	-17.4	23,115	19,002	-17.8	69.7	70.0	19.3	1
Issaquena	1,617	1,171	-27.6	3,349	2,399	-28.4	4,966	3,570	-28.1	67.4	67.2	3.1	-13
Leflore	16,482	16,212	- 1.6	35,331	30.321	-14.2	51,813	46,533	-10.2	68.2	65.2	49.2	4
Quitman	10,183	7,671	-24.7	15,702	13,255	-15.6	25,885	20,926	-19.2	60.7	63.3	22.5	7
Sharkey	3,707	3,210	-13.4	9,196	7,480	-18.7	12,903	10,690	-17.2	71.3	70.0	11.7	9
Sunflower	17,872	14,300	-20.0	38,159	30,890	-19.1	56.031	45,190	-19.3	68.1	68.4	51.0	11
Tallahatchie	11,078	8,511	-23.2	19,408	15,452	-20.4	30,486	23,963	-21.4	63.7	64.5	25.2	5
Tunica	3,939	3,447	-12.5	17,725	13,327	-24.8	21,664	16,774	-22.6	81.8	79.5	17.6	5
Washington	23,436	33,408	42.5	47,068	42,989	- 8.7	70,504	76,397	8.4	66.8	56.3	80.5	2
Area 2													
Benton	4,943	4,132	-16.4	3,850	3,582	- 7.0	8,793	7,714	-12.3	43.8	46.4	7.9	2
Carroll	6,663	4,652	-30.2	8,836	6,503	-26.4	15,499	11,155	-28.0	57.0	58.3	12.8	15
DeSoto	8,077	9,218	14.1	16,522	14,597	-11.7	24,599	23,915	- 2.8	67.2	61.0	30.0	26
Grenada	9,001	9,158	1.7	9,829	9,061	- 7.8	18,830	18,219	- 3.2	52.2	49.7	19.7	7
Holmes	8,824	7,568	-14.2	24,477	19,472	-20.4	33,301	27,040	-18.8	73.5	72.0	24.8	- 8
Madison	8,926	9,102	2.0	24,934	23,663	- 5.1	33,860	32,765	- 3.2	73.6	72.2	33.5	2
Marshall	7,374	7,242	- 1.8	17,732	17,194	- 3.0	25,106	24,436	- 2.7	70.6	70.4	25.6	4
Panola	13,782	12,447	- 9.7	17,489	16,225	- 7.2	31,271	28,672	- 8.3	55.9	56.6	31.6	10
Tate	7,640	7,657	0.2	10,371	10,454	0.8	18,011	18,111	.6	57.6	57.7	20.1	11
Yalobusha	8,529	6,899	-19.1	6,662	5,517	-17.2	15,191	12,416	-18.3	43.9	44.4	12.3	- 2
Yazoo	13,632	12,643	- 7.3	22,080	18,792	-14.9	35,712	31,435	-12.0	61.8	59.8	32.0	1
Area 3													
Adams	16,153	18,231	12.9	16,103	18,684	16.0	32,256	36,915	14.4	49.9	50.6	39.6	5
Amite	8,823	7,059	-20.0	10,438	8,444	-19.1	19,261	15,503	-19.5	54.2	54.5	15.0	- 4
Claiborne	3,010	2,494	-17.1	8,934	8,275	- 7.4	11,944	10,769	- 9.8	74.8	76.8	10.0	- 8
Copiah	14,210	12,841	- 9.6	16,283	14,030	-13.8	30,493	26,871	-11.9	53.4	52.2	28.6	6

Table 2. Continued

County	White 1950	White 1960	White Percent Change	Nonwhite 1950	Nonwhite 1960	Nonwhite Percent Change	Total Population 1950	Total Population 1960	Total Population Percent Change	Percent Nonwhite 1950	Percent Nonwhite 1960	Estimates To 1965 (000)	Estimates To 1965 Percent Change
Area 3 Cont.													
Franklin	6,625	5,475	-17.4	4,304	3,772	-12.4	10,929	9,247	-15.4	39.4	40.8	10.1	9
Jefferson	2,887	2,456	-14.9	8,419	7,667	- 8.9	10,706	10,123	- 5.4	74.5	75.7	11.1	0
Lincoln	18,714	18,234	- 2.6	9,185	8,345	- 9.1	27,899	26,579	- 4.7	32.9	31.4	29.0	8
Pike	19,428	19,252	- 0.9	15,709	15,394	- 2.0	35,137	34,646	- 1.4	44.7	44.4	36.6	4
Warren	19,524	21,423	9.7	20,092	19,639	- 2.3	39,616	41,062	3.7	50.7	47.8	43.0	2
Wilkinson	4,358	3,677	-15.6	9,758	9,433	- 3.3	14,116	13,110	- 7.1	69.1	72.0	11.5	-13
Area 4													
Alcorn	23,254	21,807	- 6.2	3,904	3,326	-14.8	27,158	25,133	- 7.5	14.4	13.2	28.0	11
Calhoun	14,080	11,571	-17.8	4,289	4,347	1.4	18,369	15,918	-13.3	23.3	27.3	17.0	7
Itawamba	16,279	14,192	-12.8	937	871	- 7.0	17,216	15,063	-12.5	5.4	5.8	16.2	7
Lafayette	14,709	13,946	- 5.2	8,089	7,230	-10.6	22,798	21,176	- 7.1	35.5	34.1	21.2	- 1
Pontotoc	16,178	13,900	-14.1	3,816	3,308	-13.3	19,994	17,208	-13.9	19.1	19.2	19.0	10
Prentiss	17,477	15,721	-10.0	2,333	2.181	- 6.5	19,810	17,902	- 9.6	11.8	12.2	17.5	- 3
Tippah	14,129	12,292	-13.0	3,393	2,750	-19.0	17,522	15,042	-14.2	19.4	18.3	17.0	13
Tishomingo	14,738	13,203	-10.4	806	672	-16.6	15,544	13,875	-10.7	5.2	4.8	15.4	11
Union	16,626	15,577	- 6.3	3,636	3,311	- 8.9	20,262	18,888	- 6.8	17.9	17.5	18.7	- 1
Area 5													
Chickasaw	10,525	10,295	- 2.2	8,426	6,529	-22.5	18,951	16,824	-11.2	44.5	38.8	18.4	9
Clay	7,660	9,076	-18.5	10,097	9,732	- 3.6	17,757	18,808	5.9	56.9	51.7	19.5	3
Lee	27,578	30,084	9.1	10,659	10,294	- 3.4	38,237	40,378	5.6	27.9	25.5	42.2	4
Lowndes	19,442	27,966	43.8	18,410	17,802	- 3.3	37,852	45,768	20.9	48.6	38.9	51.5	10
Monroe	22,829	21,757	- 4.7	13,714	12,027	-12.3	36,543	33,784	- 7.6	37.5	35.6	33.0	- 3
Noxubee	5,117	4,669	- 8.8	14,905	12,118	-18.7	20,022	16,787	-16.2	74.4	72.2	17.4	3
Oktibbeha	12,818	14,561	13.6	11,751	11,425	- 2.8	24,569	25,986	5.8	47.8	44.0	27.4	5
Area 6													
Attala	15,084	11,690	-22.5	11,568	9,547	-17.5	26,652	21,237	-20.3	43.4	45.0	20.0	- 6
Choctaw	7,680	5,909	-23.1	3,329	2,514	-24.5	11,009	8,423	-23.5	30.2	29.8	8.6	2
Clarke	11,479	9,947	-13.3	7,883	6,468	-18.0	19,362	16,415	-15.2	40.7	39.4	15.0	- 9
Covington	10,823	8,885	-17.9	5,213	4,738	- 9.1	16,036	13,623	-15.0	32.5	34.8	14.8	9
Jasper	9,193	8,358	- 9.1	9,719	8,522	-12.3	18,912	16,880	-10.7	51.4	50.5	18.4	9
Jeff. Davis	6,890	6,094	-11.6	8,610	7,402	-14.0	15,500	13,496	-12.9	55.5	54.8	13.5	0

Table 2. Continued

County	White 1950	White 1960	White Percent Change	Nonwhite 1950	Nonwhite 1960	Nonwhite Percent Change	Total Population 1950	Total Population 1960	Total Population Percent Change	Percent Nonwhite 1950	Percent Nonwhite 1960	Estimate to 1965 (000)	Estimate to 1965 Percent Change
Area 6 Cont.													
Jones	42,207	43,699	3.5	15,028	15,471	2.9	57,235	59,170	3.4	26.3	26.1	60.5	2
Kemper	6,460	4,857	-24.8	9,433	7,411	-21.4	15,893	12,268	-22.8	59.4	60.4	10.9	-11
Lauderdale	40,795	42,869	5.1	23,376	23,448	.3	64,171	66,317	3.3	36.4	35.4	74.0	10
Lawrence	7,881	6,259	-20.6	4,758	3,881	-18.4	12,639	10,140	-19.8	37.6	38.3	9.4	- 8
Leake	12,446	10,504	-15.6	9,164	8,102	-11.6	21,610	18,606	-13.9	42.4	43.6	20.1	8
Marion	15,575	15,302	- 1.8	8,392	7,896	- 5.9	23,967	23,198	- 3.2	35.0	34.0	23.7	2
Montgomery	8,246	7,319	-11.2	6,224	5,969	- 4.1	14,470	13,288	- 8.2	43.0	44.9	14.9	12
Neshoba	19,064	14,979	-21.4	6,666	5,901	-11.5	25,730	20,880	-18.8	25.9	28.3	22.2	6
Newton	14,829	12,915	-12.9	7,852	6,550	-16.6	22,681	19,465	-14.2	34.6	33.7	21.5	10
Rankin	15,210	21,331	40.2	13,671	12,774	- 6.6	28,881	34,104	18.1	47.3	37.5	38.5	12
Scott	12,310	13,018	5.8	9,371	8,124	-13.3	21,681	21,142	- 2.5	43.2	38.4	23.1	9
Simpson	14,549	13,236	- 9.0	7,270	7,185	- 1.2	21,819	20,421	- 6.4	33.3	35.2	22.5	10
Smith	13,350	11,050	-17.2	3,390	3,234	- 4.6	16,740	14,284	-14.7	20.3	22.6	14.3	- 0
Walthall	8,397	7,433	-11.5	7,166	6,056	-15.5	15,563	13,489	-13.3	46.0	44.9	12.3	- 9
Wayne	10,792	10,434	- 3.3	6,218	5,788	- 6.9	17,010	16,222	- 4.6	36.6	35.7	15.2	- 7
Webster	8,915	7,911	-11.3	2,692	2,645	- 1.7	11,607	10,556	- 9.1	23.2	25.1	10.4	- 2
Winston	12,938	10,786	-16.6	9,293	8,413	- 9.5	22,231	19,199	-13.6	41.8	43.8	20.9	9
Area 7													
Forrest	32,090	36,849	14.8	12,965	14,718	13.5	45,055	51,567	14.5	28.8	28.5	58.5	11
George	8,781	9,741	10.9	1,231	1,289	4.7	10,012	11,030	10.2	12.3	11.7	11.1	0
Greene	6,711	6,441	- 4.1	1,504	1,921	27.7	8,215	8,362	1.8	18.3	23.0	8.2	- 2
Lamar	11,119	11,355	2.1	2,106	2,237	6.2	13,225	13,592	2.8	15.9	16.5	15.4	13
Pearl River	16,148	16,934	4.9	4,493	5,170	15.1	20,641	22,104	7.1	21.8	23.4	24.3	8
Perry	6,897	6,279	- 9.0	2,211	2,406	8.8	9,108	8,685	- 4.6	24.3	27.7	7.8	-11
Stone	4,899	5,221	6.6	1,365	1,698	24.4	6,264	6,919	10.5	21.8	24.5	8.5	21
Area 8													
Hancock	9,852	11,238	14.1	2,039	2,234	10.0	11,891	13,472	13.3	17.1	16.6	15.9	13
Harrison	70,652	92,988	31.6	13,421	19,111	42.4	84,073	112,099	33.3	16.0	17.0	135.0	13
Jackson	24,664	42,969	74.2	6,737	10,874	61.4	31,401	53,843	71.5	21.5	20.2	67.0	21
Area A													
Hinds	78,247	109,323	39.7	63,917	74,799	17.0	142,164	184,122	29.5	45.0	40.6	212.0	13

1. Bureau of Census. 2. Rand McNally Commercial Atlas and Marketing Guide

LABOR FORCE

The relatively rapid changes occurring in the world of work are the results of interactions of many social and economic forces. Among the major aspects of the forces for change are: (1) changing composition of the labor force, (2) changing employment demands in occupational areas, and (3) changing requirements in worker competence.

Broad changes in the labor force composition are noted in Table 3. A general decline in numbers is discernible in the civilian labor force from 1940 to 1960; however, increases in the total and the employed portions of the civilian labor force are shown between 1960 and 1965. The labor force is expected to continue to grow at this rate until 1975, due mainly to the large number of young people reaching working age. The percent of unemployed persons in 1965 was the lowest in 25 years and was less than the percent of unemployed for the U.S.: 3.3 percent for Mississippi and 4.2 percent for the nation.

Age, Sex, and Race Composition

The average age of persons in Mississippi's labor force increased from 1940 to 1960, and, as shown in Tables 3 and 4, there was a decline in numbers during the same period. The mass exodus of young people from Mississippi during this period apparently has been the major reason for this increase in average age of persons in the labor force. Other reasons may have been the long-term decline in the use of child labor in industry, the medical advances that have tended to increase the longevity of workers, and the increased mechanization in industry and agriculture which resulted in reduced work loads and lengthened productive years of workers.

However, the marked increase in the size of the labor force--about 30,000 in five years--may have altered the above trend of increasing average age of persons in the labor force, or at least slowed its rate of increase. Nationally, much larger numbers of young people will be in the work force during the next 10 to 15 years, even though a greater proportion of youth will remain in school longer. This same trend probably will occur in Mississippi, and in fact may have already begun within the past few years. But figures concerning the ages of persons entering Mississippi's labor force since 1960 were not available at the time this paper was compiled.

Among the more important trends in the composition of the labor force has been the large increase in women workers. According to data in Table 3, 33.9 percent of Mississippi's labor force in 1960 was composed of women, whereas in 1940 the percentage was 24.3. Most of this increase of women in the labor force was caused by the huge influx of white females. As shown in Table 5 there was a 97.3 percent increase of white females in the labor force from 1940 to 1960. Figures pertaining to the sex composition of the labor force after 1960 were unavailable.

Table 3. Labor force characteristics of the Mississippi population: 1940-1960[1] and 1965[2]

Year	Persons 14 yrs. & older	Labor force: Number	Labor force: Percent of pop. 14 yrs. & older	Labor force: Armed Forces	Civilian labor force: Total	Civilian labor force: Percent of total	Civilian labor force: Employed	Unemployed: Number	Unemployed: Percent of civ. labor force	Not in labor force
TOTAL										
1940	1,519,533	808,462	53.2		808,252		727,245	81,007	10.0	711,071
1950	1,481,090	756,896	51.1		742,827		716,851	25,976	3.5	724,194
1960	1,439,473	742,604	51.6		721,623		682,339	39,284	5.4	696,869
1965		772,300						23,300	3.3	
MALE (Total)										
1940	749,981	611,999	81.6	210	611,789	75.7	553,069	58,720	9.6	137,982
1950	723,522	569,394	78.7	13,750	555,644	74.8	538,692	16,952	3.1	154,128
1960	693,468	497,645	71.8	20,751	476,894	66.1	453,026	23,868	5.0	195,823
MALE (White)										
1940	396,642	313,726	79.1	195	313,531	51.2	275,221	38,310	12.2	82,916
1950	424,054	331,253	78.1	12,762	318,491	57.3	310,410	8,081	2.5	92,801
1960	438,800	326,277	74.4	20,091	306,186	64.2	293,116	13,070	4.3	112,523
MALE (Nonwhite)										
1940	353,339	298,273	84.4	15	298,258	48.8	277,848	20,410	6.8	55,066
1950	299,468	238,141	79.5	988	237,153	42.7	228,282	8,871	3.7	61,327
1960	254,668	171,368	67.3	660	170,708	35.8	159,910	10,798	6.3	83,300
FEMALE (Total)										
1940	769,552	196,463	25.5		196,463	24.3	174,176	22,287	11.3	573,089
1950	757,568	187,502	24.8	319	187,183	25.2	178,159	9,024	4.8	570,066
1960	746,005	244,959	32.8	230	244,729	33.9	299,313	15,416	6.3	501,046
FEMALE (White)										
1940	395,509	73,686	18.6		73,686	37.5	58,568	15,118	20.5	321,823
1950	428,406	93,294	21.8	266	93,028	49.7	90,178	2,850	3.1	335,112
1960	453,895	144,364	31.8	226	144,138	58.9	137,158	6,980	4.8	309,531
FEMALE (Nonwhite)										
1940	374,043	122,777	32.8		122,777	62.5	115,608	7,169	5.8	251,266
1950	329,162	94,208	28.6	53	94,155	50.3	87,981	6,174	6.6	234,954
1960	292,110	100,595	34.4	4	100,591	41.1	92,155	8,436	8.4	191,515

1. U.S. Department of Commerce, Bureau of the Census, United States Census of Population: Mississippi, General Social and Economic Characteristics, 1940, 1950, 1960, (Washington: U.S. Government Printing Office).

2. Mississippi Employment Security Commission

Table 4. Age composition of the labor force in Mississippi: 1940, 1950, 1960.

Age in years	1960 Number	1960 Percent	1950 Number	1950 Percent	1940 Number	1940 Percent
Total, 14 & over	742,604	100.0	757,615	100.0	808,462	100.0
14 to 17	29,534	4.0	40,510	5.3	43,203	5.3
18 to 24	114,015	15.4	129,305	17.1	159,111	19.7
25 to 34	154,768	20.7	166,440	22.0	213,857	26.4
35 to 44	161,552	21.8	173,110	22.8	161,464	20.0
45 to 64	245,613	33.1	202,760	26.8	189,870	23.5
65 & over	37,122	5.0	45,490	6.0	40,957	5.1

Source: Bureau of Census.

Table 5. Persons in Mississippi's labor force, by sex and color: 1940-1960. (In thousands and percent)

Population characteristics	1960	1950	1940	Percent change, 1940-60
Total population, 14 years old and over	1,439	1,481	1,520	- 5.3
White	893	852	792	12.8
Male	439	424	397	10.6
Female	454	428	395	14.9
Nonwhite	547	629	727	-24.8
Male	255	299	353	-27.8
Female	292	329	374	-21.9
Labor force	743	757	808	- 8.0
White	471	424	387	21.7
Male	326	331	314	3.8
Female	144	93	73	97.3
Nonwhite	272	332	421	-35.4
Male	171	238	298	-42.6
Female	101	94	123	-17.9

Source: Bureau of the Census.

Most of the women in the labor force are composed of married women, many with children under eighteen. Many women only seek part-time employment, but more and more women work outside the home except when they have young children to care for. Because most women marry young they complete their families by their late twenties and have their youngest in school by the age of thirty-five. Early marriage greatly increases the availability of women for work.

Industrial Composition

The numbers of persons employed in the various types of industry groups have changed over the past 20 to 25 years. Less people were employed in the production of foodstuffs in 1960 than in 1940. A greater percentage of the labor force was employed in 1960 in the production of other goods and services. Those industries producing physical goods--agriculture, forestry and fishing, mining, manufacturing, and construction--contained 70.9 percent of the total labor force in 1940; but this decreased to 48.1 percent in 1960. This and related information can be gleaned from Table 6. Service and kindred industries--trade, personal and business services, government, finance, and transportation--accounted for over 50 percent of the persons in the labor force.

While employment in the production of physical goods declined between 1940 and 1960, employment in manufacturing increased by 96 percent. And in finance, business services, government, public administration, and trade employment increased by approximately 200 percent.

Probably the major reason for this shift in employment has been the phenomenal increase in output per worker. For instance, less farm workers are needed today to produce more than was produced 25 years ago. Another reason for the employment shift has been the rise of per capita income, which has resulted in the consumer spending a greater proportion of his income on services than he has done previously.

Manufacturing changes also have taken place causing subsequent changes in employment in that sector of the economy. Employment in industries producing durable goods contained 55.2 percent of the persons in manufacturing in 1940. However, in 1960 the percentage had decreased to 40.6 percent, although the total number of persons in manufacturing had increased by more than 24,000. Employment increases in the non-durable goods industries jumped by more than 350 percent from 1940 to 1960.

The decline in persons engaged in farming (more commonly referred to as production agriculture) partially accounts for the decrease in persons employed in industries producing physical goods. Data in Table 7 indicate the decline since 1940 in numbers of persons working in production agriculture. Discerning readers of this paper realize that no statistic stands alone; each must be considered along with other statistics. Therefore, it should be noted that since 1940 there has been a decline in numbers of farms and an increase in the average size of farms. While family farm workers have decreased by approximately

Table 6. Distribution of employed civilian labor force by industrial group 1940, 1950 and 1960

Industry group	Number			Percent distribution		
	1960	1950	1940	1960	1950	1940
Total employed	682,339	716,282	727,245	100.0	100.0	100.0
Agriculture	142,860	301,316	420,375	20.9	42.1	57.8
Forestry and fisheries	3,418	2,969	2,537	.5	.4	.3
Mining	5,969	3,616	1,917	.9	.5	.3
Construction	44,849	36,480	24,346	6.6	5.1	3.3
Manufacturing	130,804	90,870	66,867	19.2	12.7	9.2
Railroading & railway express service	6,926	10,187	9,286	1.0	1.4	1.3
Trucking service and warehousing	7,305	4,490	3,569	1.1	.6	.5
Other transportation	6,856	5,119	3,955	1.0	.7	.5
Communications	5,569	4,688	2.190	.8	.7	.3
Utilities and sanitary service	8,598	6,671	3,422	1.3	.9	.5
Wholesale trade	17,002	13,435	8,386	2.5	1.9	1.2
Food and dairy products stores	18,243	17,854	12,251	2.7	2.5	1.7
Eating and drinking places	15,275	15,429	8,172	2.2	2.2	1.1
Other retail trades	60,411	48,487	30,879	8.9	6.8	4.2
Finance, insurance, real estate	15,312	9,120	5,852	2.2	1.3	.8
Business services	2,632	1,197	805	.4	.2	.1
Repair services	8,803	9,316	5,372	1.3	1.3	.7
Private household	52,090	36,961	49,518	7.6	5.2	6.8
Other personal services	21,480	19,322	15,211	3.1	2.7	2.1
Entertainment	3,070	3,216	2,227	.4	.4	.3
Educational: Govt.	30,167	22,909	16,264	4.4	3.2	2.2
Private	5,830	3,342	1,938	.9	.5	.3
Welfare, religious	7,283	4,607	N.A.	1.1	.6	N.A.
Hospitals	13,204	7,183	12,957	1.9	1.0	1.8
Professional and related services	10,353	8,507	N.A.	1.5	1.2	N.A.
Public administration	24,573	17,994	11,554	3.6	2.5	1.6
Industry not reported	13,457	10,997	7,395	2.0	1.5	1.0

Source:: Bureau of the Census.

Table 7. Changes in farming related to human resources for Mississippi

	1966[2]	1964[2]	1959[1]	1940[1]
No. of farms	104,000	114,000	138,142	291,092
Land in farms (000's)	18,000	18,600	18,630	19,156
Average size of farm (acres)	173.1	163.2	134.9	65.8
Total farm workers		200,833[3]	261,118	462,237
Average per farm		1.8	2.4	1.8
Family workers		142,666	164,460	410,910
Hired workers		58,167	96,658	51,327
Motortrucks on farm			71,489	18,565
Tractors on farms			87,003	10,577
Automobiles on farms			81,834	55,702
Telephones on farms			36,876	8,215
White farm operators			83,171	131,552
Full owners			57,675	68,072
Part owners			13,500	5,767
Managers			640	963
Tenants			11,356	56,750
Proportion of tenancy			13.7%	43.1%
Nonwhite farm operators			54,927	159,540
Full owners			17,608	20,625
Part owners			5,027	2,802
Managers			49	44
Tenants			32,243	136,069
Proportion of tenancy			58.7%	85.3%

1. U.S. Dept. of Commerce, Bureau of the Census. U.S. Census of Agriculture: Mississippi--Counties 1959, Vol. 1, Part 33.

2. U.S. Dept. of Agriculture, Statistical Reporting Service, Crop Reporting Bd. Sp. Sy. (1-66), Jan. 12, 1966, Washington.

3. Mississippi Department of Agriculture and Commerce, Mississippi Crop and Livestock Reporting Service, Mississippi Agriculture Statistics: 1954-1964, Supplement No. 6, 1965.

50 percent since 1940, the number of hired workers apparently increased. This may indicate a need for increased knowledge and skill, especially in the area of management, since there is an increasingly greater proportion of hired workers to owner-operator-manager types of workers. Also, the number of farm operators has declined in each category except "part owners," and here there is a very noticable increase since 1940. Percentage of ownership of farms also has increased. The marked increase in vehicles and communication facilities on farms tends to substantiate the trend in greater mechanization.

Decrease in numbers of persons engaged in production agriculture, therefore, can be attributed to: (1) increase in mechanization, (2) consolidation of smaller units into larger ones, (3) increase in part ownership of farms, (4) the decline in tenancy, and (5) the increased requirements for managerial ability in production agriculture. There no doubt are somewhat less influential factors not listed here which are causing the decrease in persons employed in production agriculture. It should be remembered, however, that there has been an increase in numbers of persons employed in non-production agriculture, because production agriculture as an industry has steadily increased in annual dollar-wise volume of business, both in the volume produced and in that consumed. This increase in the financial aspects of production agriculture has created the need for more people to service the industry.

Occupational Composition

The industrial changes noted above have been influential in causing changes in occupational patterns. Changes in occupations are due to changes in techniques and materials used in production, changes in methods of product. distribution, changes in the structure of industrial organizations, and changes in the sizes of firms, farms, and factories. The relative importance of certain occupations likewise has changed. Generally, the shift has been away from the arduous, unskilled types of occupations toward those which require higher levels of training, knowledge, skill, and education. Table 8 contains data showing the number and percent distribution of persons employed in the major occupational groups. Table 9 contains the percent distribution and percent change from 1940 to 1960 shown separately for males and females.

Both white-collar and blue-colar groups grew from 1940 to 1960. Among blue-collar workers, those jobs requiring the greatest degree of skill experienced the greatest growth. Both farm and nonfarm laborers declined. Hence, it can be expressed as a fact that the occupations which have expanding employment opportunities generally demand greater education and training. Workers without qualifications who suddenly find themselves displaced, have difficulty locating and/or relacating jobs. The trend has been toward more mechanization and automation, which in turn creates the need for a greater degree of skill on the part of the worker.

The occupational composition of the labor force has created at least

Table 8. Distribution of civilian labor force, by occupation group, 1940, 1950 and 1960[a]

Major occupational group	1960 Number	1960 Percent	1950 Number	1950 Percent	1940 Number	1940 Percent
Total	720,187	100.0	742,827	100.0	727,245	100.0
White-collar workers	203,938	28.3	158,387	21.3	103,708	14.3
Professional, technical and kindred workers	55,329	7.7	41,766	5.6	30,499	4.2
Managers, officials, & propritors, exc. farm	51,877	7.2	43,793	5.9	29,777	4.1
Clerical & kindred workers	58,675	8.1	39,177	5.3	21,746	3.0
Sales workers	38,057	5.3	33,651	4.5	21,686	3.0
Manual and Service Workers	353,783	49.1	269,251	36.3	202,099	27.8
Manual Workers	251,657	35.0	196,134	26.4	129,621	17.8
Craftsmen, foremen & kindred workers	75,515	10.5	56,597	7.6	30,209	4.2
Operatives & kindred workers	128,693	17.9	88,747	12.0	49,057	6.7
Laborers, except farm & mine	47,449	6.6	50,790	6.8	50,355	6.9
Service Workers	102,126	14.1	73,117	9.9	72,478	10.0
Private household workers	51,374	7.1	35,482	4.8	47,695	6.6
Service workers, exc. private household	50,752	7.0	37,635	5.1	24,783	3.4
Farm Workers	143,818	20.0	299,281	40.4	416,773	57.3
Farmers and farm managers	73,485	10.2	207,499	28.0	274,506	37.7
Farm laborers and foremen	70,333	9.8	91,782	12.4	142,267	19.6

a. Occupations not reporting omitted.

Source: Bureau of the Census.

Table 9 . Major occupation group of employed persons in Mississippi: 1940-1960.

Occupation	MALE				FEMALE			
	Percent Distribution			Percent change	Percent Distribution			Percent change
	1960	1950	1940	1940-60	1960	1950	1940	1940-60
Total employed	100.0	100.0	100.0	- 18.1	100.0	100.0	100.0	31.7
Professionals	6.4	4.1	2.8	84.3	11.2	10.2	8.5	72.9
Farmers and farm managers	14.7	34.9	46.5	- 74.0	2.5	7.2	10.0	- 67.4
Managers, officials and proprietors	9.4	6.6	4.7	62.9	3.7	3.9	2.0	141.1
Clerical	4.0	2.6	1.9	76.0	16.8	13.1	6.5	238.7
Sales	5.0	3.9	2.8	45.5	6.2	6.5	3.5	130.6
Craftsmen	15.1	10.0	5.4	131.0	0.9	0.6	0.3	313.3
Operatives	18.1	12.0	6.5	127.1	16.7	11.8	7.5	193.5
Private household workers	0.2	0.2	0.5	- 68.0	20.5	18.0	25.8	- 4.7
Service workers	4.2	3.0	2.4	39.1	12.7	11.3	6.5	158.3
Farm laborers	11.6	12.1	17.0	- 44.0	5.3	13.2	27.9	- 74.8
Laborers	9.1	8.9	8.9	- 16.8	0.5	0.7	0.5	26.8
Occupation not reported	2.2	1.1	0.5	266.6	3.1	2.2	1.1	265.9

Source: Bureau of the Census.

one other pattern which is worthy of note. Job information, for instance, now seems to be oriented away from industries and products, with correspondingly more emphasis being placed on occupations. The newest edition of the Dictionary of Occupational Titles, published by the United States Department of Labor, lists jobs that are not necessarily peculiar to any industry. The DOT was compiled on the theory that products produced by industries are made by workers who are employed on what is termed "cross-industry occupations." Workers can move from one industry to another, factories can switch from one product to another without significant changes in occupations. As technological changes occur in industry, the relationships between occupations and industries diminishes. Therefore, it seems almost useless to think in terms of space-age jobs, government jobs, automobile industry jobs, etc. The same kinds of workers, using the same machines and the same methods, can produce a variety of products for a variety of industries. This pattern is an extremely important characteristic of the labor force. It means that adaptation to industrial changes in time of emergency should be relatively easy to cope with. The pattern also will greatly influence future vocational and technical education programs.

IMPROVEMENT OF THE VOCATIONAL CAPABILITY OF MISSISSIPPI'S HUMAN RESOURCES

Society places certain requirements and restrictions on its members. It requires that they do something concrete, actual, tangible, finite, real. Society restricts participation by the interloper, the misfit, the unprepared, in certain vocations by establishing laws, regulations, licenses and certificates of competency. Standards are increasing; most occupations are setting higher requirements for persons who desire to enter them. Emphasis has shifted from the strong back to the alert mind. The trend is toward evaluating a man more by the quality of his occupational performance than by the kind of industry he is in. The economic well-being of a business firm or of a community hinges to a marked degree on the skill level of the population. Occupational competency must be developed upon a basis of general and vocational education achievement. The view must be taken that all occupations, though different, are equally honorable; and the persons employed in them have the same fundamental obligations as citizens.

The main purpose of vocational education is to help prepare people for successful employment, which likewise contributes to successful living. Vocational education has always had a strong social reference in that it has been concerned with the human resource: people who will become members of the labor force; people who are members of the labor force; in actuality, most of the people who produce the goods and services required by society.

Vocational programs are offered in Mississippi's public secondary schools and community, municipal, or junior colleges. These programs are designed for young people in school, to prepare them for their first full-time jobs; or for working adults, to assist them in improving their

skills; or for out-of-school youth and out-of-work adults, to train them for specific occupations.

Vocational education deals primarily with three elements: the student or trainee, the teacher, and the occupational environment beyond vocational training. The student should not only be taught, but he also should be involved in an adequate program of vocational or career guidance. The teacher should not only be well-grounded in methods and subject matter, he also needs special training as a counselor. But "every-teacher-a-counselor" will not take the place of a sound guidance program. Adequate information concerning occupational environment is indispensable to curriculum construcation and revision, to training and retraining, and to guidance programs.

Consensus among educators is that social reality should be translated into the educational system. Change, especially extensive and relatively rapid change, creates many curriculum problems. Scientific and technological advancements already have changed our culture from a simple agrarian to a complex industrial society--and change apparently will continue at an ever-increasing rate. As change continues in Mississippi the responsibilities of vocational education increase commensurately. To cope with change, curriculums must be based on influences of past events that have molded present circumstances, and the present must be searched for images of the future. A curriculum which fails to reckon with change will prepare youths for a society which no longer exists by the time the curriculum is completed by these youths. Adult training and retraining programs must be dynamic in approach and flexible in structure.

The identification of long-range trends has been accepted as one step in designing curriculums that will aid in coping with change. Even a society as dynamic as ours is not transformed overly rapidly or radically, despite the recognized facts which we have about scientific and technological change. Forecasting for the future demands that we place more stress on the elements of continuity than on elements that suddenly come into being, but are relatively short-lived. It seems apparent that effort should be directed to those aspects of change which relate, first, to demography and the labor force; second, to those associated with fluctuations in the demand for labor as a consequence of developments in science, technology, and income; and third, on transformations in the value structure of the society, particularly as these are reflected in the actions and behavior of individuals and groups.

With the above in mind, an overview is presented herewith concerning education of Mississippi's human resources in general, and their vocational and technical education in particular. As stated previously, economic progress to a great extent hinges on human resource development. Rate of progress is influenced by educational attainment, degree of training and skill development attitudes toward work and change, and aspirations of human resources.

The information shown in Table 10 indicates that the educational attainment of Mississippi's population is gradually rising. The median school years completed rose by 1.7 years between 1940 and 1960. However, the rate of increase of educational attainment remains a problem among certain sectors of our society. Although not shown specifically in Table 10, U.S. Census data reveal that 13 percent of the rural, nonfarm, nonwhite males had no education in 1960. Lesser percentages are shown for other groups.

The trend seems to be that more whites and nonwhites will be in school and apparently will stay in school longer. This general trend is expected to continue to about 1966 when the rate of increase will begin to level off or even decline with respect to total numbers. However, the numbers of persons in secondary schools are expected to increase until 1971 as shown in Table 11. This expected increase, no doubt, will influence enrollments in vocational and technical education programs.

Despite the trend toward greater educational attainment, each year there are pupils who, for a variety of reasons, do not remain in school to develop their latent potential. It has been estimated that as many as 25 percent of the new workers entering the labor force in the next 10 to 20 years will not have completed high school. The unemployment rate for the drop-out is much higher than for the high school graduate. According to the U.S. Census, about 300,000 young people in the entire nation over age 16 dropped out of high school without graduating between January and October of 1962. An estimated 29 percent of these drop-outs were unemployed in October 1962, as compared with 14 percent of the high school graduates that year. These percentages might well be applied to the situation in Mississippi. According to information in Table 12, the numbers of drop-outs from Mississippi's public schools were 40,102 in 1962-63, 22,577 in 1963-64, and 22,866 in 1964-65. Data regarding Mississippi's drop-outs apparently are not available prior to the 1962-63 school year, consequently, trends would be difficult to establish. However, it should be noted that there were almost 50 percent fewer drop-outs in 1963-64 than in 1962-63; but there was a slight increase in drop-outs in 1964-65 over 1963-64. Pupils drop out of school for various reasons, but research is needed to determine specifically the personal, physical, psychological, social, and other circumstances surrounding the drop-out. Also research is needed to help in the identification of potential drop-outs; and further research is needed to determine how best to retain the potential drop-out in school. The holding power of Mississippi's schools is shown in Table 13. Reasons given by drop-outs for leaving school in 1963-64 are shown in Table 14.

As stated previously, vocational and technical education programs in Mississippi are many and varied. Newer types of programs have been implemented as the needs arose and certain programs have been phased down or eliminated according to needs. Mississippi has long borne the burden of educating people who went elsewhere to obtain employment.

Table 10. Years of school completed by persons 25 years old and over, by color, for the state, 1940, 1950 and 1960 (Percent)

Area, census year, color	Total, 25 years and over	Years of school completed									Median school years completed
			Elementary school				High school		College		
		None	1 to 4	5 to 6	7	8	1 to 3	4	1 to 3	4 or more	
1960											
The State	100	3.8	15.0	12.1	6.9	13.7	18.7	17.3	6.9	5.6	8.9
White	100	1.2	5.9	7.6	5.6	14.4	23.0	24.6	9.9	7.7	11.0
Nonwhite	100	8.4	31.3	20.2	9.1	12.4	11.1	4.2	1.6	1.8	6.0
1950											
The State	100	4.5	21.2	15.1	7.6	13.9	15.7	12.6	5.5	3.9	8.1
White	100	1.5	8.1	10.1	7.0	16.7	22.1	19.7	8.5	6.2	9.1
Nonwhite	100	8.8	40.0	22.2	8.5	9.8	6.6	2.4	1.2	0.6	5.1
1940											
The State	100	6.7	23.9	17.9	6.6	15.8	12.9	8.7	4.4	3.1	7.2
White	100	2.1	8.6	12.0	6.6	22.3	20.3	14.9	7.8	5.4	8.9
Nonwhite	100	12.0	41.4	24.5	6.6	8.4	4.5	1.6	0.6	0.3	4.7

Source: Bureau of Census

Table 11. Medium projections of public school enrollment in Mississippi by race 1965-71[1] (000's)

School Year	Grand Total	Total	White Elem. (1-8)	White Sec. (9-12)	Total	Negro Elem. (1-8)	Negro Sec. (9-12)
1949-50	533.9	268.9	207.6	61.3	265.0	244.9	20.1
1954-55	527.3	263.7	202.4	61.3	263.6	233.2	30.4
1956-57	531.1	267.1	204.0	63.1	264.0	230.0	34.0
1957-58	536.4	272.2	206.0	66.2	264.2	227.3	36.9
1958-59	555.3	283.5	212.8	70.7	271.8	230.6	41.2
1959-60	566.3	287.7	216.8	70.9	278.6	235.0	43.6
1960-61	572.9	291.3	218.6	72.7	281.6	236.1	45.5
1961-62	585.4	297.4	219.7	77.7	288.0	239.2	48.8
1962-63	596.1	304.2	221.4	82.8	291.9	239.4	52.5
1963-64	604.2	308.4	221.1	87.3	295.8	238.9	56.9
1964-65	606.2	309.4	221.3	88.1	296.8	235.9	60.9
			Projected				
1965-66	606.7	309.4	222.9	86.5	297.3	235.8	61.5
1966-67	605.0	309.0	223.7	85.3	296.0	233.8	62.2
1967-68	603.8	309.5	224.0	85.5	294.3	229.8	64.5
1968-69	604.2	310.8	224.1	86.7	293.4	226.7	66.7
1969-70	603.9	311.6	223.6	88.0	292.3	223.3	69.0
1970-71	602.7	312.0	222.5	89.5	290.7	220.4	70.3

1. Mississippi State Department of Education, Division of Administration and Finance. Bulletin SD-65: 1964-65, p. 19.

Table 12. Comparison of 1962-63[1], 1963-64, and 1964-65[2] drop-outs in Mississippi public schools

Grade	Number Dropped Out 1962-63	1963-64	1964-65	Percent of Total Enrollment 1962-63	1963-64	1964-65
TOTAL						
1	7,097	3,126	2,800	9.9	4.4	4.7
2	3,944	1,211	1,355	6.3	1.9	2.2
3	3,239	1,161	1,115	5.4	1.9	1.9
4	3,082	1,084	1,160	5.3	1.9	2.0
5	2,987	1,289	1,241	5.4	2.3	2.2
6	2,783	1,400	1,474	5.3	2.7	2.8
7	3,542	2,274	2,392	6.8	4.3	4.7
8	3,335	2,389	2,262	7.0	5.1	4.7
9	3,596	2,770	2,851	8.0	6.2	6.3
10	3,016	2,658	2,693	7.9	6.6	6.8
11	2,205	1,990	2,193	7.5	5.9	6.2
12	1,219	1,116	1,206	5.3	4.3	4.1
Sp. Ed.	57	109	124	---	---	---
Total	40,102	22,577	22,866	6.7	3.7	3.8
WHITE						
1	2,470	350	276	7.8	1.1	.9
2	1,695	130	122	5.9	.5	.4
3	1,498	135	126	5.3	.5	.5
4	1,392	145	175	5.1	.5	.6
5	1,262	208	173	4.7	.8	.6
6	1,161	246	325	4.5	.9	1.2
7	1,458	702	664	5.5	2.6	2.5
8	1,591	879	734	6.2	3.6	2.9
9	1,706	1,150	1,145	6.6	4.7	4.8
10	1,541	1,249	1,189	6.4	5.2	5.2
11	1,183	952	1,018	6.3	4.4	4.7
12	649	549	644	4.5	3.3	3.3
Sp. Ed.	57	75	97	6.8	---	---
Total	17,663	6,770	6,688	5.8	2.2	2.2
NONWHITE						
1	4,627	2,776	2,524	11.6	7.0	6.8
2	2,249	1,081	1,233	6.7	3.3	3.3
3	1,741	1,026	989	5.4	3.2	3.2
4	1,690	939	985	5.5	3.1	3.3
5	1,725	1,081	1,068	6.1	3.7	3.7
6	1,622	1,154	1,149	6.1	4.3	4.3
7	2,084	1,572	1,728	8.1	6.1	6.6
8	1,744	1,510	1,528	7.9	6.7	6.7
9	1,890	1,620	1,706	9.9	8.2	8.3
10	1,475	1,409	1,504	10.4	8.7	8.8
11	1,022	1,038	1,175	9.5	8.8	8.7
12	570	567	562	6.7	6.3	5.7
Sp. Ed.	-----	34	27	---	---	---
Total	22,439	15,807	16,178	7.7	5.3	5.5

Table 12. (Continued)

1. Mississippi State Department of Education, Division of Administration and Finance. Biennial Report and Recommedations of the State Superintendent of Public Education to the Legislature of Mississippi: 1961-1962 and 1962-1963. p. 144.

2. Mississippi State Department of Education, Division of Administration and Finance. Bulletin SD-64: 1963-64 and Bulletin SD-65: 1964-65.

Table 13. Holding power of schools (Enrollment)

Years	Grades	White	Negro	Total
1946	Live births	29,715	31,715	61,430
1952-53	1	33,257*	70,292*	103,549*
1953-54	2	27,217	30,251	57,468
1954-55	3	26,094	29,172	55,266
1955-56	4	25,377	27,220	52,597
1956-57	5	24,735	24,759	49,494
1957-58	6	24,329	22,250	46,579
1958-59	7	24,851	20,804	45,655
1959-60	8	23,377	17,935	41,312
1960-61	9	22,348	15,951	38,299
1961-62	10	20,786	13,263	34,049
1962-63	11	18,651	10,767	29,416
1963-64	12	16,820	9,045	25,865
1963-64	Graduated from H.S.	16,326	8,336	24,662
**Percent of 1st grade finishing 12th grade		49.09%	11.86%	23.82%
**Percent of 2nd grade finishing 12th grade		59.98%	27.55%	42.91%
**Percent of live births in 1946 finishing 12th grade		54.94%	26.28%	40.15%

*No age requirement for grade 1; also includes pupils repeating grade 1.

**These were derived by dividing 1964 graduates by the number enrolled for a given grade and year, then multiplying by 100.

Source: Mississippi State Department of Education, Division of Administration and Finance.

Table 14. Reasons given by drop-outs for leaving school in 1963-64

Reason	Grade 1	2	3	4	5	6	7	8	9	10	11	12	Spec. Ed.	Total
Dropped because of illness	157	69	61	61	58	63	88	90	74	130	89	43	6	989
Dropped because of physical disability	55	27	17	12	17	19	38	30	35	29	35	19	6	339
Dropped because of academic difficulties	30	11	15	20	26	35	115	138	147	130	73	47	1	788
Dropped because of lack of interest	489	211	221	248	296	383	621	746	786	654	391	145	35	5226
Dropped because of mental disability	23	14	17	15	15	27	28	32	44	28	20	4	4	271
Dropped because of behavior reasons	29	6	9	10	14	23	51	67	77	63	50	24	4	427
Committed to correctional institution		1	4	9	11	14	26	27	17	14	6	3	2	134
Dropped to enter armed services							8	20	61	84	121	78		372
Dropped because of marriage	1		1	2	16	28	64	122	231	373	380	322	6	1546
Dropped to seek or accept employment			9	23	49	82	126	180	227	230	202	85	2	1215
Dropped because of need at home	171	75	79	94	140	130	189	96	85	82	57	35	3	1236
Dropped because of death	32	18	17	19	20	13	22	11	13	29	9	15		218
Dropped for other reasons	2139	779	711	571	627	583	898	830	973	812	557	296	40	9816
Total Drop-outs	3126	1211	1161	1084	1289	1400	2274	2389	2770	2658	1990	1116	109	22577

Source: Mississippi State Department of Education, Division of Asministration & Finance, Bulletin SD-64, 1963-64

Likewise, persons educated in rural areas have migrated to urban centers to seek employment. Increased state and federal appropriations have helped in finding solutions to such problems in vocational and technical education.

Annual monetary appropriations can be translated as being the philosophy which a society, or a segment thereof, holds toward a certain program, or programs. That appropriated funds for vocational and technical education have increased annually at local, state, and federal levels is testimony to the healthy philosophy held by society in general toward these educational programs. Information in Table 15 may be used to visualize this established trend of increasing annual appropriations. The trend is expected to continue as Mississippi becomes more highly industrialized and as the labor force requires more and more workers who possess higher and higher degrees of skill and education.

Vocational and technical education in Mississippi is divided into various areas or types of programs, such as: (1) vocational education in agriculture, (2) distributive education, (3) health occupations education, (4) home economics education, (5) trade and industrial education, (6) technical education, (7) business and office occupations education and (8) manpower training. Some of these programs are relatively new, others have been in existence for some time and have been changed over the years according to need. Information concerning each area will be presented according to enrollment, departments, individual programs, teachers, and the like.

Vocational Education in Agriculture

Vocational agriculture programs are usually offered in secondary schools in three types of programs. These are: (1) all-day programs for secondary school students, (2) young-farmer programs for young men entering farming, and (3) adult-farmer programs for adults interested in improving their managerial capability in farming. The subject-matter content in these programs has been revised periodically to meet problems which arose due to changes that occurred in our economy as it changed from an agricultural to an agri-industrial base.

From the information in Table 16 certain trends can be detected. Since 1953-54 the number of secondary schools having vocational agriculture departments have decreased for both white and nonwhite schools. The numbers of young-farmers and adult-farmers enrolled each year have likewise declined. All-day enrollments have gradually increased.

Being alert to rapidly occurring changes, educators and administrators in vocational agriculture have revised the programs to cope with resulting problems. Probably the most dramatic change has been in the area of educating for off-farm, agriculturally related (non-production agriculture) occupations. Much emphasis and effort has been spent in the in-service preparation of vocational agriculture teachers in order to meet problems in this area. Since management is the key to the success of any business

Table 15. Expenditures for vocational and technical education programs in Mississippi: 1949-1965[1] (000's of $)

Year	Local	State	Federal	Total
1949-50	1021.5	723.8	637.6	2382.8
1950-51	1121.1	850.0	637.6	2608.6
1951-52	1213.3	850.0	625.9	2689.2
1952-53	1285.2	1000.0	614.3	2899.5
1953-54	1364.4	1000.3	614.3	2979.1
1954-55	1510.6	1000.0	756.9	3267.5
1955-56	1629.3	1000.0	826.1	3455.4
1956-57	1631.1	1135.2	922.8	3689.1
1957-58	1637.9	1142.3	969.7	3749.9
1958-59	1849.4	1411.7	943.3	4204.4
1959-60	1981.8	1420.6	1035.4	4437.8
1960-61	2116.7	1599.7	1054.2	4770.6
1961-62	2154.3	1599.8	1017.0	4771.1
1962-63	2277.4	1620.3	1019.5	4917.2
1963-64	2487.1	1729.7	1091.7	5308.5
1964-65	3708.2	2646.1	3058.8	9413.1

1. Mississippi State Department of Education, Division of Vocational and Technical Education. Biennial Reports on Vocational Education in Mississippi: Bul. No. 137, Voc. Series No. 43; Bul. No. 140, Voc. Series No. 44; Bul. No. 142, Voc. Series No. 45; Bul. No. 146, Series No. 46; Bul. No. 148, Series No. 47; Bul. No. 151, Series No. 48; Bul. No. 158, Series No. 49; Bul. No. 159, Series No. 50.

Table 16. Summary of vocational education in agriculture: 1949-1965

Year	White				Nonwhite				Expenditures (000's of $)
	No. of depts.	Enrollment by program			No. of depts.	Enrollment by program			
		All-day	Young farmer	Adult farmer		All-day	Young farmer	Adult farmer	
1949-50	267	9,173	303	22,755	100	3,315	281	5,565	1,056.1
1950-51	274	9,463	195	24,394	113	3,681	256	6,103	1,148.1
1951-52	274	9,493	127	24,168	113	3,840	230	5,596	1,192.0
1952-53	276	10,141	638	20,014	114	4,123	199	4,839	1,287.9
1953-54	277	10,535	364	19,956	106	4,172	79	4,778	1,297.0
1954-55	280	10,799	286	19,573	99	4,546	58	5,108	1,405.0
1955-56	278	10,804	219	22,736	97	4,470	79	5,712	1,470.2
1956-57	274	10,785	139	22,777	97	4,865	71	6,673	1,475.1
1957-58	250	10,617	95	22,090	94	4,847	90	6,123	1,432.9
1958-59	236	10,010	62	21,343	92	5,024	54	6,382	1,560.5
1959-60	235	9,697	77	21,245	85	5,579	57	6,208	1,585.2
1960-61	234	9,881	77	21,167	80	5,583	70	6,142	1,647.7
1961-62	228	10,132	155	18,523	76	5,779	55	5,937	1,655.6
1962-63	223	10,708	127	17,325	75	5,987	81	5,569	1,634.0
1963-64	218	12,322	57	17,162	73	7,524	55	6,306	1,891.6
1964-65	214	11,884	-	14,949	73	7,173	21	5,488	2,611.9

Source: Mississippi State Dept. of Education, Division of Vocational and Technical Education: Biennial Reports.

enterprise, vocational agriculture has likewise placed great stress in the area of farm management in order to raise the managerial ability levels of persons enrolled in its various programs. As a group, vocational agriculture teachers are highly skilled in the decision-making process and in leading their clientele to make sound decisions.

Distributive Education

Distributive education is concerned with training in marketing occupations, not industrial or office occupations. Distribution is usually referred to as the movement of goods and services from producer to ultimate consumer, and it includes jobs in manufacturing, storing, transporting, financing, risk-bearing, wholesaling, retailing, and servicing. Distributive education in Mississippi's secondary schools enrolls people in two different types of classes: (1) part-time cooperative in-school for regular students and (2) part-time extension work for adults. In addition, a two-year advanced program was recently established in the junior colleges to aid people in developing careers at the mid-management or supervisory level of work.

The information shown in Table 17 reveals that the high school students have gradually increased in enrollment in distributive education programs since 1949-50, whereas enrollments in the part-time extension program fluctuate from highs in 1951-52 and 1960-61 to lows in 1954-55 and 1963-64. Apparently one of the major problems in distributive education has been the lack of adequately qualified teacher-coordinators, and efforts are being made to solve this problem.

Vocational Education in Home Economics

Vocational home economics is designed to aid in-school youth and out-of-school youth and adults to improve the quality of their home and family life. Social, economic, and scientific principles are applied to finding solutions to problems of the home. Male youths also have benefited from home economics teaching on an "exchange basis." Table 18 contains information on the enrollment growth of vocational home economics in all-day or in-school classes. Out-of-school enrollment has declined, which may possibly be influenced by the fact that, gradually, more women have entered the labor force and, consequently, feel that they have less time for adult classes. Recently the first classes in the state were offered in preparation for gainful employment in occupations utilizing home economics knowledge and skills. Future plans include the expansion of these offerings.

Vocational Health Occupations Education

Vocational health occupations education had its beginning in Mississippi's public school system in 1956 when practical nurse training was offered for the first time. Training of this type had been formerly administered

Table 17. Summary of distributive education: 1949-1965

Year	White			Nonwhite			Expenditures (000's of $)
	No. of schools	Enrollment by program: Part-time in-school	Enrollment by program: Part-time extension	No. of schools	Enrollment by program: Part-time in-school	Enrollment by program: Part-time extension	
1949-50	44	--	4004	6	--	487	52.1
1950-51	59	--	4256	12	--	951	56.8
1951-52	39	--	3609	12	--	4571	51.2
1952-53	40	--	1974	24	--	2756	43.1
1953-54	44	275	1389	30	--	700	34.2
1954-55	34	321	1008	25	--	678	38.9
1955-56	28	353	1903	5	--	125	52.6
1956-57	36	411	2739	7	--	145	64.6
1957-58	50	445	3685	12	--	859	77.3
1958-59	46	468	4052	19	--	775	90.8
1959-60	40	499	3883	21	--	1041	90.4
1960-61	52	514	4320	23	--	1168	98.3
1961-62	41	466	3532	15	--	1027	104.6
1962-63	43	509	2460	28	--	1310	100.4
1963-64	35	504	1901	*	*	*	93.5
1964-65	37	652	2544	*	*	*	107.4

*Nonwhite figures for 1963-64 and 1964-65 were not available.

Source: Mississippi State Dept. of Education, Division of Vocational and Technical Education: Biennial Reports.

Table 18. Summary of home economics education: 1949-1965

Year	White			Nonwhite			Expenditures (000's of $)
	No. of Dept.	Enrollment by program		No. of Dept.	Enrollment by program		
		All-day	Adults		All-day	Adults	
1949-50	312	17,501	6,021	104	8,782	1,763	706.7
1950-51	327	18,593	4,550	112	9,890	1,451	790.8
1951-52	322	19,411	4,107	111	10,710	1,764	812.0
1952-53	330	19,599	4,418	117	10,758	1,467	903.8
1953-54	336	20,560	4,620	116	10,807	1,147	948.4
1954-55	337	20,965	3,624	115	10,769	1,399	1,114.2
1955-56	337	21,341	3,148	118	11,222	1,218	1,183.7
1956-57	336	21,766	2,890	119	11,571	1,522	1,201.3
1957-58	302	22,166	2,695	119	12,045	938	1,203.9
1958-59	302	21,524	2,354	118	12,099	951	1,409.5
1959-60	299	20,920	2,175	123	13,709	679	1,442.3
1960-61	296	21,248	1,751	126	14,007	393	1,592.2
1961-62	289	21,435	1,885	126	14,972	368	1,588.4
1962-63	288	22,005	2,161	124	15,619	761	1,602.5
1963-64	291	21,686	2,154	132	16,084	545	1,734.6
1964-65	291	22,355	1,868	132	17,833	443	1,928.2

Source: Mississippi State Dept. of Education, Division of Vocational and Technical Education: Biennial Reports.

under trades and industrial education. The new training consisted of three months of classroom and laboratory instruction and nine months of clinical training on the job in an affiliated hospital. Extension courses were offered to help up-grade practical nurses whose formal training did not conform to the regular practical nurse training program. The information in Table 19 indicates that the enrollment has been gradually decreasing each year in the extension classes. This could possibly mean that those wanting the extension classes have been almost up-graded to the extent they felt they needed to be. Persons in health occupations education are prepared to support the professions of nursing, medicine, and dentistry.

There has been an increase in the demand for persons who have undergone training in health occupations and this trend is expected to continue.

Vocational Trade and Industrial Education

Vocational trade and industrial education prepares skilled workers for the labor demands of a wide variety of industries, including heavy and light industries and the service trades. Industries need large numbers of skilled and semi-skilled craftsmen and the service trades need many workers for occupations in automotive mechanics, refrigeration, appliance repair, radio and television repair, and many others. When a business or industry begins to contemplate locating or relocating a plant or branch office, one of their chief concerns in deciding upon a location is: what is the availability and level of training of the local labor force? The success with which Mississippi is able to entice new industries into the state, or to encourage the expansion of existing industries, is dependent in large measure upon the extent to which she can supply the skilled workers they need now and in the future.

The information in Table 20 shows the enrollments over the years in the various types of trade and industrial programs. Enrollments have fluctuated to the extent that few trends can be discerned. Note that no apprenticeship program exists for the nonwhite group, and the day-trade program for in-school students of this group has always comprised the greatest percentage of its enrollment. But for the white group, the largest enrollments were in the out-of-school groups.

Before the advent of the vocational health occupations program in 1956, the practical nursing training program was considered a part of the trade and industrial education program, as were some other programs. However, trade and industrial education has taken on a more specific identity in recent years, due mainly to technological changes which placed certain training demands on workers in the area. Now trade and industry offerings run the gamut from diversified occupations to industrial psychology to automotive mechanics to trowel trades. The recent influx of high-wage-paying industry into the state has increased the demand for more highly skilled workers and this trend is expected to continue.

Table 19. Summary of vocational health occupations education: 1956-1965

Year	White			Nonwhite			Expenditures (000's of $)
	No. of Schools	Enrollment by program		No. of Schools	Enrollment by program		
		Preparatory	Extension		Preparatory	Extension	
1956-57	7	37	65	2	20	49	6.9
1957-58	24	255	341	9	30	130	55.7
1958-59	22	449	213	7	150	67	63.7
1959-60	17	494	243	9	165	60	72.6
1960-61	16	322	135	6	110	105	75.8
1961-62	18	354	109	6	75	18	63.4
1962-63	16	486	23	5	79	5	84.8
1963-64	15	605	--	4	71	--	121.2
1964-65	17	597	15	5	166	--	135.9

Source: Mississippi State Dept. of Education, Division of Vocational and Technical Education: Biennial Reports.

Table 20. Summary of vocational trade and industrial education: 1949-1965

Year	White						Nonwhite						Expenditures (000's of $)
		In-school		Out-of-school				In-school		Out-of-school			
	No. of depts.	Day trade	Part-time	Part-time	Eve-ning	Appren-tice	No. of depts.	Day trade	Part-time	Part-time	Eve-ning	Appren-tice	
1949-50	31	1934	--	2511	5864	--	24	1127	--	159	177	--	280.8
1950-51	36	1473	--	3209	5485	--	25	1255	--	120	240	--	312.9
1951-52	30	1654	--	2654	4566	--	26	1303	--	84	723	--	333.4
1952-53	30	1221	--	3355	6088	--	26	1549	--	51	1077	--	346.5
1953-54	30	1481	381	1717	3781	319	27	1545	77	48	296	--	359.8
1954-55	28	744	368	1282	3507	545	28	1513	98	132	492	--	322.5
1955-56	30	702	362	1220	2654	447	32	1632	95	207	207	--	345.5
1956-57	29	716	398	1331	3119	620	29	1420	105	114	182	--	364.2
1957-58	39	699	446	2855	3322	690	29	1410	144	--	255	--	395.7
1958-59	40	714	432	1807	2869	680	29	1482	102	--	86	--	445.0
1959-60	39	649	402	2600	1447	458	29	1615	43	--	139	--	445.3
1960-61	40	682	365	2185	1362	520	37	1862	85	--	231	--	505.7
1961-62	36	837	397	2540	2025	522	37	1911	99	--	171	--	542.5
1962-63	39	889	364	2853	2351	577	36	1721	94	--	146	--	576.9
1963-64	41	1137	374	2516	2285	319	37	1950	92	--	103	--	572.6
1964-65	42	1321	335	3183	1957	666	38	2183	115	--	102	--	1,514.9

Source: Mississippi State Dept. of Education, Division of Vocational and Technical Education: Biennial Reports.

Technical Education

Technical education includes the training of technicians in highly skilled occupations essential to the national defense. In the early years of the program, only electronics and advanced welding and brazing were taught. The program has been greatly expanded to include not only the above, but also technological aspects of mechanics, drafting and design, aircraft maintenance, and building construction, as well as data processing and allied instruction. The information in Table 21 shows the growth of this program. Most of the technical education programs are offered in the public supported junior colleges. Because of demand, the technical education program in Mississippi is expected to continue its present growth trends.

Other Vocational and Technical Education Programs

A Manpower Development and Training program was offered in 1964-65 for the first time. Seven different departments or centers offered training in general metal work, auto body work, machine operation, combination welding, etc., to 908 enrollees at a total cost of $658,786. This program is expected to expand in the future, providing of course that present fiscal problems can be solved and all civil rights laws can be complied with.

For two years, 1961-62 and 1962-63, a Fire Fighters School was held for the training of persons engaged in municipal, county, and industrial fire prevention and control. Some 85 firemen benefited from this instruction.

Labor Force Projections

The Mississippi Employment Security Commission has recently inaugurated a much needed and important service in which projections are made for the future numbers of persons needed in selected occupations. This service will prove to be of immeasurable value to administrators, supervisors, teachers, teacher-educators, guidance personnel, and researchers involved in all aspects of vocational, technical, manpower training, and similar occupational education programs.

As indicated in Table 22, the greatest need apparently will be for workers as statistical card-punching-sorting-verifying machine operators (elements of data processing), draftsmen, practical nurses, attendants for hospitals and other nursing and medical institutions, universal-woodworking-machine operators, upholsterers, machinists, welders, automotive mechanics, machine shop workers, metalurgy workers, and the like.

Never before in its history has Mississippi experienced such dynamic change, such economic growth, such social and cultural transformation. Equally dynamic efforts are being made to develop her human resources so they can cope with these changes.

Table 21. Summary of technical education: 1958-1965

Year	White					Nonwhite					Expenditures (000's of $)
		In-school		Out-of-school			In-school		Out-of-school		
	No. of dept.	Day trade	Part-time	Part-time	Eve-ning	No. of dept.	Day trade	Part-time	Part-time	Eve-ning	
1958-59	2	169	20	--	--	--	--	--	--	--	8.6
1959-60	7	309	--	1895	--	1	28	--	--	--	161.1
1960-61	9	394	--	1446	--	1	29	--	--	--	194.6
1961-62	10	405	--	1859	--	1	16	--	--	11	165.3
1962-63	11	424	--	1745	--	1	26	--	--	--	222.1
1963-64	16	627	--	2075	16	2	45	--	--	--	418.6
1964-65	17	712	--	2670	--	3	81	--	--	--	925.8

Source: Mississippi State Dept. of Education, Division of Vocational and Technical Education: Biennial Reports.

Table 22 . Selected trainable occupations and number employed in each occupation in 1963, 1964 and 1965 and projections to 1970.

Occupation	1963	1964	1965	Projected 1970
Draftsmen	623	791	808	1,350
Medical technician	413	427	443	625
X-Ray technician	109	100	108	165
Dental technician	31	30	33	140
Laboratory assistants	269	261	277	425
Surveyor	224	165	194	200
Agricultural, piscicultural, and arboricultural occupations	69	55	63	70
Bookkeeping clerks	921	982	1,060	1,200
Bookkeeping machine operators	811	864	863	950
General clerks	848	754	757	900
General office clerks	6,221	6,441	6,534	7,000
File clerks	250	252	248	300
Office machine operators	206	224	216	250
Statistical card-punching-sorting-verifying machine operators	539	603	582	1,000
Stenographers and typists	6,133	5,807	5,931	6,500
Shipping and receiving clerks	1,293	1,355	1,406	1,600
Stock clerks	2,180	2,081	2,154	2,300
P.B.X. operators	555	536	543	650
Salespersons	5,385	5,213	5,279	5,400
Cooks, except private family	2,919	3,055	3,008	3,100
Waiters and waitresses, except private family	4,454	4,175	4,258	4,500
Barbers	155	181	141	275
Beauticians	532	487	479	825
Practical nurses	1,348	1,387	1,546	2,250
Attendants, hospitals & other institutions	2,962	3,606	3,841	5,000
Tractor operator I (agric.) including farm machinery	0	0	0	43,000
Cotton-picking machine operator	0	0	0	5,000
Farm mechanics	0	0	0	1,400
Lumber graders (grader-woodworking)	111	94	88	125
Cabinetmakers	91	88	109	125
Universal-woodworking-machine operator	279	225	403	750
Upholsterers	237	196	198	400
Shoemakers and shoe repairmen	42	41	37	100
Platers	18	22	38	50
Machinists	1,085	1,064	1,142	1,500
Tool and die makers	182	197	230	500
Machine shop and related occupations	265	210	263	425
Sheet-metal workers	449	318	340	400
Structural and ornamental-metal workers	498	695	788	950

Table 23. Continued

Occupation	1963	1964	1965	Projected 1970
Welder, arc (Any ind.)	1,171	1,289	1,815	2,400
Welder, acetylen (Any ind.)	27	25	21	30
Welder, combination	939	923	1,086	1,400
Electrician	606	575	598	800
Electrical repairmen	174	211	187	300
Pattern and model makers, except paper	78	25	112	125
Construction brick layers	477	377	399	750
Tile setters	77	81	83	200
Carpenters	2,685	2,470	2,415	2,675
Painters, construction and maintenance	471	421	864	900
Paperhangers	5	5	5	150
Plumbers, gas fitters, and steam fitters	1,254	1,127	1,331	1,500
Automobile mechanics	2,345	2,298	2,315	3,500
Body, fender, and radiator repairmen	472	443	456	600
Electric-refrigerator servicemen	11	9	6	300
Gas-appliance servicemen	101	111	104	200
Electrical-appliance servicemen	248	208	213	350
Office-machine servicemen	141	151	157	250
Radio repairmen	35	15	11	200
T.V. service and repairmen	147	133	119	200
Electronics technicians	198	69	77	225
Sewing machine repairmen	1,212	1,300	1,479	1,800
Gas-engine repairmen	0	2	2	150
Diesel mechanics	219	207	183	225
Woodworking machine operators	1,609	2,017	2,391	3,500
Machine operator, general (machine shop)	2,136	2,704	3,004	4,000
Occupations in mechanical treatment of metals (rolling, stamping, forging, pressing, etc.)	621	873	949	1,500
Operators of excavating & grading equipment	612	559	619	750
Presser, machine	1,501	1,192	1,696	1,750
Service station mechanic	0	0	0	750
Lawn-mower repairmen	16	16	14	100
Saw filer, machine	36	35	37	75

Source: Selected Trainable Occupations and Number Employed in Each Occupation with Projections to 1970, Prepared by the Mississippi Employment Security Commission, November, 1965.

VT 002 199

VT 002 199 ED

Follow-Up Survey of High School Vocational Graduates. Final Report.

Utah Res. Coordg. Unit for Vocat. and Tech. Educ.

66

EDRS Price MF-$0.09 HC-$0.44 11p.

*GRADUATE SURVEYS, *VOCATIONAL EDUCATION, *HIGH SCHOOL GRADUATES, *VOCATIONAL FOLLOWUP, POSTSECONDARY EDUCATION, EDUCATIONAL BACKGROUND, TECHNICAL EDUCATION, INDUSTRIAL ARTS,

Utah,

Records in the Office of the Utah State Superintendent of Public Instruction were surveyed to determine the extent to which terminal high school vocational students entered work in the occupation for which they were trained, in related occupations, and in areas unrelated to their high school vocational program. Only 1966 graduates were studied. Available personnel records at Weber State College and Utah Technical College were examined to determine how many students entering postsecondary vocational and technical programs had high school vocational training in the same or unrelated fields, no high school vocational training, or training in a high school industrial arts program. Findings were -- (1) Of 2,132 students employed or available for employment, 30 percent were employed full-time in the occupations for which they were trained, 18 percent were employed full-time in related occupations, and 27 percent were employed full-time in unrelated occupations, and (2) Of 1,328 postsecondary students, 533 records were examined, and 795 had no records. Of the 533 students, 64 percent had high school training in the same field, 35 percent in unrelated fields, and 30 percent had industrial arts training. (PS)

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FINAL REPORT

Research Project

FOLLOW-UP SURVEY OF HIGH SCHOOL VOCATIONAL GRADUATES

Utah Research Coordinating Unit for
Vocational-Technical Education

VT 02199

Statement of the Problem

One group of educators contends that better and more diversified vocational education programs should be offered in Utah's high schools. The rationale for this line of reasoning is that many high school students must be prepared to enter directly into the world-of-work, and many others must be prepared for post-secondary vocational and technical education courses.

Another group of educators maintains that high school learning experiences should be centered around general education, possibly with a vocational orientation, leaving vocational and technical skill training to post-secondary institutions or on-the-job training.

Purpose

The purpose of this survey is to provide an estimate of the extent to which:

a. Terminal high school vocational students enter the world of work in the occupation for which trained, in related occupations, and in areas unrelated to their high school vocational program.

b. Students entering post-secondary vocational and technical programs took high school vocational training in the same fields, took high school vocational training in unrelated fields; the percentage that had no high school vocational training, and the number that took a high school industrial arts program.

Methodology

a. The entry employment for terminal high school students was related to their prior vocational training through a survey of records on hand in the Office of the State Superintendent of Public Instruction. An analysis was made by school district, and the data is shown at Enclosure 1, attached. Only students graduating in 1966 were considered.

b. The survey of the high school vocational courses taken by students embarking on vocational and technical education courses at Weber State College and at the Utah Technical College at Salt Lake City was accomplished by an examination of available personnel records at these two institutions. At Utah Technical College only students entering in 1966-67 were considered, while at Weber State College the records of all presently enrolled vocational and technical education students were counted. A recapitulation appears at Enclosure 2.

Population and Sample

Weber State College was chosen as offering non-baccalaureate courses and enrolling students typical of the other colleges and of the junior colleges in Utah. Utah Technical College at Salt Lake was chosen as representative of this type of Utah post-secondary institution. Therefore, the results obtained are assumed to be representative of the results which would have been obtained if the time and money had been available to permit a survey of each of the Utah post-secondary institutions.

Limitations to Study

The survey revealed that a large number of students presently enrolled in the vocational and technical education programs at Utah Technical College at Salt Lake and Weber State College do not have high school records on file at those institutions. At Utah Technical College, 519 (68%) were without records in a total of 765 students; at Weber State 276 (49%) of 563 have no high school records available.

The cases without records were not considered statistically in computing averages and percentages.

Analysis

A linear analysis was made of the data collected to produce the following intelligence:

a. With respect to terminal Utah high school vocational students graduated in June 1966:

(1) Number employed and/or available for employment (by school district and total, Enclosure 3).

(2) Number (and percent) employed full-time in occupation for which trained (by school district and total, Enclosure 3).

(3) Number (and percent) employed full-time in an occupation related to their field of training (by school district and total, Enclosure 3).

(4) Number (and percent) employed full-time in an occupation unrelated to the field of training (by school district and total, Enclosure 3).

(5) The total (equivalent) vocational funds allocated to each Utah school district for the school year 1965-66 (Enclosure 4)

(6) The ratio of the district's vocational funds to the number of district graduates placed in the same occupation or occupation related to the area in which trained, expressed as "cost per student" (Enclosure 4)

(7) A recapitulation by districts with 75 or more "employed and/or available", by districts with from 25 to 75, and by districts with less than 25. (Enclosure 1).

(8) A recapitulation of districts with an assigned Vocational Director, and of districts without an assigned Vocational Director. (Enclosure 1)

b. With respect to the high school vocational courses previously taken by students now in Weber State College and in Utah Technical College at Salt Lake City in drafting, automobile mechanics, machine shop, office occupations, and electronics areas: (Encl. 2)

(1) Number (and percent) with previous high school training in the same field.

(2) Number (and percent) with high school training in an unrelated vocational field.

(3) Number (and percent) with high school industrial arts training.

(4) Number with no high school vocational training.

Findings

A study of the data collected leads to the following conclusions:

a. Availability of Records at Post Secondary Institutions

Records of 60% of the cases were not available (Enclosure 2)

b. Employment of Terminal High School Students in Area of Training or in a Related Area

(1) Considering all districts, an average of 47% of the terminal high school vocational students obtain entry occupation jobs in the area for which trained or in a related area. This average remains approximately constant when the districts are categorized by size or when categorized by whether or not a Vocational Director is employed. (Enclosure 1)

(2) There is a large variation among individual districts in the number of terminal vocational students placed in the same or related occupations to those for which trained. The percentages run from a high of 100% (South Sanpete) to a low of 15% (Juab) (Enclosure 3)

c. High School Programs of Vocational and Technical Students in Weber State College and the Utah Technical College at Salt Lake in Drafting, Auto Mechanics, Machine Shop, Office Occupations, and Electronics

About 65% of these students have had high school training in the same field, 35% in an unrelated field, and 30% have had industrial arts training. (Enclosure 2)

d. Cost Per Terminal High School Student Entering the Same or Related Occupational Area

(1) Considering the 36 reporting districts, the equivalent vocational funds provided each district during the 1965-1966 school year, and the number of terminal students entering the same or related occupations for which trained, the average cost per student is $753. This cost per student varies greatly from district to district, ranging from a high of over $6,000.00 per student for Kane and Millard to a low of less than $150.00 for North Sanpete and North Summit. (Enclosure 4). This cost per student can be considered as one measure of the efficiency of the vocational education program in a district.

Additional Research Recommended

It is recommended that this study be expanded to:

a. Ascertain what percentage of the post-secondary graduates are going into entry jobs in the same or related occupations to their field of study.

b. Determine the number of vocational students who go into post-secondary vocational and technical programs, and use this additional information to compute a more complete cost effectiveness index for the vocational program in each district.

STATUS OF UTAH HIGH SCHOOL TERMINAL VOCATIONAL STUDENTS
(CLASS OF JUNE 1966)

	Number Employed and/or Available	Number Employed Full Time in Occupation for which Trained	Number Employed Full Time in Related Occupation	Number Employed Full Time in Unrelated Occupation	Number Employed Part Time (Not in School)	Average Cost Per Student Placed in Same or Related Occupations
Recap of Districts with 75 or more "Employed and/or Available"	1,452	429 (30%)	246 (17%)	354 (24%)	55 (4%)	$641
Recap of Districts with 25 to 75 "Employed and/or Available"	515	154 (30%)	103 (20%)	174 (34%)	5 (1%)	$812
Recap of Districts with less than 25 "Employed and/or Available"	142 2119	42 (30%)	27 (20%)	42 (30%)	8 (5%)	$1,391
Recap of Districts without Vocational Directors	72	12 (17%)	26 (36%)	24 (33%)		$879
Recap of Districts with Vocational Directors	2,060 2132	618 (30%)	351 (17%)	560 (27%)	68 (3%)	$748

Enclosure 1

PREVIOUS VOCATIONAL HISTORY OF POST-SECONDARY STUDENTS IN FIVE VOCATIONAL AREAS

Enclosure 2

School	Number Cases Examined	No. Cases Rejected: No Records	Number Cases Considered	Courses Considered	No. with Previous H.S. Training in Same Field	No. with Previous H.S. Training in Unrelated Field	No. with H.S. Ind. Arts Trng.	No. with No H.S. Voc.Trng.
Weber	18	8 (44%)	10	Drafting	8 (80%)	2(20%)	3(30%)	0
State	121	56(46%)	65	Auto Mechanics	42(65%)	23(35%)	38(58%)	0
College	11	5(45%)	6	Machine Shop	5(83%)	1(17%)	2(33%)	0
	270	123(46%)	147	Office Occupations	122(83%)	25(17%)	13(9%)	0
	143	84(59%)	59	Electronics	45(76%)	14(24%)	30(51%)	0
Sub Total	563	276(49%)	287		222(77%)	65(23%)	86(30%)	-
Utah	65	35(54%)	30	Drafting	21(70%)	9(30%	11(37%)	0
Techn.	121	71(59%)	50	Auto Mechanics	26(52%)	24(48%)	22(44%)	0
College	81	49(60%)	32	Machine Shop	16(50%)	16(50%)	11(34%)	0
at Salt	172	115(67%)	57	Office Occupations	43(75%)	13(23%)	1(2%)	1
Lake	326	249(76%)	77	Electronics	15(19%)	61(79%)	28(36%)	1
Sub Total	765	519(68%)	246		121 (49%)	123(50%)	73(30%)	2
Grand Total	1,328	795(60%)	533		343(64%)	188(35%)	159(30%)	2

	Number employed and/or available	Employed full-time in occupation in which trained No. (%)	Employed full-time in related occupation No. (%)	Employed full-time in unrelated occupation No. (%)	Employed part-time -- not in school No. (%)	Unemployed No. (%)	Status unknown No. (%)	Average cost per student
Alpine	118	48 (41)	15 (13)	28 (24)	6 (5)	5 (4)	15 (13)	
Beaver	23	5 (22)	1 (4)	14 (61)	0 (0)	3 (13)	0 (0)	
Box Elder	66	22 (33)	19 (29)	25 (38)	0 (0)	0 (0)	0 (0)	
Cache	51	17 (33)	9 (18)	17 (33)	0 (0)	1 (29)	7 (14)	
Carbon	52	28 (54)	6 (12)	8 (15)	- --	8 (15)	2 (4)	
Daggett								
Davis	187	66 (35)	29 (16)	57 (30)	3 (2)	9 (5)	22 (18)	
Duchesne	12	3 (25)	0 (0)	7 (58)	- --	- --	1 (8)	
Emery	15	3 (20)	7 (50)	5 (33)	- --	- --	-- --	
Garfield								
Grand	29	13 (45)	1 (3)	2 (7)	0 (0)	5 (17)	8 (28)	
Granite	334	89 (27)	52 (16)	70 (21)	11 (3)	17 (5)	84 (25)	
Iron	28	6 (21)	3 (11)	9 (32)	2 (7)	4 (14)	4 (14)	
Jordan	144	51 (35)	40 (28)	21 (15)	9 (6)	6 (4)	17 (12)	
Juab	13	2 (15)	-- --	7 (54)	2 (15)	1 (8)	1 (8)	
Kane	2	0 (0)	1 (50)	0 (0)	0 (0)	1 (50)	0 (0)	
Millard	4	1 (25)	1 (25)	1 (25)	1 (25)	- --	- --	
Morgan	17	10 (59)	3 (18)	4 (24)	- --	- --	- --	
Nebo	48	16 (33)	22 (46)	7 (15)	- --	3 (6)	- --	
North Sanpete	30	4 (13)	13 (43)	11 (37)	- --	2 (7)	- --	
North Summit	11	5 (45)	1 (9)	2 (18)	- --	3 (27)	- --	
Park City								
Piute	9	0 (0)	3 (33)	3 (33)	2 (22)	1 (11)	- --	
Rich								
San Juan	4	0 (0)	1 (25)	1 (25)	1 (25)	- --	1 (25)	
Sevier	45	10 (22)	14 (31)	18 (40)	1 (2)	2 (4)	- ---	
South Sanpete	11	6 (55)	5 (45)	-- --	- --	- --	- --	
South Summit	7	3 (43)	-- --	4 (57)	- --	- --	- --	
Tintic	3	0 (0)	1 (33)	1 (33)	- --	1 (33)	- --	
Tooele	38	10 (26)	4 (11)	13 (34)	- --	1 (3)	5 (13)	
Uintah	48	12 (25)	-- --	32 (67)	- --	2 (4)	2 (4)	
Wasatch	15	7 (47)	2 (13)	-- --	- --	3 (20)	3 (20)	
Washington	41	2 (5)	6 (15)	22 (54)	- --	3 (7)	3 (7)	
Wayne	4	0 (0)	1 (25)	2 (50)	- --	1 (25)	- --	
Weber	187	31 (17)	29 (16)	71 (38)	5 (3)	2 (1)	47 (25)	
Salt Lake City	312	121 (39)	55 (18)	72 (23)	13 (4)	36 (12)	15 (5)	
Ogden	75	14 (19)	24 (32)	2 (3)	- --	- --	35 (47)	
Provo	95	9 (9)	2 (2)	33 (35)	8 (8)	10 (11)	19 (20)	
Logan	15	2 (13)	1 (7)	5 (33)	2 (13)	2 (13)	3 (20)	
Murray	39	14 (36)	6 (15)	10 (26)	2 (5)	3 (8)	4 (10)	
TOTALS	2,132	630 (30)	377 (18)	584 (27)	68 (3)	135 (6)	298 (14)	$753

ENCLOSURE 3

PUPILS BY DISTRICT

Cost in Vocational Funds Per Terminal Student Placed in Same or Related Subject Area

District	1965-1966 Extra DU's	1965-1966 State and Fed. Voc. Funds	Total Vocational Funds 1965-1966	1966 Grad. Employed Full Time In Same Or Related Occupation	Cost Per Student Thus Placed
Alpine	13,813	25,448	39,261	63	$ 623
Beaver	2,319	3,364	5,683	6	947
Box Elder	8,784	21,346	30,130	41	735
Cache	4,489	13,681	18,170	26	699
Carbon	8,664	7,599	16,263	34	478
Daggett	none	304	304	--	---
Davis	45,083	40,413	85,496	95	900
Duchesne	none	2,397	2,397	3	799
Emery	19,456	3,143	22,599	10	2,260
Garfield	2,723	1,527	4,250	--	---
Grand	4,556	7,426	11,982	14	856
Granite	39,999	37,834	77,833	141	552
Iron	10,194	11,100	21,294	9	2,366
Jordan	15,340	14,872	30,212	91	332
Juab	2,074	4,445	6,519	2	3,260
Kane	2,096	4,269	6,365	1	6,365
Millard	2,838	9,545	12,383	2	6,192
Morgan	570	2,639	3,209	13	247
Nebo	19,470	12,076	31,546	38	830
North Sanpete	756	1,387	2,143	17	126
North Summit	none	300	300	6	50
Park City	none	120	120	--	---
Piute	1,467	2,120	3,587	3	1,196
Rich	none	none	none	--	---
San Juan	3,048	1,151	4,199	1	4,199
Sevier	16,493	16,655	33,148	24	1,381
South Sanpete	2,690	7,404	10,094	11	918
South Summit	none	2,409	2,409	3	803
Tintic	942	621	1,563	1	1,563
Tooele	4,277	9,011	13,288	14	949
Uintah	4,943	11,085	16,028	12	1,336
Wasatch	1,768	5,747	7,515	9	835
Washington	3,628	7,587	11,215	8	1,402
Wayne	1,700	1,524	3,224	1	3,224
Weber	24,793	12,581	37,374	60	623
Salt Lake City	38,400	48,267	86,667	176	492
Ogden	15,147	17,036	32,183	38	847
Provo	26,194	17,542	43,736	11	3,976
Logan	5,369	4,276	9,645	3	3,215
Murray	7,052	7,076	14,128	20	706
			758,462		

Enclosure 4

FUNDS

VT 002 210

VT 002 210 ED

The Demand for and Selected Sources of Teachers in Vocational and Technical Education, State Director Survey.

Hensel, James W.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

Jan67

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*VOCATIONAL EDUCATION TEACHERS, *TEACHER SUPPLY AND DEMAND, EMPLOYMENT TRENDS, VOCATIONAL EDUCATION, *OCCUPATIONAL SURVEYS, *NATIONAL SURVEYS, QUESTIONNAIRES, HIGH SCHOOLS, TECHNICAL EDUCATION, POSTSECONDARY EDUCATION,

A questionnaire was mailed to the state director of vocational education in every state and territory of the United States to obtain data concerning the number and type of full-time high school and post high school vocational teachers currently employed and the projected number of teachers that would be needed during the next three years. They were also asked to indicate specific areas of greatest teacher need in the future. All but Massachusetts and Kentucky responded. Estimated increases in need for high school teachers from 1965-68 were -- agriculture, 5.3 percent, business and office education, 28 percent, distributive education, 49.2 percent, home economics, 13.7 percent, and trade and industrial education, 43.1 percent. Estimates of increased need for post high teachers for this period were -- agriculture, 113 percent, business and office education, 37 percent, distributive education, 73.5 percent, health occupations, 40.2 percent, home economics, 66 percent, technical education, 39.7 percent, and trade and industrial education, 23.2 percent. Data from questionnaires were tabulated by regions. (PS)

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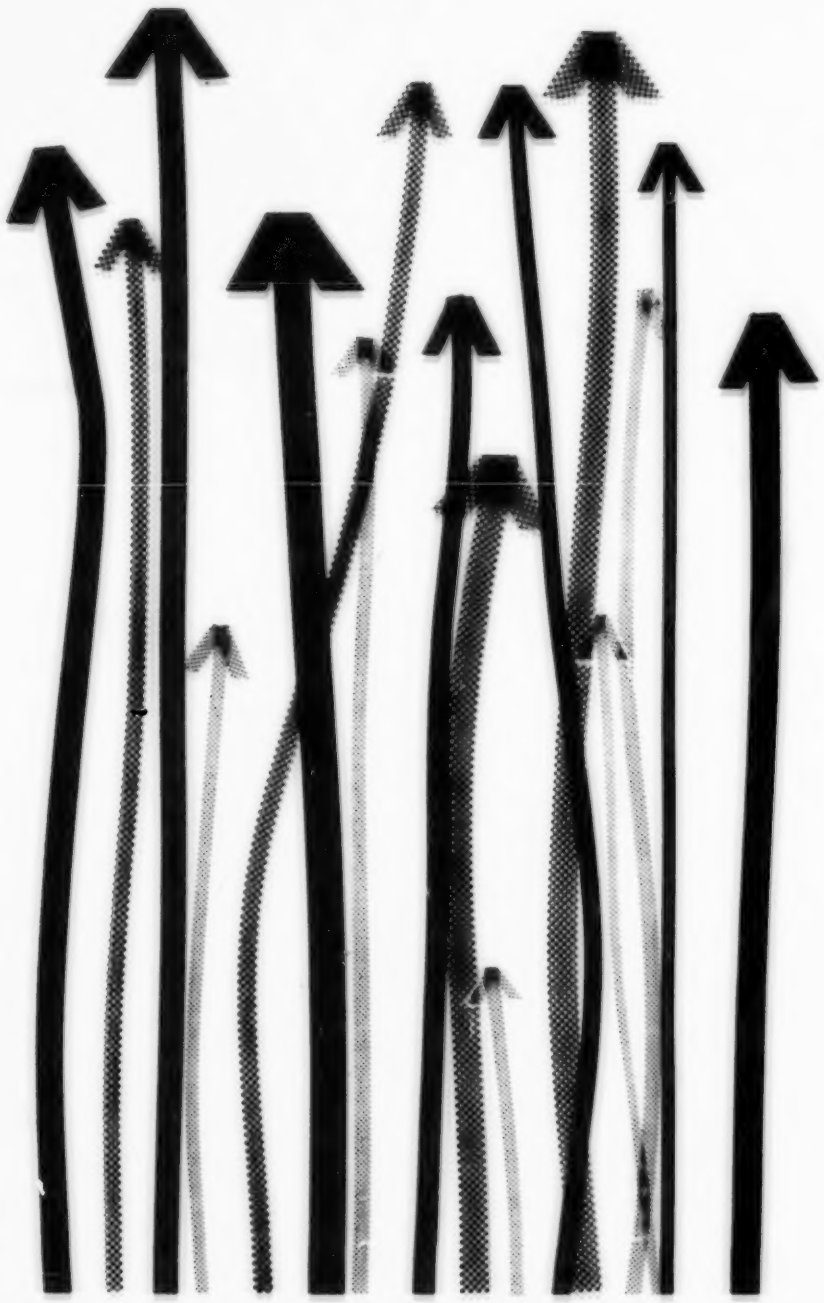

THE DEMAND FOR TEACHERS IN VOCATIONAL AND TECHNICAL EDUCATION

March 1967

The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

VT 02210

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The Demand for and Selected Sources of Teachers in Vocational and Technical Education

STATE DIRECTOR SURVEY

January, 1967

The Center for Research and Leadership Development
in Vocational and Technical Education
980 Kinnear Road
Columbus, Ohio 43212

PREFACE

This publication represents the first phase of a three-phased study concerning the teacher supply problem in vocational and technical education. State directors assisted in reporting the current situation and identified the areas in which the greatest number of teachers will be needed in the future. Other phases of the project will examine potential sources of teaching talent, including studies involving the military service and selected industrial concerns.

This publication was prepared by Dr. James W. Hensel, Center Specialist in Agricultural Education. Center Specialists in Business and Office Education, Distributive Education, Home Economics Education, Technical Education, and Trade and Industrial Education cooperated in reviewing the survey results. Assistance was also provided by Cecil Johnson, Research Associate, and Urban Oen, Research Assistant at The Center.

We recognize that the difficulties of terminology, time, and space may restrict the usefulness of this publication. However, it is hoped that this material will provide some insight concerning the present and future situation for teachers in vocational and technical education programs.

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I

INTRODUCTION

The Vocational Education Act of 1963 (Public Law 88-210) provided the impetus for a new era in vocational education in the United States. Vocational educators now have a mandate to provide a greater quantity and a higher quality of vocational education than has heretofore been possible. The Declaration of Purpose of the Act clearly provides the framework for the task:

> Sec. I. It is the purpose of this part to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education, to develop new programs of vocational education, and to provide part-time employment for youths who need the earnings from such employment to continue their vocational training on a full-time basis, so that persons of all ages in all communities of the State--those in high school, those who have completed or discontinued their formal education and are preparing to enter the labor market, those who have already entered the labor market but need to upgrade their skills or learn new ones, and those with special educational handicaps--will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training.

Probably the single most critical problem that states are facing as they attempt to live up to the purposes of the Vocational Education Act of 1963 is the shortage of qualified instructors. Many state directors have found that as additional vocational and technical education programs are considered, the major factor which has limited full expansion has been the limited supply of teachers. The teacher supply problem was foreseen by leaders of vocational and technical education at the time Public Law 88-210 was signed by the President. Their concern was justified by early reports from around the nation which indicated that there were many more teaching positions than could be filled with the current supply of qualified personnel.

In the early summer of 1965, representatives from the American Vocational Association and The Center for Vocational and Technical Education met in Columbus, Ohio, to outline the framework for a coordinated effort to study the supply and demand for teachers in vocational and technical education.

This report is one segment of a larger project designed at that time entitled "The Demand for and Selected Sources of Teachers in Vocational and Technical Education." The data included in this survey were provided by state directors of vocational education during the latter part of 1965 and the early months of 1966.

II

INTRODUCTION TO STATE DIRECTORS STUDY

Purpose and Objectives

The purpose of this study was to determine the present supply and projected demand for teachers in vocational and technical education at the high school and post high school level.

Specific objectives of the study were:

a. to establish data concerning the current teacher situation in vocational education at the high school and post high school level;

b. to estimate the demand for teachers in vocational and technical education for the next three years;

c. to identify the areas in vocational education which will have the greatest need for new instructors in the future.

One of the problems in vocational and technical education is the lack of trained teachers. However, the extent of this shortage has not been documented. Projected trends in teacher demand have usually been made at the local or state level and no national picture concerning all vocational fields has been forthcoming. This study documents the magnitude of the need for teachers in vocational and technical education, and predicts teacher need for the next three years.

Procedure

A questionnaire was mailed to each state director of vocational education in every state and territory of the United States. The questionnaire was designed to permit the state director to ask state supervisors or others closely associated with each vocational area to indicate the number and type of full-time high school and post high school vocational teachers currently employed and to project the number of teachers that would be needed during the next three years. They were also asked to indicate areas of greatest teacher need in the future.

A cover letter from Lowell Burkett, Executive Secretary of the AVA, was sent with the questionnaire. The letter explained the purpose, procedure and importance of the study. (see appendix)

The respondents were asked to estimate the trend in demand for teachers by marking the questionnaire with a ++ for a substantial increase; + for a moderate increase; 0 for no change; and - for a decrease in demand.

For tabulation purposes, the responses were assigned the following numerical values:

- = 0 There will be a decrease in demand

0 = 1 The demand will remain the same

+ = 2 There will be a moderate increase in demand

++ = 3 There will be a substantial increase in demand

The results of questionnaires were reviewed with Specialists at The Center for Vocational and Technical Education to (1) insure proper interpretation of the data and (2) secure suggestions on the method of reporting.

Data from the questionnaires were tabulated by regions rather than by states. Researchers assumed that individual states knew their own teacher needs. Regional tabulation gives individual states the opportunity to compare their teacher needs with the needs of states in the same region. For the purpose of grouping the states, the regional organization of the Division of Vocational and Technical Education was used. Only Massachusetts and Kentucky did not return a survey form.

Regional Organization - Division of Vocational and Technical Education

REGION I

Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island
Vermont

REGION II

New York
New Jersey
Pennsylvania
Delaware

REGION III

Kentucky
Maryland
North Carolina
Virginia
West Virginia
*Puerto Rico

REGION IV

Florida
Georgia
South Carolina
Tennessee
Alabama
Mississippi

REGION V

Illinois
Michigan
Indiana
Ohio
Wisconsin

REGION VI

Iowa
Kansas
Minnesota
Missouri
Nebraska
North Dakota
South Dakota

REGION VII

Arkansas
Louisiana
New Mexico
Oklahoma
Texas

REGION VIII

Colorado
Idaho
Montana
Utah
Wyoming

REGION IX

Arizona
Oregon
California
Nevada
Hawaii
Alaska
Washington

*Hereafter in the report, Puerto Rico shall be referred to as a state and was included with the total states reporting.

Limitations

1. This study did not include manpower training programs and totals of the report may not agree with the results of concurrent studies.

2. No attempt was made to define "post high school education" in the questionnaire and recipients were forced to inject their own meaning.

3. Data were limited to full-time teachers because of the difficulty of calculating time equivalents for part-time instructors.

4. Poor returns by certain vocational services presented additional problems in tabulating the data.

5. The design of the questionnaire was such that it was not possible to distinguish between high school and post high school programs in health occupations and technical education. It was assumed that these programs were primarily offered at the post high school level.

6. It is assumed that vocational teachers reported by state directors or supervisors were teachers in public institutions with reimbursable programs. The questionnaire made no provision for the inclusion of non-public school teachers.

7. It is recognized that projections for the future are only "best estimates," but they are hopefully meaningful since the estimates have been made by the supervisors or directors most closely associated with each of the vocational programs.

8. The questionnaire was designed to allow state supervisors to report the total number of teachers employed in each vocational service area and to report the number of teachers employed in each instructional area within the vocational service area. In some instances these figures do not correspond.

9. One of the major difficulties of the project was in the identification of instructional programs which meant the same to every state. The terms used in this study may have been difficult for a particular state to understand especially if their programs were not usually identified under these categories.

III

PRESENTATION OF DATA

Agriculture

Full-Time Teachers Employed, 1965, and Projected Number of Teachers Needed in 1968 by State and Educational Level in Agricultural Education

Data in Table 1 provide a state-by-state report of the total number of agriculture teachers employed in 1965 as full-time high school teachers and full-time post high school teachers. This table also reported the projected number of full-time high school and post high school teachers that would be needed to fill teaching positions in 1968. A few states did not report in these categories and these were recorded in the table as NR or "not reported."

Texas employed the largest number of full-time high school teachers with a total number of 1,152. Pennsylvania employs 111 full-time post high school teachers in agriculture, the largest number reported by any state. Many states projected a marked increase in the number of full-time post high school teachers that would be needed in 1968.

The Current Employment and Projected Demand for High School Teachers in Agricultural Education

State directors of vocational and technical education reported 9,800 full-time teachers of vocational agriculture employed in forty-nine states during the 1965-1966 school year. Data in Table 2 indicate that forty-four states reported 905 beginning (new and replacement) full-time teachers were placed in teaching positions in 1965. These data represent a yearly change in personnel of about 9.2 percent of the total employed in the field of vocational agriculture. This figure corresponds with a similar study conducted by the Professional Recruitment Committee, Agriculture Section, American Vocational Association, where a turnover of 9.5 percent was reported.[1]

The supply of teachers in the field of vocational agriculture was apparently insufficient as there were 97 high school teaching positions remaining unfilled as school began in September, 1965.

The respondents projected that there would be a need for 10,320 full-time teachers of high school vocational agriculture in the forty-nine states by September, 1968. If the projected trend is accurate, there would be a

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[1] Ralph J. Woodin, "Survey of Teacher Supply," Professional Recruitment Committee, Agriculture Section, American Vocational Association. The Ohio State University, 1966.

need for 520 additional vocational agriculture teachers within the next three years to fill newly created positions. These figures represent a 5.3 percent growth in the numbers of high school teachers of vocational agriculture beyond current needs.

High School Teachers by Teaching Area

The current status and projected demand for full-time teachers in each major instructional area in agricultural education at the high school level is reported in Table 3. Forty-eight states and Puerto Rico reported that 9,671 teachers were currently employed as regular vocational agriculture instructors. Most respondents felt that the regular program would show a moderate increase in demand for teachers. Horticulture and Agribusiness appeared to be the areas where the respondents anticipated the greatest demand for teachers in the future. Thirty-five states predicted the number of full-time teachers in Horticulture would make a moderate to substantial increase while the number of teachers in Agricultural Mechanics would make a moderate increase.

Only those teachers who were employed on a full-time basis for specialized programs were reported under categories other than the regular program. Therefore, the data in Table 3 do not indicate the extent to which courses in Horticulture, Off-farm Agricultural Occupations, or other courses were taught as a portion of the duties of the regular vocational agriculture instructor. There is reason to believe that specialized courses are often added to the regular program in addition to the normal activities of an instructor, rather than employing additional teachers on a full-time basis for these courses.

There were several miscellaneous programs which were reported by a single, or at most, two states and were not tabulated. These include Fruit Farm, Landscaping, Floriculture, Vegetable Growing, found in Region II; Conservation, Crop and Soil Technology in Region VIII; Disadvantaged Youth in Region V; Animal Industries in Regions IV and VIII; Leadership in Region IV; Coordination for Agricultural Occupations in Regions VI and VII.

Current Employment and Projected Demand for Full-Time Post High School Teachers in Agricultural Education

The current status and projected demand for full-time teachers in agricultural education at the post high school level were reported in Table 4. Twenty-five states reported 351 full-time teachers employed at the post high school level in agricultural education. Fifty-three beginning (new and replacement) teachers in seventeen states entered full-time post high school vocational agriculture programs in 1965. Four states reported a shortage in the supply of teachers and seven teaching positions remained unfilled in September, 1965.

It was projected that 397 additional full-time post high school teachers would be needed during the next three-year period which would mean an increase of 113 percent over current numbers.

Employment and Demand for Post High School Teachers by Instructional Area

Data in Table 5 indicate that in eighteen states, the large majority of the post high school teachers were currently employed full time, teaching regular vocational agriculture classes. The questionnaires have been interpreted to include young farmer programs.

Agriculture Mechanics was the second largest post high school teaching area with thirteen states employing forty-eight full-time teachers. Nine states reported a total of forty teachers employed full time in post high school farm management programs.

The projected three-year demand for full-time post high school vocational agriculture teachers (1965-1968) is reported in Table 5. The number of full-time post high school teachers in Horticulture, Agricultural Mechanics, regular Vocational Agriculture, Farm Management, and Agribusiness, were projected to make moderate to substantial increases over the next three-year period. It would appear from these data that there will be a rapid expansion of agricultural programs at the post high school level in the next three years.

One or two states projected a demand for teachers in the areas of Crop and Soil Technology, Agricultural Technology and Technicians, and Coordinator for Agricultural Occupations. This information was not reported in Table 5, as these programs represented a very small proportion of the projected employment opportunities.

Areas of Agricultural Education Having the Greatest Future Need for Instructors

State directors were asked to report the three areas of agricultural education which they felt would have the greatest need for new instructors in the future. As shown in Table 6, of the forty-six states responding to this question, thirty-five states indicated that Agricultural Mechanics (including Machinery and Equipment) and Horticulture (including Ornamental Horticulture) were the projected areas of greatest teacher need. A further analysis of Table 6 indicated a wide range of off-farm agricultural occupations would also need a substantial increase in the number of new instructors.

Business and Office Education

Full-Time Teachers Employed, 1965, and Projected Number of Teachers Needed in 1968 by State and Educational Level in Business and Office Education

The total number of full-time high school and post high school teachers of business and office education employed in 1965 by states were reported in Table 1. Also reported in the table are the projected demands for full-time high school and post high school teachers. Those states not reporting or reporting that the requested information was not available are represented in the table by NR - "not reporting" or NA - "not available."

New York employed the largest number of high school business and office education teachers with a total of 4,444. California employed 3,628. California employed 775 full-time post high school business and office education teachers. A large number of states projected an increase in the number of high school and post high school teachers needed in 1968.

The Current Employment and Projected Demand for High School Teachers in Business and Office Occupations

State directors of vocational and technical education reported 25,160 full-time teachers of business and office education employed in forty-two states during the 1965-1966 school year. Data in Table 7 indicate that thirty-four states reported 3,283 beginning (new and replacement) full-time teachers were placed in teaching positions in 1965. These data represent a yearly change in personnel of about 12.6 percent of the total employed in the field of business and office education.

The supply of business and office education teachers apparently was insufficient as 103 teaching positions remained unfilled when school began in September, 1965.

State directors in forty-four states projected a need for 32,196 full-time high school teachers of business and office education by September, 1968. These data represent a need for 7,036 additional business and office education teachers within the next three years to fill newly created teaching positions. These figures represent a 28.0 percent growth in the number of high school business and office education teachers beyond current needs.

High School Teachers by Teaching Area

The current status and projected demand for full-time teachers in each of the major instructional areas in business and office education at the high school level were reported in Table 8. Office - Clerical Practice and Data Processing appeared to be the areas where the respondents anticipated the greatest demand for teachers in the future. Thirty-three states projected that the number of full-time teachers in Office - Clerical Practice

would make a moderate to substantial increase and the number of teachers in Data Processing would make a moderate increase.

Sixteen states reported 10,104 teachers of business and office education were unclassified as to instructional area, indicating that these teachers taught in several instructional areas.

Current Employment and Projected Demand for Full-Time Post High School Teachers in Business and Office Education

The current status and projected demand for full-time post high school teachers of business and office education is reported in Table 9. Thirty-four states reported 2,049 full-time post high school teachers employed in September, 1965. Twenty states reported 473 beginning (new and replacement) teachers entered business and office education in 1965. Four states indicated a shortage of business and office education teachers and 56 teaching positions remained unfilled in September, 1965.

State directors projected that 758 additional full-time post high school teachers are needed in the next three years. These data represent an increase of 37.0 percent over current numbers.

Employment and Demand for Post High School Teachers by Instructional Area

Data in Table 10 indicate that 1,331 teachers of business and office occupations at the post high school level in thirteen states were not classified by instructional area, indicating these teachers taught in more than one instructional area. Shorthand - Transcription was the second largest teaching area with sixteen states employing 210 full-time teachers. Fifteen states employed 186 full-time Typewriting teachers at the post high school level.

The projected trend in demand for full-time post high school business and office occupations teachers for the next three years (1965-1968) was reported in Table 10. The number of Data Processing teachers was projected to make a moderate to substantial increase over the next three years while the number of Office - Clerical Practice teachers was projected to make a moderate increase.

In 1965, there was also a program in Region IV in Management. This information was not reported in Table 10 as the program represented a very small proportion of the projected employment opportunities.

Areas of Business and Office Occupations Having the Greatest Future Need for New Instructors

State directors were asked to report the three areas of business and office occupations which they felt would have the greatest future need for new instructors. Data in Table 11 reported that of the forty-six states

responding to this question, twenty-eight states indicated that Office - Clerical Practice was the projected area of greatest teacher need. Twenty-seven states indicated that Data Processing teachers would be the second area of greatest teacher need. A further analysis of Table 11 indicated several of the instructional areas will have a substantial increase in need for additional teachers.

Distributive Education

Full-Time Teachers Employed, 1965, and Projected Number of Teachers Needed in 1968 by State and Educational Level in Distributive Education

The data in Table 1 provide a state-by-state report of the number of full-time high school and post high school teachers of distributive education currently employed and the number of teachers needed in 1968. Those states not reporting are represented by NR. A study of Table 1 revealed that New York employs the largest number of high school distributive education teachers with a total of 470 teachers employed. New York also employed the largest number of post high school teachers with a total of 94 full-time teachers.

A majority of the states indicated an increase in demand for full-time high school and post high school teachers during the next three years.

The Current Employment and Projected Demand for High School Teachers in Distributive Education

State directors of vocational and technical education reported 2,818 full-time teachers of distributive education were employed in forty-seven states during the 1965-1966 school year. Data in Table 12 indicate that forty-four states reported 795 beginning (new and replacement) teachers were placed in teaching positions in 1965. These data represent a yearly change in distributive education personnel of about 28.2 percent of the total distributive education teachers employed.

Fifty teaching positions were unfilled as school began in September, 1965, indicating that the supply of distributive education teachers was insufficient.

The respondents projected a need for 4,205 distributive education teachers in forty-eight states and Puerto Rico by September, 1968. These projections indicated a need for 1,387 additional distributive education teachers within the next three years to fill newly created teaching positions. These data represent a 49.2 percent growth in the numbers of high school distributive education teachers beyond current needs.

High School Teachers by Teaching Area

The current status and projected demand for full-time high school teachers in each major instructional area of distributive education were reported in Table 13. Thirty-five states reported a total of 1,597 teachers currently employed as regular distributive education instructors and the respondents felt that regular programs would have a moderate to substantial increase in demand for teachers. Thirteen states reported 936 teachers employed in retail programs in 1965, and the area was projected to have a moderate to substantial increase in demand for teachers. Five states

reported 195 teachers employed in 1965 in Cooperative and Preparatory distributive education programs, and the respondents projected that the demand for full-time high school teachers in this area would have a moderate to substantial increase. Five states employed eighty teachers in the Sales and Services programs, and the demand for Sales and Services teachers was projected to have a moderate to substantial increase in the demand for additional teachers.

A program in Socio-Economic distributive education was conducted in Region VII and two states in Region IX indicated a demand for teachers in the area of Marketing and Merchandising. This information was not reported in Table 13 as these programs represented a very small proportion of the projected employment opportunities.

Current Employment and Projected Demand for Full-Time Post High School Teachers in Distributive Education

The current status and projected demand for full-time post high school teachers in distributive education were reported in Table 14. Thirty-four states reported 321 full-time distributive education teachers employed at the post high school level in 1965. Twenty-five states reported eighty-four beginning (new and replacement) teachers were placed in teaching positions in 1965. Eight states reported twenty-eight teaching positions remained unfilled in September, 1965, indicating an insufficient teacher supply.

The respondents indicated that 236 additional full-time post high school teachers would be needed during the three-year period of 1965-1968, representing an increase of 73.5 percent over current needs.

Employment and Demand for Post High School Teachers by Instructional Area

Data in Table 15 indicate that thirteen states employed 107 full-time distributive education teachers in Retail programs. The respondents projected that the number of teachers needed in Retail programs at the post high school level would make moderate to substantial gains in the 1965-1968 period. Twenty-seven states employed 148 teachers in 1965 in regular distributive education courses at the post high school level and the respondents projected that the number of teachers needed in regular distributive education courses at the post high school level would make a moderate to substantial increase during the next three-year period.

Bank Teller, Insurance and Real Estate, City Superintendent of Adult Distributive Education, Restaurant Management, Hotel Management and Preparatory programs were offered in a few states, but were not reported in Table 15 because of the limited number of programs.

Areas of Distributive Education Having Greatest Future Need for New Instructors

State directors were asked to report the three areas of distributive education which they felt would have the greatest need for new instructors in the future. As the data in Table 16 indicate, twenty-three of the forty-one state directors responding to this question indicated the high school Cooperative programs, seventeen indicated Post High School programs, and fifteen indicated Adult Education programs. Further analysis of Table 16 indicated several other areas of distributive education were projected to have a substantial increase in demand for new instructors.

Health Occupations

Full-Time Teachers Employed, 1965, and Projected Number of Teachers Needed in 1968 by State and Educational Level in Health Occupations

Data in Table 1 provide a state-by-state report of the total number of health occupations teachers employed. Those states not reporting are represented by NR. New York reported a total of 612 health occupations instructors employed in 1965. This represents the largest number of teachers employed by a state. A majority of the states project an increase in the number of health occupations teachers needed by 1968.

The Current Employment and Projected Demand for Health Occupations Teachers

State directors of vocational and technical education in forty-six states reported 2,109 full-time health occupations teachers employed in September, 1965. Data in Table 17 indicate that forty-one states reported 364 beginning (new and replacement) teachers were placed in teaching positions in 1965. These data indicate an annual change in personnel of about 17.3 percent of the total number of teachers employed in health occupations.

Sixteen states reported fifty-nine unfilled teaching positions in September, 1965, indicating the supply of health occupations teachers was insufficient.

The respondents in forty-five states projected that there would be a need for 2,957 full-time health occupations teachers by September, 1968. These data indicate a need for 848 full-time teachers in addition to current needs or an increase of 40.2 percent in the number of full-time health occupations teachers.

Health Occupations Teachers by Instructional Area

The current status and projected demand for full-time health occupations teachers were reported in Table 18. Forty-six states reported 1,815 full-time teachers were currently employed as Practical Nurse - Vocational Nurse instructors and most respondents indicated that this instructional area would show a moderate to substantial increase in demand for teachers during the next three years. Six states reported 799 full-time instructors employed in the Professional Nurse instructional area. The demand for Professional Nurse instructors was projected to make a moderate to substantial increase in the future. Twenty-five states reported 181 full-time teachers in the Dental Assistant instructional area and thirty-four states projected that the need for instructors in this area would make a moderate to substantial increase.

There were several miscellaneous programs which were reported by a single, or at most, two states and, therefore, were not tabulated. These included: Dental Hygienist, Medical Secretary, Nursemaids, Junior Vocational Nursing, Cooperative Health Occupations, Food Service, Health Aide, Hospital Science, Inhalation Therapist, Psychiatric Technical, Supervisor, Radio-Therapist, Technical and Massage.

Areas of Health Occupations Having the Greatest Future Need for New Instructors

State directors were asked to report the three areas of health occupations which they felt would have the greatest need for new instructors in the future. The data in Table 19 indicate that thirty-eight of the forty-three states responding to this question indicated that practical nursing would be the area of greatest future teacher need. Twenty-three states projected that the area of Dental Assistant would also be an area of great teacher need in the future.

Home Economics

Full-Time Teachers Employed, 1965, and Projected Number of Teachers Needed in 1968 by State and Educational Level in Home Economics

Data in Table 1 provide a state-by-state report of the number of full-time high school and post high school teachers of home economics employed in 1965 and the projected number of full-time teachers needed in 1968. Those states not reporting are represented by NR. New York employed the largest number of full-time high school teachers with a total of 2,833 teachers. Pennsylvania employed the largest number of full-time post high school teachers with a total of 547 teachers.

A majority of the respondents projected an increase in the number of full-time high school and post high school teachers needed by 1968.

The Current Employment and Projected Demand for High School Teachers in Home Economics

State directors of vocational and technical education reported 20,856 full-time teachers of home economics employed in forty-seven states during the 1965-1966 school year. Data in Table 20 indicate that forty-five states reported 3,177 beginning (new and replacement) teachers were placed in teaching positions in 1965. These data represent a yearly change in personnel of about 15.2 percent of the total employed as full-time high school home economics instructors.

Fourteen states indicated that as of September, 1965, fifty-six teaching positions remained unfilled indicating a shortage of home economics teachers.

The state directors projected that by September, 1968, there would be a need for 23,715 full-time teachers of home economics. According to these projections 2,859 additional home economics teachers will be needed during the next three years to fill newly created positions or an increase of about 13.7 percent in the number of home economics teachers will be needed beyond current needs.

High School Teachers by Instructional Area

The current status and projected demand for full-time home economics teachers by each instructional area is reported in Table 21. Forty-six states reported that 15,913 full-time high school home economics teachers were employed in regular programs in September, 1965. The demand for teachers of regular home economics programs was projected to make a moderate increase by 1968. Twenty-nine states reported 133 full-time teachers employed in Food Service programs and the demand for Food Service instructors was projected to make a moderate to substantial increase in the future.

Only those teachers who were employed on a full-time basis for specialized programs were reported under categories other than the regular program. Therefore, the data in Table 21 do not indicate the extent to which home economics wage-earning courses were taught as a portion of the duties of the regular vocational home economics instructor. There is reason to believe that specialized courses are often added to the regular program in addition to the normal activities of an instructor, rather than employing additional teachers on a full-time basis for these courses.

Programs in the areas of Rest-home Aides and Health Services are offered in a few states but are not reported in Table 21, due to the small number of programs offered. Geriatrics, Visiting Homemaker and Institutional Services programs were projected by a few states to require a moderate number of teachers in the future. However, these programs are not reported in Table 21 due to the small number of states projecting a demand.

Current Employment and Projected Demand for Full-Time Post High School Teachers in Home Economics

The current status and projected demand for full-time post high school home economics teachers were reported in Table 22. Nineteen states reported 1,095 full-time post high school teachers were employed in September, 1965. Six states reported sixty-one beginning (new and replacement) teachers were placed in teaching positions in home economics at the post high school level in 1965.

State directors of vocational and technical education projected that an additional 721 teachers would be needed by 1968 to fill newly created teaching positions at the post high school level. These data represent an increase of about 66 percent above current teacher needs.

Employment and Demand for Post High School Teachers by Instructional Area

Data in Table 23 indicate that eighteen states reported 1,931 full-time home economics instructors were employed in Regular Home Economics programs at the post high school level in 1965. Respondents projected that the demand for home economics teachers in the regular program area would make a moderate increase in the future. Nine states currently employ seventeen teachers in the Food Services area at the post high school level and a moderate to substantial increase was projected in the number of teachers needed for this area in the future.

A few states, in no case more than two, offered programs in Clothing Maintenance, Special Needs and Occupational Preparation. This information was not reported in Table 23, as these programs represented a very small proportion of the number of programs offered.

A few states projected a demand for teachers in Health Service, Geriatric Aides and Hotel-Motel programs. These programs are not reported in Table 23 because of the small number of states projecting a demand.

Area of Home Economics Having the Greatest Future Need for Instructors

State directors were asked to report the three areas of home economics which they felt would have the greatest need for new instructors in the future. The data in Table 24 indicate that of the forty-three states responding to this question, twenty-four indicated that the Food Services area would have the greatest need for new instructors. Twenty-one respondents indicated the Homemaking area and sixteen indicated the area of Child Care and Development. Table 24 indicated that a large number of Home Economics occupations would need additional instructors in the future.

Technical Education

Full-Time Teachers Employed, 1965, and Projected Number of Teachers Needed in 1968 by State and Educational Level in Technical Education

Table 1 reported the number of technical education teachers employed in 1965 and the projected number of technical education teachers needed in 1968 on a state-by-state basis. Those states not reporting are represented by NR. According to the responding states, California employed the largest number of full-time technical education teachers with a total of 500. A majority of the states projected an increase in demand for full-time technical education instructors.

The Current Employment and Projected Demand for Teachers in Technical Education

State directors of vocational and technical education reported 3,317 full-time technical education instructors employed in forty-three states during the 1965-1966 school year. Data in Table 25 indicate that thirty-eight states reported 563 beginning (new and replacement) teachers were placed in teaching positions in 1965. These data represent an annual change in personnel of about 16.9 percent. Fourteen states reported sixty-three unfilled teaching positions in September, 1965, indicating that the teacher supply was insufficient.

Forty-one states projected that there would be a need for 4,633 full-time technical education instructors in 1968. These data represent an increase of 1,316 instructors during the 1965-1968 period or an increase in the number of full-time technical education instructors of about 39.7 percent above current needs.

Technical Education Teachers by Teaching Area

The current status and projected demand for full-time technical education instructors in each of the major instructional areas were reported in Table 26. Thirty-six states reported that 585 instructors were currently employed in Electronics Engineering Technical programs, and the respondents projected that the demand for instructors in this area would make a moderate to substantial increase in the future. Twenty-two states reported 201 full-time Data Processing instructors were currently employed and projected that the demand for Data Processing instructors would make a moderate to substantial increase in the future. Twenty-five states reported 286 instructors currently employed in Mechanical Drafting and Design programs and projected that the demand for Mechanical Drafting and Design instructors would make a moderate increase in the future.

The following miscellaneous programs were reported by a single, or at most, two states and, therefore, were not tabulated: Regular Health Occupations, Dental Hygiene, Feeds and Fertilizers, Forest Products Technology,

Agricultural Technology, General Agriculture, Regular Home Economics, Marine Technology, Welding Technology, Aeronautical Engineering, Petroleum Engineering, Physical Science, Hydraulics and Pneumatics, Pre-technical courses, Trade and Industrial, Engineering Aide, Technical English, Technical Math, Social Studies, Commercial Science, Communications Skills, Science and Math, Technical Writing, Library Science, Law Enforcement, Urban Development, Industrial Supervision, Radiation Technology, General Aviation, Restaurant and Hotel Management, Tool and Die Technology, Tool Design, Mechanics and Metals, Machine Tool, Instrument Repair, Scientific Glass Blowing, Traffic and Transportation, Surveying, X-Ray Technician, Civil Structural Technology, Aeronautical Drafting, Electronic Drafting, Monumental Drafting, Highway Construction, Wood Industries, Electronic Computer, Sanitary Engineering, T.V. Studio Technician, Radio and T.V. Broadcast Technician, Business and Office Machines, Technical Secretary, Regular Distributive Education, Technical Illustrator, Commercial Illustrator, Textile Technician, Business Technology, Stenographer, and General Business.

Additional programs were projected by a few states as areas of potential teacher demand. The programs are not tabulated in Table 26 due to the small number of states projecting a demand. These programs are: Horticulture, Farm Mechanics, Supervisor of Food Technology, Fashion Design, Building Construction, Highway, Technical Writing, Interior Decorating, Practical Nursing, Medical Technician, Dental Technician, Dental Assistant, Beauty Culture, Assistant in Child Care Centers, Associate Degree, Dental Laboratory, and Mortuary Science.

Areas of Technical Education Having the Greatest Future Need for New Instructors

State directors reported the three areas of technical education which they felt would have the greatest need for new instructors in the future. As the data in Table 27 indicate, of the thirty-eight responding to this question, twenty-five projected Electronics would have the greatest future teacher need. Data Processing and Mechanical Technology were also projected as other areas of future teacher need. Further analysis of Table 27 revealed several other areas of technical education which would have a future need for new instructors.

Trade and Industrial Education

Full-Time Teachers Employed, 1965, and Projected Number of Teachers Needed in 1968 by State and Educational Level in Trade and Industrial Education

Data in Table 1 provide a state-by-state report of the number of full-time high school and post high school trade and industrial education teachers employed in 1965 and the projected number of teachers needed at these two educational levels in 1968. Those states not reporting are represented by NR. According to the responding states, New York employed the largest number of high school trade and industrial education teachers with a total of 2,943 teachers employed. California employed the largest number of full-time post high school trade and industrial education teachers with a total of 2,200 teachers employed.

A majority of the states projected an increase in demand for full-time high school and post high school trade and industrial education teachers during the next three-year period.

The Current Employment and Projected Demand for High School Teachers in Trade and Industrial Education

State directors of vocational and technical education reported 10,680 full-time teachers of trade and industrial education employed in forty-five states during the 1965-1966 school year. Data in Table 28 indicate that forty-one states reported 2,331 beginning (new and replacement) full-time teachers were placed in teaching positions in 1965. These data represent an annual change in personnel of about 20.9 percent of the total employed in trade and industrial education.

The supply of teachers in the field of trade and industrial education was apparently insufficient as there were 101 high school teaching positions remaining unfilled as school began in September, 1965.

The respondents projected that there would be a need for 15,288 full-time teachers of high school trade and industrial education in forty-six states by September, 1968. If the projected trend is accurate, there would be a need for 4,608 additional trade and industrial education teachers within the next three years to fill newly created positions. These figures represent a 43.1 percent growth in the number of high school teachers of trade and industrial education beyond current needs.

High School Teachers by Teaching Area

The current status and projected demand for full-time teachers in each of the major instructional areas in trade and industrial education at the high school level were reported in Table 29. Forty-three states reported 1,390 full-time instructors employed in Auto Mechanics programs in 1965 and the demand for Auto Mechanics instructors was projected to make a moderate to substantial increase in the future. Sixteen states reported 806 full-time

Industrial Cooperative instructors employed in 1965 and projected that the demand for Industrial Cooperative instructors would make a moderate to substantial increase in the future. The areas of Carpentry and Machine Shop employed a large number of instructors and were projected to have a moderate increase in future need for instructors.

Current Employment and Projected Demand for Full-Time Post High School Trade and Industrial Education Teachers

The current status and projected demand for full-time teachers in trade and industrial education at the post high school level were reported in Table 30. Thirty-seven states reported 7,705 full-time post high school trade and industrial education teachers were employed in September, 1965. Twenty-eight states reported 458 beginning (new and replacement) teachers were placed in teaching positions at the beginning of the 1965 school year. Nine states reported thirty-nine unfilled teaching positions in September, 1965, indicating a shortage of trade and industrial education teachers at the post high school level.

It was projected that 1,799 additional full-time teachers would be needed during the next three years or an increase of 23.3 percent above current numbers.

Employment and Demand for Post High School Trade and Industrial Education Teachers

Data in Table 31 indicate that thirty-two states employed 601 full-time post high school teachers in Auto Mechanics programs in 1965. Thirty-five states projected that the Auto Mechanics area would make a moderate increase in demand for additional teachers in the future. Twenty-five states employed 359 full-time instructors in Machine Shop programs and projected that the Machine Shop area would make a moderate increase in future demand for additional teachers. Twenty-six states employed 178 Drafting teachers and projected that this instructional area would make a moderate demand for new instructors in the future.

Areas of Trade and Industrial Education Having the Greatest Future Need for New Instructors

The state directors were asked to report the three areas of trade and industrial education which they felt would have the greatest future need for new instructors. As shown in Table 32, of the forty-three states responding to this question, twenty-six projected that the Automotive programs, including Auto Mechanics and Auto Body Repair would be the area of greatest future teacher need. Twenty-nine states indicated that the Metal Trades, including Machine Shop and Welding, was the projected area of greatest teacher need. Further analysis of Table 32 indicated that a wide range of trade and industrial education occupations were projected to have an increase in the number of new instructors needed in the future.

IV

SUMMARY

The study was conducted to document the magnitude of the need for vocational and technical education teachers and to predict the demand for teachers in the next three years. The study also asked state directors to identify the instructional areas in vocational education which they felt would have the greatest need for teachers in the future.

Purpose and Objectives

The purpose of this study was to determine the present supply and projected demand for teachers in vocational and technical education at the high school and post high school level.

Specific objectives of the study were:

a. to establish data concerning the current teacher situation in vocational education at the high school and post high school level;

b. to estimate the demand for teachers in vocational and technical education for the next three years;

c. to identify the areas in vocational education which will have the greatest need for new instructors in the future.

The findings of the study were reported by vocational service area and no attempts were made to compare services.

Agriculture

State directors estimated that the number of high school teachers of agricultural education would expand from 9,800 in 1965 to 10,320 in 1968, an increase of 5.3 percent. The number of post high school agricultural education teachers was projected to expand from 351 in 1965 to 748 in 1968, an increase of 113 percent. The areas of Agricultural Mechanization, Horticulture and Off-Farm Agricultural Occupations were expected to have the greatest need for additional instructors.

Business and Office Education

The number of high school teachers of business and office education were projected to expand from 25,160 in 1965 to 32,196 in 1968, an increase of 28 percent. The number of post high school teachers were expected to increase from 2,049 in 1965 to 2,807 in 1968, an increase of 37.0 percent. State directors also projected that the areas of Office-Clerical Practice, Data Processing and Stenographic-Secretarial would have the greatest need for additional teachers.

Distributive Education

State directors projected that the number of high school distributive education teachers would expand from 2,818 in 1965 to 4,205 in 1968, an increase of 49.2 percent. The number of post high school teachers were projected to expand from 321 in 1965 to 557 in 1968, an increase of 73.5 percent. The areas of distributive education which will have the greatest need for new instructors in the future include high school cooperative programs, post high school programs, and several areas of adult education.

Health Occupations

The number of teachers in the health occupations were expected to expand from 2,109 in 1965 to 2,957 in 1968, an increase of 40.2 percent. The instructional areas of Practical Nursing, Dental Assistants, and Medical Laboratory Assistants were projected as having the greatest demand for additional teachers.

Home Economics

State directors projected that the number of high school home economics teachers would expand from 20,856 in 1965 to 23,715 in 1968, an increase of 13.7 percent. The number of post high school teachers were projected to expand from 1,095 in 1965 to 1,816 in 1968, an increase of 66.0 percent. State directors projected that the instructional areas of Food Services, Homemaking and Child Care and Development would have the greatest need for additional teachers.

Technical Education

Projections indicate that the number of technical education instructors would expand from 3,317 in 1965 to 4,633 in 1968, an increase of 39.7 percent. The instructional areas of Electronics, Data Processing and Mechanical Technology were expected to have the greatest need for additional teachers.

Trade and Industrial Education

State directors projected that the number of high school trade and industrial education teachers would expand from 10,680 in 1965 to 15,288 in 1968, an increase of 43.1 percent. The number of post high school teachers were projected to expand from 7,705 in 1965 to 9.504 in 1968, an increase of 23.3 percent. State directors also projected that the Automotive Programs, including Auto Mechanics and Auto Body Repair, and the Metal Trades, including Machine Shop and Welding, would have the greatest future need for new instructors.

In conclusion, it would appear that the reported shortage of qualified instructors in vocational and technical education is real. The state directors predicted an increased demand for instructors in all of the vocational and technical areas by 1968. Both high school and post high school programs are being expanded in all areas and teachers will be needed to fill the new positions.

APPENDIX A

TABLE 1
FULL-TIME TEACHERS EMPLOYED, 1965,
AND PROJECTED NUMBER OF TEACHERS NEEDED IN 1968 BY STATE AND EDUCATIONAL LEVEL

State	Educational Level	Agriculture		Business and Office		Distributive		Health Occupations	
		Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968
Alabama	HS*	380	450	160	210	53	200		
	PHS**	0	0	45	60	2	25	39	30
Alaska	HS	2	7	15	30	4	8		
	PHS	0	0	3	4	0	0	3	5
Arizona	HS	49	60	47	90	40	60		
	PHS	3	9	13	30	4	8	10	20
Arkansas	HS	311	310	3	25	11	20		
	PHS	1	4	6	35	4	5	NR	NR
California	HS	256	300	3628	4600	75	135		
	PHS	36	50	775	1160	51	95	NR	NR
Colorado	HS	71	85	55	150	38	60		
	PHS	8	24	21	50	0	5	22	48
Connecticut	HS	34	41	166	720	33	50		
	PHS	1	2	22	31	1	5	10	15
Delaware	HS	18	20	167	180	11	22		
	PHS	0	0	0	20	0	4	13	20
Florida	HS	263	275	1300	1700	65	110		
	PHS	4	15	100	140	18	28	76	106
Georgia	HS	349	355	311	650	43	83		
	PHS	25	39	57	63	1	27	38	54
Hawaii	HS	41	41	126	141	8	12		
	PHS	0	0	0	0	0	0	NR	NR
Idaho	HS	75	85	40	70	14	22		
	PHS	2	10	4	12	4	8	13	16
Illinois	HS	449	470	600	1200	104	150		
	PHS	14	60	NR	NR	2	10	70	100
Indiana	HS	269	320	NR	200	38	70		
	PHS	0	10	NR	25	3	5	25	40
Iowa	HS	248	248	31	76	40	55		
	PHS	1	2	5	15	6	15	43	75
Kansas	HS	189	189	26	42	21	29		
	PHS	3	10	4	7	3	5	35	60
Kentucky	HS	NR	NR	NR	NR	NR	NR		
	PHS	NR	NR	NR	NR	NR	NR	NR	NR
Louisiana	HS	297	307	814	895	43	55		
	PHS	0	0	0	0	1	3	38	12

*High School
**Post High School

TABLE 1 (continued)

State	Educational Level	Agriculture		Business and Office		Distributive		Health Occupations	
		Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968
Maine	HS	21	25	0	0	3	10		
	PHS	0	5	0	0	0	3	9	12
Maryland	HS	64	69	893	952	20	32		
	PHS	3	5	6	NR	0	2	10	15
Massachusetts	HS	NR	NR	NR	NR	NR	NR		
	PHS	NR	NR	NR	NR	NR	NR	NR	NR
Michigan	HS	223	260	777	1162	283	225		
	PHS	8	35	139	207	23	39	103	120
Minnesota	HS	302	320	1300	1500	46	30		
	PHS	51	85	70	100	4	12	59	75
Mississippi	HS	310	310	0	150	21	31		
	PHS	1	12	0	25	2	5	31	50
Missouri	HS	243	265	98	130	60	80		
	PHS	0	0	14	33	6	10	65	100
Montana	HS	63	63	275	275	10	25		
	PHS	0	0	6	10	1	3	4	4
Nebraska	HS	122	135	70	165	12	30		
	PHS	3	8	5	40	1	5	8	NR
Nevada	HS	15	19	12	30	8	16		
	PHS	0	0	0	0	0	0	11	11
New Hampshire	HS	11	14	NR	NR	1	5		
	PHS	8	8	3	NR	0	1	13	15
New Jersey	HS	38	47	1600	1850	69	90		
	PHS	0	0	11	57	2	10	45	90
New Mexico	HS	59	69	653	748	19	20		
	PHS	0	5	18	23	2	5	27	37
New York	HS	259	275	4444	5000	470	610		
	PHS	3	NR	202	NR	94	NR	612	575
North Carolina	HS	613	644	0	0	173	298		
	PHS	0	0	0	0	NR	NR	62	72
North Dakota	HS	72	76	305	275	9	25		
	PHS	0	10	18	25	2	6	28	35
Ohio	HS	366	380	NR	NR	129	220		
	PHS	3	20	NR	NR	7	50	158	300
Oklahoma	HS	392	410	19	250	39	64		
	PHS	0	0	0	80	0	10	32	40

TABLE 1 (continued)

State	Educational Level	Agriculture		Business and Office		Distributive		Health Occupations	
		Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968
Oregon	HS	110	120	400	440	38	68		
	PHS	8	15	20	30	5	10	21	35
Pennsylvania	HS	288	315	2829	3264	75	150		
	PHS	111	128	30	50	1	15	88	150
Puerto Rico	HS	123	123	228	275	22	32		
	PHS	0	40	19	15	4	8	18	15
Rhode Island	HS	9	12	193	218	5	20		
	PHS	0	3	0	0	0	0	7	9
South Carolina	HS	300	325	154	250	18	30		
	PHS	0	25	3	30	1	3	23	33
South Dakota	HS	65	80	3	30	12	25		
	PHS	0	0	0	4	0	6	3	4
Tennessee	HS	283	283	660	700	58	90		
	PHS	0	30	5	15	0	5	63	107
Texas	HS	1152	1077	57	275	259	425		
	PHS	0	0	11	45	2	12	12	20
Utah	HS	56	58	233	250	32	42		
	PHS	1	4	14	17	1	6	20	24
Vermont	HS	22	22	150	180	7	8		
	PHS	0	0	0	0	0	0	15	20
Virginia	HS	328	340	1280	1500	192	243		
	PHS	5	12	23	30	4	7	82	91
Washington	HS	154	169	849	919	70	95		
	PHS	27	40	155	210	16	30	72	144
West Virginia	HS	104	115	30	200	9	12		
	PHS	0	0	0	15	0	2	21	27
Wisconsin	HS	282	282	NR	NR	0	0		
	PHS	21	30	210	75	41	41	50	124
Wyoming	HS	50	52	159	179	8	13		
	PHS	0	2	13	19	1	3	2	2
Total	HS	9800	10320	25160	32196	2818	4205		
	PHS	351	748	2049	2807	321	557	2109	2957

TABLE 1 (continued)

State	Educational Level	Home Economics		Technical		Trade and Industrial	
		Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968
Alabama	HS	445	645			228	326
	PHS	0	50	37	30	282	562
Alaska	HS	32	40			11	20
	PHS	0	0	8	9	15	35
Arizona	HS	232	300			56	90
	PHS	27	60	31	55	4	30
Arkansas	HS	391	400			50	50
	PHS	0	0	0	0	37	87
California	HS	NR	NR			1000	1200
	PHS	NR	NR	500	700	2200	2500
Colorado	HS	77	89			61	80
	PHS	13	18	52	75	47	55
Connecticut	HS	82	90			NR	210
	PHS	0	0	94	NR	NR	25
Delaware	HS	92	100			60	90
	PHS	0	0	10	15	0	25
Florida	HS	800	900			388	478
	PHS	6	8	229	273	85	175
Georgia	HS	578	625			135	231
	PHS	9	15	57	100	173	325
Hawaii	HS	91	98			NR	NR
	PHS	0	0	NR	NR	NR	NR
Idaho	HS	124	130			15	19
	PHS	0	0	25	29	34	50
Illinois	HS	724	810			313	360
	PHS	0	10	57	85	6	30
Indiana	HS	600	700			188	213
	PHS	85	135	23	37	0	10
Iowa	HS	293	293			56	85
	PHS	86	86	116	168	14	50
Kansas	HS	175	225			107	107
	PHS	4	9	59	75	49	49
Kentucky	HS	NR	NR			NR	NR
	PHS	NR	NR	NR	NR	NR	NR
Louisiana	HS	528	618			0	0
	PHS	0	10	35	47	213	238

TABLE 1 (continued)

State	Educational Level	Home Economics		Technical		Trade and Industrial	
		Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968
Maine	HS	190	220			39	58
	PHS	NR	NR	5	12	49	100
Maryland	HS	75	95			325	565
	PHS	0	0	62	102	180	210
Massachusetts	HS	NR	NR			NR	NR
	PHS	NR	NR	NR	NR	NR	NR
Michigan	HS	602	632			197	300
	PHS	4	5	230	325	53	70
Minnesota	HS	891	918			42	52
	PHS	NR	NR	NR	NR	237	296
Mississippi	HS	489	549			92	140
	PHS	0	75	51	76	45	75
Missouri	HS	380	425			225	250
	PHS	70	100	64	80	8	25
Montana	HS	64	69			11	11
	PHS	0	0	11	13	4	4
Nebraska	HS	166	175			56	71
	PHS	0	4	45	50	11	100
Nevada	HS	22	28			25	30
	PHS	0	0	31	45	0	6
New Hampshire	HS	107	110			27	40
	PHS	10	12	0	0	27	65
New Jersey	HS	1206	1596			385	490
	PHS	46	300	172	222	50	85
New Mexico	HS	97	120			22	25
	PHS	0	20	11	17	4	4
New York	HS	2833	3350			2943	3679
	PHS	10	NR	NR	NR	660	660
North Carolina	HS	773	821			464	1123
	PHS	0	0	NR	NR	0	0
North Dakota	HS	133	148			2	6
	PHS	0	0	38	44	43	10
Ohio	HS	610	850			560	1090
	PHS	12	28	52	110	0	0
Oklahoma	HS	359	379			246	276
	PHS	0	10	133	174	0	30

TABLE 1 (continued)

State	Educational Level	Home Economics		Technical		Trade and Industrial	
		Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968	Employed 1965	Projected Need 1968
Oregon	HS	65	65	33	50	23	40
	PHS	14	14			46	70
Pennsylvania	HS	1239	1289	110	176	365	266
	PHS	547	572			NR	NR
Puerto Rico	HS	646	686	18	26	183	275
	PHS	0	0			3	25
Rhode Island	HS	132	148	4	53	55	55
	PHS	0	0			0	0
South Carolina	HS	321	360	140	255	224	275
	PHS	0	20			61	70
South Dakota	HS	NR	NR	11	20	21	30
	PHS	NR	NR			19	35
Tennessee	HS	458	480	49	59	291	375
	PHS	45	100			0	0
Texas	HS	1845	2045	180	180	564	864
	PHS	4	8			75	40
Utah	HS	284	304	41	55	136	225
	PHS	0	0			86	110
Vermont	HS	89	120	7	NR	74	101
	PHS	0	0			0	0
Virginia	HS	764	800	69	90	263	350
	PHS	0	0			102	179
Washington	HS	379	440	125	200	30	90
	PHS	102	127			650	850
West Virginia	HS	150	180	15	18	116	134
	PHS	0	10			0	1
Wisconsin	HS	155	175	275	475	0	0
	PHS	1	10			329	329
Wyoming	HS	68	75	2	8	6	15
	PHS	0	0			5	10
Total	HS	20856	23715	3317	4633	10680	15288
	PHS	1095	1816			5906	7705

TABLE 2

THE CURRENT EMPLOYMENT AND PROJECTED DEMAND FOR
FULL-TIME HIGH SCHOOL TEACHERS IN AGRICULTURAL EDUCATION

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	7	5	5	7	49
States reporting programs	5	4	5	6	5	7	5	5	7	49
Teachers employed in 1965	97	603	1232	1885	1589	1241	2211	315	627	9800
States reporting	3	4	5	6	5	7	4	5	5	44
Number of new and replacement teachers in 1965	10	67	103	185	184	162	87	32	75	905
States reporting	1	1	3	5	4	4	2	0	1	21
Number of unfilled teaching positions in 1965	2	4	34	18	11	15	11	-	2	97
States reporting	5	4	5	6	5	7	5	5	7	49
Projected number of teachers needed in 1968	114	657	1291	1998	1715	1313	2173	343	716	10320

*States not reporting were: Region I-Massachusetts; Region III-Kentucky

TABLE 3

EMPLOYMENT AND DEMAND FOR TEACHERS IN AGRICULTURAL EDUCATION
AT THE HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	5	5	7	49
Regular Vocational Agriculture Program										
States reporting programs	5	4	5	6	5	7	5	5	7	49
Teachers currently employed	97	563	1190	1875	1582	1240	2211	310	603	9671
States projecting demand	5	4	4	5	5	7	5	5	5	43
Demand mean score**	2.0	2.0	1.5	1.6	2.2	2.0	1.4	1.6	2.0	1.8
Horticulture										
States reporting programs	0	4	5	1	2	1	1	1	1	16
Teachers currently employed	-	20	8	10	19	1	2	1	5	66
States projecting demand	4	2	5	5	5	2	4	5	3	35
Demand mean score	2.5	2.5	2.4	2.4	2.6	2.5	2.0	1.8	2.7	2.3
Forestry										
States reporting programs	0	0	1	0	1	0	0	1	0	3
Teachers currently employed	-	-	1	-	1	-	-	1	-	3
States projecting demand	4	1	3	4	3	1	2	5	3	26
Demand mean score	2.0	1.0	2.0	2.0	1.3	2.0	1.0	0.8	2.0	1.6
Agricultural Mechanics										
States reporting programs	0	4	3	0	3	1	0	1	2	14
Teachers currently employed	-	23	6	-	9	2	-	1	21	62
States projecting demand	3	2	4	5	5	3	4	5	4	35
Demand mean score	2.7	1.0	2.0	2.2	2.2	2.3	1.8	1.4	2.3	2.0
Agribusiness (including distribution, supply, sales, and service)										
States reporting programs	0	0	2	0	1	0	0	1	0	4
Teachers currently employed	-	-	2	-	13	-	-	1	-	16
States projecting demand	1	0	2	2	4	1	1	1	0	12
Demand mean score	2.0	-	1.5	3.0	2.8	2.0	2.0	3.0	-	2.4

*States not reporting were: Region I-Massachusetts; Region III-Kentucky
**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 4

THE CURRENT EMPLOYMENT AND PROJECTED DEMAND FOR FULL-TIME POST HIGH SCHOOL TEACHERS IN AGRICULTURAL EDUCATION

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	7	5	5	7	49
States reporting programs	2	2	2	3	4	4	1	3	4	25
Teachers employed in 1965	9	114	8	30	46	58	1	11	74	351
States reporting	1	1	1	3	4	3	0	1	3	17
Number of new and replacement teachers in 1965	1	3	1	9	19	6	-	2	12	53
States reporting	0	0	1	1	1	1	0	0	0	4
Number of unfilled teaching positions in 1965	-	-	1	2	1	3	-	-	-	7
States reporting	4	1	3	6	5	4	2	4	4	33
Projected number of teachers needed in 1968	18	128	17	162	155	105	9	40	114	748

*States not reporting were: Region I-Massachusetts; Region III-Kentucky

TABLE 5

EMPLOYMENT AND DEMAND FOR TEACHERS IN AGRICULTURAL EDUCATION AT THE POST HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	5	5	7	49
Regular Vocational Agriculture Program										
States reporting programs	1	2	2	2	2	3	0	2	4	18
Teachers employed	1	125	28	8	17	55	-	3	64	301
States projecting demand	2	2	3	5	3	5	2	5	4	31
Demand mean score**	2.5	2.0	2.3	2.0	2.0	2.8	1.0	1.8	2.5	2.2
Horticulture										
States reporting programs	1	1	0	0	2	0	1	0	1	6
Teachers employed	2	3	-	-	5	-	1	-	2	13
States projecting demand	2	2	3	6	5	2	3	5	3	31
Demand mean score	2.5	2.0	1.7	2.3	2.4	3.0	1.7	2.2	2.3	2.2
Forestry										
States reporting programs	1	0	1	1	0	0	0	1	0	4
Teachers employed	2	-	1	2	-	-	-	2	-	7
States projecting demand	3	0	2	5	3	1	3	5	3	25
Demand mean score	1.7	-	2.0	2.2	1.7	2.0	1.3	1.0	2.0	1.7
Agricultural Mechanics										
States reporting programs	1	2	0	1	4	1	0	2	2	13
Teachers employed	1	4	-	14	10	2	-	4	13	48
States projecting demand	2	2	3	6	5	3	3	5	4	33
Demand mean score	1.5	2.0	1.7	2.3	2.4	3.0	1.3	2.2	2.5	2.2
Farm Management										
States reporting programs	2	0	2	1	2	1	0	0	1	9
Teachers currently employed	1	-	8	5	22	1	-	-	3	40
States projecting demand	2	0	3	5	5	2	2	5	3	27
Demand mean score	2.0	-	2.3	2.2	2.4	2.5	1.5	1.4	2.3	2.1

*States not reporting were: Region I-Massachusetts; Region III-Kentucky

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 5 (continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	7	49
Agribusiness (including supply and service, sales and service, feed, fertilizer, and processing)										
States reporting programs	0	0	0	0	2	1	0	1	0	4
Teachers currently employed	-	-	-	-	7	1	-	3	-	11
States projecting demand	0	0	0	2	3	1	1	1	0	8
Demand mean score	-	-	-	2.0	2.3	2.0	2.0	2.0	-	2.1
Animal and Poultry Production										
States reporting programs	1	0	0	1	0	0	0	0	0	2
Teachers currently employed	1	-	-	4	-	-	-	-	-	5
States projecting demand	2	0	0	1	0	0	0	1	0	4
Demand mean score	1.0	-	-	3.0	-	-	-	1.0	-	1.5

TABLE 6

AREAS OF AGRICULTURAL EDUCATION WHICH WILL HAVE THE GREATEST NEED FOR NEW INSTRUCTORS IN THE FUTURE

AREA	No. States Sub-Totals	No. States Total (N = 46)
Agricultural Mechanization		35
Agricultural Mechanics	34	
Agricultural Machinery and Equipment	1	
Horticulture and Ornamental Horticulture		35
Horticulture and Ornamental Horticulture	33	
Fruit and Vegetable Production	2	
Off-Farm Agricultural Occupations		31
Agricultural Resources	11	
Conservation and Forestry (8)		
Recreation (3)		
Agri-Business Occupations	7	
Sales and Service Occupations	7	
Agricultural Supplies	4	
Food Handling and Distribution	1	
Agricultural Processing	1	
Production Agriculture		13
Farm Management	11	
Plant and Animal Science	2	
Regular High School Vocational Agriculture		8
Technical Agriculture Education		4
Area Technical Schools	2	
Post High School	1	
Crop and Soil Technology	1	
General Agriculture		3
Adult and Young Farmer Classes		2
Total*		131

*Each state indicated two or three areas of greatest need, thereby giving a large total figure.

TABLE 7

THE DEMAND FOR FULL-TIME HIGH SCHOOL TEACHERS IN BUSINESS AND OFFICE OCCUPATIONS EDUCATION

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	4	7	5	5	7	48
States reporting programs	3	4	4	5	2	7	5	5	7	42
Teachers employed in 1965	509	9040	2431	2585	1377	1833	1546	762	5077	25160
States reporting	1	4	2	5	2	4	5	5	6	34
Number of new and replacement teachers in 1965	25	848	236	412	943	63	99	154	503	3283
States reporting	0	2	1	2	0	2	1	0	1	9
Number of unfilled teaching positions in 1965	-	33	10	15	-	33	3	-	9	103
States reporting	3	4	4	6	3	7	5	5	7	44
Projected number of teachers needed in 1968	1118	10294	2927	3710	2562	2218	2193	924	6250	32196

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region V-Ohio

TABLE 8

EMPLOYMENT AND DEMAND FOR TEACHERS IN BUSINESS AND OFFICE OCCUPATIONS AT THE HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	4	7	5	5	7	48
Accounting, Bookkeeping, Record Keeping										
States reporting programs	0	4	2	4	1	2	3	3	2	21
Teachers currently employed	-	1790	110	451	60	310	104	116	36	2977
States projecting demand	1	4	2	5	3	6	5	3	5	34
Demand mean score**	3.0	1.25	2.0	2.2	2.33	1.66	2.2	2.66	1.8	2.0
Typewriting										
States reporting programs	0	4	2	4	1	2	2	3	2	20
Teachers currently employed	-	2485	278	971	155	523	254	213	97	4976
States projecting demand	1	4	2	5	3	6	5	3	5	34
Demand mean score	3.0	1.25	2.0	2.0	2.33	1.66	2.0	2.33	2.0	1.94
Shorthand - Transcription										
States reporting programs	0	4	2	4	1	3	3	4	3	24
Teachers currently employed	-	1447	143	495	133	133	143	105	48	2647
States projecting demand	1	5	2	5	3	6	5	3	5	35
Demand mean score	3.0	1.4	2.5	1.8	2.33	2.33	2.2	2.33	1.8	2.06
Office - Clerical Practice										
States reporting programs	0	4	2	4	1	3	3	4	2	23
Teachers currently employed	-	833	60	251	227	113	66	90	32	1672
States projecting demand	1	4	2	5	3	6	4	3	5	33
Demand mean score	3.0	1.5	3.0	2.6	2.66	2.66	2.25	2.33	2.2	2.39

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region V-Ohio

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 8 (continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	4	7	5	5	7	48
General Business Subjects										
States reporting programs	0	4	2	4	0	2	2	2	2	18
Teachers currently employed	-	3100	537	466	-	314	115	47	42	4621
States projecting demand	14	4	3	0	2	6	5	3	5	29
Demand mean score	2.0	1.5	2.33	-	1.5	2.33	2.0	1.66	2.0	1.86
Data Processing										
States reporting programs	0	4	2	0	1	1	1	0	1	10
Teachers currently employed	-	33	10	-	4	2	1	-	3	53
States projecting demand	2	4	3	5	3	5	4	3	6	35
Demand mean score	2.0	3.0	2.66	3.0	2.33	1.8	1.5	2.33	1.5	2.2
Not Classified										
States reporting programs	3	0	1	1	1	4	1	1	4	16
Teachers currently employed	509	-	1280	311	600	1423	814	275	4892	10104
Cooperative Office Education										
States reporting programs	0	0	0	0	2	0	1	2	1	6
Teachers currently employed	-	-	-	-	222	-	57	27	7	313
States projecting demand	0	0	0	0	2	0	2	1	0	5
Demand mean score	-	-	-	-	2.5	-	2.5	3.0	-	2.6
Office Education										
States reporting programs	0	1	0	0	1	0	0	0	2	4
Teachers currently employed	-	5	-	-	13	-	-	-	38	56
States projecting demand	0	0	0	0	0	1	0	0	0	1
Demand mean score	-	-	-	-	-	1.0	-	-	-	1.0
Business Economics										
States reporting programs	0	1	1	1	0	0	0	0	0	3
Teachers currently employed	-	1	18	61	-	-	-	-	-	80
States projecting demand	0	2	1	1	0	0	0	0	0	4
Demand mean score	-	1.0	1.0	2.0	-	-	-	-	-	1.25

TABLE 9

THE DEMAND FOR FULL TIME POST HIGH SCHOOL TEACHERS IN BUSINESS AND OFFICE OCCUPATIONS EDUCATION

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	4	7	5	5	7	48
States reporting programs	2	3	3	5	2	6	3	5	5	34
Teachers employed in 1965	25	243	48	210	349	115	35	58	966	2049
States reporting	0	1	2	2	2	5	2	4	2	20
Number of new and replacement teachers in 1965	-	12	16	50	200	42	9	14	130	473
States reporting	0	0	1	1	1	0	0	0	1	4
Number of unfilled teaching positions in 1965	-	-	6	15	30	-	-	-	5	56
States reporting	1	3	3	6	3	7	4	5	5	37
Projected number of teachers needed in 1968	31	127	60	333	307	224	183	108	1434	2807

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region V-Ohio

TABLE 10

EMPLOYMENT AND DEMAND FOR TEACHERS IN BUSINESS AND OFFICE OCCUPATIONS AT THE POST HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	4	7	5	5	7	48
Accounting, Bookkeeping, Record-Keeping										
States reporting programs	0	2	1	3	1	2	3	3	0	15
Teachers currently employed	-	9	5	37	18	24	8	15	-	116
States projecting demand	1	3	2	4	3	6	4	3	4	30
Demand mean score**	2.0	1.66	2.0	2.25	1.66	2.0	2.75	2.33	1.75	2.07
Typewriting										
States reporting programs	0	3	0	3	1	2	3	3	0	15
Teachers currently employed	-	58	-	48	22	30	12	16	-	186
States projecting demand	1	3	2	4	2	6	4	3	4	29
Demand mean score	2.0	1.66	2.0	2.0	2.0	1.66	2.0	2.33	1.5	1.89
Shorthand - Transcription										
States reporting programs	0	3	0	3	1	3	3	3	0	16
Teachers currently employed	-	67	-	37	58	23	11	14	-	210
States projecting demand	1	3	2	4	3	6	4	3	4	30
Demand mean score	2.0	1.66	2.0	1.75	2.0	1.83	2.75	2.33	1.75	2.0
Office - Clerical Practice										
States reporting programs	0	2	0	3	1	2	2	4	0	14
Teachers currently employed	-	64	-	32	15	18	6	9	-	144
States projecting demand	1	3	2	4	3	6	3	3	4	29
Demand mean score	2.0	1.66	2.0	2.5	2.0	1.83	3.0	2.33	2.25	2.17
General Business Subjects										
States reporting programs	0	2	1	4	0	1	2	2	0	12
Teachers currently employed	-	31	19	52	-	8	7	10	-	127
States projecting demand	1	3	2	0	2	6	4	3	4	25
Demand mean score	2.0	1.66	2.0	-	1.0	1.5	2.0	1.66	1.75	1.68
Data Processing										
States reporting programs	1	2	2	2	2	1	0	1	2	13
Teachers currently employed	3	6	5	13	35	1	-	3	25	91
States projecting demand	3	3	3	4	4	5	3	3	5	33
Demand mean score	2.33	2.66	2.0	3.0	3.0	1.8	2.0	2.66	2.2	2.39
Not Classified										
States reporting programs	1	0	1	1	1	4	0	1	4	13
Teachers currently employed	22	-	23	57	210	82	-	6	931	1331
Commercial Occupations										
States reporting programs	0	1	0	0	1	0	0	0	1	3
Teachers currently employed	-	8	-	-	6	-	-	-	7	21
States projecting demand	0	0	0	0	0	0	0	0	0	0
Demand mean score	-	-	-	-	-	-	-	-	-	-
Cooperative Office Education										
States reporting programs	0	0	0	0	2	0	0	0	0	2
Teachers currently employed	-	-	-	-	13	-	-	-	-	13
States projecting demand	0	0	0	0	2	0	1	0	0	3
Demand mean score	-	-	-	-	2.5	-	2.0	-	-	2.33

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region V-Ohio

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 11

PROJECTED AREAS OF BUSINESS AND OFFICE OCCUPATIONS EDUCATION
WHICH WILL HAVE THE GREATEST NEED FOR NEW INSTRUCTORS IN THE FUTURE

AREA	No. States Total (N=46)
Office - Clerical Practice	28
Data Processing	27
Stenographic - Secretarial	21
Business and Economics	12
Cooperative Office Education	12
Typewriting	9
Bookkeeping	7
Accounting	2
Adult	1
All Others	1
Total*	120

*Each state indicated two or three areas of greatest need, thereby giving the large total figure.

TABLE 12

THE DEMAND FOR FULL-TIME HIGH SCHOOL TEACHERS
IN DISTRIBUTIVE EDUCATION

	REGION									
	I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	7	5	5	7	49
States reporting programs	5	4	5	6	4	7	5	5	7	48
Teachers employed in 1965	49	625	416	258	554	200	371	102	243	2818
States reporting	3	4	4	6	4	7	5	5	6	44
Number of new and replacement teachers in 1965	17	55	104	115	221	50	87	52	94	795
States reporting	0	0	3	4	3	3	2	1	0	16
Number of unfilled teaching positions in 1965	-	-	5	10	19	9	6	1	-	50
States reporting	5	4	5	6	4	7	5	5	7	48
Projected number of teachers needed in 1968	93	872	617	544	665	274	584	162	394	4205

*States not reporting were: Region I-Massachusetts; Region III-Kentucky

TABLE 13

EMPLOYMENT AND DEMAND FOR TEACHERS IN DISTRIBUTIVE EDUCATION
AT THE HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	5	5	7	49
Retail										
States reporting programs	1	1	1	2	2	1	1	1	3	13
Teachers currently employed	5	415	9	86	197	60	39	10	115	936
States projecting demand	1	2	1	5	3	3	2	1	3	21
Demand mean score**	3.0	2.5	2.0	2.4	2.66	2.0	2.0	2.0	3.0	2.42
Wholesale										
States reporting programs	0	0	0	0	1	0	0	0	0	1
Teachers currently employed	-	-	-	-	1	-	-	-	-	1
States projecting demand	0	1	0	3	0	2	0	0	1	7
Demand mean score	-	3.0	-	2.66	-	1.0	-	-	1.0	2.0
Sales and Services										
States reporting programs	1	1	0	0	0	1	0	1	1	5
Teachers currently employed	3	55	-	-	-	12	-	8	2	80
States projecting demand	1	1	0	4	1	4	1	1	1	14
Demand mean score	3.0	3.0	-	2.75	3.0	2.0	1.0	2.0	2.0	2.35
Distributive Education										
States reporting programs	3	3	3	4	5	5	4	4	4	35
Teachers currently employed	41	155	231	172	354	128	330	60	126	1597
States projecting demand	2	3	2	0	0	2	0	1	1	11
Demand mean score	2.5	3.0	2.5	-	-	3.0	-	3.0	3.0	2.81
Cooperative and Preparatory										
States reporting programs	0	0	2	1	1	0	0	1	0	5
Teachers currently employed	-	-	176	11	3	-	-	5	-	195
States projecting demand	0	0	2	1	2	0	4	3	1	13
Demand mean score	-	-	2.5	2.0	2.5	-	2.5	2.33	2.0	2.38

*States not reporting were: Region I-Massachusetts; Region III-Kentucky

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 14

THE DEMAND FOR FULL-TIME POST HIGH SCHOOL TEACHERS
IN DISTRIBUTIVE EDUCATION

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	7	5	5	7	49
States reporting programs	1	3	2	5	5	6	4	4	4	34
Teachers employed in 1965	1	96	8	25	77	22	9	7	76	321
States reporting	0	0	1	5	4	5	3	3	4	25
Number of new and replacement teachers in 1965	-	-	2	12	27	11	4	5	23	84
States reporting	0	0	1	3	2	0	1	1	0	8
Number of unfilled teaching positions in 1965	-	-	1	6	18	-	2	1	-	28
States reporting	3	3	4	6	5	7	5	5	4	42
Projected number of teachers needed in 1968	9	29	19	93	145	59	35	25	143	557

*States not reporting were: Region I-Massachusetts; Region III-Kentucky

TABLE 15

EMPLOYMENT AND DEMAND FOR TEACHERS IN DISTRIBUTIVE EDUCATION AT THE POST HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	5	5	7	49
Retail										
States reporting programs	0	1	0	4	3	1	1	1	2	13
Teachers currently employed	-	16	-	16	14	3	2	1	55	107
States projecting demand	0	1	1	4	4	5	1	1	3	20
Demand mean score**	-	3.0	2.0	2.5	2.5	2.2	3.0	2.0	2.33	2.4
Wholesale										
States reporting programs	0	0	0	0	3	0	0	0	0	3
Teachers currently employed	-	-	-	-	3	-	-	-	-	3
States projecting demand	0	1	0	4	4	4	0	1	2	16
Demand mean score	-	3.0	-	2.25	2.25	2.25	-	2.0	3.0	2.35
Sales and Service										
States reporting programs	0	1	0	2	1	1	1	0	1	7
Teachers currently employed	-	45	-	9	2	3	1	-	1	61
States projecting demand	1	0	0	5	2	5	2	1	3	19
Demand mean score	2.0	-	-	2.4	3.0	2.2	2.0	2.0	2.66	2.36
Distributive Education										
States reporting programs	1	3	2	3	5	5	4	2	2	27
Teachers currently employed	1	31	8	5	57	16	6	4	20	148
States projecting demand	2	3	1	2	3	2	1	2	0	16
Demand mean score	1.0	3.0	2.0	2.5	2.0	3.0	3.0	2.5	-	2.37
Cooperative and Preparatory										
States reporting programs	0	0	0	0	0	0	0	0	0	0
Teachers currently employed	-	-	-	-	-	-	-	-	-	-
States projecting demand	0	0	1	1	2	0	3	3	0	10
Demand mean score	-	-	2.0	2.0	2.5	-	2.0	2.0	-	2.1

*States not reporting were: Region I-Massachusetts; Region III-Kentucky

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 16

PROJECTED AREAS OF DISTRIBUTIVE EDUCATION WHICH WILL HAVE THE GREATEST NEED FOR NEW INSTRUCTORS IN THE FUTURE

AREA	No. States Total (N=41)
I By School or Age Level	
Secondary	37
Cooperative - 23	
Preparatory - 11	
Project - 3	
Post-Secondary	17
Cooperative - 3	
Project - 1	
Mid-Management - 13	
Adult Education	15
Part-time Evening Classes for Employed Adults - 15	

TABLE 16 (continued)

AREA	No. States Total (N=41)
II By Other Areas or Programs (no level indicated)	
Sales and Service (General)	13
Retail Program	10
Wholesale Program	3
Youth With Special Needs	1
Specialized Programs	13
Food Service - 3	
Technical Sales - 1	
Service Station Management - 2	
Finance - 1	
Industrial Sales - 1	
Real Estate - 1	
Hotel and Motel - 1	
Foreign Trade - 1	
Insurance Underwriting - 1	
Special Areas - 1	
Total*	109

*Each state indicated two or three areas of greatest need, thereby giving the large total figure.

TABLE 17

THE DEMAND FOR FULL-TIME TEACHERS IN HEALTH OCCUPATIONS

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	7	4	5	5	46
States reporting programs	5	4	5	6	5	7	4	5	5	46
Teachers employed in 1965	54	658	193	270	406	241	109	61	117	2109
States reporting	5	4	4	6	5	6	4	4	3	41
Number of new and replacement teachers in 1965	16	67	51	58	64	36	42	10	20	364
States reporting	1	3	2	4	1	3	1	1	0	16
Number of unfilled teaching positions in 1965	1	16	3	10	6	13	8	2	-	59
States reporting	5	4	5	6	5	6	4	5	5	45
Projected number of teachers needed in 1968	71	835	220	380	684	349	109	94	215	2957

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region VII-Arkansas; Region IX-California, Hawaii

EMPLOYMENT AND DEMAND FOR TEACHERS IN HEALTH OCCUPATIONS BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	4	5	4	46
Dental Assistant										
States reporting programs	1	3	2	3	4	3	3	2	4	25
Teachers currently employed	2	10	8	9	19	4	4	3	122	181
States projecting demand	4	3	3	4	5	5	3	3	4	34
Demand mean score**	2.25	2.33	2.0	2.75	2.2	2.2	2.0	2.33	2.0	2.23
Dental Laboratory Assistant										
States reporting programs	1	1	2	1	0	0	0	0	1	6
Teachers currently employed	1	2	4	2	-	-	-	-	15	24
States projecting demand	1	2	3	2	3	3	2	1	3	20
Demand mean score	2.0	1.5	1.66	2.0	2.0	1.33	1.5	3.0	2.0	1.7
Medical Assistant										
States reporting programs	0	4	1	2	2	2	1	0	3	15
Teachers currently employed	-	14	2	3	12	3	1	-	64	99
States projecting demand	0	5	2	4	4	3	1	2	4	25
Demand mean score	-	2.4	1.5	2.25	2.0	2.0	3.0	3.0	2.0	2.2
Medical Laboratory Assistant										
States reporting programs	0	1	3	3	1	3	0	0	1	12
Teachers currently employed	-	1	6	4	2	5	-	-	1	19
States projecting demand	2	2	4	3	4	4	3	1	2	25
Demand mean score	2.5	1.5	1.75	2.66	2.0	2.0	2.0	3.0	2.0	2.08
Medical Records Technician										
States reporting programs	0	0	0	1	0	0	0	0	1	2
Teachers currently employed	-	-	-	1	-	-	-	-	1	2
States projecting demand	0	0	0	1	0	1	0	0	1	3
Demand mean score	-	-	-	2.0	-	3.0	-	-	2.0	2.33
Nurses Aide										
States reporting programs	1	4	1	3	3	3	1	1	1	18
Teachers currently employed	3	27	1	8	6	31	7	1	36	120
States projecting demand	2	3	3	2	4	3	2	1	3	23
Demand mean score	2.5	2.0	1.33	2.5	2.0	1.66	2.5	3.0	2.33	2.08
Operating Room Assistant										
States reporting programs	0	0	2	4	1	0	1	0	2	10
Teachers currently employed	-	-	2	7	1	-	1	-	32	43
States projecting demand	0	2	2	2	3	3	2	3	2	19
Demand mean score	-	2.0	1.5	3.0	2.33	2.0	2.5	2.0	1.5	2.1
Practical Nurse - Vocational Nurse										
States reporting programs	5	4	5	6	4	7	4	5	6	46
Teachers currently employed	49	242	160	246	332	236	188	58	304	1815
States projecting demand	4	4	5	5	5	6	4	5	4	42
Demand mean score	2.5	3.0	2.4	2.8	2.8	2.33	2.5	1.6	1.75	2.4
Professional Nurse										
States reporting programs	0	0	3	0	0	0	0	0	3	6
Teachers currently employed	-	-	5	-	-	-	-	-	794	799
States projecting demand	0	0	3	0	0	0	0	1	3	7
Demand mean score	-	-	2.33	-	-	-	-	3.0	2.66	2.57
X-Ray Technical										
States reporting programs	0	0	1	0	0	0	0	0	2	3
Teachers currently employed	-	-	2	-	-	-	-	-	14	16
States projecting demand	0	0	1	0	0	0	0	1	2	4
Demand mean score	-	-	2.0	-	-	-	-	3.0	2.0	2.25

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region VII-Arkansas; Region IX-California, Hawaii

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 18 (continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	4	5	5	46
Dispensing Optician Assistant										
States reporting programs	0	0	0	1	0	0	0	0	0	1
Teachers currently employed	-	-	-	1	-	-	-	-	-	1
States projecting demand	0	2	1	2	1	2	1	0	2	11
Demand mean score	-	1.0	1.0	1.0	2.0	1.5	1.0	-	1.5	1.27
Medical Records Technician										
States reporting programs	0	0	0	1	0	0	0	0	1	2
Teachers currently employed	-	-	-	1	-	-	-	-	1	2
States projecting demand	0	0	0	1	0	1	0	0	1	3
Demand mean score	-	-	-	2.0	-	3.0	-	-	2.0	2.33
Geriatric Nursing Assistant										
States reporting programs	0	0	0	1	0	0	0	0	0	1
Teachers currently employed	-	-	-	1	-	-	-	-	-	1
States projecting demand	0	0	0	1	2	0	0	0	0	3
Demand mean score	-	-	-	3.0	2.5	-	-	-	-	2.66
Physical Therapy Assistant										
States reporting programs	0	0	0	0	0	1	0	0	0	1
Teachers currently employed	-	-	-	-	-	1	-	-	-	1
States projecting demand	2	2	1	2	3	3	2	1	3	19
Demand mean score	3.0	1.5	2.0	1.5	2.33	2.0	1.5	2.0	2.33	2.05
Hospital Ward Clerk										
States reporting programs	0	0	1	0	0	0	0	0	0	1
Teachers currently employed	-	-	1	-	-	-	-	-	-	1
States projecting demand	0	0	1	0	0	0	0	2	0	3
Demand mean score	-	-	2.0	-	-	-	-	2.5	-	2.33

TABLE 19

PROJECTED AREAS OF HEALTH OCCUPATIONS WHICH WILL HAVE THE GREATEST NEED FOR NEW INSTRUCTORS IN THE FUTURE

AREA	No. States Total (N=43)
Practical Nursing	38
Dental Assistants	23
Medical Laboratory Assistant	11
Nurses Aide	10
Medical Assistant	10
Physical Therapist Assistant	7
Operating Room Assistant	6
Registered Nursing - Associate Degree (Technical Level)	6
Dental Laboratory Assistant	4
Home Health Aide	3
Medical Records Assistant	2
Basic programs	1
Specialist Aides	1
Medical Stenographer	1
X-Ray Technician	1
Optician	1
Food Service Worker	1
Cooperative Health Occupations	1
Total*	127

*Each state indicated two or three areas of greatest need, thereby giving the large total figure.

TABLE 20

THE DEMAND FOR FULL-TIME HIGH SCHOOL TEACHERS IN HOME ECONOMICS

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	6	5	5	6	47
States reporting programs	5	4	5	6	5	6	5	5	6	47
Teachers employed in 1965	600	5370	2408	3091	2691	2038	3220	617	821	20856
States reporting	5	4	5	6	5	4	5	5	6	45
Number of new and replacement teachers in 1965	96	471	293	501	512	195	723	204	182	3177
States reporting	0	1	3	2	2	1	1	1	3	14
Number of unfilled teaching positions in 1965	-	10	14	8	11	2	4	4	3	56
States reporting	5	4	5	6	5	6	5	5	6	47
Projected number of teachers needed in 1968	688	6335	2582	3559	3167	2184	3562	667	971	23715

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Revion VI-South Dakota; Region IX-California.

TABLE 21

EMPLOYMENT AND DEMAND FOR TEACHERS IN HOME ECONOMICS AT THE HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	6	5	5	6	47
Regular										
States reporting programs	5	4	5	5	5	6	5	5	6	46
Teachers currently employed	355	1819	2348	2745	2686	1546	3213	418	783	15913
States projecting demand	5	4	3	4	5	6	4	5	6	42
Demand mean score**	2.2	2.5	1.33	1.75	2.6	1.83	2.25	1.8	2.0	2.05
Food Services										
States reporting programs	4	3	3	2	3	8	2	2	2	29
Teachers currently employed	14	28	13	3	47	19	3	3	3	133
States projecting demand	3	3	2	3	5	7	4	3	3	33
Demand mean score	3.0	3.0	2.0	2.33	2.8	2.57	2.5	2.0	2.0	2.52
Clothing Services										
States reporting programs	0	1	2	1	3	5	2	0	0	14
Teachers currently employed	-	16	6	1	9	9	4	-	-	45
States projecting demand	0	1	1	3	3	5	3	1	0	17
Demand mean score	-	1.0	2.0	2.0	2.33	2.4	2.0	2.0	-	2.12
Child Care and Development										
States reporting programs	0	4	2	1	2	1	2	1	1	14
Teachers currently employed	-	7	3	1	7	7	4	2	2	35
States projecting demand	0	3	2	4	2	2	2	2	2	19
Demand mean score	-	3.0	2.0	2.25	3.0	2.5	3.0	2.5	2.0	2.53
Housekeeping Assistant										
States reporting programs	1	0	0	1	1	2	2	0	0	7
Teachers currently employed	2	-	-	1	2	9	3	-	-	17
States projecting demand	1	0	0	2	1	1	1	0	0	6
Demand mean score	2.0	-	-	2.0	2.0	2.0	3.0	-	-	2.16

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region VI-South Dakota; Region IX-California

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 21 (continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	6	5	5	6	47
Occupational Preparatory										
States reporting programs	0	0	1	1	2	0	0	1	1	6
Teachers currently employed	-	-	43	25	14	-	-	1	5	88
States projecting demand	0	0	0	0	2	0	1	1	1	5
Demand mean score	-	-	-	-	2.5	-	2.0	2.0	2.0	2.2
Special Needs										
States reporting programs	0	0	0	1	0	2	0	0	0	3
Teachers currently employed	-	-	-	2	-	6	-	-	-	8
States projecting demand	0	0	0	2	0	2	0	0	0	4
Demand mean score	-	-	-	2.0	-	2.5	-	-	-	2.25
Hotel-Motel Managers Aides										
States reporting programs	0	1	0	0	0	1	1	0	0	3
Teachers currently employed	-	2	-	-	-	1	1	-	-	4
States projecting demand	0	1	0	0	0	2	1	1	0	5
Demand mean score	-	2.0	-	-	-	1.5	3.0	2.0	-	2.0

TABLE 22

THE DEMAND FOR FULL-TIME POST HIGH SCHOOL TEACHERS
IN HOME ECONOMICS

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	6	5	5	6	47
States reporting programs	1	3	0	3	4	3	1	1	3	19
Teachers employed in 1965	10	603	-	60	102	160	4	13	143	1095
States reporting	1	1	1	0	1	1	0	0	1	6
Number of new and replacement teachers in 1965	1	27	2	-	25	2	-	-	4	61
States reporting	0	0	0	0	0	0	0	0	0	0
Number of unfilled teaching positions in 1965	-	-	-	-	-	-	-	-	-	-
States reporting	1	2	1	6	5	4	4	1	3	27
Projected number of teachers needed in 1968	12	872	10	268	188	199	48	18	201	1816

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region VI-South Dakota; Region IX-California.

TABLE 23

EMPLOYMENT AND DEMAND FOR TEACHERS IN HOME ECONOMICS AT THE POST HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	6	5	5	6	47
Regular Home Economics										
States reporting programs	1	3	0	2	4	3	1	1	3	18
Teachers currently employed	10	1482	0	15	101	163	4	13	143	1931
States projecting demand	2	3	2	3	3	4	3	3	4	27
Demand mean score**	1.0	2.0	1.5	2.33	2.0	1.75	2.33	2.0	2.0	1.92
Food Services										
States reporting programs	0	1	1	1	3	2	0	0	1	9
Teachers currently employed	-	2	2	4	6	2	-	-	1	17
States projecting demand	2	1	1	2	4	3	4	4	4	25
Demand mean score	2.0	2.0	2.0	3.0	2.25	2.66	2.75	2.5	2.0	2.4
Child Care and Development										
States reporting programs	0	1	0	1	1	0	0	1	3	7
Teachers currently employed	-	4	-	3	1	-	-	1	3	12
States projecting demand	1	2	1	3	2	1	2	2	3	17
Demand mean score	3.0	2.5	2.0	3.0	2.0	2.0	3.0	2.0	2.0	2.41
Housekeeping Assistant										
States reporting programs	0	3	0	1	0	1	0	0	0	5
Teachers currently employed	-	8	-	4	-	2	-	-	-	14
States projecting demand	0	0	0	0	0	1	1	0	1	3
Demand mean score	-	-	-	-	-	3.0	3.0	-	2.0	2.67
Visiting Homemaker										
States reporting programs	0	1	0	0	2	0	0	0	1	4
Teachers currently employed	-	2	-	-	3	-	-	-	4	9
States projecting demand	0	0	0	0	1	1	0	0	1	3
Demand mean score	-	-	-	-	3.0	2.0	-	-	3.0	2.67
Housing and Home Furnishing										
States reporting programs	0	0	0	0	0	0	0	0	0	0
Teachers currently employed	-	-	-	-	-	-	-	-	-	-
States projecting demand	0	0	1	1	2	1	1	0	0	6
Demand mean score	-	-	2.0	2.0	2.0	2.0	3.0	-	-	2.17
Clothing Services										
States reporting programs	0	0	0	0	0	0	0	0	0	0
Teachers currently employed	-	-	-	-	-	-	-	-	-	-
States projecting demand	0	0	1	1	4	2	3	0	0	11
Demand mean score	-	-	2.0	3.0	2.0	2.0	2.33	-	-	2.18
Junior College and Technical Programs										
States reporting programs	0	0	0	0	0	0	0	0	0	0
Teachers currently employed	-	-	-	-	-	-	-	-	-	-
States projecting demand	0	0	0	1	1	0	1	0	0	3
Demand mean score	-	-	-	2.0	3.0	-	2.0	-	-	2.33

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region VI-South Dakota; Region IX-California.

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 24

PROJECTED AREAS OF HOME ECONOMICS EDUCATION
WHICH WILL HAVE THE GREATEST NEED FOR NEW
INSTRUCTORS IN THE FUTURE

AREA	No. States Total (N=43)
Food Services	24
Homemaking	21
Child Care and Development	16
Wage Earning Occupations	8
Occupational Preparatory	6
Home Management	6
Adult Education	5
High School	4
Post High School	4
Clothing Services	4
Economics and Management	3
Junior High School	3
Human and Family Development	3
Visiting Homemaking	2
Technical Occupations - Commercial Colleges	3
State Supervisory Staff	1
Dietetic Aides	1
Interior Decorator	1
Home Nursing Aides	1
Motel Aides	1
Special Needs	1
Teacher Education	1
Homemakers Assistants	1
Other Areas	1
Total*	121

*Each state indicated two or three areas of greatest need, thereby giving the large total figure.

TABLE 25

THE DEMAND FOR FULL-TIME TEACHERS IN
TECHNICAL EDUCATION

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	6	5	5	6	47
States reporting programs	4	3	4	6	5	6	4	5	6	43
Teachers employed in 1965	110	292	164	563	637	333	359	131	728	3317
States reporting	1	2	4	6	5	6	4	4	6	38
Number of new and replacement teachers in 1965	2	12	28	158	106	50	51	19	137	563
States reporting	0	1	1	5	1	2	2	0	2	14
Number of unfilled teaching positions in 1965	-	4	3	26	5	4	7	-	14	63
States reporting	2	3	4	6	5	6	4	5	6	41
Projected number of teachers needed in 1968	65	411	236	793	1032	437	418	180	1059	4633

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region VI-Minnesota; Region IX-Hawaii

501 to 8

TABLE 26

EMPLOYMENT AND DEMAND FOR TEACHERS IN TECHNICAL EDUCATION BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	6	5	5	6	47
Data Processing and Computer Programming										
States reporting programs	0	2	1	0	2	1	0	0	1	7
Teachers currently employed	-	20	1	-	20	38	-	-	43	121
States projecting demand	0	2	1	0	2	1	0	0	1	7
Demand mean score**	-	2.5	2.0	-	3.0	2.0	-	-	3.0	2.57
Mechanical and Industrial Technology										
States reporting programs	1	1	3	5	3	2	0	1	1	17
Teachers currently employed	13	21	9	26	187	24	-	6	2	288
States projecting demand	1	1	3	5	3	2	0	1	1	17
Demand mean score	2.0	3.0	2.66	2.2	2.33	2.0	-	2.0	1.0	2.23
Mechanical Drafting and Design										
States reporting programs	2	3	3	5	0	2	5	2	3	25
Teachers currently employed	19	63	42	45	-	20	59	11	27	286
States projecting demand	3	3	3	5	0	2	5	2	3	26
Demand mean score	2.66	2.33	1.66	2.4	-	2.5	2.0	1.5	2.0	2.15
Metallurgical										
States reporting programs	0	2	0	0	2	0	0	1	0	5
Teachers currently employed	-	4	-	-	9	-	-	1	-	5
States projecting demand	0	2	0	0	2	0	0	1	0	5
Demand mean score	-	1.0	-	-	2.0	-	-	2.0	-	1.6
Electrical										
States reporting programs	2	2	2	3	2	1	2	1	1	16
Teachers currently employed	19	26	10	17	44	7	4	8	8	143
States projecting demand	3	2	2	3	2	1	1	1	1	16
Demand mean score	2.66	2.0	2.0	2.33	2.5	2.0	1.0	2.0	2.0	2.18
Electronics Engineering Technician										
States reporting programs	3	3	5	5	4	3	5	3	5	36
Teachers currently employed	29	69	81	91	44	64	105	50	52	585
States projecting demand	4	3	5	5	4	3	5	3	4	36
Demand mean score	2.5	2.66	2.6	2.2	2.75	2.33	2.0	2.33	2.25	2.38
Chemical Engineering Technician										
States reporting programs	1	2	3	3	2	1	0	1	0	13
Teachers currently employed	9	10	4	12	7	2	-	2	-	46
States projecting demand	3	2	3	3	2	1	0	1	0	15
Demand mean score	2.0	2.5	1.66	2.33	2.5	2.0	-	1.0	-	2.06
Data Processing										
States reporting programs	2	1	4	5	1	2	2	2	3	22
Teachers currently employed	10	2	18	29	4	33	87	12	6	201
States projecting demand	3	1	4	5	1	2	2	2	3	23
Demand mean score	3.0	2.0	2.75	2.4	2.0	2.5	3.0	2.5	3.0	2.65
Mechanical Engineering Technician										
States reporting programs	1	1	1	0	0	0	0	0	1	4
Teachers currently employed	4	1	18	-	-	-	-	-	1	24
States projecting demand	2	1	1	1	0	0	0	0	1	6
Demand mean score	2.5	1.0	2.0	2.0	-	-	-	-	3.0	2.17

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region VI-Minnesota; Region IX-Hawaii

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 26 (continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	6	5	5	6	47
Civil Engineering Technician										
States reporting programs	1	0	2	3	3	3	3	2	3	20
Teachers currently employed	2	-	7	9	9	11	10	5	17	70
States projecting demand	1	0	2	3	3	4	3	3	2	21
Demand mean score	2.0	-	2.0	2.0	2.33	1.25	2.0	2.0	1.5	1.85
General Related										
States reporting programs	1	1	1	1	0	0	1	0	0	5
Teachers currently employed	8	2	12	10	-	-	27	-	-	59
States projecting demand	1	1	1	1	0	0	1	0	0	5
Demand mean score	3.0	1.0	2.0	1.0	-	-	2.0	-	-	1.8
Air Conditioning, Heating, and Refrigeration										
States reporting programs	0	1	3	0	0	2	2	0	0	8
Teachers currently employed	-	9	18	-	-	3	9	-	-	39
States projecting demand	0	1	3	0	0	2	2	0	0	8
Demand mean score	-	2.0	1.33	-	-	1.5	2.0	-	-	1.62
Instrumentation Technology										
States reporting programs	0	3	1	0	1	0	3	1	1	10
Teachers currently employed	-	5	1	-	1	-	11	2	3	23
States projecting demand	1	3	1	1	1	0	3	1	0	11
Demand mean score	3.0	2.0	2.0	2.0	2.0	-	2.33	2.0	-	2.18
Automotive										
States reporting programs	0	1	0	0	1	0	0	1	0	3
Teachers currently employed	-	1	-	-	5	-	-	5	-	11
States projecting demand	1	1	0	0	1	0	0	1	0	4
Demand mean score	3.0	2.0	-	-	2.0	-	-	2.0	-	2.25
Industrial Chemistry										
States reporting programs	2	1	0	0	0	0	1	0	0	4
Teachers currently employed	3	1	-	-	-	-	7	-	-	11
States projecting demand	1	1	0	0	0	0	1	0	0	3
Demand mean score	2.0	2.0	-	-	-	-	3.0	-	-	2.33
Architechtural Drafting and Estimating										
States reporting programs	0	0	0	0	2	1	0	0	0	3
Teachers currently employed	-	-	-	-	7	4	-	-	-	11
States projecting demand	0	0	0	0	0	1	0	0	0	1
Demand mean score	-	-	-	-	-	3.0	-	-	-	3.0
Industrial Technology										
States reporting programs	0	0	0	1	1	0	0	0	1	3
Teachers currently employed	-	-	-	4	3	-	-	-	129	136
States projecting demand	0	0	0	2	1	0	0	0	1	4
Demand mean score	-	-	-	2.0	3.0	-	-	-	3.0	2.5

TABLE 27

PROJECTED AREAS OF TECHNICAL EDUCATION WHICH WILL HAVE THE GREATEST NEED FOR NEW INSTRUCTORS IN THE FUTURE

AREA	No. States Total (N=38)
Electronics	25
Data Processing	17
Mechanical Technology	11
Drafting and Design	9
Instrumentation	7
Chemical Technician	7
Trade Education	4
Industrial Education	3
Health Occupations	3
Electrical	5
Technical Education	2
Refrigeration	2
Air Conditioning	2
Business and Office Occupations	2
Civil Engineering	3
Metalurgy	2
Metal Technology	1
Agriculture	1
Restaurant and Hotel Management	1
Architectural Drafting and Estimating	1
Highway Technology	1
Fluid Power	1
Mechanical Design	1
Total*	111

* Each state reported two or three areas of greatest need, thereby giving the large total figure.

TABLE 28

THE DEMAND FOR FULL-TIME HIGH SCHOOL TEACHERS IN TRADE AND INDUSTRIAL EDUCATION

	REGION									
	I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	7	5	5	6	48
States reporting programs	4	4	5	6	4	7	4	5	6	45
Teachers employed in 1965	195	3753	1351	1358	1258	509	882	229	1145	10680
States reporting	4	3	5	6	4	5	4	5	5	41
Number of new and replacement teachers in 1965	60	950	358	203	277	115	216	117	35	2331
States reporting	1	0	3	4	3	0	0	0	0	11
Number of unfilled teaching positions in 1965	2	-	43	36	20	-	-	-	-	101
States reporting	5	4	5	6	4	7	4	5	6	46
Projected number of teachers needed in 1968	464	4525	2447	1825	1963	601	1215	350	1470	15288

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region IX-Hawaii

TABLE 29

EMPLOYMENT AND DEMAND FOR TEACHERS IN TRADE AND INDUSTRIAL EDUCATION AT THE HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	5	5	6	48
Air Conditioning and Refrigeration										
States reporting programs	0	3	4	5	1	3	3	0	1	20
Teachers currently employed	-	47	11	30	1	6	12	-	2	109
States projecting demand	3	4	5	6	3	5	2	1	2	31
Demand mean score**	1.33	1.75	2.2	2.0	2.33	1.8	2.5	1.0	1.5	1.9
Aircraft Maintenance										
States reporting programs	1	2	2	1	3	2	2	1	2	16
Teachers currently employed	2	72	2	18	13	8	3	2	6	126
States projecting demand	3	2	2	5	3	3	2	2	2	24
Demand mean score	.66	.5	1.0	1.2	1.0	.66	2.0	1.0	1.0	.95
Auto (Body and Fender)										
States reporting programs	1	4	4	4	3	5	3	2	3	28
Teachers currently employed	1	53	15	15	36	20	21	1	4	166
States projecting demand	3	4	5	6	4	6	2	1	3	34
Demand mean score	1.66	2.0	2.0	2.16	2.25	1.66	2.0	2.0	1.66	1.94
Auto Mechanic										
States reporting programs	5	4	5	6	3	7	4	3	6	43
Teachers currently employed	61	466	113	174	160	92	195	52	77	1390
States projecting demand	5	4	5	6	4	7	2	4	4	41
Demand mean score	2.2	2.5	2.6	2.66	2.5	1.71	2.0	2.0	1.75	2.22
Baking										
States reporting programs	1	3	2	0	2	0	0	0	1	9
Teachers currently employed	2	21	2	-	3	-	-	-	1	29
States projecting demand	3	3	2	4	3	2	0	1	2	20
Demand mean score	1.0	1.0	1.5	1.25	2.0	1.0	-	1.0	1.5	1.3
Barbering										
States reporting programs	0	1	3	2	0	0	1	0	0	7
Teachers currently employed	-	1	6	2	-	-	1	-	-	10
States projecting demand	3	1	3	5	2	2	1	1	2	20
Demand mean score	.66	1.0	1.66	1.2	1.0	1.0	1.0	1.0	1.0	1.1
Building Trades and Construction Industry										
States reporting programs	1	0	2	0	1	0	1	0	0	5
Teachers currently employed	3	-	45	-	22	-	50	-	-	120
States projecting demand	1	0	0	0	0	0	1	0	0	2
Demand mean score	3.0	-	-	-	-	-	3.0	-	-	3.0
Carpentry										
States reporting programs	5	4	4	6	2	6	3	2	6	38
Teachers currently employed	50	307	84	164	18	38	65	16	24	766
States projecting demand	5	4	5	6	3	6	1	2	5	37
Demand mean score	2.0	1.5	2.4	2.0	1.66	1.66	2.0	2.5	1.6	1.89
Commercial Art										
States reporting programs	1	4	2	2	3	4	2	1	1	20
Teachers currently employed	1	127	4	10	15	16	11	3	1	188
States projecting demand	4	4	4	5	4	4	2	1	2	30
Demand mean score	1.25	1.75	1.75	1.4	2.0	1.25	1.5	2.0	2.0	1.6

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region IX-Hawaii

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 29 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	5	5	6	48
Commercial Food Preparation										
States reporting programs	3	3	4	4	3	2	2	0	0	21
Teachers currently employed	6	25	17	15	23	9	6	-	-	101
States projecting demand	4	3	4	6	4	3	1	1	2	28
Demand mean score	1.5	2.33	2.25	1.66	2.25	1.33	2.0	1.0	2.0	1.85
Cosmetology										
States reporting programs	2	4	4	5	3	3	3	0	2	26
Teachers currently employed	12	263	36	106	58	15	72	-	19	581
States projecting demand	3	4	4	6	4	3	2	1	3	30
Demand mean score	2.0	2.25	2.75	2.16	1.75	1.33	2.0	2.0	1.33	2.0
Diesel Mechanics										
States reporting programs	0	3	2	2	1	1	2	0	2	13
Teachers currently employed	-	16	5	3	2	1	3	-	4	34
States projecting demand	3	3	3	5	2	3	1	1	3	24
Demand mean score	.66	1.33	1.66	1.6	2.5	1.33	2.0	1.0	1.33	1.46
Drafting										
States reporting programs	3	4	5	6	3	6	3	2	3	34
Teachers currently employed	8	111	62	54	95	34	34	22	8	428
States projecting demand	5	4	5	6	4	6	2	1	4	37
Demand mean score	2.2	2.5	2.6	2.33	2.0	1.83	2.0	3.0	1.75	2.19
Dressmaking and Tailoring										
States reporting programs	2	4	4	5	3	3	3	0	1	25
Teachers currently employed	7	164	34	24	23	19	9	-	1	281
States projecting demand	3	4	5	6	4	4	2	1	2	31
Demand mean score	1.33	1.0	1.6	1.66	1.5	1.25	1.5	1.0	2.0	1.45
Electrical Appliance Repair										
States reporting programs	0	0	3	0	2	0	1	0	0	6
Teachers currently employed	-	-	6	-	11	-	3	-	-	20
States projecting demand	0	0	3	1	3	1	0	0	0	8
Demand mean score	-	-	2.0	2.0	2.33	1.0	-	-	-	2.0
Electrical - Industrial										
States reporting programs	1	3	4	6	3	2	1	1	4	25
Teachers currently employed	1	266	29	38	35	12	17	1	6	405
States projecting demand	2	3	4	6	4	3	1	1	4	28
Demand mean score	2.0	2.0	2.5	2.16	2.0	1.66	2.0	1.0	1.5	1.96
Electrical Lineman Training										
States reporting programs	1	1	0	0	1	0	0	0	0	3
Teachers currently employed	2	2	-	-	2	-	-	-	-	6
States projecting demand	1	1	0	3	3	3	0	1	2	14
Demand mean score	2.0	1.0	-	1.33	1.33	1.33	-	1.0	1.5	1.35
Electrical Wiring										
States reporting programs	4	3	2	2	3	2	1	0	0	17
Teachers currently employed	36	39	24	15	17	17	5	-	-	153
States projecting demand	4	3	3	5	3	3	1	1	1	24
Demand mean score	2.0	.66	2.66	1.8	2.0	1.33	2.0	2.0	1.0	1.75
Electronics										
States reporting programs	2	0	1	2	1	1	2	0	2	11
Teachers currently employed	8	-	19	25	13	5	17	-	3	90
States projecting demand	1	0	2	2	1	1	2	0	3	12
Demand mean score	3.0	-	3.0	2.0	3.0	2.0	2.0	-	2.33	2.41

ABLE 29 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Fireman Training										
States reporting programs	0	1	0	0	0	0	0	0	0	1
Teachers currently employed	-	2	-	-	-	-	-	-	-	2
States projecting demand	2	1	0	2	2	3	0	1	2	13
Demand mean score	1.0	1.0	-	1.0	1.5	1.0	-	1.0	1.5	1.14
Fishery										
States reporting programs	0	1	1	1	0	0	0	0	1	4
Teachers currently employed	-	30	3	1	-	-	-	-	1	35
States projecting demand	2	1	0	2	2	3	0	1	2	13
Demand mean score	1.0	1.0	-	1.0	1.5	1.0	-	1.0	1.5	1.14
Food Service Worker										
States reporting programs	0	4	1	0	2	1	1	0	0	9
Teachers currently employed	-	177	7	-	6	2	1	-	-	193
States projecting demand	4	4	1	4	3	2	0	1	2	21
Demand mean score	1.75	1.75	3.0	1.25	2.66	1.5	-	2.0	2.0	1.85
Foundry										
States reporting programs	0	0	0	1	2	0	0	0	0	3
Teachers currently employed	-	-	-	1	6	-	-	-	-	7
States projecting demand	0	0	0	1	3	0	0	0	0	4
Demand mean score	-	-	-	1.0	1.66	-	-	-	-	1.5
Furniture Industries										
States reporting programs	0	0	3	1	1	0	0	0	0	5
Teachers currently employed	-	-	27	1	2	-	-	-	-	30
States projecting demand	0	0	3	1	0	0	0	0	0	4
Demand mean score	-	-	1.0	1.0	-	-	-	-	-	1.0
Heavy Equipment										
States reporting programs	0	0	0	0	0	1	0	0	0	1
Teachers currently employed	-	-	-	-	-	1	-	-	-	1
States projecting demand	2	0	1	4	3	3	0	1	2	16
Demand mean score	.5	-	2.0	1.25	1.33	1.33	-	1.0	1.5	1.24
Industrial Cooperative Training										
States reporting programs	0	2	3	3	3	0	3	0	2	16
Teachers currently employed	-	85	206	214	136	-	157	-	8	806
States projecting demand	0	2	3	2	2	3	3	0	2	17
Demand mean score	-	2.5	3.0	3.0	3.0	2.0	2.0	-	2.5	2.53
Laundry and Dry Cleaning										
States reporting programs	0	0	1	2	0	0	1	0	0	4
Teachers currently employed	-	-	2	13	-	-	2	-	-	17
States projecting demand	0	0	1	2	1	0	1	0	0	5
Demand mean score	-	-	2.0	1.5	3.0	-	2.0	-	-	2.0
Machine Tool Operator										
States reporting programs	1	2	1	1	2	0	0	0	1	8
Teachers currently employed	2	8	7	2	48	-	-	-	1	68
States projecting demand	2	1	2	4	3	2	1	1	2	18
Demand mean score	1.0	2.0	3.0	2.0	2.66	1.5	2.0	1.0	2.0	2.0
Machine Shop										
States reporting programs	5	4	5	6	3	6	4	3	4	40
Teachers currently employed	61	267	69	72	140	68	21	7	38	743
States projecting demand	5	3	5	6	4	6	2	3	5	39
Demand mean score	1.6	1.66	2.2	2.33	2.0	2.16	2.5	1.66	1.6	1.97

TABLE 29 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Meat Cutter										
States reporting programs	0	1	0	0	1	0	0	1	0	3
Teachers currently employed	-	13	-	-	1	-	-	1	-	15
States projecting demand	1	1	1	4	3	2	0	1	1	14
Demand mean score	0.0	1.0	2.0	1.0	1.33	1.0	-	2.0	1.0	1.14
Mill and Cabinet Making										
States reporting programs	1	1	4	2	1	3	1	0	0	13
Teachers currently employed	1	4	34	18	9	9	15	-	-	90
States projecting demand	0	1	4	2	2	3	2	0	0	14
Demand mean score	-	2.0	1.75	2.5	2.0	1.33	1.0	-	-	1.71
Painting and Decorating										
States reporting programs	2	3	2	2	3	1	0	0	1	14
Teachers currently employed	4	25	6	3	3	1	-	-	2	44
States projecting demand	3	2	2	5	4	2	0	1	2	21
Demand mean score	1.33	.5	2.0	1.2	1.5	1.0	-	1.0	1.0	1.24
Photography										
States reporting programs	0	2	0	1	0	1	2	0	2	8
Teachers currently employed	-	19	-	1	-	1	8	-	2	8
States projecting demand	2	2	1	5	2	3	2	1	1	19
Demand mean score	.5	1.5	2.0	1.0	1.5	1.0	1.5	1.0	1.0	1.16
Plumbing										
States reporting programs	1	3	4	1	1	1	2	0	2	17
Teachers currently employed	8	32	15	2	1	3	3	-	3	67
States projecting demand	3	3	4	5	2	3	2	1	3	26
Demand mean score	1.0	.66	2.25	1.8	1.0	1.0	2.0	2.0	1.0	1.42
Printing										
States reporting programs	5	4	5	4	3	5	3	2	3	34
Teachers currently employed	18	200	31	15	59	37	33	2	13	408
States projecting demand	5	3	5	5	4	5	2	1	4	34
Demand mean score	2.0	1.33	2.2	2.0	1.75	1.6	1.5	2.9	1.75	1.82
Radio and TV Maintenance										
States reporting programs	3	4	4	4	3	4	2	1	3	28
Teachers currently employed	7	134	19	37	14	16	33	19	5	284
States projecting demand	3	3	3	5	4	6	1	1	4	30
Demand mean score	2.0	2.33	2.66	2.4	2.0	1.66	3.0	3.0	1.75	2.13
Sheet Metal										
States reporting programs	5	4	4	6	2	4	2	0	3	30
Teachers currently employed	11	68	14	25	10	14	3	-	11	156
States projecting demand	5	3	4	6	4	5	2	1	4	34
Demand mean score	1.6	1.0	1.75	2.16	1.5	1.6	2.5	2.0	1.25	1.67
Shoe Repairing										
States reporting programs	0	3	3	4	2	1	1	0	0	14
Teachers currently employed	-	7	8	10	2	6	1	-	-	34
States projecting demand	3	2	3	5	4	3	1	1	1	23
Demand mean score	.66	.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	.91
Small Engine Repair										
States reporting programs	2	2	1	4	2	2	1	0	1	15
Teachers currently employed	3	15	2	20	2	8	1	-	1	52
States projecting demand	5	1	2	6	4	4	1	1	2	26
Demand mean score	2.0	2.0	3.0	2.16	1.75	1.75	2.0	1.0	1.0	1.92

TABLE 29 (continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Surveying										
States reporting programs	0	1	0	1	0	0	0	0	0	2
Teachers currently employed	-	1	-	3	-	-	-	-	-	4
States projecting demand	1	2	1	5	2	2	0	1	2	16
Demand mean score	0.0	1.5	2.0	1.0	1.5	1.5	-	1.0	1.0	1.19
Textile										
States reporting programs	1	0	1	1	0	0	0	0	0	3
Teachers currently employed	1	-	1	13	-	-	-	-	-	15
States projecting demand	1	0	1	1	0	0	0	0	0	3
Demand mean score	2.0	-	2.0	2.0	-	-	-	-	-	2.0
Trowel Trades										
States reporting programs	1	4	5	6	1	0	2	0	0	19
Teachers currently employed	2	28	143	122	1	-	3	-	-	299
States projecting demand	3	3	5	6	2	2	2	1	2	26
Demand mean score	1.0	1.66	2.0	2.33	1.0	1.0	2.0	1.0	1.0	1.65
Upholstery										
States reporting programs	0	0	1	2	1	0	1	0	1	6
Teachers currently employed	-	-	1	4	1	-	4	-	2	12
States projecting demand	0	0	2	2	1	1	1	0	1	8
Demand mean score	-	-	1.5	1.5	1.0	1.0	2.0	-	1.0	1.37
Watchmaking and Jewelry										
States reporting programs	0	1	0	0	0	0	0	0	0	1
Teachers currently employed	-	22	-	-	-	-	-	-	-	22
States projecting demand	2	1	0	5	2	2	0	1	2	15
Demand mean score	.5	1.0	-	1.0	1.0	1.0	-	1.0	1.0	.93
Welding										
States reporting programs	1	4	5	6	3	4	4	1	3	31
Teachers currently employed	1	47	27	19	42	22	19	8	8	193
States projecting demand	4	3	5	6	4	4	2	1	4	33
Demand mean score	1.25	1.66	2.6	2.16	2.25	2.0	2.0	2.0	2.0	2.03
Other Construction and Maintenance Trades										
States reporting programs	1	0	2	0	0	0	0	0	0	3
Teachers currently employed	2	-	13	-	-	-	-	-	-	15
States projecting demand	1	0	2	0	1	0	0	0	0	4
Demand mean score	3.0	-	2.0	-	1.0	-	-	-	-	2.0
Other Industrial Occupations										
States reporting programs	0	1	1	0	0	1	0	0	0	3
Teachers currently employed	-	40	10	-	-	1	-	-	-	51
States projecting demand	0	1	0	0	0	0	0	0	0	1
Demand mean score	-	3.0	-	-	-	-	-	-	-	3.0
Other Metal-Working Occupations										
States reporting programs	0	0	1	1	0	0	1	0	0	3
Teachers currently employed	-	-	2	2	-	-	43	-	-	47
States projecting demand	0	0	1	2	0	0	1	0	0	4
Demand mean score	-	-	2.0	2.0	-	-	2.0	-	-	2.0

TABLE 30

THE DEMAND FOR FULL-TIME POST HIGH SCHOOL TEACHERS IN TRADE AND INDUSTRIAL EDUCATION

	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting*	5	4	5	6	5	7	5	5	6	48
States reporting programs	2	3	3	5	3	7	4	5	5	37
Teachers employed in 1965	76	713	285	646	388	381	329	176	2915	5906
States reporting	3	2	2	5	1	4	3	4	4	28
Number of unfilled teaching positions in 1965	13	60	31	106	5	43	60	21	119	458
States reporting	0	1	1	4	0	1	0	1	1	9
Number of unfilled teaching positions in 1965	-	5	6	24	-	2	-	1	1	39
States reporting	3	4	4	5	4	7	5	5	6	43
Projected number of teachers needed in 1968	190	1770	415	1207	439	565	399	229	3491	7705

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region IX-Hawaii

TABLE 31

EMPLOYMENT AND DEMAND FOR TEACHERS IN TRADE AND INDUSTRIAL EDUCATION AT THE POST HIGH SCHOOL LEVEL BY INSTRUCTIONAL AREA

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Air Conditioning and Refrigeration										
States reporting programs	0	2	1	5	2	3	2	1	1	17
Teachers currently employed	-	9	6	36	5	11	12	2	12	93
States projecting demand	3	2	2	5	3	5	4	1	2	27
Demand mean score**	1.33	2.0	2.5	3.0	2.0	2.4	2.25	3.0	1.5	2.26
Aircraft Maintenance										
States reporting programs	0	2	2	6	1	2	0	1	2	16
Teachers currently employed	-	5	5	21	4	6	-	2	67	110
States projecting demand	3	0	2	6	1	3	1	2	3	21
Demand mean score	1.0	-	1.0	2.0	3.0	1.66	3.0	1.5	1.33	1.59
Auto (Body and Fender)										
States reporting programs	1	2	1	5	1	5	2	2	3	22
Teachers currently employed	1	36	6	23	4	21	7	7	44	149
States projecting demand	3	2	2	5	3	7	3	2	3	30
Demand mean score	1.33	2.5	1.0	2.6	1.66	1.85	2.0	2.0	1.66	1.9
Auto Mechanics										
States reporting programs	2	2	2	5	2	6	5	4	4	32
Teachers currently employed	11	170	26	69	34	74	49	31	137	601
States projecting demand	4	2	2	5	4	7	4	4	3	35
Demand mean score	2.5	2.5	1.5	3.0	2.0	2.0	2.0	1.75	2.0	2.17

*States not reporting were: Region I-Massachusetts; Region III-Kentucky; Region IX-Hawaii

**Demand mean score is a calculated regional average of the projected trend in demand for teachers over the next three-year period where 3=substantial increase; 2=moderate increase; 1=remain the same; 0=decrease in demand.

TABLE 31 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region*	5	4	5	6	5	7	5	5	6	48
Baking										
States reporting programs	0	2	1	2	1	1	2	0	2	11
Teachers currently employed	-	33	1	3	1	5	2	-	14	59
States projecting demand	3	1	1	4	3	2	2	2	2	20
Demand mean score	1.66	1.0	1.0	2.0	1.33	1.5	2.0	2.0	1.5	1.65
Barbering										
States reporting programs	1	0	2	4	1	1	2	1	1	13
Teachers currently employed	2	-	5	11	8	2	3	1	3	35
States projecting demand	3	0	2	5	1	2	2	1	1	17
Demand mean score	.66	-	1.0	1.8	2.0	1.0	1.5	1.0	2.0	1.35
Cabinet Maker										
States reporting programs	0	1	2	2	0	1	0	0	0	6
Teachers currently employed	-	2	3	11	-	1	-	-	-	17
States projecting demand	0	0	2	2	1	3	0	0	0	8
Demand mean score	-	-	1.0	2.0	2.0	1.33	-	-	-	1.5
Carpentry										
States reporting programs	2	2	1	3	2	3	3	2	3	21
Teachers currently employed	6	26	10	5	19	23	7	5	34	135
States projecting demand	3	1	2	4	3	6	3	1	3	26
Demand mean score	1.0	2.0	1.5	2.5	1.33	2.0	1.66	2.0	1.33	1.73
Commercial Art										
States reporting programs	0	1	0	1	1	2	0	1	4	10
Teachers currently employed	-	4	-	2	4	3	-	3	26	42
States projecting demand	3	1	1	5	3	3	1	1	2	20
Demand mean score	.66	3.0	1.0	2.0	1.66	1.66	1.0	2.0	1.5	1.6
Commercial Food Preparation										
States reporting programs	0	2	1	4	1	1	1	1	3	14
Teachers currently employed	-	29	3	12	5	4	1	1	41	96
States projecting demand	4	1	2	5	3	4	2	2	3	26
Demand mean score	1.5	3.0	1.5	2.0	2.0	1.5	2.0	2.5	2.33	1.92
Cosmetology										
States reporting programs	0	2	2	4	1	2	3	3	2	19
Teachers currently employed	-	5	18	63	5	16	6	7	99	219
States projecting demand	3	1	2	5	4	4	4	2	2	27
Demand mean score	2.0	3.0	2.0	2.2	1.5	1.5	1.75	1.5	2.0	1.85
Diesel Mechanics										
States reporting programs	0	2	1	5	1	3	3	2	3	20
Teachers currently employed	-	29	1	10	2	8	8	6	15	79
States projecting demand	3	2	2	5	2	6	3	2	3	28
Demand mean score	2.0	1.5	2.0	2.4	1.5	2.0	2.0	2.0	2.0	2.0
Drafting										
States reporting programs	3	2	2	4	2	4	3	2	4	26
Teachers currently employed	6	47	11	26	3	16	12	6	51	178
States projecting demand	3	2	2	5	4	6	4	2	3	31
Demand mean score	2.33	2.5	2.5	3.0	1.75	1.83	2.0	1.5	2.0	2.16
Dressmaking and Tailoring										
States reporting programs	0	2	2	3	0	1	2	1	2	13
Teachers currently employed	-	12	6	7	-	2	2	2	9	40
States projecting demand	3	1	2	5	4	4	4	1	2	26
Demand mean score	.66	1.0	1.5	1.8	1.0	1.25	1.5	1.0	1.5	1.31

TABLE 31 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Electric Appliance Repair										
States reporting programs	0	0	2	1	0	1	2	0	0	6
Teachers currently employed	-	-	13	4	-	3	2	-	-	22
States projecting demand	0	0	2	1	1	1	1	0	0	6
Demand mean score	-	-	1.0	3.0	2.0	2.0	2.0	-	-	1.66
Electrical - Industrial										
States reporting programs	1	1	2	5	2	2	2	2	2	19
Teachers currently employed	2	7	16	29	14	17	5	5	27	122
States projecting demand	3	0	2	5	4	3	3	2	3	25
Demand mean score	2.33	-	1.0	2.4	1.75	2.33	2.0	1.5	2.0	2.0
Electrical - Linemen Training										
States reporting programs	0	2	0	1	2	3	2	0	1	11
Teachers currently employed	-	3	-	3	5	9	6	-	1	27
States projecting demand	1	1	0	4	3	4	2	1	1	17
Demand mean score	3.0	1.0	-	2.0	1.33	1.75	1.5	1.0	1.0	1.64
Electrical Wiring										
States reporting programs	0	2	1	1	2	1	1	0	2	10
Teachers currently employed	-	20	7	2	7	6	8	-	11	61
States projecting demand	3	1	1	5	3	3	2	1	2	21
Demand mean score	2.0	1.0	2.0	2.0	1.33	1.66	2.0	1.0	1.5	1.71
Electronics										
States reporting programs	1	0	0	2	1	0	0	0	1	5
Teachers currently employed	4	-	-	19	28	-	-	-	3	54
States projecting demand	1	0	1	2	1	1	1	0	1	8
Demand mean score	3.0	-	3.0	2.5	2.0	2.0	2.0	-	2.0	2.37
Fireman Training										
States reporting programs	0	0	1	1	2	3	2	2	3	14
Teachers currently employed	-	-	3	4	3	9	9	3	9	40
States projecting demand	1	0	1	4	3	4	2	4	3	22
Demand mean score	2.0	-	1.0	1.75	1.66	1.5	1.5	1.75	3.0	1.82
Fishery										
States reporting programs	0	0	0	0	0	0	0	0	2	2
Teachers currently employed	-	-	-	-	-	-	-	-	5	5
States projecting demand	2	0	0	4	2	2	0	1	1	12
Demand mean score	2.0	-	-	1.25	1.0	1.5	-	1.0	2.0	1.41
Food Service Worker (Includes Waiter/Waitress)										
States reporting programs	0	2	0	1	0	0	0	1	2	6
Teachers currently employed	-	11	-	8	-	-	-	1	16	36
States projecting demand	2	1	1	4	2	4	1	2	3	20
Demand mean score	1.0	1.0	2.0	1.5	2.0	2.0	2.0	2.0	2.0	1.75
Heavy Equipment Operator										
States reporting programs	0	1	0	1	3	0	2	0	3	13
Teachers currently employed	-	2	-	3	6	-	2	-	4	21
States projecting demand	2	1	0	4	3	4	3	1	2	20
Demand mean score	1.5	1.0	-	1.5	1.33	1.75	2.0	3.0	1.5	1.65
Industrial Sewing										
States reporting programs	0	0	1	1	1	0	1	1	0	5
Teachers currently employed	-	-	2	2	1	-	1	1	-	7
States projecting demand	0	0	1	3	0	0	1	1	0	6
Demand mean score	-	-	2.0	1.66	-	-	2.0	1.0	-	1.66

TABLE 31 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Law Enforcement										
States reporting programs	0	0	1	1	3	0	2	3	3	13
Teachers currently employed	-	-	1	1	3	-	4	4	169	182
States projecting demand	1	0	1	5	4	2	1	3	4	21
Demand mean score	2.0	-	2.0	1.2	1.75	.5	2.0	2.33	2.75	2.05
Machine Tool Operator										
States reporting programs	0	2	1	1	1	0	0	0	0	5
Teachers currently employed	-	105	1	3	2	-	-	-	-	111
States projecting demand	1	0	1	4	1	3	1	1	1	13
Demand mean score	3.0	-	3.0	2.0	3.0	1.66	3.0	1.0	2.0	2.15
Machine Shop										
States reporting programs	3	2	1	5	1	5	3	2	3	25
Teachers currently employed	6	73	15	38	48	39	21	8	111	359
States projecting demand	4	2	2	5	2	7	4	1	3	30
Demand mean score	2.25	2.0	2.5	2.6	2.0	2.14	2.25	1.0	1.66	2.17
Meat Cutter										
States reporting programs	0	1	0	1	1	0	0	0	0	3
Teachers currently employed	-	10	-	2	1	-	-	-	-	13
States projecting demand	1	0	0	4	1	3	0	1	0	10
Demand mean score	2.0	-	-	1.25	2.0	1.33	-	1.0	-	1.4
Office Machine Repair										
States reporting programs	0	0	0	2	0	0	0	1	0	3
Teachers currently employed	-	-	-	3	-	-	-	3	-	6
States projecting demand	0	0	0	2	0	0	0	1	0	3
Demand mean score	-	-	-	2.0	-	-	-	2.0	-	2.0
Painting and Decorating										
States reporting programs	0	1	1	2	2	0	0	0	2	8
Teachers currently employed	-	4	3	3	4	-	-	-	5	19
States projecting demand	3	1	1	5	1	4	0	1	2	18
Demand mean score	.66	1.0	2.0	1.6	2.0	1.5	-	2.0	1.5	1.44
Photography										
States reporting programs	0	1	0	2	1	0	0	0	2	6
Teachers currently employed	-	1	-	2	2	-	-	-	22	27
States projecting demand	2	0	1	5	1	5	0	1	3	18
Demand mean score	1.5	-	2.0	1.2	2.0	1.4	-	2.0	2.0	1.56
Plumbing										
States reporting programs	0	2	1	1	2	2	1	0	1	10
Teachers currently employed	-	16	12	1	12	2	1	-	6	50
States projecting demand	3	1	2	5	2	5	2	1	1	22
Demand mean score	.66	2.0	1.5	1.8	1.5	1.4	2.5	2.0	1.0	1.54
Printing										
States reporting programs	0	2	2	3	2	2	3	2	2	18
Teachers currently employed	-	46	12	9	21	19	3	4	33	147
States projecting demand	3	1	2	5	2	7	4	1	2	27
Demand mean score	1.33	2.0	2.0	2.2	1.5	1.71	1.5	2.0	2.0	1.78
Radio and TV Maintenance										
States reporting programs	0	2	2	4	1	5	3	1	3	21
Teachers currently employed	-	11	9	38	2	30	13	1	47	151
States projecting demand	1	2	2	5	2	7	3	2	3	27
Demand mean score	2.0	2.0	1.5	2.6	1.5	1.85	2.0	2.0	2.0	2.0

TABLE 31 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Related Instruction										
States reporting programs	0	0	1	1	0	0	1	1	0	4
Teachers currently employed	-	-	18	2	-	-	17	8	-	45
States projecting demand	0	0	1	1	0	0	1	1	0	4
Demand mean score	-	-	2.0	2.0	-	-	2.0	2.0	-	2.0
Sheet Metal										
States reporting programs	2	2	2	2	2	2	1	1	2	16
Teachers currently employed	2	41	5	4	9	5	2	2	14	84
States projecting demand	4	1	2	5	2	6	2	1	1	24
Demand mean score	2.0	1.0	1.0	2.2	1.5	1.5	2.5	2.0	1.0	1.75
Shoe Repairing										
States reporting programs	0	2	2	2	2	1	0	0	1	10
Teachers currently employed	-	4	2	2	3	1	-	-	10	22
States projecting demand	3	1	2	5	2	3	0	1	1	18
Demand mean score	1.0	1.0	1.0	1.4	1.0	1.0	-	1.0	1.0	1.11
Small Engine Repair										
States reporting programs	0	1	1	4	0	2	1	0	0	9
Teachers currently employed	-	5	3	7	-	2	1	-	-	18
States projecting demand	3	1	1	5	2	4	2	1	1	20
Demand mean score	.66	1.0	2.0	2.2	1.5	1.5	2.0	1.0	3.0	1.65
Supervisory Training										
States reporting programs	0	0	1	0	0	1	2	0	0	4
Teachers currently employed	-	-	3	-	-	1	10	-	-	14
States projecting demand	0	0	1	0	0	0	2	0	0	3
Demand mean score	-	-	1.0	-	-	-	2.0	-	-	1.66
Surveying										
States reporting programs	0	0	0	1	2	1	1	1	1	7
Teachers currently employed	-	-	-	1	5	1	1	1	1	10
States projecting demand	1	0	0	5	2	2	1	1	9	13
Demand mean score	2.0	-	-	1.0	1.5	1.5	1.0	2.0	2.0	1.46
Tool and Die										
States reporting programs	0	1	0	1	1	0	0	0	0	3
Teachers currently employed	-	3	-	1	3	-	-	-	-	7
States projecting demand	1	0	0	1	1	0	0	0	0	3
Demand mean score	2.0	-	-	2.0	3.0	-	-	-	-	2.33
Trowel Trades										
States reporting programs	1	1	2	4	2	1	1	0	0	12
Teachers currently employed	1	6	11	20	9	1	1	-	-	49
States projecting demand	3	2	2	5	2	3	2	1	1	21
Demand mean score	1.0	2.0	2.0	2.0	2.0	1.66	1.5	1.0	1.0	1.67
Upholstery										
States reporting programs	0	0	1	2	1	1	1	1	0	7
Teachers currently employed	-	-	4	6	5	1	1	1	-	18
States projecting demand	0	0	1	2	0	1	2	1	0	7
Demand mean score	-	-	1.0	2.0	-	2.0	2.0	1.0	-	1.71
Watchmaking										
States reporting programs	0	0	1	4	1	1	2	0	2	11
Teachers currently employed	-	-	1	7	1	1	2	-	4	16
States projecting demand	1	0	1	5	1	3	2	1	2	16
Demand mean score	0.0	-	1.0	1.4	1.0	1.33	2.0	1.0	1.5	1.25

TABLE 31 (Continued)

INSTRUCTIONAL AREA	REGION I	II	III	IV	V	VI	VII	VIII	IX	TOTAL
States reporting by region	5	4	5	6	5	7	5	5	6	48
Welding										
States reporting programs	2	2	2	5	1	4	3	2	4	25
Teachers currently employed	3	69	18	24	14	13	38	12	70	261
States projecting demand	3	2	2	5	1	5	4	2	4	28
Demand mean score	2.33	3.0	2.5	2.4	3.0	2.4	2.0	1.5	2.25	2.32

TABLE 32

PROJECTED AREAS OF TRADE AND INDUSTRIAL EDUCATION WHICH WILL HAVE THE GREATEST NEED FOR NEW INSTRUCTORS IN THE FUTURE

Area	No. States Total (N=43)
Automotive	
Auto Mechanics	21
Auto Body Repair	5
Metal Trades	
Machine Shop	16
Welding	13
Electronics	12
Construction and Maintenance Trades	
Building Trades	9
Electrical Trades	9
Carpentry	1
Brick Layer	1
Air Conditioning, Refrigeration and Heating	6
Drafting	5
Cooperative Program Coordinator	6
Cosmetology	3
Other Service Occupations	8
Other Areas	2
Total*	117

* Each state reported two or three areas of greatest need, thereby giving the large total figure.

American Vocational Association, Inc.
1025 Fifteenth Street, N. W., Washington, D. C. 20005

_____
State Director of Vocational Education

_____
_____

Dear _____:

As you know so well, there is a great demand for teachers in the area of vocational and technical education. We need your assistance in determining the magnitude of this problem and to pinpoint the most critical areas. State Directors of Vocational and Technical Education and leaders in the AVA were greatly concerned at the time Public Law 88-210 was signed as to the possibility of obtaining well-trained teaching personnel. From recent reports and comments gathered from many states, our concern was well founded; there are more teaching positions than we can possibly fill with the current supply of teachers.

The AVA is cooperating in a research study sponsored by The Center for Vocational and Technical Education at The Ohio State University. The preliminary study will, to a degree, determine answers to the following questions: Where and in what specific fields are the most vital needs? Where are the best manpower pools of trained personnel? With your help we hope to answer the first question concerning the critical need areas.

We are enclosing a questionnaire which is of pressing importance to this study. The forms may not agree completely with your standard reporting procedures, as each state program varies considerably. However, we hope you will add comments where necessary and complete as much of the questionnaire as possible.

We are also cognizant of the fact that many of the projected figures will be shrewd guesswork. On the other hand, the state supervisors in your office are in a much better position to make these estimates than are our best statisticians.

The questionnaire has been designed in separate sections to facilitate your asking the various supervisors on your staff to complete the segment for their area. We would hope, however, that you would reassemble the forms and return them as a group to:

The Center for Vocational-Technical Education
The Ohio State University
980 Kinnear Road
Columbus 12, Ohio

Thank you for your assistance and efforts in behalf of this study.

Sincerely yours,

Lowell A. Burkett
Assistant Executive Secretary

LAB:plj
Enclosures

APPENDIX C

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY
980 KINNEAR ROAD, COLUMBUS, OHIO

The Demand for Full-Time Teachers in

AGRICULTURAL EDUCATION

	High School	Post High School
Total number of full-time teachers* employed--September, 1965	___	___
Projected number of full-time teachers needed in September, 1968	___	___
Number of beginning (new and replacement) full-time teachers placed in teaching positions in 1965	___	___
Number of unfilled full-time teaching positions existing as of September, 1965	___	___

PROJECTED TREND in demand for teachers for the next three (3) years.

++ Substantial Increase
\+ Moderate Increase
o Same
\- Decrease

TEACHING AREA	Number of Full-Time Teachers CURRENTLY EMPLOYED. High School	Post High School	High School	Post High School
Regular Vocational Agriculture Program	___	___	___	___
Special Agriculture Programs				
Horticulture	___	___	___	___
Forestry	___	___	___	___
Agriculture Mechanics	___	___	___	___
Farm Management	___	___	___	___
Others (List)				
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___

The three areas of AGRICULTURE EDUCATION which will have the greatest need for new instructors in the future are:

1. _____
2. _____
3. _____

*A full-time instructor should spend over 50 percent of his time teaching agricultural subjects and be under a regular contract for the school year.

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY
980 KINNEAR ROAD, COLUMBUS, OHIO

The Demand for Full-Time Teachers in

BUSINESS AND OFFICE OCCUPATIONS EDUCATION

	High School	Post High School
Total number of full-time teachers employed--September, 1965	___	___
Projected number of full-time teachers needed in September, 1968	___	___
Number of beginning (new and replacement) full-time teachers placed in teaching positions in 1965	___	___
Number of unfilled full-time teaching positions existing as of September, 1965	___	___

PROJECTED TREND in demand for teachers for the next three (3) years.

++ Substantial increase
+ Moderate Increase
o Same
- Decrease

TEACHING AREA	Number of full-time Teachers CURRENTLY EMPLOYED.			
	High School	Post High School	High School	Post High School
Accounting, Bookkeeping, Recordkeeping	___	___	___	___
Typewriting	___	___	___	___
Shorthand-Transcription	___	___	___	___
Office-Clerical Practice (Including Office Machines and Filing)	___	___	___	___
General Business Subjects (General Business, Business Principles, Business Law, Business Mathematics, and Business Correspondence)	___	___	___	___
Data Processing	___	___	___	___
Other Business and Office Occupations Education (List)				
_____	___	___	___	___
_____	___	___	___	___

The three areas of BUSINESS AND OFFICE OCCUPATIONS EDUCATION which will have the greatest need for new instructors in the future are:

1. _____

2. _____

3. _____

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY
980 KINNEAR ROAD, COLUMBUS, OHIO

The Demand for Full-Time Teachers in

DISTRIBUTIVE EDUCATION

	High School	Post High School
Total number of full-time teachers employed--September, 1965	___	___
Projected number of full-time teachers needed in September, 1968	___	___
Number of beginning (new and replacement) full-time teachers placed in teaching positions in 1965	___	___
Number of unfilled teaching full-time vacancies existing as of September, 1965	___	___

PROJECTED TREND in demand for teachers for the next three (3) years.

++ Substantial Increase
+ Moderate Increase
o Same
- Decrease

TEACHING AREAS (List Specific Titles if Appropriate)	Number of full-time Teachers CURRENTLY EMPLOYED.			
	High School	Post High School	High School	Post High School
RETAIL (Total)				
Special Areas:				
_____	___	___	___	___
_____	___	___	___	___
WHOLESALE (Total)				
Special Areas:				
_____	___	___	___	___
_____	___	___	___	___
SALES AND SERVICE (Total)				
Special Areas:				
_____	___	___	___	___
_____	___	___	___	___
OTHER DISTRIBUTIVE EDUCATION (List)_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___

The three areas of DISTRIBUTIVE EDUCATION which will have the greatest need for new instructors in the future are:

1. _____
2. _____
3. _____

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY
980 KINNEAR ROAD, COLUMBUS, OHIO

The Demand for Full-Time Teachers in

HEALTH OCCUPATIONS

Total number of full-time teachers employed--September, 1965 _____

Projected number of full-time teachers needed in September, 1968 _____

Number of beginning (new) full-time teachers placed in teaching positions in 1965 _____

Number of unfilled full-time teaching vacancies existing as of September, 1965 _____

TEACHING AREA	Number of full-time Teachers CURRENTLY EMPLOYED	PROJECTED TREND in demand for teachers for the next three (3) years. ++ Substantial Increase; + Moderate Increase; o Same; - Decrease
Dental Assistant	_____	_____
Dental Lab Assistant	_____	_____
Dispensing Optician Assistant	_____	_____
Medical Assistant	_____	_____
Medical Lab Assistant	_____	_____
Nurses Aide	_____	_____
Operating Room Assistant	_____	_____
Physical Therapy Assistant	_____	_____
Practical Nurse	_____	_____
Other Health Occupations (Specify)		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

The three areas of HEALTH OCCUPATIONS which will have the greatest need for new instructors in the future are:

1. _____
2. _____
3. _____

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY
980 KINNEAR ROAD, COLUMBUS, OHIO

The Demand for Full-Time Teachers in

HOME ECONOMICS

	High School	Post High School
Total number of full-time teachers employed--September, 1965	____	____
Projected number of full-time teachers needed in September, 1968	____	____
Number of beginning (new and replacement) full-time teachers placed in teaching positions in 1965	____	____
Number of unfilled full-time teaching vacancies existing as of September, 1965	____	____

PROJECTED TREND in demand for teachers for the next three (3) years.

++ Substantial Increase
+ Moderate Increase
o Same
- Decrease

TEACHING AREA	Number of Full-Time Teachers CURRENTLY EMPLOYED.			
	High School	Post High School	High School	Post High School
REGULAR VOCATIONAL HOME-MAKING PROGRAM	____	____	____	____
OCCUPATIONAL PREPARATION (List)				
_____	____	____	____	____
_____	____	____	____	____
_____	____	____	____	____
_____	____	____	____	____
OTHER (List)				
_____	____	____	____	____
_____	____	____	____	____
_____	____	____	____	____
_____	____	____	____	____

The three areas of HOME ECONOMICS which will have the greatest need for new instructors in the future are:

1. _____
2. _____
3. _____

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY
980 KINNEAR ROAD, COLUMBUS, OHIO

The Demand for Full-Time Teachers in

TECHNICAL EDUCATION

Total number of full-time teachers employed--September, 1965 _____

Projected number of full-time teachers needed in September, 1968 _____

Number of beginning (new) full-time teachers placed in teaching positions in 1965 _____

Number of unfilled full-time teaching vacancies existing as of September, 1965 _____

RELATED TECHNICAL EDUCATION TEACHING AREAS (List specific titles under appropriate categories)	Number of Full-Time Teachers CURRENTLY EMPLOYED.	PROJECTED TREND in demand for teachers for the next three (3) years. ++ Substantial Increase; + Moderate Increase; o Same; - Decrease
AGRICULTURE:		
_____	_____	_____
_____	_____	_____
HOME ECONOMICS:		
_____	_____	_____
_____	_____	_____
HEALTH OCCUPATIONS:		
_____	_____	_____
_____	_____	_____
BUSINESS AND OFFICE OCCUPATIONS:		
_____	_____	_____
_____	_____	_____
_____	_____	_____
DISTRIBUTIVE EDUCATION:		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(OVER)

RELATED TECHNICAL EDUCATION TEACHING AREAS (List specific titles under appropriate categories)	Number of Full-Time Teachers CURRENTLY EMPLOYED.	PROJECTED TREND in demand for teachers for the next three (3) years. ++ Substantial Increase; + Moderate Increase; o Same; - Decrease
TRADE AND INDUSTRIAL EDUCATION:		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
OTHER TECHNICAL EDUCATION:		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

The three areas of TECHNICAL EDUCATION which will have the greatest need for new instructors in the future are:

1. _____
2. _____
3. _____

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
OHIO STATE UNIVERSITY
980 KINNEAR ROAD, COLUMBUS, OHIO

The Demand for Full-Time Teachers in

TRADE AND INDUSTRIAL EDUCATION

	High School	Post High School
Total number of full-time teachers employed--September, 1965	___	___
Projected number of full-time teachers needed in September, 1968	___	___
Number of beginning (new and replacement) full-time teachers placed in teaching positions in 1965	___	___
Number of unfilled full-time teaching positions existing as of September, 1965	___	___

PROJECTED TREND in demand for teachers for the next three (3) years.

++ Substantial Increase
+ Moderate Increase
o Same
- Decrease

TEACHING AREA	Number of Full-Time Teachers CURRENTLY EMPLOYED. High School	Post High School	High School	Post High School
Air Conditioning & Refrigeration	___	___	___	___
Aircraft Maintenance	___	___	___	___
Auto (Body & Fender)	___	___	___	___
Auto Mechanics	___	___	___	___
Baking	___	___	___	___
Barbering	___	___	___	___
Carpentry	___	___	___	___
Commercial Art	___	___	___	___
Commercial Food Preparation	___	___	___	___
Cosmetology	___	___	___	___
Diesel	___	___	___	___
Drafting	___	___	___	___
Dressmaking & Tailoring	___	___	___	___
Electrical, Industrial	___	___	___	___
Electrical, Lineman Training	___	___	___	___
Electrical Wiring	___	___	___	___
Fireman Training	___	___	___	___
Fishery	___	___	___	___
Food Service Worker (including waiter/waitress)	___	___	___	___

TEACHING AREA	Number of Full-Time Teachers CURRENTLY EMPLOYED.		PROJECTED TREND in demand for teachers for the next three (3) years.	
	High School	Post High School	High School	Post High School
Heavy Equipment Operation	___	___	___	___
Law Enforcement	___	___	___	___
Machine Tool Operator	___	___	___	___
Machine Shop	___	___	___	___
Meat Cutter	___	___	___	___
Painting and Decorating	___	___	___	___
Photography	___	___	___	___
Plumbing	___	___	___	___
Printing	___	___	___	___
Radio and TV Maintenance	___	___	___	___
Sheet Metal	___	___	___	___
Shoe Repairing	___	___	___	___
Small Engine Repair	___	___	___	___
Surveying	___	___	___	___
Trowel Trades	___	___	___	___
Watchmaking	___	___	___	___
Welding	___	___	___	___
Other Trade and Industrial Education (Specify)				
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___
_____	___	___	___	___

The three areas of TRADE AND INDUSTRIAL EDUCATION which will have the greatest need for new instructors in the future are:

1. _____

2. _____

3. _____

OTHER CENTER PUBLICATIONS

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agricultural Education, "Program Development and Research."

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

"Report of A National Invitational Research Planning Conference on Trade and Industrial Teacher Education."

A Report of a National Seminar on Cooperative Education, "Guidelines in Cooperative Education."

VT 002 218

VT 002 218

A Summary of a Five and Ten-Year Graduate Follow-Up. (Project no. 632).

Righthand, Herbert * and others

Conn. State Dep. of Educ., Hartford. Div. of Vocat. Educ.

May67

DOCUMENT NOT AVAILABLE FROM EDRS 9p.

*VOCATIONAL FOLLOWUP, *GRADUATES, *AREA VOCATIONAL SCHOOLS, *VOCATIONAL EDUCATION,

Connecticut,

This study was initiated in 1963 to determine the status of the 1953 and 1958 graduates of Connecticut's 14 state-operated regional vocational-technical schools. Of the 1,408 graduates of both classes, 682 or 48.5 percent returned questionnaires. Findings included -- (1) Only eight (1.2 percent) of the 682 graduates were unemployed in 1963. The unemployment rate for Connecticut in 1963 was 4.9 percent, (2) After adjustments for military service and full-time school, 71.8 percent were still employed in their trade or in a related occupation, (3) The average 1963 salary was $7,085 for the 1953 graduates and $5,746 for the 1958 graduates, and (4) The graduates' suggestions for program improvements included more mathematics, updated shop equipment and training, more practical shop work, more trade theory instruction, and more blueprint reading instruction. (PS)

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ED015348

A SUMMARY OF

A FIVE AND TEN-YEAR GRADUATE FOLLOW-UP

CONNECTICUT STATE
DEPARTMENT OF EDUCATION
MAY, 1967

DIVISION OF
VOCATIONAL EDUCATION

Project Number 632

VT 022218

CONNECTICUT

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A
SUMMARY
OF
A FIVE AND TEN-YEAR GRADUATE FOLLOW-UP

OBJECTIVES

The main purpose of the study was to determine the status of Connecticut vocational-technical school graduates several years after graduation. It attempted to follow up two graduating classes — one after five years, and the other after ten years. Since the study was initiated in 1963, the classes of 1953 and 1958 were chosen.

The study further sought to determine:

1. The present average salary of the graduates of various trade areas.

2. The number and percentage of graduates who move out of state.

3. The upward mobility of the graduates to supervisory or managerial positions.

4. The number and percentage of graduates who are self-employed and the types of businesses they operate.

5. The number and percentage of graduates who continue their formal education and the educational levels attained.

6. The vocational-technical school courses which these graduates indicated as being important to their successes in their careers.

7. These improvements which the graduates felt would help strengthen the vocational-technical school program.

8. The apprenticeship level reached by the graduates.

PROCEDURES

All fourteen (14) of Connecticut's state-operated regional vocational-technical schools participated in the study. Each school mailed a standardized questionnaire to all 1953 and 1958 graduates.

The schools used various techniques in pursuing unreturned questionnaires. These included the mailing of additional letters or post cards, telephone calls, and personal contacts with relatives, friends, and employers.

Of the 1,408 graduates of both classes, 682 or 48.5 per cent returned questionnaires. Although more complete returns would have been more desirable, the response received seemed large enough to have considerable value in light of the objectives of the study.

MAJOR FINDINGS

1. Only 8 or 1.2 per cent of the 682 graduates responding from both classes were unemployed in 1963. The unemployment rate for Connecticut for 1963 was 4.9 per cent.

2. After adjustments were made for graduates in military service, full-time school, etc., it was found that 71.8 per cent of the respondents were still employed in their trade or in a related occupation. The placement percentage was 67.0 for the Class of 1953 and 74.1 for the Class of 1958.

3. The number of graduates from the vocational-technical schools nearly doubled in the five-year period from 1953 to 1958. There was an 86.5 per cent increase from 483 to 925 graduates.

4. A total of 107 graduates or 15.7 per cent of both classes continued their education beyond the twelfth grade — 27.8 per cent of the Class of 1953 and 12.9 per cent of the Class of 1958.

5. The average estimated yearly salary in 1963 was $7,085. for the ten-year graduates and $5,746. for the five-year group. Based on a forty hour week and fifty week year, the average weekly pay check for these two groups was $141.70 and $115.00 respectively. The average weekly pay check for the state in 1963 was $101.60.

6. Of the 682 respondents from both classes only 38 or 5.6 per cent had moved to another state.

7. Thirty-eight graduates or 5.6 per cent of the respondents from both classes were self-employed in 1963. The Class of 1953 respondents had 9.3 per cent in this category, while 4.1 per cent of the 1958 graduates were in business for themselves.

8. Thirteen or 1.9 per cent of all respondents were employed in professional fields. Eleven of these (6.7 per cent of the entire sample) were 1953 graduates. The remaining two graduates (0.4 per cent of the total sample) were from the Class of 1958 which still had several of its members enrolled in college programs leading to professional careers.

9. Another interesting observation is that 9.1 per cent of the total graduates were employed in supervisory or management positions. Here again, the 1953 graduates led in this category by 15.4 per cent to 6.6 per cent.

10. A total of 254 graduates or 61.1 per cent of both classes indicated that they were at some level of apprenticeship or had reached journeyman status.

11. According to suggestions for program improvement offered by the graduates, the following were the most prevalent:

    a. More mathematics necessary.
    b. Need for updating shop equipment and/or training.
    c. More practical shop work.
    d. More trade theory instruction.
    e. More blueprint reading instruction.

CONCLUSIONS

1. Vocational-technical school graduates in Connecticut tend to remain employed in their chosen trade even several years after graduation.

2. There seems to be a need for these schools to maintain closer and more continuous contact with their graduates.

3. Connecticut vocational-technical school graduates have an unemployment rate considerably below that of the entire state.

4. While vocational-technical school courses are usually considered to be terminal in nature, an appreciable number of graduates continue in some formal educational program within the first ten years after graduation.

5. The graduates of these schools have earnings well above those of the average Connecticut worker.

6. Since over 94 per cent of the respondents maintained residence in the state after five and ten years, it would seem that the Connecticut vocational-technical schools are making a valuable and direct contribution to the industry and economy of the state.

7. The fact that a significant number of graduates are self-employed or have moved into higher positions would seem to dispel the widely accepted notion that trade education leads to "dead-end" jobs.

8. It appears that there are some areas of the vocational-technical school curriculum which should be re-evaluated in light of graduate ratings and suggestions for improvement.

9. The data would seem to indicate that long-term follow-up studies of this type are an essential part of the evaluation of vocational education programs.

10. The annual salary differential of $1,339. between the two classes, in addition to increased self-employment, upward job mobility, further education, etc., shows that there is considerable growth between the five-year graduates and those who have been out of school for ten years.

VT 002 220

VT 002 220 ED

A Report on Dropouts From North Dakota Public High Schools.
(Research Report, no. 1).

Boyles, Gary E.

North Dakota Univ., Grand Forks

Aug66

EDRS Price MF-$0.09 HC-$1.48 37p.

*DROPOUT CHARACTERISTICS, *DROPOUTS,

North Dakota,

Studies from other states were reviewed to determine the more common characteristics of dropouts. Forms were sent to all high schools in North Dakota for reporting pupil dropouts. The first set of 229 dropout forms returned was analyzed, and the following data for dropouts are given -- sex, race, part-time employment, program of studies, general scholastic achievement, rank in class when dropping out, number of courses failed last report, attendance record of dropouts, disciplinary record, number of schools attended, special efforts by school to retain dropouts, conditions for staying in school, persons conducting exit interview, parental attitudes about son or daughter dropping out of school, source of idea to leave school, persons with whom pupil resided, occupations of parents, relationship with person, reasons for dropping out of school, and future plans of dropouts. Reasons given by the school for male dropouts included -- (1) academic difficulty, 20 percent, (2) parental influence, 21 percent, and (3) marriage, 20 percent. Reasons given by male dropouts included -- (1) academic difficulty, 24 percent, and (2) dislike of school, 29 percent. Pregnancy accounted for approximately 43 percent of the female dropouts. (PS)

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ED015348

A REPORT ON DROPOUTS FROM NORTH DAKOTA PUBLIC HIGH SCHOOLS

Gary E. Boyles

Research Report No. 1

CENTER FOR RESEARCH IN
VOCATIONAL AND TECHNICAL EDUCATION

College of Education
University of North Dakota
Grand Forks

VT 022220

August, 1966

The Research Reported Herein
Was Performed Pursuant to a Contract
with
The United States Department of Health,
Education, and Welfare,
Office of Education.

FOREWORD

Notwithstanding the wealth of existing literature on the high school dropout, the present study, concerned only with the North Dakota dropout, seemed necessary and indeed, imperative. Generalizations are inadmissible, or at least tenuous, whenever unlike samples are compared. In short, results from dropout studies conducted in predominantly urban, industrial states have limited value to a rural, agricultural state such as North Dakota.

And yet this study represents neither the final answer nor the solution to the North Dakota dropout problem. It marks only the beginning, not the end. Many uncertainties remain: What curriculum revisions are needed to increase the holding power of the school? Will the expansion of counseling and guidance programs within the state help? What is the value of more effective procedures for early identification of the potential dropout? Hopefully, this study will provide the basis and the impetus for the research needed to answer these and similar questions.

The publication of this report was made possible through the efforts of a number of individuals and the agencies they represent. The author especially wishes to acknowledge the following: Mr. Glenn Dolan, Director of Guidance Services, Department of Public Instruction, Bismarck, North Dakota, for assisting in the early stages of the study and for conferring with North Dakota educators in the initial phases of establishing the Dropout Reporting Service; Dr. Elwyn H. Nagel, Director, Center for Research in Vocational and Technical Education, University of North Dakota, for aiding in the design and procedures of the research; Mr. Paul Menges,

Consultant, University of North Dakota, for editing the report; Mr. R. Fischer, Director, and Mr. Jerry Berg, Programmer, Computer Center, University of North Dakota, for assisting in the data processing. Finally, appreciation is extended to North Dakota school administrators, teachers, and counselors for their invaluable cooperation in using the Dropout Report Forms, and to the many others who encouraged such a survey.

Gary E. Boyles

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INTRODUCTION

The school dropout is receiving more attention today than ever before. Current research concerned with the dropout ranges from simple descriptive studies to experimental counseling programs. Certain government legislation has made the dropout eligible for innovative work-study programs, manpower and development training, Job Corps, and special vocational counseling. The President of the United States has referred to the dropout problem in several messages to Congress. The President's statements illustrates the dropout's unappealing position relative to his peers who continue their educational pursuits. The late President Kennedy stated:

> Ignorance and illiteracy, unskilled workers, and school dropouts--these and other failures of our educational system breed failure in our social and economic system, deliquency, unemployment, chronic dependence and waste of human resources, a loss of production and purchasing power, and an increase in tax-supported benefits.*

The dropout problem is not unique to any one area, although the state rates vary from a high of 42 per cent in Florida to a low of 15 per cent in South Dakota (U.S. Office of Education, 1963). The North Dakota rate has been estimated at approximately 20 per cent (North Dakota Department of Public Instruction, 1965). This means that of all the students beginning the ninth grade, one out of five will not graduate with their class. This situation has recently attracted more attention from various education and state leaders who seek ways to increase the holding power of the school. Early identification of potential dropouts followed by specific efforts of counselors, specialists, and other school staff

---

* John F. Kennedy, Address to the 1963 Dropout Campaign. Washington, D.C.: The White House, July 3, 1963.

should encourage more students to graduate.

Until recently, little attention has been given to the dropout problem in North Dakota. In the past, a few schools have utilized school staff to work with students who seemed likely to drop out. However, the effect of such efforts has not been determined. The fact that only about 20 per cent of the high schools have counselors illustrates the limitations in working with potential dropouts.

Information may be needed on a large number of variables to understand the dropout problem. Questions such as, What is the actual dropout rate? What is the intelligence range of dropouts? and What does the dropout do upon leaving school? cannot be answered without conducting extensive research.

Understanding the North Dakota dropout, however, requires more than finding answers to the above questions. This report may stimulate further research and help to develop effective local and state programs to reduce the dropout rate in North Dakota. Studies from a variety of North Dakota school systems could shed light on the problem and allow for constructive comparisons.

SOME CHARACTERISTICS OF DROPOUTS AS FOUND IN OTHER STUDIES

Studies from other states were reviewed to determine the more common characteristics of dropouts.

The scholastic aptitude of students is a basic consideration in most dropout studies (Thomas, 1963; Johnson, 1956; Rundee, 1957; School Life, 1963; Warren, 1953; Lanier, 1950; Guidance Committee (Davidson, Illinois), 1964). Warner (1964), in a review of nine studies dealing with the IQ of dropouts, found that 50 per cent of them had IQ scores ranging from

90 to 109. This suggests that the dropout's ability as measured by IQ tests is like the average student.

Dropouts generally are at least one year behind their classmates in level of achievement and their general school achievement is significantly lower than those who graduate (Johnson, 1956; Rundee, 1957; School Life, 1963; Warren, 1953; Lanier, 1950; Cassel and Colema, 1962). Parallel with low- or average-scholastic performance, low interest in the school program has frequently been shown (Thomas, 1963; Johnson, 1956; Rundee, 1957; School Life, 1963; Warren, 1953; Lanier, 1950; Cassel and Colema, 1962). Dropouts are commonly overage for their class and may be prone to poor health (Rundee, 1957; School Life, 1963; Farnell, 1962). The lower educational achievement of their parents (Rundee, 1957; Cassel and Colema, 1962) supports the findings of poor economic conditions (Rundee, 1957; School Life, 1963; Croft, 1963). Very often the dropout lives in some broken-home arrangement. These studies have shown the dropout to be quite mobile geographically (School Life, 1963; Guidance Committee (Davidson, Illinois), 1964; Cassel and Colema, 1962). The dropout's school attendance records include an above-average number of absences (Warren, 1953; Guidance Committee (Davidson, Illinois), 1964; Cassel and Colema, 1962). Frequency comparisons between the number of male dropouts compared to female droputs indicated that more often the dropout was male (Cassel and Colema, 1962; Knudson, 1964; Farnell, 1962; Stamford Community Council (Connecticut), 1963), but the difference in number of male dropouts as compared to female dropouts was low. The age at which students dropped out was most often found to be 16. This may be due largely to the fact that many of the states' compulsory

education laws require students to remain in school until they become 16 years old.

Delinquency is not as common a reason for dropping out of school as one may expect. Only in one study (Bruns, 1963) was delinquency found to be a major reason for dropping, or being forced, out of school.

Dropouts are usually asked why they are leaving school. The expressed reasons are suggestive of a variety of socio-economic, family, and personal problems surrounding the individual.

The major reasons given by the dropout include: lack of interest, lack of scholastic success (School Life, 1963; Lanier, 1950; Guidance Committee (Davidson, Illinois), 1964; Warner, 1964; Cassel and Colema, 1962; Knudson, 1964; Farnell, 1962; Croft, 1963; Bruns, 1963; Anderson, 1962), and lack of money. In one study, the lack of availability of individual counseling and a minimal amount of employment counseling were stated as common reasons for leaving school and the community. Marriage or pregnancy were other commonly noted reasons (School Life, 1963; Lanier, 1950; Anderson, 1962). Desire to join the armed forces (School Life, 1963; Guidance Committee (Davidson, Illinois), 1964; Cassel and Colema, 1962; Knudson, 1964; Stamford Community Council (Connecticut), 1963), and poor health (Cassel and Colema, 1962; Knudson, 1964, Stamford Community Council (Connecticut), 1963) also were given as reasons for dropping out, although they were mentioned less frequently than those previously stated.

In only two of the studies reviewed (Knudson, 1964; Stamford Community Council (Connecticut), 1963), did the school system provide a list of reasons for dropping out, as well as a set of reasons stated

by the dropout. For example, the student might conceivably offer lack of interest as a reason for dropping out of school whereas the administration might view low scholastic achievement or low reading ability as the causal factors. Reliance upon the school's reason alone for the student's dropping out is insufficient for a true and complete explanation.

RESEARCH DESIGN

In the fall of 1965, the State Guidance Director and the staff of the Center for Research in Vocational and Technical Education at the University of North Dakota initiated a study of the North Dakota dropout.

All high schools in the State were sent the Guidance Form for Individual Pupil Dropout shown in Appendix A. The schools were asked to send a completed form to the State Guidance Office when each student dropped out. Reports are not available for all dropouts since this program is voluntary and not all schools participated.

The Center for Research will analyze periodically the completed forms and will send the results to the State Guidance Director. This paper reports the data available on students who dropped out of high school from September, 1965 to March, 1966.

RESULTS AND DISCUSSION

The first set of dropout forms returned (N = 229) was analyzed and reported by using descriptive statistics yielding percentages for each category. The data on many dropouts were incomplete. However, when further information becomes available, a more complete analysis of the data will be conducted. The tables have been discussed in order of similarity rather than the sequence found on the Dropout Reporting

Form. The number of dropouts reported is indicated for each table.

The sex distribution of the dropouts is presented in Table 1.

TABLE 1

SEX OF DROPOUTS (IN PER CENT)
(N = 229)

Male	(N = 127)	55
Female	(N = 102)	45

The male dropout rate is shown to be slightly higher than the female dropout rate. This finding is common with other dropout studies which have found that more males than females drop out of school.

Table 2 indicates the race of the dropout as reported. Question 6 of the dropout form asks for the race and question 7 asks for the ethnic origin of the dropout. In compiling Table 2 only White, Negro, and Other were used. The number of Indian dropouts was included in the "Other" category. A revised form could combine race and ethnic origin in order to reduce the confusion that may occur from this dual category. An adjustment was made in order to use the per cent reported in the ethnic category.

TABLE 2

RACE OF DROPOUTS (IN PER CENT)
(N = 229)

White	98.0
Negro	1.5
Other	.5

The number of Indian dropouts is not accurately known for the State of North Dakota. From Table 2, it is readily apparent that Indian dropouts were not reported by the schools at the time this analysis was written. Two factors may explain why the Indian dropouts were not reported: (1) either the Indian schools (Federal) were not sending in their dropout forms, or in some cases, (2) there was a question as to whether a student was enough Indian to classify him as such. He may have been a quarter Indian, but was reported white. The instructions for this variable should be more specific in a revised dropout form.

A number of variables are reported in terms of mean values. The mean age at exit was 16.3 years and the mean grade level was 10.1 (N = 229). The North Dakota mandatory school attendance law may be a powerful holding factor for the dropout since he appears not to leave school until reaching the required age level. The mean age level indicates that the North Dakota dropout is not overage for his school grade level.

Of the 229 report forms analyzed, it was found that 64 per cent of the students lived in a town or city and 36 per cent lived in a rural area. It is not possible to determine from this preliminary data if a higher proportion of North Dakota dropouts come from the rural or urban areas of the State since most of the forms returned were from the larger schools or the schools which have a guidance counselor.

From the several different standardized intelligence tests administered to students in various schools, the mean IQ score was found to be 98.1, based on 190 cases. It may be possible to generalize that the dropout of North Dakota has an IQ level in the average range, that is, between 90 and 110. This finding is in agreement with Warner's conclusion

that the dropout is not the retarded stereotype as he has often been labeled. It was found that a mean of 3.1 years had lapsed between the last scholastic aptitude, or IQ test, and the time of dropping out.

The dropouts were involved to a limited degree in part-time work as shown in Table 3.

TABLE 3

PART-TIME EMPLOYMENT (HOURS PER WEEK)
(N = 229)

Hours	Per Cent
0	58
1	10
2	4
3	1
4	1
5	1
Greater than 6	1
Unknown	24

Table 4 illustrates the program of studies in which the dropouts were enrolled.

TABLE 4

PROGRAM OF STUDIES (IN PER CENT)

Program	Male (N = 126)	Female (N = 102)
Academic	25	22
Commerical	2	10
General	63	62
Special	2	2
Vocational	8	4

More than half of the dropouts were enrolled in general courses while commerical and vocational curricula accounted for 10 per cent of the school programs for males and 14 per cent for females.

Although the dropout's enrollment in programs was heavily academic or general (in many schools the curriculum is basically college preparatory), his participation in extracurricular activities was limited. The mean number of activities participated in was .4, or less than one activity per dropout. This finding parallels similar results found in other studies (Johnson, 1956; Rundee, 1957; School Life, 1963).

Table 5 presents the general scholastic achievement of dropouts during three levels of education.

TABLE 5

GENERAL SCHOLASTIC ACHIEVEMENT (IN PER CENT)
(N = 180)

Achievement	Elementary	Junior High School	Senior High School
Below Average	40	62	87
Average	45	29	12
Above Average	15	8	.7

The dropout's achievement is shown to decrease as he progresses from elementary to senior high school. The dropout in North Dakota appears unable to cope with the academic requirements of the school.

Table 6 indicates the dropout's rank in class at the time he left school. (The instructions on the dropout form for computing rank in class need to be made clearer.)

TABLE 6

RANK IN CLASS WHEN DROPPING OUT (IN PER CENT)
(N = 214)

4th Quartile (Highest)	2
3rd Quartile	3
2nd Quartile	17
1st Quartile (Lowest)	78

Table 7 shows the number of courses failed during the last reporting period.

TABLE 7

NUMBER OF COURSES FAILED LAST REPORT (IN PER CENT)
(N = 220)

Number of Courses Failed	Male	Female
None failed	23	57
One failed	14	12
Two failed	18	10
Three failed	17	13
More than 3 failed	28	8

Sixty-three per cent of the male dropouts were failing in two or more courses and 23 per cent of the male dropouts were not failing any courses. In contrast, 31 per cent of the female dropouts were failing in two or more courses and 57 per cent were not failing in any courses.

The dropout's reading problems are suggested by the reported finding that the mean estimated reading level was 2.7 years below the norm for males (N = 96) and 1.4 below the norm for females (N = 75).

Some indication of the dropout's attendance record is shown in Table 8.

TABLE 8

ATTENDANCE RECORD OF DROPOUTS (IN PER CENT)

Attendance Record	Junior High School Male (N = 126)	Junior High School Female (N = 102)	Senior High School Male (N = 126)	Senior High School Female (N = 102)
Regular attendance	65	73	56	57
Irregular attendance	30	25	32	38
Truant	5	2	12	5

Without exception, the dropout's attendance record became poorer from junior high school to senior high school. However, there was a more noticeable decrease in the regularity of the female's attendance record as compared to the male's.

Some indication of the dropout's disciplinary record is found in Table 9.

TABLE 9

DISCIPLINARY RECORD (IN PER CENT)
(N = 228)

Expulsion	3
Suspension	7
Warning	8
Some combination of the above	10
None	72

The fact that only 28 per cent of the students had been expelled, suspended, warned, or some combination of these, fails to support the

stereotype of the dropout as being a delinquent, disobedient person in high school.

Table 10 provides an indication of the school mobility of the dropout.

TABLE 10

NUMBER OF SCHOOLS ATTENDED (IN PER CENT)
(N = 220)

Number of Schools Attended	Elementary School	Senior High School
One school	51	49
Two schools	17	23
More than two schools	32	28

About half of the dropouts attended two or more schools, both in elementary and high school.

To what extent did the school make an effort to retain the dropout? This question is partially answered in Table 11.

TABLE 11

SPECIAL EFFORT BY SCHOOL TO RETAIN "DROPOUTS" (IN PER CENT)
(N = 220)

Reference to guidance	31
Work Study program	3
Modified Program	1
None	65

It should be noted that 65 per cent of the dropouts were given no special attention, and only 1 per cent participated in some modified program arranged to help retain them in school.

Interpretation of the category "Reference to guidance" is difficult since it is not known at what time prior to dropping out the reference was made or the kind of guidance effort extended.

Table 12 presents various conditions for "dropouts" staying in school.

TABLE 12

CONDITIONS FOR STAYING IN SCHOOL (IN PER CENT)
(N = 229)

Work Study program	2
Financial aid	2
No Fees	1
More guidance	9
Individual tutoring	6
Different courses	1
Help in reading, English, or mathematics	3
Under no condition	76

Table 12 shows that 76 per cent of the dropouts would, under no condition, stay in school. The attitude of the student may be so negative that he is unable or unwilling to understand the meaning of the different programs listed in Table 12. However, even when dropping out, some students still expressed a desire to remain in school if something different than the usual programs were available.

The actual procedure of dropping out may offer suggestions for counseling the potential dropout. On some of the report forms, the counselors made notations to the effect that the potential dropout may be deterred in leaving school by the very ritual he must follow in leaving. For example, in a few schools the dropout must have an interview or a series of interviews prior to leaving school.

Table 13 illustrates with whom these interviews were held.

TABLE 13

PERSONS CONDUCTING EXIT INTERVIEW (IN PER CENT)
(N = 229)

Counselor	18
Principal	29
Teacher	1
Both counselor and teacher	14
Both principal and teacher	3
All: counselor, principal, and teacher	3
None	32

The parents were contacted in 68 per cent of the cases. About one-third of the dropouts' parents were not contacted concerning their child's status in school. Information about the type of contact was not asked. The contact would vary from a letter to the parents, an interview by the counselor with parents, or a telephone call from the principal telling the parent the student was leaving school.

Table 14 shows the parental attitude about their son or daughter dropping out of school.

TABLE 14

PARENTAL ATTITUDE ABOUT SON OR DAUGHTER
DROPPING OUT OF SCHOOL (IN PER CENT)

Parental Attitude About Dropping Out of School	Male (N = 130)	Female (N = 107)
Encourage leaving	19	24
Indifferent	30	24
Encourage staying in school	28	24
Unknown	24	28

As indicated in Table 14, about one-fourth to one-third of the parents of dropouts were indifferent. This lack of concern by the parents is not an unique finding among dropout studies (Thomas, 1963).

Table 15 indicates whose idea it was that the student leave school.

TABLE 15

SOURCE OF IDEA TO LEAVE SCHOOL (IN PER CENT)

Source of Idea To Leave School	Male (N = 126)	Female (N = 102)
Pupil's	74	75
Parent's	9	8
Guardian's	0	0
Relative's	1	0
Friend's	0	2
School's	8	6
Other	8	9

Information regarding the home environment, home adjustment, and psychological climate of children at home has been lacking in many dropout studies (Warren, 1953; Arnholter, 1956). The reporting of information concerning the dropout's home has been limited by the nature of the data. However, the mean number of siblings at home was found to be 2.3 children (N = 201). This mean value is close to the national average.

Information on annual income was incomplete, with only 76 report forms out of 229 reporting information. Within this group, the mean annual income was $3,000 - $5,000.

Table 16 shows with whom the dropout resided.

TABLE 16

PERSON(S) WITH WHOM PUPIL RESIDED (IN PER CENT)
(N = 229)

Both natural parents	80
Mother	8
Father	1
At least one step-parent	5
Others	6

The majority of dropouts in this first set of reports do not come from broken homes.

In many studies on dropouts, the relationship between the low-educational level of parents, low income, and unskilled jobs held by the parents was found to be high (Warren, 1953; Cassel and Colema, 1962).

Table 17 lists the occupations of the parents of dropouts.

TABLE 17

OCCUPATIONS OF PARENTS (IN PER CENT)
(N = 229)

Father's Occupation		Mother's Occupation	
Professional, technical	4	Professional, technical	1
Manager, proprietor	9	Manager, proprietor	1
Clerical, sales	5	Clerical, sales	3
Service workers	8	Service worker	11
Farmer	28	Housewife	77
Craftsman	6	Private household	1
Operative - semiskilled	8	Semiskilled	1
Farm laborer	8	Unknown	2
Laborer, general	4		
Unknown	20		

Table 17 illustrates that the distribution of occupations held by

parents is not skewed toward the laborer or unskilled area; and secondly, the great majority of the mothers are not working.

The question whether the dropout's closest friends are out of school was answered by responses of Yes (34 per cent), No (34 per cent), and Unknown (32 per cent).

Acceptance by peers is an important variable related to the dropout problem. (To assess peer acceptance ideally, the dropout and the dropout's peers should be asked.)

Table 18 shows acceptance by peers for male and female dropouts.

TABLE 18

RELATIONSHIP WITH PEERS (IN PER CENT)

Relationship	Male (N = 126)	Female (N = 103)
Rejected	7	3
Tolerated	30	23
Accepted	45	57
Popular	2	7
Unknown	16	10

For both male and females, only 7 and 3 per cent were indicated as being rejected by their peers. Likewise, only 2 and 7 per cent were popular. About half of the male and female dropouts were reported as being accepted by their peers.

In using the dropout form, one may question if these reports are based on interviews with the dropout or opinions of the person filling out the report form.

REASONS FOR DROPPING OUT OF SCHOOL AND FUTURE PLANS

The proposal that there should be two sets of reasons given for dropping out, one by the student and the other by the school, has found support in other studies (Guidance Committee (Davidson, Illinois), 1964; Warner, 1964; Farnell, 1962). The student may give as a reason, lack of interest, but the interviewer may discover a low IQ, retarded reading, and poor school adjustment, all of which better explain the reason stated by the dropout.

Table 19 presents reasons by pupils and schools for dropping out and also the proportion of males and females in each category.

TABLE 19

REASONS FOR DROPPING OUT OF SCHOOL (IN PER CENT)

Reason	Pupil Reason		School Reason	
	Male (N = 126)	Female (N = 103)	Male (N = 126)	Female (N = 103)
Physical illness	1	1	1	1
Physical disability	0	1	1	1
Mental illness and disability	2	1	4	1
Behavioral difficulty	2	1	6	0
Academic difficulty	24	10	20	8
Lack of appropriate curriculum	0	0	6	0
Poor pupil-staff relationships	1	1	7	1
Poor relationship with fellow pupils	6	1	1	1
Dislike of school experiences	29	12	13	5
Parental influence	3	0	21	4
Need at home	2	2	0	0
Economic reasons	2	2	0	0
Employment	2	0	0	0
Marriage	1	21	20	22
Pregnancy	0	43	0	40
Other	6	4	0	1
Reason unknown	18	2	0	8
New residence - school status unknow	1	0	0	1

Comparing reasons for males dropping out of school, there is little difference in the per cent of responses with the exception of "dislike of school experience," "parental influence," and "marriage." Twenty-nine per cent of the male dropouts reported "dislike of school experiences," but this reason was given by the school in only 13 per cent of the cases. In the next item, 3 per cent of the students reported "parental influence" as a reason for dropping out while the school recorded this as a factor 21 per cent of the time. Similarly, "marriage" as a reason was reported by the dropout 1 per cent of the time while the school reported 20 per cent. Exactly what factors account for the discrepancy will possibly be found as the interviewing procedure is refined and clarified.

For the females, there is no one, large discrepancy between pupil reason and school reason. Reported "pregnancy" accounted for approximately 43 per cent of the female dropouts.

The future plans of dropouts are illustrated in Table 20.

TABLE 20

FUTURE PLANS OF DROPOUTS (IN PER CENT)

Future Plans	Male (N = 126)	Female (N = 103)
Armed forces	25	1
Night school	0	2
Adult education	3	3
Correspondence school	0	26
Equivalency diploma	5	1
Return later	0	8
MDTA	1	1
Job Corps	1	1
Undecided	30	19
Unknown	33	38

Over 60 per cent of male dropouts were not sure of their future plans, and only 2 per cent showed interest in either the Manpower Development and Training Act Program (MDTA) or Job Corps. Very few dropouts, with the exception of female dropouts interested in correspondence work, expressed interest in continuing their education or returning later. Other studies have found that the dropout appears to have such a negative attitude towards school that efforts made to keep him in school at the time he is ready to leave have little effect on the student. Further, experiences which the dropout perceives to be similar to those he had in high school hold no interest for him (School Life, 1963; Guidance Committee (Davidson, Illinois), 1964; Warner, 1964; Cassel and Colema, 1962). What the dropout's perceptions would be of the Job Corps or the MDTA programs has not been studied in North Dakota.

IMPLICATIONS AND CONCLUSIONS

This study is the first attempt in North Dakota to gather information on a statewide basis about the dropout as he leaves school. However, the return of completed dropout forms was limited. Thus, it is impossible to determine an accurate dropout rate. Varied interpretation of the items and lack of formal exit interviews reduce the reliability of the responses on some items.

However, this study suggests the following about the North Dakota dropout.

1. The dropout is more often male.
2. He more often lives in an urban area.
3. His father's occupation is not necessarily in the unskilled or laboring class.

4. His parents tend to have a ninth or tenth grade education.
5. He is not involved in school activities.
6. His academic performance is low.
7. He is not generally delinquent.
8. He is not likely to return to school.
9. He does not come from a lower socio-economic setting.
10. He does not seem to face racial problems.
11. He does not appear to have an unusually high mobility rate.
12. He does not frequently come from broken homes.
13. The dropout does appear to be accepted by his peers.

Perhaps most significant are the findings regarding the dropout's school achievement. The dropout is most often found in the lowest quartile of his class and probably has failed two or more courses. The tendency for the dropout's general scholastic achievement to decrease as he advances to higher school grades suggests the need for further research by educational leaders.

The high percentage of pregnancy and marriage among dropouts may suggest a need to examine various facets of this problem, such as the lack of sex education. The problem of identifying the student who is likely to drop out because of pregnancy or marriage has not been sufficiently researched, but the need for such a study seems apparent.

One phase of the Reporting Service Program is the cooperative efforts being made between the State Guidance Department and the State Employment Security Department. After a dropout form is received by the State Guidance Department, a copy of this form is sent to the appropriate State Employment Security Office. The counselor at this

office contacts the dropout, thereby establishing some degree of support or aid for this young person. Some of the employment counselors have reported this procedure to be highly successful, and, in many cases, either a suitable job was found for the dropout or continued education was planned. The extent and success of this program in the state has not been assessed. However, it appears that this procedure has strong potential in helping the dropouts adjust to their new life situation.

The dropout is one of the more difficult problems for the school system. The usual college-preparatory curriculum, the lack of counseling and guidance programs (particularly at the elementary and junior high school levels), and the prejudice that is found concerning dropouts all contribute to the problem.

The continued use of the dropout reporting form, with suitable revision, will contribute vital information necessary for planned changes in the school systems. The need for increased counseling, for earlier prediction of potential dropouts, and for follow-up studies seems evident.

The dropout form can be used as an interview schedule by school personnel. It seems to be a sound research instrument and a means by which school personnel (particularly in the many schools without counselors) can better understand the student about to leave school before graduating.

Although this report is not complete, it represents a beginning in the understanding of North Dakota dropouts. These findings are the first of a series to be periodically analyzed. Continued research with the cooperation of school counselors, administrators, and other

school staff is necessary before more effective steps can be taken to reduce the dropout rate and to provide a more suitable program of education, vocational training, and aid to life adjustment for this portion of North Dakota youths.

APPENDIX

APPENDIX A

GUIDANCE FORM FOR INDIVIDUAL PUPIL (DROPOUT OR POTENTIAL DROPOUT)

INSTRUCTIONS
READ BEFORE COMPLETING FORM

Since some items are specially defined it is strongly recommended that the directions beside each item number in the complete instructions be read before answering the items on the form. Most items contain several possible categories to which pupils may be assigned. Choose the ONE most appropriate and block out the corresponding numeral. For each item, the numeral selected should also be written in the space provided beneath the column of digits. The reason for writing numerals beneath each item in addition to blocking is that it serves as a double check on the entry and facilitates hand-scoring. It is suggested that a red pencil be used for contrast.

Example (A)
Program of Studies
⓪ Academic ① Commercial ② General ③ Special ● Vocational
4

In Example (A), the pupil was enrolled in a vocational program of studies. Therefore, numeral four, 4, corresponding to the vocational program has been blocked out. For each item, the numeral selected is also written in the space provided beneath the column of digits.

Example (B)		
Scholastic Aptitude or I.Q.		
●	⓪	⓪
①	①	①
②	②	②
③	③	③
	④	④
	⑤	⑤
	⑥	●
	⑦	⑦
	●	⑧
	⑨	⑨
0	8	6

Some items require the blocking out a series of numerals as in Example (B). The I. Q. indicated was 86. Therefore, blocked out respectively are zero in the hundred's column, eight in the ten's column and six in the one's column. The number 086 is also written in space provided beneath the column of digits.

NOTE: The bold number in the upper left-hand corner of each box is the item number while the number(s) in parentheses in the upper right-hand corner represents the column number(s) corresponding to a data-processing card.

1 (1-2) County	2 (3-5) School System	3 (6-8) School	4 (9-12) School Membership	5 (13) Sex	6 (14) Race (Optional)	7 (15) Ethnic Origin (Optional)
⓪ ⓪	⓪ ⓪ ⓪	⓪ ⓪ ⓪	⓪ ⓪ ⓪ ⓪	⓪ Male	⓪ White	⓪ American Indian
① ①	① ① ①	① ① ①	① ① ① ①	① Female	① Negro	① Mexican - American
② ②	② ② ②	② ② ②	② ② ② ②		② Other	② Puerto Rican
③ ③	③ ③ ③	③ ③ ③	③ ③ ③ ③			③
④ ④	④ ④ ④	④ ④ ④	④ ④ ④ ④			④
⑤ ⑤	⑤ ⑤ ⑤	⑤ ⑤ ⑤	⑤ ⑤ ⑤ ⑤			
⑥ ⑥	⑥ ⑥ ⑥	⑥ ⑥ ⑥	⑥ ⑥ ⑥ ⑥			
⑦ ⑦	⑦ ⑦ ⑦	⑦ ⑦ ⑦	⑦ ⑦ ⑦ ⑦			
⑧ ⑧	⑧ ⑧ ⑧	⑧ ⑧ ⑧	⑧ ⑧ ⑧ ⑧			
⑨ ⑨	⑨ ⑨ ⑨	⑨ ⑨ ⑨	⑨ ⑨ ⑨ ⑨			

8 Date of Exit (16-19) Year 19	Months	9 Age at Exit (20-23) Years	Months	10 (24-25) Grade At Exit	11 Regularity of Attendance (26-27) JHS (Gr. 7-9)	SHS (Gr. 10-12)	12 Miles from Home (Optional) (28-31) To School	To Bus
⓪	⓪ ⓪	⓪ ⓪	⓪ ⓪	⓪ ⓪	⓪ Regular	⓪ Regular	⓪ ⓪	⓪ ⓪
①	① ①	① ①	① ①	① ①	① Irregular	① Irregular	① ①	① ①
②	② ②	② ②	② ②	② ②	② Truant	② Truant	② ②	② ②
③	③ ③	③	③ ③	③ ③			③ ③	③
④	④ ④	④	④ ④	④ ④			④ ④	④
⑤ ⑤	⑤ ⑤	⑤	⑤ ⑤	⑤ ⑤			⑤ ⑤	⑤
⑥ ⑥	⑥ ⑥	⑥	⑥ ⑥	⑥ ⑥			⑥ ⑥	⑥
⑦ ⑦	⑦ ⑦	⑦	⑦ ⑦	⑦ ⑦			⑦ ⑦	⑦
⑧ ⑧	⑧	⑧	⑧ ⑧	⑧ ⑧			⑧	⑧
⑨ ⑨	⑨	⑨	⑨ ⑨	⑨ ⑨			⑨	⑨

13 (32) Employment Hours per Week	14 (33) Program of Studies	15 (34-36) Scholastic Aptitude or I.Q.	16 Years since (37) Last Scholastic Aptitude or I.Q. Test	17 Age-Grade Placement (38-39) Grade	Years Above or Below	18 Estimated Reading Level (40-41) Grade	Years Above or Below
⓪ Not Working	⓪ Academic	⓪ ⓪ ⓪	⓪ One Term	⓪ At	⓪	⓪ At	⓪
① 1 - 5	① Commercial	① ① ①	① One Year	① Above	①	① Above	①
② 6 - 10	② General	② ② ②	② Two Years	② Below	②	② Below	②
③ 11 - 15	③ Special	③ ③ ③	③ Three Years		③		③
④ 16 - 20	④ Vocational	④ ④	④ Four Years		④		④
⑤ 21 - 30		⑤ ⑤	⑤ Five Years		⑤		⑤
⑥ Over 30		⑥ ⑥	⑥ Six Years		⑥		⑥
⑦ Unknown		⑦ ⑦	⑦ Seven Years		⑦		⑦
		⑧ ⑧	⑧ Eight Years		⑧		⑧
		⑨ ⑨	⑨ Unknown		⑨		⑨

Name _____ Last _____ Middle _____ First _____ Date of Birth _____ Year _____ Month _____ Day _____

Last Address _____ Social Security Number (if any) _____

Name of School _____ Person Completing Form _____ Name _____ Position _____ Date Completed _____

City _____

19 Estimated Rank in Class (42)	20 General Scholastic Achievement (43-45) Elementary	Junior HS	Senior HS	21 Number Courses Failed at Last Report (46)	22 Highest Grade Completed by (47-50) Father	Mother	23 Occupation of Father (51)
0 Highest Quartile	0 Below Average	0 Below Average	0 Below Average	0 None	0 0	0 0	0 Professional, Tech.
1 Next Highest	1 Average	1 Average	1 Average	1 One	1 1	1 1	1 Farmer, Farm Mgr.
2 3rd Highest Quartile	2 Above Average	2 Above Average	2 Above Average	2 Two	2 2	2 2	2 Manager, Proprietor
3 Lowest Quartile				3 Three	3	3	3 Clerical, Sales
				4 Four	4	4	4 Craftsman
				5 Five	5	5	5 Operative (semi skilled)
				6 Six	6	6	6 Service Worker
				7 Seven	7	7	7 Farm Laborer
				8 Eight	8	8	8 Laborer (Non Farm)
				9 Unknown	9	9	9 Unknown

24 Occupaton of Mother (52)	25 Pupil Living with (53)	26 Number of Siblings at Residence (54-55)	27 Economic Status of Residence (56)	28 Annual Family Income (Optional) (57)	29 Time in School District (58)
0 Housewife	0 Both Natural Parents	0 0	0 Public Assistance	0 Under $1,000	0 One Half Year
1 Professional, Tech.	1 Mother	1 1	1 Below Average	1 1,001 - 2,000	1 One Year
2 Manager, Prop.	2 Father	2	2 Average	2 2,001 - 3,000	2 Two Years
3 Clerical	3 Mother & Stepfather	3	3 Above Average	3 3,001 - 5,000	3 Three Years
4 Sales	4 Father & Stepmother	4	4 Affluent	4 5,001 - 7,000	4 Four Years
5 Operative (semi skilled)	5 Grandparents	5	5 Unknown	5 7,001 -10,000	5 Five Years
6 Private Household	6 Foster Parents	6		6 10,001 -15,000	6 Six Years
7 Service	7 Relative	7		7 Above 15,000	7 Seven Years
8 Unknown	8 Friends	8			8 Eight Years
	9 Institution	9			9 Nine Years +

30 Reason for Dropping Out		Pupil Reason (59-62) Principal	Pupil Reason Additional	School Reason (63-66) Principal	School Reason Additional
Specify items 10 and 17 in appropriate space →					
01 Physical Illness	11 Parental Influence	0 0	0 0	0 0	0 0
02 Physical Disability	12 Need at Home	1 1	1 1	1 1	1
03 Mental Illness	13 Economic Reasons	2	2	2	2
04 Mental Disability	14 Employment	3	3	3	3
05 Behavioral Difficulty	15 Marriage	4	4	4	4
06 Academic Difficulty	16 Pregnancy	5	5	5	5
07 Lack of Appropriate Curriculum	17 Other Known Reason (Specify)	6	6	6	6
08 Poor Pupil-staff Relationships	18 Reason Unknown	7	7	7	7
09 Poor Relationships with Fellow Pupils	19 New Residence,	8	8	8	8
10 Dislike of School Experiences (Specify)	School Status Unknown	9	9	9	9

31 Number of Extra Curricular Activities (67)	32 Acceptance by Peers (68)	33 Are Closest Friends Out-of-School? (69)	34 Disciplinary Record (70)	35 Number Schools Attended (71-73) Elem.	JHS	SHS	36 Special Efforts Made by School (74)
0	0 Rejected	0 Yes	0 Expulsion	0	0	0	0 Ref. to Guidance Specialist
1	1 Tolerated	1 No	1 Suspension	1	1	1	1 Work-Study Program
2	2 Accepted	2 Unknown	2 Warning	2	2	2	2 Modified Program
3	3 Popular		3 Both 0 and 1	3	3	3	3 Both 0 and 1
4	4 Unknown		4 Both 0 and 2	4	4	4	4 Both 0 and 2
5			5 Both 1 and 2	5	5	5	5 Both 1 and 2
6			6 All: 1, 2 and 3	6	6	6	6 All: 1, 2 and 3
7			7 None of Above	7	7	7	7 Tutoring
8				8	8	8	8 None of Above
9				9	9	9	9 Other

37 Exit Interview With Whom? (75)	38 Whose Idea to Leave School? (76)	39 Would Stay in School if (77)	40 Future Educational Plans (78)	41 Was Parent Contacted? (79)	42 Parent Attitude Toward Dropping Out (80)
0 Counselor	0 Pupil's	0 Work-Study	0 Armed Services	0 Yes	0 Encourage Leaving
1 Principal	1 Parent's	1 Financial Aid	1 Night School	1 No	1 Indifferent
2 Teacher	2 Guardian's	2 No Fees	2 Adult Education		2 Encourage Staying
3 Both 0 and 1	3 Relative's	3 More Guidance	3 Correspondence School		3 Unknown
4 Both 0 and 2	4 Friend's	4 Indv. Tutoring	4 Equivalency Diploma		
5 Both 1 and 2	5 School's	5 Different Courses	5 Return Later		
6 All: 1, 2 and 3	6 Others	6 Help in Reading	6 MDTA		
7 Other		7 Help in English	7 Jobs Corps		
8 None Held		8 Help in Math	8 Undecided		
		9 Under No Condition	9 None		

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Review and Synthesis of Research in Technical Education.

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Ohio State Univ, Columbus. Center for Vocat and Tech Educ

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*TECHNICAL EDUCATION, *LITERATURE REVIEWS, *BIBLIOGRAPHIES, EDUCATIONAL PHILOSOPHY, MANPOWER DEVELOPMENT, EMPLOYMENT OPPORTUNITIES, CURRICULUM DEVELOPMENT, INSTRUCTIONAL MATERIALS, LEARNING PROCESSES, TEACHING METHODS, STUDENT PERSONNEL SERVICES, EDUCATIONAL FACILITIES, EDUCATIONAL EQUIPMENT, TEACHER EDUCATION, EDUCATIONAL ADMINISTRATION, PROGRAM EVALUATION, *EDUCATIONAL RESEARCH, EDUCATIONAL NEEDS, EDUCATIONAL PLANNING, EDUCATIONAL

OBJECTIVES, EDUCATIONAL PROGRAMS, EDUCATIONAL TRENDS,

Materials from libraries, individual researchers, universities, and state and federal agencies were reviewed in order to present a developmental picture of technical education. Most of the 284 items were published in the current 5-year period. Earlier ones were included if they provided a basis for trends or later activities. Topics covered are -- (1) Philosophy and Objectives, (2) Manpower Needs and Employment Opportunities, (3) Curriculum Development, (4) Educational Programs, (5) Instructional Materials and Devices, (6) Learning Processes and Teaching Methods, (7) Student Personnel Services, (8) Facilities and Equipment, (9) Teacher Education, (10) Administration and Supervision, (11) Evaluation, and (12) Research. It was concluded that -- (1) Much of the research reported is "action type" research, (2) Questionnaires or opinionnaires were frequently used, and (3) Use of the experimental method was practically nonexistent. High quality research was recommended in the areas of -- (1) Instructional Materials and Devices, (2) Learning Processes and Teaching Methods, (3) Facilities and Equipment, (4) Teacher Education, (5) Administration and Supervision, and (6) Research. (EM)

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Review and Synthesis of Research in

TECHNICAL EDUCATION

THE CENTER FOR VOCATIONAL AND
TECHNICAL EDUCATION
The Ohio State University
980 Kinnear Rd.
Columbus , Ohio 43212

VT 022228

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REVIEW AND SYNTHESIS OF RESEARCH IN TECHNICAL EDUCATION

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Fort Collins, Colorado

August 1966

The Center for Research and Leadership Development in
Vocational and Technical Education
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INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Technical Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of technical education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings

generated by funds available through Section 4(c) of PL 88-210. Admittedly, the author had problems in securing all available material, but nevertheless, in our judgment, he has done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Business and Office Education; Distributive Education; Home Economics Education; Industrial Arts Education; Trade and Industrial Education; Agricultural Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to Milton E. Larson for his scholarship and efforts in providing the profession with this new benchmark and perspective on research in technical education. Recognition should be given to Dr. Ralph C. Wenrich, Professor and Head, Vocational Education and Practical Arts, School of Education, University of Michigan, Ann Arbor, Michigan, for his critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. A. J. Miller, Specialist in Technical Education, at The Center, for his review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

PREFACE

Technical education is a comparatively new addition to the total field of occupational education. However, the rapidly changing complexion of technology, science, industry, and education has focused a great deal of attention on the technician as a "key" person filling the gap which has been gradually widening between the engineer and scientist on the one hand and the skilled tradesman on the other.

Since technical education is a relatively new field, the amount of significant, sophisticated research is quite limited. However, much helpful information for research is contained in reports, conference summaries, articles, and other publications. To add to the utility of this paper, selected materials of this nature have been included where a definite contribution to known knowledge of "the state of the arts" in technical education has been enhanced.

The materials reviewed have been gathered from library sources, from individuals involved in research activities, from chairmen of departments of universities having completed such research, from state directors and supervisors of technical education, and from federal agencies and departments engaged in technical education either directly or indirectly.

Every effort has been made to include in this report significant research findings resulting from studies by individuals, organizations, and units of government as well as recognition of

the contribution to the field of knowledge of support information contained in organizational and governmental reports, prepared releases, and other materials which become vital for individuals planning research or expanding the scope of technical education.

In making this review, several studies with titles denoting vocational education, industrial education, and even, in some cases, industrial arts were found upon careful study to contain some very significant findings specifically identified with technical education. Where these studies made an important contribution to this field they have been included in order that the true "state of the arts" may be most accurately reflected.

Essential limitations have been imposed to make this digest more effective. First, studies not within the current five-year period have been omitted unless highly significant to show trends and/or provide the basis for later research and developmental activities. Second, studies that did not contain useful methodology or reveal techniques for systematic attack upon identified categories of problems were not included in this digest. Third, studies and reports were omitted that contained little information which enhanced the knowledge of technical education from such points of view as stage of development of the field, commonly accepted principles, evolving theories, or current trends. Fourth, promotional literature, catalogs of educational institution and similar materials of public information have in the main been excluded. Fifth, census data has been omitted but several manpower reports included do provide some of this type of information.

The structure of the topical organization is provided in the Table of Contents.

To all who contributed materials for review or assisted in any way the author wishes to express his appreciation.

Milton E. Larson

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PHILOSOPHY AND OBJECTIVES

The philosophy and objectives of technical education gradually emerged during the 20th century. Review of the literature of technical, vocational, and industrial education revealed a gradually developing consensus of the purpose of technical education. Changing industrial technology with greater emphasis on automation and instrumentation has provided additional impetus for clarification of early concepts, objectives, and philosophies.

Emerging Concepts of Technical Education

The "genesis for development of the technical institute movement" was provided by an early study by the Society for the Promotion of Engineering Education (Wickenden and Spahr, 1931).

Two significant reports contained findings of studies and reflections of outstanding pioneers in the technical education field. In one case (Federal Security Agency, 1944), a nation-wide consulting committee was appointed to study the problem of the technician. Surveys were made of 22 industries by contacting plants identified as employing technicians. The summary of this report contained identified objectives, content, policies, and practices indicative of technician educational programs of that area. The second (Ward, 1947) concentrated on terminal education in the junior college stressing the need for expanded opportunities for students not planning to complete a

four-year college program. Emphasis was placed upon the process of careful analysis of needs of the community with constant reappraisal of occupational trends; integration of occupational training with general education; and increased value placed on occupational competency. The recognition by military leaders (Oncken, 1948) as well as industrial leaders of the need for better educated technical personnel hastened and strengthened technician education.

Technical education in addition to other occupational education functions was discussed in detail (Bogue, 1950) providing a foundation for an evolving philosophy and pattern of realistic objectives. Recognition of a national need for expanded education to serve the needs of industry (National Manpower Council, 1954) was consolidated with expressions of philosophy and suggestions of objectives in a publication resulting from a study supported by the Ford Foundation established at Columbia University to study significant manpower problems and better utilization of the country's human resources. The place of the technician as a member of the engineering team was discussed (Coleman, 1956; Armsby, 1955; Cummings, 1957; American Society for Engineering Education, 1958) from the viewpoint of contributions, duties, and qualifications. A good description of the philosophy, methods and procedures of technical education (Krauss, 1959; Michael, 1959; Emerson, 1959) was given as practiced in the community colleges and technical institutes.

Three comprehensive studies provided considerable refinement of the philosophy and objectives of technician education of the 1950's. A survey of all phases of vocational-technical education in Oregon (Flesher, 1958) provided an overview of occupational need, educational

status, and trends in technical education. A concentrated study of the engineering technician (Henninger, 1959) was promoted by the Technical Institute Division of the American Society for Engineering Education. Members of the study committee visited 96 educational institutions in 39 states and 140 industrial enterprises in 25 states. Comprehensive questionnaires were also mailed to chief administrative officers of all institutions identified as providing technical education. In an evaluation of the contribution of technical education to the needs of industry (California State Department of Education, 1959), members of a study committee visited 41 California junior colleges and eight technical institutes and technical high schools. Analysis of the curriculum and study of the philosophy and practices resulted in a guideline for planning, operating, and evaluating technical education programs.

A book by two authors (Smith and Lipsett, 1959) provided an excellent review of the historical development, curricula, students, staff, and prevalent administrative practices of technical institutes in the United States. Illustrative of the leadership of a State Department (Michigan State Department of Public Instruction, 1959) was a descriptive bulletin of technician training describing the role of the technician, needs of industry, guidance activities, and training programs for technical education. In two other references (Thornton, 1960; Medsker, 1960), studies and appraisals of technical education in the junior colleges were indicated with the philosophy of technical education given considerable attention. A paper (Dobrovolny, 1960) given at a meeting of the Technical Drawing Association presented the historical development of technical institute education with several

references to objectives, philosophy, and programs for the education of technicians.

Philosophy and Objectives for a Changing World of Work

Several implications for technical education were contained in a challenging document (U.S. Office of Education, 1961c) in which emphasis was placed on the shortage of highly skilled technicians, the increasing need for these technicians, and 14 major objectives of technician training.

The Report of the Panel of Consultants on Vocational Education (Education for a Changing World of Work, 1963) stressed the serious problems, under-employment and unemployment and the lack of quantity and quality in vocational-technical education, demanding immediate attention. In (Technical Training in the United States, Appendix I, 1963) an addition to the Report of the Panel of Consultants, the consultant for technical education elaborated on the philosophy and objectives of technical education viewing the needs of industry, the needs of students for technical education, the institutions offering technical education, and the changing nature of technology from the point of view of total effort demanded of our society and the federal, state, and local governments to achieve the essential goals.

An assessment of the place of occupational education within education as a whole and within a new technological economy was conducted by the American Council on Education (Venn, 1964) concerning the new relationship between man, his education, and his work. In this study of vocational and technical education, the committee recommended the establishment of a national research and planning

body whose sole purpose would be that of translating available information into priorities for the nation's vocational and technical education effort. This assessment is rich in philosophy and sound objectives for technical education, recognizing that technological change will continue as a master of all or as a servant for all.

To investigate the feasibility of launching a program aimed at improving the effectiveness and recasting the pattern of occupational and vocational-technical education was the goal of a high-level planning conference (Frank, 1965a) held at the Massachusetts Institute of Technology. The considerations of the planning conference dealt with vocational education over a continuum from that for the craftsman to that for the technician. Elements of philosophy as well as of practice were considered. An outgrowth of this planning conference was a comprehensive summer study of occupational, vocational, and technical education (Frank, 1965b) dedicated to generating plans to initiate new educational patterns for attaining occupational, vocational, and technical goals. About 60 leaders of vocational and technical education met over a six-to-eight week period to generate fresh, untraditional, and uninhibited ideas for vocational and technical education. New concepts of philosophy concerned patterns of learning, "clinical" education, and the status problem.

A regional attempt to solve dominant issues and problems of higher education and technical education (Technical-Vocational Education and the Community College, 1964) is illustrated by the concerns of educators of the southern states.

Strong elements of philosophy for technical education were evident in three state reports (North Carolina State Board of

Education, 1963a; South Carolina State Committee for Technical Education, 1961; Washington State Board for Vocational Education, 1964).

The elements of today's philosophy and objectives of technical education are contained in several parts of two recent yearbooks (Technician Education Yearbook, 1963; Technician Education Yearbook, 1965).

The important issues of vocational-technical education as well as the total objectives and philosophy are realistically treated in three articles (Leonard, 1963; Feirer, 1964; Sarafian, 1964).

In a study, "Occupational Self-Images of Teachers" (Nelson, 1962), the researcher sought to assess the self-images that teachers held in relation to their work situation. Self-image of teachers in the specialist role of instructor of technicians seems worthy of further study.

A paper, "Improving Vocational and Technical Education" (Feldman, 1966), illustrated deep concerns for the crisis conditions in vocational-technical education. Re-evaluation of philosophy and objectives were implied, with recommendations for extension of vocational education from the elementary school to the 14th grade, redefining of area schools, strengthening of counseling, expansion of work-study, and curriculum coordination at the state level.

Additional research in this area would be helpful.

MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES

Studies in this field are grouped according to scope: national, state, or local. A large number of studies have been made relative to

manpower needs. Many bulletins and booklets utilized in a secondary manner the findings of research together with reports of departments providing a comprehensive treatment of this important element in planning for technical education.

Federal Studies and Reports

The Report of the Commission on Human Resources and Advanced Training (Wolfle, 1954) has been identified as a classic study of scientific, technical, and managerial manpower in the United States.

At a meeting called by the Office of Education, 20 top vocational educators participated in a week-long conference to explore and develop ways of promoting training programs to increase the supply of technicians (U.S. Office of Education, 1957).

Two excellent studies of present employment and long-range demands for technical manpower were made for the National Science Foundation. One study (Bureau of Labor Statistics, 1960) used a stratified random sample of companies drawn from industrial firms involving 10,500 cases. This study established the fact that industry in 1960 used 73 technicians for each 100 scientists and engineers. Another study (Bureau of Labor Statistics, 1961b) has often been considered the best single source of information on long-range projections of technical manpower. The study was undertaken to develop a systematic methodology for the long-range project of demand for scientific and technical personnel through separate analyses and projections for each segment of the economy. The report describes the method developed and presents projections to 1970.

Manpower needs in the field of atomic energy was the subject of two studies in 1961. In one (Bureau of Labor Statistics, 1961a), the

work of technical personnel was thoroughly treated; whereas, in the other (Bureau of Employment Security, 1961a), the educational requirements and job demands for technicians was given in detail.

The problem of youth employment and unemployment with implications for technical education was studied in a recent survey (President's Committee on Youth Employment, 1963) which recommended a new and vital approach to vocational-technical education. Offering training opportunities to the 21 million non-college graduates was a recommendation of the President's Panel of Consultants (Education for a Changing World of Work, 1963). This study emphasized that by 1970 the American labor force will total 100 million people, with 26 million young workers entering the labor force during the decade 1960-70. Data of the numbers of technicians in various industries and similar manpower information were related to opportunities for education in a companion volume (Technical Training in the United States; Appendix I, 1963).

A stratified sampling mail study for the National Science Foundation (Bureau of Labor Statistics, 1964) resulted in a 90 per cent return of approximately 14,200 establishments drawn from individual classes of industrial firms. Findings revealed that approximately half of all technicians were employed in four major industry groups: services, electrical equipment, machinery, and transportation equipment.

A case study research approach coupled with forecasting suggested that technical personnel will increase by 50 per cent in the communications equipment industry by 1970 (C. P. Smith, 1964a).

The employment outlook and trends for technicians was published (Veterans Administration, 1958) as a guide to prospective technicians.

Two other publications providing employment outlook information (Bureau of Labor Statistics, 1962; Manpower, Challenge of the 1960's, 1961) emphasized the educational requirements as well as the nature of technical occupations.

Careers for women as technicians (U.S. Department of Labor, 1961; The Role of Women in Engineering Technology, 1962) identified opportunities for qualified women in industry.

Annually a comprehensive report is prepared for The President's message to Congress on manpower (Manpower Report of the President, 1963; Manpower Report of the President, 1964) giving requirements, resources, utilization and training needs. Highlights of the report (Office of Manpower, Automation and Training, 1963) summarized The President's statements relative to unemployment and changes in employment.

The implications of automation for employment was the topic of a conference at which 16 papers were presented by representatives of government, management, labor, and education (Manpower Implications of Automation, 1965).

The scope of MDTA programs in 1964 encompassed 110,000 who completed training with 74 per cent placements (Wirtz, 1966). Approximately 10 per cent were employed in technical occupations.

A detailed picture of manpower needs in the field of technical education has been compiled from various sources into single volumes which also reflect the supply as well as the demand of manpower (Technician Education Yearbook, 1963; Technician Education Yearbook, 1965).

State Studies

Two dissertation studies focused on employment opportunities and training needs. Both (Prater, 1962; Wooldridge, 1961) compared the probable supply of and demand for technicians from 1960 through 1970. Projections were made from available data.

A researcher (Bearden, 1959) reported the technician requirements in principal industrial areas of Texas upon data gathered by interviewing representatives of 218 selected industries in the state. Another Texas study (Engineering Extension Service, 1959) reported a state-wide survey of technical occupations.

Five states reported state-wide studies of technical education under the auspices of the State Department of Education. One state (Kansas State Board for Vocational Education, 1959) reported the utilization of technicians and their education and training needs. Another state (California State Department of Education, 1959) examined specifically the contributions being made by the junior colleges to the training of students for employment in technical occupations. Visitations, conferences, analysis of curriculums, and review of suggestions by junior college administrators constituted the procedures employed. An outstanding study (Vocational and Technical Education in Illinois - Tomorrow's Challenge, 1960) followed a procedure of continuous weekly seminars, careful analysis of census and other available data, supplemented by intensive surveys in selected junior colleges, technical institutes, and area vocational high schools in several states. To obtain an over-all view of the types of technicians employed and the present and expected future needs, the Connecticut State Board of Education conducted a survey

Righthand, 1964). A survey instrument design for personal interviews was utilized in the study based on the responses of representatives of selected manufacturing and mechanical establishments within the state. An intensive state study in Florida (State Department of Education, 1965) began with the analysis of available data of population growth and distribution, factual presentations of the existing programs, and data showing the needs for trained personnel in the technical fields. This was followed by projection of programs at various educational levels coupled with inventory and evaluation of existing programs. Analysis of financial support, study of patterns of organization and applications of criteria for facilities and location were supplemented by a questionnaire directed to key individuals in centers and junior colleges concerning technical education.

Two excellent studies were reported from New York State. An earlier study (New York State Department of Labor, 1960) focused on manpower and technological changes within the state. One of the most complete studies (Pearce, 1964) provided a broad picture of technical manpower in New York State. This survey was planned and developed with the cooperation of the Division of Industrial Education, the Dean for Two-Year Colleges, and the State Department of Labor. A technique of stratified random sampling was employed. Survey data were derived from a sample of 17,414 establishments constituting 50.4 per cent of the total employment of all businesses in the state. The focus of the study was technical manpower with attention given to both high school and post-high school technical education.

Two manpower studies (Employment Security Commission of North Carolina, 1962; Employment Security Commission of North Carolina,

1962b) reflected the interest of this state in industrial and commercial development and technician education.

Two labor availability surveys suggested the procedures used by a southern state (South Carolina State Committee for Technical Education, 1964a; South Carolina State Committee for Technical Education, 1964b) in making a determination of the need for technical education training facilities in order to adequately meet industries' demands for technical manpower.

A private survey by mail (Gallup and Robinson, Inc., 1964) was conducted for the New Jersey Council for Research and Development to ascertain manpower needs and resources in New Jersey in the technical field. A total of 183 completed questionnaires, 27 per cent of the total, was obtained. In response to one of the questions, 123 companies indicated that sub-professionals with prior training in college were generally most satisfactory. The small percentage of response prohibited generalizing responses to the total industrial population of the state.

Community Studies

A sampling study of technician needs and training facilities was made in the Benton Harbor-Saint Joseph area of Michigan (Brandon, 1958). A Diversified Industrial Survey Form was developed as an interview aid. This was employed by a survey team while interviewing approximately 50 industrial leaders.

Another researcher (Littrell, 1958) sought to determine the employment requirements and opportunities for women as technicians in the St. Louis area. In a well-designed dissertation study, 431 establishments having more than 100 employees each were contacted. Later,

persons familiar with employment requirements and opportunities for technicians were interviewed in 67 establishments employing women technicians. In a similarly structured study (Hinrichs, 1964), the need for technical education in the New Orleans area was examined. Two excellent additional "spot surveys" (Syracuse Board of Education, 1960; Philadelphia Bureau of Employment Security, 1962) concentrated on the need for technicians in highly industrialized metropolitan areas.

The need for both technicians and skilled craftsmen was given as the purpose of another community survey (Board of Education of the Vocational Schools in the County of Middlesex, 1960). The report included data concerning industrial and economic aspects as well as training opportunities, school enrollments, and employment opportunities.

CURRICULUM DEVELOPMENT

Curriculum development has received considerable attention. While much has been written about curriculum development, content, and analysis, few significantly different curriculum innovations were indicated by the available research.

Curriculum Analysis

Two aids were frequently used in the planning and developing of technical education curricula (The American Society for Engineering Education, 1962; Occupational Criteria and Preparatory Curriculum Patterns in Technical Education Programs, 1962). The first resulted from a year-long study of engineering technology by a committee

interested in technician education. The second was developed as an aid for program development under Title VIII of the National Defense Education Act. Both suggested curriculum breakdowns into course areas with the semester-hour analysis provided.

Recently at least two extensive research studies were devoted to the identification of a common core for several technician curricula. The researcher (Schill, 1965), in one project, sought to identify the common elements in the curriculum of six technical training programs. In another study, the researcher (Arnold, 1965) was concerned, among other purposes, with the identification of a core of courses which management agreed desirable for most post-high school technical programs.

Two outstanding studies focused on content analysis. In one (Roney, 1964), mathematics and science content of ECPD accredited curricula in post-high school technician training institutions was analyzed. In another (Barlow and Schill, 1962), the Q-sort technique was employed to identify the essential mathematics content of electrical and electronic technology curricula in California.

The analysis of single industries or single technical fields is still a very common type of action research. Some of these studies related to: the lumber and wood products industries (Stegeman, 1957), agriculture (Technicians in Agriculture, 1962), foundry industry (Bailey, 1964), computers (Matulich, 1964), petrochemical maintenance management (Reach, 1966), and data processing (Business Data Processing -- Technical Courses, 1962).

An outstanding study of the technical skills and knowledges required for highly skilled technicians in 23 selected manufacturing

and processing firms with implications for curriculum development was completed by Merle Bodine (Kansas State Board for Vocational Education, 1959b). Somewhat similar information concerning 65 general and specific job activities found in 85 establishments was contained in a government brochure (U.S. Department of Labor, Bureau of Employment Security, 1961b).

A survey of "need to know" mathematics and science information for the chemical and electronics industries was reported in a California study (Mathematics and Science Competencies for Technicians, 1960).

Content for draftsmen's curricula was the subject of at least two reports. The opinions of graduate engineers on this subject were analyzed in a master's thesis (Pilotte, 1965). "Where Does a Draftsman's Work Stop and an Engineer's Work Begin?" was the topic of a recent paper (Dobrovolny, 1962).

High School Level

National interest has been exhibited in a study of a program designed to meet the needs of the average high school student through the establishment of a pre-technical curriculum in two high schools and Cogswell Polytechnical College (The Richmond Plan, 1963). The plan resulted from the recommendation of study committees and was supported by the Rosenberg Foundation.

A focal point for development of vocational awareness at the secondary level may result from research (Altman, 1966) having as one of its objectives the development and verification of methods for deriving general capabilities from job information. Selected were

occupations with their component jobs and tasks having determined measurable performances. Performance measures were administered to a sample of students followed by determination of the relationships of general capabilities with aptitudes and with educational experiences.

Post-High School Level

A national survey with strong implications for curriculum development at the post-high school level was made by the Technical Institute Division of the American Society for Engineering Education (Henninger, 1959b). Findings include curriculum patterns with a number of typical curricula reproduced in the appendices. Another aid in developing curriculum was the work of two authors (Smith and Lipsett, 1959) which presents a broad overview of curricula and their components. Suggestions for curriculum development in the community college were part of the comprehensive treatment presented by another author (Thornton, 1960). Many practical suggestions and useful approaches to the problem were included in a booklet designed to provide guidelines for the educational administrator concerned with technician training (Emerson, 1962).

Two suggested curricula for educating printing management personnel were a direct outgrowth of the findings of a master's thesis (Gross, 1964).

"Functions of Industry" Research

Two reports of studies reflected the "functions of industry" approach for curriculum framework. One researcher (Duel, 1958) tested such an approach for training electronic technicians, organizing the learning environment around conditions which more nearly simulated

those which are encountered on the job. Another researcher (Stern, 1964) was interested in determining the acceptability of the approach as a curriculum framework for industrial education. A textbook survey followed by two opinionnaires, one to professional management consultants specialized in the area of manufacturing and another to management personnel affiliated with a random sample of manufacturing establishments, constituted the instruments of research. The findings indicated that textbooks, consultants, and management personnel were in substantial agreement with the proposed "functions of industry" approach as a universal framework for understanding the activities of goods-producing industrial establishments.

Guides

A series of suggested guides for the development of two-year post-high school programs have been prepared under sponsorship of the federal government for a number of technical fields. Some of these guides are: Chemical Technology (U.S. Office of Education, 1964a), Electronic Data Processing-I (U.S. Office of Education, 1963a), Electrical Technology (U.S. Office of Education, 1960a), Electronics Technology (U.S. Office of Education, 1965a), Electronic Technology (U.S. Office of Education, 1960b), Instrumentation Technology (U.S. Office of Education, 1964b), Mechanical Technology (U.S. Office of Education, 1964c), and Metallurgical Technology (U.S. Office of Education, 1965b). Other such guides intended for aids in developing technical curricula of shorter duration include: Course in Instrument Maintenance (U.S. Office of Education, 1963b), Highway Engineering Aide (U.S. Office of Education, 1964d), and Organizing a Dental Assistant Training Program (U.S. Office of Education, 1965c).

Two aids provided job descriptions and suggested techniques for determining courses of study designed to help prepare programs under Title VIII of the National Defense Education Act. They are Electronic Data Processing in Engineering, Science, and Business (U.S. Office of Education, 1965d), and Mechanical Drafting and Design Technology (U.S. Office of Education, 1964e).

Several states and local educational units have followed the lead of the U.S. Office of Education in developing suggested curriculum guides. A suggested guide for data processing (Washington State Board for Vocational Education, 1963) has been prepared by one state while another state has developed a guide for drafting and design technology (Mississippi Curriculum Laboratory, 1965). At least three states have developed guides for electronics technology (Mississippi Curriculum Laboratory, 1964; Illinois Engineering Technology Curriculum Committee, 1964; Florida State Advisory Committee for Technical Education, 1962). The State of Washington developed a guide for engineering technology (Binnie, 1964), while one of its colleges (Lower Columbia Junior College, 1961) produced a guide for a forest products technical education program. A guide for a curriculum leading to an Associate of Science Degree in law enforcement was developed in Oregon (Oregon State Department of Education, 1964). Another state developed a guide for machine design technology (Illinois Curriculum Advisory Committee, 1963). A guide for mechanical technology was prepared as a result of a state workshop (Mississippi Curriculum Laboratory, 1966). PERT was the topic of a recent curriculum aid developed under the State Board for Vocational Education in the State of Washington (Hitchcock, 1964).

A recent survey by the Chattanooga Chamber of Commerce resulted in significant information for curriculum development (Chattanooga Public Schools, 1961).

Public information relative to technician curricula with a discussion of a number of patterns of curricula has been produced by at least one state (Michigan State Department of Public Instruction, 1959). In another state, the story of data processing training was excellently presented in brochure form (McKee, 1963).

Other Curricula Information

Industries' role in curriculum development was reported in three digests (Florida Division of Vocational and Adult Education, 1959: Proceedings of National Conference on Manpower Training and Development for the Watchmaking and Precision Industries, 1964: Illinois Board of Vocational Education, 1966).

Characteristics of industrial-technical education curricula in the public community junior colleges of Michigan was a topic of an extensive doctoral study (Larson, 1965b).

Description of the curriculum in industrial instrument technology with discussion of plant, equipment, and initial costs at Del Mar Technical Institute were outlined in a recent article (T. Boaz, 1959).

The four options of the ECPD accredited curriculum in civil technology at Oregon Technical Institute were well described in an article in School Shop (Brookins, 1959).

An excellent source of information for curriculum development and program planning was a comprehensive and intensive survey of

industries and schools in San Fernando Valley, California (Dauwalder, 1961).

EDUCATIONAL PROGRAMS

While treatment of technical education programs are part of several textbooks and references, the amount of research reported in this field is very limited. The significance of this field suggests the need for additional research and the possibility of resulting innovations producing an impact of great value for large numbers of individuals in and out of technical education.

Accounts of the status of technical education programs were described in three public documents. One document (Federal Security Agency, 1944) provided an extensive overview of various types of vocational-technical programs in high school and post-high school institutions. Another report (President's Committee on Education Beyond the High School, 1957) concentrated mainly on occupational education programs in the community junior colleges. A classic approach to the scope and level of technical education programs was closely coupled with the role of institutions in a bulletin prepared by Dr. Lynn Emerson (U.S. Office of Education, 1958).

Five research studies were reviewed that have significant implications for technical education programs. In one study (California State Department of Education, 1959), the contributions of the junior colleges of the state over a 10-year period were carefully reviewed and positive recommendations for future action made. Two state studies focused on the programs of technical education as applied in all public institutions operated within the state (Pearce, 1964;

Florida State Department of Education, 1965). A survey of the rapidly growing concept of work-study programs in junior colleges (Barlow, 1963) and the concept of the four-year technology programs (H. E. Boaz, 1965) suggest movements which may become trends in the near future. A systems approach to updating teachers in their technology to keep pace with new innovations in industry, technology, and science was the subject of the research project entitled "A Vocational-Technical Teacher Technology Center -- The Development of a Model" (Larson, 1966).

A detailed report of the activities in training for jobs of unemployed and underemployed with resultant implications for MDTA and other programs was provided in addition to resumes of research supported by The Department (U.S. Department of Labor, 1964). An excellent description was given of the programs provided under the first year's operation of the MDTA (U.S. Department of Labor, 1963).

The procedure for planning technical education programs was described in a brochure prepared by the State of Florida (Florida State Department of Education, 1958).

Individuals and groups seeking assistance from the current literature in research related activities and in planning for high school and post-high school programs of technical education will find some needed assistance in several references (Henninger, 1959b: Medsker, 1960; Emerson, 1962; Education for a Changing World of Work, 1963; Technical Training in the United States; Appendix I to Education for a Changing World of Work, 1963; Technician Education Yearbook, 1963; Technician Education Yearbook, 1965; Venn, 1964).

INSTRUCTIONAL MATERIALS AND DEVICES

Very little research was in evidence on this subject. If research, to a significant extent, is being done on the subject for technical education, it was not released to the author or to the public libraries utilized by the author. It may very well be that the nature of the subject is such that research and writings on this subject are general rather than focused from the point of view of technical education.

Two research studies were conducted in a technical education setting using recent innovations in teaching. In one instance, the researcher (Stout, 1963) designed a study to measure the effectiveness of television as a method of teaching selected subjects in electronics technology programs. Phase I (Pilot Study) was considered a period of experimentation with the television system. Phase II provided a complete and detailed analysis of a television system feasible for operation in a local school system or in another technical institute. Another researcher (Rothschild, 1966) built and tested experimentally the educational effectiveness of a forced-response device for group instruction. Using an experimental and control group with 28 students in two groups with alternate groupings, the researcher found somewhat superior learning resulted for the group using the forced-response device.

Two other studies related to teaching machines have implications for technical education (Fine, 1962; Fry, 1963). However, neither study was oriented particularly to technical education. A report of an institute on programed instruction in industry and

education revealed many facets of this new and exciting movement (Teal, 1963).

In another interesting article, a critical evaluation was made of multimedia rear-screen projection in educational presentations (Wyman, 1966). In a brochure, descriptive of low-cost fabricated three-dimensional teaching aids for trade and industrial education, much information was given which is important for technical education (U.S. Office of Education, 1961b).

LEARNING PROCESSES AND TEACHING METHODS

The literature of technical education research is sadly lacking in reported research in this very important division. With the extension of technical education to larger numbers of high school and post-high school institutions serving more students than ever before, this is a challenging field for research. The changing concept of the scope of technical education in ever-broadening spectrums to widening ability levels offers rich and fertile opportunities for more and better information concerning learning processes and teaching methods uniquely designed to meet the challenges of expanded horizons of technical education.

In a bulletin, the U.S. Office of Education covered cooperative programs in the U.S. at the technical institute level (Armsby, 1954). Another author (Morecock, 1953) described the organization and operation of a cooperative education curriculum in electrical technology at Rochester Institute of Technology. The vital problems encountered in operating a cooperative engineering educational program were discussed in detail in an article, "Cooperative Work-Study Programs" (Huddleston, 1958).

STUDENT PERSONNEL SERVICES

A number of studies have been made relative to the success or failures of graduates and the opinions of graduates and former students of the educational programs and services provided.

An outstanding study on a very difficult but timely subject was recently completed concerning the relative importance of job-related motivational forces among disadvantaged workers (Champagne, 1966). Trainees in the federally-supported program, Special Training for Economic Progress (STEP), were studied. Some of these students were preparing to enter technical fields. Two instruments were designed to assess the relative strengths of factors of job satisfaction and to measure the levels of attitudes following rigorous psychometric procedures. A detailed personal history questionnaire was also employed. Findings of this study indicated that the underprivileged workers have a high need to prove their value to society.

Follow-Up Studies

Some findings and implications for technical education were contained in a recently completed nation-wide study supported by the Ford Foundation (Eninger, 1965) using a randomly-selected sample from 10,000 male high school graduates of the years 1953, 1958, and 1962. The study indicated additional training needs of groups of graduates such as electronic technicians.

In a regional study of 13 states (North Atlantic Region, 1965), the growth of technical education in numbers of students and numbers of curricula were included in the findings. This study employed a 100 per cent sample of the 1963 high school graduates.

Insight into the characteristics of technical institute students is provided in two other significant studies (Miller, 1966; Righthand, 1965).

In at least six state and area studies, efforts were made to follow up graduates and former students. Two studies were made of technical education in community colleges. One researcher (Larson, 1965b) studied all students who initially enrolled in industrial-technical curricula during the year 1958-59 in eight community junior colleges of Michigan. Another study (Harris and Yencso, 1965) sought to determine whether the educational programs in high schools and community colleges of Michigan were adequate to prepare technicians for employment in industry. Graduates of Georgia's Area Vocational-Technical Schools were studied from the point of view of job placement, job satisfaction, earnings, and related student personnel information (Bottoms, 1965b). An extensive 10-year follow-up study of graduates of Middlesex County Vocation and Technical High School (Coe and Zanzalari, 1964) included data collected from 917 respondents by a questionnaire process. Some characteristics of engineering technical students were identified in a study of a large city junior college district in California (Los Angeles City School District, 1962).

Information concerning the factors that tended to promote success in graduates of mechanical drafting was the objective of a study made for a trade and technical institute (Gahn, 1965).

A recent comprehensive release of the U.S. Office of Education (Division of Vocational and Technical Education, 1965b) supplied vital data concerning numbers of students, programs, and institutions participating in technical education.

Student Selection

Student selection was considered very important together with the role of the counselor and teacher in developing pre-technical programs for average high school students as reported in a recent study (The Richmond Plan, 1963). Scholastic achievement and formal education, together with special aptitude, were identified as the most useful criteria for the selection of students for technical curricula, according to the findings of a doctoral dissertation (Wold, 1961). The researcher used the returns of 169 responses of representatives of public and private schools throughout the United States as a basis for this finding.

Testing as a selection criteria was discussed in two articles devoted to technical education. In one (Helmick, 1958), the importance of standardized tests was discussed; while in another (Case, 1958), tailor-made aptitude and achievement tests as well as standardized tests for selection of students in technical education programs were considered.

Guidance Information for Students

Many brochures and other releases provided guidance information for students. Several were reviewed that were effective sources of guidance information (McDaniel, 1962; Mohs, 1962; Facing Facts About the Two-Year College, 1964; Job Guide for Young Workers, 1964; Occupational Outlook Handbook, 1963; New York State Department of Education, 1959; Washington State Board for Vocational Education, 1961).

Counselor's Handbook

At least two educational units developed guidelines for counselors in vocational-technical schools. One, a state bulletin (Hogard, ____),[1] stressed the need of school counselors working more closely with their local administrators and also outlined the qualifications, duties, and activities of the counselors. An Area Vocational-Technical School Guide (Bottoms, 1965a) provided data that will enable the counselor to use the Dailey Vocational Test scores in relating student abilities to success in school.

General Guidance Information for Technical Personnel

General guidance information for technical personnel is provided in a number of excellent resource books (National Manpower Council, 1954; Smith and Lipsett, 1959; Thornton, 1960; Education for a Changing World of Work, 1963; Harris, 1964).

FACILITIES AND EQUIPMENT

The increasing needs of larger numbers of students for technical education demand large capital expenditures in physical plant and equipment. Much additional research in this field would be helpful to those individuals who are involved in the planning process. Little research is available directly related to technical education plant and equipment.

Needs

A recent federal report (Division of Vocational and Technical Education, 1965), indicated that at least 125 new vocational-technical

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[1]Date not given.

schools were under construction with 209 additional institutions in the planning stage. A review of the state-by-state reports revealed a rapid rate of expansion and improvement of facilities as a direct result of the Vocational Education Act of 1963.

An extensive state-wide study of vocational-technical education (Florida State Department of Education, 1965) suggested that consideration be given to the use of a standard building components system for construction of laboratory and shop facilities. It emphasized the importance of replacing temporary facilities.

Facilities planned for comprehensive secondary school pre-technical programs should have the quality and atmosphere of a modern industrial research and development center according to the findings of a study by Educational Facilities Laboratories (Implications of the Richmond Plan, 1965). The purpose of this study was to consolidate the experiences and implications derived from the Richmond Plan into a recommended approach for physical facilities in a comprehensive secondary school program. The report further stated that equipment and furnishings should be of industrial quality.

The development of a vocational-technical teacher technology center model was the purpose of a research project supported by the U.S. Office of Education (Larson, 1966). The goal of such a center was conceived as updating vocational-technical teachers in their technology. Working through a panel of consultants, with representatives from all fields of vocational-technical education assisted by architects and specialists in construction and media, educational specifications and preliminary architectural design was developed.

Planning and Design

Many states have guides and aids dealing with the planning and construction of educational facilities. Most of these relate either to the general problem or to the broader needs of vocational education and industrial arts; little specific information for technical education was identified.

A recent federal publication provided an excellent outline of considerations in planning vocational and technical education facilities (Chase, Browne, and Russo, 1965). Covered are topics such as surveying needs, educational specifications, general planning suggestions, construction costs, and capital outlay.

Some assistance was available through planning guides developed by some of the individual states, even though the focus often was not specifically on technical education (Greiber, 1964; Michigan Department of Public Instruction, 1964; New Jersey State Board of Education, 1964).

A volume of material on planning and equipping the school shop was developed by Prakken Publications (Modern School Shop Planning, 1965).

Two very helpful aids in the planning process of such facilities were the result of recent research. One, based on research by John X. Jamrich of Michigan State University (Weinstock, 1964), described the planning process, utilization of instructional space, and improvement of over-all facility utilization. An outstanding workbook for determining space utilization has been incorporated into this publication. Another researcher (Merlo, 1964) concentrated on the basic factors necessary for planning comprehensive community college facilities.

A guide was developed utilizing such individuals as chief state school officers, members of professional organizations, community college specialists in college facilities, and specialists in the U.S. Office of Education and American Association of Junior Colleges. A checklist of more than 300 questions concerning community college facilities was devised from the results of the study.

A report (New Building on Campus, 1963) presented graphic interpretations by six architectural firms of the design for an instructional research and communications center which has several implications for planners of technical education facilities. Another report provided excellent information for such planners illustrating the design and construction of a modern, functional science and technology building (Miami-Dade Junior College, 1965).

Ten months of research on the subject of designing schools for educational television resulted in much information important to technical education (Chapman, 1960). This report strongly presented the concept that the design of the school, its spaces, and its facilities must not only permit but should strongly support the educational functions.

An article (Allee, 1959) which contained many ideas relative to buildings and facilities in general provided some suggestions for individuals involved in planning new facilities or altering present structures used in technical education programs.

Two other sources of excellent information on costs and economy in planning and construction of facilities should be studied prior to building facilities (National Council on Schoolhouse Construction, 1961; Educational Facilities Laboratories, 1964).

TEACHER EDUCATION

The role of the teacher and teacher educator was the subject of several research studies. In an early study the role of the departmental chairman in industrial teacher education was viewed from the point of view of preparation, experience, activities, and working conditions (Minelli, 1958). In this doctoral study a questionnaire check sheet was used to obtain information from 123 chairmen of such departments.

In order to strengthen teacher preparation in the subject-matter area of the electrical field, a researcher (Jelden, 1960) compared the basic informational content of textbooks and other instructional materials used in electrical courses offered to industrial education majors in teacher-education institutions with the basic electrical knowledge required of persons who work with electronic devices in industry. Two questionnaire forms were developed, one for heads of departments and another for instructors of electrical subjects, in order to identify the instructional materials used and other important data. The analysis of the content of the instructional materials was then sent to 22 selected electronics manufacturing industries to be rated as important for electronic technicians.

The occupational self-image of teachers was explored in another study by a doctoral candidate (Nelson, 1962). The investigator employed Dr. Robert Dubin's "central life interest" inventory in addition to one developed to measure the major work-role in industry of 230 selected teachers. In another study several unique aspects of technical teacher characteristics with implications for teacher recruitment and training were revealed (Cotrell, 1960).

Three studies were concerned with inservice teacher education. One of these (Brantner, 1964) was mainly concerned with the inservice education activities in which the technical and industrial teachers had participated and desired to participate. A check-list opinionnaire was the instrument used. A recommendation of the study called for increased inservice education activities in both the professional and subject-matter categories.

In another study (Silvius, 1965) of the practices and policies essential to keeping industrial education teachers of Michigan qualified, 56 persons were selected to react to issues formulated from a number of pertinent factors. Out of this study developed eight specific proposals for action programs or additional research studies representing the areas of greatest concern to both the interviewees and the staff of the study.

A summer inservice pilot program for teachers involved with instrumentation of a technical nature was supported by a grant from the U.S. Office of Education (Larson, 1965a). Every student indicated a desire for such continued inservice activities.

A research activity (Minelli, 1965) encompassing a three-fold plan of involvement of the university, the community colleges, and the high schools with industrial firms in a partnership relationship to strengthen teacher preparation was recently supported by an extensive grant of the Ford Foundation. The program still in progress represents a realistic approach to teacher education.

A study (Larson, 1965b) of the preparation of 138 teachers in industrial-technical programs in community junior colleges of Michigan

established profiles of preparation in subject-matter areas and pedagogy as well as actual years of teaching experience and closely related industrial experience.

In two recent papers, qualifications of teachers of technical subjects were carefully analyzed. The first paper (Dobrovolny, 1963) identified the requirements for a faculty member essential to a quality program in technical education. The second paper (Dobrovolny, 1965) identified the essential preparation of technical teachers.

The role of colleges and universities in the preparation of teachers of technical education subjects was mentioned in several instances in the challenging report by the American Council on Education (Venn, 1964). The thesis of this report has been ably presented as technology creating a new relationship between man, his education, and his work, in which education is placed squarely between man and his work. With education in such a position, the role of the teacher and teacher educator is paramount.

ADMINISTRATION AND SUPERVISION

The potential for additional research in this field is great. Some significant studies in specialized sectors of the field have been made. It would seem highly desirable to encourage further extensive research in technical educational administration and supervision.

A major break-through in stepped-up effective planning for new institutions in technical education occurred with the report of the use of "PERT" as a planning tool (McKee, 1966). The nine steps in the establishment of a two-year technical college were determined and some 300 events accomplished in 88 days. The administration used a "team

approach" whereby the three main administrators focused attention on a major activity, planned and started its evolution, assigned it to a staff member for completion, and then initiated the next activity. This project was supported by the U.S. Office of Education.

A published doctoral dissertation (Burns, 1964) resulted from an investigation of the factors governing the establishment and operation of area vocational-technical schools and programs in the United States. Several guidelines for administrators were contained in the findings, relating to such matters as size of area school district, population base, industrial support, and similar subjects.

In a series of studies at the University of Michigan, major attention was devoted to administrative aspects. In one study (Wenrich, 1962), more effective ways of using state and federal funds were explored. A second study (Wenrich and Ollenburger, 1963) focused on how high school principals perceived that programs for employment-bound youth could be more adequately developed through greater outside assistance. A third study (Wenrich and Van Dyke, 1963) explored the attitudes of local administrators regarding the financing of vocational education in Michigan. The pattern of organization for effective vocational education in Michigan was the subject of another research activity (Mason, 1963). The researcher used two groups of schools, one considered to be above average and the other below average, and developed a questionnaire to determine who within a particular school had the initial responsibility for the performance of selected administrative functions. Another study (Wenrich and Hodges, 1966) reported details of the first University of Michigan Leadership Development Project for Vocational and Technical Education

with results of the subsequent follow-up study of 40 participants included.

In the brochure, "Area Vocational Programs" (U.S. Office of Education, 1960c), the framework for the administration of technical education under Title VIII of the National Defense Education Act of 1958 was discussed.

Several states have issued documents stating recommended practices for the administration and supervision of technical education programs. Especially helpful among these releases are those relating to organization and finance (Wisconsin State Board of Vocational and Adult Education, 1966; Greiber, 1963; Michigan Division of Vocational Education, 1966; Oregon State Department of Education, 1966; California State Department of Education, 1966).

Several suggestions and aids for supervisors and administrators of programs of technical education are provided in a recent handbook (Izzo, Munson, and Sword, 1963).

EVALUATION

One of the most frequently used studies for evaluation of technical education is the McGraw Report, "Characteristics of Excellence in Engineering Technology Education" (The American Society for Engineering Education, 1962). The report followed a year-long study by a committee concerned with the development of guidelines for constructing, improving, and evaluating technical education of this level.

A guide for institutions in a self-examination of its goals and the educational activities which it has in operation to accomplish them has been developed by the Department of Community Colleges in North Carolina (Manual for Institutional Self-Study, 1965).

A 15-month research project established by the American Vocational Association and supported by the Division of Cooperative Research of the U.S. Office of Education was designed to identify and describe--through a nation-wide survey of selected schools, including technical and vocational-technical schools--the vocationally talented students. This evaluation described the curricula and programs in a number of technical schools and summarized the progress made in the various states in technical education.

In a questionnaire study by the Curriculum Commission of the American Association of Junior Colleges (Dwyer, 1960), the findings of the study related general education to technical and vocational education.

An evaluation of the vocational education program in South Carolina (Flesher, 1963) recommended expansion of vocational and technical education facilities to meet the needs, even though at present it indicated substantial growth in school population in this field.

Evaluation of a special MDTA program for disadvantaged persons, called the Norfolk Project (Office of Manpower, Automation and Training, 1965a), revealed that as a result of the MDTA education a great improvement in attitude as well as a high placement record was achieved. Eighty-nine per cent were employed one year after graduation.

An assessment of vocational and technical education in the secondary schools, on a basis of random selection of youth in selected institutions by questionnaires, was coupled with supervisors' ratings and the opinion of an independent jury of experts in a well-designed

statistical study (Kaufman and Schaefer, 1965). The study sampled attitudes, opinions, and occupational activities of the graduates constituting the sample.

What happens to graduates of four-year technical state college programs who do not become teachers? This question became the subject of a doctoral dissertation completed at the University of Missouri (Robinson, 1965). In a study of 508 non-teaching graduates from Southwest Missouri State College who received baccalaureate degrees during the years 1960 through 1964, 53.3 per cent were employed in occupations directly related to the technical knowledge and skill of their major in college.

A paper prepared for a conference sponsored by The Center for Studies in Vocational and Technical Education of the University of Wisconsin (Corazzini, 1966) attempted to answer the question, "When should vocational training begin?" The speaker presented cost figures of vocational education at the high school level and technical education at the post-high school level. He said that post-high school graduates enrolled in technician curricula would incur costs of $2,544 per year but would have an annual salary of about $400 more each year than the vocational school graduate.

There are several other considerations, psychological and social as well as economic, involved in the solution to this problem.

A comprehensive evaluation of vocational education (including technical education) was given in a report of the Michigan Vocational Evaluation Project (Borosage, 1963).

The State of Kansas made a thorough study of the role, function, organization, general supervision and financing of junior colleges as

part of a total program of evaluation (Advisory Committee on Junior Colleges, 1964).

A questionnaire study (Formal Occupational Training of Adult Workers, 1964) planned by the Bureau of Labor Statistics focused on the evaluation of vocational training background of workers between the ages of 22 and 64 years who had completed less than three years of college. This study covered 50 states with approximately a 73 per cent response of the 35,000 sample.

RESEARCH

Research has been a significant instrumentality of technical education only since World War II. A detailed outline of procedures used in several occupational surveys was included in the book, Terminal Education in the Junior College (Ward, 1947).

A study made to develop a research design which could be used to investigate the work functions and understandings of industrial technicians was developed at Michigan State University (Brandon, 1960). This report described the research procedures used. A similar objective motivated a research study (Jocoby and others, 1960) at Pennsylvania State Department of Public Instruction. The goal of the study was to develop more efficient and uniform survey techniques, procedures, and forms to guide the survey specialist in planning, conducting, and reporting the trade and technical education needs and interests of the area.

A project (O'Connor, 1965) of the Student Personnel Commission and the American Association of Junior Colleges was concerned with follow-up studies in junior colleges. The report was presented as

a guide to the philosophy, planning, procedures, and use of follow-up studies.

In 1963, the Ford Foundation initiated an effort to help improve vocational and technical education in the United States. In the brochure, "Ford Foundation Grants in Vocational Education" (Ford Foundation, 1965), a report was given of research grants made since 1963.

A number of research instruments, such as standardized tests, interviews, observational techniques, and questionnaires, were planned for a research activity designed to compare a broad field-oriented approach with one more specifically job-oriented to retrain unemployed workers as mechanical technicians - tool designers (Bjorkquist, 1966).

Summary of funded, completed manpower research projects were provided annually by the Office of Manpower, Automation and Training (Office of Manpower, Automation and Training, 1964; Office of Manpower, Automation and Training, 1965b).

Research contracts entered into by the Secretary of Labor were reported with brief summaries in Part II of the report, "Manpower Research and Training" (U.S. Department of Labor, 1964). The most recent release of this report provided excellent summaries of recent research supported by The Department (U.S. Department of Labor, 1966). Several of these studies identified trends and new developments in technology.

OTHER

A number of excellent studies, reports, and articles are grouped under this category as these were not suited to the previously identified headings.

Technical Education Need Studies

A large number of studies have been made at the state and local level in order to determine the need for technical education. This category is not the same as Manpower Needs and Employment Opportunities.

Seven state-wide studies were reviewed in which the heavy emphasis was identifying the need for vocational and technical education. Excellent research findings were provided in these studies (McClure, 1960; Pennsylvania Department of Public Instruction, 1960; Flannery, 1961; Watanabe, 1961; Straver and Kelly, 1962; Employment Security Commission of North Carolina, 1962a; Minnesota State Department of Education, 1964; New Jersey State Department of Education, 1964b).

Illustrative of the technician need studies reviewed at the local level were sixteen studies (Campbell, 1964; Lang and others, 1960; New York State Department of Education, 1963; Kidd and Sutker, 1960; Pasadena City Schools, 1961; Coe and others, 1960; Donaghay, 1959; New Jersey State Department of Education, 1960; New Jersey State Department of Education, 1963; Kulp, 1963; Kleinman, 1965; University of Michigan, 1963; Lombardi, 1962; Murphy, 1964; Hodgson, 1965; Dauwalder, 1961).

In a few cases the studies were oriented in the direction of a particular field such as electronics. Most of these were local or area studies, but one was a state study (Schweitzer, 1964; Buller, 1961; Carlson and Lepak, 1963; Phills et al., 1964; Howell, 1965; Technical Education Needs of Persons Engaged in Agricultural Occupations, 1965).

A study was made to determine what students should take in high school in order to best prepare for entrance into junior college electronic data processing programs (Chapin, 1962).

The Monthly Labor Review contained the report of a survey conducted by the Bureau of Labor Statistics to determine the education and training needs of technicians (Stambler and Lefkowitz, 1964).

State-Wide Plan

Three studies provided information of efforts directed toward the concept of state-wide plans for technical and vocational education. An outstanding study with very realistic recommendations resulted from such a research project for the State of Maine (Flesher, 1962). In another study sponsored by the W. E. Upjohn Institute for Employment Research, the role of the community college in technical education was stressed (H. T. Smith, 1963).

Technical education was combined with an overview of all higher education in a state master plan resulting from the action of the Coordinating Committee for Higher Education created by the Legislature of Wisconsin (A Comprehensive Plan for Higher Education in Wisconsin, 1965).

Accreditation and Certification

Helpful in understanding the role of the American Society for Engineering Education and the Engineering Council for Professional Development are two articles recently published (Henninger, 1964; Werwath, 1964).

The inception, founding, objectives, administrative procedures, and evolution of the American Society of Certified Engineering

Technicians (ASCET) were ably discussed in a paper presented at the World Congress on Engineering Education in Chicago, 1965 (Silva, 1965).

Information Sources

Helpful to researchers and others studying technical education are directories and bibliographies.

An extensive directory of schools offering technical education programs under Title VIII of the National Defense Education Act of 1958 is available (U.S. Office of Education, 1965e).

A carefully organized list of instructional materials in the fields of technical, industrial, and trade education suggested text books and library books for technical education (Washington State Board for Vocational Education, 1965).

An extensive bibliography, "Sociological Studies of Occupations," listed several entries of significance to researchers and educators in the field of technical education (Office of Manpower, Automation and Training, 1965c).

General Information

Much research-type information was contained in a number of releases indicative of the present status and future trends in technical education. Much information was given in the summary compiled from state reports concerning enrollments, expenditures, and similar items as released by the federal government (U.S. Office of Education, 1963).

In a study designed to provide information on the current direction of technological change by reviewing trends in 36 major American industries, much knowledge of changing processes, materials,

equipment, and products significant to technical education was given (Technological Trends in 36 Major American Industries, 1964).

Further insights into changing concepts for technical education were provided by reports of two conferences (Evans, 1962; California Department of Education, 1965).

The duties, skills, and knowledges required of technicians in industry were discussed very effectively in two articles (Bergen, 1959; Bureau of Employment Security, 1961b).

While advisory committees for technical education were not covered in any of the literature reviewed, the federal bulletin, "Organization and Effective Use of Advisory Committees," has many implications for technical education (U.S. Office of Education, 1961a).

An excellent guide for establishing a comprehensive community college was developed for North Carolina (State Board of Education, 1963a).

A report, "Careers for Women as Technicians," contained materials related to the expanding opportunities for training and employment of women in the technical fields (Women's Bureau, 1962).

Another report relating to leadership developmental activities for technical educators through a summer institute was described in a report from Oklahoma State University (Dunn, 1965).

A status report of technical and trade education in secondary schools and retraining programs in Pennsylvania was helpful in understanding opportunities available for technical education in that state (Pennsylvania State Department of Education, 1963).

Typical of several brochures designed to provide public relations information coupled with basic concepts of technical education were two from California (California State Department of Education, 1963; W. P. Smith, 1964b).

CONCLUSIONS AND RECOMMENDATIONS

While it is encouraging to note that several studies have been completed in a number of areas of technical education, it is rather discouraging to find so little evidence of real research in other areas vital to technical education.

It is to be assumed, however, that the recent additional emphasis on research resulting from the Vocational Education Act of 1963 will produce definite improvements as to both the quality and quantity of research.

Much of the research reported is "action-type" research. But often the researcher moved ahead without carefully evaluating the research design and methodology. In several cases the report of the research did not contain sufficient information to properly evaluate the findings in a structure of good research design.

Large numbers of research studies took the form of questionnaires or opinionnaires. Insufficient attention was often given to delineation of the specific population or the determination of an adequate sample size. While the percentage of return was usually given, little indication was presented of efforts to establish the effect of the non-respondents upon the data accumulated. Indicators of validity or reliability of instruments used were frequently omitted. Interpretations of the findings in most cases were so limited that ability to generalize to a larger population was impossible.

Use of the experimental method was practically nonexistent. Still, the experimental method is the most scientifically sophisticated research method. Technical education bordering on the realm of science is a field in which, hopefully, much more experimental research will be completed.

While several studies have been made in the fields of "Manpower Needs and Employment Opportunities" and "Curriculum Development," other highly significant fields have been practically ignored. The need is great for additional research of high quality in such fields as:

Instructional Materials and Devices

Learning Processes and Teaching Methods

Facilities and Equipment

Teacher Education

Administration and Supervision

Research

If technical education is to meet the needs of students and employers, more organized, meaningful research is essential. More educators and others must be cognizant of good research design and methodology. The functioning tools of research must be a part of the background of all technical educators. Time and motivation to do research are basic to an expanded effort in this or any other field. If educators are to contribute to the field of research on an after-hours basis while attempting to continue "business-as-usual," there is little hope of filling the voids in our knowledge through research.

A unified, organized approach to research in technical education is essential if the necessary impact is to be made! Technical education must develop the same type of philosophy toward research which is now prevalent in the research installation of a modern, major industrial enterprise. Facilities, "tools of research," and adequate support personnel must be provided, plus additional financial support, if research in technical education is to really provide the vital and much needed stimulant to meet the needs of the "front ranks" on the battle-line of quality and quantity in technical education.

The "state of the arts" of research in technical education will be greatly enhanced through an improved system of dissemination of research. At the present time, the difficulty encountered in securing documentation of the achievements of others often discourages use of research information. Many seem hesitant to share the "efforts of their labor."

Really, technical education and research in technical education are just emerging from infancy and growing toward adolescence. Nurture, now, through federal and foundations' support are increasingly essential to provide the firm foundation of a well developed and enduring research effort. Now is the time for a united and an extended effort to help technical education meet the needs of people, youths, and adults, and also to satisfy the basic requirements of the employers of technicians and technically-oriented personnel in all fields of endeavor!

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*TRADE AND INDUSTRIAL EDUCATION, *LITERATURE REVIEWS, EDUCATIONAL PHILOSOPHY, *BIBLIOGRAPHIES, MANPOWER DEVELOPMENT, EMPLOYMENT OPPORTUNITIES, CURRICULUM DEVELOPMENT, INSTRUCTIONAL MATERIALS, LEARNING PROCESSES, TEACHING METHODS, STUDENT WELFARE, EDUCATIONAL FACILITIES, EDUCATIONAL EQUIPMENT, TEACHER EDUCATION, EDUCATIONAL ADMINISTRATION, PROGRAM EVALUATION, *EDUCATIONAL RESEARCH, EDUCATIONAL NEEDS, EDUCATIONAL PLANNING, EDUCATIONAL OBJECTIVES,

EDUCATIONAL PROGRAMS, EDUCATIONAL TRENDS,

Periodicals, books, papers, dissertations, and research reports from 1954 to 1966 were reviewed in order to establish a base for current research. They are reported by topics -- (1) Philosophy and Objectives, (2) Manpower Needs and Employment Opportunities, (3) Curriculum Development, (4) Educational Programs, (5) Instructional Materials and Devices, (6) Learning Processes and Teaching Methods, (7) Student Personnel Services, (8) Facilities and Equipment, (9) Teacher Education, (10) Administration and Supervision, (11) Evaluation, and (12) Research. (EM)

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Review and Synthesis of Research in

TRADE and INDUSTRIAL EDUCATION

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
The Ohio State University
980 Kinnear Rd.
Columbus , Ohio 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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REVIEW AND SYNTHESIS OF RESEARCH IN TRADE AND INDUSTRIAL EDUCATION

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August 1966

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INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Trade and Industrial Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of trade and industrial education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings

generated by funds available through Section 4(c) of PL 88-210. Admittedly, the authors had problems in securing all available material, but nevertheless, in our judgment, they have done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Business and Office Education; Distributive Education; Home Economics Education; Industrial Arts Education; Technical Education; Agricultural Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to Bruce W. Tuckman and Carl J. Schaefer for their scholarship and efforts in providing the profession with this new benchmark and perspective on research in trade and industrial education. Recognition should be given to Dr. Melvin Barlow, Director, Vocational Education, School of Education, University of California, Los Angeles, California, for his critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. Calvin J. Cotrell, Specialist in Trade and Industrial Education, at The Center, for his review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

PREFACE

For purposes of this review, the following definition of Trade and Industrial (T & I) Education, as set forth in the American Vocational Association publication on definitions, has been adopted:

> . . . instruction which is planned to develop basic manipulative skills, safety judgment, technical knowledge, and related occupational information for the purpose of fitting persons for initial employment in industrial occupations and upgrading or retraining workers employed in industry.

Individuals so trained, according to the U.S. Department of Health, Education, and Welfare (1958), will engage in occupations concerned with designing, producing, processing, assembling, maintaining, servicing, or repairing of any product or commodity.

An attempt has been made to restrict the materials reviewed to research studies involving the collection of data and comparison either between groups or correlation of pieces of data for the same group. In some cases, studies containing only descriptive data for a single group have been included. Finally, articles presenting an author's opinion have been included only in instances where the opinion appears to be supported by documentation. Sources ranging from books, journals, and dissertations to papers presented at meetings and unpublished studies have been utilized. Many of these unpublished documents have come directly from State Supervisors of Trade and

Industrial Education and from Chairmen of University Departments of Trade and Industrial Teacher Education.

The reviewed articles have been chosen primarily from the years 1962-1966. In some cases, articles from the 1960-1961 period have been included. Studies appearing prior to 1960 have not been included.

The authors would like to express their appreciation to Dr. John L. O'Brian who provided materials relevant to recent research in T & I Teacher Education, Mr. Seth Goldberg who abstracted many of the articles contained in the review, Mr. Benjamin Shapiro, Director of the Rutgers Curriculum Laboratory, who made available many of the journals reviewed, and Mrs. Virginia Fanos who typed the final manuscript. The authors are further indebted to those T & I administrators and educators who responded to requests for unpublished research reports, thus increasing the inclusiveness of this literature review.

Bruce W. Tuckman

Carl J. Schaefer

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PHILOSOPHY AND OBJECTIVES

The highlight of the period 1962-1966 in vocational education was the passage of the Vocational Education Act of 1963. Prior to its passage, Chase (1963) contended that the preoccupation of American education with the 20 per cent of this country's youth who complete a college education has resulted in a situation wherein the remaining 80 per cent are "learning to be unemployable." The solution to this problem lies in vocational education becoming more flexible, gaining more support from organized labor, offering programs more in line with employment opportunities, expanding programs such as the work-study program, including more youth with special needs, and receiving more federal funds. The Report of the Panel of Consultants on Vocational Education (U.S. Department of Health, Education, and Welfare, 1963) also cited vocational education as being insensitive to supply-and-demand factors in the labor force, as being unavailable in many schools, in providing only limited offerings, in serving the urban population only meagerly, and in contributing less than its need, particularly in the case of youth with special needs.

Studies such as the above stimulated the passage of the Vocational Education Act, which represents a philosophy in itself. As it was being signed into law, Eddy (1963) speaking as the "Spirit of Vocational Education," said:

> . . . Reject not the principles of the prophets which have served well over the years, but recognize that the limited practices of yester-years are not

> sufficient unto this day. Change cometh of swift feet, and is always at hand. . . . Widen ye your vision. Be alert, that new needs will be recognized, and become flexible that they be satisfied. . . . For it is in meeting the needs of man, fashioned to the opportunities of the day and those to come, that the general welfare, the defense of the nation, a sound economy, and stable social institutions are maintained. . . . Be also concerned about an organization for the work. But think not that one plan must over-shadow all the others. . . . Search yourselves diligently lest you continue to neglect the hosts of men who have not been served well in the past. . . . Be not afraid to investigate all matters that Truth will be known. Experimentation and research are the mightiest of tools for this endeavor. . . . (p. 19, 20) (italics his)

Emphasis on the extension of vocational programs to cover more students and more offerings was supported by Righthand (1964) who said the theme for the future must be "generalizability." When the 64th yearbook of the National Society for the Study of Education was devoted to Vocational Education, Walsh and Selden (1965) stated:

> A major objective of trade and industrial education is the orderly development of occupational skills, technical knowledge, safety attitudes, work attitudes, and practices required to enter employment at a productive level with the necessary educational background to move ahead within the occupation and its related areas. (p. 93)

They too identified the critical issues as being vocational education for all who need it, programs both broad enough and deep enough to provide the individual with flexibility, matching programs to present and emerging occupations, and developing adequate facilities and talented, broad-gauged leadership in the T & I area. This echoed the sentiments of Swanson (1964) who identified the nine "big problems and great opportunities for vocational education leadership," among which were emphasis and imaginativeness in programs for youth with special needs, teacher training, guidance and counseling, research, curriculum

development, and image-building. Willis (1962) also pointed up the need for vocational education to focus on programs for youth with special needs as well as programs for out-of-school youth and adults who need retraining.

McDowell (1965) had administrators, supervisors, teacher educators, and employers (all in the T & I area) rate 60 statements dealing with the philosophy and objectives of trade and industrial education. Responses indicated that course offerings should be flexible, counseling extensive; training should be provided for out-of-school youth and adults, and the public should be wooed and won over to the cause.

These, then, are the guidelines and the mandate. Serve more youth with more programs which reflect the needs of the labor market. If vocational education is preparation for the world of work, then it should provide for all who need it and it should lead to employment. As stated succinctly by Venn (1964) in his seventh recommendation:

> High schools should establish vocational education programs which offer all youth leaving high school marketable occupational skills or preparation for further occupational education. (p. 166, 167) (italics ours)

MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES

National Opportunities and Projections

The 1966 Manpower Report of the President (U.S. Department of Labor, 1966a) reported that the total labor force for 1965 was up 1.8 per cent over 1964 and that recent job growth has, in large part, been spurred by the goods-producing and related industries, notably manufacturing and construction. Much of the growth is accounted for by

the expansion of blue-collar employment (craftsmen, operatives, and laborers). Employment of both teenagers and youth 20-24 years old increased as well (primarily for white rather than nonwhite youth). The report further documented the position that a shortage of skilled workers is imminent and can, in part, be avoided if more use of Negroes and women is made in the skilled labor market. This projected upsurge in employment opportunities for skilled workers is further documented in other publications of the U.S. Department of Labor (1960, 1966b). Projected growth of manufacturing and construction industries accounts in part for the anticipated expansion of blue-collar jobs. Of the three blue-collar categories, the greatest job growth is expected for skilled craftsmen, with operatives showing slight to moderate job gains, while opportunities for unskilled employees grow only proportionately to the labor force as a whole.

A primary reason that only limited job growth is anticipated for operatives and laborers is the increasing appearance of automated techniques in goods production. The U.S. Department of Labor (1965, 1966c) reported that computerized instrumentation systems are becoming more prevalent in industry, that highly advanced systems are appearing with greater frequency in the metalworking industries which control metal cutting and metal forming tools, that textile, meatpacking, coal, construction, lumber, printing, and other industries using fabricating operations are becoming increasingly mechanized and that computerized systems for numerical control of machine tools have been developed to the point of practicality. Pragan (1965), speaking from the vantage point of organized labor, anticipated an expansion of jobs for the skilled at the expense of the unskilled as a function of automation.

Projections of future manpower needs for skilled craftsmen, as reported in the Manpower Report of the President, influenced the panel of consultants on vocational education and affected their recommendations (cf. Arnold, 1964). The recommendation for more programs and a greater inclusion of nonwhite youth and women reflect this anticipated blue-collar job growth.

Our Special Problem: Youth

Each year a larger number of youth join the labor force than in the preceding year, according to the U.S. Department of Labor (1966a). Moreover, the present unemployment rate of 13.1 for teenage males far exceeds the national average for the labor force as a whole. Forty-five per cent of the 16-21 year-old youth out-of-school in 1963 had not completed high school; of the nonwhite out-of-school youth, three out of every five lacked a high school diploma. The unemployment rate for drop-outs was almost twice as high as that for high school graduates. Leonard (1963) anticipated that 70 to 80 per cent of the young people will be unemployed in 20 years if the present rate continues. At present, Leonard's figures show that 30 per cent of the high school drop-outs are unemployed and 15 per cent of the high school graduates are unemployed. However, only five per cent of those who are graduated from trade schools are unemployed. The solution seems clear. The National Education Assocation (1963a) reported that the median annual income for high school graduates in the early 1960's was over $5,000 as compared to only slightly over $2,000 for those with no high school education, and between $3,000 and $4,000 for those with some high school education. The data seems to indicate, as Leonard (1963) contended, that we are "cheating 20 million students."

Women in the Labor Force

According to statistics released by the Women's Bureau of the U.S. Department of Labor (1963), 34 per cent of the labor force in 1962 were women. Of these, 15 per cent were employed as operatives in the manufacturing industry (primarily needle trades and textiles, electronic and electrical equipment, and airplane manufacturing). Only one per cent were craftsmen or foremen. Of the 25 most frequent occupations pursued by women, sewers and stitchers in manufacturing enterprises ranked eighth, laundry and dry cleaning operatives 15th, assemblers 16th, apparel and accessory operatives 17th, cosmetologists 18th, packers and wrappers 19th, checkers, examiners, and inspectors 23rd, and practical nurses 24th. Of the students enrolled in high school day T & I programs, 11 per cent were girls: in general continuance T & I programs, 37 per cent were female. Most of the female students were in needle trades (27 per cent) or cosmetology (21 per cent) programs, with 11 per cent in food trades programs.

Opportunities and Projections by States

Fullmer and Green (1963) reported that the demand for skilled workers in the State of Georgia will increase by 26 per cent during the period 1962-67. Each year 5,441 new jobs are expected to become available. Greatest increases are expected in construction and durable goods manufacturing industries. Considering the extent of present training programs in Georgia, a deficit of 7,100 skilled workers is expected by 1967 in the State.

Warner (1962) reported that the demand for skilled workers in the State of Missouri will also increase during this decade and that the

output of trained skilled workers in the State is expected to increase at only about one-third the rate of new employment demands. Job outlooks are especially good for automobile mechanics and repairmen, machinists, millwrights and tool and die makers, carpenters, plumbers and pipefitters, and electricians.

The State of New Jersey (1961) anticipated that the demand for craftsmen will almost triple during this decade, going from six per cent of the state's labor force to 17 per cent. All non-agricultural industries are expected to participate in the boom which will cause the labor force in New Jersey to grow to a point exceeding the national average by four per cent in 1970. While the need for trade craftsmen, mechanics, and repairmen is expected to show the greatest expansion, the demand for semi-skilled workers in the state is also expected to double by 1970.

The Ohio Department of Education (1957) reported that more than 40 per cent of those employed in Ohio were craftsmen and technicians, while only 3.4 per cent of the state's high school students were enrolled in T & I programs (as compared to 94.9 per cent enrolled in college prep and general programs). One can reasonably expect a deficit in trained skilled workers by the end of this decade.

Finally, Morine, Nangle, and Burke (1964) reported that some 165,000 additional skilled workers will be required in New England by 1970. Currently, the region's schools graduate 10,000 students a year from their T & I programs. Since the yearly need for both replacement and expansion is expected to be 16,500, the region will fall short by 6,500 craftsmen a year. In this region, as in the above states and the nation as a whole, the present supply capability

of the vocational education system (and industrial training programs) for skilled workers will not be able to provide for the increasing demand brought about by the anticipated industrial expansion of the decade.

CURRICULUM DEVELOPMENT

Before a training curriculum can be set forth, one must first identify the objectives that the training is intended to meet. As Weller (1966) said quite clearly:

> . . . How can details of training be worked out until training objectives have been defined? And how can training objectives be defined without drawing up criterion behavior tests? . . . You've got to have some goal in mind when you devise training schemes. . . . This means that the trainee's required performance at the end of any training course must be laid down in black and white. What tasks will he be able to carry out? What questions will he be able to answer? What challenge will he be able to meet? . . . (p. 59)

The Structure of Curricula to Provide Transferability

Primary among the objectives which recent research has identified for vocational T & I curricula is that it provide the student with skills which are transferable from one situation to another. The U.S. Department of Labor (1960) reported that in a recent year eight million workers made 11 1/2 million job changes. Moreover, the Department also reported (1964) that the tendency was greater in 1961 than in 1955 for job changes to occur between jobs in the same occupation and industry. The National Education Association (1962) pleaded the following:

> . . . Therefore, to the extent that the school tries to develop employable skills, it should aim at

> transferable skills, and it should not attempt to train persons for specific jobs that are only temporarily open. (p. 41)

To this end, Altman (1966) undertook to factor analyze test item scores on performance tests for a variety of different skilled jobs. This resulted in the identification of six general vocational capability areas: mechanical, electrical, spatial, chemical and biological, symbolic, and "people." Combining these with a series of psychological processes involved in work operations such as sensing, detecting, decision-making, etc., he generated a matrix of vocational capabilities by psychological processes, representing a framework for the vocational capabilities domain. It provided a scheme for identifying underlying job similarities in terms of overlap of general capabilities required. This served as the basis for generating curricula to provide students with the general capabilities required to perform a "family" of jobs.

The above approach is not unlike that of Maley and Frantz (1965) who described the "cluster concept" which is aimed at the development of skills and understandings related to a number of allied fields. The person is trained to enter a family of occupations (e.g., construction trades cluster). The curriculum provides the students with skills and competencies which are common to all occupations in the cluster. These are determined by analyzing performances required in an occupation into such capability areas as communications, measurement, skills, math and science, and information.

Olivo (1964) recommended that curricula be built along five dimensions. The first, vertical coordination, is similar to the cluster concept of Maley and Frantz. The common elements of a family

of occupations form the basis for the curriculum. The second, horizontal articulation, provides for the identification of common or related elements across the different disciplines of the total educational program. The third dimension incorporates the manpower approach--whether or not employment is to be found in the occupation. The fourth and fifth encourage experimentation to gain perspective on the future.

A practical attempt to identify common skills across vocational areas was made by the Dade County Public Schools (1965). They identified common communication arts competencies and fundamental mathematics competencies across all vocational areas, and fundamental mathematics, chemistry, and physics competencies for clusters of occupations such as automotive mechanics, air conditioning, refrigeration, and heating mechanics and machine shop. On this basis, curricula for vocationally-related subjects can be built which serve a variety of occupational programs.

Other curriculum development approaches aimed at increasing transferability of vocational skills have also been recommended. Eddy (1963) recommended teaching trade theory while Stern (1964) recommended a "functions of industry approach" in the light of the ever-increasing complexity of the "materials age." Chaplin (1964) recommended a model for curriculum development based on role theory wherein the role that the teacher is to play for a particular subject matter is determined, providing a basis for the analysis of the subject matter into general concepts, understandings, attitudes and skills, necessary learning experiences, required student activities, and desired behavior changes. Finally, Macdonald (1966) advised that

vocational curricula be liberalized to provide a greater opportunity for creative exploration of tools and materials by students through an aesthetic, moral, or anthropological approach to the subject matter and required competencies.

The cluster approach appears to be a necessary and fruitful approach to curriculum development. As the number of occupational titles increases (and changes), it will be incumbent upon curriculum developers in vocational education to build curricula that provide for the possibilities of skill transfer. An analytic approach such as those described will be required. This is an area which requires more effort. Schemes such as those described must be tested on a developmental and pilot basis to evaluate their efficacy and produce refinements in their structure. While the literature abounds with descriptive statements of content-specific curricula that have been built and tried, only few attempts at the structural approach appear. The Bureau of Adult and Vocational Research listed curriculum experimentation as its second priority, and the most recent North Atlantic Regional Meeting of vocational educators listed it as a prime issue. Hopefully, these emphases will not result in more descriptive statements of specific curricula lacking conceptual structure and failing to provide evaluation in the form of experimental comparisons with existing alternatives. This area cries out for systematic exploration.

Curriculum Content

Lockette (1965) reviewed 26 studies dealing with curriculum content in industrial education. He concluded that industrial

education is lagging behind current technological developments (providing even greater evidence of the need for a structural approach). He advocated the use of subject matter experts, working in teams across disciplines, to remedy this situation. Moore (1961) surveyed the basic drawing needs of high school students as reported by engineers and draftsmen and discovered that aside from the content areas of blueprint reading and dimensioning, basic competencies in visualization, trigonometry, science, and getting along with others were the most important areas.

EDUCATIONAL PROGRAMS

This area of study produces some overlap which is resolved by making some arbitrary distinctions. Curriculum development, the preceding section, dealt with various approaches which could be used to teach a particular subject matter. Educational programs, on the other hand, is delimited to possible courses which may be combined to yield a program of study. It in turn would be comprised of a sequence of curricula. Thus, educational program development represents an administrative decision which can be subject to research. Secondly, problems and results of program evaluation will be dealt with in the section on Evaluation. Finally, problems associated with the funding of educational programs will be dealt with in the section on Administration and Supervision.

This section will be broken down into three parts. The first deals with the attainment of objectives of educational programs, the second with the characteristics of these programs, i.e., what they include, and the third with special programs for students with special needs.

The Attainment of Objectives

Wolfbein (1965) saw as a general objective for educational programs of the present and future that of making the next generation employable. He cited lack of education as the basis for unemployment and feels that educational attainment has an "hereditary" nature, i.e., children of parents with little education tend themselves to pursue educational goals only weakly while children of college graduate parents often pursue higher education themselves. Since the term "hereditary" implies that following in the footsteps of one's parents is somehow innate, this appears to be a misuse of the term. It would seem that if one's environment lacks conditions which are conducive to valuing education, then one is not likely to value it. Wolfbein contended that the attainment of a general educational objective can be furthered if counseling and guidance services are provided at the elementary school level.

A primary objective of educational programs in vocational education is that it be as readily available as possible. Of equal importance is that quality not be sacrificed for ubiquity. A controversy of sorts has emerged wherein the area vocational school and comprehensive high school are contrasted in terms of which should be the "home" of vocational education. Weaver (1964) took a survey among sophomore and junior high school students in Ohio and found that more than 50 per cent desired vocational training only while 25 per cent showed interest in both college prep and vocational courses. Only 13.5 per cent were totally disinterested in vocational courses. A study by McLure et al. (1960) of occupational trends and existing facilities in Illinois led to the conclusion that the state should

adopt the comprehensive high school approach to vocational education so that initial vocational study can be provided for 11th and 12th graders. This would necessitate the incorporation of smaller school districts.

Harris (1965) argued that the primary objective of vocational programs should be to blend the intellectual and the practical and contended that separation of vocational education and academic education will not only obscure this goal but will create second-class citizens of vocational students.

Haskew and Tumlin (1965) saw three possible objectives, not mutually exclusive, for vocational education: (1) to make the prime objective of vocational education coterminous with the intellectual training and personal-development objectives of the common school: the vocational approach here is only a vehicle to induce fundamental learning in some students through illustration and application: (2) to develop intellectual understanding of the occupational manifestations of American culture and to be required of all students: (3) to provide job training as an alternative to academic specialization.

Corazzini (1966) presented cost-benefit data in line with his contention that the objectives of vocational education can be more reasonably attained by the individual in high school rather than post-high school programs. Loss of income based on foregone earnings while the individual pursues a post-high school program (that might also be available in high school) is not regained for at least 15 years, if ever, since high school graduates often earn as much as graduates of post-high school programs.

In sum, research on the objectives of educational programs, if it can be justifiably called research, is preoccupied with the question of

"where vocational education should be taught," at the expense of studying "what should be taught" and "how it should be taught."

The Characteristics of Educational Programs

Stadt (1963) identified 12 criteria for programing in vocational education. Primary among these are criteria relating to the appropriateness of training for the occupation chosen: will jobs be available for graduates? Furthermore, programs should be structured to avoid duplication of existing courses and to attract future workers, and subsequently industry, to the area. Dauwalder's (1963) study of vocational education in Pittsburgh again emphasized analysis of the job market as a determinant for vocational offerings: build the program so that the students can learn something which will help them earn a living. Furthermore, programs should contribute to functional literacy, should fit industrial standards, should modify attitudes. The use of a core program, advisory committees, and an Industry-Education Council will facilitate program development. Pucel and Evans (1964) placed major emphasis on the usefulness criterion as well.

Seefield (1964) and Schaefer (1965) emphasized the reduction in the gap between liberal or academic education and vocational education. Today's vocational student needs language arts, math, and science competencies which are comparable to his college-bound counterpart. This point is supported in a study by Bowser (1960) who found that 91 per cent of the graduates of a terminal vocational trade program felt their related subjects, particularly mathematics and English, were helpful to them in employment.

Finally, Wood's (1964) observations on automatic industrial equipment lead to the conclusion that related work in electronics, hydraulics, and pneumatics may be a necessity in all vocational programs.

Special Programs

Burchill (1962) reported on a Phi Delta Kappa Commission study of nine experimental programs for alienated youth to extract the elements essential to successful operation. The principles derived from this investigation display close correspondence to the traditional requirements for reimbursable cooperative work-study programs. (As a popular TV commercial says: "We must be doing something right.")

A National Education Association (1963b) study on programs for potential drop-outs and delinquents recommended that secondary schools provide vocational programs for some of these students, but that ways be discovered for increasing the meaningfulness of academic education for others. Havighurst (1963) recommends work-study programs beginning for students at age 13 as a preventative measure for juvenile delinquency. Traditionally, such programs begin in the 11th grade, a level which delinquent-prone youth rarely attain. Langerman (1963) studied vocationally trained boys released from the Iowa Training School for Boys and discovered that 94 per cent were employed as compared to 54 per cent among non-vocationally trained boys. The former used their vocational certificates to gain employment, in most cases in the field for which they were trained. Unfortunately, only 38 per cent of the trainees were on the same job one year later.

Loveless (1962) found that only one-quarter of the hard-core unemployed of St. Francis County, Missouri, had completed their high school education and only one-third of this group were willing to undertake retraining in a new job even if it necessitated moving. The remainder were planning to wait for better days.

Dunton (1964) undertook a follow-up study of T & I program graduates and found that those students whose 10th grade prevocational scores were below a certain level were not able to succeed in the trade for which they had been trained. He recommended that a special program for these youth be developed instead of admitting them to the regular T & I program. This recommendation was implemented. Not only was the regular program improved by the removal of the less able, but this handicapped group was able to receive a vocational education, featuring the cooperative work-study approach in low-skilled occupations from which they could profit.

On the other side of the coin, Cory (1964) recommended a vocational program for academically talented students. Industrial educators were surveyed and were in accord. The experts felt that such a program required a minimum IQ of 110 for admission, should begin in the ninth grade, and should include algebra and mechanical drawing as well as such areas as industrial organization and management, strength and testing of materials, and power and motion mechanics. Such teaching techniques as experimentation and projects would be employed.

The U.S. Department of Labor (1966d) reported that of the 152,000 students enrolled in the institutional MDTA programs, 74 per cent had completed training and were now gainfully employed. About one-third of the trainees are being trained for job entry at the skilled level

and better than three-quarters of these obtain employment upon program completion. Similar successes are reported for students in the on-the-job training program, many of whom are studying automotive occupations. Walsh (1963) also presented data attesting to the success of MDTA programs in reaching their target group--the undereducated, long-term unemployed. He reported that seven out of 10 graduates obtain immediate job placement, many of them as skilled craftsmen.

The State of New Jersey (1966) reported that 5,204 apprentices were employed last year, 86 per cent of whom received related instruction in the public schools. Of the employed apprentices, 56 per cent were in the building trades and 22 per cent in the machine shop trades.

INSTRUCTIONAL MATERIALS AND DEVICES

There is no shortage in the literature of descriptive statements of specific materials and devices which have been developed and tried out by specific teachers in specific classes. However, these descriptive approaches do not constitute research. What is called for is an experimental test of the efficacy of these approaches when compared to alternative approaches. Consequently, this area shows up as a relatively weak one in terms of research even though its importance and relevance to vocational education is considerable.

Learning Programs - Teaching Machines

Shemick (1964) compared the efficacy of teaching metal spinning by means of a learning program as compared to the traditional method of teaching the subject. Students being taught by the traditional

method producer higher quality work, took less time to complete the task but required more teacher assistance. The learning program appeared to fail because it did not provide an over-all orientation to the task and did not allow enough student activity required for learning a psychomotor skill.

Schill (1965) compared learning by means of a programed instructional device to the more traditional lecture-laboratory technique. Neither approach was found to be superior to the other. Moreover, students who used the programed learning device developed strong negative attitudes toward programed learning as a total mechanization approach to teaching.

Folley et al. (1964) taught military trainees to assemble and disassemble an M1 carbine using the lecture-demonstration approach, a printed linear program, and an audio-visual program. Results showed that none of three modes of training was clearly superior to the others.

Suess (1966) reviewed 22 studies illustrative of the "SNAFU" regarding teaching methods in industrial education. The studies cited showed that programed instruction yielded equal immediate performance and retention to that resulting from the lecture-demonstration approach. The programed learning approach appeared to require more student time and less teacher time than the alternative lecture-demonstration. Comparisons of the visual-aids mode of teaching to the demonstration approach showed no differences in the effectiveness of the techniques. However, the comparison of demonstrations to lectures showed that the former were more effective and efficient. Suess concluded that research to find a superior method is almost

certainly doomed to failure since the efficacy of different approaches is jointly a function of the approach and the type of students with whom it is to be used.

It is recommended that studies be undertaken to explore the effects of "what goes into the teaching machine" and to determine the effects of different instructional devices with groups of learners having different characteristics. Programed learning may be a reasonable way to teach students of low IQ the fundamental concepts of a subject such as shop mathematics. The students taught and the subject matter taught may be critical.

Instructional Television

Stout (1963) explored the efficacy of using instructional television to teach an electronics technology course. He found that the TV approach was as effective in teaching students as was the lecture-demonstration approach with the teacher present in the classroom. He also found that instructional TV was feasible and practical, both mechanically and economically, provided that no less than 50 students are taught by TV, that they are given an orientation to it before beginning the course, and are not in the room where the instructor is being televised.

Manchak (1962) strongly recommended the use of instructional television in industrial education since his experience indicated it is as effective as the "live teacher" approach while being applicable to a wide variety of situations. The use of magnification and close-up techniques make TV especially valuable in the vocational classroom.

Assignment Sheets

Cornwall (1961) found that problem-centered assignment sheets resulted in superior performance test scores as compared to traditional assignment sheets. Brantner and Schaefer (1962) compared the use of assignment sheets that were dittoed, mimeographed, and photo off-set. Accuracy, completeness, and physical organization of answers did not differ from one format to the others.

Miscellaneous

Foley (1964) developed an experimental course to teach electronics fundamentals to military trainees. The experimental course was organized around specially designed trainers that incorporated the desired circuits and task requirements, all pre-wired, and arranged in order of difficulty. The experimental course also involved experience before theory and learning by discovery. When compared to the traditional method of teaching the course, the experimental approach was found to be considerably more successful than the traditional for teaching persons of average aptitude; the two did not differ in success with students of high aptitude.

Folley (1961) outlined a procedure for systematically designing performance aids in four steps: (1) identifying task elements for which aids are needed; (2) determining the functional characteristics of aids for these task elements; (3) specifying the physical design characteristics of the aids; (4) evaluating, modifying, and updating the aids.

LEARNING PROCESSES AND TEACHING METHODS

Teaching Methods

Jonas (1962) identified the following seven requirements for effective communication in the instructional process: (1) course material must be useful; (2) the student must feel he needs the information, (3) be motivated, (4) and make an attempt to learn; (5) the teacher must give the student an opportunity to learn, (6) check on his progress, and (7) correct errors in a proper manner.

Pankowski (1965) generated a guide for the development of motor skills which requires that the teacher teach to minimize retroactive inhibition, manually direct students to get the feel of tasks, tell the students what to do rather than what not to do, apply distributive practice, teach one good form of a motor skill, create an atmosphere favorable to learning under conditions similar to those where the skill will be used, encourage the student to use rhythm while learning and to work for speed, and teach in the largest units that can be comprehended. This is strongly reinforced by Rudiger (1965) who emphasized the need to teach vocational students motor skills since automation has not as yet reduced the skilled worker from a "doer" to an "observer."

While Miller (1965) did not advocate the exclusive use of a single teaching method, he endorsed the general use of the problem-solving approach wherein students are encouraged and taught to use the scientific method of problem analysis and attack. While combinations of methods are often the most effective, the logical problem-solving approach should be included. Rowlett (1964a) reviewed literature

bearing on the use of the problem-solving approach to teaching. The problem-solving approach has been found to improve creative thought processes and improve the problem-solving ability of students. However, such improvement is not solely a function of the technique but a function of the teacher using the technique as well. Rowlett also reports on the effective use of inductive teaching approaches.

Siegel et al. (1960) compared the effectiveness of specific training as compared to general training among naval aviation trainees. In tasks dependent upon mechanical ability and perceptual motor skills, neither approach was superior. However, in tasks dependent upon verbal factors and abstract reasoning, the groups trained by the general approach were superior.

Direct-Detailed vs. Direct-Discovery Methods of Instruction

Rowlett (1964b) attributed the direct-detailed technique to the Thorndike school of psychology which treats learning as the association of continguously occurring elements. In the direct-detailed approach, instructions relevant to principles and generalizations are presented in a detailed manner with illustrations showing their application to problem-solving. Rowlett identified direct-discovery techniques with the Gestalt school of psychology which sees learning as a function of the inherent organization of material. The direct-discovery method leaves the student to his own devices but structures the material so that meanings and applications may be discovered. Rowlett found that in initial learning of orthographic projection principles and skills, both methods were equally effective. However, differences favoring the direct-discovery method were found in

amount of transfer over time. Prior to this, Moss (1960) showed no differences between the two techniques for teaching letterpress imposition.

Suess (1965) reviewed studies comparing the two techniques which led him to challenge Rowlett's finding. Evidence showed, claimed Suess, that of critical importance was the opportunity for manipulation of objects during the learning process. Tasks employing manipulation appeared to be more effectively taught using the direct-discovery approach while tasks dealing with specific factual material were more effectively taught by direct-detail. In a replication of Rowlett's study, Suess obtained findings contrary to those of Rowlett.

Learning Processes

Drew (1964) discovered a significant positive relation between reading test scores and subsequent grades in related instruction for machinist apprentices. This relationship did not hold for apprentices having two years of on-the-job training prior to, and during, related instruction. In the absence of work experiences, reading skill appears to be an important element of learning capacity for related apprentice instruction.

Hull (1965) found that a higher IQ group outperformed a lower IQ group on an intellectual task regardless of the amount of practice each had had, while on a manipulative task, practiced groups outperformed unpracticed groups regardless of IQ level. This indicates that performance is jointly a function of type of skills demanded by the task and ability.

Wills (1965) compared teaching techniques emphasizing speed of performance with those not having this emphasis in a class on

beginning metalwork. Emphasis in speed of performance resulted in a greater quantity of work done at the expense of more student errors and less economy of materials when compared with the no-emphasis condition. Resultant quality of work and student attitudes did not differ across conditions.

Waetjen (1964) contended that when the learning situation entirely matches the expectations of the student (a condition called consonance), and when the learning situation is widely discrepant from the student's expectations (i.e., dissonance), learning is not facilitated. For learning to be facilitated, the learning situation must be only slightly discrepant from the student's expectations.

Attitude Change in the Classroom

Householder and Suess (1965) found that students' opinions of the importance of wood-working materials could be altered by group discussion (but not necessarily in the direction of greater "accuracy"). They also demonstrated that changes in students' attitudes in the classroom are in part based on teacher influence even though the teacher is often unconscious of his influence.

Since students' attitudes have been shown to be influenced by teachers, it is not unreasonable to examine the attitudes of vocational teachers. Bowman (1966) found that the attitudes of vocational teachers are significantly more authoritarian than the attitudes of academic teachers, but that both groups are equally intelligent. She reasoned that if authoritarian attitudes facilitate the teaching of task-oriented material (cf. Lewin et al., 1939) then such attitudes were appropriate for vocational teachers.

STUDENT PERSONNEL SERVICES

This section has been subdivided into five subsections as follows: (1) section, (2) guidance, (3) vocational development, (4) placement, and (5) drop-out identification and prevention. The first category bears obvious relation to administration and supervision since selection represents an administrative decision. The fourth section, on placement, is also developed extensively in the section on Evaluation since the follow-up study is a valuable evaluative tool. Finally, the fifth section is a rather special case of educational programs.

Selection

The importance of using selection tests and criteria as a basis for selecting students who are most likely to succeed in vocational programs has been strongly emphasized (Culver, 1961; Burt, 1963; Crawford, 1964). Keller (1962), in an extensive study of vocational education, found that only 41 per cent of the schools he visited used tests as part of their selection devices. However, vocational high schools were found to reject as many as 75 per cent of the applicants while comprehensive high schools were required to admit all who applied. Among the selection test users, most gave tests of mechanical ability, interest, and general intelligence. Often, reliance was placed on the latter even though it ran counter to the experience of the principal. Whitten (1961) found no significant relationship between ninth grade attendance records of students and probability of completion of vocational programs at the high school level.

Johnson (1959) found that the three most commonly used practices for locating and recruiting apprentice trainees were regular contacts with school officials, posting notices in the plant, and using present employees to help locate prospects. Hagemeyer (1961) surveyed Michigan employers who identified the following as important selection criteria for apprentices: possession of manipulative skills, prior work experience, previous employer recommendations, and graduation from high school, including completion of certain mathematics courses. School recommendations were not considered particularly important. Drew (1962) found that reading ability and mechanical adaptability showed promise of predicting both in-school achievement and job performance of machinist apprentices.

Griess (1966) found that scores on the language subscale of the elementary level California Test of Mental Maturity were highly valuable in predicting scores on the general intelligence scale (G) of the General Aptitude Test Battery (GATB) following 12 weeks of pre-occupational basic education training. Had the CTMM been used as a selection device for this program, success in terms of elevation in intelligence scores following training would have been virtually guaranteed.

Guidance

Sharp and Nunnery (1963) described the ways in which teachers can help students make vocational choices. Guidance is seen as having three aspects: imparting occupational information, appraisal, and decision-making. Teachers can aid students in all three areas.

Schaefer and Prichard (1963) contended that "some schools short change students in vocational education" by providing an extremely

limited number of vocational offerings. Where the high school offers good trade and industrial programs, guidance systems in the junior high schools that feed the high school are good. The extent of guidance programs seems to be a direct function of the variety of offerings at that level of education.

Frye (1962) found that vocational choices in a Columbia, Missouri, high school were far out of line with actual opportunities in the area, indicating that meaningful occupational information and proper vocational guidance were not being made available to students. This factor is conducive to dropping-out.

Flanagan (1963) advocated the use of data on individual aptitudes as a basis for vocational guidance and recommended the development of a "vocational curriculum suitability index" as a means of helping students choose between academic and vocational programs. McCall (1965) reviewed 32 articles dealing with the measurement of vocational interests and their use as guidance devices. Using interest test scores to predict learning or motivation has often been fruitless, not because of the construction of the tests, but because of our failure to understand what they measure. Recent work on the Strong Vocational Interest Blank and Minnesota Test of Vocational Interests seems promising.

An excellent example of the use of tests as a basis for guidance is found in the work of Crawford (1966) at the Los Angeles Trade and Technical College. Guidance into different programs is based on the student's scores on a battery of tests which have been shown to have predictive value for a particular occupational area. For example, tests of perceptual speed, mechanical knowledge, and spatial orientation are predictive of success in auto mechanics programs while tests

of manual dexterity often predict machine shop success. Color vision tests are helpful in predicting success in offset press operation while form board tests have predictive value for automotive body and fender repair programs.

Foote (1960) found that computational skill, mechanical knowledge, and spatial relations were related to scores on a final performance test in auto mechanics, while Kuder interests, reading ability, and mechanical ability were not.

Brown (1960) found that trade students who had made an occupational choice to work in the occupation for which they had been trained were more likely to have taken industrial arts in junior high school, to have spent time with their guidance counselor, to be in machinists programs, and to have achieved above the 25th percentile in the curriculum than students who had not chosen to enter the occupation they had been trained for or had made no choice. Measures of verbal intelligence and vocational interests had little predictive value for course completion or occupation entered upon graduation. Yung (1965) similarly found that students making auto mechanics their career choice prior to graduation, and subsequently entering that field, had greater occupational stability than students not behaving in this fashion, even though both groups had graduated from programs in auto mechanics.

Ruch and Ruch (1960) found that success in draftsman training could be predicted by scores on the Employment Aptitude Survey. Moss (1965) summed up a review of 14 studies in this area with the following statement:

> On the basis of the studies reviewed, completion and intent to pursue the occupation are strongly related to a minimum level of ability to achieve, degree of

> vocational maturity, and motivational factors; school achievement has been correlated with objective measures as high as .6. The problem of increasing the effectiveness of prediction is multiplied by the diversity among curricula with the same occupational objective, and by rapid changes in course content within each institution; it is further complicated by the necessity to cross-validate results - a procedure so far neglected by most of our researchers - and to employ larger samples. (p. 9)

The guidance area is one where considerable research is needed if we are to optimize the value of vocational education for the individual student. Much dropping-out can be avoided and much can be gained by appropriate assignment of students to programs. This can only be accomplished through further development and refinement of predictive devices and measures.

Vocational Development

Nunnery and Sharp (1963) reported on the theorizing of Ginzberg, Super, Tiedeman, and Caplow concerning the nature of vocational development. Ginzberg et al. (1951) contended that vocational choices are initially based on wishes and fantasy, followed by a period during which they are governed by interests and values, and lastly by opportunities. Super et al. (1963) emphasized development and implementation of the self-concept and the tendency of choices to change as the situation changes, while Tiedeman et al. (1963) identified a period of anticipation including exploration, crystallization, choice, and specification followed by implementation. Numerous theorists stress the "environmental reality" factors such as socio-economic status of parents, geographical location and opportunities. Caplow (1954) posited that vocational choice is made in terms of educational requirements rather than the actual demands of the vocation.

Walz (1963) reviewed 52 articles dealing with vocational development and concluded that materials and practices were lagging far behind theoretical developments. The mounting knowledge of vocational behavior can only be capitalized on if it is operationalized by the guidance counselors. Ferguson (1962) reviewed 42 studies in this area, as well, and also made mention of the rapid development of theory, much of which has been outlined and integrated by Borow (1960, 1961), especially that dealing with needs, values, and models as organizers of vocational development and choice. Again, there is some question as to whether these developments will pervade counseling at the secondary school level.

Placement

Most of the studies dealing with placement are primarily relevant to the evaluation of vocational programs and only secondarily to student personnel services; they will be treated in the section on Evaluation.

Zanzalari (1960a) found that of the 1958 graduates of vocational and technical high schools in New Jersey, 80 per cent were placed in related occupations. He also reported (1960b) that the typical shop teacher is willing to cooperate with the placement counselor in order that the objectives of a vocational education be obtained by the student. Eninger (1965) found that placement of vocational school graduates was slightly quicker and more likely to be in the trade for which they were trained than graduates of comprehensive high school vocational programs.

Sheppard and Belitsky (1965) found that unemployed workers who use the public employment service for job placement tended to be low in achievement values and high in interview anxiety, while those who got new jobs through direct application to companies were high in motivation and low in interview anxiety.

Drop-Out Identification and Prevention

Walsh (1965) found that the most practical and effective index for identifying potential drop-outs was a combination of grade point average in the lower quarter of the class and lack of participation in extracurricular activities. However, potential drop-outs enrolled in practical arts and vocational courses were more likely to remain in school than those not so enrolled. Thus, vocational programs contribute to the holding power of the comprehensive high school. Sloane (1964) studied drop-outs in Dade County, Florida, and found that they had been left back more times, failed more subjects, scored lower on IQ and school ability tests, engaged in markedly fewer extracurricular activities, had parents with less education, and were less likely to be employed in skilled occupations than high school graduates. Gallington (1966a) found that the best predictors of dropping-out were school achievement, reading and math placement, and father's occupation. Furthermore, graduates had noticeably better attitudes than drop-outs and were better informed about occupations.

Gallington (1966b) found that potential drop-outs who were exposed to vocational counseling and occupational information group study classes for a year showed less dropping out and fewer transfers than matched controls not exposed to the program. Luy (1964) studied

unemployed youth in an MDTA project in St. Louis and found that 87 per cent were high school drop-outs and only 12 per cent had previous vocational training. However, 67 per cent aspired to jobs of a skilled nature and 80 per cent were willing to move from the area to gain employment.

Considerably more research is called for in this important area with its many unfortunate social ramifications.

FACILITIES AND EQUIPMENT

Based on a survey of Michigan high school principals, Wenrich (1963) concluded that area vocational school facilities, to which students could be transported on a part-time basis, would be an effective means of occupational preparation in the state. Related course work would be provided in comprehensive high school facilities.

Other researchers have concerned themselves with the feasibility of area vocational schools. Cambell (1965) proposed the following seven criteria to be used as guidelines to determine the location and development of these facilities: (1) population, (2) employment opportunities, (3) relation to county and multi-county organizational patterns, (4) relation to needed and present financial structure, (5) relation to needed and present legal provisions, (6) interests and attitudes of local administration and public, and (7) available facilities. Van Tries (1964) also found a need for more and improved vocational facilities. He suggested that new area vocational schools continue to build on their original structure wholly through the efforts of the local school district and that a priority basis be established for the allocation of federal funds.

An answer to the urgent problem of updating inservice vocational teachers is supplied by Larson (1965, 1966) in his outline of T.R.C. (Technology-Resource Center for Vocational Education), designed to supplement, not supplant, existing teacher education programs by emphasizing inservice updating education in a facility specifically designed for this purpose. T.R.C. with maximum programing flexibility is designed to insure the use of the latest materials available to provide an effective link between education, industry, and the community.

In April of 1963, School Shop devoted an entire issue of their journal to shop environment. MacConnell (1963) stated that in order for vocational education to be an integrated part of the total school program, shops and general education classrooms must be integrated in the school building. In planning the shop, Hooker (1963) felt that the student must be able to participate in his environment if it is to be effective. Fitts (1963) concluded that shop safety can be expedited through architectural design, shop layout, and machine construction. Rutgers (1963) pointed out the importance of the optimum thermal climate in the shop and Boyd (1963) reminded architects that the principle reason for lighting is so that the student can see his work, not for aesthetic value. The use of color in the shop was discussed by Lytle (1963) who concluded that it is an important element providing identity and visibility and minimizing monotony. Gilliand (1963) pointed out that unwarranted sound or noise "eats away" at human energy and efficiency and so must be controlled. Hoffman (1963) felt that the key to shop environment is the attitudes of teachers and students concerning the worthiness of the job that they are doing.

Because of the great need for skilled workers in our society today, Iverson (1963) concluded that shop environment must be geared to the maximum development of abilities at all ability levels. Micheels (1963), in a review of the previous articles, summarized by stating that the shop environment must be planned for more than "thing making."

Systematic investigation must be undertaken to study the variables involved in the construction of vocational-technical facilities and equipment and their effect on the learning process. In order to insure maximal effective use of these facilities, technical-vocational educators must be able to provide architects and builders with educational specifications to be applied to future plans. Concepts such as T.R.C. must be developed if efficient utilization and integration of facilities and equipment at our disposal, both present and future, are to be employed in training youth. Only persistent research can produce such concepts.

TEACHER EDUCATION

A review of 54 studies dealing with Trade and Industrial teacher education was prepared by O'Brian and Schaefer (1966). Many of the studies they reviewed are reviewed here.

As a way of introduction, Swanson and Kramer (1965) stated the following:

> Just as there is a need for a more comprehensive program for the preparation of individuals to enter the labor force, so it follows that the program of preparation for the vocational teacher must be more rigorous and often quite different from those now provided. Collegiate preparation of vocational teachers . . . is becoming more and more accepted as logical and necessary. This is not to suggest that the vocational education teacher's need for successful work experience in the occupation in which he will be teaching is considered to be any less important. (p. 169)

Recruitment and Selection of Teachers

That teacher recruitment is clearly a problem area was highlighted by Venn (1964) when he said:

> One of the greatest handicaps to the improvement and expansion of vocational and technical education is the desperate shortage of qualified teachers and administrators. (p. 151)

Schaefer (1963) contended that yesterday's solutions for recruiting T & I teachers were based on yesterday's technology. Furthermore, Giachino (1961) contended that selection procedures must be updated as well and has developed some techniques along this line. Considering selection devices, Impellitteri (1965) analyzed individual scores on trade competency exams and found that the number of years of industrial experience the individual had was not predictive of his performance on the test.

Data collected by Fagan (1960) indicated that ways should be found to identify future vocational teachers while they are still students in our schools, provide these people with challenging programs, and place them in situations where their potential as teachers can be evaluated.

Vezzani (1965) saw the vocational teacher as the "forgotten individual" in our recent vocational legislation, perhaps because administrators are torn between the importance of trade experience of the college degree. He identified nine steps to be taken in solving this problem, the primary ones being the establishment of selection and screening procedures to identify qualified individuals in both academic and work settings.

Parks (1965) studied those factors that cause tradesmen to leave the shop and enter the teaching profession. Two factors identified

were the quest for self-realization and the desire to be of service. Job security did not appear to be an influencing factor. (It is not inconceivable that the respondents in this study were influenced by social desirability considerations in making their responses.) Schill (1964a) found that those men who pursue education while at work in their trade were more likely than their cohorts to continue this course after entry into teaching. This could conceivably serve as a selection device.

Finally, the U.S. Department of Health, Education, and Welfare (1966) reported that teachers for MDTA programs had to be recruited through employment services, universities, newspaper advertisements, and personal contacts with industry and organized labor after those available through the ranks of vocational education teachers had been depleted.

Teacher Competencies

Feirer (1961) contended that vocational teachers must not only be adept in the content of their field but must also have a thorough grasp of methodology.

This requirement for theory and practice, intellectual exposure and practical experience, knowing "how to teach" as well as "what to teach," having breadth and depth in industrial work experience and the same in technical courses as part of industrial teacher preparation has been emphasized and re-emphasized (Smith, 1963; Schill, 1964b; Silvius and Ford, 1965; Walsh and Selden, 1965). Kynard (1960) found that employers of T & I teachers considered at least three years of recent comprehensive journeyman experience and one year of probationary

teaching highly desirable, more so than prior academic background. Moeller's (1961) respondents, representatives of labor and industry, felt journeyman experience and academic preparation were both absolutely essential for industrial teacher education. Schaefer's (1963b) respondents, local vocational directors and leaders in vocational teacher education, were in accord that a superior teacher differs from a usual teacher in terms of his knowledge of the subject matter and skills to be taught. The "good" and the "ordinary" teacher were not judged to differ on their knowledge of the history of education.

Robertson (1965) pointed out that the industrial instructor must be able to set specific, attainable goals as objectives to be achieved by the learner in order to plan what the student will be doing. Walsh (1960), in what must be considered the major study of T & I teacher education thus far undertaken, had communities of experts rate teacher competencies in terms of their relative importance. Teachers rated competencies expressed as ability to do something (e.g., develop safety attitudes, stimulate student interest, develop an appreciation of good workmanship) as more important than competencies expressed in terms of knowledge or understanding. However, teacher educators rated knowledge of the objectives of vocational education and knowing how to analyze a trade as more important than motivating, stimulating, and maintaining safety. They also felt that knowing the principles of learning was important.

Teacher Education Programs

Allen (1964) reported on two core programs for trade and technical teacher education developed at UCLA. These programs utilize

team teaching and varying class sizes and are an attempt to solve some of the problems associated with sequencing and coordination. Ramp (1962) advocated the cooperative trade and teacher training approach beginning with young people who have made a career decision to teach. The Illinois program requires a two-year technical institute experience followed by two years of teacher training coursework at the university. The student must also work for two years, full time, in his trade area.

Tuckman and O'Brian (in preparation) described a master's program for preparing vocational teachers to teach culturally disadvantaged youth. Assuming such teachers are already well-versed in their trade areas, the program places emphasis on broad training in sociology, social psychology, learning concepts, and teaching methods--all geared to disadvantaged youth. Three direct field experiences are included in the program.

The correspondence between specific teacher training courses and industrial practices was found to be somewhat wanting by G. Brown (1960).

Wenrich (1962a) discovered that cessation of special state and federal funds for teacher education in Michigan would presumably not affect pre-service teacher training, assisting teachers in planning programs leading to certification and supervised practice teaching. What would be affected by this hypothetical situation would be activities of the professional staff not directly related to teacher education (e.g., developing instructional materials, working with special youth groups).

The Report of the Panel of Consultants on Vocational Education (U.S. Department of Health, Education, and Welfare, 1963) informed us that there were more than 11,000 teaching positions in day trade schools, more than 16,000 in evening programs, and more than 7,000 in part-time programs. The report outlined prevailing teacher education practices across the country, noting its variability and weaknesses, especially in programs for trade extension teachers. Since vocational teachers must learn their occupational skills in industry and their teaching skills in universities (or comparable institutions), greater utilization of cooperative type training programs are recommended. The U.S. Department of Health, Education, and Welfare (1965b) reported that during the 1963-64 academic year, 2,000 persons earned bachelor's degrees for T & I training, an increase of more than 300 from the previous year. Thirty-two master's and 12 doctor's degrees also were awarded in this area.

Inservice Programs

Teufner (1961) and Micheels (1965) emphasized the importance of inservice teacher education programs as an updating technique and outlined some procedures for its effective implementation. W. Brown (1963) described inservice education in Phoenix which includes preteaching orientation, instructional improvement "half-days," college extension courses, and summer workshops, all of which have led to better quality teaching. The Connecticut Department of Education (1963) determined that half of their vocational teaching staff were engaged in inservice educational activities including formal education and trade courses, workshops, and employment in trade-related

occupations. Brantner (1964) found that trade and technical teachers were involved in both professional inservice education and subject-matter inservice education. Very appropriately, those pursuing the former were teachers with relatively little teaching experience while those pursuing the latter had had only limited work experience.

Littrell (1965) studied trade and industrial student teachers and found them to be "exploited" by cooperating teachers. However, the student teachers themselves had expected this and were not at all unhappy about having the opportunity to prepare and teach lessons (which also provided the cooperating teacher with a rest). Such "substitute" teaching occurred primarily in areas in which the cooperating teacher was weak.

Evaluation of Teacher Education Programs

Swanson (1964) examined master's level programs in industrial education and found that their greatest strength was in the area of professional education, with research and technical education intermediate and general education weakest. Ginther (1964) reported that the portion of time devoted to the development of specialized technical competencies in the master's and doctoral programs he studied was considerably less than what his respondents believed should be devoted to this purpose. Ryan (1963) examined T & I teacher education programs in North Carolina and reported that about three-quarters of the beginning teachers felt that they had received help from their teacher training program in dealing with initial teaching problems. Brantner (1962) asked T & I teachers in Pennsylvania to express their attitude on the adequacy of the instruction received in eight

required courses. Judgments of the teachers' application of this instruction to their teaching activities were also elicited. A majority of the teachers rated the instruction they had received as adequate. Moreover, a significant relationship between adequacy of instruction and competency of application was evidenced; i.e., the better one's preparation, the better one applies what has been learned.

Courtney (1965) had teacher education graduates of Stout State University identify the factors on which they were most well-prepared and those of greatest need or requirement. Five of the 11 most needed or required skills were ones on which they felt they had been well prepared. Interestingly enough, these all dealt with methods and techniques of teaching, test construction, lesson planning, and curriculum building. Those for which they were ill-prepared included maintaining student interest, motivating students, maintaining discipline, dealing with individual differences, and evaluation.

Walsh (1960) had 121 state supervisors of T & I, 91 local supervisors of T & I, and 103 teacher educators rate the competence of recently-trained T & I teachers. Respondents were generally satisfied with the teachers' trade competency, ability to demonstrate the skills of the trade, and ability to maintain discipline. They were most dissatisfied with the teachers' experience in developing instructional materials and ability to prepare tests and evaluate students. On the whole, about one-half of the respondents were satisfied with the teacher education programs and one-half dissatisfied. Teachers themselves rated direct experiences such as supervised teaching, trade experience, and planned observation of teaching as most valuable in their teacher education programs. Contrary to the ratings of their

superiors, teachers felt that coursework in job analysis, teaching methods, developing instructional materials, and test and measurements made strongest contributions to their teaching success.

Obviously, teachers strengths are a function of the areas most emphasized and best taught in the specific institutions from which they obtained training. Some institutions emphasize technical competency while others emphasize teaching methods. Consequently, research findings are contradictory and confusing. Judgments of state directors and teacher educators do not necessarily conform to those of the teachers themselves. The answer may lie in a job analysis of teaching tasks based on direct observation of many teachers in many settings to determine how often different skills and techniques are called for. This, then, could form the basis for teacher education programs.

In the final analysis, the best test of teacher training is the quality of offerings provided by those teachers. In anticipation of findings to be discussed in detail in the section on Evaluation, teachers are doing a high quality job in T & I education. The problem is in recruitment and number of teacher education programs: there simply are not enough teachers. Moreover, teachers are going to have to be provided with more skills necessary to teach the culturally disadvantaged, often nonwhite, ghetto youth. This is the area where research and development must blossom.

ADMINISTRATION AND SUPERVISION

Moss (1965) reviewed numerous articles dealing with research in administration and supervision for industrial education and concluded with critical comments concerning the limited use of sound experimental

methodology and the failure of researchers to generate findings of specific use to administrators. Since the administrator is the decision-maker in vocational education, this is clearly an area where research can and should contribute but heretofore has made only slight contributions.

Preparation of Leaders

Olivo (1965) contended that program growth in vocational education is being impeded by a lack of well-prepared, qualified administrators. He suggested that graduate programs for administrators include knowledge and experiences related to administration and supervision; occupational analysis and curriculum development; concepts of vocational education; laws, regulations, and policies; planning facilities; and financial matters. This on-campus training would then be followed by field direction and an on-the-job internship in administration.

London (1965) suggested that leaders have the following: work experience, four years of college, two or more years of teaching experience, and strongly favorable attitudes toward the value of vocational education.

O'Brian (1966) brought together leaders in a variety of disciplines and asked them what the "new breed" of leader in vocational education should know. The following emerged as broad categories of requisite knowledge: counseling and guidance, labor economics, social psychology and group dynamics, the sociology of work, industry, and minority groups, labor-management relations, industrial organization, training, facilities, and, of course, the concepts of vocational

education. Subsequently, an advanced degree program has been instituted at Rutgers incorporating these recommendations.

Schaefer (1962a) developed instruments to identify effective and ineffective local directors and to analyze the competencies contributing to the director's relative success. Results obtained were tentative.

Administration of Local Programs

The primary area of investigation relevant to the administration of local programs is that of authority--particularly identifying the authority that the local director has and who he is responsible to. A study undertaken by the State of Pennsylvania Research Advisory Committee (1960) identified major problems recognized by local directors. While improving shop safety, recruitment, selection, and training of instructors and enlisting the interest of prospective students were mentioned, primary importance was assigned to the issue of opinion and influence of local school administrators on the development of vocational programs.

McDowell (1965) had industrial education experts rate statements related to the administration of local programs. Experts indicated that the administrator should be responsible to someone higher and delegate authority to his assistants while remaining totally responsible for all activities in his school. In addition, he should be experienced in administration and vocational education, not be rigid, and maintain close contact with the people.

Mason (1963) studied the distribution of authority within vocational programs in Michigan high school systems and its influence on the quality of the program. Superintendents associated with

highly-rated programs retained slightly less authority than superintendents in low-rated programs. It is possible, however, that the official distribution of authority may not be representative of the actual distribution. Mathews (1963) studied vocational directors in Michigan and found them to be confused over their position in the line of authority and the educational areas for which they were responsible. Campion (1965) recommended that local directors study the power structure in the community so that they can communicate ideas to individuals whose approval is necessary for action. Only in this manner can they influence policy.

McComas and Willey (1966) suggested that state directors of vocational education carry out active recruitment campaigns to bring administrators and potential administrators, capable of planning programs, into the fold in order to fill the demand.

O'Brien (1963) advocated that T & I programs be administered directly by the state for the following reasons: (1) policies and procedures can be determined at a central source, (2) no geographical limitations, (3) particular programs can be decided upon and operation begun quickly without waiting for local boards and superintendents to make up their mind, (4) the neglect of comprehensive high school T & I programs by academic-minded administrators can be avoided, (5) personnel can be transferred more easily to points where needed, (6) large areas can be covered efficiently by concentration of facilities without being dependent upon local boards to provide these facilities.

Supervision

Dull (1960), with the help of a jury of experts, developed a list of evaluative criteria for supervisory programs and used it to evaluate 18 Ohio school systems. His results corresponded closely to prior ratings of the systems by state education officials. These criteria are recommended for use in self-evaluation of systems and supervisory training courses. Bentley and Rempel (1962) developed a morale instrument on which they obtained high positive correlations with expressed teacher satisfaction, feelings about the future of the teaching field, amount of salary and possession of tenure. Furthermore, students of high morale teachers had better attitudes toward school and higher IQ's than students of low morale teachers. Of course, one cannot tell whether higher teacher morale produced better student attitudes or better student attitudes produced higher teacher morale.

Additional studies on the supervision of instruction appear in the section in Teacher Education.

School Relations: Attitudes

Wenrich and Crowley (1964) found that school professionals who held positive attitudes toward vocational education in the secondary schools did so because they felt that some form of vocational education served to develop well-rounded youth. In considering program against program, administrators felt the vocational education program was less respectable than the college prep program, believing election of the former to be based on social class factors rather than aspirations or special interests. It appeared that school professionals more familiar with vocational education were more critical of it.

Schaefer (1962b) obtained data from school board members and administrators in school districts with and without T & I programs and found those with programs to be more favorably disposed toward T & I education than those without programs. Favorably disposed board members had, in many instances, taken vocational subjects themselves, were rarely college graduates, and were employed in technical occupations. Underlying unfavorable attitudes toward T & I programs among administrators were the following: (1) it is taken as a frill, (2) it's a dumping ground for lazy students and slow learners, (3) facilities are too costly while alternative programs are worthwhile, (4) T & I programs fail to serve manpower needs. Similar findings were obtained by Prichard (1962).

Agan (1960) found that administrators of "successful" vocational programs in Kansas were not inclined to recommend that changes be made in these programs. Rugher (1960) found that many superintendents of school districts providing vocational programs in Indiana disagreed with the current nature, clientele, and importance of these programs. They would, however, accept a list of purposes and principles for vocational programs generated by a national jury of interdisciplinary experts.

Program Funding

The U.S. Department of Health, Education, and Welfare (1964a) reported that in 1963 the combined federal, state, and local expenditure for T & I education was $94 million. Of this, 12 per cent were federal funds, 36 per cent state funds, and 52 per cent local contribution. This same department also reported (1964b) that in

fiscal year 1965 the federal allotment alone for all of vocational education would be $168.5 million with two-thirds of this coming from the Vocational Education Act. In addition, MDTA would provide $407 million for training. The U.S. Department of Health, Education, and Welfare (1965) reported that for fiscal year 1965 state matching funds for vocational education would amount to almost $234 million, twice the federal allotment for the states.

Wenrich (1962b) surveyed Michigan administrators operating local day trade and cooperative programs and discovered that if special reimbursement were withdrawn, only 16 per cent of the existing programs would be eliminated. In place of reimbursement for teachers' salaries, more than 70 per cent of the administrators wanted funds to assist in developing programs for special groups, for preparing instructional materials, for improving guidance programs, for purchasing shop equipment, and for operating areawide schools.

EVALUATION

Follow-Up Studies

It is interesting to begin this section by citing the rather defamatory position of Benson and Lohnes (1959) toward vocational education. These authors contended that vocational education does not increase individual productivity; furthermore, they contended that technological industry prefers academically-trained workers and that the vocational schools are producing a defective product. Consider this in the light of strong indications to the opposite described below.

For a period of about six years, prior to the passage of the Vocational Education Act, the North Atlantic Region conducted evaluative

follow-up studies of graduates of high school trade and industrial programs in the region. They reported that in 1963 72 per cent of the graduates of day T & I programs, available for employment, were employed in jobs related to their training; this was true of 90 per cent of the cooperative T & I program graduates. Combined employment in both training-related and unrelated jobs was in the vicinity of 96 per cent for each program. Comparable placement data are reported for 1962 and 1961 as well; 1963 graduates were reported to be earning a median hourly wage of $1.54 to start, as compared to starting median hourly wages of $1.51 and $1.46 for 1962 and 1961 graduates, respectively (North Atlantic Region, 1963, 1964, 1965). Impressive placement data collected by the North Atlantic Region was an important stimulant for federal legislation in vocational education.

Eninger (1965) collected follow-up data from a national sample of graduates of high school T & I programs and non-college bound graduates of high school academic programs after two, six, and 11 years. T & I graduates took significantly less time to find their first full-time job after graduation than academic graduates and experienced fewer periods of unemployment after graduation. T & I graduates also experienced fewer job changes after graduation and obtained higher earnings after two and six years out of school when compared to academic graduates. By 11 years after graduation, they had evened out. Dispelling the popular myth that vocational education does not provide education for the "whole person," Eninger found that T & I graduates and non-college-going academic graduates had similar conversational interests, similar leisure-time activities, and similar organizational affiliations. They were also similar in attitudes toward school and

job satisfaction. Eninger's data comparing placement of those T & I graduates from vocational high schools and those from comprehensive high schools has already been presented (see Student Personnel Services - Placement).

Data reported by Flanagan et al. (1962) for Project Talent indicated that vocational high school facilities do not differ in any great respect from academic and comprehensive high school facilities in a national sample. While vocational high schools are in a relatively favorable position on student/teacher ratio, they are in a relatively unfavorable position on accreditation. Students of vocational high schools were found to (1) live in industrial areas, (2) come from homes where a language other than English was spoken, (3) come from strong ethnic backgrounds, (4) have high absenteeism, drop-outs, and legal offenses to a greater extent than students of academic and comprehensive high schools. Vocational teachers and administrators were found to have less formal education than their academic counterparts.

Nelson et al. (1960; see also Coster et al., 1960) used a list of general purposes of industrial education which a national jury had generated to evaluate high school T & I and industrial arts programs in terms of the purposes to which each program subscribed and the operational effort expended to attain each of its purposes. The findings revealed that general purposes of industrial education are more effectively attained through the operational activities of T & I teachers as opposed to industrial arts teachers.

Coe and Zanzalari (1964) conducted a follow-up study of graduates of the Middlesex County, New Jersey, Vocational Technical High Schools 10 years after graduation. Eighty per cent of the male

respondents were employed earning a mean hourly wage of $2.80. Sixty per cent of those available for employment were still working in the trade for which they had been trained. One-quarter of the graduates had attained foreman or superintendent positions. The State of New Jersey (1964) reported that 86 per cent of the graduates of day T & I programs had received immediate placement in the trade for which they had been trained (provided they were available for employment) at a median hourly wage of $1.69 to start. Gatch (1963) followed up graduates of the Newton, Iowa, High School machine shop program after 10 years and found that 69 per cent were using machine shop training to earn a living. Mattke (1965) followed up T & I graduates of Davenport, Iowa, high schools over a three-year period and found almost 55 per cent working in the occupation for which they had been trained or a closely related one. Ryerkerk (1965) followed up graduates of the T & I program in Mason City, Iowa, after from five to 15 years and found that 78 per cent had never been unemployed. About 36 per cent were still employed in the job area for which they were trained. Moss (1962) followed up a small group of T & I graduates and graduates of other programs in a redevelopment area of Missouri and found no differences in initial placement, initial wages, or wages three years later. Hunter (1963) found that only a small percentage of graduates of vocational programs in a section of Missouri were employed in the field for which they received training. However, the geographical area called for skilled tradesmen and most of the vocational programs in the local high schools were in agriculture, business education, and home economics.

Evaluation Techniques

Sweany (1966) recommended planned, continuous evaluation of vocational programs, primarily in terms of graduate placement but also in terms of (1) teaching support functions (e.g., administration, counseling, curriculum planning), (2) quality of the program, (3) availability to all students, (4) adequacy of coverage of different fields, (5) changes required in keeping up to date, (6) effectiveness of teaching methods, (7) efficiency of learning, (8) comparative costs of programs, and (9) use of funds. Smalley (1965) suggested the following questions be asked relative to program evaluation: (1) what kinds of students take industrial education courses? (2) what are former students doing now? (3) what is being done with some of the latest educational developments? (4) what relationship exists between objectives and evaluation? (5) what groups of students should industrial education serve? (6) how do we compare with other schools? (7) what is the image of industrial education?

Two specific instruments for evaluating T & I programs appeared in the literature (University of the State of New York, 1962: Ohio Trade and Industrial Education Service, 1964). Both required subjective appraisals by administrators and educators on a lengthy set of structured questions. Two course-specific evaluative devices have also been found: Hill's (1964) technique for automotive mechanics and Schilling's (1965) technique for drafting.

Finally, Tuckman (1965) recommended the use of structured, content-validated tests to determine whether course objectives have been met. This would serve as a basis for evaluation when immediate decisions must be made and the luxury of a follow-up study is not afforded.

The development of evaluative techniques and devices other than the follow-up study (which is well-developed and widely used) is encouraged as an aid to the field of trade and industrial education.

RESEARCH

Rivlin (1965) concluded her treatise on critical issues in the development of vocational education with the following statement:

> To sum up, one thing that is clearly wrong with vocational education is that we know so little about it. We badly need information about costs of alternative methods of training and about the income and employment histories of graduates. We need far more experimentation with new methods of teaching, new ways of combining classroom instruction and on-the-job training, and new methods of financing occupational training. We also need to examine the effects of local decision-making on the distribution of educational resources and to develop methods of transmitting the skill needs of the nation to local schools and individual students. (pp. 165-166)

Many other research-oriented vocational educators have attempted to identify needed types of research and timely research problems such those above. Brandon and Evans (1965) identified six categories of research: (1) basic scientific investigation (content indifferent), (2) basic scientific investigation (content relevant), (3) investigation of educationally-oriented problems, (4) classroom experimentation, (5) field testing, and (6) demonstration and dissemination. They encourage vocational researchers to directly pursue categories three through six but realize that studies in the first two categories must be available to build on. An excellent example of how vocational education might borrow from the social sciences to fulfill categories one and two is offered by Drabick (1965). VanderWerf (1965) suggested five research categories to be pursued which basically fall into

the areas of manpower policies (opportunities and talents), educational preparation for occupations, organizational structure, recruitment, selection and preparation of teachers, and vocational behavior (development and guidance).

Perhaps the most definitive source on the subject, the U.S. Department of Health, Education, and Welfare (1965c), has identified the following seven research priority areas for vocational education: (1) program evaluation, (2) curriculum experimentation, (3) personal and social significance of work, (4) personnel recruitment and development, (5) program organization and administration, (6) adult and continuing education, and (7) occupational information and career choice.

Courtney (1966) surveyed vocational school directors to discover crucial problems within their institutions needing research. While agreement was meager, the following problem areas emerged: present and emerging occupations, necessary occupational competencies, factors affecting motivation of the socio-economically handicapped, improvement of community attitudes, and factors affecting decisions to move.

Moss (1964) recommended that researchers assign priority to current problems if results are to have any immediate usefulness. Persistent problems are also to be assigned a high priority.

Research undertakings require financial support and Rowlett (1964c) outlined a procedure for securing such support and a list of likely sources. It is his contention that the necessary conditions for research in the field of vocational education--problems, personnel, financial support, and interest by professional organizations--all do exist at this time.

Spence (1964) examined 800 graduate theses completed during the period from 1892 to 1933. He concluded that we are still trying to solve the same problems even though our technology has changed considerably.

One must conclude with a general indictment of the vocational education profession concerning the area of research. The last time an issue of the Review of Educational Research was devoted to research in vocational education was in October, 1962, almost four years ago. Since that time, presumably, enough published research has not been done to fill an issue. In that 1962 issue, Karnes (1962) reviewed the area of industrial education and concluded that most of the research was characterized by documentary and descriptive procedures. Furthermore, major studies to test the organization and curriculum patterns of programs had not been undertaken. He recommended the task force or team approach to major research undertakings. In that same issue, Wenrich, Swanson, and Evans (1962) reviewed research in vocational, technical, and practical arts education. They identified most of the research they reviewed as having been done by graduate students and subject matter specialists, rarely by professional researchers. The majority of the 39 studies they reviewed were subject-matter oriented. Moreover, at the last national meeting of the American Educational Research Association, only two out of about 100 sessions were devoted to research in vocational education.

That was in 1962. In 1966, there are information centers for vocational education, regional laboratories, numerous sources of funds. Lists of funded proposals made available by the Bureau of Adult and Vocational Research of the U.S. Office of Education indicate that

more research than ever before is being done in vocational education. Certainly organizational support is not lacking. Vocational educators cannot depend on researchers in the other fields of education to provide either the answers to specific questions or a broad-based set of theoretical constructs for use in vocational education. Where the programs are different, the students different, the teachers different, and many of the objectives different, the research must come from within the field in question by persons equally versed in the concepts and practices of that field and the methods and techniques of research. Part of the answer lies in attracting individuals from other disciplines to vocational education, but the primary answer lies in having a "farm system"; the graduate departments of vocational-technical education across the country must turn out research-oriented, research-talented individuals at the doctoral level to help fill the gap and elevate the position of vocational research to a level appropriate for its social importance and equal to its existing problems.

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Coordinators' Handbook for Distributive Education in Louisiana.

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Louisiana,

Intended to be a single reference source for distributive education coordinators, this publication provides information needed in the performance of their responsibilities as teachers. Experienced teacher coordinators participated in the development of the three major sections of Distributive Education and Its Place in Louisiana Vocational Education, Cooperative Distributive Education, and Adult Distributive Education. Topics included in the cooperative distributive education section are calendar of events, program cost, coordinator's duties and certification requirements, training station criteria, the role of the employer, program of instruction, equipment, classroom methods, advisory committee, club activities, and evaluation. The section on adult distributive education includes type of classes, advisory committees, class organization, teaching methods, and supervision. The appendixes contain examples of a distributive education classroom layout, various forms, a suggested community survey, a glossary, and a bibliography. (SL)

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STATE DEPARTMENT OF EDUCATION OF LOUISIANA

1967

DISTRIBUTIVE EDUCATION COORDINATORS' HANDBOOK

ISSUED BY

STATE DEPARTMENT OF PUBLIC EDUCATION

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STATE DEPARTMENT OF EDUCATION

OF LOUISIANA

1967

COORDINATORS' HANDBOOK

FOR

DISTRIBUTIVE EDUCATION

IN

LOUISIANA

Prepared by

Distributive Education Section
Division of Vocational Education

Issued by

STATE DEPARTMENT OF PUBLIC EDUCATION
William J. Dodd, Superintendent

F O R E W O R D

The rapidly expanding economy of Louisiana and the Nation has effected significant changes in many aspects of our lives. The field of education is no exception.

In an era when manufacturing and the distribution of goods has attained a position of paramount importance, a feature of special interest to educators is the parallel growth of distributive education. In many ways these programs are gaining increasing prominence at every educational level. The state's first post-secondary distributive education program is now in operation for those who need training or re-training for stability or advancement in employment. As a substantial number of high schools make provision for distributive courses each year, adult classes, offering quality training for an increasing number of our people, are becoming more and more numerous. As distributive education grows in size and complexity there is an increasing need for continued expansion of secondary and adult curricula to include even more phases of these occupations.

The growth of distribution has become so dynamic, so extensive, that it has become imperative that a handbook be provided to assist the teacher-coordinator and adult instructor. This handbook will be used as a guide to assist the beginning coordinator with the resource material he will need as problems arise, as well as provide experienced teachers with a ready reference on current procedures and practices.

William J. Dodd
State Superintendent of Public Education

William E. Johnson
Assistant Superintendent for Vocational Education

PREFACE

The development and publication of this Coordinators Guide is the direct result of urgent requests from local coordinators for a single-reference source to provide them with the knowledge, methods and techniques necessary to perform their responsibilities as teacher-coordinators in a superior manner. It is, therefore, designed specifically for the use of coordinators of Distributive Education programs in the State of Louisiana. It reflects the total-program concept that is a basic part of the philosophy of Distributive Education in the State of Louisiana.

The Coordinators Guide is an accumulation of ideas and materials of coordinators and supervisors -- past and present -- from throughout the State of Louisiana and from several other states. Recognition and sincere appreciation is given to Miss Linda Wintzell, Executive Secretary of the Distributive Education Clubs of Louisiana, and other state staff members, for the compilation and development of this guide. The suggestions by the Handbook Committee of experienced teacher-coordinators is also appreciated. Members of this committee were: Lloyd Puckitt, Chairman; Mrs. Margaret Mounce; Mrs. Johnnie Lazarus; and John Edgar.

H. E. Ruppert
State Director
Distributive Education

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DISTRIBUTIVE EDUCATION

AND ITS PLACE IN

LOUISIANA VOCATIONAL EDUCATION

VOCATIONAL EDUCATION

A. Definition

Vocational Education is a broad term which covers any training or instruction which prepares the student for the successful filling of a job or a class of jobs. Basically, it means learning how to work effectively, but it also includes related knowledge, understandings, and skills which will contribute to a satisfying and useful life of employment in a selected occupation.

B. General Administration and Organization in Louisiana

1. The general direction of vocational education is vested in the State Board of Education and is summarized in The State Plan for Vocational Education 1964-1968.

2. Operational Direction

   a. The plans and policies for the development of the program are administered through the State Superintendent of Education, the executive officer of the State Board of Education.

   b. Each field of vocational education is under the immediate supervision of the appropriate vocational director in the State Department of Education and under the general direction of the Assistant Superintendent for Vocational Education.

   c. On the local level, the parish or city school board (through the superintendent), is responsible for the conduct of the program.

   d. Parish and city school boards are required to submit such statements, progress reports, and financial reports as may be prescribed by the State Department of Education.

C. Financing

Vocational Education in Louisiana is partially financed by the State Board of Education and by appropriations by the Federal government. The general purpose for which appropriation is made is to assist the parish and city school boards in the further development of vocational education in the State. It is not intended that these funds will be used to relieve the parish and city school systems of financial obligations normally assumed by the boards in conducting vocational education programs. It is intended that any funds made available for this purpose will be used for enriching purposes in providing facilities over and above that normally assumed by the parish and city school systems.

DISTRIBUTIVE EDUCATION

A. Definition

Distributive Education is one phase of Vocational Education. It is a training program which prepares persons for careers in the retail, wholesale, and service fields.

B. History

Distributive Education received its impetus from a series of Federal acts which made funds available for vocational education. These monies made it possible for schools to offer education for distributive occupations, and they continue to play a large role in the operation of distributive education programs. The development of the Federal contribution may be summarized as follows:

1. The Smith-Hughes Act of 1917 provided for an annual appropriation to the states for promoting vocational education for students and teachers.

2. The George-Reed Act of 1929 provided additional funds.

3. The George-Ellzey Act of 1934 extended the Federal appropriations for a three-year period.

4. The George-Deen Act of 1936, which provided matching Federal funds to the states on a graduated scale, included monies for training in the distributive occupations for the first time.

5. The George-Barden Act of 1946 increased the amount of Federal appropriations and also authorized the use of Federal funds for guidance and teacher training in the service fields and for research in vocational education.

6. The Vocational Education Act of 1963 was designed to assist states in the improvement and extension of existing vocational programs.

C. The Goals of Distributive Education

1. To raise the occupational efficiency of distributive workers through planned vocational training

2. To increase the skill, technical knowledge, occupational information, understanding, appreciation, and judgment of both management and employees

3. To prepare workers in one phase of distribution to transfer to another distributive occupation or to move to a higher position in their field

D. Means of Attaining the Goals

1. Instruction in high schools and technical institutes

2. Individual consultation with business managers and employees

3. Specialized workshops, clinics, and institutes for owners, managers, supervisors, and employees

4. Dissemination of current distributive information

5. Effective use of student chapters of the Distributive Education Clubs of America

E. Values

1. To the trainee

a. Distributive Education offers an opportunity to receive specific training in distribution.

b. It offers opportunities for increased earnings and advancements.

c. It provides for greater security because the stability of the field is improving.

d. It provides greater opportunity for employment in a field in which working conditions are satisfactory.

e. It provides opportunity for personal development.

f. It provides opportunity for professional and technical development on the employee, the supervisory, and the managerial levels.

2. To the employer

a. Distributive Education provides lower-cost training.

b. It offers training service to supervisors, managers, and owners, as well as to employees.

c. It can aid in public relations.

d. It can increase the prestige of the business.

e. It provides a means of keeping trade at home.

f. It provides advisory service in training problems.

g. It provides training for the call-list reserve of part-time employees.

h. It results in greater productivity per employee.

i. It provides the opportunity for a better understanding of employees and their problems.

j. It reduces personnel turnover through better selection and training.

3. To the General Public

a. Distributive Education contributes to the improvement in standards of living through better service, lower selling costs, and general improvement of marketing and merchandising practices in the field of distribution.

b. It contributes to the improvement in shopping conditions in numerous ways, such as:

(1) Customer relationships
(2) Merchandise accessibility
(3) Accuracy of merchandise information
(4) Merchandise service per dollar expended
(5) Customer comfort

c. It contributes to economical and practical training opportunities.

d. It contributes to the development of better citizenship.

F. Types of Distributive Education Programs

1. High school classes

a. Cooperative program
b. Preparatory program

2. Post-secondary classes

3. Classes for adults holding jobs in distributive occupations

G. Sponsors

Sponsors of distributive education activities include such groups as the following:

1. Chambers of Commerce

2. Employee organizations

3. Trade associations

4. Retail merchants associations

5. Service clubs

6. Individual business firms

COOPERATIVE

DISTRIBUTIVE EDUCATION

BASIC INFORMATION

A. Definition

The cooperative part-time training program is a school supervised program through which high school students receive valuable training for careers in the distributive occupations such as retailing, wholesaling, and service trades. Each student goes to school a half day and works in a cooperating establishment the other half day. While in school each student takes two regular high school subjects and one period of distributive education in a separate class taught by the distributive education coordinator. While at work each student is under the direction of the employer or a training sponsor who assigns work experience activities according to a prearranged schedule of on-the-job training, prepared in collaboration with the school coordinator.

B. Objectives

To prepare qualified high school students for the distributive jobs of today and the business leadership of tomorrow.

C. Benefits

1. To the Student

   a. Develops character and personality

   b. Provides opportunity to learn and earn by doing immediately

2. To the School

   a. Broadens and enriches the curriculum

   b. Furnishes guidance opportunities for students not planning to enter college

   c. Puts school instruction to work

   d. Increases the standing of the school in the community

   e. Brings school and business into closer cooperation, increasing the practical educational contribution of the school to society

3. To the Employer

   a. Raises the level of efficiency of trained store personnel

   b. Increases profits and lowers costs

   c. Reduces training costs

   d. Furnishes cooperative workers trained in the proper store relationship

e. Offers opportunity to train future full-time employees "on-the-job"

4. To the Community

a. Stabilizes the American system of distribution

b. Furnishes more useful citizens

c. Produces community leaders

PLANNING A DISTRIBUTIVE EDUCATION PROGRAM

A. Needed Information

1. Study the community

   a. Types of businesses

   b. Number of employees

   c. Trends in employment

   d. Labor turnover

2. List businesses that will be suitable for distribution

   a. Name of owner, manager, personnel director

   b. Jobs available

   c. Acquaintance with Distributive Education

3. Know names and addresses of:

   a. Editors of local newspaper

   b. Manager of local radio and television station

   c. Secretary-manager of Chamber of Commerce

   d. Local president of Chamber of Commerce

   e. Parish officials

   f. Manager of Better Business Bureau

   g. President and executive-secretary of local Grocers' Association, Restaurant Association, Hardware Association, Hotel Association, and Retail Trade Bureau

4. Utilize sources of information

   a. School records

   b. City directories

   c. Telephone directories (yellow pages)

   d. Canvasses

   e. Friends, counselors, principals, former students

5. How to make a Distributive Education survey of a town

a. The purpose of making a survey of stores is to:

(1) Give the coordinator an opportunity to introduce himself and to explain the Distributive Education program.

(2) Find out the necessary information for placement of high school students.

(3) To determine the attitude toward adult retail training, so the coordinator will know how to organize and promote the Retail Institute.

(4) To determine training needs in the community.

(5) To give the coordinator specific information on business conditions and trends.

b. The survey card which the coordinator uses each year in the community gives the coordinator a business-like approach to use in discussing the Distributive Education program with merchants. It will be well to start the survey with the main shopping area. Larger, more progressive stores can be located easily by the coordinator by walking through the downtown district and making a list of them. The following steps will save time and effort if used by the coordinator:

c. Before you start interview

(1) Type up on survey cards name and address of companies (taken from classified section of phone book). Plan to prepare about ten cards each day starting with large stores.

(2) Arrange the cards in order in which companies are to be visited. (All cards of stores located in one block together.)

(3) Plan to interview six to ten merchants each day during August and twenty each week after school starts.

(4) Go over the plan for the survey with your superintendent of schools. Secure permission to put news release in local paper on the survey.

(5) Go to the Retail Merchants' Association (or Chamber of Commerce if there is no Retail Merchants' Association in the town). Introduce yourself, go over a blank survey card with the secretary, then the president and explain how and why you plan to make the survey. Explain that it is made each year by the coordinator of Distributive Education in towns throughout the state and that the information on each individual store will be kept confidential. Get the names of managers of stores so that you will know for whom to ask when going for the interviews.

(6) Write an article for your local newspaper. Take the article to your school superintendent to see if it meets with his approval. Send or take news releases to newspaper. If you take the article to the newspaper, explain your program briefly and find out to whom on the newspaper staff you should take news in the future.

d. Interview with merchants

The interview should be somewhat like the following:

"Mr. Jones, I am John Doe (do not use Mr., Miss, or Mrs. in introducing self), coordinator of Distributive Education here in ____(town)_____. I have just been talking to Mr. __(RMA) president or secretary__ about the training program for store employees this fall. He suggested that I come and talk to you. I'm making a survey of stores and would appreciate your helping by giving me some information about your own organization."

Take out a survey card for that store. To secure information on the question of personnel turnover, simply ask, "About how many new employees do you employ each year?" The questions on the survey card will give you a chance to explain how different phases of your program will operate. Give the merchant time to ask questions and to express opinions. Do <u>not</u> try to explain every phase of the program during this initial interview. It is hard for a person to understand the entire program at one time.

Each interview should take between twelve and fifteen minutes. Secure interest in the program, but do not overstay your welcome. Excuse yourself on the basis of having to complete the survey while the merchant is still interested. Make an appointment to come back another day to explain more if the person to whom you are talking seems interested.

As soon as you have left the store, look over the card, think through the interview and decide what future follow-up should be made. Fill in this information under "plan for action."

B. <u>Costs Involved in the Distributive Education Program</u>

Since the schools are utilizing the equipment and facilities of the business establishments cooperating in the training program, there is relatively little expense outside of teachers' salaries and provision of a classroom in the cooperative part-time training program for the distributive occupations. In the related subjects classroom provision should be made for an adequate supply of instructional material including texts, reference material, trade journals, visual aids, display and card writing equipment, and such other materials and equipment as have a direct use in the training program for the distributive occupations.

C. Calendar of Events

A glance at this calendar of events indicates the wisdom of long-range planning for a cooperative business education program. Many school systems are hiring the teacher-coordinator one year in advance of the starting of cooperative classes, assigning him to organizational duties the first year along with the teaching of business courses in the business department. Schools that make last-minute decisions in the spring or summer to start a program the following fall run into difficulties in hiring a qualified teacher-coordinator, in selecting scheduling student-learners, and in selecting and developing training stations on a sound educational basis.

Month	Activity
January (20 months in advance)	Interest in program is expressed to or by the superintendent of schools. Superintendent informs the State Board of Vocational Education of interest in cooperative distributive education. Steering committee is organized.
February	First meeting of steering committee -- orientation Survey of business community potential and interest Survey of faculty and guidance personnel interest Survey of student interest
March	Second meeting of steering committee -- action
April	Action by superintendent to designate a teacher-coordinator and to designate organizations to responsibilities until he is hired and or the job.
May or June	New coordinator hired to organize the program during the coming school year.
September	Advisory committee appointed by the superintendent.
October	First advisory committee meeting -- orientation Public relations program planned for the school and the community.
November through February	Teacher-coordinator Appears before civic clubs, professional clubs, school assemblies. Writes newspaper releases. Plans radio and television programs. Consults with guidance counselors and principals. Consults with labor and management leaders. He is always careful to follow proper channels of communication.

March thru June	Teacher-coordinator Counsels and interviews prospective student-learners. Visits parents of prospective student-learners. Cooperates with guidance counselors in selecting student-learners. Establishes business training stations. Assists in making class schedules for student-learners. Checks adult education needs for the coming year.
August	Teacher-coordinator Establishes additional training stations. Checks established training stations. Starts student-learner placements.
September	Teacher-coordinator Completes student-learner placements. Starts related classroom instruction. Continues public-relations activities. Initiates the youth club program. Advisory committee meeting — report and planning session

Once the program is established it is up to the teacher-coordinator to keep it running from year to year. For him the calendar of events will repeat itself each succeeding year as he extends the program and brings additional students into it.

THE COORDINATOR

A well qualified teacher-coordinator is the key to an educationally sound distributive education cooperative program.

A. Louisiana Standards for State Certification (Refer to Louisiana Bulletin No. 746)

General Education
Minimum of 46 Semester Hours

1. English: A minimum of 12 semester hours

2. Social Studies (history, economics, sociology, geography, political science, and survey of social science): A minimum of 12 semester hours, including at least 3 and not more than 6 semester hours in United States history

3. Science: A minimum of 12 semester hours, including at least 3 semester hours in biological science and at least 3 semester hours in physical science

4. Mathematics: A minimum of 6 semester hours

5. Health and Physical Education: A minimum of 4 semester hours

Professional Education
Minimum of 18 Semester Hours of High School

1. At least 3 semester hours of history of education, introduction to education, foundations of education, and/or philosophy of education

2. At least 3 semester hours in educational psychology and/or principles of teaching

3. At least 4 semester hours in student teaching

   a. The student teaching shall be under the control and supervision of the institution in which the student teacher is enrolled. Whether or not the school in which the student teaching is done is administered by the institution, the regular teacher under whose direction the student teaching takes place shall be a representative of or approved by the school of education or department of education of the institution and shall be certified as a supervisor of student teaching.

   b. The level at which the student teaching is done must coincide with the level of the certificate sought: high school student teaching (including grades 7-12) for high school certification; for high school certification, student teaching shall be in one of the major subject fields for which the student teacher is preparing.

c. The application for certification shall indicate that the applicant has earned credit in student teaching by devoting at least one semester to directed observation, participation, conferences with the supervisor, and actual teaching. Not less than 45 clock hours shall be in actual teaching.

4. Other professional education appropriate to the level and to the field for which teacher is to be certified:

a. High school: 8 semester hours, including 3 semester hours in adolescent psychology.

Special Education
For High-School Teachers

NOTE: Authorization to teach one or two subjects in addition to the major subject on the high school level may be added to the certificate if the applicant lacks not more than 6 semester hours of meeting the minimum requirement in the teaching field or fields, provided that this authorization shall be good for one year only. The applicant is given one year in which to meet the requirement.

1. For Distributive Education

a. Teacher-coordinator of high school programs

(1) Technical courses in marketing and distribution, 18 semester hours. The 18 semester hours should be distributed among technical areas such as: accounting principles (not more than three hours), marketing, retailing, sales promotion, wholesaling, and business law (not more than three hours).

(2) Professional distributive education, 5 semester hours. All applicants seeking certification in distributive education except those already holding a valid Louisiana Teachers Certificate shall complete 5 semester hours from areas such as: methods and materials of instruction, organization and administration of high school distributive education programs, coordination techniques, and curriculum planning. (Those hours may be part of the professional requirements under B-4a).

(3) Practical experience in distributive occupations. Teacher-coordinators are required by the State Plan to have two years of employment in distributive occupations. This employment may include supervised on-job training while enrolled in an approved high school distributive education program. The requirements may also be met through organized and directed work experience as a part of a Distributive Education teacher education program. The fulfillment of these requirements must be approved by the Director of Distributive Education and the Supervisor of Teacher Education and Certification.

B. Professional Improvement of a Teacher-Coordinator

Teacher-coordinators who possess the minimum qualifications for such teachers may be employed. It is expected that teachers shall have had at least six professional courses in distributive education in such subjects as Philosophy of Vocational Education, Occupational Analysis, Course Building, Methods of Instruction, Organization and Supervision of Distributive Education, and Coordinating the Cooperative Program. These courses may be taken prior to employment or within three years after employment. Teacher-coordinators are advised to secure professional improvement attending an approved summer school, taking courses approved by the state supervisor of distributive education every two years. (Coordinators may be required to attend summer school each year until the minimum professional education is secured.)

C. Rate of Pay for the Teacher-Coordinator of Distributive Education

The salary of the teacher-coordinator of distributive education is determined by the local parish or city board of education. The salary of the full-time teacher-coordinator should be the equivalent of the salary paid the heads of other departments, provided the training and experience requirements in the local scale are the same for each teacher.

If the high school teacher-coordinator is responsible for teaching and/or promoting classes for adults outside of the normal school day, an additional amount may be paid for the time spent in the adult program.

The teacher-coordinator of distributive education should be employed for a minimum of ten calendar months. If the work justifies it the coordinator should be employed for eleven or twelve months and the time during which school is not in session be devoted to adult education classes or other work involved in the distributive education program. When the coordinator is employed for ten months he should start work around August 1, or a month before school starts.

D. Travel Allowance of Local Coordinator

Coordinators will incur expenses in conducting coordination and supervisory activities and in attending conferences authorized by the State Department for the improvement of teachers in distributive education. The state will reimburse the local school board for the state's part of such travel and the amount will be determined when the contract is made for reimbursement.

E. Schedule of Reimbursement for the Teacher-Coordinator's Salary

The amount of reimbursement from State and Federal vocational funds on the salary and approved travel of teacher-coordinators of distributive education will depend upon the funds available for this purpose.

F. Duties and Responsibilities of the Teacher-Coordinator

1. Public Relations

Good public relations are essential to the success of any distributive education program. Public relations are the reactions of those with whom you have contact, their reactions to the things done and said by you and anyone contacted with your program.

How to Develop Good Relations:

a. Within the School

(1) Student Body

(a) Career Day

(b) Sponsoring of activities, e.g., style show

(c) School paper

(d) Distributive Education movies and slides

(e) Hand-out materials

(f) Home room talks

(g) Bulletin boards

(h) Displays, e.g., library, show window

(i) Assembly programs

(2) Faculty

(a) Ask teachers to judge student work, e.g., displays.

(b) Participate in faculty functions.

(c) Get to know your faculty; meet them in the teacher's lounge; have dinner with them.

(d) Be active in committee work.

(e) Talk at faculty meetings.

(f) Offer services to the faculty, example: gift wrapping.

(3) Principal

(a) Be sure he understands the program.

(b) Invite him to coordinate with you.

(c) Invite him to club or class functions.

(d) Inform him of all honors received by your group.

(e) Discuss some of your coordinating activities.

(f) Furnish him with copies of reports.

(g) Get suggestions from him.

(4) Counselors

(a) Discuss the values of Distributive Education.

(b) Be sure they understand that Distributive Education is acceptable at most colleges and universities as an elective high school unit for entrance purposes.

(c) Invite them to class or club functions.

(5) Superintendent and School Board

(a) Explain program at board meeting.

(b) Place them on advisory committee.

(c) Invite them to class and club functions.

(d) Keep them informed.

(e) Invite them to coordinate.

(f) Furnish copies of reports.

b. Throughout the Community

(1) Meet as many people as you can.

(2) Talk about Distributive Education.

(a) Meetings

(b) Radio

(c) Television

(3) Write about Distributive Education.

(a) Newspapers

(b) Company magazines

(c) Various local bulletins

(d) Trade journals

(4) Secure the acceptance of organizations.

(a) Lions, Kiwanis, Rotary, and other service organizations.

(b) Junior and Senior Chamber of Commerce

(5) Be a part of religious and other community groups.

(a) Become an active and valuable citizen of the community.

(b) Lead a balanced life. Attend church. Participate in the program of your church.

(c) Be an active member of a civic club.

c. Making Progress in Your Public Relations

A continuous plan doesn't just happen. For progress you must:

Plan - Continuous program

Reach - Every part of the community

Offer - Assistance to promote public information

Gather - Facts about community

Read - Cooperative Occupational Education, by Ralph E. Mason

Encourage - Local groups to learn more about vocational education

Schedule - Public relation activities

Share - The results of your public relations activities

2. Conducting the Program

a. Distributive Education Students

(1) Present Distributive Education.

(2) Offer counseling and guidance.

(3) Admit qualified students to Distributive Education.

(4) Place students in good training opportunities.

(5) Give sound group instruction.

(6) Give sound individual instruction.

(7) Counsel with students on problems they meet on the job.

(8) Counsel with students on problems they meet in school.

(9) Handle personal problems.

(10) Coordinate the classroom and job training.

(11) Sponsor club and social parties.

(12) Be a friend to and take an interest in <u>each</u> student.

b. Parents

(1) Explain Distributive Education to them and gain information about their children.

(2) Gain their confidence and arouse enthusiasm for placing the student on jobs.

(3) Avoid assuming prerogative of parent in making final decisions.

c. School Administration

(1) Follow lines of authority. Be loyal.

(2) Accept duties in school activities.

(3) Clear with school administration on publicity and all policy matters.

(4) Have complete knowledge of all phases of program.

(5) Keep permanent records.

d. Faculty Co-workers

(1) Attend all faculty meetings.

(2) Avoid parading in front of their classrooms - you're busy, so are they!

(3) Develop clear understanding of the program and your job.

(4) Seek aid in working out related subjects.

e. Retailers, Wholesalers, and Service Businesses

(1) Thoroughly plan Distributive Education's role as a <u>training program</u> and its benefits to students, merchants, and community.

(2) Place student in a distributive business in which he desires to train.

(3) Ask training sponsors to let you know which student they want to take so that you can tell the student.

(4) Make coordination calls in a business-like manner, but <u>not too</u> formal!

(5) Don't make coordination calls during special promotion.

(6) Explain and describe program for adults.

f. Advisory Committee

(1) Recommend to superintendent 9 or 10 business people interested in Distributive Education.

(2) Ask superintendent to write letters asking these people to serve.

(3) Call well-planned advisory committee meetings.

(4) Use the advice of the committee.

g. Adult Employees, Supervisors, and Top Executives in Stores

(1) Talk about Distributive Education during coordinator visits.

(2) Organize adult Distributive Education for local teachers to teach.

(3) Teach adult courses yourself.

(4) Organize adult classes for state staff members to teach.

h. State and District Distributive Education Staff

(1) Exchange ideas on Distributive Education with them.

(2) Carry out your responsibilities and don't pass the buck.

(3) Send in reports accurately and promptly.

(4) Attend all call meetings.

(5) Keep certification up-to-date.

i. Other Coordinators

(1) Offer your service to the other coordinators in your area (especially the new teachers).

(2) Share ideas.

(3) Discuss new methods and teaching techniques.

j. The Profession

(1) Become a member of all the necessary professional organizations, for example, American Vocational Association, National Association of Distributive Education Teachers, and Louisiana Vocational Association.

(2) Keep your dues paid.

(3) Attend meetings of local, parish, and state educational groups.

(4) Conduct research in areas pertaining to Distributive Education.

(5) Maintain high standards and keep the profession an honorable one.

ORGANIZATION

A. Instructional Program

1. Vocational Education in distribution is made available to persons over 14 years of age who have entered or who are preparing to enter upon employment in distributive occupations or in occupations in which a distributive function appears.

   NOTE: For the cooperative training program, 16 years of age and over.

2. Distributive occupations are those followed by proprietors, managers, or employees engaged primarily in marketing of goods or services.

3. Content for distributive subjects is derived from the functions of distribution: selling, sales promotion, buying, operations, marketing, research, management, product knowledge, service skills, communications, and calculations.

4. Supervised Practical Experience

   a. Cooperative

      The regular instructional program is designed for full-time students, high school and post high school, whose employment goals represent a group of recognized occupations in a field of distribution. Preparatory classes utilizing supervised cooperative training will be organized according to one of the following plans:

      Plan A - A program covering two school years providing an average of at least one class period per day of the regular schedule for vocational instruction in distribution.

      Plan B - A program covering one school year providing an average of at least two class periods per day of the regular schedule for vocational instruction in distribution.

      Plan C - A program covering one school year providing an average of at least one class period per day of the regular schedule for vocational instruction in distribution in classes limited to the cooperative group enrolling (a) those who have completed one unit (two semesters) of vocational instruction in distributive subjects incorporated participation activities or (b) those who have completed at least two units (equivalency of four semesters) of instruction in a vocational program approved under the State plan.

   b. Without Work Experience

      Preparatory classes incorporating participation activities in individual training plans will be organized according to one of the following plans:

Plan D - A program covering two school years providing an average of at least one class period per day of the regular schedule for vocational instruction in distribution.

Plan E - A program covering one school year providing an average of at least one class period per day of the regular schedule for vocational instruction in distribution enrolling only those who have completed the equivalent of four semesters of instruction in a vocational program approved under the State Plan.

c. Special Programs

Instruction for full-time students whose occupational goals represent limited employment will be provided under intensive, modified or ungraded schedules when organized and approved as demonstration projects. Instruction designed for persons whose occupational goals also require competencies developed through other vocational programs will be organized.

(1) Under Plans C or E, or

(2) As a demonstration project, or

(3) As a separate class taught by a teacher-coordinator, or special purpose teacher.

d. Adult

Preparatory and supplementary classes for adults not available for full-time study will meet for no less than 10 hours and lead to a specific occupational achievement, or be part of a series of classes leading to an occupational goal.

B. The Conditions for Employment

1. Each cooperative part-time pupil must be lawfully employed in the distributive occupation in which he is being trained for an average of fifteen hours a week. Employment is usually secured during a school week. The combined time spent in employment and the time spent in school shall not exceed the lawful maximum work week for women and children in Louisiana.

2. Students must receive a monetary wage comparable to that paid other beginning employees performing similar duties and must, at all times, be at least equal to the applicable State and/or Federal wage requirements.

3. For Reference

a. United States Department of Labor 29 CFR 520 (Revised)

b. United States Department of Labor WHPC Publication 1096 (Child Labor Bulletin No. 101)

c. United States Department of Labor WH62-1374

SELECTION OF STUDENTS

A. Selection Is:

1. Selecting those students who will most profit from Distributive Education.

2. A combined effort of the counselors, faculty, and coordinator.

B. Selection Is Not:

1. Selecting only those students of high ability.

2. Selecting only those students of low ability.

3. Selecting the "best looking" students.

4. Selecting the students who already have jobs.

C. Selection Is Made From:

1. Sophomore or junior classes.

2. Students who:

   a. Have an interest in the field of distribution.

   b. Plan to enter full-time employment immediately upon graduation.

   c. Plan to enter college to study business administration.

   d. Will profit individually by being a Distributive Education student.

D. Before Selection

1. Have time of Distributive Education scheduling announced.

2. Put up posters or display explaining Distributive Education - arouse interest.

3. Use hand-out material.

E. Suggested Methods of Selection

1. Use Distributive Education application forms. These may be given to homeroom teachers, counselors, or faculty members in charge of scheduling.

2. Each potential Distributive Education student should fill out an application blank, have it signed by his parent and returned to the coordinator.

3. After all application blanks have been collected, the coordinator should:

a. Obtain scholastic, disciplinary, and attendance record of each student.

b. Discuss applicant with several faculty members and counselors.

c. Schedule personal interview.

F. Personal Interview

1. Hold it in coordinator's office or classroom.

2. Go over application blank thoroughly with student.

3. Make sure applicant understands the program.

4. Ask questions.

5. Observe applicant's appearance and mannerisms.

6. Tell applicant you will contact him about final selection.

G. After Interview

1. Study carefully all information on each applicant individually.

2. Divide applications.

a. Those definitely rejected

b. Those definitely accepted

c. Those you have doubts about

3. Study records again for (c)

4. Seek opinions from counselors or faculty members who know applicants.

5. Make final selection.

6. Go over selection with principal.

7. Contact all applicants individually or in meetings. Let the students know why they were accepted or rejected.

NOTE: Before school closes, a meeting should be held with all prospective Distributive Education students.

1. Explain summer work.

2. Explain job interview, social security cards, working permits, labor laws.

3. Possibly place some of your new students on summer jobs.

TRAINING STATIONS

A. Criteria for a Suitable Training Station

1. Meeting of requirements set down by Child Labor Laws, e.g., no hazardous conditions.
2. Adequate salary for part-time employees
3. Good reputation within the community
4. Good working conditions
5. Up-to-date facilities and methods
6. Employer who will be interested and willing to train the student-learner
7. Opportunity for employment throughout the year
8. Valuable well-rounded experience for the student in distribution
9. No transportation problem for the student-learner
10. Employers with proper attitude toward young adults

B. Locating Suitable Training Station

1. Previously established training stations
2. Former Distributive Education students
3. Efforts of advisory committee
4. Students, faculty, counselors, school administrators
5. Yellow pages of telephone directory
6. Community surveys
7. Community organizations, e.g., Chamber of Commerce
8. City directory
9. Canvass of area around school

C. Types of Training Stations

Retail Trade

1. Department stores
2. Hardware stores
3. Farm equipment dealers
4. Grocery stores
5. Automobile dealers
6. Service stations

7. Jewelry stores
8. Drug stores
9. Florists
10. Secondhand stores, antique stores
11. Bakeries
12. Shoe stores
13. Clothing stores
14. Furniture stores
15. Restaurants
16. Camera, photographic supply stores
17. Mail-order houses

Wholesale Trade

1. Electrical goods
2. Drugs, chemicals
3. Paper, paper products
4. Equipment supplies
5. Machinery

Services

1. Laundries
2. Diaper service
3. Linen supply
4. Clothing rental
5. Advertising agencies

NOTE: Refer to U. S. Department of Health, Education, and Welfare, Standard Industrial Classification for Use in Distributive Education OE-82013

D. Developing and Establishing Training Stations

1. Before Approaching Employer

a. Plan to contact employer personally.

b. Know all student-training regulations; (examples, hours of employment, work permits, wage regulations, hazardous conditions, student-learner certificates, age regulations).

c. Know facts about business (for example, whether they employed Distributive Education students in the past).

d. Know what points you want to make.

e. Secure hand-out material (for example, business card, Distributive Education brochure).

f. Make an appointment.

2. Approach

a. Be on time.

b. Be considerate of employer's time.

c. Avoid meeting employer when there will be many interruptions.

d. State the purpose of your visit.

e. Be enthusiastic, but don't exaggerate.

f. Let the employer talk, ask questions.

g. Find out employer's needs.

h. Listen to objections and answer briefly - don't argue.

i. After you feel your employer has reached a decision:

IF HE IS INTERESTED, tell him what next step will be. (You will probably leave hand-out material.)

IF HE IS NOT INTERESTED, Thank employer for his time and tell him that you would like to call back later if he decides to interview a student.

j. Leave!

k. Record results of interview.

PLACEMENT

A. Coordinator's Responsibilities

1. Locate training station.

2. Discuss Distributive Education with employer.

3. Recommend students to training program.

4. Recommend training station to student.

5. Familiarize student with training station.

6. Prepare student for interview.

B. Placing the Student

1. Time

   a. Spring

   b. Summer

   c. First week of school

   d. Any time a student is unemployed

2. Procedure to follow

   a. Set up interview for the student.

   b. Give the student an introduction card.

   c. If the student already has a suitable job or he acquires a suitable job on his own, discuss program and student's employment with employer before giving final approval as a training station.

   d. If the student seeks employment on his own, the coordinator should:

      (1) Give student a list of possible training establishments.

      (2) Advise student on approach.

      (3) Require written report on job application.

   e. Follow up all student applications. If student is not hired, the coordinator should find out why.

THE ROLE OF THE EMPLOYER AS INSTRUCTOR

The teacher-coordinator should acquaint the employer with the role he is to play as a job-training instructor. He should explain it somewhat like this:

A. First Steps

The student should be oriented on the job as quickly as possible. It is to your advantage to assist this young worker develop into a happy and efficient worker for you.

Remember how you felt when you were new on the job and approach the student's problems with a sympathetic and understanding attitude.

Such things as these will help get the student off to a better start and prevent misunderstandings:

1. Introduce him to all employees with an explanation of his status.

2. Give him information about company policies.

3. Tell him whom to see for help.

4. Show him around to get an overall picture of the business.

5. Inform him about hours.

6. Go over his immediate duties.

B. Teaching a Job

There are many jobs that the student cannot learn without instruction. Experience has shown the old "sink or swim" method is too expensive. These steps in training a worker to do a job have been successful.

Step 1. Prepare the worker.
Put the learner at ease.
State specific job.
Find out what he knows about job.
Develop interest in learner's job.
Place in correct position.

Step 2. Present the job.
Tell - show - demonstrate.
Present one step at time clearly, patiently, and in correct learning sequence.
Stress key points.
Present no more than learner can master.

Step 3. Try out.
Have learner do job - correct errors.
Have him repeat and explain steps and key points.
Question him - why - what - how.
Continue until you know he knows.

Step 4. Check results.
Put him on his own.
Tell him where to go for help.
Check on understanding and performance.
Correct errors - re-teach.
Taper off coaching to normal supervision.

NOTE: Coordinator may wish to have this information reproduced and placed in the hands of training sponsors.

C. Training materials which should be shown to employers

1. Group discussion lesson topics

2. Individual manuals being used in class to train his employee

3. Current individual project work being done by employer's trainee

4. Interesting work being done by some outstanding student which might set a pattern for work to be done by his trainee

5. Books of specific nature which will be of interest to an employer

6. Training films which might be of interest to an employer

7. Trade journal articles which contain ideas of interest to management

8. Training materials secured from producers, manufacturers and wholesalers

9. Examples of student test papers and examinations

10. His trainee's notebook which contains all assignments prepared for the individualized study period

11. Pictures of the Distributive Education class in session

12. Action pictures of individual Distributive Education students on various training jobs in the community

GUIDE SHEET FOR ON-THE-JOB TRAINING

(Experience designed to increase the value and productivity of students training in variety, department, apparel, drug, furniture, shoe, grocery, jewelry and hardware stores and service station were developed as suggestions for sponsors by coordinators enrolled in Techniques of Coordination) at Richmond Professional Institute.

The D. E. Unit	Application at Training Station
Advertising	Clipping store ads Posting store ads Runner to media Proofreading ads Analyzing pulling power of ads Checking competitors' ads Passing out handbills Selecting merchandise to be advertised Checking stock depth of merchandise to be advertised Filing mats, cuts, photos, etc. Stuffing bills Operating P. A. System Operating record player Postal card follow-up with customers Operating sign machine Keeping scrapbook for store Keeping records on employee contests Keeping merchandise display to national advertising Maintaining direct mail lists Recording vital statistics for store use Preparing ads Handling premiums, gifts, stamps, etc.
Retail Arithmetic	Sales tally - personal and departmental Getting cash for register Reading cash register Cashier Handling employee discounts Figuring mark-ups Figuring mark-downs Totaling inventories Figuring selling costs Figuring average sales Using scales - merchandise, postal Figuring shipping and delivery costs Handling credit sales and contracts Billing Use of pricing catalogue Making up bank deposits

The D. E. Unit	Application at Training Station
Retail Arithmetic (continued)	Making up wage envelopes Figuring turnover Completing order forms, on order board Discounting inventories Tallying taxes collected Figuring yardage, weights, home measurements Making price signs Figuring P.M.'s
Display	Maintaining departmental displays Arranging top of counter, case, island, wall displays Preparing merchandise for display Runner and assistant for window man Caring for display equipment and props Painting and building props and backgrounds Preparing show cards and point of sale signs Traffic count - window and interior Maintaining inventory of display materials and merchandise Making window shopping comparisons Returning displayed merchandise to stock Protecting merchandise from sun and artificial light Planning displays Checking stock and arrangement of self-selection displays Preparing window information sheet for departments Daily cleanliness check of windows Grouping merchandise for floor displays
Human Relations	Screening complaints and adjustments Directing customers Sponsoring new part-time employees Training transfers Post "behavior" slogans Answering customer mail Manning information booth Directing maid or porter Credit interviewing Collecting suggestion box material Maintaining employee bulletin board Making up time cards Scheduling reliefs and lunches Checking floor coverage

The D. E. Unit	Application at Training Station
Human Relations (continued)	Handling correspondence on credit follow-up Answering the telephone
Merchandise Information	Checking tags and labels Comparison shopping Pressing, cleaning, preparing merchandise for sale Meeting with manufacturer's representatives and salesmen Maintaining resource files Collecting facts and values for advertising manager Reporting customer reactions and satisfactions Using want slip system Quality check on merchandise on floor Checking merchandise for display Assisting in fashion shows Maintaining library of publications, dealer aids Preparing merchandise information tips for departmental meetings
Salesmanship	Selling different types of merchandise: small unit, big ticket, hard lines, soft lines, lines requiring fitting, measurement Flying squad, floater-sales Demonstrator-sales Handling different types of customers' age, sex, race Value analysis of merchandise Assembling merchandise Building customer file; prospect list Handling lay-aways, credit sales Handling want slip system Analysis of trade area Comparative shopping Gift shopping - personal shopper Special orders Selling from sample Participation in sales, store, department meetings Point of sale displays Customer identification Floor coverage Related item analysis Use of T. O. (customer turn-over) system Modeling

The D. E. Unit	Application at Training Station
Stockkeeping (See: Store Operations)	Uncovering merchandise Filling in forward stock Filling in supplies - bags, paper, tissue, tape Making up boxes Unit inventory control systems Caring for point of sale signs Checking never out lists Re-ordering staples Store reserve stock Receiving procedure Checking invoices Arranging for physical inventory Handling stock transfers Wrapping and packing Marking and re-marking Department inspection Pre-packing and assembly Seasonal wraps Withdrawal of merchandise for display Service calls Delivery loading Will call Handling perishables, fashions, imports Returns to manufacturer Care of marking machines and materials Issue sales books Handling damaged and solid merchandise Removal of trash Analyze movement of price lines Handling trade publications on the floor
Store Operation (See: Stockkeeping)	Reporting on safety hazards Assisting in re-arrangement of department Replacing bulbs, turning off lights Maintaining receiving records, weight and traffic check Getting quality check and invoice retailed Collecting boxes, crates, wrappings for disposal Checking and packing for delivery or shipment out Filling floor and delivery orders Checking delivery routes Handling returns, C.O.D.'s at store Distributing departmental supplies Making home deliveries Routing repair and service orders

The D. E. Unit	Application at Training Station
Store Operation (continued)	Filling mail and telephone orders Verifying credit sales Credit interviewing Inspecting rest rooms Handling lost and found system Running drink concession Helping in parking lot Handling sales book, cash register tape, tally card distribution Maintaining stockroom, warehouse inventory Repairing fixtures

PROGRAM OF INSTRUCTION

A. The High School Program Consists of:

1. Classroom instruction

2. On-the-job training

B. Credit Received

1. Cooperative Distributive Education - Students are eligible to receive one credit each year for related instruction and one for job training, provided they satisfactorily complete both phases of the program.

   Credit may not be given for attending other course of instruction in lieu of job training in the field of distribution.

2. Preparatory or Project Plan of Instruction - Students are eligible to receive one credit for the classroom instruction received under this plan. No employment is required and no credit is given for employment.

C. Credit Records

1. Report cards, transcripts, and other records must show Distributive Education in this manner:

   D. E. I - Preparatory
   D. E. II or III - Related (Classroom Instruction)
   D. E. II or III - Job Training

2. A separate grade as well as a separate credit should be shown for "Related" and "Job Training."

D. Selection of Subject Matter

The selection of subject matter for the Distributive Education program is based on the belief that effective distribution depends on an informed distributor and an informed consumer; that buying and selling is a two-way process; and that an understanding of both functions is necessary not only for vocational competency but also for good citizenship.

The instructional program for students in cooperative part-time training strives to provide a foundation in essentials common to distributive occupations and, in addition, gives opportunity for each student to work on problems and projects which relate directly to the daily work he performs in his training program. Group discussion on essentials common to the occupations represented in each class is scheduled for approximately half of the distributive class periods and the remainder of the time each week is utilized in work on individual problems and projects which have immediate application on the job.

Individualized instruction should be based on an analysis of the work experience training program of each student. Individual assignments should apply to the everyday needs of each student and direct his study to the end that good habits of study will result and a sense of accomplishment will be fostered.

Instruction on the job will be given by the store training sponsors and, when opportunity permits, by the school coordinators. The coordinator should work with training sponsors to acquaint them with their responsibilities on the job and the best current practices in training.

E. Course of Study

The units in the course of study which should serve as a pattern for group discussions and individual instruction are as follows:

D. E. I - PREPARATORY INSTRUCTION

Curriculums emphasize basic techniques in sales and sales-supporting services; and essential marketing concepts, qualifying social competencies, and fundamental skills in computations and communications. Curriculums utilize the Project Plan of training. Employment is encouraged but not required.

UNIT OF INSTRUCTION	SUGGESTED TIME
1. SELF-ANALYSIS AS A STEP TOWARD THE WORLD OF WORK	2 weeks
2. DEVELOPMENT OF PERSONAL CHARACTERISTICS FOR EMPLOYABILITY	4 weeks
3. CUSTOMER'S VIEWPOINT IN SELLING	2 weeks
4. IMPORTANCE OF DISTRIBUTION IN OUR ECONOMY	2 weeks
5. KINDS OF DISTRIBUTIVE BUSINESSES	3 weeks
6. KINDS OF EMPLOYMENT IN DISTRIBUTION	3 weeks
7. EDUCATION FOR DISTRIBUTION	2 weeks
8. HOW DISTRIBUTIVE BUSINESSES ASSEMBLE GOODS (MARKETS)	2 weeks
9. CHANNELS OF DISTRIBUTION	1 week
10. HOW DISTRIBUTIVE BUSINESSES SERVE THE CUSTOMER THROUGH ADVERTISING AND VISUAL MERCHANDISING	2 weeks
11. HOW PRODUCTS ARE PACKAGED AND TESTED TO SERVE THE CUSTOMER	1 week
12. HOW CREDIT SERVES THE CUSTOMER AND THE DISTRIBUTOR	1 week
13. HOW MATHEMATICS IS USED IN DISTRIBUTION	2 weeks
14. PLANNING OCCUPATIONAL GOALS IN DISTRIBUTION	3 weeks
15. SECURING EMPLOYMENT IN DISTRIBUTION	4 weeks

D. E. II - COOPERATIVE DISTRIBUTIVE EDUCATION

UNIT OF INSTRUCTION	SUGGESTED TIME
1. ORIENTATION: School-Store Relationships	4 weeks
2. PERSONALITY DEVELOPMENT AND HUMAN RELATIONS	2 weeks
3. THE SELLING PROCESS	8 weeks
4. FUNDAMENTALS OF ADVERTISING AND DISPLAY	3 weeks
5. SHRINKAGE CONTROL	2 weeks
6. MERCHANDISE INFORMATION	4 weeks
7. STORE ORGANIZATION AND OPERATION	5 weeks
8. BASIC JOB NEEDS	*

D. E. III - COOPERATIVE DISTRIBUTIVE EDUCATION

UNIT OF INSTRUCTION	SUGGESTED TIME
1. DEVELOPMENT OF RETAIL STORES	2 weeks
2. THE SELLING PROCESS	4 weeks
3. ECONOMICS OF DISTRIBUTION	6 weeks
4. MERCHANDISING AND STOCK CONTROL	9 weeks
5. SALES PROMOTION THROUGH ADVERTISING AND DISPLAY	5 weeks
6. RETAIL CREDIT AND COLLECTIONS	4 weeks
7. CAREERS IN DISTRIBUTION	4 weeks
8. BASIC JOB NEEDS	*

(*) Individual Supervised Study: 25 to 50 percent of class time should be devoted to directed study of the student's particular job, business, and merchandise.

E. Texts

Each student should have access to texts, one for each of the three major areas of distributive education—marketing, selling, and merchandising. State adopted texts are furnished by the state and each school should provide two or more copies of other texts which are on the state approved library list. The reference material, texts, and other instructional material should be kept in the distributive education classroom easily accessible to students for their use in individual work.

EQUIPMENT

It is generally accepted that classroom instruction for a distributive education program can be far more effective if a merchandising atmosphere is created. There is a difference of opinion as to the extent to which cooperative programs should rely upon model store equipment installations; however, all agree that local conditions and the effective use of equipment for instructional purposes should determine the kind and amount of equipment necessary. A suggested arrangement of a classroom is included in the appendix. The following list of equipment is suggested in order of approximate importance:

A. Cash register

B. Portable display case (*)

C. Display counter (*)

D. Typewriter

E. Filing cabinet

F. Bookcase or shelves

G. Magazine rack

H. Conference-type table and chairs

I. Telephone

J. Wrapping paper and stand

K. Assortment of art supplies

L. Mannequins:
- 1 - male form
- 1 - female form
- 1 - bust form (male)
- 1 - bust form (female)

M. Display stands and step-tables

N. Audio-visual aids
- Recording equipment
- 16 mm projector and screen
- 35 mm sound projector
- Flannel or felt board
- Chalkboard
- Bulletin Board

O. Miscellaneous supplies
- Wrapping paper (plain and gift)
- Twine and ribbon
- Salesbooks
- Dummy merchandise
- Paper clips
- Paper punch
- File folders
- Stationery
- Stamps
- Stencils
- Mimeo paper
- Carbon paper
- Staper
- Staple gun
- Rollex labler

P. Triple mirror (*)

Q. Display window (facing into corridor)

R. Sink and work counter

(*) A model store unit would include a combination of these items and would be preferred. Available specifically for Distributive Education classrooms from Kraft Store Fixtures and Capitol Fixture Company.

CLASSROOM MANAGEMENT

The coordinator must maintain good classroom discipline at all times. Students should be made aware of:

A. Individual job requirements

B. Rules concerning distributive education; example, a student cannot work in the afternoon if he didn't attend morning classes

C. Merchandise manuals

D. Club membership

E. Employer-employee banquet

F. School regulations for Distributive Education students

G. General assignments; example, salary record

H. Equipment available

I. Grading system

METHODS FOR USE IN DISTRIBUTIVE EDUCATION CLASSES

Methods that can be used in Distributive Education classes include:

1. Lecture, or Telling Method
2. Individualized Study Method
3. Discussion Method (Directed)
4. Research-Project Method
5. Demonstration Method
6. Case Method
7. Conference Method
8. Panel Method
9. Visual Method
10. Correspondence Method

A. Lecture, or Telling Method

1. What it is:

   A method for giving information quickly and accurately. Many times it is necessary to resort to the lecture method to give necessary facts essential to the progress of the classes; quite often people must be "told" the "how" or "why".

2. Characteristics (These may or may not be advantages.)

   a. Usually is an organized presentation.
   b. Thorough coverage of subject matter brought to bear upon problems of the moment.
   c. Adaptable to large groups.
   d. Appeals to the "ear-minded."
   e. Conserves time.
   f. Easy to check results after presentation of material.
   g. Listener absorbs information without thinking.
   h. Material gained through lectures is not really learned.
   i. Lecturer may "lose" his group or "go over the heads" of his group.

3. Where or when used advantageously:

   a. With large groups where the individuals have some common background of information and experience.
   b. When necessary to cover a large quantity of material in a limited time.
   c. When necessary to arouse enthusiasm in initiating a new program or in further development of a program.
   d. When giving merchandise information.
   e. When providing a common background of information as a basis for further study.
   f. Where there is need to supplement other methods.

4. When not used advantageously:

a. When interested in developing skills.
b. When no testing is done.
c. When group participation is desired.
d. In situations when problems are to be solved.

5. How to use effectively:

a. Make careful plans in organization of the lecture to prevent rambling.
b. Make liberal use of illustrative teaching devices to appeal to the senses, such as charts, films, diagrams, and products.
c. Make provision for checking on results, as tests, questions, and observation.

B. Individualized Study Method

1. What it is:

a. A method by means of which the learner is assisted in organizing his study so that, under the direction and supervision of a competent instructor, he will profit in proportion to his individual effort.

2. Characteristics of individualized study as a method of instruction:

a. It is used for individual instruction on the individual's own problems.
b. The method is effective only for small groups. The instructor should be occupationally competent and must be available to devote some time to each individual. As the size of the group increases, the time spent by the instructor with each individual will decrease. A point will be reached where direction and supervision by the instructor will be ineffective because of lack of time.
c. It is more effective in cooperative part-time classes (study) than in evening extension classes.
d. Effectiveness of the method in a cooperative class will vary inversely with the number of occupations represented in the class.
e. Permits study to be nearly related to the job.
f. Requires a high type of instructor with a broad occupational experience.
g. Careful coordination and diligence in the preparation of material is mandatory if the method is made effective.
h. Requires more time in covering a given unit of instruction than most other methods.
i. Individuals proceed at their own rates in learning, and retention is said to be higher than in most other methods.

3. Where used effectively:

a. In cooperative part-time classes where there is not too great a diversity in the occupations represented.

b. Evening and part-time classes, limited in number in which non-homogeneous groups obtain, such as:

(1) Store record keeping -- the class may contain representatives from a number of retail stores. Some general principles will be common but each individual will need to develop records for his own business.
(2) Accounting for retail stores
(3) Merchandise study

c. Teacher training classes may use this method in combination with the research project method.

d. In situations where new material is introduced and the learner does not have a background of experience in the field of knowledge to be acquired.

4. How to use effectively:

a. As a part of the related subjects period of a cooperative part-time class, where the need for specific information relating to the job is indicated. Individuals pursue their separate paths only so long as their interests and needs differ; and they are grouped for class information and instruction on the elements common to the distributive occupations represented in the class.

b. Through individual assignment sheets - individual lesson sheets, merchandise and job instruction manuals.

C. Discussion Method (Directed Discussion)

1. What it is:

A method of teaching, consisting of a group of learners.

a. With some knowledge of a given topic.
b. Talking over different aspects of that topic.
c. Under the guidance of an occupationally competent leader.

2. Characteristics of the discussion method for distributive education:

a. New ideas and information are brought in and learned.
b. Leader should be well informed on the subject.
c. Informal atmosphere prevails.
d. Frequent checking on understanding of members of the group is possible during progress of directed discussion.
e. Strong adult appeal results from elimination of objectionable features of class recitation.
f. "Group thinking" rather than "directed thinking," is encouraged.
g. Excellent when controversial topics must be considered and several points of view discussed.
h. Unsuited for use with a large group where "give and take" in discussion would be sacrificed.

i. Everyone who is interested and familiar with the subject has an opportunity to participate.
j. Thinking is stimulated and the listeners are kept alert.
k. Benefits result in proportion to the amount of "on the track" discussion and the amount of participation of all members.
l. Requires careful planning, otherwise discussion may go off at a tangent to the main issue.
m. Probably the most versatile of all methods.

3. Where to use effectively:

a. With a group of learners having some knowledge of a given topic.
b. For controversial issues upon which conclusions are to be reached which are not necessarily those of the leaders.

4. How to use effectively:

a. Prepare a definite plan for each discussion period, including key questions necessary to develop points.
b. The leader must be prepared on every angle of the subject because most anything might come up.
c. Points should be driven home by checking on understanding of the group members as discussion progresses.
d. The Comparative Analysis Method is employed as a device in discussing points which may be debatable. One list may be made in support of a point while another list is made supporting an opposing point of view.
e. Questions should be used in starting and directing discussion. They are not used for the purpose of testing knowledge of a subject, but are used by the leader in determining the interest of the group, and in determining whether or not the group is "with" him.

5. Essential values:

Values inherent in the discussion method center around consideration of all aspects of a topic on which different opinions are held, and when all aspects of the topic are to be brought into the open, in order that a limited group of participants may group their present ideas into new patterns, add in those patterns, discover something new to the individual. The center line idea is to create an atmosphere in which honest thinking uninfluenced by prejudices or stimulated by partisanship, may be indulged and the individual choice or decision made.

D. <u>Research Project Method</u>

1. What it is:

By means of the research project method individual experience and growth is accomplished through individual or group assignments relating to specific questions or topics.

2. Characteristics:

a. Results of research and study may be referred to the group to impart information and for their comment.
b. Effective in individual development.
c. Fosters group cooperation and stimulates individual endeavor by giving responsibility to members of the classes.
d. Aids in developing ability to evaluate and present information.
e. Must be carefully planned to insure time for all to report.

3. Where to use advantageously:

a. Evening and part-time classes on such topics or courses as:

(1) Merchandise information
(2) Store system
(3) Meeting difficulties
(4) Fashion
(5) Display

E. Demonstration Method

1. What it is:

A method of instruction in which doing techniques may be shown, explained, or applied. Demonstrations may be made and then dramatized as a means of giving emphasis to the subject under consideration.

2. Characteristics:

a. Appeals are made to individuals or groups through the eyes, ears, and hands.
b. Facilitates speedier learning of doing units.
c. Eliminates costly trial and error procedure.
d. Involves showing or doing a complete unit or operating technique without interruption.

(1) Slow motion - explaining steps and details.
(2) Individual application through repeated doing.

e. Promotes interest through observation of activity.
f. Both demonstration and dramatization require careful planning.
g. Develops poise and self assurance.

3. Where to use:

a. Part-time cooperative classes.
b. Evening and part-time extension classes.
c. In pre-employment training.

4. When to use:

a. To show step by step progress of a doing technique.
b. To emphasize techniques and points brought up in other methods of teaching.
c. To arouse interest in a new idea or new product.
d. To show a right and a wrong way.

F. Case Method (A Device)

1. What it is:

The Case Method is an adaptation of the problem method as employed in teachings. Discussion is centered upon actual or hypothetical situations, or cases, which are advanced to instruct class members in the given subject.

2. Characteristics:

a. Differentiates between theory and practice.
b. Encourages original thinking in arriving at solutions.
c. Requires an occupationally competent leader who is skilled in leading discussion.
d. Usually employs solutions, one of which is the "right" answer.

3. Where to use:

a. When an example of actual procedure is needed to establish a point.
b. To secure group acceptance of recommended or approved practice.
c. To arrive at solutions to problems and cases advanced by members of the group.

4. How to use effectively:

a. It was recommended that cases be used to supplement other methods.
b. Members should be encouraged to write up actual incidents or difficulties as case problems for solution by the group, but the leader should have a list of cases on hand to present at the time they are needed. From discussion on cases should they develop the principle, rule, or standard representing the opinion of the group.
c. The leader should resolve general statements and general questions into cases which will bring out the most discussion.
d. Enough cases should be admitted to enable the group to agree upon whatever principle or decision can be reached.

G. Conference Method

1. What it is:

A conference is a pooling of thought of two or more individuals, the purpose of which is to assist in solving problems. This pre-supposes that the group has all the information necessary to solve the problems, and no new information is to be added.

2. Characteristics of the Conference Method:

a. Those in the group have mutual problems which they desire to solve together.
b. They agree to exchange and pool their experience.
c. Each member of the group has had years of practical experience.
d. The subject is within their experience.
e. The group meets to learn together -- not to be instructed.
f. The best results are obtained in groups of 12 to 25 persons.
g. For larger groups a "panel" set up is provided.
h. There can be no set program or course of study, but it is absolutely necessary for a conference leader to plan to a certain extent -- always know where he is going, prepare cases, questions, illustrations, on points likely to come up for discussion.
i. Directed toward helping the group members to organize knowledge and experience they have concerning their jobs and to help them acquire good habits of thinking relative to their jobs and responsibilities.

3. Advantages of the Conference Method -- Essential values:

a. Informality appeals to practical individuals.
b. Creates high degree of interest.
c. Full and equal participation by learners.
d. Satisfaction through mutual achievement.
e. Useful in fields not covered by organized instruction.
f. Developing group morale.
g. Developing habits of analysis and integration of thought.

4. When to use the Conference Method:

a. When your books have no available "subject content."
b. When an emergency arises and there is not time to wait for a scientific solution. "A trouble shooting device."
c. When a problem needs to be defined or an issue clarified.
d. When you seek to improve cooperation in an organization.
e. When you need to work out clear understanding of responsibility.
f. When you need to interpret policies and standards of conduct.
g. When you wish to show a need for further training.
h. When individuals in a group possess all material to which little, if any, additional knowledge is to be added.

5. Limitations on its use:

It was generally agreed that the Conference Method as used for distributive education has definite limitations unless the leader is skilled in conference leading, and unless he is occupationally competent in the field for which the conference is held. It is not an informational procedure nor is it an instructional procedure. There is a wealth of material available on the Conference Method. Those who use the Conference Method should use it for its proper purpose and not as an all-inclusive method for every situation.

Essential values result from use of the formal conference for the purpose for which this procedure is most useful -- to organize experience and assist men to think through their problems. Those who correctly use this method have to think constructively in relation to their jobs and necessarily develop a clearer conception of their responsibilities.

H. The Panel Method

1. What it is:

The panel method is used for a group of individuals interested in a common purpose. It is generally used in a group which is too large for a Conference Method, in as much as the discussion is presented by a designated number who are prepared to present the facts and discussions to the group as a whole.

2. Characteristics:

a. Used to present a subject of mutual interest to a group.
b. The participants in the discussion are prepared in advance, as is the leader, to discuss the topic with a more definite plan than that of the general conference.
c. The leader of the discussion may call upon members of a larger group for opinions.
d. The leader summarizes the points of information and interest gained to leave the group with a clear conception of the subject as a whole.

3. Essential values:

a. Proves an opportunity to present clearly a subject for consideration of a large group.
b. Particularly adapted for interpretation of new factual information.
c. Has more control of thinking than the Conference Method.
d. Serves as a time saver over other group methods.
e. Useful in fields not covered by subject materials.

4. When to use:

a. To present a problem of common interest to a given group. (Particularly indicated for municipal gatherings in consideration of a new plan or program.)
b. When a problem needs to be presented and defined.
c. When the group is so large that a general discussion method is not possible or advisable.

I. Visual Method

1. What it is:

A method by which instruction is carried on through the use of devices such as films, charts, diagrams, pictures, models, drawings, or sketches. Effective in all groups but particularly valuable for the "eye-minded individuals."

2. Characteristics:

a. The method is limited by the amount of suitable material that is available.
b. It is useful in providing a change from other methods of teaching.
c. It is quite easy to use as entertainment not accompanied by learning.

3. Where to use:

a. When giving merchandise information.
b. When principles of art, color, line, and design are used.
c. For a group of "eye-minded" persons.
d. As a supplementary device in other methods.

J. Correspondence Study as a Method

A new idea was injected which gave voice to a situation already apparent; i.e., the need to do something for a clerk in an isolated village where, as Bill Nye once said, "The chief industry is the forking of the roads." Hope was expressed, without advancing any method to be used, that through planned lesson sheets or assignment sheets, later on we could in some way assist in the training of workers in places too small to support programs handled by itinerant instructors. It may be that such extension education would be accomplished in a manner similar to that used by extension divisions, correspondence schools, and certain trade associations.

K. Business Games

Business Games are being used more frequently by business and industry to acquaint management personnel with decision-making techniques, by permitting them to act competitively in a simulated changing business environment. Games may be simple or complex, depending upon the objectives. In fact, some are so complex that they include more than 300 variables, and an electronic computer is required to determine the results of decisions and to return these results to the players in a short period of time.

This rapid return of results is called feedback, and is extremely important as a reinforcing agent. In this way, the players find out what happened almost immediately after a decision is made.

The greatest problem for the distributive education coordinator or instructor is that of devising and using business games which are practical, realistic, at the proper level of the student, and yet easily scored. Most distributive education personnel are not familiar with the technique, and little information is available in a form which is quickly comprehended. On the surface a business game seems complicated. Actually, with a little study and practice, the instructor will be able to construct his own games for use in the classroom. Several colleges and universities also have courses in game theory and programming.

Most distributive education personnel are faced with the problem of presenting classroom situations which are closely related to conditions encountered in actual business experiences. Mathematical problems, verbal

problems and case studies have been used successfully, but they are based on one-time decisions.

The weakness of these traditional methods lies in the fact that the student does not have the opportunity to observe the results of one-time decisions as they affect the making of future decisions. On the other hand, in a business game the student must live with his decisions. He is able to analyze previous decisions and use the results as a basis for present and future decisions.

In the two-year post-secondary marketing program at the Madison Vocational, Technical, and Adult Schools a business game built around a wholesale jewelry firm was constructed for classroom use. The game was constructed on a simple basis for use with students having a limited business background or experience.

The game has been played by students enrolled in a contact selling class and in the principles of marketing class. In the marketing class it was played after completing the units on pricing policy and pricing theory. The students were of the opinion that they were better able to understand the interrelationships of the various factors which affect the price of an item. They found that the price alone would not necessarily make a profit for the business.

The game was constructed to include suggestions for the instructor, instructions for the referee, instructions for the players, decisions forms, worksheets, and tables indicating the sales volume for two watch lines during eight periods of play, at specified price ranges.

Each period corresponded to three months in the operation of the business. The demand curves were arbitrarily set, with one watch line generally on the increase, and the other watch line experiencing an erratic trend. The student was required to make decisions on how many watches to order for the next period, as well as what price to charge for each watch line during the current period. Variable and fixed expenses were charged in each period to reflect the costs involved in doing business. Once the decisions were made on price and order quantity, the instructor scored the results, and returned these results to the students. These results included the sales volume for the period in units and dollars, as well as the cost of goods sold. This information was then used by the students to fill out an operating statement and cash available statement.

Penalties were assessed for excess ending inventories or a shortage of cash. An important factor of the game is that it is simple enough to hand-score so as to get the results back to the students quickly and at the same time be challenging.

Competition is a key factor if the students are broken into teams. Each team represents a separate company and tries to outdo the other teams to come up with the best net profit in dollars as well as a percentage of sales. The teams are most effective when composed of from three to six members.

The results of all decisions were kept confidential until the end of all eight periods of play. At this time, each team captain recorded on the chalk board his team's sales volume, dollar net profit and net profit as a per cent of sales. A discussion and critique was then held to determine how the teams had arrived at their decisions, what factors were most important, and the value of the game to the student as a learning device.

The game proved valuable in that both positive and negative results were observed. Some students had difficulty in remembering the basic data offered in the instructions, and would attempt to make decisions by trial-and-error. This technique usually resulted in a low net profit, or loss, for the period. The better students were able to assemble all the data in an organized form and use this data in an aid to judgment in making their decisions. As a result, the students who used the trial-and-error method realized their mistake and were much more willing to use analytical thinking.

Should all distributive education personnel use business games? This question could best be answered by the individual teacher. The coordinator or instructor should first of all analyze the objectives of his particular program, and what he wishes to accomplish with his classes. If one of the objectives is to help the student develop a better understanding of the interrelationships of some of the business variables, a business game would be one device to use.

There is a danger in that the business game could be relied upon as a cure-all, a panacea for all teaching problems in this type of situation. It is wise to keep in mind that this technique is one more device to use in the teaching of our students. It can be used successfully in conjunction with texts, lectures, audio-visual materials, case studies, problem-solving and numerous aids. Business games are not an end in themselves, but an aid to the proper development of a student.

Conclusions that may be drawn from this limited use of the business game as a teaching device:

1. Business games assist the student in gaining a better understanding of the mathematical functions and relationships involved in a business operation, as certain computations are necessary to determine such things as the "break-even" point and desired profit margins.

2. Business games are useful as an aid in teaching distributive education students the understandings of complex, functional business relationships. The student has the opportunity to experience a situation which requires analytical thinking on a number of factors. Therefore, a student has the opportunity to use specific skills to develop a broader or more general outlook on the operation of a business.

3. A high emotional involvement results in the development of certain attitudes such as awareness of profit motive, effect of success

or failure, importance of teamwork, importance of leadership, and importance to predict the future existence of the business.

4. Business games provide an opportunity to offer realistic business activity in a controlled situation. As many variables may be introduced as the instructor desires. Usually, the more variables included the more complex the game. The number of variables depends upon the level of the student and the objectives of the instructor.

5. One game can serve as a basis for constructing other games. Certain games reflect certain types of business activities. In many cases, minor changes can be made in the game to represent another type of business activity. For example, additional expenses could be introduced in the form of advertising costs, market research and sales training programs.

TEACHING

A. Lesson Plan

1. Warm-up drill - relate to subsequent lesson.

2. Motivation - establish a need for learning.

3. Objective of lesson - make it definite and clear.

4. Presentation

   a. Make sure it is organized.

   b. Make sure it is logical.

   c. Tie-in with current problems, other subjects.

   d. Use special techniques; example, demonstration.

   e. Encourage pupil participation.

   f. Maintain a rapid and steady use of time.

   g. Summarize - "What did we learn today?"

   h. Make application of lesson; example, problems on blackboard.

B. Techniques

1. Textbook

   a. Avoid textbook domination and recitation patterns.

   b. Supplement with mimeographed sheets.

   c. Use for reading assignments at home, homework, etc.

2. The Slow Learner

   a. Use patience, patience and more patience. Encourage and praise.

   b. Drill, repeat, encourage, review, and review again.

   c. Plan carefully, check students' work carefully.

   d. Motivate strongly, dramatize, use role playing, audio-visual aids, pictorialize on blackboard. Use simple words and sentences.

   e. Employ student activities and projects methods.

3. Correcting

a. Encourage students to correct one another thus encouraging inter-criticism and socialized recitation pattern.

b. Teacher may feed right answer only when necessary so as not to interrupt or disturb flow of the lesson.

c. Correct errors in speech, pronunciation, grammar, etc.

4. Adjusting difficulties

a. Lesson must be within range of abilities and comprehension of class.

b. Grade questions and ask questions according to students' abilities.

5. Adjusting quantities

a. Adhere to lesson plan

b. Watch timing

6. Retelling

a. Teacher or pupils should not waste time by repeating verbatim what they have read quietly. Rather ask questions on what they have read.

b. Teacher should never repeat students' answers for any reason.

7. Handling values

Do not stress information not needed to achieve aim of lesson.

8. Content and form

a. Use business terms, actual blank forms and trade practices.

b. Use a variety of techniques

Blackboard	Narrative	Guidance
Lecture	Contract method	Summary charts
Show	Job rotation	Blank forms
Demonstrate	Games and contests	Trade publications
Task of job analysis	Displays	Newspaper
Eliciting	Museum	Radio
Group discussion	Role playing	Television
Panel discussion	Sociodrama	Tape recorder
Committee reports	Aptitude tests	Brainstorming
Individual reports	Vocational guidance	Teacher job experiences
Motivated project	Testing	Student job experiences
Motivated homework	Drills	Phonograph
Library research	Practice	Model solution

Textbook	Review	Imitation
Question and answer	Graded problems	Diagnostic tests
Guest speaker	Case problems	Remedial lesson
Field trip	Flannel board	Achievement tests
Film strip	Opaque projector	Group participation
Motion picture	Student projects	Awards
Worksheet	Socialized recitation	Higher education

9. Use of films and film strips

   a. Preview and note main points. Schedule to fit into logical sequential order of course of study.

   b. Before showing films, motivate. Point out key points to look for. Prepare discussion questions to be written on board or on mimeographed sheets.

10. Use of blank forms

   a. Prepare in advance. Include only those items on form touched by lesson.

   b. Distribute forms to students and draw exact replica on blackboard.

   c. Motivate. Explain terms. Follow prepared problems graded in difficulty.

   d. Correct students' completed forms against blackboard form. Emphasize legibility, accuracy, completeness, uses, etc.

11. Do's and don'ts

   a. These practices are considered proper and effective:

      (1) Pose the question before a student is called upon for the response, i.e., "Question" - pause - "Name of Pupil."

      (2) Call on BOTH volunteers and non-volunteers.

      (3) Balance recall or drill questions with thought-provoking questions.

      (4) Questions should be clearly stated.

      (5) To frame a thought-provoking question, begin the question with: why, how, explain, describe, etc. Call for expressions of opinions.

      (6) Speak distinctly so everyone may hear.

      (7) You may repeat a question or give an example if response indicates the question was not clear. However, do not do this too often.

      (8) Allow students time to think through a question.

(9) You may call on several students to get a complete answer to the same question or call for more than one answer to the same question.

(10) Encourage sustained responses. Use supplementary questions until answer is completed. Limit to one or two supplementary questions to same student.

(11) Teacher may give answers when three or four students fail to answer properly framed questions correctly.

(12) Ask students who failed to answer questions or who gave incorrect responses to repeat the correct answers.

(13) Plan questions in advance. Write key questions into the lesson plan following the logical-sequential order in the presentation; review questions; summary questions, etc.

(14) Nod or agree verbally with each correct answer. Compliment especially good answers. Avoid marking every answer.

(15) Encourage students to criticize each other's answers; i.e., "What is your opinion?" or "What can you add?"

(16) Attempt to ask questions according to individual abilities and backgrounds.

(17) Ask students to stand up, face class, and speak clearly.

b. Avoid the following practices when asking questions:

(1) Posing a number of consecutive questions to one pupil.

(2) Repeating or rephrasing a student's answer. This practice merely wastes time and slows the tempo of the lesson. Occasionally, the teacher or a student may repeat an answer for special emphasis or for writing on blackboard.

(3) "Telling" or "lecturing" - when the information should have been elicited through questions.

(4) Repeating questions. This encourages inattention.

(5) Calling students in rotation.

(6) Calling only on students who appear to know the answer. This encourages shy and lazy students to sit back and not participate.

(7) Accepting chorus responses.

(8) Asking questions which require merely a "yes/no" answer or a one word answer.

(9) Asking leading or "tugging" questions; e.g., "In order to obtain prompt payment, the merchant should?"

(10) Asking double/triple questions; e.g., "What is the problem and how would you solve it and give me the answer."

(11) Telling the students that is not the answer you wanted.

(12) Answering your own questions.

(13) Asking ambiguous questions; e.g., "What happens when you sell merchandise?"

(14) Asking "echo" questions: "If the markup is $2.00, what is the difference between the cost and the selling price?"

(15) Asking "categorical" questions: "Is that what we learned yesterday?"

(16) Pumping: "The name of this form is what, class?"

(17) Asking "guessing" questions: "Should we give everyone credit?"

c. Purpose of asking questions

(1) To arouse interest in the topic to be studied (motivation); check on learning (review, summary);direct thinking of group (presentation); encourage students to seek solutions and relationships; secure full participation from each member of the class.

(2) To encourage creative thinking.

12. Pupil participation

a. Encourage full student participation by:

(1) Avoiding a "teacher-dominated" lesson.

(2) Getting the students to state aim of the lesson as a result of the motivating problem and have student write aim of the lesson on the blackboard.

(3) Encouraging students to ask questions and to evaluate each other's answers.

(4) Having students state summary answers, not to be imposed by the teacher.

(5) Discouraging non-learning activities: excessive talking, reading other materials, doing homework for other subjects, throwing paper, etc.

(6) Wide distribution of questions.

(7) Sending students to the blackboard to record entries, write summary answers, solve arithmetic problems, draw forms, etc.

(8) Sending pupils to blackboard to do old homework, write new homework at special place, write drill problems from teacher's plans, record attendance and other required routines.

(9) Walking around the room and checking to see that students are writing in notebooks, solving problems correctly.

(10) Having students distribute blank forms, bookkeeping paper and other learning aids.

(11) Using teaching techniques which require maximum student participation: committee activities and reports, individual projects and reports. (See "Techniques" for more suggestions.)

b. Note evidences of full student participation:

(1) Full responses; pupil questions; varied participation other than question and answer; pupils interested and attentive; pupil intercriticism.

(2) Written work at seats and blackboard; many pupils working at blackboard and at seats; absence of disciplinary problems.

13. Individual differences

a. Grade questions and problems to meet abilities of students.

b. Familiarize yourself with special methods in teaching "slow" and "fast" learners.

c. Move about the room to observe pupils' work and help with individual problems.

d. Assign brighter students to help the weaker students. Reward brighter students when their "pupils" learn.

e. Collect and grade yourself all papers which require personal evaluation. Return to students with suitable comments. Short answer tests may be marked by brighter students (preferably those of another class).

f. Give periodic diagnostic tests and plan for remedial teaching.

g. Encourage correct answers by sending students to blackboard only with correct answers; having students read excellent answers to test questions to class; best reports to be read to class; use students at blackboard with legible handwriting as model for other students to copy.

h. Keep progress chart for each pupil to show his individual progress or growth.

i. Group pupils, especially in arithmetic.

j. Follow up poor responses by directing questions to those who failed to understand earlier.

k. Offer to help individual members of the group.

l. Call on inattentive pupils again.

14. Blackboard and other aids

a. Multiple sensory appeal aids the learning process.

b. The teacher's boardwork should be a model for the pupils:

(1) Neat, arranged in orderly fashion and large enough to be seen in the rear of the room.

(2) Use a ruler to rule lines.

(3) Draw facsimile of blank form on blackboard in advance. Distribute same forms to students at seats.

(4) Label all illustrations and model solutions.

(5) Write or print legibly. (Use student if you can't.)

(6) Materials written on side board should be visible to entire class.

(7) Blackboard should show clear flow of development.

(8) Pupil blackboard work should show evidence of careful training.

c. Make all abstractions concrete: reduce the complex to simplicity.

(1) Reinforce verbal images with pictures, slides, chalk drawings, prepared charts and drawings, illustrations in textbooks.

(2) Use special techniques for each subject area.

(3) Pupils should work at the boards and at their seats.

(4) The teacher should circulate in order to observe and help individuals, stress form, neatness, and correct procedures.

(5) Problems may be written on blackboard, distributed on mimeographed sheets, taken from textbook. Never dictate written problems.

(6) Offer bonus credit for extra-difficult solutions.

(7) Correct mistakes at blackboard.

15. Advantages of individual assignments:

a. To the teacher

Individual assignments:

(1) Make standardization possible.

(2) Result in more explicit written assignments. Oral instructions vary with the telling.

(3) Make students follow written assignments which are typical of the given occupation.

(4) Permit progress at individual rate of learning. After an assignment is checked, student may go on to next assignment.

(5) Give more freedom to instructor to move about and work with individual students.

(6) Increase habits of self-reliance as student is on his own.

(7) Answer most student questions.

(8) Permit better handling of larger groups.

(9) Tend to clarify instruction.

(10) Reduce lecturing or telling.

(11) Make over-all teaching easier.

(12) Avoid missing "points" as material is written.

(13) Permit orderly presentation of material.

(14) Give a check on material covered.

(15) Provide for individual differences.

(16) Provide an assignment for each student - reduce discipline problems - tend to keep group busy.

(17) Permit better individual student-teacher relationships.

(18) Aid in timing instruction to fit student needs.

(19) Assist instructor in charting student progress (orderly progression).

(20) Provide flexibility in dealing with students.

(21) Clear up points at the planning stage.

(22) Give chance to spot student weaknesses or strong points.

(23) Help the instructor when student enters group late.

(24) Enable students to carry on work in instructor's absence or disability.

b. To the student

(1) Individual student may advance at his own rate, depending on industry, diligence, and initiative.

(2) Learner gets fundamentals through self-directed activities.

(3) Student has greater opportunity for planning.

(4) Individual assignments tend to promote self-reliance.

(5) Assignments develop good work habits.

(6) Student learns to use reference material.

(7) Student learns to do jobs.

(8) Individual assignments tend to reduce questions about things already explained.

(9) Individual assignments stimulate student to read and follow directions.

(10) Individual assignments create self-confidence.

(11) Student learns to organize.

c. The relationship with the pupil

(1) Establish rapport by combining firmness with fairness. Postpone disciplinary steps until lesson is over. Try to solve these problems by yourself before referring them to higher authority. Temper emotion with objectivity. Remember that a well-conducted lesson will reduce incidence of disciplinary problems. Do not argue with students. Be alert and catch every infraction of the rules. Indifference to problems only increases them.

(2) The coordinator should be well-poised, sincere, and sympathetic; and he should show evidence of a good sense of humor. Students will be quick to find a coordinator's weaknesses and exploit them.

(3) The teacher's speech and dress should be a model for the class to copy.

(4) Encourage and teach self-control, courtesy, business etiquette, good grooming, neatness, reliability, etc.

(5) Do not allow a student to become the butt of a joke. Laughter should not be derision. Do not allow gum chewing. Stop all students from distracting the class.

C. Routines

1. Routine matters should be handled so that lesson may begin promptly and flow without interruption.

2. Students should be trained to routines at beginning of term.

3. Bell and other signals are for the teacher. Do not allow students to leave until you give the signal.

ADDITIONAL ACTIVITIES FOR CLASSROOM INSTRUCTION

A. Guest Speakers

1. Advantages

   a. Bring latest business methods into classroom.

   b. Add authority to specific areas of instruction.

   c. Provide information from specialists directly in the field.

   d. Provide means of involving community in the course of study.

2. Things to tell a guest speaker

   a. The date and time for his appearance

   b. The exact location of the class

   c. Instruction concerning who will meet him and where he is to be met

   d. Parking instructions

   e. Age and sex of your students

   f. Length of time that you expect him to speak

   g. Vocational objectives of the students

   h. Suggested hand-outs, aids, or supplementary materials

   i. Specific suggestions concerning topics of his talk, and how it fits in with your lesson plan

NOTE: Check school regulations concerning guest speakers.

B. Field Trips

1. Afford a change of pace for coordinators and class

2. Take students to actual scene of operation

3. Extend classroom into the community

4. Can be used as student project or club project

5. Requires considerable preparation, however, follow-up with discussion on report

NOTE: Check school regulations concerning field trips.

COORDINATION

Coordinating the classroom instruction and the training station instruction and experience is essential to the success of the distributive education program.

A. Expected Results

1. Subject matter is provided which fits the needs of the student preparing for a career in distribution.

2. The student receives information necessary to the specific job on which he is receiving on-the-job training.

3. Specific training is provided at the time it is needed.

4. The student makes adjustments to the business world such as formation of work habits, development of initiative, and development of a sales personality.

5. The program of on-the-job training will enable the student to meet job standards as quickly as possible.

6. Information will be gathered and transmitted to the students concerning changes in business procedures, trends in distribution, new merchandise, and other current information.

7. The program of instruction, on-the-job training, and student progress is evaluated.

8. School officials are kept informed regarding coordination activities and actual employment conditions and guidance information is provided.

B. How To Accomplish Purposeful Coordination

The term purposeful coordination covers all activities relating to the adjustment of the student to the job and his progress on the job. Through coordination you make sure that the student uses on the job the things he is learning in the classroom. From the job you secure and use the practical problems around which instruction is built and the ways you can help each student do better.

Idle wandering through the store is not desirable. You should be seen in the training establishment only when you have something to do there, some real reason for being there. You must be business-like to command the respect of businessmen.

1. Observation

Observe inconspicuously to find things to commend and things to correct. Do not make corrections on the floor, but arrange to do so in a personal interview in school the next day. Shop the student occasionally after he has mastered the initial routine, and you wish to encourage the use of merchandise information on other techniques stressed in class.

2. Conferences

Once a month the coordinator should confer with the immediate supervisor of each student for a purposeful discussion of the training needs of each student. Continue to explain the program and its objectives; get the supervisor to express his ideas as to what can be done to assist the student; use such visits to fill out the rating scale from which you determine the grade. This type of visit strengthens the feeling of store personnel that they have a definite responsibility in the Distributive Education program and increases their interest in the individual student.

Go to top management once or twice a year to sell the program and to get a commitment as to the interest in training.

WRONG: "How is Sue getting along?"

RIGHT: "Miss Bonay, I want to work with you a little and get your suggestions as to how I can help Sue. We are studying this unit (show it) and I want to find out how Sue applies what we have discussed." (Ask specific questions to bring out specific ways to help the student.)

3. Training Materials

Another of the purposes of coordination visits is to get from the sponsor or employer, training materials useful in the program. A good public relations device is to ask for something - advice, materials, opinions, suggestions - being careful not to run it into the ground. You can get given to your program, or loaned, such things as job breakdowns, bulletins, films, manuals, materials, OPS releases, and many other things valuable in your instructional program. About 80 per cent of the magazines useful in your program should be given to you by your training sponsors.

4. Future Placement

Coordination involves calling on new establishments to secure training opportunities for future placements. Again, call on top management of the training establishments in your program to resell and reaffirm the values in the program, as well as how it works.

5. Employer's Report

The best practice in getting the rating scale on students is to <u>go get it yourself</u> each grades period. Get it from the immediate supervisor of each student rather than from the personnel director, or other person who has little direct contact with the student and his work. (Maybe you will find situations where you will need to get a rating from several people, but don't ignore the supervisor.)

6. Securing guest speakers, demonstrators, judges for contests

7. Follow-up

   Organize or develop a follow-up plan for the use of the training sponsor in training the student.

8. Showing results

   Show tangible things which are the work of the student. These may include: organization charts, advertising lay-outs, flow-charts, merchandise manuals, student records of sales, student notebooks. Keep it personal - show the work done by the student(s) in Ray's place to Ray, and to the supervisors of the student.

9. Promotion of the adult program

   While coordinating the cooperative program it is often very simple and in order to discover training needs for the adult employees of the store. You can tell of the things that can be done and explain what is being done.

10. Helping Management

    Give specific help to management in store operation when you can.

11. Record keeping

    This is both a device and a method in coordination. It is useful in evaluation as well as in keeping up with what is going on in the program. A good way to do it is to keep a small, inconspicuous notebook handy on your visits. Under the name of the student, job done; date of visit; purpose; what was done; and the follow-up interview with the student. The material can be filed in the student's folder in your office.

ADVISORY COMMITTEES

A. Definition

An advisory committee is a group of laymen appointed to advise on certain aspects of the Distributive Education Program.

B. Need

1. A Distributive Education Program is a joint undertaking of the school and the community, and its success depends upon the support of those within the community.

2. An advisory committee will enable the coordinator to do his job better than could possibly be done without the aid and advice of such a group.

C. Selection of members

1. Determine the number of employers and employees desired on the committee. It is more important that the committee be representative than that a certain number, or equal number, from any group be on it.

2. Discuss with principal and/or superintendent; explain the need for an advisory committee.

3. Consider members who have:

   a. Experience

   b. Available time

   c. Character

4. Make the official appointments in writing

5. Select committee members from:

   a. Employers

   b. Employees

   c. Agencies or organizations

D. Areas where advisory committee can assist the Distributive Education Coordinator

1. Publicity

2. Establishment of standards

3. Keeping the program current and realistic

4. Planning and promoting special activities; example, field trips, Distributive Education Week

5. Aid to Distributive Education graduates

6. Equipment and instructional materials

7. Survey projects

8. Securing of training stations

9. Donation of teaching aids

10. Club programs

E. Meetings

1. Minimum of two (2) regularly scheduled meetings a year, plus as many special meetings as necessary.

2. Meeting should be held at the beginning of the school year to outline program.

3. Meeting should be held at the end of the year to evaluate the year's activities.

4. Scheduling the meeting

   a. Schedule far in advance.

   b. Send out reminder cards.

   c. Call the day before.

5. Meeting place should be selected on basis of:

   a. Convenience to the members

   b. Few interruptions

6. The first meeting

   a. Coordinator should explain function of committee.

   b. Chairman should be appointed.

   c. Secretary is usually coordinator.

   d. Committee's activities are outlined.

7. Follow-up meeting

   Coordinator should:

   a. Prepare minutes of the meeting.

   b. Prepare special reports.

   c. Mail copies of minutes and special reports to members and other authorized persons.

d. Forward recommendations of the committee to superintendent or take the necessary action.

e. See that all special arrangements made by the chairman are carried out.

THE DISTRIBUTIVE EDUCATION CLUB PROGRAM

A. Provision for Club Work

1. The public school has not completed its educational and training functions when it sends a boy or a girl to a job equipped with job skills and information only. In addition, the school must round out the social and ethical phases of the prospective worker's personality and develop, along with job skills, knowledges, and attitudes, the ability to:

   a. Organize his daily activities to include a balanced number of social and civic, as well as economic situations;

   b. Budget his time and money intelligently;

   c. Get along with others in work life, civic life, and social life;

   d. Take an active part in business, civic and recreational affairs;

   e. Travel intelligently;

   f. Recognize opportunities for self-improvement.

2. Distributive education clubs, under the leadership of the coordinator, can contribute markedly to instruction in all the foregoing areas through participation in club work and conventions. Armed with a background of poise and self-reliance acquired through club experiences, the trained young workers can get a job, hold a job, and advance to a better job in a much shorter time than can one who has not had the benefit of contacts made possible through club participation.

3. Distributive Education clubs are organized on a statewide basis as the Distributive Education Clubs of Louisiana. Executive offices are located in the State Department of Education, Distributive Education Section, Baton Rouge. The association holds a two-day conference annually. It publishes an annual magazine, DEC-La Doings.

4. On the national level, there is the Distributive Education Clubs of America (DECA), headquarters, Washington, D. C. DECA annually stages a convention for its membership, usually in Chicago. It publishes a monthly magazine, The DECA Distributor.

NOTE: Refer to DECA Official Handbook 1964-65.

B. Responsibilities of the Local Advisor (Coordinator)

1. Advise and guide, not dictate.

2. Instill enthusiasm for the club program in the students.

3. Initiate the organization of the club activities in the group.

4. Become thoroughly versed in the history, principles, constitutional provisions, ceremonies, typical activities, parliamentary procedures, and other essentials of the organization.

5. Assist in the plans for the securing of an efficient group of officers.

6. Instruct newly elected officers in their duties and give all members leadership training.

7. Assist members in setting up sound, worthwhile programs of work and guide them to completion.

8. See that programs are adequately financed and funds properly protected.

9. See that club meetings are held regularly and conducted in a business-like manner (good use of parliamentary procedures).

10. Help new members to take part and get into the spirit of the club activity.

11. See that every member of the club has a part in the work, accepts the responsibility and tries to do his or her share.

12. Help set up adequate records and accounts.

13. See that the standard minimum club equipment is procured, used and protected.

14. See that a club library is set up and used.

15. Counsel with individual members and committees on problems.

16. See that all ceremonies, initiations, public performances, displays, are carefully planned and creditably executed.

17. Keep school authorities and the public posted on activities and developments.

18. Keep abreast of new developments in Distributive Education club work and call them to the attention of the members.

19. Utilize the club as leadership training device by impressing the membership that it is their organization and seeing that they perform the necessary functions to keep the club improving in its opportunities for widening the scope of the learning situations it can develop for the club members.

20. See that each club:

    a. Pays all State and National dues.

    b. Participates at the Louisiana Leadership Conference.

    c. Contributes to DECA Doings.

    d. Sponsors an Employer-Employee Banquet.

    e. Sponsors a community project; example, D. E. Week

C. Suggested Club Activities

1. Select a DE Mother of the Year for the mother of your community who has contributed most to your class-club activity. Award a certificate and/or other lasting memento as a token of appreciation.

2. Select a DE Father of the Year for the father of your community who has contributed most to your class-club activity. Award a certificate and/or other lasting memento as a token of your appreciation.

3. Select a Teacher of the Year for the teacher in your school (other than DE) who has contributed most to your class-club activity. Award a certificate and/or lasting memento as a token of your appreciation.

4. Select a DE Training Sponsor of the Year for the merchant of your community who has contributed most to your class-club activity. Award a certificate and/or other lasting memento as a token of your appreciation.

5. Select an outstanding DE graduate as DE Alumnus of the Year for the graduate who has contributed most to your class-club activity during the immediate past year.

6. Present "Appreciation Awards" for individuals who have contributed to help specific class-club projects, i.e., speakers, advisory committees, etc. Award a certificate and/or other lasting memento as a token of your appreciation.

7. Hold an Employer-Employee Banquet where club members honor employers as guests and where the above mentioned awards could be made.

8. Hold a Senior Recognition Dinner near the end of school. This works well in a 2-year DE program and is an excellent time to honor your coordinators and advisory committee.

9. Utilize your Advisory Committee on class-club projects and problems. Your National Headquarters is urging donor representation and cooperating organizations to seek membership on these committees. They want to help in any way they can be of service.

10. Build a Club Library on methods, projects and ideas of good club operation. This could include materials on any youth organization - not just DECA.

11. Donor Recognition can best be done at your state club meetings. Perhaps a certificate showing the number of years of assistance to state or local projects.

12. Offer your Talents to Civic Clubs. Contact each civic club program chairman to explain the DE-DECA story and its role in your community and school.

13. Publicize the Sales Volume by individuals, groups or clubs accomplished during any given period. These figures attract merchants' attention and will prove the worth of your instructional program.

14. Schedule Yearly Program of Activity by month. This shows good planning on your part. Many clubs use this idea and a good example can be obtained from Carthage, Tex.

15. Survey for Scholarships for your community or state. Many individuals and/or organizations are willing to assist young persons in furthering their educational effort. This is an excellent club-class project for individual benefit and will provide your coordinator ammunition for attracting high caliber students to the DE program.

16. Leadership Conference for all School Club Officers, sparked by DE club leadership. This gives each officer a chance to share duties of his office with similar officers in other clubs. It is an excellent school-citizenship project.

17. Develop a Savings Plan for use by club members or entire student body. Bankers or advisory committee will give good direction on this project.

18. State and District Officers attend your meeting at least one day early and make a personal appearance tour of the community where the meeting is being held, including leading merchants, newspapers, radio, television and other points of interest. Purpose: to make the community aware of your meeting.

19. Use Students for Programs. A good rule is never to use an adult on your program when a student can do the job. This is an excellent training medium and gives good leadership experience.

20. Plan your Publicity Program. Use simple methods such as letter of congratulations to persons in your community for promotions, contributions, etc. Letters can be signed by your club officers, principal or coordinator - preferably by club officers. Use decals, road signs, news, etc.

21. Have DE Day or Week in your local community to tie in with your state plans or to stimulate your state toward such a plan. Merchants are proud to have students "take over" their business for a day. Press, too, cooperates willingly.

22. Use Door Prizes to stimulate club attendance and promptness at meetings. Adult clubs use this very effectively. Prizes need not be elaborate.

23. Build Club Membership by utilizing Associate and Honorary memberships in addition to your Active Members. You might inaugurate a Junior Membership for students in DE preparatory classes or others interested in club activities.

24. Subscribe to DISTRIBUTOR for training sponsors to help build good will and keep these sponsors informed of their company's participation in the National and State club programs.

25. Try Publishing a Newsletter - maybe one or two mimeographed pages monthly, bi-monthly or each semester for distribution to all interested persons, including other school organizations.

26. Utilize your State or District Officers by a fund that will cover their expenses for your important events. States could use their National or Regional officers in this same manner.

27. Use your Club Reporter. Have him send monthly reports to your State club headquarters and The Distributor covering all club activities. Let the editor of your state or national publication decide the disposition of your news articles. Make good use of a camera to help cover all club events.

28. Encourage the use of Club Insignia. This includes the wearing of club jewelry and uniforms, plus proper usage of the club emblem in training stations, school displays, etc. The purchase of club jewelry is also a financial aid to your State and National club program.

29. Investigate Opportunities for individual careers with donors to the DECA Foundation. Write the personnel department of any of the DECA donors on behalf of your class-club for career information. Visit the "Career Information Booth" at the Convention.

30. Win a Place of Honor for your club by writing a DECA slogan, a DECA song, or designing a DECA flag. Most greatly needed by your National club program is a short, catchy DECA slogan or motto.

31. Assist your Coordinator by recommending good, prospective students for the DE program next year. He will appreciate your help and recommendation, for you know your classmates probably better than many teachers. Also, your club could help by a survey to determine the location and present job of former DE students.

32. Try an Annual School Betterment Project such as "clean-up, paint-up" week; a Student Needs Fund as exists in Columbus, Ohio; an Open House for DE as was done in Spartanburg, S. C.; an Alumni Club as was started in Toledo; an Outstanding Student Award as was done in Abingdon, Virginia; an Assembly Skit as was done in Hammond, Indiana; an Outstanding Club Project such as the March of Dimes assistance by Clarksville, Arkansas; and TB campaign assistance by Central of Oklahoma City; act as host for a district or state meeting as in Salem, Oregon; a self-improvement project as Durham, N. C., and many others.

33. Try a Community Betterment Project such as a "Slave Day" for the United Fund as did Valdosta, Georgia; or by assisting a merchant by an act of neighborliness as did Mauray High in Norfolk, Virginia; help sponsor an Easter egg hunt for neighborhood children; give a Thanksgiving or Christmas basket once and you'll want to do it every year. Your club may even partially adopt a needy family and find sources for assistance to them.

34. Adopt Sound Fund Raising Projects to allow your club an adequate operating budget. Longview, Washington has a "car wash" and Yakima holds a "Pickle Sale" on St. Patrick's Day. Savannah sold Christmas trees and Cradock High in Portsmouth, Virginia sold "magic bows."

35. Seek National Honor and Recognition through your National club program by contest participation at state and national conventions; by seeking state or national club offices; by seeing that your club news gets to The Distributor and by being an alert, interesting and contributing delegate to your state and national meetings.

36. Adopt Dues Paying Schedule for members and adhere rigidly to a deadline. This allows your executive committee to properly plan your club's budget.

37. Elect Competent Club Officers, who are sincere, optimistic, and will be a good representative of your club. Be sure your state elects good national delegates.

D. How Various Agencies and Organizations Can Work with DE Clubs

1. Provide speakers for local, state and national DE activities.

2. Have a DE committee ready to function.

3. Provide scholarships for DE students.

4. Aid local members with training materials for DE students.

5. Provide summer employment for DE Teacher-Coordinators to help them financially and acquaint them with your business with the provision that they return to the teaching field for a period of at least a year following employment.

6. Provide fellowships for teachers for advanced study and research in Distributive Education at institutions of higher learning.

7. Provide incentives and/or recognition for service of DE teachers (to teaching profession).

8. Disseminate career information to students through DE channels.

9. Offer discarded store equipment to DE classroom for possible use.

10. Offer use of training films, visual aids, materials, etc. to coordinators.

11. Have a representative attend the National DECA Convention.

12. Work through state and local DE people. (DECA will furnish list of DE State Supervisors on request.)

13. Provide opportunities for a DECA national officer or other representative to present the DE story to your conventions.

14. Feed DE story to trade press and other media.

15. Invite DE students employed in your industry into your meetings.

16. Recognize outstanding DE students in your employ.

17. Publicize DE success stories in your industry.

18. Use DE students on community surveys, civic and other community projects.

19. Encourage members - especially local persons - to serve on DE advisory committees in their community.

20. Encourage and participate in DE Day or DE Week in communities.

21. Participate in various conferences emphasizing distribution.

22. Encourage subscriptions to The Distributor, the national club magazine.

23. Sponsor research on any phase of DE.

24. Encourage the organization of DE programs in non-DE communities.

25. Use former DE students now employed in your industry and learn how they were attracted to your employ.

26. Make a survey of DE students currently employed in your organization.

27. Make follow-up studies of DE students within your own organization.

28. Include DE training on your application blanks for employment.

29. Give DE students preference in obtaining part-time employment for training, and full-time employment upon graduation.

30. Prepare plans for long-term participation in DE, both for student and adult levels.

31. Provide expenses for sending DE employees to annual DECA meeting.

32. Sponsor a company contest for DE students in your employ; send winner to annual DECA meeting, plus recognition at your annual industry meeting.

33. Have representatives attend State DE meetings, offer services as contest judges, consultants, etc.

34. Make the acquaintance of the Supervisors of DE in the various states.

35. Reward a teacher-coordinator of DE in any state by providing him/her expenses to attend the annual DECA meeting as reward for an outstanding service to his community.

36. Underwrite a month's publication of the national DE magazine, The Distributor.

37. Underwrite one of a series of Information Pamphlets about DE or DECA.

38. Utilize the DE program as a part of your recruitment plan.

39. Work with the U. S. Office of Education and other educational agencies in sponsoring DE activities.

40. Contribute financial support in any amount to the DECA Foundation to assist the DECA Program of Youth Activity.

41. Offer public relations assistance in getting DECA officers and national contest winners in national spotlight via television, radio, commercial magazines, and news syndicates.

42. Develop educational material encouraging 9th and 10th grade students to enter your field through Distributive Education training during 11th or 12th year of school.

43. Prepare a written training program in your company for DE students providing for job experience rotation, including ultimate objectives for individual students.

44. Encourage local managers to assist coordinators in getting students on civic club programs.

NOTE: Many of these activities may be worked into the classroom instructional program.

EVALUATION

Just as the businessman takes inventory to ascertain the status of his business, so should each teacher evaluate his program to ascertain the quality of that effort as compared to an accepted standard. Necessity for maintaining high standards in each Distributive Education program is paramount since the social and economic benefits that result from a program that possesses high standards are felt by the distributive worker, distributive business, and by organized procedure to measure the functioning of a Distributive Education program. That need will be met by applying the criteria for cooperative distributive education.

These criteria are intended to be used by the teacher as a guide in evaluating his Distributive Education program. By examining the score resulting from rating his program, the teacher can measure the degree to which the program lives up to accepted standards. The standards by which judgment is to be made are stated as questions. Each question represents a standard, in keeping with the objectives listed below, that is accepted as being a good practice in the development and operation of a well-rounded, effective, cooperative distributive education program. This check sheet is for the benefit of the teacher and is not to be sent to the state office.

A. <u>Objectives of Distributive Education</u>

1. To promote high standards of operation in the distribution of goods and services through the improvement of marketing and merchandising practices throughout the distributive field.

2. To assist in the reduction of the costs of distribution through increasing the efficiency of distributive workers.

3. To aid the buying public through better services to consumers.

4. To develop balanced, comprehensive training programs to serve all fields of distribution.

5. To aid distributive owners and managers to conduct their business operations efficiently for the benefit of the consumer, employer, and employee.

6. To assist persons already in a distributive occupation to do a better job.

7. To prepare employees in distributive occupations to take advantage of opportunities for advancement.

8. To prepare qualified young men and women for the distributive jobs of today and the business leadership of tomorrow.

9. To aim for a better understanding of the mutual problems of consumer, employer, and employee.

10. To develop a closer working relationship between the schools and the business community.

B. Evaluative Criteria

1. Classroom equipment:

Directions: Score one point for each item listed below that is found in the room of the program being evaluated.

Bookcase ____
Conference-type tables and chairs ____
Display equipment ____
Bulletin board ____
Blackboard ____
Magazine rack ____
Projector available ____
Space for consultation ____
Telephone ____
Filing cabinet ____

2. Classroom instruction:

Directions: Each of the following statements can be answered in one of three ways: Good, score three points; Fair, score two points; Poor, score one point.

____ To what degree are these various teaching methods used: discussion, lecture, conference, supervised projects on individual and group basis, student reports, and demonstrations.

____ To what degree are visual aids utilized?

____ How can the relationship between the coordinator and the student-trainees be described?

____ To what degree do the students assist in the planning of class work?

____ To what extent is information that is gathered from follow-up studies utilized in instruction?

____ How well do students contribute materials, information, and classroom aid?

____ To what degree do the students participate in the evaluation of class instruction?

____ How well are outside information sources utilized in the classroom?

____ What effort is made to meet needs of students as found during the year, not included in the teaching outline?

____ To what extent are opportunities given for the exceptional student to progress?

_____ To what extent are on-the-job progress reports on the students used in developing a program of instruction?

_____ To what degree is remedial teaching given on the basis of student needs?

3. Instructional materials (score 3, 2, 1)

_____ To what extent does the teacher-coordinator use a well-organized teaching outline?

_____ To what extent are the following items found in the classroom: retailing texts, reference books, current trade publications, display material?

4. Public relations (score 3, 2, 1)

_____ To what extent do employers accept graduates from the program?

_____ To what extent are the activities of the program publicized in the school?

_____ To what extent is the community acquainted with the program?

_____ To what extent is publicity media such as radio, television, newspapers, school papers, or other media used?

_____ To what extent are businessmen utilized in promotion of the program?

_____ What is the overall reputation of the program in the community?

5. Coordination (score 3, 2, 1)

_____ How well does the coordinator make advance plans and schedules and carry them out?

_____ To what extent does the coordinator make adequate contacts with training agencies?

_____ To what extent does the coordinator contact businesses not cooperating with the program to enlist their cooperation?

_____ To what extent does the coordinator make visits to the homes of students?

_____ To what extent has the coordinator ascertained the effectiveness of the business as a training agency as such?

_____ To what extent are the student-trainees placed according to their interest and abilities?

_____ To what extent are students selected for entry into the class on the basis of their ability to profit from the instruction of the program?

_____ To what extent are training plans for student trainees developed with training agencies for use on the job?

_____ To what extent is the club program used to develop leadership training, civic consciousness, vocational understanding, and social intelligence?

_____ TOTAL POINTS

ADULT

DISTRIBUTIVE EDUCATION

BASIC INFORMATION

A. Definition

1. Adult distributive education is a program of occupational instruction in the field of distribution and marketing. It is designed to prepare individuals to enter, to progress, or to improve competencies in distributive occupations. Emphasis is placed on the development of attitudes, skills, and understandings related to marketing, merchandising, and management. Instruction is offered at the post-secondary and adult education levels. Distributive occupations are found in such businesses as retail and wholesale trade; finance, insurance and real estate ; services and service trades; manufacturing; transportation and utilities; and communications. Therefore, the programs for adult workers are organized in terms of the occupational levels, types of businesses, and nature of job activities of those enrolled, such as:

   a. Owners, managers, and operators of all kinds of stores, shops, and other distributive businesses.

   b. Sales managers of all kinds of businesses.

   c. Branch managers and local representatives.

   d. Department heads, supervisors, training sponsors.

   e. Purchasing agents and buyers.

   f. Salespeople, sales agents, canvassers, demonstrators.

   g. Store service workers who come in contact with customers.

   h. Driver salesmen, route salesmen, deliverymen.

   i. Other types of workers who come in contact with customers while employed in a distributive occupation.

2. Such instruction may be given during working hours (with the approval of the employers) or during non-working hours.

B. Objectives

1. To provide for improved job efficiency.

2. To provide for a better understanding of the field of economic activity in which the workers are engaged.

3. To provide the kind and amount of instruction to meet the vocational needs of workers.

4. To aid in improving management's knowledge and skills.

5. To prepare workers for ownership and executive positions.

TYPES OF CLASSES

A. Evening Classes

1. Requirements

   a. Those enrolled for instruction must be 16 years of age or over.

   b. Instruction must be directly supplemental to the daily employment of the workers enrolled.

   c. Classes may meet at any hour of the day or evening when the workers are not employed.

2. Membership

   a. Classes should be composed of workers from either the same distributive occupation or with similar job duties or problems.

   b. Instruction is likely to be less efficient when class membership is too diversified.

3. Time schedule - this should not be prepared until after consultation with those who know the working conditions likely to affect attendance at an evening school.

4. Course Content

   a. Should be determined by a functional analysis of the work of those enrolled in a class.

   b. Should seek to develop the working ability needs of the individual on his job.

   c. Should be suited to the seasonal demands of those enrolled as well as their ability needs.

   d. Should be short-unit organization so as to facilitate adjustment of content and objectives to the changes in enrollment, but one or two brief courses should not be the end determinants of instruction.

5. Location

   a. Should be housed in the place most suitable for effective work (e.g., school buildings, trade association rooms, retail trade board offices, labor halls). The facilities of area vocational schools should be utilized when possible and feasible.

   b. Amount of space and room arrangement should lend themselves to informalities essential for the comfort of adults.

B. Part-time Classes

1. Requirements - the difference between the evening and part-time class requirements is that the part-time classes are scheduled during the working hours of those workers enrolled.

2. Types of part-time classes

   a. Continuous

      (1) Scheduled for distributive workers who can leave their daily employment for instruction.

      (2) Gives supplementary instruction in distributive occupations in a series of brief meetings over an extended period of time. These classes are usually planned for 1, 2, or 4 hours a week for the period of time allotted. The program for these classes usually provides for a progressive sequence of instruction.

   b. Short unit part-time

      (1) Offered for a limited time to distributive workers who can leave their daily employment or who are temporarily unemployed.

      (2) May be organized to present supplementary instruction needed in a short series of class sessions.

      (3) May be organized to give the instruction needed by the large number of regular part-time employees who work a part of each day, or week, or who come on special call. Many of these part-time employees may take supplementary instruction to help them advance to full-time employment or to give better service even if they do not wish to work full time.

      (4) May be organized to instruct temporarily unemployed distributive workers so as to help them obtain re-employment in the distributive field. However, the instruction of temporarily unemployed workers must be supplemental to their usual area of employment.

3. Time Schedule

   a. Classes usually meet for one hour.

   b. In some instances the length of time may be extended to adequately achieve objectives.

4. Course Content

   a. Should provide the maximum of educational service in a minimum length of time in developing the working abilities needed.

   b. Should be organized in such a fashion so that a marked degree of improvement can be noted by employers.

c. Should be organized so as to provide a specific learning situation in order to maintain and stimulate attendance.

5. Location

a. Should be housed in the place most suitable for effective work. The public school or area vocational school are more acceptable.

b. Amount of space and room arrangement should lend themselves to informalities essential for the comfort of adults.

SUGGESTED COURSE TITLES IN ADULT DISTRIBUTIVE EDUCATION

Adult Instructor Training
Advertising - Layout
Advertising - Principles
Advertising - Procedures
Advertising - Use of Specific Media
Advertising and Sales Promotion
Apartment House Management
Auto Camps and Motels Service
Auto Parts Counter Sales

Bakery Products Merchandising
Bakery Route Service
Business Conference Leading
Business Fundamentals
Business Income Tax
Business Management
Business Modernization
Business Personality Training
Business Planning Institute
Business Record Keeping
Business Tax Problems
Buyer's Arithmetic

Cashiering
Central Check Out Servicing
Clothing - Ladies Ready-to-Wear
Clothing - Men's Wear
Color, Line, and Fashion
Confectionery Merchandising
Credits and Collections
Customer Relations

Dairy Products Merchandising
Dairy Route Salesmanship
Display Methods and Techniques - Basic
Display Methods and Techniques - Advanced
Drapery and Furniture Merchandising
Drug and Sundry Merchandising

Economics of Distribution
Employer-Employee Problems
Executive Reading Program

Fabrics
Fashion Merchandising
Feed and Farm Supply Merchandising
Floral Merchandising
Food Handling and Sanitation
Food Store Training
- a. Operation Procedures
- b. Organization
- c. Modern Supermarket Operation
- d. Procedure, Care, Preparation and Merchandising
- e. Stocking, Marking, and Displaying

Furniture Merchandising

Gift Wrapping

Hardware Merchandising
Home Furnishings Merchandising
Hotel-Motel Training
- a. Communications
- b. Food and Beverage Controls
- c. Food and Beverage Management and Service
- d. Food and Beverage Purchasing
- e. Front Office Procedure
- f. Hotel-Motel Accounting
- g. Hotel-Motel Law
- h. Hotel-Motel Sales Promotion
- i. Human Relations
- j. Introduction to Hotel-Motel Management
- k. Maintenance and Engineering
- l. Hotel-Motor Hotel Management
- m. Supervisory Development
- n. Supervisory Housekeeping

Household Appliance Merchandising
How Our Business System Operates
How to Organize and Operate a Small Business
How to Supervise
How to Train Employees
Human Relations and Understandings

Income Property Management
Income Tax Problems - Small Business
Insurance Salesmanship
Interior Decoration Merchandising
Interior Display

Job Analysis for Supervisors
Job Analysis Techniques
Job Instruction Training
Job Methods Training
Job Relations Training for Supervisors

Laundry Route Salesmanship
Laundry Service
Lumber and Building Materials Merchandising

Management Control
Mantrap (Management Training Program)
Marketing in Our Economy
Marketing New Products
Mathematics of Distribution
Merchandise Information
Merchandise Protection (Shoplifting Clinic)
Merchandising
Merchandising and Merchant Plumbers
Merchandising Institute
Merchandising Plumbing Supplies
Merchandising Printing
Merchandising Problems
Merchandising Music
Merchandising Your Community (Tourist Courtesy and Information)

Oral Communication in Business

Package Delivery
Paint and Wallpaper Sales
Personality Development for Salespeople
Petroleum Merchandising
Pre-Holiday Salesmanship
Principles of Business Law
Principles of Management
Principles of Marketing
Principles of Sales Promotion
Problems in Distribution
Professional Tour Guide Training
Psychology of Selling
Public Relations
Public Relations for Retail Employees

Real Estate Law
Real Estate Problems
Real Estate Sales
Real Estate Sales and Brokerage
Receiving and Marking
Retail Buying Principles and Techniques
Retail Credit Control
Retail Management Conference
Retail Merchandising
Retail Personnel Problems
Retail Selling - Elementary
Retail Selling - Advanced
Retailer - Consumer Problems
Retailing Principles

Sales Check Training
Sales Clinics
(The extent of the imagination is the only limitation of sales clinic topics)
a. Automobiles
b. Chemicals and Allied Products
c. Personal Services
d. Repair Services
e. Transportation
Sales Correspondence
Sales Promotion
Sales Managers' Conference
Salesmanship - Basic
Salesmanship - Advanced
Salesmanship for the Foreign Born
Selling Banking Services
Selling Retail Advertising
Service Station Merchandising
Shoe Merchandising
Showcard Writing
Shrinkage Control in Retailing
Small Business Clinics
Sporting Goods Sales
Stationery Merchandising
Store Arrangement and Layout
Store Modernization
Store System Training
Supervisory Training
Surety Bond Selling

Tax Law Changes
Techniques of Export Sales
Telephone Personality Training
Telephone Techniques
Textile Selling
Textiles: Characteristics and Care
Traffic Management and Rates - Basic
Traffic Management and Rates - Advanced
Traffic and Transportation
Training Directors' Workshop
Travel Bureau Service

Van and Storage Service
Variety Store Merchandising

Wholesale Management Development
Wholesale Selling
Wholesaler - Retailer Relationships

SMALL BUSINESS CLINICS

A. Purpose

To provide the proprietors and managers of small business of an area with such information and aids as are calculated to assist them in the conduct and expansion of their various enterprises.

B. Method of Instruction

1. These clinics are to be accomplished through a series of educational conferences covering essential factors of business management.

2. Approximately ten hours, or five two hour meetings will be given to study, discussion, and demonstration of each unit of the program.

3. Each ten hour series will cover a period of five weeks with group meetings one night each week.

4. (Tuesday and/or Thursday evenings from 7:30 to 9:30 p.m., with a five minute break between the hours, has been found to be the most satisfactory time for such meetings.)

5. Suggested units for the clinics include:

a. Advertising	10 hours
b. Sales Promotion	10 hours
c. Credit and Collections	10 hours
d. Legal Aspects of Business	10 hours
e. Business Organization	10 hours
f. Human Relations	10 hours
g. Others	10 hours

6. Selected training films and other visual aids will be spaced throughout the series.

C. Instructors

1. Instructors or conference leaders for each of the units represented may be business men selected from the field of specialization covered. An advisory committee should be called on to suggest leaders for the several units.

2. Suggested Leaders

   a. Sales Promotion and Advertising
      (Sales Promotion manager or other executive from one of the stores)

   b. Credit and Collections
      (Credit Manager from a local store, recommended by Retail Merchants Association)

   c. Business Organization and Legal Aspects of Business
      (Attorney, or a CPA familiar with small business)

   d. Human Relations
      (State Supervisor of D. E., or training specialist, or other conference leader)

3. In addition to the outlined course of study, each unit may be supplemented by guest speakers from various business agencies whose purpose is the service of the business man.

4. Speakers from the Retail Merchants Association, The Better Business Bureau, The United States Department of Commerce, The Chamber of Commerce and The Junior Chamber of Commerce will be invited to explain the services of their agencies to the group.

5. Unit instructors may also invite certain associates to address the group on specialized aspects of each unit.

D. Coordination

Overall coordination of the program will be carried on by the Director of Vocational School (and the local coordinator of Distributive Education) who will assist the various instructors with all phases of organization and presentation. Materials presented in each unit will follow, in general, unit outlines already developed. These outlines of courses will be adapted to the needs of the group. It shall be the responsibility of the coordinator to review these outlines with each instructor to point up their use and adaptation.

E. Administration

It will be the responsibility of the Director of the Vocational School to provide proper equipment, schedule guest speakers, maintain enrollment reports, provide for payment of services rendered and in general see to the proper administration of the program.

F. Fees

No fee will be charged for the clinic. Individuals may register for any or all units scheduled.

G. Certificates

A certificate of completion with proper seal attached will be issued for each unit completed.

G. Payment of Instructors

Instructors will be paid at the rate of $5.00 per hour. It shall be the responsibility of the director to have each instructor properly certified in his field of specialization by the State Department of Education. All pay checks will be issued by the Vocational School.

I. Promotion and Publicity

The promotion of the program will be in the hands of the sponsoring agency.

PART-TIME INSTRUCTORS

A. Definition

Part-time instructors are teachers of related distributive subjects employed as needed on an hourly basis.

B. Qualifications

1. The Louisiana State Plan for Vocational Education for 1964-68 states, "Teachers of evening and part-time extention classes shall be graduates of an approved high school and may be issued a vocational certificate (Trade Certificate) valid for one year upon the recommendation of the director of distributive education and the superivsor of teacher training."

2. The following training would be desirable, but all are not necessarily required:

   a. Professional training

      (1) Individual in-service training can be supplemented by short intensive courses prior to employment or during the teaching period where feasible.

      (2) Professional courses in vocational education.

         (a) The Principles and Philosophy of Vocational Education.
         (b) Job Analysis and The Development of Instructional Material.
         (c) Methods of Teaching Distributive Subjects.
         (d) Coordination of Distributive Courses.
         (e) Conference Leading.
         (f) Supervision of Distributive Education.
         (g) Organization and Administration of Distributive Education.
         (h) Professional Training.
         (i) Others.

   b. Technical training

      (1) Such training desirable, but not required if the instructor has been successful in the special aspects of the occupation which he is teaching.

      (2) Short-unit technical courses related to the occupational field in which the instruction occurs may be pursued by part-time instructors.

   c. Occupational experience

      (1) Instructors should have at least five years of successful experience in the distributive occupation being taught or its equivalent in technical training and experience.

      (2) Such experience should be recent and, if possible, varied since his class members for the most part will be drawn from different types of establishments.

d. Social acceptability

(1) An instructor should be in good standing in the community.

(2) He should have the respect of business leaders in his field.

(3) He should be emotionally mature, able to give and take on a friendly basis.

(4) His personality must be of such a nature that will encourage a responsive class.

(5) His appearance should be pleasant.

(6) He should be able to utilize oral communication correctly, effectively, and pleasantly.

C. Locating Instructors

1. Make a survey - inquiries concerning available adult instructors should be made at the time of initial survey of training needs in the community. Two main sources from which instructors may be drawn are:

a. Business or technical experts in the community.

(1) Advertising (employed in store, advertising agencies, publishing houses).

(2) Credit management (employed in stores, credit bureaus, factory offices).

(3) Accounting (employed by large business firms, public utilities, government offices).

(4) Traffic)

(5) Business finance)

(6) Insurance) Employed by large business firms

(7) Personnel management)

(8) Merchandising)

(9) Specific commodities (employed by wholesalers and are well informed on merchandising display, selling practices, and technical aspects as applied to their special commodity).

b. High school and college teachers

(1) Art teachers (value of line, color, and harmony).

(2) Bookkeeping and accounting teachers (general practices in their fields).

(3) English teachers (Business English and written communication).

(4) Shop and industrial arts teachers (woodworking and other crafts connected with store displays).

(5) Speech teachers (various aspects of oral communication such as sales speech, telephone conversation, discussion, public speaking, and parliamentary procedure).

2. Publicize the need - insert a notice in the "want ad" column of the local newspaper or run a special advertisement calling attention to the need for teachers, or post notices on school bulletin boards.

3. Offer supervisory courses - courses such as "How to Train" or "How to Conduct Meetings," may be offered for the express purpose of discovering good instructional material. However, it is better not to notify class of this intention.

4. Group training - a reserve staff may be built through conduction of classes on teaching methods for persons who are interested in becoming instructors.

5. Discuss in conference meetings - make inquiries concerning available instructors when in group meetings (or individual conversation) with distributive education personnel.

6. Follow-up leads - some of the best instructors have been discovered by following through casual leads promptly with a telephone call or personal visit.

7. Build a directory of potential instructors - the simple form shown below may be used to build up an excellent reference source. In the left-hand column are listed the courses to be offered, including the title and a brief description of each. In the right-hand column are listed the names and addresses of potential instructors as they are discovered.

DIRECTORY OF INSTRUCTORS

Title and Description of Course	Name and Address of Potential Instructor

8. Keep an up-to-date personnel file - a personal data sheet (Form DE 921, p. 154) should be made out for each instructor employed. An evaluation of teaching performance may also be recorded and filed.

D. Selecting Instructors

1. Interview objectives

a. Obtain information

(1) Discover individual's attitude toward and/or previous experience with teaching.

(2) Note occupational experience.

(3) Note availability, preparation time, transportation facilities.

(4) Record personal data required by local and/or state school system.

b. Offer information

(1) Briefly explain the total distributive education program and the importance of the adult program.

(2) Make clear the position of the part-time instructor in the local school system.

(3) Bring out the difference between the formal academic approach and the conference atmosphere characteristic of adult teaching.

(4) Assure the potential instructor that he will be given every possible help in teaching the course to which he is assigned.

(5) Stress the necessity for adequate, thorough preparation.

(6) Explain the necessary forms and reports.

(7) Be certain the matter of salary is thoroughly understood.

c. Public relation responsibilities

(1) Conclude the interview on a pleasant note when the applicant does not accept the position or does not meet the qualifications.

(2) Reasons for rejection should be handled tactfully and appreciation expressed for the applicant's interest in coming for the interview.

(3) Leave the way open for future use as an instructor in the program.

(4) If the individual is interested and acceptable, he should fill out the application for a vocational teaching certificate. (Approval must be obtained from the local school administrator and the State Department of Education before instructors may be officially employed.)

2. Methods of approach

a. Appeal to the:

(1) Prestige that comes from teaching.

(2) Opportunity to meet people in business.

(3) Opportunity to gain new ideas.

(4) Personal satisfaction that comes from teaching and rendering public service.

b. Quote comments made by other instructors; this will aid in emphasizing a point.

c. Permit the applicant to sell himself on the idea. He should not feel coerced or drafted into service.

3. Some objections are frequently raised by potential instructors. A few examples of those occurring most often, and their answers, are:

Objection: Fear of the teaching situation.
Answer: Assure help will be given. Play up occupational experience.

Objection: Lack of time for teaching and preparation.
Answer: Stress short-term arrangement. Adjust teaching schedule to instructor's.

Objection: Amount of work involved.
Answer: Cite satisfaction derived. Stress service rendered.

Objection: Fear of group acceptability.
Answer: Suggest sharing of instruction with other qualified persons rather than teaching the entire course.

Objection: Low rate of pay.
Answer: Point out that this type of teaching is a form of public service an individual may render to the community, and the remuneration can help defray incidental expenses.

E. Pre-Service Teacher Training

1. Purpose - to acquaint the individual with techniques in leading discussion and instructing others in the practices of the occupation.

2. Content of instruction

   a. Give information on the philosophy of distributive education and an overview of the program.

   b. Show the candidate how his past experience will be of assistance to him in this new task.

   c. Assist the new instructor in determining what should be included in a course.

   d. Assist him in organizing his course into instructional units and in planning his lessons.

   e. Explain the learning process and show him, by using illustrations, how people learn.

   f. Give the details of class system; such as, attendance records, reports to be made locally and for the State, etc.

   g. Explain the principles of class management.

   h. Explain how to use different methods of instructing and discussion leading. This explanation should not be technical to the extent that the new instructor will be lost in the intricacies of methodology.

SUGGESTIONS FOR INSTRUCTORS

A. An instructor must be a salesman.

B. An instructor should make a definite plan -- mental or written -- for each lesson to be taught. The plan should include:

1. Why is the lesson to be taught?

2. What is to be taught and why?

3. How to determine whether or not the objective has been reached?

C. An instructor should not allow questions and discussions which have no bearing on the lesson to prevent him from reaching his objective. Careful preparation of material prior to each class meeting is a means by which discussions and questions may be focused on the lesson at hand.

D. The instructor should keep before the class members the thought that it is their class and that the time should be devoted to those things which will benefit the group.

E. The instructor must have the confidence of his class but should not violate it. He should demonstrate his interest and enthusiasm in his work by his manner in conducting his class.

F. Questions must be clearly stated in the language of the group and should make use of trade terms common to the group. The art of skillful questioning is as important to the instructor as it is to the salesperson -- each tries to provoke thought and direct the thinking of the person being questioned in order to complete the sale.

G. The instructor should determine, at the end of each meeting, whether or not the objective for the class has been reached. A valuable teaching device is to guide the class members in checking up on the progress of the work done in the class period.

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ADVISORY COMMITTEES FOR VOCATIONAL EDUCATION

A. Definition

Advisory committees provide the necessary communicating link between the vocational school and business community. They are composed of representative laymen, recognized and respected experts in their own fields, who help educational authorities build valuable programs based on the real needs of the community.

B. Duties

1. It shall be the duty of the advisory committee to counsel with and advise the vocational school administration on the types of courses needed to satisfy the training needs in the field of marketing and distribution.

2. The committee should take an active part in setting up the details of courses of study.

3. Members of the committee should not hire instructors but their recommendations of candidates should be encouraged.

4. Members of a committee should be interested and responsible for promotion of adult training classes.

5. An effective advisory committee is an excellent public relations device for vocational schools.

C. Selection

1. The director of the vocational school must be consulted before any attempt is made to organize an advisory committee.

2. Criteria

a. Personal

Members must have had recent, successful, firsthand, practical experience in the area in which the committee is to serve.

b. Time

Members of an advisory committee should keep in close contact with the school activities. The amount of time, therefore, that a prospective member can devote to committee meetings should be considered before he is proposed. (It is advisable to have an alternate for each member, especially when members represent large organizations). An experienced community leader who already holds many offices, for example, may not have enough time, energy, or enthusiasm to give to advisory committee work. However, such a man is to be preferred to an unknown person, provided he can give the time.

c. Community representation

The vocational school administrator will assist in selecting members from representative organizations within the community. A well-balanced group of employees and employers should be included in addition to other segments of the population such as bankers, lawyers, CPA's and professional educators. Members of civic organizations share membership. These could be representatives of women's clubs and businessmen's organizations.

D. Number of Members

1. The size of the program and of the community determines the number of members of an advisory committee. However, a working committee must not be so large that it cannot come to decisions or allow informal, constructive discussions.

2. Area vocational schools have larger committees than other educational groups because it is necessary to have geographical representation from various sections of their service areas.

3. It is not unusual for area vocational school committees to be somewhat larger than ten or fifteen. If a large committee is appointed, it is advisable to break up into smaller subcommittees for specific assignments. However, it is recommended that eight or nine members be appointed for the first time.

E. Length of Service

1. The "rotation method" of service has proved highly effective.

2. Members who are appointed for a definite term of office usually serve for one to three years. Replacements should be staggered so that there are always some experienced members left in the committee.

   a. When terms expire, new members should be appointed by, or by approval of, the school administrator.

   b. Committee should not become self-perpetuating through the custom of appointing successors.

F. Invitation to Membership

1. A formal invitation to membership in an advisory committee must always come from the vocational school administrator. This gesture helps to remove any fears that a committee will usurp its own rights and responsibilities.

2. Appointment by the highest authority carries prestige.

SUGGESTED STEPS IN ORGANIZING CLASSES

A. Approval

1. The local vocational school will give approval of extension education for distributive workers and secure provision for such training if there is a need.

2. Explain to businessmen the possibilities for training and show them results from other cities. This explanation may be made individually or in a group meeting. From the businessmen as a group secure an endorsement of distributive education and a formal request to the local vocational school for provision of classes for distributive workers.

B. Survey

Make a survey, with the assistance of businessmen, and/or civic organizations, local advisory committee of the training needs in the city to determine:

1. The number of workers employed in each distributive occupation.

2. Rate of labor turnover in each occupation.

3. Requirements made of new employees.

4. Sources of new employees.

5. Training being carried on in each occupation.

6. Number of extra and contingent employees in each occupation.

7. The field showing greatest interest in training.

C. Determining Types of Training

1. Prepare a prospectus of courses and submit it to the businessmen.

2. From the businessmen contacted, secure suggestions for other courses and kinds of training needed and opinions as to the effective ways in which to carry on training.

3. Determine the courses requested by workers and executives.

   a. One method is to submit a check list of courses to the personnel and another list to buyers, section managers, and heads of departments in a meeting after an explanation is made to the group.

   b. Another method is to allow the store to distribute the questionnaires.

4. Compile requests for courses and determine those in greatest demand.

5. Select one field in which there is a need for training and in which there is an interest in training.

D. Funds

See that funds for maintenance of classes are available through those requesting courses in order to provide:

1. Salaries of competent teachers.

2. Teaching materials.

3. A comfortable meeting place conducive to good work for the class.

4. Adequate supervision.

NOTE: State and Federal funds may be used only for reimbursement on salaries of qualified instructors, supervisors, and coordinators.

E. Interview Potential Instructors.

F. Select Instructor.

G. Determine Place and Time of Class Meetings.

H. Publicize the Proposed Class

1. News articles

2. Circulars in stores

3. Bulletins on store bulletin boards

4. Meeting of employees

5. Talks and/or announcements at luncheon and service clubs

6. Meetings of merchants

7. Chamber of Commerce publicity

8. Trade association organizations

9. House organizations of participating groups

10. Any other available means

I. Prepare and distribute advance enrollment blanks (see Appendix C, p. 152) and arrange for some means of collecting the blanks by the sponsoring organization on a certain date.

J. Submit the instructor's qualifications to the Distributive Education Division of the State Board for Vocational Education and have him apply for a certificate permitting him to teach distributive education classes. (See Appendix C, Form DE 921, p.154) A certificate must be issued in each of the divisions of Distributive Education and Trade and Industrial Education in order that a teacher be approved to teach in the respective field.

K. Make a contract with the State Office for the class if one has not been made. The State Superintendent of Public Education mails contract after receiving and approving the instructor's qualifications.

L. Assist the teacher in developing an outline of the course of study for the class and submit it to the advisory committee for validation. Submit the course outline to the State Office for approval if an approved course is not on file in the State Office. Indicate the group to be served in the proposed class.

M. Give preliminary teacher training.

N. Remind those concerned of the definite dates and times of the meetings, stressing the first meeting date and time.

O. Start the first class on time and close it promptly as scheduled.

   1. The impression made on the members of the first class in a course is an important factor in determining the success or failure of the course.

   2. Accomplish a definite objective and give some definite instruction in the first meeting.

P. Fill out the organization report and send it in to the State Office immediately after the first regular class meeting. (See Appendix C, Form DE 1907, p. 153.)

SUGGESTED METHODS IN MAINTAINING INTEREST AND ATTENDANCE

A. Place the responsibility for the attendance on the shoulders of those requesting the class by designating the minimum attendance necessary for starting and continuing the class to be conducted. When a class is promoted, it can be made clear at the outset that attendance requirements must be met.

B. Some of the devices which will be of aid during the period of organization are:

1. Use of an advisory committee (see high school section) whose duty it will be to develop interest in the class, enroll members, and make clear the need for a minimum attendance.

2. Preparation and use of good publicity for the course in appropriate media for the field served.

3. Personal calls by the coordinator on prospective students.

4. Brief meetings of employees, arranged for by the employer, where purposes and requirements for the courses may be explained.

5. Solicitation of recommendations for the course and attendance from school officials, employee organizations, Chamber of Commerce, Retail Merchants Association, and trade associations.

6. Distribution of outlines and a prospectus of the course.

C. Some of the devices for reselling the course and keeping the interest of the class members are:

1. A daily plan for the classwork.

2. Careful correlation of instruction to the daily work of members of the class so that problems, questions, topics of discussion, and instruction will have meaning in paralleling job experience.

3. The use of the conference procedure of conducting the classwork which enables the members to feel that they are responsible for taking an active part in the course.

4. Assignments to class members - reports, talks, papers, surveys, and analyses.

5. Formation and use of committees of class members to look further into certain problems.

6. Request employee groups to invite their employers to the class.

7. Invite advisory committee members to the class.

8. Invite prominent persons in the community to attend the class and witness the activities.

9. Send reminders of the next class meeting to all class members when attendance begins to fall.

10. Send announcements to all students whenever something of extra importance is planned for the next meeting. Withholding announcements at class meetings and then sending it out often serves as an extra stimulus.

11. Use follow-up publicity during the course as it progresses. Attention can be called to topics and problems taken up through newspaper stories.

12. Coordination offers an excellent opportunity for maintaining interest and attendance in that the coordinator, through contact with each individual, discovers the points to have brought up in the class. Opportunity is provided the coordinator to remind the student of the class meeting and the discussion of his problem.

13. Encourage the employer to commend and praise his employees who are attending the class and provide the employer with the opportunity to give this praise.

14. Outline the content of the course and leave space for notes to be made during the progress of the course.

15. The instructor should present his material forcefully, and positively - he must know, and know he knows, what he is talking about.

16. Use attendance certificates for perfect attendance.

17. Distribute certificates indicating successful completion of short unit courses.

18. Promotions influenced by attendance of classes in distributive education should be made known to members of all classes.

19. Mimeographed outlines of the course, or outlines of the material to be covered at each meeting, on which is space enough for the student to make notes offers a valuable aid in securing and maintaining the interest of the members of a class.

20. Information sheets, pertinent to the lecture or discussion, or which grow out of a discussion, are highly desirable.

21. Occupational knowledge of the workers, material gained through coordination, and trade journals offer good sources of material which must be up-to-date in order to be valuable. This device enables the student to keep a permanent record of the material covered in the class.

22. It may be necessary to make individual assignments or have individual projects if the class is made up of workers from different departments or different kinds of stores. Assignment sheets may be used to give direction to the work to be done by individual students.

SUPERVISION

A. Adequate and proper supervision of classes is essential to the success of a program in distributive education.

B. Responsibilities of a supervisor include:

1. Organization and promotion of programs of training in distributive education.

2. Supervision of classes in distributive education.

3. Training of instructors and discussion leaders for classes in distributive education.

C. In organizing and promoting programs of training the supervisor should include in his activities:

1. Organizing and using advisory committees.

2. Searching for and developing new fields of training.

3. Encouraging acceptance of distributive education as an integral part of the business life of the community.

4. Acting as liaison between business, the schools and customers.

5. Selecting qualified instructors.

6. Evaluating the effectiveness of training being provided.

7. Acquainting interested groups with possibilities for training.

8. Setting up and maintaining classes.

9. Making out all reports and getting them in on time.

D. Supervision of classes in distributive education includes:

1. Aiding the instructor to improve teaching.

2. Assisting in developing good class management.

3. Encouraging the instructors and commending them for good work.

4. Checking progress of the students.

5. Determining eligibility of members of the classes and keeping within regulations for classes.

6. Checking on physical conditions in classrooms.

7. Giving constructive criticism.

8. Supervising the making of teachers' reports and seeing that they are sent in on time.

9. Evaluating effectiveness of instruction and instructional methods.

10. Correlating instruction with requirements of the job.

COORDINATION

The term coordination is used in referring to those activities which result in bringing the instruction of the class in closer harmony with the daily activities on the job. Coordination of instruction with job experience is fundamental in providing efficient instruction in either part-time or evening classes. Teachers of evening school and part-time classes in distributive occupations should be encouraged to spend some time in visiting students at work in order to gather information which will enable such teachers to correlate information given in the classroom with students' work experiences. This is accomplished through observation of work and conferences with employers, managers, superintendents, buyers, and heads of businesses.

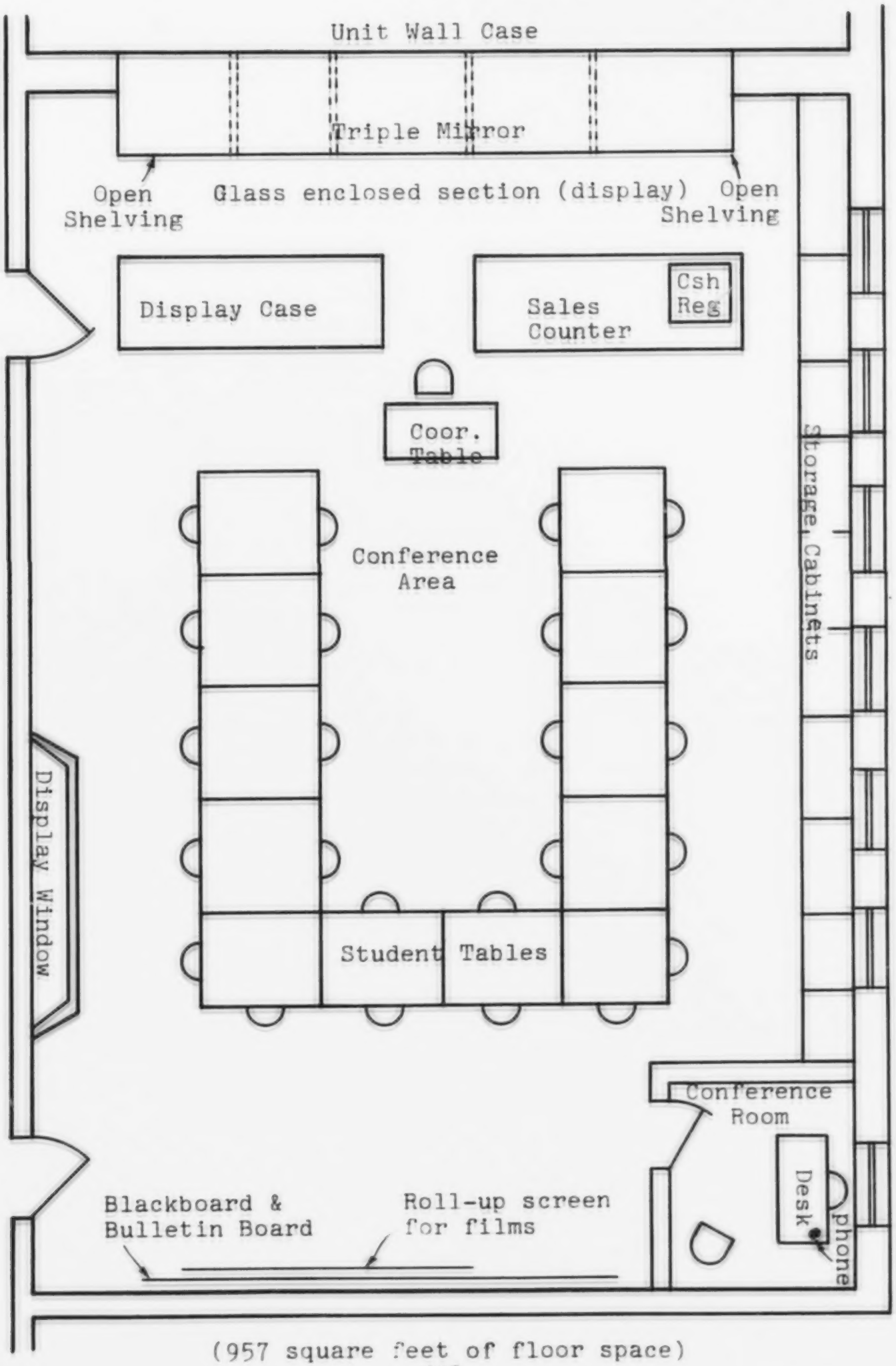
Where six or more evening or part-time distributive classes have been organized in a community, a coordinator or supervisor may be employed. The coordinator of six or more classes will coordinate all of the evening and part-time classes. He will correlate instruction in classes with job requirements and daily work experiences by visits to places of employment for observation and counsel of students; conferences with employees, foremen, managers, owners, and teachers of evening and part-time classes. He will be responsible for the promotion necessary to insure efficient instruction by assisting the instructors in developing courses and course material and in solving problems which tend to hinder progress of the classes. A part of the salary of the coordinator or supervisor will be reimbursed by the State Office.

The job of coordination is an important one. Coordination is too often poorly done or is neglected entirely. Improper coordination may result in failure of an entire program in distributive education. Through proper coordination, a class or program of training may produce the desired results for the employee, the employer, and the school.

APPENDIX A

CLASSROOM LAYOUT FOR D. E.

A CLASSROOM FOR DISTRIBUTIVE EDUCATION



(957 square feet of floor space)

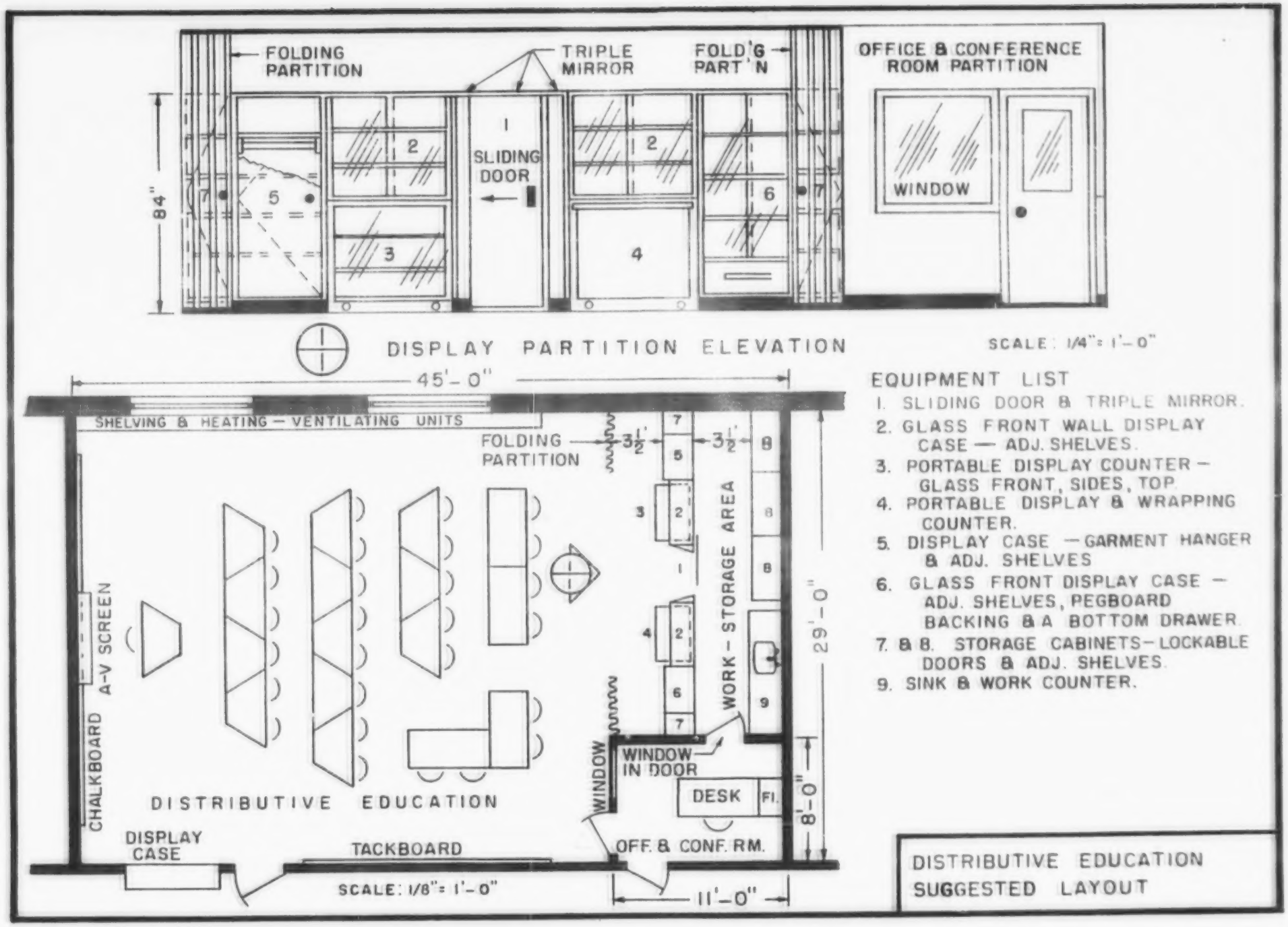


Figure 1: Layout for a high school distributive education department. This single room can be shared with other classes.

APPENDIX B

HIGH SCHOOL FORMS

SUGGESTED SAMPLE LETTER TO EMPLOYERS

Mr. John Doe
Manager, Anytown Grocery
Anytown, Louisiana

Dear Sir:

Vocational subjects have for a number of years been an important part of your public school program. Our high school has offered courses in Vocational Agriculture and Vocational Home Economics for several years and is introducing this year a vocational program, new to this community, which has as its purpose educational training for both boys and girls in the field of distribution and marketing.

The new course is known as the Co-operative D. E. Program. It is a combination of practical training on the job in an approved business establishment and classroom instruction at school. It is the responsibility of the school to give instruction which, in the opinion of the employer, is essential to the proper understanding of the occupation in which the student is training.

Since the program is new to this community, our high school is anxious to enlist the co-operation of our leading business men and is not particularly interested in a large number of student trainees this year; but is more interested in placing a few high type boys and girls in good, sound training situations in establishments which are well regarded in the community. We have a number of students who are seriously interested in preparing themselves for careers in marketing and distribution and they have been carefully screened.

We have employed Miss Sue Jones as coordinator between the business establishment and the high school. She will counsel with the employer and the student and upon request of the business man, will render any assistance possible. Miss Jones has business experience and is an approved vocational instructor in this field.

I am taking the liberty of advising Miss Jones to contact you and discuss the program in detail. We are constantly striving to improve our school and feel that this program will make a contribution. We will appreciate your cooperation and support in this effort to enrich our total school program.

Yours very truly,

Superintendent
Anytown Public School

LOUISIANA
DISTRIBUTIVE EDUCATION COMMUNITY SURVEY

_____
(Town)

_____ _____
(Name of Store) (Type of Store)

_____ _____ _____ _____
(Address) (Phone) (Chain) (Indep.)

_____ _____ _____
(Manager) (Person Interviewed)

Employees	Full	Part
Supervisors		
Salespeople		
Stock		
Other		
Other		

High School Students Employed	
Name	School

How many new employees each year? _____

Have co-op students ever been employed? _____

Days most suitable for adult classes: _____

Suggested teachers for adult classes: _____

_____

_____

COORDINATOR'S SUMMARY

WERE YOU ABLE TO INTEREST THE STORE IN TRAINING? Yes of No		Plan of Action
Coop.		
Adult		
Pre-Emp.		

Training Needs (List actual words of person interviewed.): _____

_____

_____

_____

_____

_____ (Today's Date)

_____ (Your Name)

(SAMPLE)

DISTRIBUTIVE EDUCATION STUDENT SURVEY

_____ High School

_____ Louisiana

Student's Name _____

Present Home Room Teacher _____

I am interested in taking Distributive Education next year.

Yes _____

No _____

I have worked before. Yes _____

No _____

If yes, tell where you have worked and how long.

I will have _____ number of units at the end of this year _____.

My birthday is _____ _____ _____. I am now _____ years old.
Mo. Day Year

I am free at the _____ period.

I have no free period daily _____ .

(SAMPLE)

DISTRIBUTIVE EDUCATION
PERSONAL DATA SHEET

1. Name _____ Address _____
2. Age _____ Birthdate _____ H. R. No._____Teacher_____
3. Telephone_____Social Security No._____Height_____
4. Weight_____Health (Good-Fair-Poor) Recent Illnesses_____
5. Father_____ Employed by_____
6. Mother_____ Employed by_____
7. Grade (now)_____Study Hall(s)_____Teacher(s)_____
8. Would you be available for work this summer?_____
9. Have you ever been employed?_____
10. If so, what type of work?_____
11. Name of business(es)_____
_____
12. Why did you leave?_____
13. What do you plan to do after graduation?_____
14. Reason for this choice_____
15. Do you plan to go to college?_____If so, what major would you follow_____
16. What is your overall grade average this year? A B C D _____
17. How many days have you been absent this year?_____
18. What is your lowest semester grade?_____
19. What subjects, if any, have you failed while in high school?_____
20. What reason can you give for your failures?_____
_____
21. Do you feel you are capable of carrying 3 class subjects, with no study periods and working until 5:30 or 6:00 each day and all day on Saturday?_____
22. Why do you think you would like employment in marketing and distribution?
_____
23. How did you first become interested in D. E.?_____
24. List any honors or awards you've received_____
25. List any club membership and offices held (a)_____
(b)_____
26. The broad field of marketing and distribution includes hundreds of job opportunities. Distributive Education is concerned with occupations in the three major areas of retailing, wholesaling, and the sale of services. List your career interests. Be as specific as possible. (a)_____
(b)_____ (c)_____

Give a brief statement as to your reason for these choices.
(a)_____
(b)_____
(c)_____
27. List three teachers under whom you have studied this year (1)_____
(2)_____ (3)_____

DISTRIBUTIVE EDUCATION TRAINING AGREEMENT

1. If I am accepted and placed for training, I shall attend school one-half of each day and work in a store or other distributive business establishment the other half day. While in school I shall take one period (90 minutes for seniors) of directly related and technical instruction and two periods devoted to subjects required for graduation.
2. I shall be a part-time employee for a minimum of 15 hours a week and my work experience will follow an organized plan developed by the employer and my school.
3. My training will cover a two-year period if I make satisfactory progress. (two years for juniors, one year for seniors)
4. I shall be paid a learner's wage for my job training.
5. My training in school and on the job will be organized and supervised to enable me to advance in my vocation.
6. The program is designed to provide me with specific vocational training to enable me, after graduation, to secure full-time employment in my chosen distributive occupation and to advance in it.
7. My participation in the training program will require me to study hard and work diligently in the afternoons and Saturdays.
8. The credit I earn will apply toward my high school graduation.
9. I shall be eligible for membership in the Distributive Education Clubs of Louisiana. Club work is considered a part of the program.
10. The coordinator will assist students in finding suitable and acceptable employment, but the student will be expected to make reasonable efforts to contact prospective employers as well.
11. Students must be employed on or before the second week in September.
12. I realize that credit will not be granted for one part of D. E. unless my progress in both class and job training meets school standards.
13. My employer-trainer will rate my progress periodically. This rating will serve as a basis for my job training grade.
14. I understand that I shall not change my place of training without first discussing the change with the D. E. coordinator at least 10 days before the anticipated change.
15. I also understand that during slack business periods that D. E. students are to report to the D. E. room for an afternoon study period.
16. The D. E. Trainee is not to work during the afternoon, unless in school that day, without the prior approval of the coordinator. Generally, it is assumed that if students are too ill to come to school, they are too ill to work.
17. The D. E. program is designed to train boys and girls in retail, wholesale, or service businesses they choose as a career.
18. The trainee must be 16 years of age and at least a junior to be eligible.
19. Work permits are required by state law for all students under 18 years of age.
20. A student may earn two credits each year; one for class work and one for job training. At the end of one year a minor is granted; and at the end of two years, a major is granted.
21. While this program is designed for the student who wishes full time employment upon graduation, the credit received meets college entrance requirements.

I understand that the Distributive Education Program is to be conducted in accordance with the above conditions and will do my best to see that these conditions are followed:

Student's Signature _____

Parent or Guardian _____

MY PLEDGE TO THE D. E. PROGRAM

I agree to:

1. Be punctual at all times.

2. Display good work habits at all times.

3. Perform in school and on the job effectively. I understand that failure to do so may result in the loss of credit and employment and assignment to afternoon study period.

4. Work for the best interest of the employer, the D. E. Program, the school and myself.

5. Keep matters of business in strict confidence.

6. Acquaint myself with the store rules, school rules, and policies of the D. E. Program, and make every effort to live up to them.

7. Make up work in all classes when absent, within the time set forth by my teachers.

8. Make the best use of any training material furnished by the company or coordinator.

9. Keep the same work schedule as other employees insofar as school hours will permit (with regard to such things as store meetings, overtime, etc.)

10. Look to the job ahead and prepare myself for promotion.

11. Notify my employer no later than 10:00 a.m. on any day it is impossible to be at work.

12. Secure coordinator's permission to work in afternoons when absent from morning session of school. If at all possible, call should be made from 8:00-8:30 a.m. or the evening before hand.

13. Discuss job difficulties with the coordinator, who in turn will attempt to correct the problem.

14. Not quit a training station without express consent and knowledge of the coordinator.

15. Be careful of my appearance and actions at all times, realizing that everyone with whom I come in contact will know me as a young adult business person. I realize that business people who are sincerely trying to get ahead do not indulge in flashy fad hairdos, clothing, jewelry, and make-up, and that blue jeans and cowboy boots are more appropriately worn to rodeos.

_____

Signature of Student

PARENTAL CONSENT

DISTRIBUTIVE EDUCATION is probably an unfamiliar term, which you first heard when your child announced that he was registered for the class. Perhaps the questions listed below may have occurred to you, and we hope that their answers will give more information about this comparatively new subject in the school curriculum. The program has been growing so steadily that its success is undeniable.

WHAT IS DISTRIBUTIVE EDUCATION? It is practical training, given by both school and store, in the retail, wholesale, and service fields. A student who elects Distributive Education does so because he feels a definite interest in the opportunities offered and is thinking seriously of making a career in one of the three distributive fields.

HOW WILL IT BENEFIT MY CHILD? D. E. is practical because it gives the student first-hand experience in the career which he has chosen even before he graduates from school. He is placed in the type of job for which he has shown special interest and aptitude. At all times he is under the supervision of an experienced, successful training sponsor.

The school gives him individual instruction for his particular job, such as selling, display work, stockkeeping, and customer service. He also participates in group discussion on such topics as buying and merchandising, sales promotion, and personality development. (D. E. clubs provide excellent recreational activities throughout the year.) The teacher-coordinator checks at regular intervals to assure the progress of the student who receives full scholastic credit upon satisfactory completion of the course.

HOW CAN THE HOME HELP? You want your child to succeed, so do we. Let's then work together on the vitally important job of making his progress our mutual concern. You can see to it that he eats an adequate breakfast (he works better with proper food habits), that he gets sufficient rest (too many youngsters go out too often and stay out too late), and that he is properly groomed for school and the job. Boys should cut their hair in short, conservative styles. Levis and blue jeans are not business-like and not permitted. Girls should dress in simple, tailored fashions, skirts and blouses, and stockings. They are specifically requested not to wear sheer, fussy nylon blouses, slipover sweaters, or elaborate jewelry.

Your child must come to school regularly and promptly. He must be present in school in order to go to work in the afternoon. It is his responsibility to notify the store when he is absent. If you will see to it that he observes these simple rules, he will develop the proper work habits and learn to assume responsibilities.

With the hope that this will prove a happy, successful year for your child, I am

Sincerely,

PLEASE SIGN AND RETURN

_____

Parent or Guardian

INTRODUCTION CARD

Distributive Education, _____ High School

_____
Date

To the prospective employer _____

Firm name _____

This will introduce _____ of the Cooperative Distributive Education Program at _____ High School, who is interested in obtaining part-time employment for at least _____ hours per week to supplement the training in distribution received at school.

_____
Teacher-Coordinator

Accepted _____

Not Accepted _____

Comments: _____

_____

_____

_____

DISTRIBUTIVE EDUCATION WORK RECORD

Distributive Education, _____ High School

Student's Name _____

Address _____

Phone _____ Homeroom Teacher and No. _____

Age _____ Height _____ Weight _____

Foreign Language, if any _____

WORK RECORD

Store	Type of Work	Length of Time	Rate Per Hour

CLASS SCHEDULE

	1st Semester				2nd Semester		
	Subject	Teacher	Homeroom		Subject	Teacher	Homeroom
1							
2							
3							
4							
5							
6							

INDIVIDUAL STUDENT WORK RECORD

Distributive Education, _____ High School

Store _____

Address _____

Week Ending	Hours Worked	Amt. Sold	Gross Salary	Selling Cost %	Savings	Week Ending	Hours Worked	Amt. Sold	Gross Salary	Selling Cost %	Savings

DISTRIBUTIVE EDUCATION
IDENTIFICATION CARD

_____ High School

_____ is enrolled in Distributive Education. He has permission to leave school at _____.

Signed _____
Principal

DISTRIBUTIVE EDUCATION
IDENTIFICATION CARD

_____ High School

_____ is enrolled in Distributive Education. He has permission to leave school at _____.

Signed _____
Principal

_____ HIGH SCHOOL

DISTRIBUTIVE EDUCATION ACTIVITY SLIP

(Must be filled out before leaving school when not on job.)

Name _____

Day _____ Date _____

Training Station _____

Reason for not working _____

Activity for afternoon _____

_____

_____

_____

DISTRIBUTIVE EDUCATION DIVISION
RATING OF THE STUDENT ON THE JOB

(SAMPLE)

Student's Name _____ Training Agency _____ Date _____

Rating Key: A-Excellent; B-Above Average; C-Average; D-Below Average; F-Unsatisfactory		GRADES	REMARKS
ATTENDANCE	Compare actual attendance with hours assigned.		
PUNCTUALITY	Consider times late. Do not let reasons influence the estimate.		
GENERAL ATTITUDE	Toward the job, superiors, other employees, the public.		
QUANTITY OF WORK	Compare with other workers of equal age, length of service, and hours on the job.		
QUALITY OF WORK	Compare with other workers of equal age, length of service, and hours on the job.		
APPEARANCE	Compare with standard set by other employees.		
ATTITUDE TOWARD CRITICISM			
PROGRESS			
INITIATIVE			

Comments or suggestions for improvement _____

_____

_____

At present the trainee is being paid $_____ per _____ (hour week).

Signed by _____

(SAMPLE)

LETTER TO COOPERATING MERCHANTS

DISTRIBUTIVE EDUCATION, _____ HIGH SCHOOL

_____ 19 _____

Dear Sir:

I wish to extend to you our thanks for the fine work experience your organization has given the following member or members of the Cooperative Retail Selling Class of _____ High School:

_____

Your excellent cooperation makes it possible for these students to enjoy the advantages of a very practical school-work experience type of program. Such experience will enable these students to smooth out the difficult path of adjustment from the theoretical classroom to the practical working world.

It may be of interest to you to learn that this group of _____ seniors, during the first half year of their training just ended, worked a total of _____ hours and earned wages totaling more than $_____. During this same period each member of the class received _____ hours of related class instruction in distribution.

The rating sheets which you returned have been carefully analyzed and discussed with the class. It is our intent to work with these students so that they may improve the qualities in which they seem lacking.

You are cordially invited to visit with us and observe the work of the group.

Your continued cooperation will be sincerely appreciated.

_____
Coordinator
Distributive Education

Approved by:

_____
Principal

PERMANENT RECORD CARD

Name: _____ Course_____ Date_____

Home Address: _____ Telephone No. _____

Firm Name: _____ Telephone No. _____

Firm Address: _____ City _____

Date of Birth: _____ Height _____ Weight_____ Male, Female

Grade of School Completed: _____ Name of School _____

INSTRUCTIONS

(Forms on pages 130 through 146)

Page 130 (Form C-41) - Department of Labor "Intention to Employ"

These forms are obtained from the Employment Service Division and are a "must" for students under eighteen years of age. It is suggested that students present a copy of this form to the prospective employer, prior to planned employment. After completion the student should take this form, along with a birth certificate, to the school board office and they will issue an "Employment Certificate," which is to be returned to the employer for his files. For the protection of the student and his employer, the coordinator should be certain this procedure is followed.

Page 131 (Form B-41) - "Employment Certificate"

This form, which is kept on file by the employer, is a result of the submission of Form C-14.

It also serves as proof of age under the Federal Wage and Hour Law.

Page 133 (Form WH-205) - "Application for a Certificate to Employ a Student-Learner"

Available from the U. S. Department of Labor, Wage and Hour and Public Contracts Division, 1931 Ninth Avenue, South, Birmingham, Alabama, 35205.

This application is used by firms who are affected by the minimum wage law. It is to be completed only if the employer is interested in paying the student-learner sub-minimum wages, as provided by law for organized and supervised training programs.

This application requires the cooperative effort of the employer and coordinator to complete. However, it is suggested the coordinator take the initiative and follow this action through to completion. This application serves as temporary approval for employment when placed in the mail.

Each coordinator should obtain a copy of the following booklets for reference:

A Guide to Child Labor Provisions of the Fair Labor Standards Act - Bulletin No. 101.

Handy Reference Guide to the Fair Labor Standards Act Publication No. 1122.

Retail and Service Enterprises and Establishments Under the Fair Labor Standards Act - Publication No. 1109.

Page 135 (Form DE 900) - "Distributive Education Cooperative Part-Time Training Memorandum"

This form or some similar written memorandum of the training proposed should be developed by the coordinator in cooperation with the training station.

Page 136 (Form DE 918) - "Class Organization Report - Preparatory and Cooperative Classes"

A copy of this completed form is to be submitted to the school administration, State DE Director, and a copy retained by the coordinator.

Page 137 (Form DE 3408) - "Application for State and/or Federal Aid for Teaching Vocational Education"

Form 3408 is submitted by the local school board as a request for reimbursement for extended service, travel, and supplies.

Page 138 (Form DE 3413) - "Requisition for Special Vocational Funds"

Form 3413 is submitted by the local school board as a request for reimbursement for instructional supplies, equipment, and adult teachers' salaries.

Page 139 (Form DE 904) - "Monthly Report on Coordination"

A copy of this form or a similar report should be submitted periodically to the local school administration.

A completed copy of this form is to be sent to the State Director of Distributive Education each month.

Page 140 (Form DVTE-DE) - "Questionnaire - Follow-up Study"

This is the suggested form for follow-up of the graduates of the preceding year, as required for Federal reporting. It may also be used for follow-up of graduates on a five or ten year basis. Only in this manner can we determine the success of our program.

Page 141 "Summary Sheet for Follow-Up Questionnaire on Distributive Education Graduates"

A copy of this summary of Form DVTE-DE should be submitted to the State Director of Distributive Education annually.

Page 142 (Form DE 920) - "Follow-Up of Graduates of Preparatory and Cooperative Programs"

This form is an annual compilation of the information obtained from the form listed on page 141, and is a part of the Annual Summary Report DE 919.

Page 143 (Form DE 919) - "Distributive Education Summary Report"

An annual report due in the State Office prior to the close of the school year. It serves as an evaluating instrument for the program and gives the State Office the essential information fir State and Federal reports.

STATE OF LOUISIANA
DEPARTMENT OF LABOR
DIVISION OF WOMEN AND CHILDREN

To obtain a vacation work permit or certificate, the minor must bring this form, properly filled, to the parish superintendent of schools of any parish, except in Orleans Parish, to the representative of the Commissioner of Labor. He must also bring a birth certificate. If under 16 years of age the minor must bring a certificate of health signed by a physician.

INTENTION TO EMPLOY

MINORS UNDER 18

(Required under provisions of Act 301 of 1908 as amended)

The certificate or vacation work permit will be denied unless all provisions of Act 301 of 1908, as to hours, type of employment, etc., are complied with.

Employers who employ minors illegally are subject to penalties (fines and/or jail sentences) according to provisions of Act 301 of 1908, if convicted of a violation.

_____ Date _____
(City)

_____
(Parish)

Upon receipt of the employment certificate or the vacation work permit, the undersigned intends to employ:

_____ _____ _____
(Name of Minor) (Address of Minor) (Age)

in the capacity of _____
(Specific Occupation) (Industry)

for _____ days per week; for _____hour per week;_____hours per day beginning_____A.M. and closing _____P.M. with a lunch period of _____, rate of pay to be _____ per hour or _____per day or _____ per week.

_____
(Name of Employer) (Business Address)

_____
(Signature of Employer or Authorized Agent)

This form must be executed and signed by an officer of employing firm.

Form B-41 Rev.

STATE OF LOUISIANA
DEPARTMENT OF LABOR
DIVISION OF WOMEN AND CHILDREN

This certificate does not authorize employment contrary to the provisions of any Federal law.

Parish of_____

City or Town of_____

EMPLOYMENT CERTIFICATE
FOR

Certificate No._____

Date of Issue_____

MINORS 16 AND 17 YEARS OF AGE
ISSUED UNDER THE PROVISIONS OF ACT 301 OF 1908
AS AMENDED

1. Name of Minor_____

   Address_____

2. Age____ 3. Sex_____ 4. Date of birth_____

5. Specify evidence of age accepted_____
   (See reverse side)

6. Name of Employer_____

   Address_____

7. Industry of Employer_____

8. Occupation of Minor_____

Pursuant to the authority vested in me by law, I hereby certify that the above-named minor, until this certificate is cancelled or revoked, is authorized to accept employment as specified above under all the conditions and provisions imposed by the laws of the State and rules and regulations of the Commissioner of Labor of the State of Louisiana.

9. Signature of Minor_____

10. Has minor had an employment certificate before?_____
    (Yes) (No)

Signature of Issuing Officer_____

Title_____

Address_____

This certificate is non-transferable. The employer shall keep the certificate on file while the minor is employed by him and shall return it to the issuing officer within three days after the termination of the minor's employment. See reverse side for hours of employment.

To be issued in triplicate; original to be mailed to employer, duplicate to Division of Women and Children, triplicate for files of issuing officer.

7-20

Notice to Issuing Officer

Require the minor to furnish evidence of age in the following order. Do not accept (2) until you have ascertained that no birth certificate is available nor (3) until you find that neither (1) nor (2) is available.

(1) A birth certificate or transcript thereof.

(2) A baptismal record, a Bible record, a passport, or other documentary proof of age such as insurance policy at least two years old.

(3) A statement of physical age signed by a public health or public school physician accompanied by both a school record or the latest school census record, if obtainable, and a parent's or guardian's affidavit of age.

Specify on front of certificate in line 5 the kind of evidence of age accepted.

Notice to Employer

Under the provisions of the labor laws of Louisiana:

Minors under 18 years of age may not be employed for more than 8 hours a day, 44 hours a week, or six consecutive days in any one week, except that minors 16 to 18 may be employed not more than 10 hours a day and 60 hours a week in the processing of sugar cane or sorghum into sugar, molasses or syrup.

No girl under 18 years of age may be employed after 7:00 P. M. or before 6:00 A. M.; no boy under 18 years of age may be employed after 10:00 P. M. or before 6:00 A. M.

Budget Bureau No. 44-R308.10
Approval Expires June 30, 1968

U. S. DEPARTMENT OF LABOR
Wage and Hour and Public Contracts Divisions
1931 Ninth Avenue South
Birmingham, Alabama 35205

APPLICATION FOR A CERTIFICATE TO EMPLOY A STUDENT-LEARNER

The certification of the appropriate school official on the reverse side of this application shall constitute a temporary authorization for the employment of the named student-learner at less than the statutory minimum wage applicable under Section 6 of the Fair Labor Standards Act of 1938, as amended, or at wages below the applicable Walsh-Healey Public Contracts Act minimum wage determination, effective from the date this application is forwarded to the Divisions until a student-learner certificate is issued or denied by the Administrator or his authorized representative, *provided* the conditions specified in Section 520.6(c)(2) of the Student-learner Regulation (29 CFR 520) are satisfied.

PLEASE READ CAREFULLY THE INSTRUCTIONS FOR COMPLETING THIS FORM
PRINT OR TYPE ALL ANSWERS

1. Name and address of establishment making application:	3A. Name and address of student-learner: 3B. Date of Birth (Month, day, year):
2. Type of business and products manufactured, sold, or services rendered:	4. Name and address of school in which student-learner is enrolled:

Information on school instruction:

5. Number of weeks in school year		11. Are Smith-Hughes Act or George-Barden Act funds being used for this program? (Yes or No)	
6. Total hours of school instruction per week		12. Was this program authorized by the State board for vocational education?	
7. Number of school hours *directly* related to employment training		13. If the answer to item 12 is "No" give the name of the recognized local educational body which has approved this vocational training program:	
8. Proposed beginning date of employment (Month, day, year)			
9. Proposed ending date of employment (Month, day, year)			
10. Proposed graduation date of student-learner (Month, day, year)			

14. Outline the school instruction *directly* related to the employment training. (List courses, etc.)

Form WH-205 (10/63)

ATTACH SEPARATE PAGES IF NECESSARY

Information on employment training at special minimum wages:

15. How is employment training scheduled (weekly, alternate weeks, etc.)?

16. Number of weeks of employment training at special minimum wage

17. Number of hours of employment training a week

18. Special minimum wage(s) to be paid student-learner (if a progressive wage scale is proposed, enter each rate and specify the period during which it will be paid):

19. Title of Student-learner occupation:

20. Number of employees in this establishment

21. Number of experienced employees in student-learner's occupation shown in question 19

22. Minimum hourly wage rate of experienced workers in 21

23. Is an age or employment certificate on file in this establishment for this student-learner? (If not, see instructions)

24. Is it anticipated that the student-learner will be employed in the performance of a Government contract subject to the Walsh-Healey Public Contracts Act?

25. Outline training on-the-job (describe briefly the work process in which the student-learner will be trained and list the types of any machines used).

26. Signature of student-learner:

I have read the statements made above and ask that the requested certificate, authorizing my employment training at special minimum wages and under the conditions stated, be granted by the Administrator or his authorized representative.

(Print or type name of student) *(Signature of Student)* *(Date)*

27. Certification by school official:

I certify that the student named herein will be receiving instruction in an accredited school and will be employed pursuant to a bona fide vocational training program, as defined in section 520.2 of Student-Learner Regulations.

(Print or type name of official)

(Signature of School Official) *(Date)*

Title _____

28. Certification by employer or authorized representative:

I certify, in applying for this special certificate, that all of the foregoing statements are, to the best of my knowledge and belief, true and correct.

(Print or type name of employer or representative)

(Signature of employer or representative) *(Date)*

Title _____

ATTACH SEPARATE SHEETS IF NECESSARY

STATE OF LOUISIANA

DEPARTMENT OF EDUCATION

BATON ROUGE, LOUISIANA

DISTRIBUTIVE EDUCATION SECTION

CO-OPERATIVE PART-TIME TRAINING MEMORANDUM

DE 800 (R 1/66)

EMPLOYER	STUDENT	AGE	BIRTHDATE

LOCAL PUBLIC SCHOOLS	HOURS OF EMPLOYMENT—MONDAY THROUGH FRIDAY No earlier than: No later than:
BEGINNING SALARY ☐ HOUR ☐ WEEK	HOURS OF EMPLOYMENT—WEEKENDS AND HOLIDAYS No earlier than: No later than:

This memorandum of training between the above named student and employer will serve as a plan for training under the co-operative part-time arrangement, and will outline the conditions under which effective training, of great value to both employers and students, may be carried on. The conditions are as follows:

1. The employer should have final selection of those students who are found qualified for work in the occupation, and will assist the school in the training by employing the students on a part-time basis during the full school year.
2. The student agrees to perform diligently and faithfully the work of the occupation throughout the learning period. The parents are asked to provide co-operation and encouragement to the student as he pursues his training program.
3. The employer will assign the student to such positions as are available in the various departments, rotating the student where practicable.
4. The student shall attend school half of each day, and work in the establishment providing job training experience an average of 15 hours during the school week. An experienced employee should be assigned to assist in training if possible.
5. It is understood that the employment of this student will be in accordance with all state and federal labor laws.
6. The student shall be subject to the same rules and regulations as other employees. The co-ordinator should be notified immediately concerning problems related to the student's employment.
7. The co-ordinator will provide instruction related to the work of the students and will correlate the classroom activities with the on-the-job training.

In order to provide well rounded on-the-job training the following experiences will be given the student by the employer:

In order that the school may provide practical related training, the following classroom instruction will be taught by the co-ordinator:

The undersigned fully understand that this training memorandum is intended as a guide to assure a well-rounded training program.

STUDENT	PARENT OR GUARDIAN	
EMPLOYER	CO-ORDINATOR	STATE DIRECTOR, DISTRIBUTIVE EDUCATION

PREPARATORY & CO-OPERATIVE CLASSES
DF 91B

STATE OF LOUISIANA
DEPARTMENT OF EDUCATION
BATON ROUGE, LOUISIANA
DISTRIBUTIVE EDUCATION SECTION

PREPARE IN TRIPLICATE
Copies to: State Director of D. E.
School Principal
Coordinator

Please fill in this form in triplicate for each class and send original to State Office within three weeks after the regular school session starts

SCHOOL

CITY

DATE CLASS STARTED 19

HOURS CLASS MEETS DAILY FROM M TO M

CO-ORDINATOR

☐ DE I (Preparatory) ☐ DE II ☐ DE III

NAME & ADDRESS OF STUDENT (MORE SPACE ON BACK)	GRADE	M	F	AGE	TRAINING	OCCUPATION	TRAINING STATION
Example: MARY DAY 456 Beech Street	12		X	17	Dept. Store	Women's Wear—Sales	P. Bond Co.
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							
11.							
12.							
13.							
14.							
15.							
16.							

SIGNATURE OF CO-ORDINATOR

SIGNATURE OF PRINCIPAL

APPLICATION FOR STATE AND/OR FEDERAL AID FOR TEACHING VOCATIONAL EDUCATION
DE 3408

STATE OF LOUISIANA
DEPARTMENT OF EDUCATION
BATON ROUGE, LOUISIANA

SUBMIT IN TRIPLICATE

To The State Board For Vocational Education

NAME OF SCHOOL	DATE SUBMITTED	FISCAL YEAR

ADDRESS

PARISH

VOCATIONAL PROGRAM
- ☐ AGRICULTURE
- ☐ HOME ECONOMICS
- ☐ GUIDANCE
- ☐ TRADE AND INDUSTRIAL
- ☐ DISTRIBUTIVE
- ☐ BUSINESS EDUCATION

Application is hereby made for financial aid for the teaching of vocational education in the above named school and program. It is agreed that the vocational program will operate in conformity with the Louisiana State Plan for Vocational Education. It is further agreed that the conditions given in Vocational Education Form 2-57 will be observed in the conduct of the vocational program.

ORGANIZATION DATA

NAME OF TEACHER	RACE	NO. MONTHS EMPLOYED	DEGREE HELD	YRS. EXPERIENCE	*PRO RATE TIME VOC SUBJECTS

VOCATIONAL SALARY	TOTAL SALARY	TRAVEL	SUPPLIES
$	$	$	$

TEACHING SCHEDULE OF VOCATIONAL TEACHER

CLASS PERIOD	SUBJECT TAUGHT	LENGTH OF PERIOD (MINUTES)	ENROLLMENT
1st			
2nd			
3rd			
4th			
5th			
6th			

I hereby certify that the above information is true and correct, and is in accordance with the records in the school board office.

(SIGNED) (SUPERINTENDENT)

(To be filled out in the Louisiana State Department of Education)

REIMBURSEMENT

Salary (1) Provided in "Teacher" column of the Minimum Foundation Cost Program	$
(2) To be reimbursed from vocational funds for Extended Service ( ) Months at $ per month	$
Travel	$
Supplies	$
For Other Purposes	$
TOTAL REIMBURSEMENT	$

RECOMMENDED BY (VOCATIONAL DIRECTOR)

APPROVED (ASSISTANT SUPERINTENDENT)

*Compute from teaching schedule

1-57

STATE OF LOUISIANA
DEPARTMENT OF EDUCATION
BATON ROUGE, LOUISIANA

SUBMIT IN QUADRUPLICATE

REQUISITION FOR SPECIAL VOCATIONAL FUNDS
DE 3413

DIRECTIONS: Prepare a separate requisition for each school and vocational program in the school where funds are to be used

For Fiscal Year

SCHOOL | PARISH | DATE SUBMITTED

☐ Agriculture ☐ Home Economics ☐ Distributive ☐ Trade and Industrial ☐ Guidance ☐ Business Education

Capital Outlay

EQUIPMENT (Attach an itemized list of equipment to be giving estimated cost of each item)	$
BUILDING MATERIALS (Attach an itemized list of materials, giving estimated cost of each item)	
OTHER (Attach statement of any other proposed for Capital Outlay)	

Instruction

INSTRUCTIONAL MATERIALS (Attach statement of materials to be purchased with estimated cost)	
SALARIES (Include only salaries of special instructors)	
TRAVEL (Include estimated travel not provided by school for special instructors)	
OPERATION OF BUILDING (Include costs for buildings such as food processing laboratories)	
OTHER (Attach statement justifying any other proposal)	
TOTAL AMOUNT REQUISITIONED	$

Each parish must make plans and thereby encumber its allotment by November 1, and so advise the Assistant Superintendent for Vocational Education, State Department of Education. A detailed statement of the plan for using the funds requisitioned on the reverse side should be made below. This statement should cover the following points: (1) Facilities now available at this school, (2) A description of the training and/or service to be offered by the school, (3) To what extent will the funds provide for the school's needs in this particular phase of vocational education.

(1) Facilities Now Available at This School

(2) Description of the Training and/or Services to be Offered by the School

(3) Extent to Which These Funds Will Provide for the School's Needs for the Further Development of the Particular Program Indicated.

PREPARED (VOCATIONAL TEACHER) | APPROVED (SCHOOL PRINCIPAL) | (PARISH SUPERINTENDENT)

FOR USE IN STATE DEPARTMENT OF EDUCATION

AMOUNT $ | RECOMMENDED (SUPERVISOR) | APPROVED (ASSISTANT SUPERINTENDENT)

MONTHLY REPORT ON CO-ORDINATION

DE 904

STATE OF LOUISIANA

DEPARTMENT OF EDUCATION

BATON ROUGE, LOUISIANA

DISTRIBUTIVE EDUCATION SECTION

This report must be made in triplicate for each class for each calendar month and must be submitted as shown below by the 10th of the month following month reported. Submit original to State Director, duplicate to Principal or Superintendent, triplicate for Teacher's File.

SCHOOL	MONTH	YEAR	FROM	TO

ITEM	TOTALS
1. Number of Contacts Made With Employers	
2. Number of Meetings With Employer and/or Employee Organizations	
3. Number of Co-ordination Contacts With Co-operative Students	
4. Number of Personal Calls on Parents of Students	
5. Number of Co-operative Part-time Students in Classes	
6. Number of Adult Preparatory and/or Supplementary Classes in Operation	
7. Number of Adult Preparatory and/or Supplementary Classes Visited During Month	
8. Number of Conferences With Teachers of Adult Preparatory and/or Supplementary Classes	
9. Number of Advisory Committee Meetings During Month	
10. Grand Total—Hours Spent in Co-ordination During Month	

I certify that this report is correct.	SIGNATURE

(Suggested)
(DVTE-DE)

Questionnaire
Follow-Up Study

INSTRUCTIONS: Please respond to questions as they apply to you. Return completed questionnaire in the enclosed envelope.

Service ____ H.S. ____ P.H.S.

Year of Graduation 19____

Name of Teacher and Institution

From: _____ _____ _____ _____

Name and Address of Student

To: _____ _____ M____ _____ _____ F____

I PRELIMINARY QUESTIONS

Item	Yes	No
1 Are you married?	___	___
2 Are you in the military service?	___	___
(If yes, what is your speciality?		

3 Are you now, or were you enrolled in an institution for further education:
(1) Full-Time_____
(2) Part-Time_____

4 Give name of school or institution

5 What (is) or (was) your major?

6 Degree or certificate received_____
Expect to receive__Data
____Associate Degree
____Baccalaureate
____Certificate ____Other (specify)
____None

7 Have you enrolled for one or more adult vocational education courses or program(s)? _____Yes _____No
(if yes, give name of course(s)

8 What is your present occupational goal (Career objective)

II EMPLOYMENT

Item	Yes	No
1 Are you employed:		
(1) Full-Time_____	___	
(2) Part-Time_____	___	
2 If you are employed, are you seeking employment?	___	

3 Position or job title

4 Kind of Business Employed in
_____Simple unit (Independent)
_____Multi-operating unit (3 or more units)

5 Kind of business (such as department, hardware or food stores, wholesale drugs, real estate, insurance, steel, electronics, State, local, Government, military services, etc.)
(Leave Blank)
(1)_____SIC_____

6 Current salary range per week:
(1)____35-75 (3)_____111-150
(2)____76-110 (4)_____151

7 In the past 12 months, have you been: (Check one or more as applicable)
(1)____Given more responsibility
(2)____Entered a supervisory position
(3)____Entered a management position

8 What do you like most about your present job? (Check one or more):
(1)_____Salary
(2)_____Working Conditions
(3)_____Opportunity to Advance
(4)_____Prestige
(5)_____Other (specify)_____

9 If your present job is not in the field for which your vocational training prepared you, please check reason below:
(1)_____Pay
(2)_____Health
(3)_____Marriage
(4)_____Lack of employment opportunity
(5)_____Entered armed forces
(6)_____Working conditions
(7)_____Other (specify)_____

Note: Please use reverse side for any additional comments.
If the address shown above is not correct, please indicate your present address on the reverse side and check here._____New Address

SUMMARY SHEET FOR FOLLOW-UP QUESTIONNAIRE ON DISTRIBUTIVE EDUCATION GRADUATES

High School_____ Coordinator_____ Class 19__ Number of Graduates M__ F__ TOTAL_____

I Preliminary Questions

1. Number (1)____ Married (2)_____ Male (3)_____ Female
2. Number:_____ In Military Service
3. Number: (1)____ Enrolled in Higher Education
   (2)____ Full-Time (3)____ Part-time
4. List of Schools/Institutions (6 most common)
   (1)_____ (4)_____
   (2)_____ (5)_____
   (3)_____ (6)_____
5. List of Majors (6 most common)
   (1)_____ (4)_____
   (2)_____ (5)_____
   (3)_____ (6)_____

6.a. Number: Highest Level of Education Obtained
   (1)_____ Associate Degree (4)_____ High School
   (2)_____ Certificate (5)_____ Other
   (3)_____ Baccalaureate

6.b. Number: Highest Level of Education Planned
   (1)_____ Associate Degree (4)_____ High School
   (2)_____ Certificate (5)_____ Other
   (3)_____ Baccalaureate

7. Number:_____ Enrolled in Adult (DE) Courses
   Names of courses (6 most common)
   (1)_____ (4)_____
   (2)_____ (5)_____
   (3)_____ (6)_____
8. List of Present Occupational Goals (6 most common)
   (1)_____ (4)_____
   (No.) (No.)
   (2)_____ (5)_____
   (No.) (No.)
   (3)_____ (6)_____
   (No.) (No.)

II Employment

1. (1)_____ Number Employed (2)____ Full-Time (3)__ Part-Time
2. (1)_____ Number Seeking Employment
3. List Job Titles or Positions Held (9 most common)
   (1)_____ (4)_____ (7)_____
   (2)_____ (5)_____ (8)_____
   (3)_____ (6)_____ (9)_____
4. Number in:
   (1)_____ Single Operating Units (Independent)
   (2)_____ Multi-Operating Units (3 or more units)
5. Kind of Business (9 most common SIC's)
   (1)_____ (4)_____ (7)_____
   (2)_____ (5)_____ (8)_____
   (3)_____ (6)_____ (9)_____
6. Current Salary Range (per week)
   (1)_____ $35-$75 (3)_____ $111-$150
   (2)_____ $76-$110 (4)_____ $151+
7. Number Reporting The Following During Last 12 Months
   (1)_____ Given More Responsibility
   (2)_____ Entered A Supervisory Position
   (3)_____ Entered A Management Position
8. Number Reporting What They Liked Most About Their Jobs
   (1)_____ Salary (4)_____ Prestige
   (2)_____ Working Conditions (5)____ Other
   (3)_____ Opportunity
9. Number Leaving Because Of:
   (1)_____ Pay (5)_____ Armed Forces
   (2)_____ Health (6)_____ Working Conditions
   (3)_____ Marriage (7)_____ Other
   (4)_____ Lack of Opportunity
10. Give Number Employed in:
   (1)_____ Occupation Trained For (3)_____ Other
   (2)_____ A Related Occupation (4)_____ Total

STATE OF LOUISIANA

DEPARTMENT OF EDUCATION

BATON ROUGE, LOUISIANA

FOLLOW-UP OF GRADUATES OF PREPARATORY AND COOPERATIVE PROGRAMS

(Smith-Hughes, George-Barden)

DE 920

CHECK APPROPRIATE BOX. USE SEPARATE FORM FOR EACH	SIGNATURE OF STATE DIRECTOR	DATE	FISCAL YEAR ENDING
☐ SECONDARY ☐ POST-SECONDARY			JUNE 30, 19

PROGRAMS IN VOCATIONAL EDUCATION	SEX	TOTAL NUMBER COMPLETED AND/OR GRADUATED AS OF JUNE 30	REPORT DATA AS OF OCTOBER 1 OF THE CURRENT YEAR											
			NUMBER NOT PRESENTLY AVAILABLE FOR PLACEMENT			EMPLOYED/ AVAILABLE*	NUMBER OBTAINING FULL-TIME JOBS				NO. EMPLOYED PART-TIME	NO. UNEMPLOYED	NO. STATUS UNKNOWN
			ENTERED ARMED FORCES	CONTINUED FULL-TIME SCHOOL	ALL OTHER REASONS		IN OCCUPATION FOR WHICH TRAINED	IN FIELD RELATED TO TRAINING	IN FIELD NOT RELATED TO TRAINING	TOTAL NUMBER OBTAINING FULL-TIME JOBS**			
DISTRIBUTION	Male												
	Female												
TOTAL													
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)

*Add Columns 4, 5 & 6 and subtract from Column 3.

**Columns 8, 9 & 10.

NOTE:

Column 3—Enter the total number of students who graduated or satisfactorily completed a prescribed program of study during the school year.

Columns 11, 12, 13, and 14 should equal total of Column 7.

Column 12—Do not report here students reported in Column 5 who are working part time.

DISTRIBUTIVE EDUCATION SUMMARY REPORT
DE 919

STATE OF LOUISIANA
DEPARTMENT OF EDUCATION
BATON ROUGE
DIVISION OF VOCATIONAL EDUCATION
DISTRIBUTIVE EDUCATION SECTION

SCHOOL	COORDINATOR	SESSION

I. Survey of Activities in Part-Time Cooperative Program

A. ENROLLMENT IN CLASSES

	MALE	FEMALE
1. Total number of students in cooperative program during year		
2. Total number of students counselled during year		
3. Anticipated enrollment next school year		
4. Other school courses taught:		

B. ACTIVITIES OTHER THAN DISTRIBUTIVE EDUCATION FOR WHICH YOU ARE RESPONSIBLE. (Sponsorship of clubs, faculty committee, general school activities, etc. Estimate number of hours a week spent in these activities.)

C. METHODS USED TO ENABLE EMPLOYERS TO PASS ON QUALIFICATIONS OF STUDENTS

☐ INTERVIEW BLANKS ☐ ADVISORY COMMITTEE ☐ PRINCIPAL'S RECOMMENDATION ☐ COUNSELOR'S RECOMMENDATION ☐ STUDENT'S APPLICATION ☐ OTHERS LIST BELOW

D. HOURS WORKED BY STUDENTS

USUAL HOURS	DAILY SCHEDULE (E.G. 1:00–5:00)	HOURS WORKED PER WEEK		
		MINIMUM	MAXIMUM	AVERAGE

E. COORDINATION OF ON-JOB TRAINING TO INSTRUCTIONAL PROGRAM

1. Average No. Hours Week Spent in Visitation

2. Plan used in intergrating work of students with your course

3. Plan used in visiting students on-the-job. Describe specifically what you do on store visits.

F. OTHER SPECIAL ACTIVITIES FOR YOUR GROUP THIS YEAR (List) (Field Trips, Club Activities, Etc.)

G. VISITS TO PARENTS	NUMBER OF HOMES OF STUDENTS VISITED THIS YEAR	HOW OFTEN

H. WHAT WAYS DO YOU USE TO ACQUAINT YOUR PRINCIPAL AND FACULTY WITH PROGRAM

What forms of publicity or means of public relations have been used this year

✓	METHOD	EFFECTIVENESS	✓	METHOD	EFFECTIVENESS
	Newspaper			Letters	
	Radio			Style Shows	
	School Paper				
	Talks Before Clubs and Association				
	Skits by Students				

I. WHAT SPECIAL PROBLEMS HAVE YOU FACED THIS YEAR? (Be Specific)

J. WHAT INSTRUCTIONAL AIDS OR MATERIALS DO YOU NEED TO MAKE YOUR PROGRAM MORE EFFECTIVE?

K. ADVISORY COMMITTEE (Current Year)

NAME	POSITION	FIRM AND ADDRESS

L. ADVISORY COMMITTEE (Next Year)

NAME	POSITION	FIRM AND ADDRESS

II. Survey of Activities in the Adult Phases of the Distributive Education Program

A. ENROLLMENT IN EXTENSION CLASSES FOR WORKERS IN DISTRIBUTIVE OCCUPATIONS	MALE	FEMALE	TOTAL
1. Daytime (Part-Time) in Store			
2. Evening Adult			
3. Pre-Employment			
4. Clinics			

B. SUBJECTS OFFERED IN ADULT PROGRAM

NAME OF COURSE OFFERED DURING YEAR	NO. TIMES OFFERED

C. LIST, IN ORDER OF EFFECTIVENESS, THE TYPE OF PUBLICITY USED IN PROMOTING THE ADULT PROGRAM

D. WHAT PLANS HAVE YOU FOR AN ADULT PROGRAM NEXT YEAR

REPORT ON COOPERATIVE PART-TIME DISTRIBUTIVE EDUCATION PROGRAM

NAME OF STUDENT	*TYPE OF TRAINING ESTABLISH-MENT	AVG. HRS WKD PER WK	TOTAL HRS. WORKED IN SCHOOL YR.	AVG. HOURLY EARN-INGS	TOTAL EARNINGS YEARLY	CHECK IF GRADUATE THIS YR.	CHECK IF WILL CONT IN ESTAB.

NAME OF STUDENT	*TYPE OF TRAINING ESTABLISH-MENT	AVG HRS WKD PER WK	TOTAL HRS WORKED IN SCHOOL YR.	AVG. HOURLY EARN-INGS	TOTAL EARNINGS YEARLY	CHECK IF GRADUATE THIS YR.	CHECK IF WILL CONT IN ESTAB

COOPERATIVE PART-TIME TRAINING STATIONS AND NUMBER OF STUDENTS

CODE	TYPE OF BUSINESS	BOYS	GIRLS	TOTAL	CODE	TYPE OF BUSINESS	BOYS	GIRLS	TOTAL
55	Auto Supply (Retail)				72	Laundry and Cleaning			
501	Auto Supply (Wholesale)				59	Luggage			
54	Bakery				52	Lumber and Bldg. Materials			
60	Banking				508	Machinery Equipment (Wholesale)			
59	Book Store				59	Mail Order Houses			
48	Communication Services				56	Men's Wear			
61	Credit Agencies				56	Millinery			
504	Dairy Products				509	Miscellaneous Wholesale			
53	Dept. Store				57	Music Stores			
53	a. Selling				52	Paint and Wallpaper			
53	b. Non-Selling				59	Photo Supplies, Studio			
53	c. Advertising or Display				65	Real Estate			
59	Direct Selling				56	Shoe Store			
59	Drugstore (Retail)				59	Sporting Goods			
502	Drug Supplies (Wholesale)				59	Stationery and Office Supplies			
53	Dry Goods and General				47	Transportation Services			
58	Eating Establishments				53	Variety			
57	Electrical Goods (Retail)				56	Women's Wear			
52	Farm Implementation and Tractors								
59	Feed and Seed Store					Others			
59	Florists								
54	Fruits and Vegetables								
509	Fuel (Wholesale Gas and Oil)								
57	Furniture								
59	Gas (Butane or Natural)								
55	Gasoline Service Stations								
59	Gift Shop								
54	Grocery (Retail)								
504	Grocery (Wholesale)								
52	Hardware (Retail)								
507	Hardware (Wholesale)					TOTAL TRAINEES			
64	Insurance					TOTAL CHAIN			
59	Jewelry					TOTAL INDEPENDENT			

APPENDIX C

ADULT EDUCATION FORMS

CHECKLIST FOR ORGANIZING A COURSE IN ADULT VOCATIONAL EDUCATION

A. Preliminary Decisions	3 Mos.	2 Mos.	1 Mo.	2 Wks.	Last Min.	Actual Date
1. Determine need for the course in community (survey)						
2. Decide on the course						
3. Gather background materials for course						
4. Write preliminary schedule						
a. Dates						
b. Location of classes						
c. Hours of class						
5. Outline suggested units of instruction						
6. Appoint a special advisory committee						
7. Call first advisory committee meeting (written notice)						
B. Advisory Committee Decisions:						
8. Present course outline for consideration, suggestion, and approval						
9. Get approval on:						
a. Dates and length of course						
b. Units of instruction						
c. Location of class						
d. Certificates of completion						
e. Hours of class time						
10. Get suggestions on:						
a. Instructors and speakers						
b. Curriculum						
c. Promotion (brochures, letters, etc.)						

	3 Mos.	2 Mos.	1 Mo.	2 Wks.	Last Min.	Actual Date
d. Registration fee (check school policy)						
e. Graduation dinner						
11. Possible follow-up course						
C. Administrative duties						
12. Employ instructors suggested by advisory committee						
13. Contact speakers suggested by advisory committee						
14. Prepare brochure or letters for printing						
15. Order text materials and visual aids						
16. Form-approval to operate a vocational class						
17. Application for vocational teachers certificates						
18. Instructor fees						
19. Send list of instructors through the administration to the school board for approval						
20. Contact instructors or speakers second time to confirm dates, availability, materials, etc.						
21. Prepare certificates with proper signatures, etc.						
22. Make arrangements for graduation dinner (if used)						
23. Follow-up on additional continuing courses						
24. Arrange enrollment procedure						
D. Service to Instructors:						
25. Duplicate any materials for instructors or speakers						

	3 Mos.	2 Mos.	1 Mo.	2 Wks.	Last Min.	Actual Date
26. Teacher training:						
a. Give teaching aids and materials to instructors						
b. Attendance procedures						
c. Present booklet for adult instructors						
d. Review school standards and policies						
e. How to use audiovisual materials available						
E. Course Promotion:						
27. Second advisory committee for promotion						
28. First mailing of brochure or letters						
29. First news release to local paper						
30. Taped personal interviews for radio						
31. 10. 20, 30, and 60 second spots prepared for radio						
32. News release to associations, trade journals, magazines, etc.						
33. Local advertisers contacted for available advertising space						
34. Contact news commentators and announcers						
35. Talk before related organizations and clubs						
36. News release on each instructor or speaker						
F. During Class Operation:						
37. Introduce instructor at first class						
38. Explain school regulations and class procedures						

	3 Mos.	2 Mos.	1 Mo.	2 Wks.	Last Min.	Actual Date
39. Have members of class evaluate the course (not the instructor)						
40. Have prominent person hand out certificates						
G. Post-Class Responsibilities:						
41. Notes on course for annual descriptive report						
42. Form - request for reimbursement						
43. Final attendance report						
44. Payroll report						
45. Make final report on course to school board and advisory committee						
46. Plan and schedule follow-up courses.						

Kenneth Ertel
Teacher-Educator
Distributive Education
University of Idaho

Developed by Dale Arnesen, Olympia High School, Olympia, Wash., and Kenneth Ertel, University of Idaho.

LOUISIANA STATE DEPARTMENT OF EDUCATION
DISTRIBUTIVE EDUCATION SECTION
BATON ROUGE

ADVANCE ENROLLMENT FOR ADULT CLASSES

Name of Firm _____

Name of Course _____ Offered by _____

Please enroll the following people
from this organization in this course:

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

STATE OF LOUISIANA

DEPARTMENT OF EDUCATION

BATON ROUGE, LOUISIANA

TRADE & INDUSTRIAL EDUCATION

APPLICATION FOR AUTHORIZATION

C 1907

Prepare 3 Copies
Send 2 Copies To
Dept. of Education
Retain 1 Copy for Your Files

NAME OF APPLICANT (SCHOOL BOARD, VOCATIONAL SCHOOL OR INDIVIDUAL)

The above named applicant hereby signifies the desire to operate classes listed below, in conformity with the state plan for Vocational Education.

TYPE

☐ George Barden Title III Preparatory ☐ George Barden Title III Evening ☐ Vocational or Industrial Preparatory ☐ Vocational or Industrial Evening

NAME OF TEACHER	SUBJECTS	TOT. HRS. (EVENING ONLY)	TOTAL SALARY	% THIS COURSE	SALARY THIS COURSE	TRAVEL ALLOW-ANCE	OTHER ALLOW-ABLES	DATE CLASS BEGINS
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
TOTALS								

INDICATE SCHEDULE FOR EVENING CLASSES ONLY

SUBJECT	1	2	3	4	5	6	7	8
DAYS OF WEEK (Circle Days)	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F	M T W T F
HOURS	From: To:	From: To:	From: To:	From: To:	From: To:	From: To:	From: To:	From: To:

SIGNED

TITLE

FOR

ADDRESS

To Be Filled In By Dept. of Education

PURPOSE

REPORT SECTION

REIMBURSEMENT

	(1) FEDERAL	(2) STATE	(3) TOTAL (1+2)	(4) LOCAL	(5) TOTAL (3+4)
Salary					
Travel					
Other Allowables					
TOTAL					

APPROVED

ASSISTANT SUPERINTENDENT FOR VOCATIONAL EDUCATION

STATE DIRECTOR TRADE AND INDUSTRIAL EDUCATION

DATE

DATE

STATE OF LOUISIANA

DEPARTMENT OF EDUCATION

BATON ROUGE, LOUISIANA

DISTRIBUTIVE EDUCATION DIVISION

STATEMENT OF QUALIFICATIONS FOR PART TIME AND EVENING SCHOOL TEACHERS

DE 921

NAME		BIRTH DATE	RACE	SEX	MARITAL STATUS
ADDRESS	PHONE NO.	PHYSICAL DEFECTS			
CITY & STATE		SUBJECT YOU WISH TO TEACH			

EDUCATION

NAME OF COLLEGE	YEARS ATTENDED	DEGREE	DATES ATTENDED	MAJOR
NAME OF HIGH SCHOOL	**YEARS ATTENDED**	**DEGREE**	**DATES ATTENDED**	**MAJOR**

OTHER PROFESSIONAL TRAINING

FULL TIME WORK EXPERIENCE (Other Than Teaching)

DATES OF EMPLOYMENT		TITLE OF YOUR POSITION	MONTHLY COMPENSATION	NAME, ADDRESS, AND BUSINESS OF EMPLOYER
FROM	TO			

TEACHING EXPERIENCE (School or Business)

COURSES TAUGHT	DATE	LOCATION	OFFICIAL IN CHARGE OF SCHOOL

OF WHAT PROFESSIONAL ORGANIZATIONS ARE YOU A MEMBER?

I certify that the foregoing statements are, to the best of my knowledge and belief, true and correct.

SIGNATURE OF APPLICANT

REFERENCES

NAME	POSITION	ADDRESS

LOCAL DIRECTOR OR SUPT. OF SCHOOLS	STATE SUPERVISOR OF DISTRIBUTIVE ED.

STATE OF LOUISIANA

DEPARTMENT OF EDUCATION

BATON ROUGE, LOUISIANA

DISTRIBUTIVE EDUCATION SECTION

ORGANIZATION REPORT AND ROLL
ADULT DISTRIBUTIVE EDUCATION CLASSES

DE 907

This form to be filled in for each adult preparatory or supplementary class. One copy to the Director of Vocational School or Parish School Board, one copy to the State Director of Distributive Education.

COURSE TITLE	RELATED TO	KIND OF CLASS	MEETING PLACE

DATE STARTED	DATE CLOSED	MEETING DAYS	HOURS FROM M	TO M	NO. OF STUDENTS MALE	FEMALE	INSTRUCTOR'S NAME AND ADDRESS

	NAME	M	F	POSITION	EMPLOYER										
1.															
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															
11.															
12.															
13.															
14.															
15.															
16.															
17.															
18.															

STATE OF LOUISIANA

Department of Education

DISTRIBUTIVE EDUCATION DIVISION

This is to Certify that _____

has satisfactorily completed _____ *hours of instruction*

in _____ *conducted by*

SOUTH LOUISIANA TRADE SCHOOL, HOUMA, LOUISIANA

and in testimony thereof is awarded this

CERTIFICATE

signed and sealed this _____ *day of* _____, *19*___

STATE OF LOUISIANA

_____ DIRECTOR

_____ INSTRUCTOR

SAMPLE

© 60E3 460 41

LITHO IN U.S.A.

APPENDIX D

GLOSSARY OF D. E. TERMS

GLOSSARY

1. **Advancement Curriculums** - A series of short units or courses for employed adults, emphasizing marketing functions that enrich current employment qualifications or are necessary to qualify for a specific level of job opportunity: sometimes referred to as diploma programs or packaged courses for supplementary instruction.

2. **Areas of Instruction** - Classification of instructional areas in the preparatory curriculum identified with competencies needed in distributive employment: marketing, product or service technology, social skills, applied mathematics and English and economic understandings.

3. **Basic Job Curriculums** - Types of curriculums which prepare students for elementary or basic distributive occupations, involving minimal employment responsibility, and emphasize fundamental techniques in sales and sales-supporting services, simple marketing concepts, qualifying social competencies, and basic skills in computations and communications.

4. **Career Development Job Curriculums** - Types of curriculums which prepare students for career development jobs, involving competencies and responsibilities necessary for self-direction, and emphasize the functions of marketing, merchandising, and management within the discipline of distribution.

5. **Club Activities** - Program of work of the Distributive Education Clubs of America which provide opportunities to demonstrate and to refine the competencies required in employment.

6. **Control Class** - An arrangement for group instruction in which enrollment is limited to students having an occupational objective appropriate to the purposes of instruction.

7. **Cooperative Method** - Coordination of classroom instruction with a series of on-the-job learning experiences related to each student's occupational objective.

8. Cooperative Plan - Organizational pattern for preparatory instruction in which regularly scheduled part-time employment gives students an opportunity to experience theory in practice while developing competencies through training on a job related to their distributive occupational objectives.

9. Cooperative Training - Learning experiences encountered in on-the-job instruction and application during regular part-time employment.

10. Coordination - The process of combining administrative, organizational and instructional activities to the end that student-trainees receive realistic occupational training.

11. DECA - Distributive Education Clubs of America, a youth organization providing a program of work which complements and enriches distributive curriculums.

12. Distribution - The second step in a series of economic processes which bring goods and services from those who make them to those who use them; includes all the methods by which goods are sent from producers to consumers; may be used synonymously with marketing.

13. Distributive Education - A program of vocational instruction in marketing, merchandising and related management, designed to meet the needs of persons who have entered or are preparing to enter a distributive occupation or an occupation in which a distributive function appears; includes preparatory and supplementary instruction.

14. Distributive Occupation - An occupation that is followed by proprietors, managers, or employees engaged primarily in marketing or merchandising of goods or services. These occupations are commonly found in various business establishments, such as retailing, wholesaling, manufacturing, storing, transporting, financing, and risk bearing.

15. Marketing - The performance of business activities directed toward and incident to the flow of goods and services from producer to consumer or user; may be used synonymously with distribution.

16. Non-graded Class - A class available to eligible students regardless of their grade level.

17. Occupational Mix - The combination of occupational competencies representative of two or more traditional vocational services.

18. Occupational Objective - A specific recognized occupation or cluster of closely related occupations in distribution, selected by the student, the attainment of which is the purpose for his vocational instruction in distribution and marketing.

19. Preparatory Instruction - Pre-employment instruction in distribution and marketing generally provided on a full-time basis to prepare youth and adults for distributive employment; may be organized under the cooperative or project plans.

20. Project - Any individually designed learning activity that has a behavioral objective related to an individual's distributive occupational goal and is to be accomplished in a specified length of time; an independent activity completed in a laboratory environment.

21. Project Method - Coordination of classroom instruction with a series of individually designed learning activities or projects related to each student's occupational objective.

22. Project Plan - Organizational pattern for preparatory instruction which involves a regularly scheduled series of individually designed learning activities that give students an opportunity to apply theory in practice while developing competencies through projects related to their distributive occupational objectives.

23. Project Training - Learning experiences encountered in the project laboratory environment and applicable to individual occupational goals.

24. Specialist Job Curriculums - Types of curriculums which prepare students for distributive specializations in functions product areas, or service fields involving leadership competencies and management responsibilities in relation to personnel, profits, and merchandise or service.

25. Supplementary Instruction - Vocational instruction in distribution and marketing generally provided on a part-time basis for employed adults wishing to refresh, update, or upgrade competencies needed in their employment and for those seeking new and specialized competencies necessary to continuing employment or advancement in responsibility; includes updating courses and advancement curriculums.

26. Teacher-Coordinator - A member of the school staff who teaches distributive and related subject matter to students preparing for employment, coordinates classroom instruction with on-the-job training or individually designed learning activities and is responsible for administering the distributive program, including the sponsorship of the local chapter of the Distributive Education Clubs of America.

27. Updating Courses - Supplementary instruction emphasizing current practices in the employment situation of adults; courses may be part of an advancement curriculum but usually are more limited in purpose; units of instruction are of a length appropriate to part-time study.

APPENDIX E

BIBLIOGRAPHY

BIBLIOGRAPHY

Books

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Distributive Education Division Special Committee Report. Evaluative Criteria for Distributive Vocational Education. Washington, D.C.: American Vocational Association, 1954.

Education for a Changing World of Work. Washington, D.C.: U. S. Government Printing Office, 1963.

Facts You Should Know About Distributive Education. Washington, D.C.: American Vocational Association.

Hawkins, Layton S., et. al. Development of Vocational Education. Chicago: American Technical Society, 1951.

Lanham, Frank W. and Ray W. Arensman. Business Education Meets the Challenges of Change. Washington, D.C.: National Business Education Association, 1966.

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Venn, Grant. Man, Education, and Work. Washington, D.C.: American Council on Education, 1964.

SUPPLEMENTARY CLASSROOM MATERIALS

American Vocational Association, 1025 Fifteenth Street, N.W., Washington, D.C. 20005.

Area Vocational Education Program	$ .50
Challenge of Guidance to Vocational Education	.25
Definitions of Terms in Vocational, Technical and Practical Arts Education	.30
Developing Educational Specifications for Vocational and Practical Arts Facilities	1.00
Facts You Should Know (Series)	Free

"Distributive Education"
"Occupational Distribution: A Factor in Educational Planning"
"New Developments and Their Impacts on Trade and Industrial Education"
"Agricultural Education in the Public Schools"
"Sound Public Education"
"Labor and Vocational Education"

Salary Incentives for Teachers of Distributive and Industrial Education	$ .10
School Administrators and Vocational Education	.35
A Tale of Two Teachers	.15
Administration of Vocational Education at State and Local Levels	.30
Vocational Advisory Committees	.30
Vocational Education Act of 1963: A Case Study in Legislation	1.50
Vocational Education for American Youth	.15
What Makes Education Vocational	.15
Your Public Relations	

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Distributive Education Training Opportunities in Outside Selling. (D. E. Series No. 24.) .15

Distributive Education Organization and Administration (Vocational Education Bulletin No. 211.)

Guide for Part-time Instructors (D. E. Series No. 21.)

Selection and Training of Part-time Instructors (D. E. Series No. 20.)

Study of Curriculum Development in the High School Cooperative Program (D. E. Series No. 28.)

Supervision to Improve Instruction (D. E. Series No. 21.)

501 of 148

VT 002 318

VT 002 318 ED 011 562

Review and Synthesis of Research in Agricultural Education.

Warmbrod, J. Robert * Phipps, Lloyd J.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

Aug66

EDRS Price MF-$0.27 HC-$6.20 155p.

*AGRICULTURAL EDUCATION, *EDUCATIONAL RESEARCH, *BIBLIOGRAPHIES, *LITERATURE REVIEWS, TECHNICAL EDUCATION, EDUCATIONAL OBJECTIVES, EMPLOYMENT OPPORTUNITIES, CURRICULUM DEVELOPMENT, TEACHING METHODS, LEARNING PROCESSES, TEACHER EDUCATION, EDUCATIONAL FACILITIES, EDUCATIONAL NEEDS, EDUCATIONAL PROGRAMS, EDUCATIONAL TRENDS, SUPERVISED FARM PRACTICE, STUDENT CHARACTERISTICS, VOCATIONAL AGRICULTURE TEACHERS, PROGRAM EVALUATION, DISADVANTAGED YOUTH,

AGRICULTURAL OCCUPATIONS, EDUCATIONAL ADMINISTRATION,

Over 400 studies were considered in preparing this report on agricultural education research conclusions, trends, methodology and needs. Though emergence of correlational and experimental research is evident, research in agricultural education has been largely descriptive. Weaknesses in probability sampling and survey techniques have been evident, especially relative to nonresponse. Implementation of findings remains a major problem, though pilot programs, popularized reports, and coordinated approaches hold promise of alleviating the problem. Individual graduate research studies have been most prevalent and these have been limited by short duration and have lacked cumulative effects and chances of implementation. Coordinated studies have been conducted on employment opportunities and needed competencies. The current research reflects new developments and interest in curriculum, post high school technical education, supervised experience, innovations, evaluation, and personnel roles. Conclusions and further needs were identified in these and several other areas including -- (1) instructional materials, (2) teaching and learning, (3) student organizations, (4) general agriculture, (5) personnel preparation, (6) administration and supervision, and (7) research design. (JM)

ED015348

VT 002318

Review and Synthesis of Research in

AGRICULTURAL EDUCATION

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
The Ohio State University
980 Kinnear Rd.
Columbus, Ohio 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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REVIEW AND SYNTHESIS OF RESEARCH IN AGRICULTURAL EDUCATION.

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INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Agricultural Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of agricultural education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings

generated by funds available through Section 4(c) of PL 88-210. Admittedly, the authors had problems in securing all available material, but nevertheless, in our judgment, they have done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Business and Office Education; Distributive Education; Home Economics Education; Industrial Arts Education; Technical Education; Trade and Industrial Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to J. Robert Warmbrod and Lloyd J. Phipps for their scholarship and efforts in providing the profession with this new benchmark and perspective on research in agricultural education. Recognition should be given to Dr. Gene Love, Associate Professor, Agricultural Education, Pennsylvania State University, University Park, Pennsylvania, for his critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. James W. Hensel, Specialist in Agricultural Education, at The Center, for his review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

PREFACE

A primary purpose of this review and synthesis of research is to indicate the state of research in agricultural education. The report is prepared primarily for persons interested in further research and development in agricultural education. Some generalizations and conclusions warranted by the research are indicated; emerging trends which research portends are noted; the methodology of research in agricultural education is examined; and some areas of need for research in agricultural education are identified. More than four hundred studies conducted during the past five years were considered in preparing the report.

"Agricultural education," for the purpose of this review and synthesis of research, was defined as public school education in agriculture. Research pertaining to agricultural instruction in elementary, secondary, and post-high school institutions was considered. Excluded was research which had as its main focus programs of agricultural education in institutions of higher education which lead to baccalaureate or advanced degrees and research relating to programs of agricultural education which are not conducted through the public school system; for example, extension education in agriculture. Also excluded were studies conducted in the United States that pertained to agricultural education in other countries.

Additional criteria were established for selecting materials for review. Generally, research reported prior to 1960 was not cited. Exceptions to this criterion were made when studies which appeared prior to 1960 were particularly relevant and significant to research reported during the first half of the present decade. Highest priority was given to those studies which due to design, findings, or conclusions have implications of wide applicability. By and large, studies which pertain to a local community or a local school district were excluded from the review.

Materials reviewed in this report were obtained from colleges and universities, state departments of education, professional journals, and other publications reporting research in agricultural education. Preference was given to materials that are available to the researcher through libraries or other sources.

These are significant times for research in agricultural education. The influence of state and federal appropriations earmarked for research and development in vocational education is beginning to be identifiable. A noteworthy impetus to research in agricultural education is the establishment of regional and national centers which have as their purposes the stimulation and coordination of research and the dissemination and implementation of research findings. It is hoped that this review and synthesis of research in agricultural education will provide the benchmark against which these new dimensions can be appraised.

The assistance of Daniel E. Vogler and Vincente Quiton, graduate assistants in the Agricultural Education Division, University of Illinois, in the preparation of this report is appreciatively acknowledged.

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Lloyd J. Phipps

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PHILOSOPHY AND OBJECTIVES

During the first half of the present decade, the philosophy and objectives of agricultural education have undergone significant re-examination and revision. This refocusing and enlargement of purpose has been paralleled only by the alteration of the objectives of agricultural education which occurred during the historic period preceding and immediately following the enactment of the Smith-Hughes Act in 1917. The emphasis of public school education in agriculture has shifted during the past five years away from a program with the stated aim of proficiency for those who have entered upon or are preparing to enter upon the work of the farm or the farm home. Emerging programs emphasize, in addition to preparation and advancement in any occupation involving knowledge and skill in agriculture, the concomitant objectives of occupational exploration, guidance and counseling, and the development of abilities essential for effective citizenship. Just as the Smith-Hughes Act inaugurated a period which accentuated the education of present and prospective farmers as the primary aim of agricultural education in the public schools, the enactment of Public Law 88-210, the Vocational Education Act of 1963, launched a stage of agricultural education during which broadened and revised objectives are being stressed.

Warmbrod (1962) cited data which indicated that agriculture was taught in the public schools prior to 1917 primarily as an

informational or general education subject. Few schools offered agriculture for vocational purposes--that is, preparation for farming. Reports of the Federal Board for Vocational Education were quoted which claimed as outstanding advances of the federally-aided program of vocational education that the trend in high school instruction in agriculture had been definitely turned toward vocational efficiency and that agriculture as an informational and cultural subject had almost entirely disappeared from the curriculum of the high school. Reviewing research some 30 years later, Hamlin and Deyoe (1950) identified one of the principal trends in public school education in agriculture as the development of vocational courses and the gradual reduction of courses which were not vocational in purpose. The trend was attributed primarily to the fact that federal financial assistance was extended to vocational courses only.

From time to time formal pronouncements of the objectives of vocational education in agriculture have been made. The first of these reports, issued by the Federal Board for Vocational Education (1931), proclaimed that the primary aim of vocational education in agriculture was to train present and prospective farmers for proficiency in farming. Subsequent editions of the publication issued by the U.S. Office of Education (1940, 1955) reaffirmed this position but asserted that a statement of the aims and objectives of vocational education in agriculture must be in harmony with and support the general objectives and philosophy of public school education. Hamlin (1962) argued that the objectives of vocational education in agriculture which were promulgated in the U.S. Office of Education publications should not be construed to be the guiding purposes of the

total program of agricultural education in the school system. Hamlin contended that the objectives indicated clearly that vocational education in agriculture is a specialized kind of agricultural education and that the list of objectives has led to an over-simplification of public school education in agriculture by its restriction to programs with vocational purposes.

Reviewers of research in agricultural education have reported varying conclusions pertaining to the evolution of thought concerning the philosophy and objectives of agricultural education. Smith (1944) proposed that the desired outcome of instruction in vocational agriculture was the establishment of pupils in farming vocations. Sledge (1960) concluded that the aims and objectives of agricultural education had undergone little revision from their first conception. However, he reported research in agricultural education which indicated that controversy existed as to whether or not the aim should be broadened beyond training for farming to include selected agricultural and business occupations. Phipps' (1956) review of research indicated that midway through the last decade professional workers in agricultural education had begun to re-examine the objectives of vocational education in agriculture. His review stated that teacher educators in agriculture, although placing primary emphasis on establishment in farming as a major objective, were recognizing as accompanying objectives of vocational education in agriculture the preparation for employment in occupations related to farming and the provision for occupational guidance and counseling of students.

Phipps (1962a) identified the period 1956 to 1962 as being significant for the initiation of studies investigating the various

aspects of agricultural education relating to the nonfarm occupations in agriculturally-oriented businesses and industries. Studies conducted during this period provided the basis for the revision of the purposes of vocational education in agriculture which were formalized in the Vocational Education Act of 1963. Clark's (1962) research contributed to the movement which advocated broadened objectives of vocational education in agriculture. G. B. James (1962) and Thompson (1962a) related new dimensions in agricultural education in North Carolina and California which forecasted widespread acceptance of a revised philosophy of agricultural education, particularly in reference to vocational and technical education in agriculture.

In an intricately designed study Nelson, Woerdehoff, and Coster (1960) asked specialists in agricultural education, school administration, and curriculum construction to appraise 25 purposes of vocational education in agriculture for importance in relation to current social, economic, and technical trends. They reported that high school principals, when asked to indicate the extent to which each purpose was accepted as a goal of the program of vocational agriculture, tended to accept the purposes in the order in which the jury assigned scores indicating importance in light of contemporary social, economic, and technical trends. Notable exceptions, however, were that principals rated the purposes relating to leadership and citizenship development and to occupational adjustment more important than the jury. As was the case with ratings by the jury of specialists, the principals indicated relatively low priority to goals pertaining to occupational exploration and general education in agriculture.

The study just cited (Nelson et al., 1960) is significant in at least three aspects. First, the findings reveal that at the close of the last decade educators continued to perceive the development of vocational proficiency in farming as the major objective of vocational education in agriculture. Second, high school principals, while accepting the purpose of occupational proficiency, recognized vocational education in agriculture as contributing substantially to the development of leadership and citizenship. Third, neither the jury of educators nor high school principals perceived occupational exploration or general education as significant purposes of a vocationally oriented program of agricultural education.

Beam (1961) identified 31 socio-economic trends which affect local programs of vocational education in agriculture. He concluded that the purposes of vocational education in agriculture should be broadened to include the development of appreciations, skills, and knowledges which are needed for employment in agricultural occupations other than farming and that the program provide effective guidance services for youth preparing for occupations in agriculture.

The research indicated that the evolving objectives of agricultural education were accepted readily, if not anticipated, by school administrators, parents, and persons enrolled in vocational agriculture programs. The Research Committee of the Southern Region (1956), using a well-designed two-stage sampling procedure, surveyed high school pupils, farmers, school administrators, and teachers of agriculture in 12 southern states to determine their attitudes concerning the major purpose of vocational education in agriculture. Only 15 per cent of the interviewees indicated that the controlling

purpose of vocational education in agriculture was to train for useful employment and proficiency in farming. Almost one-half of the persons interviewed indicated that the purpose of vocational agriculture should be to train for useful employment and proficiency in an agricultural occupation, farming or an occupation related to farming. One-third of the respondents chose as the controlling purpose the general objective of training good citizens, intelligent consumers, and efficient producers. Espenschied (1961) found that parents, although in some cases uninformed about vocational education in agriculture, valued highest among the outcomes of vocational agriculture, not vocational preparation, but changes in their son's work habits, interests, attitudes, and character attributes which contribute to success in any occupation.

Douglas (1962) reported that school administrators in Idaho were of the opinion that the purposes of vocational education in agriculture should emphasize preparation for occupations related to farming, occupational guidance, and preparation for college. A recent study by Brown (1965) indicated that both teachers of agriculture and administrators in Oklahoma were in agreement concerning the desirability of expansion of the program of vocational education in agriculture to include training in the nonfarm agricultural occupations.

The Panel of Consultants on Vocational Education (1963), cognizant of the need for revision of the purposes of vocational education in agriculture, recommended that legislation restricting federally-aided programs to those oriented primarily toward farming be changed to recognize that agriculture is no longer based on production alone. Legislation which followed, the Vocational Education

Act of 1963, stated explicitly that funds allotted or appropriated under the provisions of federal legislation "may be used for vocational education in any occupation involving knowledge and skills in agricultural subjects, whether or not such occupation involves work of the farm or of the farm home." A Joint Committee of the U.S. Office of Education and the American Vocational Association (1965), using this statement of purpose as a basis, developed a list of the major objectives for vocational and technical education in agriculture. These major objectives stress the development of occupational competencies needed by individuals engaged in or preparing to engage in production agriculture and in agricultural occupations other than production agriculture. In addition, the objectives developed by the committee indicate clearly and positively that among the major purposes of vocational education in agriculture are the development and understanding of career opportunities in all occupations requiring knowledge and skill in agricultural subjects, the preparation needed for entry and advancement in these occupations, and the development of abilities in human relations and leadership essential for citizenship.

Phipps (1962a) reported a resurgent interest in nonvocational education in agriculture resulting in programs which emphasize the development of an understanding and appreciation of agriculture helpful to all as useful citizens. This facet of agricultural education was recognized in a statement on the role of agricultural education in the public schools which was developed by seminar participants at the National Center for Advanced Study and Research in Agricultural Education (1963a). Hamlin (1962) and Phipps (1965a)

stressed that the purposes of general and nonvocational education in agriculture should be emphasized as well as the vocational purposes of agricultural education.

From the foregoing, four conclusions appear tenable. First, the objectives of agricultural education in the public schools are generally considered to be synonymous with the objectives of vocational and technical education in agriculture. The result is that programs of vocational and technical education in agriculture are construed to constitute the total program of agricultural education in the public schools. This point of view accentuates the role of agricultural education as occupational preparation and advancement but at the same time it minimizes the general education function of agricultural education. Leaders in agricultural education are suggesting, however, that agricultural education be more than vocational education in agriculture.

Second, the occupational orientation of vocational and technical education in agriculture has been broadened in at least two dimensions. The first dimension is obvious--education for any occupation involving knowledge and skill in agriculture. The second is of equal import and is the point of view, which appears to be emerging prominently, that the purposes of vocational education in agriculture include occupational exploration, guidance and counseling, preparation for more advanced study of agriculture, and the development of abilities essential for success in any occupation. Current thinking seems to encompass the idea that enrollment in vocational agriculture, especially in rural areas and in beginning courses, may serve as an

exploratory experience for those students who have not made an occupational choice or are undecided about their choice of occupation.

Third, purposes relating to general, nonvocational, and avocational education in agriculture receive low priority in a program of agricultural education which has as its focus occupational preparation and advancement. No national group actively promotes the general and nonvocational aspects of agricultural education. Research has proven to be a forceful tool in reshaping the objectives of vocational education in agriculture. Hence, an area of study which should command high priority by researchers in agricultural education is that pertaining to the need, value, and outcomes of general and nonvocational education in agriculture.

Fourth, a narrowly defined purpose of vocational education in agriculture, occupational proficiency, has not been accepted by students, teachers, administrators, or parents as the sole purpose of agricultural education. The values of instruction in agriculture have been considered to be much broader than occupational proficiency.

MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES

Farming Occupations

Data indicating the need and opportunity for persons to enter the world of work as managers and operators of farms are limited almost exclusively to national projections. Economists often base their estimates of the need for new farm operators on the following assumptions: first, that a farm with annual sales of at least $10,000 is the minimum size of operation for an adequate family income: second, that the number of farms with annual gross sales of $10,000 or more

will continue to increase; third, that life expectancy rates for the total male population apply to farm operators; fourth, that all farmers 65 years of age or older in 1960 will die or retire within 10 years.

Shoemaker (1961) estimated that the replacement need for farm operators in the United States on farms having $10,000 or more gross sales would be 143,485 during the 10-year period 1959 through 1968. If the number of replacements needed on commercial farms with annual sales of $5,000 or more were considered, 282,460 new farm operators would be needed during the 10-year period. A more recent estimate of the need for new farm operators by Bishop and Tolley (1963) indicated that 150,253 commercial family farms with annual sales of $10,000 or more will be available during the 1960-1969 decade in the United States. So, national estimates indicate an average annual need for new full-time commercial farm operators of approximately 15,000 during the present decade.

Frequently the comparison is made between the number of farm operators to be replaced during 1960-1969 and the number of rural farm boys, 10 to 19 years of age, in 1960. The latter are assumed to be the number of potential farm operators who will be available during the decade. Making this comparison with national data, Bishop and Tolley (1963) estimated that there will be approximately 10 potential young farmers for each farm with annual sales of $10,000 or more which will become available to new operators during the 1960's. Similar comparisons by regions showed considerable variation. In the south, there would be 17 potential farmers for each available farm with annual sales of $10,000 or more. In the west, the other extreme, five young men would be available for each farm replacement needed.

National and regional data of this nature are grossly inadequate and easily misused. First, a comparison of the number of rural farm boys to the number of farm replacements needed during a given period of time is a misleading indication of the occupational opportunities for farm boys. It assumes that all farm boys have the desire, interest, and aptitude to enter farming as their life's work. Second, national data imply, and are taken for granted in the absence of data to the contrary, that these so-called occupational opportunities for farm boys hold for all states within a region or for all communities in a state. Third, the use of these data imply that no vocational education in agriculture is needed for part-time farming and noncommercial farming.

Studies conducted in local communities reveal the inadequacy of national and regional projections of manpower needs in farming. Clover (1962) and Swanson (1961), studying the need for beginning farmers in two communities in Iowa, found that the number of farms available each year exceeded the number of young men graduating from high school who desired to farm. Ganzel (1964) found that projections based on death rates, expected retirements, and consolidation of farms underestimated the number of farming opportunities in a Nebraska school district. Estimates of the number of farms to become available in Nebraska during the 1960's and 1970's indicated that there would be approximately three opportunities to enter farming for each high school graduate who desired to farm (Horner and Benson, 1963).

Other studies, indicating the need for well-trained farm operators, reveal that a substantial proportion of farm operators have not received instruction in vocational agriculture. Hemp (1962) reported that less than 50 per cent of the beginning farmers in Illinois had

taken vocational agriculture in high school. K. E. James (1961) found that only 30 per cent of a group of randomly selected farmers in Missouri had been enrolled in vocational agriculture in high school; only 43 per cent of the farm operators who had graduated from high school had completed some instruction in agriculture. Lester (1961) discovered that only 51 per cent of a group of young farmers in Missouri had completed three or four years of vocational agriculture in high school. O'Kelley and Lester (1965) found that 27 per cent of a group of randomly-selected farmers in Georgia had studied agriculture in high school.

Additional data indicate that in many areas in the United States insufficient numbers of pupils are receiving instruction in vocational agriculture to provide the number of farm replacements needed, especially when allowance is made for the fact that all pupils studying agriculture in high school do not desire to farm and the fact that many pupils studying vocational agriculture are preparing for nonfarm occupations requiring knowledge and skill in agricultural subjects. For example, Quam (1965) established that the opportunity existed for nine farm replacements each year in a local school district in Minnesota, only four of which were usually filled by graduates who had studied vocational agriculture. The Panel of Consultants on Vocational Education (1963) reported that in 1960-61, 3.5 per cent of the total population in the United States, 15-19 years of age, was enrolled in vocational agriculture in high schools. During the same year, the number of persons employed in the production phases of agriculture represented 8.2 per cent of the total number of persons employed. These data led the Panel of Consultants to conclude that

"a question might be raised concerning the extent to which some states are providing sufficient agricultural education to meet employment requirements" in production agriculture.

The research is adequate to point out that projections of the number of farm replacements needed for the nation or a region may underestimate the occupational opportunities in farming in some communities and states. Conversely, national projections probably overestimate the opportunities for establishment in farming in some communities. In either case, the facts should be known if programs of vocational education in agriculture are to be planned which are responsive to manpower needs and employment opportunities. Researchers in agricultural education, with the exception of a few teachers of agriculture, have been reluctant to design and conduct studies which adequately assess the opportunities for establishment in farming.

Nonfarm Occupations Involving a Knowledge of Agriculture

No facet of agricultural education has been more widely and thoroughly investigated during the past five years than that pertaining to manpower needs and employment opportunities in the nonfarm occupations which involve knowledge and skill in agriculture. The pioneering studies in this area have been summarized and reviewed by Hemp (1962) and Phipps (1962a). The number of studies designed to identify present and emerging nonfarm occupations which have been conducted in local communities is legion. These studies have led invariably to the development of new programs of vocational education in agriculture designed to prepare for gainful employment in numerous nonfarm agriculturally-oriented occupations and in

nonagricultural occupations requring knowledge and skill in plant and animal science and related mechanics. Within the last three years, investigations have been completed in 26 states which indicate state-wide or area employment needs in nonfarm business and industrial firms for persons possessing knowledge and skill in agriculture. A report of the synthesis of these studies was published by The Center for Research and Leadership Development in Vocational and Technical Education (1965e). The studies reported in the publication just cited had as major purposes (a) the identification of present and emerging nonfarm occupations involving competencies in plant, animal, and soil science and agricultural mechanics, (b) the estimation of the number of workers needing agricultural knowledge currently employed and the estimation of the number of workers needed in the future, and (c) the determination of the competencies in agriculture and related fields of study needed by workers in the nonfarm occupations.

The significant findings of the state-wide and area studies relating to manpower needs and employment opportunities which were concisely reported in the aforementioned publication are as follows: (a) approximately one-half of the workers employed in the nonfarm agriculturally-oriented businesses need education or training in agriculture; (b) employers estimated that there would be approximately a 20 per cent increase during the next five years in the number of employees who need competencies in animal, plant, and soil science and agricultural mechanics; (c) the types of business and industrial firms which indicated the greatest need for workers possessing agricultural knowledge and skill were sales and service businesses dealing in agricultural supplies, agricultural machinery sales and service

firms, ornamental horticulture firms, and marketing and distribution businesses dealing in livestock and crop products.

As would be expected, considerable variation among the states was evident for each of the general findings reported in the preceding paragraph. For example, Barwick (1965) reported that 15 per cent of the employees in agriculturally-oriented businesses in Delaware needed agricultural competencies; Stevenson (1965) found that 38 per cent of all workers in nonfarm agricultural businesses in Oklahoma needed competency in agriculture; Hoover, McClay, and Stevens (1966) estimated that 46 per cent of the employees in agriculturally-oriented businesses in Pennsylvania needed a knowledge of agriculture; Judge (1965) indicated that 63 per cent of the workers in agricultural business firms in Massachusetts needed agricultural competencies. Similarly, employers' estimates indicating the percentage of increase in the number of workers possessing agricultural knowledge which would be needed during the next five years due to growth of business firms varied from an eight per cent increase in the metropolitan areas of Louisiana (Mondart and Curtis, 1965) to an increase of 41 per cent in Kansas (Agan, 1964).

In addition to the need for more workers created by the growth of business firms, substantial numbers of new employees are needed annually to fill positions created by the turnover of workers. Agan (1964) found that the number of additional workers possessing agricultural knowledge who were needed during a period of 12 months to fill jobs created by growth and turnover in nonfarm businesses in Kansas was 23 per cent of the number of workers employed at the time the study was made. A study (Warmbrod, 1966) of the employment needs

in nonfarm business and industrial firms in the rural areas of Illinois revealed that the number of additional workers possessing agricultural knowledge and skill needed during a one-year period to meet demands created by growth of businesses and turnover of employees represented a 20 per cent increase over the number of agricultural workers employed when the interviews were conducted. Such rapid rates of turnover suggest ample opportunities for advancement in occupations in business and industry requiring knowledge and skill in agricultural subjects.

Although firms dealing with agricultural supplies, agricultural machinery, and ornamental horticulture consistently ranked highest in the number of workers currently employed and the number of workers needed in the future, there was marked variation among states in this respect. Of particular significance is the finding that workers needing agricultural knowledge and skill were employed in nonagricultural businesses as well as agriculturally-oriented businesses. Warmbrod (1966) reported that 43 per cent of the workers who needed agricultural knowledge and who were employed in nonfarm businesses in rural areas of Illinois were working in business and industrial firms that were classified as primarily nonagricultural in nature.

Some of the studies designed to ascertain employment opportunities in the nonfarm occupations have compared the number of workers employed in agriculturally-oriented business and industrial firms to the number of workers in production agriculture. Generally, it has been found that the number of commercial farms and the number of agricultural workers in the nonfarm businesses is approximately equal. Bailey (1964) found that the ratio of the number of commercial farms

to the number of nonfarm agricultural workers in West Virginia was approximately one to one; Judge (1965) reported that the number of nonfarm workers in Massachusetts who need agricultural competencies was greater than the total number of persons engaged in farming in the state; Warmbrod's (1966) estimates for a 14-county rural area of Illinois indicated that for each worker needing a knowledge of agriculture employed in nonfarm businesses, 1.75 persons were working in farming occupations as commercial farm operators or hired farm workers. Rarely have comparisons been made between the anticipated employment needs in nonfarm businesses and the number of farm replacements needed during a given period of time. The study (Warmbrod, 1966) conducted in Illinois indicated that 3.5 nonfarm workers possessing agricultural knowledge and skill would be needed during a five-year period for each replacement needed during the same period for operators of farms with annual sales of $10,000 or more.

Evidence indicates that a majority of the employees in the nonfarm agricultural occupations are working in jobs for which post-high school education in agriculture and in certain other subjects is appropriate. Particularly is this finding true for those jobs in which the greatest number of employees will be needed in the future. Langdon (1965) reported that employers in Michigan estimated that 53 per cent of the nonfarm agricultural workers could be replaced with persons with high school diplomas, 32 per cent of the workers would need some post-high school education of less than a baccalaureate degree, 10 per cent of the workers would need a college degree, and four per cent would need a graduate degree in agriculture. Morrison (1964) and Bingham (1965) indicated that employers required formal

education of at least high school level for all employees with the exception of a few semi-skilled and unskilled jobs. Cushman, Christensen, and Bice (1965) found that employers desired high school graduation for 57 per cent of the full-time workers in nonfarm occupations. They also reported that employers would accept less than high school graduation for 17 per cent of the workers; 18 per cent of the workers needed various levels of education beyond high school; for eight per cent of the workers, the level of education was not important. Phipps, Krebs, Hemp, Warmbrod, and Fuller (1964) reported that employers' opinions regarding the educational requirements of workers reflected their experiences based on educational programs in existence and the characteristics of the available labor force rather than on the level of education required for effective job performance.

The finding that employers prefer workers who have lived or worked on a farm for the nonfarm agriculturally-oriented businesses is substantiated by each study which has been designed to ascertain this information (Bingham, 1965; Langdon, 1965; Morrison, 1964; Stevenson, 1965).

Most of the studies pertaining to nonfarm agriculturally-oriented businesses have been well designed, competently executed, and clearly reported. The similarity of design among the various studies can be attributed primarily to the establishment of guidelines pertaining to design and procedures which were published by The National Center for Advanced Study and Research in Agricultural Education (1963b, 1964) at The Ohio State University.

Each study involved some plan of random sampling. In almost all cases, individual business firms were chosen as the sampling elements.

Frequently, a two-stage sampling procedure was used which called for stratification of the sampling elements, or primary units, or both prior to the time samples were drawn. Phipps et al. (1964) employed a two-stage cluster sampling technique which utilized telephone exchanges, stratified according to the population of the largest town in each exchange, as the primary or first-stage sampling unit from which business firms were drawn. Baker (1965) utilized counties, stratified by population and supervisory districts, as first-stage sampling units from which random samples of business and industrial firms were drawn. Cushman et al. (1965) chose school districts offering instruction in agriculture as the population for study. A stratified random sample of school districts was drawn using type of farming, school population, and value of taxable real property as criteria for stratification. The sampling designs used appear to have been chosen primarily to insure that all types of agriculturally-oriented businesses were represented in the sample of business firms to be studied.

There were additional characteristics of the studies which enhance the validity and reliability of the findings. In each case, data were collected through interviews conducted by trained interviewers. In most cases, the interview schedules had been field-tested and revised prior to the time interviews were made. Most researchers reported that instructional manuals were prepared for use by interviewers.

With one exception, the population of business firms from which businesses were selected for study included only those business firms which were thought to have employees who needed agricultural

competencies. Evidence indicates that this restriction in the type of business chosen for study may have resulted in an underestimating of the number of workers needing knowledge and skill in agriculture. One study (Warmbrod, 1966) revealed that 57 per cent of the nonfarm agricultural workers in Illinois in areas with population centers of less than 25,000 were employed in businesses classified as agriculturally-oriented; 37 per cent of the workers needing knowledge and skill in agriculture were employed in businesses that were not agriculturally-oriented but employed workers who must have agricultural knowledge; while six per cent of the agricultural workers were employed in business firms that were categorized as nonagricultural businesses.

The extensive research which has been reviewed in this section clearly establishes the fact that the number of persons needing knowledge and skill in agriculture who are employed in the nonfarm businesses and industries servicing agriculture is substantial. Of even greater importance is the fact that the number of persons needed for employment in the future in these businesses is substantial and exceeds the opportunities for entry into farming. The findings do not warrant the conclusion that research in this facet of agricultural education is adequate. Research pertaining to the nonfarm sector of agriculture must continue if current and realistic appraisals of manpower needs and employment opportunities are to be made. The need for studies oriented toward the refinement of design and techniques of research in this area is highly important. Studies to date have relied upon estimates of employers concerning the number of additional workers needed to meet the demands created by business growth. In the not too distant future, a fruitful area of research

will be follow-up studies to appraise the validity of those estimates.

CURRICULUM DEVELOPMENT

Reviews of research in agricultural education have indicated that research has traditionally motivated the reshaping and updating of curriculums in agricultural education (Hamlin and Deyoe, 1950; Sledge, 1960). The principle that programs of agricultural education should be based on and derived from the needs, problems, and aspirations of local communities has been accepted generally. Consequently, much of the research pertaining to curriculum development in agricultural education has been conducted in local communities for the specific purpose of devising curriculums applicable to particular localities.

Beam (1960), studying the relationship between socio-economic trends and programs of vocational education in agriculture in North Carolina, concluded that these trends were increasing the importance of local planning as a major characteristic of effective programs of vocational education in agriculture. Recent research pertaining to curriculum development in agricultural education both supports and, to a degree, differs with the conclusion. Emphasis in recent years continues to be focused on the study and investigation of the needs and problems of local communities as a basis for curriculum development. Yet another facet of curriculum research has emerged. Studies which encompass an entire state or area of a state are being conducted to provide data and information as a basis for determining the content of curriculums in vocational education in agriculture. A result of this approach is the development of curriculum guides and instructional materials which have wide applicability. This development

in curriculum research has been a concomitant result of the movement toward broadened objectives of vocational and technical education in agriculture. The areas of emphasis in this broadened approach to curriculum research pertain to techniques of determining competencies needed by workers, determining competencies needed both by workers in production agriculture and in the nonfarm agricultural occupations, and the methods of clustering or grouping of occupations involving knowledge and skill in agriculture.

Techniques for Determining Curriculum Content

An analytical approach has been used by researchers as the primary procedure for determining curriculum content in agricultural education. Basically the approach has been that of occupational analysis, an attempt to identify the understandings and abilities needed by workers in occupations involving a knowledge of agriculture. Almost without exception, each study reviewed previously, which had as its primary purpose the estimation of manpower needs and employment opportunities for workers in the nonfarm agriculturally-oriented businesses, also had as a purpose the identifying of the competencies needed by these workers. Other studies have been designed specifically to elicit information and data necessary for curriculum development.

Courtney (1962) conducted a study designed to determine the common and differentiated job activities among three agricultural occupations--farmer, grain elevator manager, and farm real-estate broker. He developed an instrument consisting of 148 agriculturally-oriented activities which was administered to 40 workers in each of the three occupations. A random sampling procedure, involving

stratification of communities by type of farming area, was used in selecting the sample of workers. Each worker judgmentally assigned a quantitative score to each of the 148 activities to denote the amount of knowledge and experience required for each aspect of his occupation.

Dillon (1965) attempted to determine whether or not separate and specialized courses in agriculture were needed for workers in nurseries and ornamental horticulture businesses. He designed a 100-item instrument through which he collected information from workers relative to the knowledge and degree of ability needed in performing various activities. Judgmental scores were assigned by a total of 160 workers, 20 workers in each of four job titles in each of the two types of businesses studied. The 20 licensed nurseries and the 20 licensed ornamental horticulture businesses were selected randomly. Data were collected during interviews conducted by the investigator. Fiscus (1965) conducted a study to determine the kind and depth of knowledge in agriculture needed by workers in farming, in grain elevator businesses, and in agricultural equipment businesses. He developed an instrument consisting of 103 items of knowledge to which a total of 180 workers responded by indicating the degree of understanding their job required for each item. A random sample of 20 businesses for each of three types of businesses was selected. Twenty farm managers and 20 workers in each of four different job titles in grain elevator businesses and agricultural equipment businesses were interviewed.

Albracht's (1966) study was designed to evaluate a process for determining curriculums in vocational education. He chose the sales function of the feed industry as the means for trying out the process. An interview instrument was developed which consisted of competencies

which might be used to perform each of nine selected activities of the sales function. The instrument was developed in consultation with persons who were recognized as experts in the performance of the sales function of the feed industry. The instrument, administered through interviews conducted by the investigator, determined only if each competency was considered essential. The instrument was administered to a selected jury of experts which included six persons in each of the following categories: sales training directors, feed dealers, teacher educators in agriculture, and teacher educators in office education and distributive education. Gardner (1964) demonstrated a method of identifying competencies essential to the success of persons employed in nonfarm occupations. He developed a questionnaire consisting of 129 competencies needed by workers who sell, install, or maintain bulk tanks or milking systems. The questionnaire was completed by a panel of 11 persons considered to be authorities within or associated with the dairy industry and by a group of teachers of agriculture in Michigan. The panel members responded to the questionnaire by indicating the value and importance of each competency for workers in the phase of the dairy industry being studied.

A group of studies has been conducted at Iowa State University to determine the competencies needed by farmers and by workers in nonfarm agriculturally-oriented businesses. Bennett's (1965) study of the competencies in soil management and fertilizers needed by farmers and Kahler's (1964) study of the competencies needed by males employed in retail farm machinery distribution are illustrative of the techniques used to provide data for curriculum construction.

The techniques employed in each of the Iowa studies involved the development of a questionnaire consisting of a list of competencies needed by workers in the particular occupation being investigated. The list of competencies was developed by using specialists and selected farmers or businessmen. The questionnaires were mailed to a random sample or, in some cases, a selected group of farmers or businessmen. Respondents were asked to indicate the degree of competency needed and the degree of competency possessed for each item on the questionnaire. Halterman (1964) also used mailed questionnaires in a study to determine the educational needs of agricultural engineering technicians in Ohio. The questionnaires were designed to elicit information relative to the characteristics of the labor force in agricultural engineering, the kinds of activities in which technicians engage, and the competencies essential for satisfactory job performance. He reported that the percentage of returns of questionnaires from employers and technicians varied from approximately 33 per cent to 75 per cent.

Phipps et al. (1964) sought to obtain information needed for curriculum development by recording and analyzing the activities of employees relative to working: (a) with people both inside and outside the firm; (b) with products, materials, and services of the firm; (c) with equipment, tools, and instruments of the firm; and (d) with business problems of the firm. Employers were also asked to indicate areas of knowledge with which workers must be familiar for successful job performance. Data were collected by personal interviews.

Coupland (1962) used a consensual approach in an attempt to identify units of content which are essential to programs of

instruction in agriculture and in an effort to develop a guide for the selection of agricultural content for curriculums in vocational agriculture. He developed a questionnaire consisting of a rating scale for teachers to record their opinions concerning the importance of selected areas of content for programs of instruction at the high school level. The questionnaire was mailed to a nation-wide sample of superior teachers who were selected by state supervisory personnel and to a nation-wide sample of teachers who were selected at random. Responses were received from 78 per cent of the superior teachers while only 53 per cent of the randomly-selected teachers returned the questionnaire. The approach used by Coupland for identifying curriculum content in agricultural education is inadequate when compared to the studies which utilized an analytical approach.

Studies utilizing the analytical approach for determining curriculum content can be appraised in at least three aspects--the instruments used for collecting data, the selection of subjects from whom data are obtained, and the means used (interviews versus mailed questionnaires) for collecting data.

An assumption of each of the studies cited was that valid and reliable instruments were used for collecting data about activities and competencies upon which curriculums were constructed. Courtney (1962) was the only investigator reporting a reliability coefficient for the instrument which had been developed. Validity of the instruments, admittedly difficult to ascertain, is enhanced considerably when recognized experts in the job or industry being investigated are consulted in the preparation of the instrument. Such a procedure should assure content validity for the instrument. No study has been

reported which attempted to establish empirically the concurrent validation of an instrument by comparing the responses of the interviewee with ratings given by a person who supervises the interviewee on the job. Instruments which determine and analyze activities performed by workers may be more valid as a basis for curriculum construction than instruments designed to obtain workers' and employers' opinions concerning understandings and abilities needed for successful job performance. A technique for constructing instruments which has not been reported is that of systematic observation of workers over a period of time. The technique of job analysis through observation by the investigator has not been used extensively in curriculum research in agricultural education.

It can be argued that a random selection of persons, business firms, or jobs about which information is obtained for curriculum development is not the most appropriate method of selecting the elements of the situation to be studied. Should not curriculums in agricultural education include content and activities which lead to the highest level of competency attainable? In many cases it would be more appropriate to select a purposive rather than a random sample of persons or activities for investigation. Most of the techniques currently employed ask the subject for his judgment concerning the extent to which he possesses or needs a particular competency or group of competencies. The subject's only recourse is to respond in terms of his training and experience. When subjects are selected at random, the assumption is made that the competencies possessed or needed by those employed are the competencies which are needed by a well-trained labor force. The assumption may not be valid in all

cases. The use of random selection of units for investigation is most feasible when studies are designed to accomplish the dual purpose of estimating manpower needs and for determining competencies needed by workers; however, a purposive sample is advantageous when studies are designed to accomplish the latter purpose only. For studies which are designed to appraise the degree of competency possessed by an individual or group of individuals, the preferable technique may be to get an evaluation from a person knowledgeable and qualified to appraise performance and competency rather than asking an individual for a self-evaluation of his competency.

There is no doubt that the interview technique is superior to mailed questionnaires for collecting data needed for curriculum development. Some of the problems of interpretation of items in the instrument can be avoided when interviews are used. The problem of nonresponse which is encountered with mailed questionnaires cannot be dismissed in research pertaining to curriculum development.

Methods of Clustering Competencies and Jobs

Curriculum research in agricultural education has as a central purpose the identification of a core of content which is applicable to both the farm and nonfarm occupations involving knowledge and skill in agriculture. An additional purpose is the identification of content for courses in agricultural industry at both the high school and post-high school levels. Courtney and Coster (1963) and Binkley (1965b) espoused the point of view that the basis for curriculum planning in agricultural education is the core of abilities required for farming. They maintained that the starting point in curriculum planning for

vocational education in agriculture is the identification and selection of abilities required for farming. The next step, according to their point of view, is the identification and application of these abilities to occupations other than farming. Apparently this point of view has influenced much of the research pertaining to curriculum development since most of the investigations have employed techniques of analysis designed to identify the common elements between farming and nonfarm occupations or to determine the common elements among the various jobs within nonfarm agriculturally-oriented businesses.

Several studies used analysis of variance techniques in an attempt to identify common and differentiated competencies and activities. Results of studies using this technique of analysis indicate that the procedure accentuates differences but is inadequate for identifying the common components among the various occupations. Courtney (1962), testing the hypothesis that three means were equal, reported that in a majority of cases the hypotheses were rejected, thereby indicating a lack of common components among occupations. However, when comparisons of pairs of means were made, a number of common components were found between farmers and grain elevator managers, between farmers and farm real-estate brokers, and between grain elevator managers and farm real-estate brokers. Fiscus (1965) and Dillon (1965) used analysis of variance techniques with the result that most of their null hypotheses were rejected, an indication of lack of common elements among occupations or among jobs within a type of business. In each case, the investigator had to resort to more elementary descriptive statistics, mean scores or proportion of responses, as a basis for recommending curriculum content.

Albracht (1966) used chi-square techniques to determine whether or not the responses of four sub-juries were significantly different. He used the McQuitty Heirarchial Classification System to cluster the responses of the jury of experts. He reported that the McQuitty Heirarchial Classification System grouped the responses regarding the essentiality of 40 competencies for the performance of sales activities in the feed industry into three sub-groups with nearly equal representation for each of the sub-juries, thereby indicating a very high level of agreement among the jury of experts.

Factor analysis has been used as a method of grouping or clustering of activities and competencies. The process of factor analysis as applied to curriculum development in agricultural education was described by G. R. Fuller (1965a). Phipps et al. (1964), using factor analysis, identified 12 activity factors and 12 knowledge-area factors around which job titles were clustered for purposes of curriculum development. Stevenson (1965) identified eight competency factors in nonfarm agricultural occupations through techniques of factor analysis. R. A. Baker (1966) and Hoover, McClay, and Stevens (1966) identified clusters of occupations and clusters of competencies through the use of factor analysis.

Findings of Curriculum Research

Competencies needed by farmers.--Pearce (1964) found that farm management was the most important single area of educational need of beginning farm operators in New York. He urged that educational programs for farmers emphasize the decision-making process and include instruction pertaining to cost control, analysis of the farm business,

the use of credit, improving farm efficiency, electricity, selecting and repairing farm machinery, soil management, the control of insects and weeds, and the efficient use of soil resources. In an earlier study, L. C. Taylor (1962) had emphasized that the process of decision making and its application should be taught in courses of study in vocational agriculture for high school pupils and for young farmers. Solstad (1963) conducted a study to determine the basis for a course of study in farm power and machinery. He concluded that the emphasis should be placed on the selection of machinery as well as on the repair and maintenance of farm machinery.

Lockwood (1964) studied the competencies needed by persons engaged in dairy farming in Iowa; Robinson (1964) investigated the competencies in farm machinery maintenance needed by farmers in Iowa; Hoyt (1965) determined the competencies in livestock marketing needed by Iowa farmers; and Bennett (1965) submitted a questionnaire to outstanding young farmers in Iowa to determine the competencies needed in the areas of soil management and fertilizers. The findings of these studies emphasize the importance of instruction pertaining to the management of the farm business.

The central purpose of R. A. Baker's (1964) study was an appraisal of farm mechanics instruction for secondary school departments of vocational agriculture in Alabama. He concluded that (a) teachers should consider the opinions of farmers pertaining to the appropriateness of the farm mechanics activities to be included in the curriculum, (b) curriculums in farm mechanics should be planned, revised, and evaluated in terms of the mechanical activities being performed on farms, (c) more emphasis should be placed on the managerial aspects

of farm mechanics, and (d) more emphasis should be placed on the teaching of mechanical theory as well as on the teaching of manipulative skills.

Competencies needed by workers in nonfarm agricultural occupations.--As indicated earlier, numerous studies have been conducted to determine the competencies needed by workers in nonfarm agriculturally-oriented businesses. A summary of the findings of this research prepared at The Center for Research and Leadership Development in Vocational and Technical Education (1965e) at The Ohio State University included these conclusions: (a) the agricultural competencies needed by workers in the nonfarm businesses are determined primarily by the products handled by the business; (b) competencies relating to salesmanship, human relations, and business management are needed by employers in the nonfarm businesses; and (c) much of the agricultural content taught persons who are preparing for work in production agriculture is needed by persons who are preparing to enter the nonfarm agricultural occupations.

Phipps et al. (1964) found that technicians and other workers in nonfarm business and industrial firms in rural areas needed competencies in plant and soil science, animal science, agricultural economics, agricultural power and machinery, electricity, soil and water management, and agricultural chemicals. Employers indicated also that workers needed knowledge pertaining to credit, business principles, accounting, salesmanship, and office procedures. The study (Phipps et al., 1964) reported clusters of job titles which were related closely to the knowledge-area factors and activity factors identified in the study.

Using factor analysis, Hoover, McClay, and Stevens (1966) resolved a list of 60 competencies into 11 factors that could be translated readily into major areas of instruction for courses oriented toward employment in nonfarm agricultural occupations. The clusters of competencies needed by workers in the nonfarm agriculturally-oriented businesses were animal science, plant science, agricultural mechanics, agricultural business management, business management and economics, sales and business skills, job and employee characteristics, employee-supervisor relations, construction technology, industrial mechanics, and quality control. The study (Hoover, McClay, and Stevens, 1966) revealed that the competency factors in agriculture, business, and distribution correlated highly with the clusters of job titles identified. The clusters of job titles identified were the occupational areas of agricultural supplies, agricultural mechanics, ornamental horticulture, forestry, and food products.

Stevenson (1965) identified the following groups of competencies needed by workers in nonfarm agriculturally-oriented businesses: plant and soil science, animal science, agricultural business management, agricultural power and machinery, construction technology, human relations, salesmanship, and business management. Baker (1966) reported a similar list of clusters of competencies needed by workers in nonfarm agricultural occupations.

Fiscus (1965) reported that workers in farming, in grain elevator businesses, and in agricultural equipment businesses needed different knowledges in the seven agricultural knowledge areas investigated. However, there were sufficient knowledges which were common for all

workers to warrant the development of instructional units for courses at the high school level in which prospective workers in all three businesses could be enrolled. Courtney (1962) found common components in job activities between farmers and grain elevator managers, between farmers and farm real-estate brokers, and between grain elevator managers and farm real-estate brokers. Dillon (1965) discovered that there was considerable similarity in the knowledge needed by workers in comparable job titles in licensed nurseries and in licensed ornamental horticulture businesses.

The series of studies conducted at Iowa State University to determine the competencies needed by workers in selected nonfarm agriculturally-oriented businesses provided extensive data for use in curriculum development. Studies were conducted to determine the competencies needed by workers in retail farm machinery distribution (Kahler, 1964), retail feed distribution (Hamilton, 1964), county elevator grain marketing (Mabon, 1964), and retail fertilizer distribution (Van Loh, 1964). This series of studies indicates clearly that many of the competencies needed by managers and workers in nonfarm agriculturally-oriented businesses parallel closely competencies in animal science, plant science, agricultural mechanics, and farm management needed by farmers.

The curriculum research reported was concerned primarily with occupational analysis as the basis for determining subject-matter content. Research of this nature is essential. However, it is not sufficient to answer other questions which are relevant. Questions pertaining to sequence of subject-matter, the level at which subject-matter is taught, organization and structure of content, the amount

of time needed to teach the various subject-matter areas, and curriculum evaluation are problems to which subsequent research should be directed.

EDUCATIONAL PROGRAMS

Nonvocational and General Education

Programs of agricultural education of a general, prevocational, or nonvocational nature are not offered widely in the United States. Research in this area of agricultural education has been scant.

The U.S. Office of Education (1965) reported that 37,800 pupils were enrolled in general or nonvocational courses in agriculture in the public secondary schools in the United States during the 1960-61 school year. For each pupil enrolled in a general or nonvocational course in agriculture during 1960-61, there were approximately 12 pupils enrolled in courses in vocational education in agriculture in the public secondary schools during the same year. General or nonvocational courses in agriculture were offered in approximately four per cent of the public secondary schools in 42 states during 1960-61. During the same year, 11 states reported that instruction in agriculture was offered to seventh- and eighth-grade pupils. A total of 2,700 seventh- and eighth-grade pupils received instruction in agriculture in 1960-61.

Heimlich (1964) reported that only 21 of the 1,083 public high schools in Ohio offered programs of nonvocational education in agriculture during the 1963-64 school year. His investigation revealed that the primary purpose of the nonvocational program was to develop an understanding and appreciation of conservation, horticulture, and

general agriculture. Al-Salman's (1965) study of the program of prevocational education in agriculture in the State of New York revealed that the three most important objectives for prevocational education in agriculture listed by a jury were (a) to acquaint pupils with career possibilities, agricultural problems, and sources of information, (b) to provide opportunities to explore the extent and importance of farming and other agricultural occupations in a community, and (c) to develop an understanding and appreciation for the importance of agriculture to producers and consumers. He reported that jury members and teachers of agriculture ranked the areas of orientation and guidance and conservation of natural resources as the most important areas of instruction for a course designed to accomplish the purposes indicated.

Vocational Education in Agriculture for High School Pupils

Latest available data concerning enrollment in agricultural education which are published by the U.S. Office of Education (1964) indicated that 488,624 high school pupils were enrolled in courses of vocational education in agriculture in public secondary schools in the United States during the 1962-63 school year. The number of pupils enrolled in 1962-63 was five per cent greater than the number enrolled in 1959-60. Vocational instruction in agriculture was offered in 9,132 secondary schools in the United States in 1962-63. As indicated previously, the number of pupils enrolled in vocational agriculture in the secondary schools is inadequate when compared to the number of persons needed for entry into farming and for employment in nonfarm occupations involving knowledge and skill in agriculture.

Instructional programs of vocational education in agriculture have been organized generally on what is termed a "cross-sectional" or "integrated" basis rather than in terms of separate subjects such as agronomy, animal science, and agricultural mechanics (Hamlin and Deyoe, 1950; Sledge, 1960). However, an emerging trend in programs of vocational education in agriculture is that of specialized courses, particularly for 11th- and 12th-grade pupils. Zurbrick (1965) queried teacher educators in agriculture in 39 states to ascertain their opinions concerning the value of specialized courses in vocational education in agriculture and to identify the specialized courses offered or planned in each of the states. He found that specialized courses in vocational education in agriculture were being developed in 29 of the 39 states. The specialized courses offered most frequently were agricultural mechanics, horticulture and ornamental horticulture, and agricultural business. Zurbrick's study showed that teacher educators in agriculture were in agreement with the concept of program development which utilizes specialized courses for third- and fourth-year high school pupils following basic instruction in agricultural science and occupational exploration for first- and second-year students. Beard (1965) found that teachers of agriculture preferred a course on introduction to agricultural occupations followed by occupational speciality courses in contrast to the traditional organization of courses consisting of vocational agriculture I, II, III, and IV.

The point of view appears to be rather generally accepted that introductory courses in agriculture should emphasize the basic principles of plant science, animal science, soil science, and related

mechanics and familiarize pupils with the occupational opportunities in agriculture. This plan of organization for educational programs in vocational education in agriculture is an outgrowth of the research which has indicated agricultural knowledges and skills applicable to the wide range of occupations, both farm and nonfarm, requiring competencies in agricultural subjects. Specialized instruction in agriculture is being offered in the last two years of high school and, in several states, in programs of technical education in agriculture conducted in post-high school institutions. An accessory facet of the emerging concept of specialization in agricultural education at the 11th- and 12th-grade levels is the assignment of titles to courses which indicate content. For example, basic agriculture, agricultural science, agricultural mechanics, or agricultural business, are in contrast to the more traditional course titles of vocational agriculture I, II, III, and IV.

The controversy concerning educational programs for high school pupils which accentuate courses in general vocational education rather than vocational courses in the various areas of occupational speciality should be examined closely by the researcher in agricultural education. The identification of general competencies which are common to all occupations is not sufficient justification for the establishment of a common curriculum. Other relevant facets of the issue, to which research should be addressed, are the interests and motivation of pupils as they relate to the development of general abilities, the value of homogeneous grouping on the basis of occupational interest and background, and the magnitude and extensiveness of the transfer of learning of general abilities and competencies.

Research in program development in vocational education in agriculture for high school pupils during the first half of the current decade has centered upon the development of experimental, pilot, and demonstration programs. Innovations in programs of vocational education in agriculture resulting from the broadened purposes of agricultural education incorporated into the Vocational Education Act of 1963 have been concerned chiefly with programs designed to prepare for employment and advancement in the nonfarm occupations involving knowledge and skill in agricultural subjects. Clary (1964a) and Phipps (1965b) have indicated guides for establishing pilot programs in agricultural education.

Clark's (1963) study of a pilot program in Michigan was one of the first efforts to develop and evaluate a program designed specifically for high school pupils interested in the nonfarm businesses and industries. A pilot program in agricultural distribution conducted in Virginia was described by Wilson and Witten (1965). Hoover and Weyant (1965) described a pilot study involving 25 Pennsylvania high schools. Hemp, Phipps, Warmbrod, Ehresman, and McMillion (1966) evaluated pilot programs in Illinois which had as their main focus innovations in educational programs for high school pupils who were preparing for gainful employment in both farm and nonfarm occupations. The report of this two-year study (Hemp et al., 1966) included a comprehensive list of guidelines and suggestions for planning and conducting programs in agricultural occupations for high school pupils. Binkley (1965b), drawing upon the results of pilot programs in Kentucky, developed an excellent guide for use in planning, conducting, and evaluating programs in nonfarm agricultural occupations.

The use of pilot, experimental, and demonstration programs as a means of developing, evaluating, and implementing educational programs is a new dimension in agricultural education. Researchers should continue to use and refine this technique of program innovation and evaluation. A perusal of research currently being conducted under the provisions of the Vocational Education Act of 1963 revealed two significant studies pertaining to the development and evaluation of programs of vocational education in agriculture for high school pupils. A project being conducted at the University of Nebraska has as its purpose the experimental evaluation of approaches to preparing high school pupils for agricultural occupations other than farming. The Nebraska study is designed to assess the effects of the following variables on the preparation of high school pupils for initial entry into agricultural occupations: related instruction pertaining to occupational proficiency; practical, on-job directed experience; years of instruction in vocational agriculture; and principles-oriented versus problem-oriented organization of instruction. A study being conducted at Louisiana State University has as a major objective the development of training programs for high school pupils whose occupational objective is employment in nonfarm agricultural occupations.

The program and activities of the Future Farmers of America, the organization of high school pupils enrolled in vocational agriculture, is recognized as an integral part of the program of vocational education in agriculture. Research pertaining to the FFA has been primarily descriptive in nature. The most frequently researched aspect of the FFA has been the contest and award programs. Hemp (1961) analyzed

the FFA and vocational agriculture contest and award programs in Illinois. He found that although teachers rated many of the contests and awards high in educational value, a majority of teachers were of the opinion that some contests should be revised or eliminated. Hemp's (1961) study disclosed that less than one-half of the 12th-grade pupils included in his study had participated in six of the seven contest and award programs which he investigated at the local, district, or state levels. Seniors who had won an award in a particular activity rated that activity higher in educational value than did pupils who had not won an award. Wilkins (1965), studying the accomplishments of chapter award winners at the national level, found a majority of the objective standards established for the national contest failed to discriminate in the selection of national winners but subjective, descriptive reports were highly discriminating in the selection of winners of national awards. Kantner (1965) solicited ideas concerning the adaptation of the FFA to the changing program of vocational education in agriculture from state supervisors of vocational agriculture, teacher educators, teachers of agriculture, and school administrators. The study resulted in a revised list of purposes for the FFA and in the addition of activities appropriate for pupils enrolled in programs of instruction oriented toward employment in nonfarm agricultural occupations.

Additional research pertaining to the role and value of student organizations as a part of the program of vocational education in agriculture is needed. Particularly appropriate are evaluative studies leading to new and revised programs and activities which are in keeping with the broadened objectives of vocational and technical education in

agriculture. Investigations designed to identify and measure the educational outcomes of the programs and activities of student organizations should receive high priority.

Technical Education

Technical education in agriculture is a rapidly-developing area of agricultural education. This movement, which has emerged prominently during the present decade, was given impetus with the enactment of the Vocational Education Act of 1963. Technical education in agriculture is offered usually in post-high school institutions. In an early study conducted under the provisions of the National Defense Education Act, Halterman (1962) sought to establish a definition for the term "agricultural technician" and to determine the need for technicians in agriculture in California. He identified the following distinguishing characteristics of an agricultural technician: (a) an extended period of specialized education beyond high school, less than that required for a baccalaureate degree, in the field of agricultural science and related areas of instruction; and (b) the acquisition of skill and ability to make practical applications of theoretical knowledge in performing specific tasks in the production of goods and services in agriculture. In a subsequent investigation, Halterman (1964) concluded that programs of technical education in agriculture should emphasize the development of technical and cognitive skill in contrast to manipulative skill.

Halterman (1962) found that the number of technical positions in agriculture was large and identified the following groups of technical workers in the agricultural manpower force in California: veterinary, public service, sales-service, field production, research,

laboratory, industrial production, engineering, communications, business, and landscape and nursery. Phipps et al. (1964) found that nine per cent of all workers in business and industrial firms in rural areas of Illinois were working as technicians or in jobs requiring some post-high school technical education. Rural areas were defined as areas with population centers of less than 25,000 persons. Phipps et al. (1964) reported that employers estimated that growth of business firms during the next five years would create a demand for a 31 per cent increase in the number of technicians and other workers who need technical knowledge. Employment needs during a 12-month period to meet demands for workers created by growth of businesses and turnover of employees was reported, in the Illinois study, to be 17 per cent of the number of technicians and other workers needing technical knowledge who were employed at the time the study was conducted. Halterman's (1964) study of the needs of agricultural engineering technicians in Ohio revealed that the availability of additional qualified workers and the adequate education of present employees constituted the major problems of employers. Vorhies (1964) reported that there were 19 junior colleges in California offering instruction in agriculture in 1963. However, he noted that most of the courses were offered for transfer credit to four-year institutions rather than as a part of terminal curriculums. Vorhies found that agricultural technicians programs which were terminal in nature had been initiated in two junior colleges and in three of the four-year colleges in California.

Snepp (1963), investigating the agricultural offerings in community colleges in the United States during 1962-63, reported that agriculture was listed as a curriculum offering in 30 per cent of

the public junior colleges included in the sample. Fifty-five per cent of the students enrolled in agricultural programs in the junior colleges studied by Snepp were enrolled in vocational and technical curriculums which were terminal in nature. Clary (1964b) identified 25 institutions in the United States offering training programs for agricultural technicians. Twelve of the agricultural technician programs were offered in technical institutes, 11 of the programs were offered in public junior colleges or comprehensive community colleges, and two of the programs were offered in area vocational and technical schools. Clary reported that the 25 institutions were offering 59 different training programs for agricultural technicians in the areas of agricultural engineering, plant science, forestry, and general agricultural technology. An indication of the recency of the development of technical education in agriculture is Clary's (1964b) finding that 19 of the 59 technical programs were initiated in 1963. Also, he reported that 28 state directors of vocational education indicated that definite plans were being made for the development within the next five years of new or additional training programs for agricultural technicians.

Technical curriculums in agriculture to be offered in post-high institutions have been developed for agricultural supply technicians (G. R. Fuller, 1965b), for agricultural engineering technicians (Halterman, 1964), and for animal science technicians (J. K. Baker, 1965). W. S. Stone of the State University of New York, Delhi, New York, is currently conducting a project, funded by the U.S. Office of Education, which has as its purpose the developing and evaluating of curriculums for the technical occupations ancillary to the veterinary,

biological, and medical professions. E. S. Wood of Southern Illinois University is currently engaged in a project designed to evaluate the programs of technical education in agriculture conducted in junior colleges and community colleges in Illinois.

Adult and Continuing Education

The most recently published data of the U.S. Office of Education (1964) indicate that 339,203 persons were enrolled during 1962-63 in adult preparatory and supplementary programs of vocational education in agriculture in the United States. Enrollment during 1962-63 was approximately two per cent more than in 1959-60. During 1962-63, 2,492 public secondary schools offered adult preparatory programs of vocational education in agriculture; 5,994 public secondary schools offered adult supplementary programs. The Panel of Consultants on Vocational Education (1963) reported a national average of 3.6 persons enrolled in adult programs of vocational education in agriculture during 1960-61 for each 1,000 persons in the population, 20-64 years of age.

A multitude of studies has established convincingly the need for continuing education in agriculture for persons employed in both farm and nonfarm occupations. Lockwood (1964) discovered that dairy farmers in Iowa felt they possessed significantly less competence than they needed in all competency areas investigated. Bennett (1965) concluded that the need for additional training for farm operators is evident when the outstanding group of Iowa farmers which he studied indicated a need for more competence than they possessed in almost all competency areas. Tugend (1964) found that two-thirds of a sample of successful farm operators in Maryland who were not performing

mechanical skills needed on their farms indicated they were not trained to perform the skills. Jensen's (1961) survey of 2,464 Wisconsin farmers concerning attitudes toward training for the performance of mechanical skills revealed that more than 50 per cent of the respondents expressed a need for training in 95 of the 143 mechanical skills that were investigated. Pearce (1964), investigating the establishment of young farmers in New York, concluded there was a need for programs of instruction in agriculture for beginning farm operators to achieve establishment in farming. Rodgers (1961) reported that part-time young farmers in Ohio identified a lack of management ability and a lack of mechanical skills as major difficulties which were encountered.

The need for supplementary instruction for workers possessing knowledge and skill in agriculture who are employed in nonfarm occupations has been established. The studies by Hamilton (1964), Kahler (1964), and Van Loh (1964) concerning feed, farm machinery, and fertilizer businesses in Iowa revealed that employers and employees indicated a need for greater competence in all competency areas that were investigated. Other investigators have reported that employers expressed an interest in training programs to upgrade the performance of workers in nonfarm agriculturally-oriented businesses (Judge, 1965; Morrison, 1964).

Several studies have been reported that are descriptive in nature; for example, the process of establishment in farming, types of programs offered, and the characteristics of persons enrolled. Another group of studies has focused on the identification of factors that are associated with successful programs of adult education in agriculture.

Lester (1961), in a study of 100 farm operators in Missouri, identified the pattern most frequently followed in becoming established in farming to be (a) father-son partnership, (b) share tenant, and (c) owner or owner-renter. He found, however, that it was not uncommon for farmers to by-pass the status of share tenant and become an owner directly from a father-son partnership. Pearce (1964) found that New York farmers no longer followed the traditional agricultural ladder in becoming established in farming. He discovered that farmers often began working for agricultural wages and then attained ownership status. Many farmers began farming as owners or partners. Holt's (1962) study to ascertain the influence of adult farmer courses taught by specialists of the state education agency on the programs of adult education conducted by teachers of agriculture in Texas revealed that the courses taught by specialists stimulated the development of additional programs of adult farmer education in the local schools. He found, however, that farmers and ranchers preferred courses taught by the teacher of agriculture to any other type of training.

Research has established rather conclusively that certain characteristics of farmers such as educational level, farming status, size of farm operated, investment in farming and gross income, and participation in community affairs are associated significantly with enrollment and attendance in programs of adult education. Rodger's (1961) study of part-time young farmers who were enrolled and part-time young farmers who were not enrolled in programs of adult education revealed that the young farmers who were enrolled had more formal education, kept more records of their farming operations, had larger investments in farming, and received more income from nonfarm

employment than young farmers who were not enrolled. Well (1965) found that farmers participating in programs of adult education were younger, had more formal education, received a higher gross income, had larger farms, read more agricultural literature, and were more active in community organizations than nonparticipants. Flood's (1964) analysis of adult farmer courses conducted in Arkansas during 1961-62 revealed that there was a positive relationship between enrollment in courses and the educational attainment of farmers and that full-time and part-time farmers attended classes more regularly than farm laborers and persons employed in nonfarm agricultural occupations. Other factors which have been identified as conducive to successful programs of agricultural education for adult farmers are (a) active participation by farmers in determining the content of the course, (b) methods of teaching which emphasize discussion of the problems of farmers in contrast to the lecture method of teaching, and (c) on-farm instruction as an integral part of the instructional program (Davis, 1961; Flood, 1964). Of special significance is the finding of Flood (1964) that teachers of vocational agriculture were significantly more effective in maintaining attendance in adult farmer courses than were special instructors.

As a subsequent section pertaining to learning processes and teaching methods will indicate, there is a scarcity of experimental research relating to teaching and learning processes applicable to adult education in agriculture. Researchers in agricultural education have been reluctant to undertake studies which investigate the behavioristic change of participants in programs of adult education in agriculture. The vast amount of research pertaining to the diffusion process and to the adoption of recommended farm practices has been

designed and executed by rural sociologists, not agricultural educators. Research is needed that relates to the development and evaluation of programs of adult and continuing education for persons currently employed in the nonfarm agriculturally-oriented sector of business and industry. Wood (1966) described a course taught successfully by a teacher of agriculture in Illinois which was planned especially for businessmen and professional workers who had an interest in and need for knowledge in agriculture. Interestingly enough, only one of the 16 businessmen enrolled in the course had studied vocational agriculture in high school.

Agricultural Education for the Disadvantaged

The implication of the research pertaining to adult and continuing education in agriculture is clear. Present programs of adult education are not reaching a substantial number of farmers who could profit most from such instruction; that is, farmers who do not possess the characteristics usually associated with participation in programs of adult education. It appears appropriate, then, that programs of adult education in agriculture be developed for unemployed and underemployed agricultural workers under the provisions of the Manpower Development and Training Act enacted by the U.S. Congress in 1962 and the Area Redevelopment Act which was enacted one year earlier. Programs of agricultural education conducted under the provisions of these acts have been few in number.

Statistics of the U.S. Department of Labor (1965) indicating enrollments in Manpower Development and Training Act programs in 1964 revealed that 5,270 trainees were enrolled in institutional and

on-the-job training projects categorized as agricultural. Occupations classified as agricultural are those occupations pertaining to production agriculture. Data compiled by the U.S. Department of Labor (1966) indicated that 4.4 per cent of the 105,733 trainees authorized for MDTA institutional training during 1965 were receiving training in production agriculture. Kuykendall (1966) described a farm management program conducted in Tennessee under the provisions of the Manpower Development and Training Act. He reported that the average net worth of the 20 farm operators enrolled in the program increased by more than $3,000 during the two-year training period. Kuntz and Edington (1965) reported that 16 farm mechanics training schools were conducted in Oklahoma during 1962 and 1963 under the Area Redevelopment Act. Two hundred fifty-five men, most of whom were high school dropouts, received training in these schools.

The Vocational Education Act of 1963 has given impetus to research pertaining to the economically and socially disadvantaged. McMillion (1966) used a semantic differential instrument to ascertain the connotative meaning placed on certain words by enrollees in vocational agriculture and by teachers of vocational agriculture. McMillion found that a different connotative meaning was placed on the words "leadership" and "cooperation" by groups of pupils clasified by socio-economic level. Teachers were more in agreement with junior and senior pupils concerning the connotative meaning of the words and phrases than they were with freshmen and sophomore pupils. Hayes (1966), using a posttest-only control group design, studied the level of reading comprehension of three socio-economic groups of ninth-grade pupils of vocational agriculture to ascertain

experimentally whether or not the pupils' levels of reading comprehension changed with the reading difficulty of written materials. The control group received reference materials in the form in which they were originally written for high school pupils. The experimental group received the same content which was rewritten for easier reading. Hayes (1966) found that materials written for pupils from the lower socio-economic groups assisted pupils in all socio-economic groups receiving these materials to achieve significantly higher scores on a test involving recall of facts.

Additional research pertaining to the economically and socially disadvantaged will be forthcoming. Of special significance to research in agricultural education is the developmental and experimental project currently being conducted by Phipps and Fuller (1965) at the University of Illinois. The primary purpose of this project is to generate and evaluate a vocationally-oriented program that will bring about the full utilization of the present and potential capabilities of rural youth who are economically and socially handicapped.

Supervised Agricultural Experience Programs

Supervised practice has played an important role as an integral part of vocational education in agriculture both in programs for high school pupils and for adults. Traditionally, supervised experience programs in agriculture have taken the form of farming programs conducted on the home farms of the enrollees, whether high school pupils or adults, or the placement of high school pupils for work experience on farms. Research pertaining to the supervised practice aspect of agricultural education has been almost entirely descriptive in nature.

Numerous investigations have been made to determine procedures used by teachers of agriculture for aiding students in the development of farming programs, to determine the extent to which teachers provide on-farm instruction, to identify the difficulties encountered by teachers in establishing supervised experience programs, and to isolate the principles which should be followed in the establishment and operation of farm placement programs for high school pupils. Studies pertaining to supervised practice have been notorious in their reliance upon mailed questionnaires for collecting data.

Bentley and Scott (1961) sought to identify the teaching activities that were associated with the completion of a relatively high number of productive projects by enrollees in vocational agriculture. By surveying teachers of agriculture from schools where enrollees completed a relatively high number of projects and a group of teachers from schools where enrollees completed a relatively low number of projects, Bentley and Scott (1961) identified significant differences between the two groups of teachers in the activities which were emphasized in planning and conducting supervised agricultural experience programs for high school pupils. Teachers of agriculture who taught in schools where enrollees completed a relatively high number of productive projects gave special attention to farming program requirements expected of enrollees, worked closely with enrollees' parents in planning and conducting farming programs, related classroom instruction closely to the farming program activities of enrollees, and utilized advantageously the FFA and the awards program as means of motivating enrollees to complete farming programs.

Pearce (1964) concluded that the behavior of farmers could be changed by technical assistance visits. He suggested, however, that the instructional visits be carefully structured for maximum effectiveness. Moeckel (1960) identified the following practices as effective in conducting on-farm instructional visits with adult farmers: (a) maintain a list of potential farm visits to be made; (b) assist farmers in conducting experimental and demonstration plots; (c) analyze with farmers the application of classroom instruction; (d) analyze with farmers the records of the farm operation; (e) use local production standards to assist farmers in evaluating the level and efficiency of production; and (f) survey farmers during class sessions to determine their viewpoints concerning on-farm instruction.

Programs of supervised experience in agricultural education have been justified, philosophically and educationally, on the grounds that supervised practice motivates the learner, allows classroom instruction to be taught in a meaningful context, provides an opportunity for the application of what is taught, enables a student to learn by doing, and contributes to the development of general skills and attitudes toward work which are needed for employment in any occupation. Strangely enough, research growing out of these theoretical foundations and research designed to test these hypotheses concerning the values of supervised experience in agricultural education have been meager.

One facet of Christensen's (1964) study was to determine empirically the effect differences in enrollees' supervised farming programs had upon acquisition and retention of learning. The salient findings pertaining to the features of supervised farming programs which influence classroom achievement in vocational agriculture were: (a) ownership by the enrollee of one animal of the type being studied

in the classroom was of benefit only in situations where there were none of the animals of the type being studied on the home farm; (b) for the livestock experience program to measurably influence classroom learning, the scope of the enterprise had to be large enough to require managerial skills; (c) the amount of first-hand experience by the enrollee with the topic being discussed in the class had greater influence on acquisition than on retention; and (d) prior experience was more influential upon gain in facts and figures than upon the learning of either scientific principles or ability to solve problems. Judge (1963) investigated the relationship between work experiences of high school pupils of vocational agriculture and their occupational and educational plans and aspirations. Judge found that increased amounts of farm work experience, including experience with projects owned by the pupil, were related to a choice of agricultural occupations in preference to nonagricultural occupations, to the choice of farming in preference to nonfarm agricultural occupations, and to higher levels of occupational aspiration.

The development of instructional programs oriented toward employment and advancement in the nonfarm occupations involving knowledge and skill in agriculture has led to investigations concerning supervised occupational experience in business and industry. Anderson (1966) surveyed some 300 teachers of agriculture, distributive education, and trade and industrial education in several states with the request that they rate in terms of importance a series of activities and procedures which appeared to be applicable to the planning and conducting of supervised occupational experience programs in nonfarm agriculturally-oriented businesses. Anderson listed 18 guidelines which were rated

important in planning and conducting supervised occupational experience programs for enrollees preparing for employment in nonfarm agricultural occupations.

Research supported by the U.S. Office of Education is currently under way which should make substantial contributions to the theory and practice of supervised occupational experience in agricultural education. An intricately-designed study is being conducted at the University of Nebraska to evaluate approaches of preparing high school pupils for agricultural occupations other than farming. One facet of this experimental study is designed specifically to assess the effects of practical, on-job directed experience in the preparation of high school pupils for initial entry into the nonfarm occupations involving knowledge and skill in agriculture. Cushman is directing a project at Cornell University which is designed to develop and evaluate procedures for use by teachers in directing work experience programs in vocational education in agriculture. Pilot centers in the northeastern states will be used to field-test the materials prepared and to evaluate the effectiveness of the procedures developed.

The projects mentioned in the preceding paragraph are prototypes of the dimensions which should be emphasized in research pertaining to supervised experience programs in agricultural education. Promising practices and procedures, identified through descriptive studies, should be evaluated rigorously in terms of their contribution to learning, motivation of pupils, and the development of attitudes and abilities essential for employment and effective citizenship. The total gamut of possible supervised practice activities--farming programs, placement for farm experience, school laboratory experience,

self-employment, and occupational experience in business and industry--are areas for investigation. Researchers in agricultural education should give special attention to supervised occupational experience as it relates to programs of post-high school technical education in agriculture.

INSTRUCTIONAL MATERIALS AND DEVICES

Recent developments in agricultural education relative to instructional materials and devices may be classified into three major categories: the development and evaluation of programed instructional materials; the evaluation of other types of instructional materials through experimentation on methods of teaching or, in some cases, experiments designed specifically to evaluate instructional materials; and the development of instructional materials as a result of the current research relating to the development and evaluation of educational programs oriented toward the nonfarm agricultural occupations.

Agricultural textbooks have been used as important sources of reference materials for enrollees in vocational agriculture courses. Galloway (1960) compared the readability of agricultural reference books used widely in vocational agriculture with the reading ability of the enrollees using the books. Generally, he found that the reference books tended to be too difficult for the reading ability of the enrollees. The research reviewed in the subsequent section on learning processes and teaching methods revealed that a variety of instructional materials and devices have been evaluated in studies which were designed primarily to evaluate the effectiveness of methods of teaching. Programed instructional materials have been compared with

conventional forms of student reference materials, a branching program has been compared to a nonbranching program, and scrambled books, laboratory exercises, and teaching plans have been subjected to experimentation.

Experimental studies designed specifically to evaluate the effectiveness of instructional materials have not been common in agricultural education. Daugherty (1965) field-tested a teaching plan and handbook for students which had been developed for teaching beef marketing to young farmers. Following an 18-hour course of instruction extending over a period of six weeks, he found that the young farmers scored significantly higher on an achievement test than they scored on a pretest administered at the beginning of the training period. Also, there was a significant difference between the number of recommended marketing practices used by young farmers at the end of the course than the number of practices used at the beginning of the course. The design of Daugherty's study, the one-group pretest-posttest design, does not control or account for extraneous variables which offer plausible alternative hypotheses relating to a pretest-posttest difference in scores on the criterion measures. Hence, the conclusion that the instructional materials evaluated in the study were effective in teaching beef marketing to young farmers cannot be accepted without qualification.

Ehresman (1966) examined the effectiveness of a structured source unit which was designed to assist teachers in organizing and teaching a unit on agricultural cooperatives to high school pupils. The effectiveness of the experimental variable was determined by testing pupils' knowledge of agricultural cooperatives at the close of the unit of

instruction. The study involved a pretest-posttest control group design with 10 schools assigned randomly to both the experimental group and the control group. Teachers in the experimental group were given the source unit for their use; teachers in the control group did not have access to the source unit in teaching the unit on agricultural cooperatives. No significant difference was found in the mean posttest scores of pupils taught by teachers in the experimental group and the mean posttest scores of pupils taught by teachers in the control group. Ehresman (1966) suggested that maximum benefits may not be derived from structured instructional materials for use by teachers unless teachers are given assistance in using the materials.

A recent trend in agricultural education is research which has as its primary purpose the development of instructional materials. Sutherland (1962) conducted a project under the provisions of the National Defense Education Act which resulted in a publication to aid teachers of agriculture, through an inductive approach to teaching, in relating agricultural practices to the underlying principles of biology. One outcome of a pilot program conducted in Kentucky was the development of instructional materials for use by teachers in planning and teaching high school courses designed for pupils who are preparing to enter sales and service occupations in agricultural supply businesses (Binkley, 1965a). Under a grant from the Bureau of Adult and Vocational Research, U.S. Office of Education, instructional materials pertaining to horticulture, agricultural supply, agricultural machinery, and agricultural chemical technology have been prepared by a task force at The Ohio State University under the sponsorship of The Center for Research and Leadership Development in

Vocational and Technical Education (1965a, 1965b, 1965c, 1965d). These instructional materials are intended for use in high school programs of vocational education and in post-high school programs of technical education in agriculture.

Several projects currently funded under the provisions of section 4(c) of the Vocational Education Act of 1963 have as a major purpose the development of instructional materials for use in programs of vocational and technical education in agriculture. Brown and Love (1965) described a current project that has as its main purpose the development and evaluation of instructional units in ornamental nursery, floriculture, and turf occupations for high school pupils and adults. The development and evaluation of instructional materials, laboratory exercises, and reference materials in the area of ornamental horticulture are major activities of a current project directed by Hemp at the University of Illinois. The project involves field-testing of the instructional materials developed and the upgrading of the competency of teachers in the area of ornamental horticulture through an institute held during the summer of 1966.

The annual publications of the Professional Information Committee of the Agriculture Division, American Vocational Association (1965), should be consulted for a current list and description of instructional materials in agricultural education.

LEARNING PROCESSES AND TEACHING METHODS

Christensen's (1964) study of the factors influencing acquisition and retention of learning in vocational agriculture stands as the singular piece of research pertaining directly to learning and

learning processes in agricultural education. Using a pretest-posttest retention-test design, Christensen sought to determine the effect of individual differences, differences in home-farm situations, and differences in pupils' supervised farming programs on the ability to learn and retain facts and figures, to learn and retain scientific and technological information, and to learn and apply the techniques of problem solving. The salient findings of Christensen's study pertaining to the relationship of supervised experience and learning have been noted in the section dealing with supervised agricultural experience programs. Additional significant findings reported by Christensen (1964) were: (a) the level of occupational aspiration of students was related to ability and was an influential factor in learning; (b) aptitude had greater influence on total acquisition and retention than did any other factor investigated; (c) a direct relationship existed between the amounts acquired and retained and parental attitude toward the program of vocational education in agriculture in the school; (d) a good to excellent opportunity to farm appeared essential if the pupil was to approach maximum classroom learning and retention; (e) acquisition and retention of fact and figure information depended more upon prior experience than upon aptitude; (f) acquisition and retention of scientific and technological information depended more upon aptitude than upon prior knowledge or other experience factors; (g) problem solving ability, as measured in the study, depended more upon a pupil's level of aptitude than any other factor; (h) the largest measured gains of knowledge were made in facts and figures; and (i) the highest

measured retention was of scientific and technological information and in problem solving ability.

In another study relating to learning processes, Hull (1965) developed and tested a factor analysis procedure for sequencing self-instructional materials pertaining to concept attainment. The experiment dealt with human relations concepts which employees in agricultural businesses need to know. In the first phase of the experiment, responses of pupils to self-instruction booklets that were randomly sequenced were factor analyzed to generate a psychological sequence of concepts. In the second phase of the experiment, the psychological sequence of concepts was compared with a random sequence. The study involved junior and senior high school enrollees in vocational agriculture. Reading comprehension test scores were used as controls in an analysis of covariance design. Hull (1965) found that the psychological sequence did not result in significantly higher scores on the criterion posttest when all the data were considered. However, a detailed analysis of the data led Hull to conclude that the effect of sequence in instructional materials is specific to the achievement level of pupils and the difficulty level of the materials presented.

Experimentation relating to programed instruction in agricultural education has resulted in diverse findings. The research has not established programed instruction as superior to other methods of presenting subject matter; neither have the research findings indicated consistently a lack of effectiveness of programed instruction.

Dayger (1965) compared the effectivenss of a programed instructional unit on figuring board feet with a conventional method of

teaching the same subject matter to high school pupils. Using the increase in mean scores between the pretest and the posttest as the criterion of effectivensss, Dayger concluded that the programed unit was as effective as the conventional method of teaching. Hanneman (1964), using a posttest-only control group design, found that pupils in the experimental group using programed instruction relating to parliamentary procedure scored significantly higher on the criterion test than pupils in the control group who did not have access to programed instruction. Zarraga (1963) investigated the effectiveness of a branching program versus a nonbranching program for teaching farm business management to 11th- and 12th-grade enrollees in vocational agriculture. The pretest-posttest design of the study allowed also an evaluation of the effectivensss of review examinations incorporated at the end of each unit of programed instruction. Zarraga (1963) found that learning had taken place in all experimental trials. The branching program with review examinations showed a slight advantage, although not statistically significant, over the branching program without review examinations. The branching program with review examinations was superior to the nonbranching program with review examinations. Zarraga's research indicated that programed instruction was effective for all ranges of ability of pupils.

Legg (1962) compared the effectiveness of programed instruction and lecture-discussion as methods of teaching agricultural finance to high school pupils and adult farmers. In addition to teaching method, other variables investigated were grade level of pupils and type of answer sheet, an erasure-feedback type of answer sheet versus the conventional multiple choice answer sheet. A multivariate

pretest-posttest design was used with the criterion examination re-administered as a retest two months after the close of the experiment. When the amount of time for teaching the unit by each method was not controlled, Legg (1962) found that the mean posttest scores of pupils taught by the lecture-discussion method were significantly higher than the posttest scores of pupils taught with programed instructional materials. The mean scores for grade levels were significantly different both for the posttest and retest with ninth- and 10th-grade pupils receiving the lowest scores and adults receiving the highest scores. The retest scores of pupils who had previously used the erasure-feedback type of answer sheet were significantly higher than the scores of pupils who had used the conventional multiple choice answer sheet.

Hull and McClay (1965) reported that a replication of the experiment conducted by Legg revealed higher posttest scores for pupils taught by the lecture-discussion method. However, the scores were not significantly higher than the posttest scores of pupils who were taught by the programed instruction method. In the replicated experiment, the amount of time used for teaching the unit was controlled for each treatment.

Additional research pertaining to methods of teaching has been concerned with a variety of seemingly unrelated topics. Conceptional versus factual presentations of subject matter have been investigated; methods of teaching information about agricultural occupations have been studied; studies relating to the teaching of biological and plant science principles have been undertaken by two investigators; while

the concern of other investigators has been the effectiveness of visual aids in the teaching process.

The effectiveness of conceptional and factual presentations of reading material for high school enrollees in vocational agriculture was appraised by Edgecomb (1961). The subject matter of the study dealt with quality milk production and the pretest-posttest design of the study allowed an evaluation not only of conceptual and factual presentations of subject matter but also for combinations of the two versions of reading material. Edgecomb (1961) reported that achievement of pupils was not significantly different among the methods of presentation. Achievement was greater, however, for 11th- and 12th-grade pupils than for ninth- and 10th-grade pupils.

Shontz (1963) compared the effectiveness of three methods of teaching information about agricultural occupations associated with land use and conservation. Subjects for the experiment were ninth- and 10th-grade enrollees in vocational agriculture. Teachers using an integrated method combined into one instructional unit information on agricultural occupations and land use and conservation. Teachers using the separate-units method taught separate units on agricultural occupations and land use and conservation. Teachers using their own method of teaching were furnished a list of titles of the problem areas in land use and conservation but were not furnished resource units pertaining to agricultural occupations. A pretest-posttest experimental design was used. Analysis of covariance, with scores on a standardized reading test and pretest scores on criterion measures as covariates, was used to test the hypotheses. Shontz (1963) found that the integrated and

separate-units teaching methods did not differ significantly in pupil achievement on the agricultural occupations test or on the land use and conservation test. However, both were superior to the instructor's usual method of teaching. All methods resulted in increases in scores on expressed interests of pupils but had no generally consistent influence upon pupils' inventoried interests pertaining to five agricultural occupations associated with land use and conservation. Expressed interests of pupils and inventoried interests of pupils did not differ significantly among the three teaching methods investigated.

Drawbaugh (1963) studied the effectiveness of three kinds of plant-growing facilities and three teaching methods for teaching plant science principles. He found that achievement in plant science by pupils using school greenhouses was greater than it was for pupils using other facilities, community greenhouse or classroom window sills, for growing crops. Achievement in knowledge of plant science principles by pupils taught by the laboratory manual and functional experience methods was greater than achievement by pupils in schools where the teacher used his own method of teaching. Starling (1964) established that high school enrollees in vocational agriculture in schools where the teaching of biological principles was integrated with the teaching of agriculture showed significantly greater gains in achievement from pretest to posttest than enrollees in schools where the usual method of teaching agriculture was used.

Madison (1962) compared two methods of presenting farm management information to high school pupils. One group was presented a summary of farm management information using tables and numbers. The other group was presented the same information with data presented in

the form of bar graphs. Comparing pretest and posttest scores on the criterion test, Madison found that learning had occurred in each group. However, there was no significant difference between the two methods of presentation of data. Bodenhamer (1964) found that voluntary adult audiences, presented an informative speech which was supplemented with visual aids, learned significantly more when tested for immediate recall than audiences given the same informative speech without visual aids.

The findings of research pertaining to learning processes and teaching methods do not provide, singularly or collectively, a basis for the development and refinement of theory and practice concerning teaching and learning in agricultural education. What is a plausible explanation for this lack of a "sense of direction" in this area of research? Research pertaining to teaching and learning is of necessity a long and arduous process. The development of a promising method or technique requires definition and refinement through experimentation and investigation prior to the time it is subjected to rigorous evaluation in an experimental setting. The development of criterion measures that are precise, valid, and reliable is an area of research all its own. Only after these tasks have been accomplished is it appropriate that the experimental evaluation of the proposed technique or method be conducted.

In the studies cited, an attempt was made to accomplish, within the domain of the study being undertaken, all three of these tasks: that is, refinement of the experimental treatment or treatments, development of criterion measures, and experimental evaluation of the proposed technique or method. Generally, researchers in agricultural

education have done a commendable job with the third step, the design and execution of experimental studies. However, the diverse and inconsistent findings which were reported hint that more attention should be given to the development and refinement of experimental treatments and to the construction of valid and reliable criterion measures.

Unquestionably, the task calls for study and investigation over a period of time involving a series of related investigations from which will evolve theory and practice relating to teaching and learning. Such a result could hardly be expected from a series of unrelated studies such as those reviewed. Each of the studies cited was conducted by a graduate student. Investigators who are working toward an advanced degree encounter restrictions relative to time and financial resources which preclude the type of research relating to teaching and learning in agricultural education that is needed. Agricultural educators who are established in positions of research or teaching have been conspicuous in their neglect of this area of research.

The experimental designs used in studying methods of teaching have been, in most cases, either the pretest-posttest control group design or the posttest-only control group design. Both are currently recommended designs in the methodological literature in educational research. However, the designs do not permit the measurement of the Hawthorne effect (Phipps, 1962b), a consideration that should not be overlooked when an experimental method of teaching is compared to a conventional method of teaching which is characterized usually as a teacher's own method of teaching.

The design of many of the experiments permitted the simultaneous investigation of several independent variables as contrasted to the single variable approach. The multivariate analysis of data frequently involved analysis of covariance techniques with pretest scores on criterion tests and other appropriate measures used as covariates.

STUDENT PERSONNEL SERVICES

The research reviewed previously concerning manpower needs and employment opportunities indicated clearly that ample opportunities exist for employment both in farming occupations and the nonfarm occupations involving knowledge and skill in agricultural subjects. The research to be cited presently re-emphasizes the fact that many opportunities for employment await those persons receiving agricultural instruction in high school who desire to enter an agricultural occupation. The review of research which follows focuses on three main topics. Research will be presented pertaining to the characteristics of pupils studying agriculture in high schools, the educational aspirations and plans of these pupils, and the occupational plans and aspirations of enrollees in agricultural courses in high schools.

Characteristics of Pupils

A number of studies have been conducted which attempt to identify the characteristics of high school pupils enrolled in vocational education in agriculture. Enrollment in vocational education in agriculture has been limited almost exclusively to boys. Therefore, the discussion to follow will concern male enrollees only. Researchers have yet to turn their attention to a study of the characteristics of

pupils enrolled in post-high school programs of technical education in agriculture.

Residential background.--The stereotype of the high school pupil of agriculture as a rural farm male is not substantiated. Bittner (1962) and Judge (1963) found that a majority of the boys studying agriculture in Michigan lived on farms. Drabick (1963) reported that 62 per cent of the male 12th-grade enrollees in vocational agriculture in North Carolina were from farms. Cooper, Jahns, and Cardozier (1965) also found that 62 per cent of the enrollees in vocational agriculture in Maryland were from farms of more than 10 acres. Benton (1960) discovered that only one-half of the boys enrolled in vocational agriculture from 1954 to 1959 in 16 counties in southern Illinois lived on full-time farms; the other one-half lived on part-time farms or in towns. Thompson (1963a) reported that 55 per cent of the enrollees in vocational agriculture in California whom he studied were living on farms. There has been, however, a more direct relationship between continued enrollment in agriculture and residence on a farm. This situation may change in the future because of the recent broadening of objectives of vocational education in agriculture to include training for nonfarm occupations involving knowledge and skill in agriculture. The percentage of junior and senior pupils enrolled in agriculture who live on farms is usually higher than the percentage of freshmen and sophomore pupils who live on farms (Bittner, 1962; Cooper et al., 1965).

The percentage of pupils whose fathers are full-time farmers is even lower than the percentage of pupils who live on a farm. Bittner (1962) and Judge (1963) reported that 35 per cent and 21 per cent,

respectively, of the pupils whom they studied in Michigan were from full-time farms. Other studies revealed that about one-third of the fathers of pupils enrolled in agriculture were full-time farmers (Thompson, 1963a; Cooper et al., 1965).

The assumption has been made frequently that boys living on farms would have an interest in studying agriculture while boys living in town would have little, if any, interest in agriculture as an area of study. The findings concerning the residential backgrounds of pupils tend to negate this assumption. Walker (1962) conducted a study to construct an instrument for measuring the interests of eighth-grade boys concerning vocational agriculture. As a result of the investigation, the Pennsylvania Vocational Agriculture Interest Inventory was developed. Validation of the instrument indicated that successful enrollees in vocational agriculture could be reliably predicted from the score eighth-grade pupils obtained on the instrument.

Level of intelligence of pupils.--When comparisons of levels of intelligence are made between high school boys enrolled in vocational agriculture and high school boys not enrolled in vocational agriculture, the results consistently favor the pupils who are not enrolled in vocational agriculture. Drabick (1963) found that seniors enrolled in agriculture were disportionately represented in the lower intelligence quotient ranges. Cooper et al. (1965) reported that standardized test scores indicated a significantly lower level of intelligence and lower achievement in mathematics for pupils enrolled in agriculture when compared with the total male population of their grade.

The data indicate also that as the number of years of vocational agriculture completed by pupils increases, so does the percentage of

pupils who are in the lower categories of intelligence (Bittner, 1962; Deyoe, 1961). Few differences have been found in the courses taken in high school, other than courses in agriculture, by pupils who were enrolled and not enrolled in agriculture. Deyoe (1961) reported that male graduates in Illinois who had taken vocational agriculture compared favorably with male graduates who had not taken vocational agriculture in the number of credits earned in English, social studies, and science. Graduates who had taken vocational agriculture tended to take fewer courses in mathematics than graduates who had not taken vocational agriculture. When male graduates entering college to study agriculture were considered, no significant differences were found between those studying agriculture in high school and those not studying agriculture in high school in the amount of English, mathematics, and science taken in high school (Alvis, 1964; Krebs, 1961).

Educational Aspirations and Plans of Pupils

Data indicating the percentage of pupils enrolled in agriculture who plan to continue their education beyond high school are variable. Bittner (1962) found that 30 per cent of the high school enrollees in vocational agriculture in Michigan planned to continue their education. Judge (1963) reported that approximately 20 per cent of the Michigan enrollees in vocational agriculture whom he studied indicated positively that they would continue their education. Drabick (1963) reported that 22 per cent of the seniors in classes of vocational agriculture in North Carolina expected to attend college. The study conducted in Maryland (Cooper et al., 1965) revealed that approximately 18 per cent of the enrollees in vocational agriculture planned to

pursue some type of post-high school education. Contrarily, Thompson (1962b) found that 53 per cent of the juniors and seniors whom he studied in California had plans to continue their education beyond high school.

The research has established rather conclusively that enrollees in vocational education in agriculture both aspire to and plan to attend college in lesser proportions than do other male students in the school. Deyoe (1961) reported that a considerably smaller percentage of male graduates in Illinois who had taken vocational agriculture in high school expressed aspirations to enroll and actually did enroll in college than male graduates who did not take vocational agriculture in high school. Drabick (1963) reported similar findings from a study of seniors in North Carolina. Bittner (1962) found that only 12 per cent of the pupils who continued their enrollment in agriculture planned to continue their education while 35 per cent of the pupils who were enrolled in vocational agriculture at one time but transferred to other curriculums planned to complete some formal education beyond high school.

The relationship which has been established, indicating that enrollment in vocational education in agriculture is associated with a relatively lower percentage of pupils planning for and enrolling in some type of post-high school education, must be interpreted in light of another relationship which has been established. As reported previously, pupils with relatively lower levels of intelligence tend to enroll in and, more importantly, continue their enrollment in vocational education in agriculture. Since aspirations and plans for higher education are positively correlated with level of intelligence,

the relationship which has been established between enrollment in vocational agriculture and plans for further education is not surprising nor unwarranted.

Investigations which attempt to identify and analyze factors influencing pupils to attend college and study agriculture emphasize the merits of instruction in agriculture in high school. Strait's (1963) comparison of students who were studying agriculture in college with students of similar background who were majoring in fields other than agriculture revealed the following factors as influential in a pupil's decision to study agriculture: (a) enrollment in vocational agriculture in high school, (b) an interest in an agricultural career, (c) the understanding that agriculture and farming are not synonymous, and (d) knowledge concerning the careers available to graduates with agricultural education. Freeh (1962) reported similar findings from his study of farm and nonfarm youth who were and were not studying agriculture in college. The studies of pupils enrolled in agriculture in college are rather consistent in indicating that, other than parents, the person most influential regarding their decision to attend college was their teacher of agriculture in high school (Bentley, 1963; Freeh, 1962).

Occupational Aspirations and Plans of Pupils

Studies reveal that most persons enrolled in vocational agriculture have made at least a tentative choice of a vocation. Seventy-six per cent of the pupils in Bittner's (1962) sample expressed an occupational choice. Judge (1963) reported that 74 per cent of the pupils included in his study had made a tentative choice of occupation.

Thompson (1962b) found that only 15 per cent of the juniors and seniors in his study indicated that they were undecided about their plans immediately after high school. However, Cooper et al. (1965) found that almost one-third of the seniors enrolled in vocational agriculture were undecided about their plans following high school. The studies reveal that about one-fifth of the pupils planned to enter military service upon graduation from high school.

When the vocational choices of enrollees in agriculture are categorized by occupational area, indications are that one-half or more of the pupils recording an occupational choice prefer an occupation involving knowledge and skill in agriculture. Judge (1963) reported that 50 per cent of the pupils in agricultural courses making an occupational choice indicated a preference for an agricultural occupation. Thirty-five per cent chose farming and 15 per cent chose a nonfarm agricultural occupation. Krebs (1959) reported that 61 per cent of a group of seniors in vocational agriculture in Illinois had made future plans within the field of agriculture either in farming, employment in a nonfarm agricultural occupation, or further education in agriculture. The research indicates that slightly more than one-third of the enrollees in vocational education in agriculture in high school express a desire to farm as their life's work. This finding is significant in view of the fact that many of the projections of the opportunities for young men to enter farming are based on the assumption that most; if not all, of the farm youth, whether studying vocational agriculture or not, desire to farm.

Some rather obvious relationships concerning occupational choice and enrollment in vocational agriculture have been identified.

Bittner (1962) found that more of the pupils continuing their enrollment in vocational agriculture named farming and other agricultural occupations as their choice of occupation than pupils who transferred to other curriculums. Bittner found also that the occupational choices of pupils re-enrolling in agriculture were more consistent with the pupils' level of aspiration than choices of pupils transferring to other curriculums. Judge (1963) reported that work experience on a farm increased the probability that a pupil would choose an agricultural occupation in preference to a nonagricultural occupation or that a pupil would choose farming in preference to a nonfarm agricultural occupation. A definite relationship has been established between the father's occupation and the son's choice of occupation. Pupils whose fathers were full-time farmers chose farming as their career more often than pupils whose fathers were part-time farmers or in another occupation (Cooper et al., 1965; Thompson, 1962b).

When compared with their contemporaries in other curriculums, enrollees in vocational agriculture aspire and plan to enter occupations of lesser prestige (Drabick, 1963). Bittner (1962) reported that pupils who transferred from vocational agriculture aspired to higher level occupations than pupils who continued their enrollment in vocational agriculture. This relationship between enrollment in vocational agriculture and level of occupational aspiration and choice could be anticipated in light of the relationship previously established between enrollment in vocational agriculture and pupils' level of intelligence. Since there is a positive relationship between level of intelligence and level of occupational aspiration, the finding that pupils enrolled in vocational agriculture tend to choose occupations

of lesser prestige than pupils enrolled in other curriculums is to be expected.

Aldrich (1962) and Thompson (1963b) attempted to identify the characteristics of an occupation which enrollees in vocational agriculture consider important in choosing an occupation. Both investigators reported that the characteristic which was selected as the most important in choosing an occupation related to the enrollee's interest in the job. Generally, economic aspects of an occupation were rated by the enrollees as more important in their choice of an occupation than the noneconomic aspects of the occupation. Thompson (1963b) reported that enrollees in vocational agriculture who planned to attend college were more interested in jobs which permitted the expression of one's own ideas and in jobs which provided an opportunity to help others. Interestingly enough, Thompson found that pupils selecting careers in agriculture were significantly more interested in working independently than were pupils in any other group.

FACILITIES AND EQUIPMENT

The research in agricultural education relating to facilities and equipment has been primarily descriptive in nature. For example, surveys have been made of the facilities and equipment used in teaching agriculture; teachers of agriculture, supervisors of agricultural education, and teacher educators in agriculture have been asked to indicate what facilities, tools, and equipment should be made available for instruction in agriculture; and several studies have been made to ascertain what tools, equipment and supplies are used and needed for instruction in agricultural mechanics. Hollenberg (1959) reported

the findings of a national survey which was designed to describe the status of agricultural mechanics shops and programs of instruction in vocational education in agriculture. The results of the questionnaire completed by teachers in 676 randomly selected schools throughout the United States indicated, among other things, the kind of facilities and equipment used for instruction in agricultural mechanics.

Drawbaugh's (1963) study of plant-growing facilities for teaching agriculture is the lone experimental investigation pertaining to this area of concern. Drawbaugh compared the effectiveness of the school greenhouse, community greenhouse, and classroom window sills as plant-growing facilities for teaching the principles of plant science. The design of the experiment also permitted the comparison of three methods of teaching. The methods of teaching investigated were laboratory manual, functional experience, and the teacher's own method. Drawbaugh (1963) found that the achievement in plant science by pupils using the school greenhouse facilities was greater than the achievement of pupils using the other facilities for growing plants. He found also that the knowledge of greenhouse management and principles of plant science attained by pupils taught by the laboratory manual and functional experience methods was greater than the knowledge attained by pupils taught by the teacher's own method.

TEACHER EDUCATION

Description and Appraisal of Programs of Teacher Education

Several investigations have had as a major purpose the description and appraisal of programs of teacher education in agriculture.

Jabro (1962) queried head teacher educators to collect descriptive data and information and to obtain recommendations for the improvement of programs of teacher education in agriculture. Bronson (1963) used a jury of head teacher educators in agriculture to develop an evaluative instrument for use in studying the programs of agricultural education in 15 land-grant institutions with enrollment predominantly Negro. Gadda (1963) devised a system for evaluating the undergraduate program of teacher education in agriculture whereby ratings indicating the extent to which the outcomes of the programs were consonant with the needs of beginning teachers were made by beginning teachers, supervising teachers who had directed their student teaching, school administrators, and high school pupils of the beginning teachers. The rating scales developed by Gadda measure the level of competence possessed and the importance of each of 160 competencies needed by beginning teachers.

The Teacher and the Role of the Teacher

Studies of the perception of the role of the teacher of agriculture reveal conflicting findings regarding the teachers' role both within the profession and with other groups of professional educators. Drake (1962) studied the perception of the role of the teacher of vocational agriculture held by superintendents, teacher educators, state supervisors, and teachers of agriculture. The role areas of participating in the professional work of the school, guiding and counseling, and working as members of the teaching profession were perceived by both teachers and superintendents as having high relative importance. Among all groups studied, Drake (1962) found that

the lack of consensus appeared most often in the role areas pertaining to young farmer and adult farmer education. McComas (1962) found that effective teachers of agriculture and their administrators were in greater agreement concerning the role expectations of teachers and the performance of teachers than were ineffective teachers and their administrators. McComas reported also that teachers rated as most effective, when compared with teachers rated as least effective, were more active in community affairs, conducted more courses for young farmers and adult farmers, earned more hours beyond their highest degree, and taught in larger schools having slightly larger enrollments in vocational agriculture.

C. D. Bryant (1963) compared the priorities beginning teachers gave and perceived should be given to the professional roles of the teacher of agriculture with the priorities experienced teachers perceived for beginning teachers. Comparisons of the priorities beginning teachers gave with the priorities they perceived should be given revealed that the teachers perceived a priority that was higher than the priority given for the roles pertaining to teaching high school pupils and adult farmers, providing individualized instruction, and developing leadership of enrollees. Comparisons of the priorities beginning teachers gave with the priorities experienced teachers expected of beginning teachers revealed that the expectations for beginning teachers held by experienced teachers were higher than the priority given by beginning teachers for eight of the 10 teacher roles investigated. Todd (1965) found that beginning teachers' perceptions of their role as a teacher of agriculture changed little during the first year of teaching. He reported no discernible relationship

between beginning teachers' perceptions of the role of the teacher and the professional problems experienced by beginning teachers. Todd (1965) discovered that beginning teachers and experienced teachers held similar perceptions for the role of the teacher.

Efforts to establish significant relationships between characteristics of teachers and teaching success have been only moderately successful. Cardozier (1965), studying a random sample of agricultural education graduates of institutions which prepare teachers of agriculture in the United States, sought to determine the relationship between achievement in undergraduate study and performance in the teaching of agriculture in the secondary schools. Measures of teaching performance were based on ratings by teachers' principals and state supervisors of agricultural education. The findings of the study indicated only a minor relationship between achievement in undergraduate study and teaching performance. Statistical analyses revealed no significant differences except when teachers were grouped according to achievement in speech and student teaching. Teachers who received higher marks in speech and student teaching were generally rated higher in teaching performance by their principals and supervisors. Cardozier (1965) indicated that the findings of this study were not inconsistent with the findings of similar studies in agricultural education and in other fields of education. Lasap (1964) studied the relationship of success in teaching vocational agriculture to teachers' precollege background in farming, supervised farming programs, participation in farm mechanics activities, and participation in the Future Farmers of America. Questionnaires were returned by 75 per cent of a sample of teachers graduated from colleges and

universities in the United States in 1959 and 1960 who were teaching in 1964. Teaching success was determined by ratings of the teachers' performance by their principals. Lasap (1964) found no significant relationships between the major precollege experiences which he investigated and success in teaching.

Using the Purdue Teacher Morale Inventory, Rempel and Bentley (1963) studied the relationship between the morale of teachers of agriculture and certain characteristics and responsibilities of teachers. They found that teachers having only the bachelor's degree with no or little graduate work had significantly lower morale than teachers with more graduate work. Teachers with higher salaries and teachers who held tenure positions had significantly higher morale. Rempel and Bentley (1963) reported a high relationship between the level of morale of teachers and their expressed satisfaction with teaching. Also, high morale teachers tended to believe more strongly in the future of vocational education in agriculture.

Recruitment and Retention of Teachers

The critical shortage of teachers of agriculture is indicated by data compiled by the Professional Personnel Recruitment Committee of the Agriculture Division, American Vocational Association (Woodin, 1966). The committee reported that 1,003 persons began teaching agriculture during 1965 in the United States. There were approximately 10,000 teachers of vocational agriculture in the United States when the survey was made, thus the turnover of teachers of agriculture was approximately 10 per cent. One hundred and twenty additional teachers were needed but not available to fill positions that were vacant in

September, 1965. The Committee's survey of head state supervisors of agricultural education indicated that during the period 1966 to 1969, some 3,950 new positions for teachers of agriculture would become available. The types of teaching positions that will be available indicate the emergence of new programs of agricultural education. The Committee (Woodin, 1966) reported that almost one-half of the additional teachers will be needed for teaching production agriculture in programs for high school pupils and adults; slightly more than one-fifth of the new positions will be in high school programs which prepare for employment and advancement in the nonfarm agricultural occupations; one-fifth of the positions will be in programs of technical education in agriculture in post-high school institutions; approximately five per cent of the new positions will be in programs of agricultural education for disadvantaged youth; and slightly more than five per cent of the new positions will be needed for manpower training and other specialized programs in agricultural education.

In addition to the increased demand for teachers of agriculture created by expansion and revision of present programs and the development of new programs in agricultural education, another factor contributing to the shortage of teachers of agriculture is the great demand for persons certified to teach agriculture for employment in government, industry, business, and international programs. Woodin (1966) reported that only 65 per cent of the persons certified to teach agriculture in the United States during 1965 entered the profession of teaching agriculture as their first employment. This percentage of qualified graduates entering the teaching of agriculture as their first employment is somewhat higher than the percentage

reported by other investigators. Hoerner (1965) found that 56 per cent of the men qualified to teach agriculture at Iowa State University during the period 1940 to 1964 entered teaching as their first employment. Similarly, Rhody (1964) reported that 52 per cent of the graduates in agricultural education at the University of Tennessee from 1955 to 1964 entered teaching directly upon graduation.

Studies which follow up graduates who have qualified to teach agriculture in the public secondary schools indicate that approximately two-thirds of the graduates teach agriculture in the secondary schools sometime during their career. Variations among the states are found, however. For example, 78 per cent of the graduates of Washington State University taught agriculture at one time (Myers, 1964); 64 per cent of the agricultural education graduates of Cornell University and Iowa State University had taught agriculture (Hoerner, 1965; Shoup, 1965); whereas, only 54 per cent of the graduates of the University of Tennessee who were qualified teachers of agriculture had taught agriculture in the secondary schools (Rhody, 1964).

As would be expected, the percentage of graduates qualifying to teach agriculture who continue to teach agriculture in the secondary schools decreases in direct relationship to the number of years since graduation. Available data indicate one-third or fewer of the graduates continued to hold positions as high school teachers of agriculture. Hoerner (1965) found that only 18 per cent of the agricultural education graduates of Iowa State University were teaching agriculture in high schools when his study was made; Myers (1964) and Rhody (1964) reported that 35 per cent of the agricultural education graduates of Washington State University and the University of

Tennessee were employed as teachers of agriculture when their investigations were conducted.

Graduates qualified to teach agriculture who never teach and teachers of agriculture who do not continue to teach agriculture at the high school level frequently enter other professions in the field of education. Many become teachers of other subjects in the public schools; successful teachers of agriculture frequently move into positions of college teaching or school administration; and a substantial percentage accept employment with the agricultural extension service of land-grant colleges and universities. Many persons qualified to teach agriculture enter farming; agriculturally-oriented businesses and industries provide attractive employment opportunities for many teachers of agriculture; and governmental agencies and non-agricultural businesses and professions attract persons who have taught or are qualified to teach agriculture in the secondary schools (Hoerner, 1965; Myers, 1964; Shoup, 1965).

Foremost among the reasons given by teachers of agriculture for leaving the teaching profession are considerations pertaining to advancement in salary and position. Other factors which have been identified by investigators as having strong influence on a decision not to enter or to leave the teaching profession are (a) the trend toward less emphasis on vocational education in agriculture, (b) failure to adjust to teaching such as discipline problems, lack of interest on the part of students, personality conflicts with administrator, and dislike for teaching adults, (d) the long hours and responsibility for evening work, and (e) community attitudes and standards for teachers (Hoerner, 1965; Rhody, 1964; Shoup, 1965).

Student Teaching in Agricultural Education

The findings of a comprehensive survey of student teaching in agricultural education in the United States was reported by O'Kelley (1961). The report of the study included findings pertaining to the selection of supervising teachers, the selection of schools as centers for student teaching, administrative policies and procedures pertaining to student teaching, criteria for admission of students, experiences provided student teachers, and evaluation of student teachers and the program of student teaching. Hutchinson (1961) sought to determine the activities of student teachers that were regarded by teacher educators in agriculture as most important in the formation of basic concepts essential for effective teaching. Activities appropriate to student teaching which were rated highest in importance were those relating to the organization and use of an advisory council; teaching high school pupils, young farmers, and adult farmers; and the development and supervision of farming programs of pupils. Activities rated as least important were advising the local chapter of the Future Farmers of America and publicizing and promoting the program of vocational education in agriculture.

Roger's (1964) study was designed to identify the personal and professional characteristics of supervising teachers relating to their role as supervisors of student teachers in agricultural education. Supervising teachers rated as most effective and least effective by teacher education personnel in their respective states were compared to ascertain the characteristics which distinguished one group from the other. Rogers identified the following characteristics which were

positively related to the performance of supervising teachers: (a) age of the teacher, (b) employment mobility, (c) number years experience as a supervising teacher, (d) academic degree held, (e) professional reading, (f) participation in professional organizations, and (g) participation in local community organizations.

Efforts to identify factors which are predictive of success in student teaching have isolated factors which are significantly, but not highly, correlated with performance. G. R. Fuller (1963) endeavored to determine whether or not predictors concerning teaching effectiveness could be assembled into an instrument which, when administered to students just prior to student teaching, would increase the ability of teacher educators to foretell how effectively student teachers would perform. He found that extremely effective student teachers were observed to exhibit behaviors during student teaching which were characterized as fair, kindly, alert, attractive, responsible, steady, and poised. Below-average student teachers were observed to exhibit behaviors characterized as evasive, dull, stereotyped, uncertain, disorganized, inflexible, and narrow. Fuller (1963) found that the characteristics of student teachers, when converted to scores through the technique of factor analysis, correlated positively with the evaluations of actual student teaching effectiveness. He reported that the scores obtained on the instrument he developed regarding the characteristics of student teachers provided a better prediction of actual performance during student teaching than did the opinions of teacher educators concerning probable performance. Coefficients of correlation of .23 and .06, respectively, were reported between scores for characteristics of student teachers and measured

actual effectiveness and between the prognosis of teacher educators and measured actual effectiveness.

Jarmin (1963) studied the relationship between success in student teaching in agricultural education and selected measures of previous achievement and experience in high school and college. The criterion of success was the weighted average grade in three rural education courses taken by prospective teachers during the program of student teaching at Cornell University. Predictors, or independent variables, found to be correlated positively and significantly to the criterion of success were grade average at end of first year in college, cumulative average at end of second year in college, average grade received in vocational agriculture in high school, number of farm practice credits awarded the student upon his entrance to college and those earned during his first year of college, and grade on the Regent's Examination in high school physics. Coefficients of correlation for the foregoing ranged from .21 to .29. Jarmin (1963) reported no significant correlations between the criterion of success and the standard college entrance examinations which he investigated.

Inservice Education

Research pertaining to inservice education in agricultural education has not been extensive. In view of the revision of existing programs and the development of new programs of agricultural education at both the high school and post-high school levels, it is imperative that the re-education and upgrading of teachers and other personnel in agricultural education be given prompt attention. Few studies have been conducted which indicate the need for or describe present programs

of inservice education. R. E. Taylor's (1961) survey of state supervisory personnel in the 48 contiguous states indicated that the four areas of professional competency in which state supervisors desired further study were evaluation of the supervisory program, evaluation of local programs of vocational education in agriculture, the development of a program of public relations, and the development of leadership in educational planning. No comparable study has been made to identify the inservice education needs of teacher educators or teachers of agriculture.

Love and Stevens (1964) investigated experimentally three sequences of scheduling classes and three patterns of instruction relative to their effectiveness for providing inservice education for teachers of agriculture. Three-day workshops, weekly sessions, and monthly sessions were the sequences of scheduling classes that were investigated. The patterns of instruction investigated were class sessions taught by a teacher of agriculture who had been given intensive training to prepare for teaching the unit, class sessions taught by a teacher educator in agriculture who had received intensive training in the subject-matter to be taught, and class sessions taught by technical specialists on the university staff. Love and Stevens (1964) reported that three-day workshops taught either by qualified teachers of agriculture or teacher educators resulted in the greatest achievement, when measured by performance on a posttest, by the teachers enrolled. The practice of using technical specialists as instructors for off-campus inservice courses was not equally effective.

Miller (1965) utilized adoption-level theory to measure the progress made by teachers of agriculture in North Carolina toward the adoption of a new concept of supervised practice. He found that within a period of 17 months, two-thirds of the teachers in the sample were in the evaluation stage of adoption. One-half of these teachers were ready to begin the trial stage. An additional 17 per cent of the teachers had reached the trial stage or the adopted stage, the most advanced stages of adoption. Of 10 variables tested for relationship to level of adoption, only teaching practices showed a significant correlation. The factors of age of teacher, number of years of experience, and attitude toward vocational education tended to correlate positively, but not significantly, with the level of adoption. Christiansen's (1965) investigation of the adoption of educational innovations by experienced teachers of agriculture revealed that teachers were influenced by different sources of information at the awareness stage, the interest stage, and the adoption stage. He found that innovative teachers made more use of sources of information which were outside of agricultural education, earned more graduate credit since initial certification, invested larger amounts of money in professional growth, and attended more professional meetings than teachers who were not innovators. Christiansen (1965) reported also that teachers who were less innovative were influenced by their peers to a greater extent than were the more innovative teachers. Further research relating adoption-level theory to change and innovation in agricultural education holds promise as a fruitful area of research.

Emerging programs of agricultural education have led to programs of inservice education for teachers of agriculture which are

supported financially by the Bureau of Research of the U.S. Office of Education. A facet of the project conducted by Love at the Pennsylvania State University is the upgrading of teachers in the areas of ornamental nursery production, floriculture, and turf management. Hemp directed an institute for teachers of ornamental horticulture which was held at the University of Illinois during the summer of 1966. Training institutes designed to provide teachers of vocational agriculture with competence in distributive education helpful for the conduct of programs of agricultural business were conducted at Oklahoma State University during the summers of 1965 and 1966 under the direction of Hull.

ADMINISTRATION AND SUPERVISION

Administration and Supervision of State Programs of Agricultural Education

Schroeder's (1962) investigation of the perception of the role of the state supervisor of vocational agriculture revealed that teachers of agriculture, administrators, and supervisors perceived the role of the state supervisor as that of a stimulator in respect to the operation of the local program of vocational education in agriculture. In a similar study, Law (1964) found that teachers of agriculture and administrators held similar perceptions of the role of the district supervisor of vocational agriculture. Law reported also that the perception of the role of the district supervisor held by teachers was not influenced by the number of years the teacher had been teaching.

Linson (1964) designed an instrument for the self-evaluation of state supervisory programs in agricultural education. National juries of experts in educational supervision were used in developing and refining the instrument which was validated through use by supervisory staffs in five states. Linson (1964) concluded that the instrument for self-evaluation of state programs of supervision was an effective means of bringing about change in the supervision of programs of vocational education in agriculture. The instrument developed by Linson included 121 major activities relating to an effective state program of supervision in vocational education in agriculture.

Studies of state policies pertaining to vocational education in agriculture have dealt with personnel and fiscal policies. R. E. Taylor's (1961) study of the inservice education needs of state supervisors of agricultural education indicated some findings pertaining to personnel policies. He found that less than one-half of the state supervisors in the United States were working in states which had provisions for the professional leave of supervisors. Taylor also reported that existing policies of the various states gave little financial incentive for supervisors to work for advanced degrees.

Warmbrod's (1962) study of state policies for reimbursing local school districts for costs incurred in conducting programs of vocational education in agriculture revealed that almost all of the states had adopted policies which provided reimbursement from state or federal funds for a portion of the following costs: salaries paid teachers of agriculture for teaching high school classes, salaries paid regular teachers and special instructors for teaching young farmer and adult farmer classes, and travel expenses. Less than one-fourth of the

states provided reimbursement for a portion of the costs of instructional equipment and supplies. Warmbrod (1962) reported that state and federal funds for vocational education in agriculture were distributed most frequently to local school districts as reimbursement of a percentage of the expenditures incurred.

In a subsequent study, Warmbrod (1964) established that a state's policy for reimbursing local boards of education is one device which may be used to encourage the expansion and improvement of young farmer and adult farmer education in agriculture. From this study of reimbursement policies and program development in young farmer and adult farmer education in 46 of the 48 contiguous states, Warmbrod (1964) found that states adopting reimbursement policies which encouraged the development of young farmer and adult farmer education as a part of a complete program of vocational education in agriculture had a significantly higher proportion of all enrollees in vocational agriculture made up of out-of-school youth and adults than did states with reimbursement policies which encouraged local boards to pay teachers additional salaries for teaching young farmer and adult farmer classes. Also, states adopting policies encouraging complete programs of vocational agriculture were providing instruction for young farmers and adult farmers in a significantly higher percentage of all schools offering vocational agriculture than were states with policies encouraging extra pay for teachers of young farmers and adult farmers.

Administration of Programs of Agricultural Education in Local Schools

Studies pertaining to the administration of local programs of agricultural education have been concerned primarily with the administration of multiple-teacher departments of vocational agriculture. Jacoby's (1961) study of multiple-teacher departments of vocational agriculture in the United States had as its primary purpose the determination of desired levels of participation for the various administrative agents in high schools with more than one teacher of agriculture. As a result of the study, Jacoby made the following recommendations concerning the administration of multiple-teacher departments: (a) advisory councils should have an important role in suggesting policies to the board of education and superintendent; (b) a head of the department should be designated and said person should assume a major role in the administration of the program; (c) more use should be made of special teachers for young farmer and adult farmer classes; (d) students enrolled in agriculture should be grouped according to vocational objectives; and (e) there should be increased participation on the part of superintendents and principals in the program of agricultural education. R. D. Fuller (1963) surveyed teachers of agriculture in multiple-teacher departments of vocational agriculture in 13 states to identify the successful procedures followed in the delegation and division of responsibilities among teachers. He reported that teachers expressed a desire for one teacher to be designated as head of the department or as program coordinator. Also, the teachers expressed a desire that each teacher in a multiple-teacher department be given responsibility for (a) teaching high school

pupils, young farmers, and adult farmers, (b) developing the annual and long-range plan of agricultural education for the school, (c) preparing the budget for the department, (d) working with the advisory council, and (e) advising the FFA.

Gibson (1963) endeavored to evaluate the effectiveness of one type of pilot program pertaining to the administration of programs of vocational agriculture. Twelve high schools were selected in which the teachers of agriculture were scheduled to teach agriculture on a part-time basis. The arrangements for the pilot program in these schools included the employment of an additional teacher for the nonvocational classes normally taught by the teacher of agriculture. Hence, teachers of agriculture in the schools conducting pilot programs devoted full time to the teaching of vocational agriculture. From the remaining schools in the state with part-time teachers of agriculture, 24 control schools were selected which were shown to be similar to the pilot schools in relation to a number of criteria. After one year of operation, a comparison of the two groups of schools revealed that the pilot schools exceeded the control schools in the number of young farmer and adult farmer classes held and the ratings attained by the FFA chapters. Teachers in the pilot schools indicated they devoted more time to agricultural mechanics, young farmer and adult farmer education, FFA, supervised work experience, program planning, preparation for class, and professional improvement than teachers in the control schools.

Advisory Committees

Cushman and Jarmin (1965) identified the characteristics of advisory committees which contributed to their successful operation.

Studying the characteristics of advisory boards for vocational agriculture in New York, they found that effective advisory boards were distinguished from ineffective advisory boards in that the former had a significantly larger number of appointed members, held significantly more meetings each year, and had a higher attendance of members than the latter. Cushman and Jarmin (1965) reported also that effective advisory boards participated in the nomination of appointed members, notified new members of their appointment by letter from the board of education, developed recommendations during group meetings, scheduled dates of future meetings at their first meeting, scheduled meetings at equal intervals throughout the year, planned a program of work for the year, planned an agenda for meetings, used rules of parliamentary procedure in meetings, studied and made recommendations pertaining to policies and programs in agricultural education, and met with a new teacher soon after his arrival in the community for the purpose of orientation.

Professional Relationships

Hopkins (1963) attempted to identify the activities of leaders in agricultural education designed to promote better professional relations with state and local school administrators and leaders of governmental and nongovernmental agencies and organizations. He identified 84 practices and procedures that were used extensively. However, some of the practices reported as most effective for some persons were used sparingly by the majority of the respondents. Hopkins found that the professional relationship activities used with school administrators were more extensive and more standardized from state to state than the

activities used with leaders of agricultural organizations and agencies.

Some investigations have been concerned with the working relationships between teachers of agriculture and personnel of the agricultural extension service working in local communities. Omar's (1963) study of the working relationships of county extension agents and teachers of agriculture in Michigan indicated that the opinions of teachers and agricultural extension agents did not differ significantly with regard to the desirability of conducting a majority of the activities that were investigated. Differences were found, however, with respect to developing cooperation between 4-H and FFA and for arranging educational meetings for farmers. B. Bryant (1965) reported similar findings in Oklahoma from a study of the nature and extent of working relationships between county extension personnel and teachers of agriculture.

EVALUATION

Research which had as its primary purpose the evaluation of programs of agricultural education has been concentrated in three areas. First, numerous investigations have been conducted to ascertain the success in institutions of higher education of students who have studied agriculture in high school. Second, many studies have been conducted to determine the occupational status of former enrollees at some time following their graduation or termination of study of agriculture in high school. Emphasis in these studies has been primarily on the percentage of enrollees who enter farming and other occupations involving knowledge and skill in agriculture. Third, several

well-designed studies have been completed in which the occupational success of former enrollees in vocational agriculture is compared with the occupational success of persons who did not study vocational agriculture in high school. Much of this research has been concerned with the success of persons in the farming occupations. However, recent studies have been concerned also with the entry and advancement of persons in the nonfarm agricultural occupations.

Krebs (1965) succinctly outlined some principles to be followed in evaluating programs of vocational education in agriculture in which he emphasized that the strengths of the program other than preparation for employment be ascertained and accentuated. Byram (1965) developed a procedure for the evaluation of local programs of vocational education. Criteria for evaluating local programs of agricultural education, which are somewhat out of date at the present but are being revised, were developed by the National Study of Secondary School Evaluation (1960). The current emphasis on the continuing appraisal of programs of vocational education, encouraged by the Vocational Education Act of 1963, resulted in the initiation of several extensive studies pertaining to the evaluation of vocational education. The researcher in agricultural education should be alert to the finding of these investigations.

Few studies have been reported which had as a main purpose the systematic evaluation of local or state programs of agricultural education. Eaddy's (1965) evaluative study of vocational agriculture in Florida involved the establishment of evaluative criteria, the evaluation of each aspect of the program, and the development of recommendations for the improvement of the program. The primary focus of Kent's

(1963) study of the program of vocational education in agriculture in Virginia was to evaluate the program in terms of its adequacy for meeting the needs of rural youth and adults in a changing agrarian society. Lamberth (1964) used a jury of educators to develop an instrument for use by school administrators in evaluating programs of vocational agriculture.

Success in College

The research has shown consistently and conclusively that persons who have studied agriculture in high school achieve as well as or slightly better in college than students who have not studied agriculture in high school. The evidence in support of this generalization is abundant. Tom (1960) reviewed 32 studies reported during the period 1929 to 1959 on the subject of how well former enrollees in vocational agriculture achieved in college. He found that 53.8 per cent of the findings showed that the pupils who had studied agriculture in high school had higher scholastic averages than pupils in the same institutions who had not studied agriculture in high school: 36.6 per cent of the studies showed that former enrollees in vocational agriculture did as well academically as other pupils; while 9.6 per cent of the studies indicated that the vocational group made poorer grades than the nonvocational group.

Since 1960, studies have been conducted in 11 states relating to success in college of former enrollees in vocational agriculture. The findings of these studies substantiate and enforce the conclusion presented in the preceding paragraph. Pierce (1960) found that students at Ohio State University who had studied agriculture in high school

did as well academically as other students not only in the College of Agriculture but also in the Colleges of Arts and Science, Commerce, Education, and Engineering. Thomas (1960) reported that freshmen at Purdue University who had studied agriculture in high school received higher grades in an introductory animal science course than students who had not studied vocational agriculture, although there was no significant difference between the two groups when first-year cumulative grades were compared. Horner, Nuttle, and Schnieder's (1960) study at the University of Nebraska revealed that the cumulative grade averages of students in the College of Agriculture who had completed three or four years of vocational agriculture in high school were significantly higher than the grades of students who had not taken vocational agriculture in high school. Krebs' (1961) study showed that students majoring in agriculture at the University of Illinois who were former enrollees in vocational agriculture tended to earn slightly higher average grades than other students. Macomber (1961) found no significant difference in scholastic achievement in mathematics, science, technical agriculture, and total cumulative average in the College of Agriculture at Cornell University between students who had taken vocational agriculture in high school and students who had not taken vocational agriculture in high school.

Pumper and Sledge (1962) concluded that students at the University of Wisconsin who were former enrollees in vocational agriculture achieved at a significantly higher level in agronomy, animal husbandry, and chemistry, although no differences were found between that group and students who had not studied agriculture in high school in their achievement in agricultural economics, economics, American

history, bacteriology, and English. Dunn (1962) established that students in the College of Agriculture at West Virginia University who had studied agriculture in high school achieved equally as well as students with no prior instruction in agriculture. Studies at Iowa State University by Bendixen (1963), Hoerner (1963) and McCracken (1962) verified that students who had taken vocational agriculture did as well as or better than other students in introductory courses in animal science, agricultural engineering, and agronomy. Beeks (1964) found that freshmen entering the University of Missouri who had completed more than one year of vocational agriculture in high school scored significantly higher on an achievement test in agronomy than students who had not studied vocational agriculture or had completed only one year of vocational agriculture in high school. O'Kelley and Lester (1963) found no statistically significant difference between the mean grades earned by freshmen at the University of Georgia when the grades of former enrollees in vocational agriculture were compared with other male students. Alvis' (1964) study at Texas A&M University disclosed similar findings.

The studies just cited indicate also that a higher percentage of the students entering colleges of agriculture who had studied agriculture in high school graduated from college than comparable students who had not been previously enrolled in high school courses in agriculture. In a study conducted at Virginia Polytechnic Institute, Bass (1961) found that 76 per cent of the former enrollees in vocational agriculture remained in college for four years in contrast to 65 per cent of the students without vocational agriculture. Pumper and Sledge (1962) reported that only 32 per cent of the group of students without

vocational agriculture were graduated from the University of Wisconsin whereas 59 per cent of the students with four years of vocational agriculture were graduated. Comparable percentages from the study conducted by Krebs (1961) at the University of Illinois were 38 per cent and 71 per cent, respectively. Studies conducted at the University of Nebraska (Horner, Nuttle, and Schnieder, 1960) and Ohio State University (Pierce, 1960) confirmed the finding that a higher percentage of the former enrollees in vocational agriculture remained in college to graduate than their peers who had not studied agriculture in high school.

Occupational Status of Former Enrollees in Vocational Agriculture

Numerous studies have been conducted which had as a central purpose the determination of the occupational status at various times since leaving school of former enrollees in vocational agriculture. A large number of these investigations have been concerned with former enrollees of a particular school or community in contrast to area or state-wide studies. The emphasis for the research presented in this report will be on the more recently conducted, state-wide studies.

Studies indicating the occupational and educational status of pupils who had studied vocational agriculture in high school reveal that one year following graduation essentially all the graduates were employed or pursuing further education. Elliott (1961) found that only one per cent of the graduates of high schools in Maine who had studied agriculture were unemployed one year following graduation. Martin (1963) reported two per cent unemployment one year following

graduation for high school graduates in Connecticut who had studied vocational agriculture. Webb (1961) found that six per cent of the high school graduates in Missouri who had studied vocational agriculture were unemployed one year following graduation.

Follow-up studies made several years following graduation from high school reveal also that practically all former enrollees were employed or enrolled for some type of post-high school education. Campbell's (1963) study of the occupational status of some 9,700 former pupils completing one or more years of vocational agriculture and who were graduated from or dropped out of public high schools in Virginia revealed that only 1.3 per cent of the former enrollees were unemployed. Edington and Hill (1964) studied some 4,600 graduates of Oklahoma high schools who had studied vocational agriculture and found that three per cent were unemployed when the study was made.

The research reveals that one year after leaving high school, one-half to two-thirds of the former enrollees of vocational agriculture are employed in occupations requiring knowledge and skill in agriculture or pursuing further study in agriculture at colleges and universities or other post-high school institutions. Bender (1961) found that 66 per cent of the graduates of vocational agriculture in Ohio were working in agricultural occupations or pursuing advanced study in agriculture one year following graduation. Forty-nine per cent were farming, nine per cent were employed in nonfarm agricultural occupations, and eight per cent were studying agriculture in college. Elliott (1961), excluding former enrollees who were in the military service, found that 62 per cent of the graduates in Maine were farming, employed in nonfarm agricultural occupations, or studying

agriculture in college one year following graduation. Martin (1963) established that 51 per cent of the graduates in Connecticut were in the three categories listed for the two previous studies.

Studies to determine the occupational status a few years after leaving school of former enrollees in vocational agriculture reveal that from one-third to one-half were working in positions involving knowledge and skill in agricultural subjects. Bender (1961) found that 59 per cent of the graduates who had studied vocational agriculture in Ohio were engaged in agricultural pursuits five years following graduation. Forty-four per cent were in farming, 11 per cent were employed in nonfarm agricultural occupations, and four per cent were studying agriculture in institutions of higher learning. Campbell (1963) reported that 62 per cent of the former enrollees whom he studied were employed in some phase of agriculture or were employed in an occupation directly related to the mechanical training received in vocational agriculture. Campbell related that 26 per cent of the former enrollees were farming, 11 per cent were employed in or receiving training for nonfarm agricultural occupations, and 25 per cent were employed in occupations of a mechanical nature. Some 10 years following graduation from high school, Eggenberger (1964) established that 44 per cent of the graduates of West Texas high schools who had studied agriculture were working in agricultural vocations. Thirty-one per cent were farm operators, farm managers, or farm laborers; 12 per cent were employed in nonfarm agricultural occupations; and one per cent were studying agriculture in college. A similar study (Robinson, 1964) of high school graduates who had studied vocational agriculture in Iowa revealed that 10 years after

graduation 32 per cent of the former enrollees were owners, managers, or laborers on farms and 13 per cent were employed in nonfarm agricultural occupations in business and industry.

Hayles' (1963) study of high school graduates in Louisiana who had completed four years of vocational agriculture revealed that 16 per cent were farming and 14 per cent were employed in nonfarm agricultural occupations. Edington and Hill (1964) found that 18 per cent of the graduates of vocational agriculture in Oklahoma were farming, 11 per cent were employed in nonfarm agriculturally-oriented businesses, and 12 per cent were enrolled in colleges of agriculture. Williams (1965) studied former pupils who had been enrolled in vocational agriculture in Arizona and found, when the occupational plans of the graduates who were in school or in military service were combined with the occupations of the graduates employed at the time of the study, that 44 per cent of the graduates either were or would be engaged in agricultural pursuits. Twenty-eight per cent of the former students indicated a preference for occupations in production agriculture and 16 per cent indicated a preference for employment in nonfarm agricultural occupations.

Generally, the recent studies of the occupational status of former enrollees of vocational agriculture reveal the following: (a) there is considerable variation among the states in the percentage of persons who had studied agriculture in high school who enter the vocation of farming--about one-third seems to be the most frequently reported percentage; (b) from 10 to 16 per cent of the former enrollees are entering nonfarm occupations in business and industry which involve knowledge and skill in agriculture, a substantial

increase in the percentage of former enrollees who entered these occupations prior to 1960 (Bishop and Tolley, 1963); (c) the percentage of graduates engaged in farming decreases slightly as the number of years since graduation increases (Bender, 1961; Bradley, 1962; Edington and Hill, 1964); (d) the percentage of graduates engaged in nonfarm agricultural occupations and in nonagricultural occupations increases as the number of years since graduation increases (Bender, 1961; Bradley, 1962; Edington and Hill, 1964); (e) the percentage of former enrollees in the military service increases from approximately 10 per cent one year following graduation to approximately 16 to 20 per cent two, three, and four years following graduation (Bradley, 1962; Edington and Hill, 1964; Williams, 1965); and (f) from one-third to over one-half of the former enrollees of vocational agriculture attend college and of those who attend, from one-third to one-half major in agriculture (Edington and Hill, 1964; Eggenberger, 1964; Hayles, 1963; Williams, 1965).

Several of the studies of the occupational status of former enrollees in vocational agriculture attempted also to ascertain the respondents' opinions concerning the value of their training in vocational agriculture for their present employment. As would be expected, those persons working in farming and nonfarm agricultural occupations valued the instructional program in agriculture more highly than those persons employed in nonagricultural occupations. However, a substantial number of former enrollees in vocational agriculture who were working in nonagricultural occupations indicated that they had profited from their experiences in vocational agriculture. Prominant among the values of studying vocational agriculture in high school listed by

former enrollees were the acquisition of abilities of leadership, the ability to work harmoniously and cooperatively with others, and the development of high standards of workmanship (Eggenberger, 1964; Hayles, 1963; Robinson, 1964; Williams, 1965). Richard and Bass (1965) indicated that enrollment in vocational agriculture was given frequently by pupils as a reason for continuing their enrollment in high school.

Success in Farm and Nonfarm Occupations

In a pioneering study, Hoover (1957) compared the degree of establishment in nonfarm agricultural occupations of persons who had studied vocational agriculture in high school with persons in the same occupations who had not studied vocational agriculture in high school. The criteria of establishment and success used in the study were job satisfaction, advancement in the occupation, annual income, increase in net worth, and leadership activities. Hoover (1957) found that the mean values for all criteria were significantly higher for those persons who had studied agriculture in high school. Phipps (1962a) cited other studies which indicated that graduates who had studied vocational agriculture in high school were as successful in entering and advancing in the nonfarm agriculturally-oriented businesses and industries as graduates who had not studied vocational agriculture in high school. The data presented by Roberts (1965) indicated that former enrollees in vocational agriculture acquired skills in agricultural mechanics that were used effectively in the nonfarm occupations, both agricultural occupations and nonagricultural occupations.

Many research studies relating to the occupational success of former enrollees in vocational agriculture have been concerned with the success of those persons who entered farming. The most extensive studies of this nature were those conducted at Iowa State University during the late 1950's. The investigators sought to determine the relationship of the study of vocational agriculture in high school to establishment in farming. The design of the studies involved comparisons of graduates of high schools which offered vocational agriculture with graduates of comparable high schools which did not offer vocational agriculture. Using this purpose and design, Nielsen (1958) established that farm operators who had completed three or more years of vocational agriculture in high school had higher crop, livestock, and total gross products from their farms and had used more improved production and management practices than high school graduates who had not received equivalent training in vocational agriculture.

K. E. James (1961) compared a group of Missouri farmers who had studied vocational agriculture in high school with a group of farmers who had not studied vocational agriculture. All farmers in the study were full-time farmers, were less than 55 years of age, and were high school graduates. He found that the net income was higher and the use of recommended practices was more extensive for the farmers who had studied vocational agriculture in high school. Lester's (1961) study of young farmers in Missouri revealed that young farmers who had completed four years of vocational agriculture in high school had higher farm assets, higher farm net worth, and higher farm income than young farmers who had not studied vocational agriculture or had been enrolled in vocational agriculture for less than four years.

O'Kelley and Lester (1965) studied a group of randomly-selected farmers in eight counties in Georgia and found the farmers who had studied vocational agriculture in high school had adopted a significantly larger number of recommended practices in all crop and livestock enterprises than the farmers who had not studied vocational agriculture in high school.

Cvancara (1964) attempted to determine whether or not instruction in farm management influenced income by studying two groups of farm units in 20 Minnesota communities. The farm units were paired on the basis of certain economic factors. The operators of one group of farm units had participated for three consecutive years in a program of instruction in farm management. Operators of the other group of farm units had participated in the instructional programs in farm management only during the third year of instruction. Cvancara (1964) discovered that farmers in the group receiving instruction during the three years had average farm incomes which were more than 500 dollars higher than the farmers who had received the instruction only one year.

The research has been consistent in the finding that farmers who had studied vocational agriculture in high school are more receptive to and participate more frequently in programs of adult farmer education than farmers without prior agricultural instruction in high school (R. E. James, 1961; Jensen, 1961; O'Kelley and Lester, 1965). Blake (1963) found that farmers who were former enrollees in vocational agriculture participated more in farm organizations than farmers who had not studied vocational agriculture.

Assessment of the Achievement of Enrollees

Few studies in agricultural education have dealt with the development and validation of tests for the assessment of pupils' achievement in agriculture. McCormick (1964) developed an instrument for measuring the understanding of basic profit-maximizing principles essential for efficient operation and management of a farm business. The reference group used for developing and refining the instrument included 158 farm owners. An index indicating the relative level of managerial competence was computed for each farmer. A comparison of the farmers' achievement on the evaluative instrument and the farmers' level of managerial competence revealed no significant relationship between the two factors. Ebbert (1964) developed a multiple-choice achievement test appropriate for use with high school pupils concerning the fundamentals of operation, care, and maintenance of small gasoline engines. The refinement of the instrument, through item analysis, resulted in a 100-item instrument for which norms were derived from the performance on the test of 902 pupils enrolled in vocational agriculture.

RESEARCH

Smith (1944), Martin (1947), Sutherland (1950), and Phipps (1956, 1962a) prepared reviews of research in agricultural education which have been published in the Review of Educational Research. Hamlin (1941), Hamlin and Deyoe (1950), and Sledge (1960) authored digests of research in agricultural education which have appeared in the Encyclopedia of Educational Research. Hemp (1962) prepared a

comprehensive summary of research in agricultural education. Abstracts of research in agricultural education have been compiled regularly by the Research Committee of the Agricultural Education Section, American Vocational Association (1962, 1965). These abstracts are published by the U.S. Office of Education as a series entitled Summaries of Studies in Agricultural Education.

Critiques of research have identified those aspects of research in agricultural education in most need of improvement. The emphasis on descriptive studies of past experience which employ survey techniques has been alluded to repeatedly (Hamlin and Deyoe, 1950; Phipps, 1962b, Smith, 1944). The fact that much of the research in agricultural education has been conducted by graduate students has been indicated by Sutherland (1950) and Hamlin and Deyoe (1950). The need for greater efforts to develop tools and techniques for evaluation has been emphasized by Smith (1944) and Hamlin and Deyoe (1950). Smith (1944) and Sutherland (1950) emphasized the need for research which extends over a long period of time and for cooperative research efforts on a nation-wide or regional basis. Hamlin and Deyoe (1950) advocated the thorough study of outstanding practices for the purpose of identifying and defining conditions which are associated with the results. The use of more appropriate methods of sampling has been proposed (Hamlin and Deyoe, 1950; Phipps, 1962b). The lack of implementation of research findings has been mentioned by Smith (1944) and Sutherland (1950). And finally, the use of pilot programs and demonstration centers as means of applying and refining the findings of research in agricultural education has been proposed continuously for the past 25 years (Hamlin, 1941; Hamlin and Deyoe, 1950; Sutherland, 1950; Phipps, 1962b).

Research on research in agricultural education has been scant. Wessman (1963) categorized the 3,004 studies in agricultural education which had been published from 1935 to 1960 in Summaries of Studies in Agricultural Education. He found the areas in which research was most frequently conducted were (a) curriculum, (b) administration, (c) measurement and evaluation, (d) follow-up of graduates, (e) supervised farming, (f) adult education, (g) teacher education, (h) Future Farmers of America, (k) young farmer education, and (j) veterans' program. Wessman reported the areas researched less frequently were (a) research, (b) objectives, (c) multiple-teacher departments, (d) contests, fairs, and shows, (e) supervision, and (f) public relations and promotion.

Agricultural educators have addressed themselves to the task of improvement of research in agricultural education. Phipps (1962b), in his critique of research in agricultural education, gave special attention to the improvement of research design. R. E. Taylor (1966) presented a cogent argument calling for appropriate administrative policy and organizational structure which would insure deliberate procedures for initiating needed research in agricultural education and for identifying, developing, testing, and disseminating promising educational innovations. Phipps (1965b) prepared guides for implementing, conducting, and evaluating pilot programs in vocational education. Warmbrod (1965) outlined some of the factors to be considered in research involving techniques of sampling. Nielsen (1965) emphasized the need for research and development in agricultural education and described the procedure for approval of research proposals submitted to the U.S. Office of Education for funding.

CONCLUSIONS AND RECOMMENDATIONS

The research in agricultural education has been to a considerable extent descriptive in nature. However, some studies currently in progress as well as some recently completed investigations signal the emergence of the more extensive use of correlational and experimental research. Many of the descriptive studies which were reviewed involved correlational aspects in that variables were identified and defined which were associated with the conditions or results disclosed by the investigation. The correlational studies have been concerned primarily with static variables such as occupational status, years of schooling, and scholastic standing rather than dynamic variables such as methods of teaching, type of occupational experience, length of training program, and similar factors amenable to experimentation.

In contrast to many of the early studies in agricultural education, most of the descriptive research conducted during the past five years involved a scheme of probability sampling. The major weakness of the descriptive research conducted was the profuse use of survey techniques that involved mailed questionnaires for collecting data. Also the phenomenon of nonresponse was, for all practical purposes, ignored. The failure of an investigator to recognize the problems created by nonresponse limits considerably the generalization of the findings, particularly when evidence is not presented which indicates that nonrespondents are more like than they are unlike the respondents. In the absence of evidence to the contrary, the latter is the safer assumption especially with regard to certain crucial factors being investigated.

Researchers in agricultural education should seek alternatives to the preponderance of research which has as its sole purpose the identification of desirable practices through studies of the present status or the solicitation of opinions of knowledgeable persons concerning desirable practices and procedures. Studies of these types, although desirable and necessary, should serve as the basis for the formulation of hypotheses which motivate other types of research. Promising practices and techniques identified through descriptive research should be subjected to rigorous investigation through pilot studies, field-testing, and experimentation.

The research reported indicates that the first half of the present decade has seen the emergence of pilot programs and demonstration centers as means of implementation and innovation in agricultural education. The dissemination and implementation of research findings remain as major problems in agricultural education. The use of pilot programs should be refined and extended in an effort to alleviate these problems. Researchers should prepare popularized as well as technical reports of research. A systematic, coordinated approach to research and development in agricultural education within a state or region holds promise for the effective dissemination and implementation of research findings.

It is clear that an individualized approach to research in agricultural education has been most prevalent. A majority of the studies cited in this report were conducted by graduate students. The results of this approach to research are evident. First, the problems investigated must be limited to those which can be accomplished in a relatively short period of time. Many of the most crucial

investigations in agricultural education are not amenable to such limitations. Second, there is ample evidence to indicate that the findings of individualized research are rarely cumulative. Consequently, the development of coherent theory and practice in agricultural education as a result of research has been meager. Third, research conducted primarily by graduate students is usually not readily disseminated and implemented. The reason for this lack of implementation is not that the findings are invalid or unimportant but because the researcher is rarely in a position to implement the findings. Also, a graduate student's main goal is reporting, not implementing, findings.

A notable exception, both to an individualized approach to research and to the graduate student as a researcher, is the vast number of recent studies dealing with employment opportunities and competencies needed for employment in the nonfarm agricultural occupations which were coordinated by The National Center for Advanced Study and Research in Agricultural Education and conducted by teacher education and supervisory staffs. The availability of funds for research under the provisions of the Vocational Education Act of 1963 indicates the beginning of a trend where research in agricultural education is no longer primarily the domain of the graduate student. The need in the past has been adequate funds for research in agricultural education. The impediment to research in agricultural education in the immediate future is likely to be a scarcity of trained personnel.

A comparison of this review of research in agricultural education with previous reviews reveals some interesting trends. Most

noticeable, of course, is the fact that recent research reflects the broadened objectives of vocational and technical education in agriculture. Heretofore, little research has been reported pertaining to manpower needs and employment opportunities in the nonfarm agriculturally-oriented businesses and industries. The curriculum research of the past five years has assumed new dimensions. First, there have been systematic occupational analyses to identify the competencies needed by workers in the nonfarm agricultural occupations. Second, the focus of much of the curriculum research has not been on the local community as it has been in the past but on area or state-wide studies with resulting curriculum recommendations that have broad applicability. And finally, for the first time curriculum research in agricultural education has attempted to define the agricultural knowledges and skills that are common both to the farm and nonfarm sectors of our society.

Another new dimension indicated by the recent research is the development of programs of post-high school technical education in agriculture. The concern of agricultural educators for supervised experience in business and industry is evidenced by recent research. Renewed emphasis on innovation and evaluation is clearly discernible. The research studies under way indicate that evaluation of programs of agricultural education will be broadly conceived rather than limited to a study of the proportion of former enrollees who enter farming and other occupations involving agricultural knowledge and skill.

Research pertaining to the role of teachers of agriculture and supervisors of agricultural education has been initiated during the past five years. The investigations have not indicated clearly,

however, the implications of this research for agricultural education.

The statement of other reviewers that more and better designed research is needed in all areas of agricultural education is still appropriate. The piecemeal approach to research in agricultural education has limited the number of definite conclusions. When such conclusions were warranted, an attempt was made to make them explicit throughout the report. Some areas of concern which should continue to command the attention of the researcher in agricultural education follow.

Of paramount importance is the evaluation of programs of agricultural education. Evaluative studies should be broadly conceived to identify and appraise all outcomes of programs of agricultural education rather than being limited to an investigation of the contributions of agricultural education to proficiency in agricultural occupations. Also evaluative studies are needed to assess broad outcomes of vocational education in agriculture instead of limiting evaluation to whether or not persons trained are employed in the occupation for which trained. The mandate of recent legislation that evaluations of local and state programs be made in reference to current and projected manpower needs and job opportunities identifies an important area of research. Continuing investigations should be conducted to identify the present and emerging occupations in business and industry that require knowledge and skill in agricultural subjects. Studies of local and area needs for operators of farms are needed since national projections are not appropriate in many cases.

Curriculum research should be continued to insure that instructional programs are kept up-to-date. The implementation of curriculum

innovations through pilot programs and demonstration centers should be accelerated. The vast amount of instructional materials being developed should be field-tested and revised to insure their maximum effectiveness.

Long-range studies from which theory and practice evolve pertaining to teaching and learning in agricultural education are of upmost importance.

Supervised practice in agricultural education, including supervised occupational experience, should be a fruitful area of research.

The role of student organizations in agricultural education and the identification and evaluation of appropriate activities of student organizations are subjects which should be investigated.

The emerging programs of post-high school technical education in agriculture should evolve from and be based on sound programs of research and development.

Research pertaining to programs of agricultural education for disadvantaged youth and adults should be expanded.

There has been very little research pertaining to general and nonvocational education in agriculture. Research in this area must be forthcoming if this facet of agricultural education is to develop.

The development of new programs of vocational and technical education in agriculture necessitates that research pertaining to the preparation, retraining, and upgrading of teachers, supervisors, and teacher educators be instigated.

Research pertaining to the administration and supervision of agricultural education is essential. Innovations in administrative policy and organizational structure pertaining to finance, staff,

facilities, research, and program development should be systematically evaluated. Policy and policy development are areas which have not been researched extensively.

And lastly, the researcher in agricultural education should not ignore research which has as its main purpose the evaluation and refinement of research designs, techniques, and instruments.

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*LITERATURE REVIEWS, *BIBLIOGRAPHIES, EDUCATIONAL PHILOSOPHY, CURRICULUM DEVELOPMENT, HOME ECONOMICS EDUCATION, INSTRUCTIONAL MATERIALS, LEARNING PROCESSES, TEACHING METHODS, STUDENT PERSONNEL SERVICES, EDUCATIONAL FACILITIES, EDUCATIONAL EQUIPMENT, TEACHER EDUCATION, EDUCATIONAL ADMINISTRATION, PROGRAM EVALUATION, *EDUCATIONAL RESEARCH, EDUCATIONAL NEEDS, EDUCATIONAL PLANNING, EDUCATIONAL OBJECTIVES, EDUCATIONAL PROGRESS, EDUCATIONAL TRENDS,

EDUCATIONAL PROGRAMS, EMPLOYMENT OPPORTUNITIES,

Professional magazines, research reviews, and 500 theses and dissertations were considered in selecting 159 research studies for review. Studies concerned with teacher education were included but adult education was excluded. The period from 1959-66 is covered. Topics are -- (1) Philosophy and Objectives, (2) Manpower Needs and Employment Opportunities, (3) Educational Programs, (4) Instructional Materials and Devices, (5) Learning Processes and Teaching Materials, (6) Student Personnel Services, (7) Facilities and Equipment, (8) Teacher Education, (9) Administration and Supervision, (10) Evaluation, and (11) Research. Progress has been made in collecting and analyzing data relating to important problems, but resources should be used to better advantage. Many theses have only local implications. Statistical consultants and researchers in other areas of vocational education should be utilized. Theories should be reexamined in light of the research findings in education, psychology, and sociology. There is a need for greater creativity, leading to exploratory studies as the first step in problem solving. (MS)

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Review and Synthesis of Research in HOME ECONOMICS EDUCATION

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
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980 Kinnear Rd.
Columbus, Ohio 43212

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REVIEW AND SYNTHESIS OF RESEARCH IN HOME ECONOMICS EDUCATION

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August 1966

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INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Home Economics Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of home economics education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings

generated by funds available through Section 4(c) of PL 88-210. Admittedly, the authors had problems in securing all available material, but nevertheless, in our judgment, they have done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Agricultural Education; Business and Office Education; Distributive Education; Industrial Arts Education; Technical Education; Trade and Industrial Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to Hester Chadderdon and Alyce M. Fanslow for their scholarship and efforts in providing the profession with this new benchmark and perspective on research in home economics education. Recognition should be given to Dr. Sara Blackwell, Director, Teacher Education, College of Home Economics, Cornell University, Ithaca, New York, for her critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. Sylvia L. Lee, Specialist in Home Economics Education, at The Center, for her review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

PREFACE

This review of research covers primarily the period between 1959 and 1966; many of the studies, however, completed late in 1965 and 1966, were not available by interlibrary loan or microfilm. Approximately 500 titles of theses and dissertations were considered during the initial selection stage. If the studies appeared to be related to the topics under consideration, the abstracts or theses were examined before the final selection was made. Professional magazines and reviews of literature were other sources used to obtain a reasonably complete coverage.

Only studies at the college level concerned with teacher education were included. Those in the area of adult education were excluded. In some areas, notably curriculum, the large number of theses necessitated the use of another basis for selection. Since many involved only a local sample, making the findings of limited usefulness, those sampling a broader population were given preference. The number relating to wage-earning, however, was small and, hence, some with local sampling were included. These can be useful in suggesting types of data needed and techniques of data collection even though the findings are limited in scope.

The authors want to express their appreciation of the assistance of Carolyn Kundel and Margaret E. Arcus in obtaining reports of studies and checking the bibliography in addition to other means of making it

possible to complete the project in the limited time available. Also, acknowledgment is given to Dr. Marguerite Scruggs for writing the section on Manpower Needs and Employment Opportunities.

Hester Chadderdon

Alyce M. Fanslow

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PHILOSOPHY AND OBJECTIVES

Traditionally, philosophies of education and, hence, the development of curriculum objectives have been formulated by "deduction" from general philosophic positions. Relatively few formal studies of this nature have been carried on previous to or since 1960. The most basic statement of the philosophy and objectives of the home economics profession is that found in the report by the Philosophy and Objectives Committee of the American Home Economics Association (1959). The list of 12 competencies fundamental to effective family life has important implications for the secondary home economics program.

McConnell (1965) explored the implications for home economics education at the secondary level of these four philosophies: idealism, essentialism, pragmatism, and humanism. Antz, Bagley, Dewey, and Hutchins were selected to represent each position and their writings were summarized to represent each philosophy. The nature of the home economics program within each was then interpreted. While Hutchins' position would exclude home economics, the other three allow for this area in the curriculum. McConnell believes, however, that Dewey's position gives "greater breadth to home economics, comes closer to the ideas expressed by home economists, and appears to permit greater flexibility for future development."

While examination of general philosophic positions has contributed to the determination of objectives to be attained, the

social, economic, and technical trends of the time have also been influential. Hostetler (1961) sought to define these trends which home economics teachers and experts in the field recognize and agree upon as promoting curriculum change in the secondary home economics program. She obtained responses to a questionnaire containing 34 statements relating to trends from a random sample of 105 junior and senior high school home economics teachers in Indiana and from 88 head teacher educators in home economics. While both groups agreed upon the importance of 18 of the 34, the highest frequency of agreement between the two groups concerned the importance of population, income and credit, and value trends on curriculum change; less agreement was evident on those related to social structure and education. In general, the teacher educators appeared to consider the social, economic, and technical trends more important for planning the future home economics curriculum than did the teachers and to exhibit greater willingness to make the appropriate curriculum changes warranted by them than were the teachers. The latter tended to accept the status quo.

The changing role of women and its implications for homemaking education was examined by Fisher (1963). Some of the changes foreseen are: an increased emphasis on management; a greater concern for educating the individual for self-understanding and for family membership; a lessening, but not the complete abandonment, of manipulative skills; and education for assuming the dual role of homemaker and wage-earner.

Recognizing that both philosophies of education and the conditions of the period influence the formulation of objectives, Simpson

(1964) summarized the major objectives of home economics education on the secondary level:

1. to prepare young people, particularly young women, for making a home. . . .
2. to prepare young people who can profit from such training for occupations which use home economics knowledges and skills.
3. to prepare them for combining the dual role of home-maker-employed person with success and satisfaction.

For many years it was questioned that home economics at the secondary level should assume any responsibility for preparing students for wage-earning occupations. With the passage of the Vocational Education Act of 1963, however, this objective is becoming accepted as one aspect of the secondary home economics program. Some reasons for the incorporation of employment education into the program were listed by Simpson (1964):

1. A large number of women work outside the home; thus, we have the responsibility to help prepare them for the other half of their dual roles.
2. There are fewer positions available for the unskilled: home economics has the potential for teaching wage-earning skills.
3. A large percentage of unmotivated young people drop out of school; evidence suggests that they are more likely to remain in school when education for employment is offered. Home economics can contribute to this program.
4. The number of service occupations has greatly increased and many have a relationship to home economics.
5. Too few high school students are receiving vocational education; home economics has a contribution to make in education for employment.

The acceptance of employment education as an objective of the secondary home economics program was studied by Blunier (1963). In a survey of state supervisors, she found the majority agreed that education for employment is an emerging area of emphasis in the secondary

home economics curriculum and that preparation for wage earning should be included in it. This belief is being implemented in many states; 49 per cent of all the state supervisors returning questionnaires reported some programs concerned with employment education. Two years later, 103 city home economics supervisors were surveyed by Whitmarsh (1963). She found a somewhat more favorable attitude toward a wage-earning program. Only seven per cent believed that this emphasis would interfere with education for homemaking and 18 per cent were undecided. Brittain (1965) used references on vocational education, women and the world of work, home economics education, and child care to formulate a philosophy of vocational education as it relates to gainful employment in home economics.

The time lag between educational theory and education practice is not a new concern of educators. One long-term study has been completed which has as its purpose the discovery of the discrepancies between the beliefs and actions of home economics teachers. Johnson, Lowe, Smith, and Stringer (1961) first sought to identify the educational beliefs which home economics education authorities accepted as important. A questionnaire containing 37 beliefs was mailed to a national sample of 76 supervisors and heads of teacher education departments; all but three responded. Analysis of the data indicated that 30 of the beliefs were considered very important by at least 75 per cent of these home economics educators. The 30 beliefs were grouped into five categories:

1. teacher objectives and content of home economics courses at the high school level
2. methods of teaching high school classes
3. evaluation in the high school program
4. pupil participation in all that goes on in the home economics program
5. extra-class responsibilities of the teacher and the physical facilities of the home economics department

Later, Godwin (1961) revised the questionnaire and sent it to a sample of home economics teachers in North Carolina to learn which beliefs they accepted and which they had difficulty in applying in their teaching. She concluded that the home economics teachers in North Carolina largely accepted the concepts that leading home economics educators thought important. Examples of those which they had difficulty in applying are: teacher-pupil planning, program interpretation by teacher and pupils within the school community, and teaching pupils to inductively arrive at their own generalizations and use them in problem solving.

In a third aspect of the study, Clawson and Johnson (1965) investigated the extent to which home economics teachers applied three of the beliefs identified as important by both groups. These were concerned with pupil development, understanding of self and others, and teaching for carry-over. Data were collected on a random sample of 18 teachers within a 30-mile radius of Greensboro, North Carolina. Teachers were found to have both strengths and weaknesses in relation to each of the three beliefs. Teachers seemed to provide classroom atmospheres where the pupils were at ease and interested in class activity; to encourage pupils to apply knowledge learned in class to life outside the classroom; and to help students improve their self-understanding. They appeared to need help especially in learning what is meant by a good discussion; in finding ways to challenge pupils of all levels of ability; and to provide experiences in all areas of home economics that are meaningful to pupils and to help them see home applications.

MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES

A review of the literature revealed a limited number of studies dealing with manpower needs and employment opportunities in home-economics-related occupations. The few reports that could be obtained include two investigations of general manpower needs for a state and surveys of potential employment opportunities utilizing such sources of information as employers, employment security agencies, and home economics teachers.

Two examples of state-wide studies of manpower needs, present and projected, are those reported by Jakubauskas (1966) and Bognanno and Hagen (1966). Each analyzed the labor force distribution for Iowa and some of their findings have implications for home economists. After briefly describing the population and labor force growth from 1940 to 1960, Jakubauskas (1966) discussed trends for the United States and for Iowa in manpower needs by industry, by major occupational group, and by specific occupation. He found that in Iowa there is a trend in available jobs away from the less skilled toward the more highly skilled, which means a trend toward jobs requiring more education. An annual increase of 600 new jobs in personal services was predicted for the state to 1980; also, that white-collar jobs would comprise about 40 per cent of total employment in the state in 1970 and about 56 per cent in 1980. Some of the jobs commonly held by women he identified as contributing to these increases were: (1) private household jobs will increase substantially, (2) employment for cooks and hospital attendants will nearly triple, and (3) need for cleaning women, counter service personnel, and assemblers in manufacturing will double.

In projecting employment changes in Iowa to 1970, Bognanno and Hagen (1966) see the fastest growing area of employment opportunity for men in Iowa as professional, technical, and kindred workers. The fastest growing occupational category predicted for women is that of service workers, which they anticipate will increase nearly 60 per cent between 1960 and 1970.

A progress report was available for a survey of existing or anticipated jobs related to homemaking being made by Swope (1964-65). Data from a random sample of homemakers in one Illinois community had been analyzed and were also being obtained from samples of homemakers in two additional towns. In the one community, the most likely increase in jobs relating to homemaking for trained persons would be regular and special house cleaning, child care, and laundry work. Teenage girls would be accepted for these jobs and the expected rate of pay would be highest for house cleaning and laundry work.

Bentley (1964-65) described several techniques employed in South Carolina to obtain information useful in curriculum planning and included a copy of questionnaires which were used to obtain the reactions of young persons to home-economics-related jobs and to determine potential homemaker service areas.

In an investigation of employment opportunities for women in service occupations in Idaho, Latham (1965) administered questionnaires to managers of Employment Security Agencies in 25 cities and to 70 home economics teachers. The former estimated the number of job requests they had per month for each of nine groups of home-economics-related occupations. The most frequently reported request was for supervised

food service workers, an average of 7.4 per month for the state as a whole; the demands for homemaker's assistants and for child day-care workers were almost as great--7.5 and 7.0 per month, respectively. No requests had been received for management aide in low-cost housing or family dinner service specialist.

The managers ranked these service occupations in order to importance to the community which their agency served. When the ranks assigned were weighted, it was found that the three ranking highest were: supervised food service worker, companion to the elderly, and hotel-motel housekeeping aide. They were also asked whether they would encourage persons on their employment lists to participate if training programs were available in any of the nine occupations. All but three of the 25 responded positively. Child day-care worker and homemaker's assistant were most frequently judged by the teachers to be the occupations for which training could be given at the high school level. Some physical facilities for wage-earning programs were available in all but two of the 25 communities.

The food service industry in Santa Monica, California, was investigated by Rossi (1966). She found four specific occupations that were available to secondary school students in which knowledge and skills of home economics could be applied and for which there was most demand for workers. The four were workers in food preparation, waitresses, food servers, and hostess-cashiers. Managers of commercial food establishments primarily preparing or serving food for profit were interviewed. When asked about employment of student trainees, 72 per cent expressed interest in hiring such persons and estimated that 38 such jobs would be available per year. The majority preferred that employees be at least 16 years of age.

The Southern Regional Committee for Family Life (1965) collected data in Kentucky, North Carolina, Virginia, and Tennessee relative to vocational goals of rural youth. The sample included 1,139 randomly selected from a population with specified characteristics and stratified into 48 sub-groups based on sex, membership in the specified youth organizations, level of living, place of residence, family size, and area of the state. All participants were enrolled in the ninth or tenth grade of county school systems.

Some of the findings are of particular interest to home economists. The higher the level of living of the family, the longer the length of schooling planned by students and by parents for them; fewer girls expected than wanted to enter professions and more girls expected than wanted to be full-time homemakers; non-members of youth organizations valued education more highly than did members. Based on scores on the Kuder Vocational Preference Record, sex was the factor most often related to vocational interests.

Altman (1966) reported a study of general vocational capabilities that had two major purposes: to describe a domain of general vocational capabilities and suggest methodological improvements in the derivation of educational goals. The sample of 31 occupations and selected jobs within each occupational group included several related to home economics. After describing component tasks, task behaviors for each occupation were translated into multiple-choice test items. These were administered to 10,000 students from ninth grade through junior college in two school systems. Correlations of the scores revealed a domain of areas of vocational capabilities ranging along a

continuum from "hardware-to-people;" namely, mechanical, electrical, special, chemical-biological, symbolic, and people. Altman stated:

> The most important implication of the study was that there is a definable and well-structured domain of vocational capabilities which has not previously been well defined and which is not being systematically taught by our educational institutions. This domain is compatible with and intimately related to existing academic disciplines and specialized vocational training.

CURRICULUM DEVELOPMENT

More studies, both previous to as well as after 1960, have been carried on in this area than in any other. Many, however, have been limited to a small sample and will not be reviewed unless they represent a unique method of collecting or analyzing data.

Decisions relating to curriculum involve several considerations; hence, it is not surprising that the problem has been approached from more than one base. Pressures of society on the home; organization of knowledge; beliefs of educators and lay persons; responsibilities, beliefs, attitudes, and interests of pupils; and wage-earning demands all have been used to obtain evidence of needs that should be met.

After examining the fact that our culture is increasingly urban rather than rural, Moore (1964) pointed out six pressures that impinge on families today: mobility, closeness of living with others, stress, rapid change, living with diversity, and the need for common values to lend stability to the individual and the nation. She also noted that mothers are increasingly employed outside the home, that fathers are assuming a greater role in homemaking activities than their fathers did, and that decisions are more frequently shared by all family members.

Because of the changes affecting families, the accumulation of new knowledge, and the need to improve articulation, the U.S. Office of Education took responsibility for analyzing the field of knowledge in home economics with the assistance of educators and subject-matter specialists. Mallory (1964) described the process used to define the structure and content in terms of basic concepts and generalizations in the five areas: Human Development and the Family, Home Management and Family Economics, Food and Nutrition, Housing and Textiles and Clothing. She also reported one example of how these concepts and broad generalizations are being used in the revision of one state program--New York.

The judgments of educators and lay persons are useful largely to determine the degree of readiness to accept new aspects or different emphases for programs. One of the current critical issues is that relating to the inclusion in programs at the secondary level of objectives concerned with wage earning.

Vossbrink (1966) examined the attitudes and beliefs of school administrators in Michigan with reference to programs designed for homemaking education and for wage earning. She drew a random sample of schools offering a homemaking program and classified them by size. Of the 150 selected, personnel from 109 participated in the study. The superintendents and principals agreed generally that the program designed for homemaking preparation was desirable in all four grade levels but more of them favored the ninth and 12th grades than other levels. They saw the subject as valuable for potential school dropouts as well as other girls but there was less agreement on courses for boys or courses in family living for senior boys and girls.

Although training for wage earning had not been instituted in many of the schools, there was general agreement that home economists had a contribution to make in such preparation.

One of the objectives of Ferguson's (1960) investigation was to determine the place seen by school administrators in Iowa for units relating to education for family living. More than 70 per cent of the randomly selected sample believed that all high school pupils, both boys and girls, should have instruction in this area regardless of their post-high school plans and that the 12th grade was the best time. There was less agreement regarding the desirability of making such instruction required, however. A majority of them thought that the social studies teacher should teach the aspect of Community Living, the home economics teacher the Child Development, and other teachers the Health of the Family. The proportions were lower for other aspects but Preparation for Marriage and Personal Problems were most commonly "assigned" to home economics and Housing and Economics of the Family to social studies. Some saw the need for the teachers in these two areas to share teaching particularly that relating to Preparation for Marriage, Economics of the Family, and Housing.

The beliefs of laywomen who were officers of community organizations, concerning the teaching of home economics to junior and senior high school pupils, reflected an outmoded concept of a homemaking program for girls. Pernice (1961) gathered data by questionnaire from 255 respondents in 25 states representative of the four regions. Half of the women queried were full-time, middle-aged, married homemakers with two children under 18 years of age living at home; 85 per cent had at least a high school education and all were active in church, civic, and PTA organizations.

All of the major areas of learning were approved for girls by at least 60 per cent but the most frequently selected area was clothing, textiles, and related arts, 80 per cent; planning, preparing, and serving food for the family was the second highest, 76 per cent, followed by family economics and housing, both 66 per cent. When asked which areas boys should be taught, the highest percentage, 61, placed family economics first, personnel and family relationships second, 59, and the area of housing, home furnishings, and household equipment was third. Only approximately one-fourth believed that boys needed to be taught about planning, preparing, and serving food, or clothing, textiles, and related arts. Developing a wholesome attitude toward sex was believed to be the most important learning to be taught boys and girls at home, 86 per cent.

Whitmarsh (1966) used the opinions of professionals and practioners in Illinois to determine the knowledge in child development and guidance needed by mothers and employees in occupations related to child care. An instrument containing 68 items of knowledge was constructed to probe the depth of understanding believed necessary for job performance as a day-care center assistant or as a mother. No statistically significant differences were found between the opinions of the practitioners and these professionals: child development specialists, day-care licensing representatives, and social workers. Mothers were judged to need different amounts of knowledge than persons employed in day-care centers. Whitmarsh recommended that the knowledges judged to be common be included in a core course and that those which are unique be included in separate, advanced courses.

Grade-level placement was investigated by Sigrest (1963) in relation to subject-matter content in the area of housing by obtaining the judgments of 100 Mississippi homemaking teachers concerning the grade level most appropriate for teaching the various aspects. A majority selected the following as appropriate for 11th- and 12th-grade students: financial and legal aspects; owning and renting; decorating, arrangement of furnishings and rooms; selection of household linens; wiring and lighting; cooling and heating; plumbing; selection of windows, doors, and floor coverings; and landscaping. Categories thought to be appropriate for ninth- and 10th-grade levels were factors involved in arrangement of furnishings and rooms and in decorating a house. Only one item was checked by 50 per cent or more of the respondents as being appropriate for the seventh- and eighth-grade level: the social and psychological development of the individual gained through physical care of the home.

To determine the needs for strengthening educational programs which prepare for the vocation of homemaking, Jordan and Loving (1966) obtained responses to a questionnaire from about eight per cent of the approximately 20,000 young women who had attended Virginia high schools in 1954-1955. More than 90 per cent felt that young women today need preparation for homemaking in addition to that provided in the parental home. Management was the content area in which the greatest need for help was indicated. Problems in the early years of marriage seemed to cluster in two areas: adjusting to new situations and adjusting to the roles and responsibilities of being a homemaker. Approximately three-fourths considered homemaking a full-time job comparable in dignity and status to employment outside the home. They found homemaking to

be intellectually stimulating. Homemaking practices reflected inadequacies in the consumption of citrus foods and milk, the greatest being the latter. Guidance of the growth and development of children appeared to be a responsibility shared by both parents.

A study of 270 young Iowa and Minnesota high school graduates between the ages of 18 and 21 support Inman's (1962) conclusion that young homemakers have not been adequately educated in the area of household equipment for their occupation of homemaking. Seventy-five per cent owned at least 10 household equipment items but their responses to a set of statements revealed a lack of knowledge about the selection, use, and care of the equipment. Parents, friends, and salesmen were the most commonly used sources of help when deciding upon a purchase. About one-fourth of the problems with equipment were associated with use and care of the range. Equipment generalizations were developed and sbumitted to curriculum specialists. Although many of the statements dealt with subject matter often included in the first course in household equipment at the university level, most of them believed the content suitable for the secondary school homemaking curriculum. Fifty per cent or more of the educators agreed on the grade placement of the content.

Lemmon (1964) approached the problem of what and where to teach aspects of housing by asking the opinions of 115 rural and urban homemakers, 20 home economics teachers in Colorado, and extension specialists in housing. Safety in the Home was the category most frequently judged to be very important but each of the other nine categories was believed to be very important or important by approximately 80 per cent of the group; cleaning, buying, and caring for furniture was the one

exception. In reply to the question of grade placement, the majority of the teachers said that these aspects of housing should be taught in junior and senior high school and to adults: safety, arranging furniture, beauty, storage, and lighting. The aspects believed most appropriate for upper high school and adult levels were: buying, renting, remodeling, and caring for furniture.

A large number of studies were found that are concerned with the attitudes, home responsibilities, interests, and beliefs of pupils and several have related these to such variables as grade level, sex, socio-economic status, employment of mother, and ethnic background. Some of these investigations are so extensive that they cannot be reported here in detail. Many, however, included only a few high schools or were not randomly drawn from a population and have such limited usefulness that they were not included in this review.

Grade Level

Grade level or age was one of the variables investigated in several studies. In the area of personal and family relations, the Texas study by Moore and Holtzman (1965) is outstanding in scope: Nielsen (1961) also sampled a state--Iowa.

In Texas, they found that as the students progressed through high school from grades nine to 12, their feelings of isolation decreased, their need for conformity lessened, they became less critical of the educational system, and they had fewer problems in peer relations. Responses to items from an inventory, Interests in Personal and Family Living, revealed that ninth- and 10th-grade pupils were particularly interested in the aspect of dating and the upper grades in items relating to marriage and being at ease in social situations. In Iowa

pupils in the eighth and 12th grades recognized more personal-social problems than those in other grades. Adams (1964) asked approximately 4,000 students 10 to 19 years of age to list their and their peer group's biggest problem. Boys more commonly reported problems related to school and finances whereas girls tended to report interpersonal and family problems.

One trend related to the area of child development was found in the Texas study; students became less authoritarian in their attitudes toward rearing children as they moved toward maturity. Those in the ninth and 10th grades were especially interested in learning more about toys and care of sick children as well as the development of children as a basis for baby sitting. None of the items on the interest inventory relating specifically to children was more frequently marked important by the 11th and 12th graders than by the younger pupils. Three investigations in Iowa analyzed the experiences and the problems recognized by junior high school pupils by grade: Bunz (1964), Ferguson (1964), and Jeske (1963). They found that the care of siblings increased, that baby sitting by girls was most common at the ninth-grade level, and that seventh graders were more concerned with the majority of the problems than those in the eighth or ninth grades.

Interests in housing and management were found to be high among juniors and seniors as compared with pupils in the two lower grades in Texas. The seven items of major interest to the older students related to the house and equipment and three to managing time and energy. When Schweiger (1966) studied the tasks assumed by junior high school pupils relating to housing, she found that more eighth- than seventh-grade girls participated in them but that the reverse was true for boys.

In relation to food and nutrition, 11 items were of major interest to Texas pupils in the first two grades in high school: how to select, prepare, and serve food and food fads. The selections of the upper classmen contained two in this area: the purchase of food and getting family members to eat wisely. Experiences with food varied to some extent by grade level among Iowa pupils. Mean's (1964) data indicated that grade level was consistently related to the experiences of purchasing food, preparing meals when the mother was not home, and preparing yeast breads and pies. Eighth graders more frequently than others prepared sack lunches and 10th graders prepared meals and certain individual dishes.

Money management was included in four studies in addition to the one in Texas: Bruner (1965), Dunsing (1960), Hurt (1962), and Powell and Gover (1962). Bruner found in two New York senior high schools that four aspects varied by grade: use of personal charge accounts, use of parental charge accounts, amounts of income, and money spent. In the Texas study, the more advanced pupils were particularly interested in four items in money management: investment, insurance, credit rating, and wise purchasing. In four senior high schools in San Francisco, the income of the older girls tended to rise from earnings outside the home, gifts, and allowances, and they less commonly were accompanied by mothers when shopping for clothes. Hurt's sample included girls enrolled in home economics classes in 39 states. She reported increases in money spent for clothing, books, contributions, car expenses; also, in freedom to decide how to use their money. Powell and Gover found in South Carolina that as the grade level rose, the amount of money received from jobs outside the home and the freedom to spend their money increased.

Sex

Since in the past relatively little attention has been given to discovering the needs of boys, it is surprising to find that in several studies sex differences have been explored. The Texas survey revealed that boys were on the whole more pessimistic about the world and more negative toward school experiences and that girls were more critical of their female peers. In Iowa, 12 of the 60 items used by Nielsen (1961) to discover problems were more frequently reported by girls than boys. They involved items in four categories: making friends, dating, going steady, engagement and marriage. Dunn (1960) investigated the marriage role expectations of older adolescents and discovered that girls more commonly had expectations classified as equalitarian. In contrast, no sex differences were revealed when Klotz (1963) surveyed 12th-grade students in urban areas of Iowa. Their judgments were similar regarding the importance of studying 68 items relating to marriage and family living. The clusters of items considered most important by both sexes were values and goals, selection of a marriage partner, child care, and maturity. Also, both sex groups in Texas were interested in the study of personality and interpersonal relations, but the girls were more interested than the boys in learning about home management and household skills. In a specialized sample to study ethnically diverse communities in Iowa, Brown (1964) found that in general girls were more concerned than the boys about dating, values and goals, self and marriage, children, and engagement.

In studies involving the area of child development, some differences were found between the sexes. Boys in Texas appear to hold more

authoritarian concepts concerning the discipline of children and to be less interested in studying child rearing. Iowa studies revealed that the differences between sexes were greater with respect to baby sitting than to care of young siblings. Girls also had contacts with more children, more frequently and for longer periods of time. A large proportion of both had some informal contacts every day and were interested particularly in studying about the emotional development of children.

Experiences in the area of housing varied by sex; in general, boys participated less in these activities. Data collected by Schwieger (1966) also revealed that they more frequently selected recreational equipment and the girls personal grooming equipment.

As might be expected, boys were found by Dunsing (1960) to have more money than girls but they saved less. They also earned more of their money by outside jobs. Expenditures for boys were largely related to cars, gifts, clothes, sports equipment, and recreation: for the girls to gifts, clothes, and school lunch. They also used their parents' accounts more commonly.

Social Status

When this variable was studied, several differences were revealed. In the Louisiana study by Dunn (1960), three areas relating to marriage roles were found to vary by status: care of children, education, and financial support and employment. The lower status pupils tended more to agree with traditional concepts in these areas. In Iowa, Brown (1964) found that this group was more concerned with items in the cluster of self and marriage than those in higher status groups.

Few differences appeared in the Iowa studies on child development and foods. In non-urban areas, more junior high school pupils in the lower and upper than the middle groups did baby sitting and they also participated in more activities with children. The higher the status the more likely they were to be involved in activities related to food preservation. Bruner (1965) also found little evidence that this factor was related to money management except that use of parental charge accounts by adolescents tended to increase. Moore and Holtzmann (1965) related father's occupation to scores on several scales and found relations to five. As the level of occupation from unskilled worker to professional and large businessman increased, the scores on Orientation to Society decreased indicating a more positive attitude: also, there were decreases in Resentment of Family Life Style, Social Inadequacy, and Financial Troubles. Youth whose fathers were farm owners or managers were most critical of education whereas the children of farm laborers and tenants were less critical.

Employment of Mother

The question of whether the employment of mothers is related to activities and responsibilities assumed by adolescents has been explored frequently in recent studies due, no doubt, to the great increase in such employment. In the Texas study, no significant relationships were found between scores on any of the scales and employment of mother outside the home. Pope and Loften (1960) in a survey of the home responsibilities of first-year homemaking pupils in Mississippi obtained little evidence that such employment was a factor: the daughters of working mothers slightly more commonly took

responsibility for planning family recreation and reported that entertaining in the home did not involve all family members. When two rural counties in Washington were sampled, Roy (1963) found that high school sons and daughters of employed mothers did slightly more housework and the sons also did less work outside for pay but the reverse was true for daughters. The offspring, however, were not found to have less social life or spare time when the mother worked. In contrast, Schwieger (1966) failed to find that mother's employment was associated with responsibilities for household tasks of junior high school pupils in the area of housing.

Mother's employment was not found in Iowa to be a factor in kinds and amounts of experiences with children and with food except those related to food preservation, meal preparation, and use of mixes. There appeared to be a slight tendency for daughters of working mothers in Mississippi to participate more in three types of purchases: major household items, clothing, and cosmetics. Whitmarsh (1965) approached the factor of mother being employed by comparing scores on a check list of personal problems administered to 72 girls, 16 to 18 years of age, in three secondary schools in Illinois. The mean number of problems of those whose mothers were full-time homemakers was significantly higher than that of the employed homemakers' daughters. When social class was held constant, the difference was even greater.

Place of Residence

This variable has less frequently been explored as a factor. Rural students in Texas felt greater pressures for conformity whereas urbanites resented dependence on parents and felt more family tension.

Traditional concepts concerning marriage role expectations were more common among rural than urban seniors in Louisiana. Iowa junior high school pupils who lived on farms had more younger siblings and took more responsibility for them but town youngsters did more baby sitting. Those on farms and in small towns had more experiences related to food.

Ethnic Factors

Only two recent investigations were found that included differences due to ethnic factors; the most extensive is that by Moore and Holtzmann (1965) who selected sub-samples of white and Negro pupils alike in education and employment of fathers. The Negroes had higher scores on five of the 14 scales. They were more pessimistic about their world, more authoritarian in their beliefs about child discipline, felt more family tensions, had more problems related to personal adjustment, and more concerns over conformity demands. Negroes, particularly those in smaller communities, tended to be more distrustful of people, to have more negative attitudes about society and greater feelings of inadequacy. In another sub-sample drawn from religious groups, some differences related to religion were explored. Two groups, Catholic and Baptist, in comparison with Methodists and Christians, were less optimistic about society, more critical of education, felt less adequate socially, and reported more family problems and more family tensions. Brown (1964) compared 12th-grade pupils in three ethnic groups found commonly in Iowa: Methodist, Catholic, and those whose parents or grandparents were born in The Netherlands. When their responses to a questionnaire containing topics on marriage and family living were compared with respect to eight clusters of items derived

by factor analysis, significant differences were found for only one, that which relates to dating. The Catholic students scored highest in this cluster, the "Dutch" students lowest, indicating that the former were most interested in discussing problems that pertain to dating. Interest in other areas of marriage and family living were not different.

In addition to analyzing their data by variables, these researchers investigating needs of pupils presented findings that relate to programs generally. These are too extensive to be reported here but this statement by Moore (1964) presents a challenge to the schools:

> What the quality of life will be depends in no small measure on how schools assume their responsibilities for making families more effective through education vibrant to all and at the same time adapted to each subculture and its needs.

Wage Earning

As yet, few studies have been completed relating to programs designed for wage earning; investigations in several states, however, are under way that relate to interests of girls in employment, bases for program planning, development and evaluation of pilot programs, employment opportunities, and relation of home environment and employment. There are a considerable number of schools offering wage-earning preparation. Recent issues of the American Vocational Journal and the Illinois Teacher of Home Economics described some that are operating in high schools, area vocational schools, or as classes for adults.

In some of the programs, home economics is the major source of subject matter; in a few, two vocational areas are being drawn on, such as home economics and distributive education in classes on merchandising. Nelson (1965) explored a third possible contribution to

wage-earning programs, the general education of women enrolled in post-high school vocational programs. She used several types of data to determine their needs. The graduates reported difficulties in the area of management and home maintenance was found to be the one of their least-enjoyed activities. Their employers indicated that certain personal characteristics were important. The attributes of reliability, punctuality, ability to maintain good interpersonal and personal appearance particularly were stressed.

To determine the needs for planning programs to prepare young women for occupations using home economics knowledge and skills, Jordan and Loving (1966) obtained responses to a questionnaire from about eight per cent of the approximately 20,000 girls who had attended Virginia high schools in 1954-55. More than 90 per cent believed that young women today need preparation for employment. Almost one-half indicated a desire to prepare for employment in sub-professional occupations requiring home economics knowledge and skills. Greatest interest was expressed by those currently unemployed, those living in urban areas, those who graduated from high school, those in the lower income brackets, and those who had studied home economics in high school.

To identify the knowledge and skills included in high school home economics courses that are useful in wage-earning occupations, Roberts (1966) surveyed 1,640 former students in 82 schools in Arkansas who had been enrolled in first-year classes in 1955. A large proportion of them had taken one or two additional years of homemaking education. Approximately three-fourths had been employed since graduation or leaving school. Of these going directly into

employment, most were in clerical, sales, and service occupations in the state. Almost one-half of the 777 employed indicated that knowledge and skill acquired in the high school classes were useful in their jobs. Those learnings most frequently mentioned involved personal relations, clothing, grooming, food, and etiquette. Replies from 60 employers indicated some tendency to give preference in employment to young women who had taken courses in homemaking. A panel of educators examined descriptions of types of jobs in which these former students were employed and found references to many competencies usually included in homemaking courses.

Rossi (1966) also attempted to identify the occupations where home economics knowledge and skills were useful in her study of the food service industry in one California community. A random sample of 39 was drawn from a list of 87 restaurants, cafeterias, hospitals, and nursing homes and interviews were held with the managers. When asked what kind of training should be given, the four most frequently mentioned topics were: sanitation in food handling, food preparation, personal appearance, computation of bills, and making change. All but six believed that a training program was needed by the industry, several even volunteered assistance in its initiation and 28 indicated an interest in hiring trainees.

Two attempts have been made to determine attitudes toward jobs and factors associated with satisfaction with or appeal of the job. Both found that jobs relating to child care ranked highest and that the factor of enrollment in home economics classes was not related to interest. Loftis (1966) has just completed a study in South Carolina of the attitudes of ninth- and 12th-grade girls toward 49 service-oriented jobs; i.e., those which provide service to home, institutions,

or agencies. After developing an attitude scale, My Future Plans, it was administered to 728 students who were or had been enrolled in home economics classes and 204 non-enrollees. Scores indicating level of appeal were derived and jobs were arranged in rank order. The eight ranking high among all students included four related to child care and four to health services. The least appealing were waitress and laundry worker. No significant differences were found between the two groups, between the two grades, or among three socio-economic levels. There was some indication that "job visibility" is related to job appeal.

Fentress' (1965) sample was composed of 320 former students in Ohio who responded to a questionnaire designed to obtain certain personal information as well as activities and attitudes toward 13 jobs related to home economics. Two-thirds of them were employed outside their homes for pay. Only one-fourth held home-economics-related jobs and the majority of these had part-time work only. Most of them were satisfied or very satisfied with their jobs because they enjoyed the nature of the work and the use of home economics skills. The jobs involving children were most acceptable, particularly by the non-farm girls. The highest rating, 1.83 on a five-point scale, was given to the job of assistant to nursery school teacher; the job of household maid received the lowest rating, 3.75. They tended to accept jobs as nursery school assistant, mother's helper, waitress, appliance or food demonstrator, and homemaker's assistant; and to reject the positions of household maid, short order cook, registered household worker, and housekeeping aide. The label, homemaker's assistant as compared with household maid or registered household worker, seemed to

influence the girls' degree of acceptance of the job. There was little or no relationship between the acceptance of these jobs and the intellectual level of the girl; type of residential community of the girl; educational level of her father or mother; occupational level of her father or mother; aspired occupational level of the girl; her work-values; the degree of training perceived as being required for these jobs; actual employment in these jobs; and the satisfaction of the girl in her activities at the time of the survey.

In addition to these more general studies, several have been made relating to specific areas: three in food service, three in child care, and one in clothing. In the former, quite different approaches were used.

An experiment with a one-semester program in one high school designed to prepare food service personnel was carried on by Johnson (1965). Classroom and work experiences were given the 15 students enrolled. Employers reported that the students had favorable attitudes toward criticism and work, had acceptable personal qualities, and performed satisfactorily. Pre- and post-test scores indicated an increase in knowledge of employment practices, in problem-solving ability, and in recognition of importance of personal characteristics associated with food service. Both students and staff believed that the time allotment to the program was insufficient.

Proposals for the use of the school lunch program in preparing semi-skilled workers in food service were developed by Mullen (1965) and submitted to 12 judges representing educators, school lunch managers, and institutional management specialists. One plan, a one-semester program involving the full time of the students, was rejected

but the other two were judged to meet more satisfactorily the objectives set up for a program designed for juniors and seniors in secondary schools. One of these is a two-semester plan utilizing two class periods a day; the first semester devoted to a food preparation laboratory and the second to supervised work experience in the lunch program. The other, a four-semester plan, increased both aspects to two semesters.

A survey of food service programs in 45 high schools in 21 states was conducted by Kupsinel (1964). The typical program consisted of one course taught by one instructor and involving some work experience. There was a wide range in amount of laboratory work but it was commonly given in school laboratories or lunch rooms. Thirty-three employers recommended that training be given for these jobs: waiter or waitress, general kitchen worker, and dish washer. They also desired that trainees be given more help on sanitation and cookery principles. A group of 48 trainees considered their preparation an asset in obtaining and holding their jobs but desired more training to improve effectiveness or to advance in the field.

One of the studies relating to child care was reviewed earlier, that by Whitmarsh (1966). Brittain (1965) developed an interview schedule that could be used with operators of child care centers to determine their opinions concerning possible training programs for employment.

A survey in two cities in Iowa conducted by Pease (1966) to determine what arrangements were being used for the substitute care of children has implications for training programs. A stratified sample of 401 mothers with children under 13 years of age were interviewed.

The mother was asked to account for each child's whereabouts during the time she was away from home on a given day. The care was classified as supervised at home, outside the home, or unsupervised. The persons most commonly supervising the children when the mother was employed were father, baby sitter, and relative outside the home. For the mother who was not employed, the father, relative outside the home, and neighbor were supervising the child most frequently. The person who cared for the child was predominately the grandmother and much of the care was "free." The school-age children of working mothers tended to be unsupervised for the two hours following school hours.

In the field of clothing, Riesemier (1965) investigated needs for an area vocational technical school program. She identified, through questionnaires, the personal traits and skills considered necessary to acquire success in employment in jobs involving construction, alteration, and repair of clothing. This information was obtained from 16 seamstresses, alteration personnel, department store managers, dry-cleaner owners, and personnel employed in tailoring shops in one town in Kansas. Personal cleanliness, dependability, neatness in dress, accuracy in work, ability to work well with hands, and acceptance of criticism headed the list of traits considered to be important for success in this type of occupation. Adjusting hems, replacing zippers, altering sleeve length, making a garment smaller, and adjusting waistlines were the most common alterations on women's clothing; cuffing trousers the most frequent on men's clothing. Recognition of good fit and ability to work with various types of fabrics were listed as two essential skills for seamstresses and alteration personnel and pressing skill and knowledge of fabrics were listed as essential for dry

cleaners and tailors. The findings provided one basis for planning a course in clothing related to wage earning. The two-semester course included an orientation to opportunities in the world of work related to clothing; employer-employee relationships; the development of personal traits; the importance of personal appearance; and experiences in construction and alteration of clothing as well as in dry cleaning and laundering. Eight weeks on-the-job training was recommended toward the end of the second semester to give pupils experience in applying their knowledge and developing their skills.

EDUCATIONAL PROGRAMS

Aspects of the program contributing to the accomplishment of its objectives but implemented primarily outside the class are designated here as educational programs. They include teacher-pupil conferences, home experience projects, work experiences, and home economics organizations such as Future Homemakers of America (FHA) and New Homemakers of America (NHA). No studies, however, were found relating to work experience. All of the investigations completed have been masters' theses and the number is small.

The beliefs, problems, and practices of Iowa homemaking teachers related to teacher-pupil conferences were investigated by Shellabarger (1965). Questionnaires were sent to a random sample of 78 vocational homemaking teachers in Iowa; 72 usable questionnaires were returned. Responses were summarized by tabulating frequencies. Practices most commonly used by the majority of teachers included: arranging conferences when pupils request an appointment or by having pupils come in unannounced; holding conferences during the conference period or a

free period; preparing pupils for conferences by class discussions at the beginning of the year; conferring with pupils on their problems related to the selecting and evaluation of home projects; and recording conference results. Major problems associated with conferences recognized by most teachers were the preparation for them, the scheduling of them, and finding time to record the results. The following beliefs concerning conferences with pupils were accepted by the majority: the purpose of conferences is to become better acquainted with students and to plan, discuss, and evaluate home projects; the responsibility of the teacher in the conference is to establish a comfortable atmosphere and to not reveal confidential information; and the role of the pupil in the conference is to explain her needs, make decisions, and talk.

Vanderhoff (1960) attempted to evaluate the practices and beliefs of Iowa homemaking teachers concerning the home experience program. Data were obtained from a random sampling of vocational teachers by means of a mailed questionnaire; of the 71 questionnaires sent, 61 usable responses were returned. Ten practices were used by 60 per cent or more of the teachers. Among these were: helping pupils understand home experiences through classroom discussion, making home visits to inform parents of the home experience program, and encouraging pupils to select home experience in several different areas of homemaking. Two beliefs were accepted by all of the teachers: the teacher's attitude toward home experiences affects pupil interest in home experiences and the teacher should try to encourage gradual and progressive pupil growth through home experiences. Eighty-five per cent or more of the teachers accepted three beliefs: home experiences

provide opportunities for learning which cannot be provided in the classroom, home experiences are one way of reaching the goals of the homemaking program and should not be considered as "extras," and the success of the home experience program depends greatly on the understanding and cooperation of the parents. Responses to four statements disagreed with by at least 60 per cent of the teachers were: most pupils are involved in too many activities and the added work of home experiences does not make the results worthwhile; home experiences should be required of rapid learners and be voluntary for slow learners; pupils who do not have home experiences benefit as much from homemaking class as pupils who do have home experiences; and the evaluation of a home experience should be made only in terms of the objectives chosen for the home experience.

The use of the home experience for academically handicapped pupils was explored by Bair (1960). Seventeen enrolled in a special class chose one home experience activity in each of the six areas of the curriculum. A suggested list prepared by the teacher included activities at three difficulty levels. Level I represented repetition of a single learning; Level II, the completion of several tasks in a small unit of work; and Level III, the management of a major homemaking responsibility. Instruments used to evaluate the projects included a home experience choice sheet, a change of choice sheet, a check list, and a questionnaire for parents. Examination of the 102 activities completed indicated that 68 per cent were at Level II and that 70 per cent of the pupils attained only Level I in the completion of the activity.

Investigations relating to clubs include one by Johnson (1961) who developed criteria for a home economics organization within a school system. Tentative statements were formulated on the basis of ideas found in the literature and tested on a sample of persons who had previous professional experience with FHA and/or NHA. They were subsequently revised and submitted in questionnaire form to 72 home economists who had some experience with the clubs. None of the major criteria was judged unsound or unimportant although a few sub-criteria needed to be reworded. The six major criteria for local chapters listed in order of judged importance are: operates as a part of the home economics program of the school; has a program of work which aids in the achievement of the chapter objectives; operates as a part of the school program; uses democratic procedures; and selects activities based on the needs, interests, abilities, and backgrounds of members. The major criteria for the national organization listed in order of importance are: a major purpose of the organization is education for home and family life; the same philosophy that guides the home economics education program of the nation guides the national organization; the national organization operates as a part of the home economics education program of the nation; the national organization uses democratic procedures in giving guidance and direction to state and local programs; the national organization fulfills some needs of the society in which it is operating; the national organization establishes major purposes by which local chapters are guided; and provision is made for the training of adults to guide the organization at all levels.

Carter (1961) assessed the development of student leadership qualities through the NHA. Students estimated the amount of help received in relation to speech activities, appearance, parliamentary procedure, participation in chapter activities, responsibility for chapter activities, participation in church and community services, and certain aspects of personality. Responses were obtained from 349 students who were or had been members of NHA in eight schools in Texas. The majority of members believed that they received little help in improving speech but that they received much help in developing aspects of personality.

Factors related to membership in FHA were explored by Ricketts (1965) as well as attitudes toward clubs. Teachers in 40 states administered a questionnaire to 749 members and 393 non-members. Using percentages as the basis for comparison, she found little difference with respect to education of father and mother, source of family income, wage earning by mothers, family composition, and attitudes of parents toward school organizations. Some differences were found between the two groups; the members tended to have received higher marks both in home economics and other courses, to affiliate with more school organizations, to live on a farm, and to attend smaller schools.

INSTRUCTIONAL MATERIALS AND DEVICES

Materials to be used by students while supervised by teachers are defined here as instructional materials. Textbooks are probably the classic examples and one study has been completed which had as its

purpose the development of criteria for selection. Instructional devices are broadly defined to include all materials and approaches used in the teaching of a lesson.

Seeler (1962) traced the historical development of the textbook, summarized the present methods used in textbook evaluation, showed the need for a better method of evaluation, and developed a criterion for textbook selection based on Bradfield and Moredock's levels of understanding. In this plan, the reviewer evaluated textbooks primarily on the basis of whether the book includes materials related to each of the levels of understanding.

A research team in Kentucky (Simpson, Stiles, and Gorman, 1965) had as its primary purpose the evaluation of the effectiveness of procedures used in teaching a unit on child development. A four-week unit on child development was taught by nine teachers to their 315 ninth-grade pupils. Generalizations to be taught by all nine teachers were developed but each teacher was free to select the method by which she would teach the unit. The effectiveness of the techniques were estimated by gains in attitudinal scores and by gains in knowledge of generalizations about young children using two pre- and post-tests: How Do You Feel About Young Children? and Living With Young Children. No judgment was made on the effectiveness of specific teaching techniques but several hypotheses concerning effective teaching procedures were suggested: a variety of learning experiences contributes to changes in pupil behavior; the use of problem-solving techniques adds to the effectiveness of the teaching; and lessons need to be planned to meet individual needs, interests, and abilities of the

student. Moore (1961) sought to determine if learning about children varied between an experimental group which had contacts with children in a play school and a control group which had no such contacts. Seventy seventh-grade girls were divided into two groups of equal size and matched on the basis of socio-economic background, I.Q., and baby-sitting experience. Similar lessons were taught the two groups during the semester. The experimental group participated in a baby-sitting club which met once a week for 16 weeks and observed play schools, whereas the control group learned about the behavior of children through anecdotal records and such audio-visual aids as films, filmstrips, and references. At the end of the semester, students in both groups responded to a test which was designed to determine differences in learning. Earlier the test had been developed, analyzed, and revised with a different sample of girls. Analysis of the test scores showed no significant differences between the two groups. Moore concluded that child contact by seventh-grade girls in a child development unit does not result in greater learning about children than certain other types of experiences. It is possible, however, that the test was not sufficiently sensitive to reveal differences.

LEARNING PROCESSES AND TEACHING MATERIALS

Research relating to learning processes, in home economics, has been in the areas of assessing the validity of learning theories and the evaluation of kinds of teaching situations which best promote learning. Materials developed which encourage students to learn independently are defined as teaching materials. The materials

developed relating to the vocational homemaking program are in the area of programed instruction.

A departmental project at Cornell University has as its purpose the determination of the validity of the hypothetical concept of levels of understanding in a cumulative sense. Five studies in this project have been completed; in each, instruments have been developed to test some phase of the belief that the learner proceeds in an orderly sequence from lower levels of understanding to more complex intellectual processes. A general exploration of the early adolescent's understanding of certain concepts in child development was done by Byrd (1963). Her problem was to develop a multiple-choice achievement test incorporating cognitive content which would

> (1) require the utilization of certain hypothesized mental processes or levels of understanding . . . in responding appropriately to test items; (2) demonstrate by means of scalogram analysis the extent to which understanding of the concepts included in the study was cumulative in nature; and (3) facilitate the analysis of the level of comprehension of certain concepts of human development attained by sixth- and ninth-grade students.

The concepts selected were: heredity, environment, maturation, readiness, learning, growth patterns, basic needs, individual differences, normality, socialization, and personality. Ideas associated with each of the concepts were developed into two multiple-choice tests, "What Do You Know About Children"? and "Concepts in Child Development Test." These were administered to 160 sixth-grade and 168 ninth-grade pupils, respectively. Common items under basic needs, growth patterns, and on aspect of socialization had consistent difficulty levels for all groups. Items concerned with simple concepts were generally the least difficult, whereas the items associated with high level abstractions

were the most difficult. Ninth-graders outperformed sixth-graders on most items and the girls outperformed the boys at both grade levels. Thirty-five three-item and seven four-item scales were also derived by Stouffer's zero cell analysis method of item cross-tabulation: Byrd suggests that the scales have potential for testing more than lower levels of understanding and demonstrating a sequential progression through levels of understanding. In addition, the scalogram analysis revealed more about the relationships among items than can be determined from item-total score statistics.

Jacklin (1964) tested the hypothesis that the food and nutrition knowledge and understanding of secondary pupils is cumulative with high level items being more difficult than lower level ones. The three levels of cumulative behavior proposed were: Level I, requires only recall; II requires Level I plus an understanding of the meaning involved; and Level III requires Level II plus the ability to select and use the necessary unstated principle(s) in solving a novel problem. An instrument of multiple-choice items was administered in two parts to 359 seventh- and eighth-grade girls, 10th-grade girls and boys, and girls who had taken additional homemaking courses. The test data showed that the hypothesis of cumulative levels of depth of understanding was not supported. Pupils who did not answer Level I items were frequently able to answer Level II and III items correctly. Extensive intercorrelations among items made it possible to use correct responses on items at any level as a predictor for correct responses for items at any other level or topic. Although maturity and intelligence were also influential in the number of correct

answers given, high scores on Level I items greatly increased the probability of correct responses to Level II and Level III items.

In an effort to resolve the relationship between critical thinking and knowledge, Roth (1963) developed a test of knowledge in family life education. The "Roth Knowledge Test" was designed to parallel the specifications of content material in the Spangler Critical Thinking Test in Family Relationships, Spangler (1963). The major subdivisions are: Choosing a Marriage Partner, Adjusting to Marriage, and Interaction Between the Family and Other Social Systems. Both instruments had previously been found to be satisfactory for group evaluation. They were administered on consecutive days to a group of 100 junior and senior students in an elective course called "Social Psychology" in a city in New York. Scores on the two tests were correlated while holding the intelligence variable constant. A coefficient of .59 indicates a moderately high correlation of critical thinking and knowledge in the area of family relationships. Thomas (1965) measured levels of cognitive behavior in a teaching situation.

Nine other investigations have been completed in the area of learning processes; all have as their general purpose the development of the critical thinking ability of students in the home economics classroom. Two were selected for review in this paper because it was believed they were representative of the group.

Peterson sought (1963) to investigate and identify possibilities for developing teaching-learning situations in home economics based on problem-solving experiences. A ninth-grade unit, entitled Importance of Relationships in Family and Community, was developed. The course was based on 12 competencies considered desirable for effective

personal and family life; they were adapted for high school pupils from those identified in the AHEA publication, "Home Economics--New Directions" (1959). Lessons involved problems based on the pupils previous experiences, needs, background, and abilities. The Family Relations Analysis Test was developed to assess pupil growth toward selected aspects of critical thinking. It was administered to the pupils before and after the experimental unit was taught and indicated that there was pupil growth toward the objectives of the unit.

To determine whether student learning is more effective when lessons are based upon goals which students have helped to formulate and when they assist in evaluating the progress made toward the accomplishment of these goals was the purpose of Kalich's (1963) study. Thirty-five ninth-grade girls participated; 17 were in an experimental group and 18 were in a control group. Those in the former helped to set up class goals, participated in evaluating progress toward these goals, and were taught by "democratic" procedures. Those in the control group were given the same set of goals by the teacher and were taught by "autocratic" methods. The same test was given to both groups as a pre- and post-test. When progress of the two groups was compared, no significant difference was found.

A pilot study in the area of programed instruction was begun at the University of North Carolina, Greensboro, in 1962. At that time, no published programed materials were available in the area of home economics. A self-instructional program on the sewing machine was developed by Moore (1963) and revised and field tested by Shoffner (1964). Supplementary materials developed to accompany the program

for field testing were: an answer book, a time-and-error record, a student information questionnaire, a student reaction form, and a teacher reaction interview record. Four schools near Greensboro were selected to participate in the study; 108 girls enrolled in first-year home economics classes proceeded through the Sewing Machine Program. Results of the field test indicated that students averaged 12.0 errors on the program--a 3.6 per cent error rate. The mean time required by students to complete the program was 256.8 minutes or approximately five 55-minute class periods. Students in the lower achievement group required more time to complete the program and made more errors on the program than did students in the higher achievement group.

At Cornell University, Weber (1965) developed eight units of programed instruction designed to teach basic nutrition. Eight generalizations were derived from a delineation of conceptual information and facts basic to an understanding of nutrition. The units were used experimentally during two weeks by 119 junior high school students. A control group of 81 pupils did not study the programed unit and did not have any other nutrition education during the period. The effectiveness of the program was measured by two instruments, both administered as pre- and post-tests. The test data led to the conclusion that basic nutrition can be taught by the programed units because the mean post-test score of experimental subjects was significantly greater than their mean pre-test score and their mean post-test score was significantly greater than that of the control group.

A linear program in the area of family relationships was developed for the seventh-grade and eighth-grade student who is deaf. Kennedy's (1965) program is entitled "Who Am I"? and was designed to

be used as an introduction to a junior high school unit in family relationships. Eleven students who were deaf used the program and it was also administered to 33 seventh-grade students who were slow learners but had no hearing defects. The latter group was included in the study because it was believed the program would also be of value to this group. It was evaluated by a 30-item test administered both as a pre- and post-test. The results gave evidence that learning did take place; 37 of the 43 students had a gain in raw score from the pre- to the post-test. The mean gain was six points, or 20 per cent of the total number of items on the test. Through informal interview and formal questionnaire, the students indicated a favorable attitude toward the program method of learning.

STUDENT PERSONNEL SERVICES

Research related to this topic has been largely concerned with factors influencing enrollment and characteristics of girls enrolled in these classes; information useful in counseling. Both previous to and since 1960, many of the studies have been carried on only in one school system and, hence, have local value only. Few state-wide studies were available for review. Some attention has also been given to the attitudes of counselors toward home economics as an area of study, attitudes of girls toward home economics and home-economics-related jobs, and to the development of means of measuring interests. Several masters' studies have been completed concerning attitudes of either counselors, administrators, faculty, students, or parents toward home economics; most of these, however, have been concerned with beliefs about the homemaking program in a local setting.

Two state-wide studies have been completed in which factors influencing enrollment in the secondary home economics program were investigated. Simpson, Stiles, and Gorman (1963) obtained responses to questionnaires from home economics teachers, students, and principals in 31 high schools in Kentucky in which there had been an increased home economics enrollment between the 1957-58 and the 1960-61 school years and in 40 high schools which had decreased enrollments. Quality of the home economics program was cited by the students, teachers, and principals as the most important factor influencing students to enroll in home economics classes. Students' evaluation of the quality indicated that schools with increased enrollment had a higher quality program than those with decreased enrollment. Students, principals, and teachers expressed different opinions concerning the pressures influencing enrollment. In regard to promoting enrollment, students believed that the person influencing them to the greatest degree was the student herself; parents were the next most frequently mentioned influence. Principals believed that the home economics teachers exerted the most influence on students to take home economics and considered the increased admission requirements for college and requirements for graduation, including the science requirements, as the most important factor in discouraging students to enroll. The teachers also indicated that the increased requirements for graduation, including the science requirements, discouraged enrollment. The most common reason given by students who did not elect home economics was that they needed to meet college requirements or to prepare for a job. School schedules and patterns of offerings in home economics appeared to have little effect. In general, all three groups of

persons had a positive attitude toward the home economics program and there was little indication of the belief that home economics is a "snap" course and is for the slow student.

Riley (1961) obtained responses to questionnaires from students and home economics teachers in 139 high schools and from administrators in 250 Ohio schools. She found that almost 73 per cent of the girls completed at least one year of high school home economics and that the majority of these completed two years of the four-year home economics program. Enrollment in the last two years was affected by scheduling conflicts with both academic and commercial courses. Conflicts with the latter, however, occurred twice as often as with the former.

In a survey of 1,618 senior girls in the June 1957 graduating classes from 46 schools in several cities in Illinois outside Chicago, Hand (1960) compared the high school programs and activities of the girls who had married and become full-time homemakers by early fall 1957 with the remaining girls in the sample. The two groups completed essentially the same number of semesters of work in art, music, English, social studies, and science. In the areas of home economics and business education, the "homemaker" group completed substantially more units than the other group, whereas in the areas of mathematics and foreign languages the "non-homemaker" group completed appreciably more work.

Analyzing responses from 588 senior girls in five high schools in an urban area of Iowa, Schwartz (1963) found that girls who were high scholastic achievers, from higher socio-economic levels, and college-bound tended to take less high school home economics than girls of opposite characteristics. In addition, homemaking classes were

described less favorably by girls with high scholastic achievement who were college-bound. Although girls from higher socio-economic levels viewed homemaking classes more favorably than those from lower levels, they enrolled less frequently in these classes.

Factors associated with the election of high school home economics by college-bound high school girls were investigated by Downing (1963). Data were collected from all 11th-grade girls in 12 high schools in New York and New Jersey who indicated that they planned to enter college. Analysis of the responses suggests that a good senior high school homemaking program, a satisfying experience in junior high school homemaking classes, and value placed on the home economics program by persons close to the girls all have a positive influence on the college-bound girl in electing a homemaking course. Investigation of the socio-economic levels of the girls suggests the slightest tendency toward a greater election of home economics courses by college-bound girls from the lower socio-economic levels.

These studies suggest that high school girls need more information about the high school homemaking program. In addition, for those courses primarily concerned with preparation for home and family life, girls need help in perceiving the potential use in their future roles as wife and mother.

The findings by Simpson, Stiles, and Gorman (1963) and Downing (1963) that persons close to high school girls are influential in the election or non-election of high school home economics suggests that knowledge of the attitudes of people, such as secondary school superintendents, principals, and guidance counselors, toward home economics is desirable.

Goldsmith (1960) sought responses to an opinionnaire from 750 superintendents, 750 principals, and 500 guidance counselors considered representative of the 40,000 administrators and the 14,000 guidance counselors listed in government bulletins; approximately 65 per cent responded. Analysis of the data showed no significant differences among the groups in their attitudes toward home economics. Favorable beliefs concerning the home economics curricula were: it meets the needs of adolescents and should be continued in those schools where a broad range of subject matter is taught and when it stimulates learning. Unfavorable attitudes about the curricula related to too much stress on cooking and sewing and the duplication of information at more than one level.

Since counseling is frequently for the purpose of vocational selection, the attitudes and knowledge of girls about home economics as well as home-economics-related jobs are important.

Schwartz (1963) found that no difference was apparent in the description of the home economics profession between the girls who were high and low achievers and between the girls who were from high and low socio-economic levels. Although high achievers and those from higher socio-economic levels were better able to identify home economics occupations than the comparable other groups, the evidence suggests that all of the senior girls knew less than is desirable about possible positions for home economists.

As an aid to helping high school girls in vocational selection, Yocom (1963) began the development of a home economics interest inventory for high school girls. She discovered that it is possible to differentiate between the interests of high school girls who are

and are not interested in majoring in home economics in college. With further refinement, this instrument has possibilities for use in the vocational guidance of high school girls who are thinking of becoming professional home economists.

FACILITIES AND EQUIPMENT

Very little research has been completed recently in this area of home economics departments. Two such studies were available and several articles have been published relating to general principles upon which to base the planning of a department. The latter, however, have been primarily based upon the author's experience or visits to several departments.

An evaluation of the laundry facilities of five junior and 25 senior high schools in Northwestern Ohio was made by Cutler (1964). The laundry facilities in 69 per cent were rated "poor" or "very poor." The facilities were not only inefficiently arranged but also lacked in storage space.

A description of the minimum space requirements for a department designed primarily for wage-earning programs was prepared by Lee (1966). The space arrangement illustrated is for a maximum class size of 16 and focuses on employment preparation at different levels in the areas of food services, care of children, clothing services, and home-maker services. Included in the plan are a child-care laboratory, a food service training laboratory, and a large multipurpose room between the two. Suggestions for space requirements and facilities are also included.

Dalrymple and Youmans (1963), Simpson and Barrow (1965), and Taylor and Christian (1965) agreed that an understanding of the scope, classroom activities, and instructional methods of the home economics program are basic to the development of functional facilities for the department. Additional concepts considered important in the development of home economics facilities include: a variety of settings through the use of flexible space and mobile equipment; a physical environment that is aesthetically pleasing, incorporates safety measures, and is physically comfortable; a reduction or elimination of distracting influences; a consideration of the needs of high school students and adults; and the adaptability of the space for day or evening use.

TEACHER EDUCATION

The number of studies carried on previous to 1959 in teacher education is second only to the number relating to secondary school curriculum. This is not surprising since it is commonly accepted that the teacher is the crucial element in the secondary school program. Approximately 75 investigations have been completed since 1959 but almost two-thirds of these were not available for review or were too specific in nature to justify inclusion.

One of the most important aspects of teacher education relates to the student who is preparing to become a teacher. Many colleges and universities are using one or more bases for selecting students but educators are attempting to validate selection criteria.

Some selection takes place through attrition but the prospective teachers lost by this process may not be the ones who are least

likely to be successful t[illegible]ers. Gaskill (1965) investigated the academic standing and certain personal qualities of 282 students at Iowa State University to determine differences among these groups: those who completed the program and entered teaching, those who were graduated but did not teach the first year, and those who left the program before completion by transferring to another curriculum or by dropping out of the University. Scores were used from two personality inventories, the Guilford Zimmerman Temperament Survey (GZTS) and the Minnesota Counseling Inventory (MCI), as well as scores from an attitude inventory, Just Suppose Inventory (JSI) and an interest inventory, Johnson Home Economics Interest Inventory (JHEII). One variable, Personal Relations, from the GZTS, differentiated among the groups; those who dropped from the University had mean scores significantly lower than those who were graduated or transferred to another department. Two variables from the MCI also differed among these groups. The drop-outs tended to be more defensive as indicated by the Validity scores and least well adjusted to reality and the transfers least defensive and best adjusted to reality. The mean scores of graduates preparing to teach were somewhat lower than those of the transfers. One attitudinal measure, attitude toward working with ethnic groups other than one's own, from the JSI yielded mean scores that differed significantly. The graduates tended to have more favorable attitudes than the other two groups. The quality-point average taken at the end of the second year in the University was also highest for the graduates.

When the graduates were divided into three groups, teachers, extension workers, and others, the former were found least active

physically, General Activity on the GZTS, and least likely to be socially adept, Social Relationships on the MCI. The teachers, however, scored highest on five attitudes on the JSI: toward parents of school children, toward people in different sized communities, toward upper- and middle-classes and toward three-generation homes; and on Interest in Work With Young Children, JHEII. Their quality-point average was similar to the extension group but both were lower than that of graduates not entering either of these professions. The latter contained several who entered graduate schools.

The problem of what bases to use in selecting students for teacher preparation is crucial. Breaux (1963) investigated the beliefs of 285 home economics educators from 85 per cent of the degree-granting institutions and found they all believed that personality assessment is important in teacher selection and 58 per cent that personality is more important than academic achievement, provided a minimum quality-point average is achieved. In actual practice, however, 81 per cent reported that they were using the latter and only 39 per cent some measure of personality as bases for admission to the programs.

Several other studies have been made in an attempt to determine the characteristics of students preparing to teach. In some, these characteristics have been related to success in student teaching or on the job.

Monts (1963) attempted to determine the value of grade-point averages and certain inventories in predicting the success of 31 home economics majors in student teaching. The GZTS, Minnesota Teacher Attitude Inventory (MTAI), and the JHEII were administered and a

rating scale was devised to evaluate performance during student teaching. A composite rating by the supervising teacher and the college supervisor was used as the criterion of success. The highest correlation, 0.32, was that between grade-point average for home economics courses and the composite rating. As Monts recognized, the size of the sample is small and the reliability of the ratings is open to question.

Dotson (1963), also interested in predicting student teaching success, investigated the relation of student teaching grades to grade-point average (GPA) and scores on the Teacher Judgment Test (TJT) and MTAI using a sample of 110 students at West Virginia University. The correlation between student teaching grades and GPA was statistically significant and student teaching grades approached significance with the TJT percentiles, but not with the MTAI. Analysis also revealed that the MTAI and the TJT were not related to each other. The researcher concluded that GPA is one of the best indicators of success in student teaching.

The study by Gritzmacher (1963) was to determine whether certain measures would differentiate between students with high and low proficiency in student teaching. Two groups of 10 student teachers, one high and the other low in proficiency, were selected from a population of 96 students on the basis of their grades in a course involving student teaching and class work at Cornell University. Data were gathered by administering the JHEII and the Runner Studies of Attitude Patterns, Eleventh Revision (RSAP). In addition, total grades and grades in courses classified into 14 areas were used.

Statistically significant differences in the expected direction were found between the two groups for nine variables: frustration and teacher function as director, measured by the RSAP; total grade-point average; and grades in child development and family relations, in household economics and mangement, in textiles and clothing, in biological and physical science, in social sciences, in home economics education. The characteristics not found to differentiate between the groups were: 22 RSAP variables, scores on the JHEII, secondary teaching, and grades in six areas--food and nutrition, housing and design, institutional management, fine arts, languages and professional education courses other than those in home economics education.

An exploratory study of the creativity of the student as a basis for prediction of grades in student teaching was made by McDonald (1961). The Watson-Glazer Critical Thinking Appraisal (WGGTA) Form AM, the AC Test of Creative Ability (TCA), and records kept in the Department of Home Economics Education at the University of Wisconsin were used to determine the creative resourcefulness of nine senior students. For this limited group, the level of performance based on grade in student teaching was related to the level of creativity. Also, the level of certain aspects of creative thinking rose during the student teaching experience.

The difficulty of predicting success on the job is illustrated in an attempt being made in a longitudinal study at Iowa State University. Crabtree (1965) analyzed data for 66 subjects who taught in Iowa the first year after graduation. Personal qualities measured by the GZTS and the Minnesota Counseling Inventory (MCI), vocational interests measured by the JHEII, attitudes toward different groups measured by

the JSI, and cumulative quality-point averages were the predictors. Criteria of success were pupil gain in ability to solve problems in homemaking measured by pre- and post-achievement tests for ninth- and 10th-grade pupils, teacher-pupil rapport measured by two forms of the Student Estimate of Teacher Concern (SETC), and adjustment to school and community measured by a check sheet filled out by the school administrator. A panel of six judges, professors of education and educational psychology, estimated the importance of each of 34 predictors and the six measures of success using a certainty scale to obtain weights. Composite prediction and criterion scores were derived and intercorrelations obtained. After the predictors which yielded low or negative correlations with the composite success score were dropped from the analyses, the remaining predictors correlated 0.41 with success--highly significant but too low for individual prediction. The 11 predictors found to be most useful were academic achievement; two scores from the GZTS, restraint and general activity; two from the MCI, emotional stability and conformity; five sub-scores and the total score from the JSI, attitudes toward foreign-born, toward persons with different educational backgrounds, toward low-income families, toward middle- and upper-class groups, toward ethnic groups. Additional cases and the use of clinical rather than statistical analysis of predictive data are now being studied in an attempt to improve the prediction.

Ford and Hoyt (1960) in an exploratory study investigated the psychological characteristics of homemaking teachers on the assumption that these would contribute to the selection of students preparing to teach. These characteristics were also related to classroom

effectiveness. A sample of 712 teachers in 26 states were administered a biographical data form, six attitude inventories: the MTAI and five constructed as part of the project. Eighty-five of these teachers, selected at random, were observed for at least one-half day and rated on the basis of Criteria for Classroom Effectiveness. Pupils in one of their classes responded to a pupil-relationship inventory.

Some of their important findings indicated that the teachers who entered the profession because of liking people and teachers in the larger school districts scored higher on the people-centered inventories. The means on the pupil-relationship inventory were higher for teachers in the smaller school districts but there was little relation between inventory scores and years of experience.

The investigators concluded that the teaching effectiveness is so complex that it cannot be assessed satisfactorily by a single observation. They recommended an increase in the number of observations and also that the inventories be increased in length.

Halchin (1965) approached the problem of teacher effectiveness by studying the factors in early home life that are related to their ability to empathize with students. Questionnaires were administered to 12th-grade students in New York and Pennsylvania to identify 50 high and 50 low empathy teachers. The home and family background of these teachers was investigated by questionnaire and interview. The high empathizers had these family experiences in common: celebrated holidays together, had few quarrels, had close relationships with family members and others outside the family, and enjoyed activities involving others. Teachers whose students responses indicated that they were low empathizers came from families which acked close

relationships, had more quarrels, were not active in church affairs, were critical of others in and outside of the home, did not welcome others into the home, and had problems with others throughout their childhood experiences.

Professional commitment has been the characteristic involved in two studies. Loftis (1962) developed an inventory, Measure of Professional Commitment (MOPC), which she found differentiated among college administrators, teachers, and graduate assistants. Using the MOPC, Laughlin (1965) studied the professional commitment of 194 senior women in the College of Home Economics at Iowa State University to investigate its effectiveness in differentiating among seniors in various curricula. She also related the scores to characteristics of college students thought to be related to the development of professional commitment. Intercorrelations among the 100 items on the MOPC and 14 on the questionnaire for 13 sub-groups based on curricula and marital status were computed and eight clusters were obtained. The cluster from the questionnaire relating to participation in pre-professional activities did not differentiate among the curricular groups but that involving professional orientation and future goals and lack of immediate professional plans did differentiate. Only two MOPC clusters--professionalism and leadership--were significantly different by curriculum. Suggestions were made for the revision of the MOPC.

In a cooperative investigation by several institutions in the Central Region, an attempt was made to determine what happens to the attitudes and interests of students during their college years and the first year of teaching. The final report is in press but

preliminary reports are available. Personnel from three universities took major responsibility analyzing the data for the various aspects: University of Minnesota, attitudes toward children; The Ohio State University, attitudes toward families and other groups; Iowa State University, vocational interests. Data were collected at each of these institutions as well as at certain other cooperating colleges and universities.

Ford (1962) analyzed the scores from several institutions on the MTAI. Freshmen, seniors, and first-year teachers responded to the Inventory and to special data sheets. The scores of students increased significantly during the college years but when the mean scores of 364 teachers who took the MTAI both when seniors and after one semester of teaching were compared, a loss of more than 20 points had occurred.

The scores for 1,100 freshmen differed significantly by type of institution: teachers college students had the highest mean, land-grant universities were second, and separate land-grant colleges were lowest. No significant differences were found when the students were classified by education of mother, occupation of father, and amount of experience with children previous to college. The scores of the 251 seniors also varied by type of institution; the mean for the land-grant universities was significantly higher than that for the land-grant colleges. Correlations between MTAI scores and academic ability as measured by the American Council on Education Psychological Examination (OSPE) were not significant. Also, the MTAI scores were not related to size of high school from which the seniors had graduated or the number of siblings.

A sample of 1,939 experienced teachers in six states also responded to the MTAI. The factors found to be significantly associated with the scores were: size of school, type of program, satisfaction with their teaching load, and type of assistance from supervisors. Those in the smallest secondary schools, 15 or less teachers, had the lowest mean scores, those in middle-sized schools, 16 to 75 teachers, had the highest mean scores. Teachers in vocational programs had higher means than those in nonvocational programs or a combination. The scores for teachers who were satisfied with their teaching load and those who indicated that their supervisors gave them positive assistance tended to be higher than when the opposite conditions pertained.

The JHEII was administered twice, the freshman and senior years, to students enrolled in home economics education departments in 17 colleges and universities and also to those who taught the first year after graduation from eight universities. Chadderdon (1962) reports that the mean scores of 404 students on the JHEII, secondary teaching, increased slightly from the freshman to the senior year in college and that the scores of the 165 who became teachers fell during the first year of teaching. Correlations between freshmen and seniors scores were 0.36 and between seniors and teachers, 0.45. Both are statistically significant but not high enough to be used alone as a basis for prediction. Type of institution, separate land-grant college and state university, was not a source of variance. The hypotheses were rejected that interest scores of freshmen and seniors were related to amount of homemaking education (classes and 4-H Club experience) and that these scores were related to amount of experience with children

before college. When the scores of the teachers were analyzed with reference to teaching load and facilities in their departments, no significant relationships were found. A large majority, 69 per cent, were satisfied with their load but fewer, 40 per cent, judged their space and equipment adequate. More than three-fourths, 82 per cent, indicated that they liked many aspects of teaching and 17 per cent liked some aspects.

The seniors were asked to indicate which of 12 reasons motivated their desire to prepare to teach. About one-fourth, 28 per cent, checked none of the five reasons classified as practical. Close to one-half, 43 per cent, failed to check either of the two related to working with people but 67 per cent indicated that breadth of curriculum had influenced their choice of education as a major. To validate the interest scores, the seniors indicated which of 14 home economics occupations they would prefer if free to choose. The hypothesis that interest scores were related to these choices was supported, the difference between the mean scores of those choosing and those not choosing teaching approached significance at the one per cent level.

Lehman (1962) developed an instrument, the Just Suppose Inventory,* to determine the degree to which students or teachers accept families of different types such as broken families, farm families, parents with little education, families from low and high socioeconomic groups, and with different religious beliefs. Twelve situations which a teacher might face are described and 15 statements

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*Recently, this Inventory has been copyrighted and entitled The Teacher and Community.

representing different viewpoints or degrees of acceptance for each situation are listed. In the development of the Inventory a pool of statements was obtained by incomplete sentences administered to 400 students in five colleges. Forty for each situation were selected by judges and administered to 200 teachers who had been rated as acceptant or non-acceptant. The statements which discriminated best were then pre-tested in one university. Interviews with 50 of these respondents were also helpful in the revision.

In this aspect of the cooperative study, the Inventory was administered to 513 juniors, 366 seniors, and 197 first-year teachers from six universities after satisfactory reliabilities had been established (Chadderdon et al., 1966). During the last two years in college, mean scores on nine of the problems or subproblems changed significantly beyond the .01 or .05 levels. The changes were in the direction of more favorable attitudes toward city people, divorced persons, working mothers, upper-class families, and the aged, but became less favorable toward town people, middle-class families, factory workers, and foreign-born. Differences between the mean scores of seniors and first-year teachers were obtained on 10 problems; they became less favorable toward parents, working mothers, foreign-born, persons with little education, slum families, Catholics, problem school, factory workers, another race, and youth. The mean scores from the six universities were compared and found to vary significantly at each of these testing periods; on eight problems at the junior, 11 at the senior, and five at the teacher level. Size of home community, parental education, and father's occupation were variables associated with scores on several of the problems. The number and types of

pleasant experiences that students had with unlike groups were also related to their scores on the Inventory. For example, total scores of juniors varied significantly with such experiences and with opportunities to study about other groups in church or college. Some of the work experiences, however, tended to be associated with lower scores for juniors.

The findings in the regional study of juniors that certain experiences tended to be associated with low JSI scores stimulated Lehman and Haas (1966) to develop a non-credit seminar for the purpose of helping students at The Ohio State University explore their attitudes after they had plotted their freshman and junior JSI scores on a profile sheet. The eight who decided to participate in the seminar were given references to read and had experiences with Negro families, subteen girls in a settlement house, mentally-retarded children, Negro college women, and junior high school pupils. Group meetings were held every two weeks to explore their attitudes and to discuss their experiences and readings. The program was evaluated through individual conferences recorded on tape and judgments of students and staff. The general reaction of the students was favorable and the most frequent valuable experience cited was that with the girls in a community center. Teachers in charge of the seminar thought students became increasingly realistic about the role of the teacher as she works with many types of persons, but it was evident that a more structured program and a longer time were needed to effect any extensive change in attitudes.

Several recent studies relate to curriculum planning for both in- and pre-service teacher education programs. The judgments of

teacher educators, students, and teachers have been sought as one basis for program planning.

The beliefs and practices of 176 home economics educators relative to 76 generalizations in teacher education were examined by Brennan (1963). The group, composed of 176 college teacher educators, supervising teachers, and state and city supervisors from Michigan and Pennsylvania, was asked to select from the list the most important generalizations relating to effective teaching of home economics. Ninety per cent agreed on seven as very important. Four relate to program planning, one each to the role of the teacher, the relation of subject matter to families, and evaluation.

These educators also believed that 80 per cent of the learnings related to the generalizations were best acquired at the pre-service level but there were some differences of opinion among the three groups: teacher educators, supervising teachers, and supervisors. Twelve of the generalizations were found to be included in the teaching of 85 per cent of the entire sample.

The judgments of college teachers as well as students and graduates were used by Lea (1963) who studied the curriculum at Oregon State University. A majority of the home economics faculty thought that subject-matter courses in home economics for students preparing to teach should not differ from those for students in other professional areas of home economics and that preparation for a professional area should be accomplished in special courses. A majority of the first-year graduates and current seniors disagreed with this point of view: they believed that they would be better prepared as teachers if all home economics courses would emphasize the application of the subject

matter to their future needs as teachers. The seniors also believed that home economics courses for teachers should differ from those taken by other majors so that the course could be specifically geared to their needs.

As part of the evaluation of the entire vocational program by the Committee of the Michigan Vocational Education Evaluation Project (1963), a questionnaire was sent to 113 recent graduates who had had from one month to three years of teaching experience. They were asked to judge the emphasis placed upon certain aspects of their program. In general, the 50 teachers who responded thought that the emphasis given to the physical sciences, natural sciences, behavioral sciences, and communication skills was "about right," but in the areas of philosophy and the arts, their reactions were divided between "too little" and "about right." They believed that the emphasis given to education courses, adolescent psychology, psychology of learning, social foundations, student teaching, and seminars was "about right." In addition, responses were obtained from 472 more experienced teachers in reimbursed vocational programs and from all of the teacher educators in home economics in Michigan. There was some agreement about the importance of the sociological, psychological, the artistic, and the scientific emphases in the preparation of teachers. Eighty-six per cent believed that "too little" emphasis was given to the sociological-psychological aspect. In general, there was satisfaction with the amount of emphasis given courses in these areas: foods and nutrition, clothing and textiles, housing, home furnishings, household equipment, and art and design. In family relations, marriage, child development, home management, consumer education, and family economics, a substantial number indicated that there was "too little" emphasis.

Cross (1960) also sought the judgment of teachers in evaluating pre-service programs. She obtained responses from 301 first- and second-year homemaking teachers in 42 states. The majority of respondents indicated satisfactory college preparation for two-thirds of their activities. Areas of inadequate preparation in subject matter were: food production, housing, and home improvements. Community relationships; working with an advisory council, with boys, and with FHA and NHA; and participation in the total school program and in community activities presented problems for which their college program had not adequately prepared them.

Another approach was used by Spencer (1963) who sought to answer the question, What specific professional attributes contribute to successful teaching? She asked the opinions of 21 state and city supervisors of home economics in Indiana and New York. The attributes most frequently assigned to successful teachers they had recently visited were: having well-planned lessons, being able to manage a class well, having excellent rapport with students, taking every opportunity to study and learn, and cooperating with the school and community. Two frequent answers to a second question, concerning the areas of work on which home economics teachers need improvement, were planning and organizing work and communicating to others the significance and contribution of home economics. In response to a third question relating to the attributes deemed most important for student teachers to acquire were high ethical standards, ability to plan lessons and units of work, and awareness of the total picture of education and of the contribution to be made by home economics. The inquiry was pursued further by means of interviews with three Cornell University professors who had

observed first-year homemaking teachers. They thought that first-year teachers needed to do more long-range planning and pre-testing and to give more emphasis to the principles involved than to the activity.

The preparation of teachers for wage-earning programs has been given almost no consideration. Latham (1965) did collect some data about the work experiences of secondary teachers in Idaho in connection with a study of employment opportunities. Approximately 85 per cent of the 70 teachers surveyed had had work experience other than teaching. It was most commonly in food service, working with children, and sewing. Van Horn (1964) recommended that such teachers, in addition to having skill in the art of teaching and an understanding of problems confronting families, have "experience that gives insight into the requirements for success as a wage-earner. . . ." She believes this is so important that it would be better, if a teacher were not available with both a college degree and work experience, to select a prospective teacher with work experience and provide her with intensive in-service education.

The roles played by personnel involved in the student teaching situation have been investigated in three studies. Leonard (1965) determined differences among three groups, principals, supervising teachers, and college supervisors, of role expectations and perceptions. She used a sample of 138 persons in a six-state area in South Central United States. The statistically significant differences found were greatest between the college supervisors and supervising teachers and least between principals and supervising teachers. These were largely in three areas: the degree of participation in evaluation, leadership, and coordination. The principals tended to expect "a moderate" amount whereas the other groups expected more than average.

Leonard also identified differences among the three groups with reference to guiding principles of supervision. The largest number of significant differences were between college supervisors and principals, 30 of the 50; only one was found between the latter and the supervising teachers. The differences were largely the extent of acceptance of a principle rather than acceptance-rejection.

A study of practices relating to roles in the student teaching situation which produce satisfactory supervisory relationships was made by Walsh (1960). A total of 355 student teachers, supervising teachers, and college supervisors in nine states in the Pacific Region responded to a questionnaire involving 96 practices. At least 75 per cent of the college supervisors agreed with 56 of the practices whereas this proportion of the supervisors agreed with 45 and the student teachers with 37. The latter and the college supervisors agreed closely on only 17, whereas they agreed with the supervising teachers on 37. The agreement between the two supervising groups was somewhat higher--they agreed on 42 of the practices. All three groups tended to agree less with those practices related to their own roles than to the roles of the other groups.

Four universities have been involved in a cooperative research effort to explore the special contribution of the college supervisor. Some of the findings in one institution, Purdue University, were reported by LaRowe (1965). The critical-incident technique was used to collect data from 35 student teachers, 37 supervising teachers, and four college supervisors. They kept records of incidents involving behaviors of the college supervisors.

These incidents were classified with reference to roles assumed: directive, less-directive, permissive, evaluative, and negative. The directive and permissive behaviors of the four college supervisors tended most frequently to be used in providing information, the less-directive in giving security, the evaluative in judgment-giving roles. In general, the roles assumed were judged to have greater impact upon the supervising teacher than on the student teacher. Also, the former tended to perceive the college supervisor as having more impact on the student teaching than did the student teacher.

Research on the relationship of dogmatism, personal-professional rapport, and attitudes with the influence of student teachers upon their cooperating teacher was carried out by Rosenfeld (1963). Pre- and post-MTAI scores, Dogmatism Scale (DS) scores, and information from a questionnaire were collected from 60 cooperating teachers who were supervising their first student teachers.

The less dogmatic cooperating teachers tended to establish a higher degree of rapport with pupils, but their degree of dogmatism was not significantly related to rapport between the cooperating and student teacher or to pre-professional rapport with student teachers. The more dogmatic a cooperating teacher is, after working with her first student teacher, the more likely she is to have a positive change in attitude toward classroom pupils, as reflected by MTAI scores.

An exploratory study of the adaptation of home economics student teachers to the community was made by Carmichael (1961) using a sample of 32 student teachers, their supervising teachers, and 899 pupils. Instruments were developed for determining three variables: knowledge, motivation, and behavior of student teachers in adapting their teaching

to the community. Positive relations were found among participation in community affairs by the student teachers, their knowledge of the community, their desire to adapt their teaching to the community, and the use of community resources.

Evaluation of the student teaching experience is a much needed type of investigation. Three recent attempts have been made using quite different approaches: judgments of supervisors and of student teachers and satisfactions derived by the latter.

A study of characteristic differences in the proficiency of a selected group of 30 home economics student teachers in Pennsylvania was completed by Atkins (1960). They were judged by a panel of supervisors and classified into three groups: outstanding, average, and non-proficient. Their supervising teachers, college supervisors, and students were interviewed with reference to six areas. The outstanding student teachers as a group were strongest in their relationships with pupils and in their knowledge and presentation of subject matter. The proficiencies of average student teachers were their relationships with supervisors, school personnel, and community and their interest in the home economics profession. The non-proficient were weak in each of the six areas but were strongest with respect to neatness in personal appearance and work. They were weakest in their relationships with pupils and supervisors; planning and adapting learnings to pupil needs, interests, and abilities; planning for classes; and in managing their time.

Howell (1965) studied 50 Iowa student teachers to determine individual differences in progress toward 12 groups of objectives related to guiding learning as judged by student teachers and supervising

teachers. The majority of the students believed that they had made some progress on most of the groups of objectives. There was agreement between the estimates of progress toward the objectives by student teachers and their supervising teachers in approximately 75 per cent of the judgments. For two, planning and carrying out learning experiences and evaluating learning, all of the students believed that progress had been made. The objectives which students indicated most frequently on which they had no chance to make progress related to working with home experiences, pupil-teacher conferences, and working with Future Homemakers of America chapters. When responses of the student and her supervising teacher within student teaching centers were correlated, there were significant differences at four of the six centers on five groups of items: knowing the community and families, joint planning with pupils, directing home experiences, making home visits, and holding conferences with pupils.

To locate the areas of greatest and least satisfaction in student teaching and to determine if there is a relationship between satisfaction and the number of activities experienced, Chamberlain (1963) developed a check list which was administered to 64 student teachers from five universities and colleges in Eastern and Southern states. The areas of greatest satisfaction were found to be those concerning relationships with their supervising teachers and their pupils. The areas of least satisfaction were related to the home economics facilities in the centers and their teaching and co-curricular load. Many expressed the belief that the experience would have been more valuable if more phases or areas of the subject had been taught and if there had been more help from their college supervisors and directing

teachers in achievement test construction and the use of evaluation procedures. Opportunities for social contacts with their peer group and too little time for community activities were also sources of dissatisfaction. An analysis of scores derived from the satisfaction check list revealed that the shorter the length of the student teaching period, the lower the satisfaction scores and the greater the number of activities in which they participated the greater the satisfaction.

ADMINISTRATION AND SUPERVISION

Problems relating to administration have been given little attention recently. One investigation was found for each of these aspects: budgeting, ability grouping, and use of advisory groups. Several studies relating to in-service needs of teachers are included because they should be useful from the standpoint of findings and/or techniques of research. Also, some assessments have been made of the value of in-service programs.

Ashworth (1962) obtained data concerning the home economics budget from teachers in 56 of the 119 high schools in Connecticut which had home economics departments. Of these schools, almost 97 per cent had a plan upon which to base the amount of money needed for the program. Twenty per cent used cost per student as a base and 33 per cent based their plan on the amount spent the previous year. A comparison of the enrollment in the high school with the amount of money spent per pupil showed that, in general, the amount per pupil decreased as the high school's enrollment increased. Teachers in 75 per cent of the schools participated in the planning of the budget for

the homemaking department. The budgets in 75 per cent of the schools included provisions for replacement, repairs, and new equipment. In 66 per cent of the schools, the services and equipment were paid for in a combination of ways: requisitions, charge accounts, and petty cash.

To determine the extent of ability grouping in home economics classes in the public high schools in New York State, Waag (1965) sent questionnaires to both the guidance personnel and home economics teachers in a random sample of 250 schools. A 76 per cent return was obtained from those schools where both the home economics teachers and the guidance personnel responded. More ability grouping was being used in the junior high school classes than in the senior high school classes, primarily because of larger enrollments and subsequently more sections. In general, however, grouping provided some sections which were homogeneous in ability as indicated by IQ estimates and others which included a range of abilities. More than two-thirds of the junior high classes contained pupils who were average or gifted; slow learners through the gifted were present in about 13 per cent of them. Senior high home economics classes were more homogeneous in ability. The percentage of courses having a range in scores of 25 points or less was: 13 per cent in first-year homemaking; 20 per cent in second-year homemaking; and 40 per cent in third-year homemaking. Waag attributes the greater homogenity in ability levels in these classes to the fact that high school home economics courses are elective and, hence, selection influences range of ability.

The advantages and disadvantages to the homemaking program in the use of home economics advisory groups as seen by teachers and administrators in Illinois public schools were explored by Ramsey (1962). Replies to a questionnaire were obtained from 53 teachers and administrators who had advisory groups in their schools and 68 teachers and 58 administrators who did not have them. Both sets of respondents agreed that greatest contribution of the home economics advisory board was in the area of planning and organizing the adult education program. Teachers believed the greatest problems associated with them were: obtaining suitable members; the utilization of too much time in proportion to its contribution; and lack of familiarity with criteria for the selection of suitable members. Administrators were fearful that advisory boards might exceed their authority.

Studies of the needs of teachers have implications for both in-service and pre-service programs. An investigation of beliefs and practices of 65 Nebraska vocational homemaking teachers regarding evaluation was done by Briggs (1960) using an inventory of beliefs and a questionnaire of practices. Three statements of beliefs were accepted by all of the teachers; two related to grading and one to the need for continuous evaluation. Ninety per cent disagreed with four statements; two concerned grading and two pupil participation in evaluation. There was some discrepancy between beliefs and practices relating to two statements. All teachers agreed that in order for grades to be meaningful to pupils and parents, they need to know upon what bases they are assigned but only 36 per cent reported that they informed the parents about bases. Although 61 per cent of the teachers rejected the statement that the normal curve was the best basis for

assigning grades, 21 per cent reported they used the curve. Only 76 per cent indicated that they were collecting evidence about attitudes and many were not defining their objectives in terms of the behaviors expected of the students as a basis for evaluation.

Rader (1961) secured responses from 94 per cent of the 36 first- and second-year teachers in Nebraska. The professional activities with which these teachers recognized the most need for help were those associated with the selection of textbooks and equipment, the management of the physical facilities of the department, and extra-class activities such as the home experience program and FHA. Workshops and conferences were selected as the kinds of in-service activities best suited to contributing to the solution of problems faced by these teachers.

Scott (1961) collected data from a group of married homemaking teachers who had entered or re-entered homemaking teaching after a period of five or more years, Group I, and from married teachers who had been teaching homemaking continuously for five or more years, Group II, in eight states in the Southern region. More teachers in Group I than in Group II reported difficulty in: directing FHA activities; evaluating the effectiveness of the homemaking program; finding time for making home visits; and planning the home experience phase of the program. Teachers in both groups had difficulty in: planning the adult program; working with pupils of different abilities in one class; planning the department budget; using the problem-solving method; and using essay tests. Other problems were inadequate equipment, funds, and library facilities. Group I suggested the following ways in which state supervisors and college or university

faculties could help: small study groups; sectional meetings at state conferences devoted to their needs; initial visits from the supervisor early in the year; extension classes; and summer classes of two or three weeks.

Coon's investigation (1962) also indicated some supervisory problems. Responses to a questionnaire were sought in early 1959 from a stratified random sample of 4,303 public junior and senior high schools in the United States; replies were obtained from 92 per cent. Home economics were being offered in 95 per cent and 49 per cent of the total number of girls in them were enrolled in home economics courses that year. In the eighth grade, 73 per cent were enrolled whereas in the 11th grade only 28 per cent. Of the total number of home economics courses offered in these schools, 46.1 per cent were vocationally subsidized courses. In both the vocational and nonvocational courses below the 12th grade, approximately one-half to three-fourths of the course time was devoted to studying the areas of foods and clothing. In the 12th grade, however, the course time was almost equally divided among eight areas: child development, clothing, consumer education, family relations, foods and nutrition, health and home nursing, housing, and management. Approximately 25,050 home economics teachers assumed the responsibility for the programs in these schools; 82 per cent were full-time teachers, the other 18 per cent assumed some other school assignments.

The methods used by homemaking teachers to keep abreast of trends and developments were investigated by Garst (1960). The 104 homemaking teachers in the public schools of four counties in Southwestern Ohio indicated that their best sources of help were professional magazines,

commercial literature, and up-to-date textbooks. Professional meetings, personal contact with experienced homemaking teachers, workshops, and materials distributed by the state office were also considered helpful. Over half, many of whom were mothers of pre-school and school children, indicated that family responsibilities hindered their professional advancement. A heavy teaching and extra-curricular load, financial problems, and distance from a university also interferred with keeping up to date. The types of helps which the teachers believed most useful were workshops, bibliographies, monthly newsletters, and a yearly summarization of trends and ideas.

In an effort to determine the effect of supervision on the balance of the high school home economics curriculum, Thomas (1965) analyzed teachers' responses to the questionnaire sent out by the U.S. Office of Education for the 1959 national study. She determined the amount of class time devoted to specific subject-matter areas in the first two years of home economics in 502 four-year high schools. Of this number, 381 had supervisory programs administered by the state or city. Balance in the curriculum was defined as a proportionate distribution of annual class periods among the various areas of home economics subject matter, or more specifically that approximately one-fourth to one-third of the annual class periods should be devoted to each of three groups: Group A, child development, family relations, management, and consumer education; Group B, foods, health, and home nursing; and Group C, clothing, housing, and related areas of home economics subject matter. No significant difference was found between the emphasis in courses offered during the first two years in the supervised and unsupervised four-year high schools. There was

some evidence that there is a relationship between the distribution of curriculum materials and teacher involvement in the preparation of such materials and the number of offerings involving Group A. There appeared to be no association between balance in the curriculum and three factors: the ratings which supervisors gave curriculum development activities, the amount of supervisory time devoted to them, or the proportion of time devoted to these responsibilities by supervisors.

In Michigan, the report of the Committee of the Vocational Education Evaluation Project (1963) described their non-credit program for teachers and the results of a teacher evaluation. Two-thirds of those attending annual state conferences rated them as "very valuable"; approximately one-third rated fall meetings as having "considerable value." Although fewer teachers had participated in meetings sponsored by one of the colleges, there was a relatively high level of satisfaction reported. The Committee recommended continuation of these programs and suggested that other vocational education areas "emulate" home economics education in this respect.

EVALUATION

Research in this area relating to the secondary home economics program includes assessing present programs as a base for future development; determining effects of instruction and self-evaluation; devising instruments to aid in the assessment of the degree to which objectives are being accomplished. Evaluation of pre- and in-service programs is included in the sections on Teacher Education and Administration and Supervision.

After a panel of consultants had reviewed programs in vocational education for the U.S. Department of Health, Education, and Welfare (1963), they made several recommendations, one of which related to evaluation. Noting the paucity of data to evaluate the program, they recommended that all agencies having a responsibility for vocational education use a variety of criteria to measure the effectiveness of local and state programs in all areas. They also saw a need for unique homemaking programs for girls in disadvantaged families in large cities and for more wage-earning programs using home economics skills and knowledge.

A Committee in Michigan (1963) made a comprehensive evaluation of their total vocational education program. Three of their recommendations relating to home economics education were that some attention be focused on wage earning even though the primary purpose of the secondary program is to prepare for home and family living, that high priority be given to the development of research competence among the leaders, and that funds be used to support research.

Five states are cooperating in a project to evaluate two types of secondary programs but the reports of only three are presently available. General homemaking courses and specialized courses were compared by asking seniors to indicate on a questionnaire the amount of help they had obtained from their high school program relative to 53 topics and also their desire for additional help. General courses were defined as those made up of units from at least three areas of home economics and specialized courses as those which focused mainly on one area such as management, child development, or food and nutrition. The questionnaire was revised after test-retest

reliabilities for the eight areas of subject matter were found to vary from 0.74 to 0.96. The total was 0.87 on the section relating to amount of help and 0.92 on desire for additional help.

In the Indiana study of 371 senior high school students, Lowe (1962) found no significant differences between the amount of help recognized by girls who had taken home economics in a general type program and those who had taken specialized courses when the amount of homemaking instruction, socio-economic status, and academic competence were controlled. Significant relations were found, however, between the amount of help and the amount of instruction. Garrett (no date given), using a sample of 233 pupils in Missouri, and Ray (no date given), a sample of 375 in Pennsylvania, found differences between type of program but they did not favor the same type. In the former, students more commonly recognized help from the general type, whereas in the latter the students in the specialized type recognized help more frequently. Type of program was related to desire for additional help: those in the general program more frequently indicated this desire in Indiana but in Missouri the reverse was found to pertain.

Blackwell, Nelson, and Jacoby (1966) reported the effectiveness of a pilot program in training students for entry-level jobs in food service. Interviews with the 14 girls completing the course indicated unanimous approval. An index of student success was computed by ranking students according to their scores on five instruments developed by the investigators: Becoming Employable Scale, Waitress Scale, Caterer Scale, Attitudes Toward Work Scale, and a final achievement test. Significant relationships were found between the index and

IQ, academic rank in class, and total hours of work experience but not between the index and socio-economic status or the total score on a motivation questionnaire.

Five studies are concerned with evaluating instruction in some aspect of home economics. Whitehead (1960) presents data collected from 445 subjects to determine the effect of nutrition education upon food choices. Pupils from sixth- and seventh-grade classes were divided into two matched groups: an experimental and a control group. Students in the sixth grade participated in the educational program two years; those in the seventh grade, one year. The data indicated that while general eating patterns were maintained by both the experimental and the control groups after one year, intakes of the 10 food classes by pupils in the experimental more nearly approached recommended levels than did those in the control groups. The participants in the two-year nutrition education program showed greater improvement in eating patterns than those in the one-year program. Also, there was considerable difference between the eating patterns of the two groups one year after the two-year educational program.

The value of a special clothing course in attracting and holding the more academically-able student in home economics was explored by McCormick, Shelden, and White (1966). The course was adapted from 11 units of the regular clothing course: four of the units were enriched, the remaining seven were unchanged. In addition, the experimental course was scheduled to meet for one hour rather than two. Nineteen students were enrolled in the special course and 21 students in the regular course. Progress was determined during the semester by the use of unit tests, notebooks, weekly-grade contracts, garment

construction, and projects. The students in the experimental course maintained a higher degree of interest throughout the semester and produced a satisfactory quantity and quality of work in a shorter class period. The authors believed that such courses will attract and hold gifted students.

A six-week unit on family relations was evaluated by determining the changes in marriage role expectations of high school adolescents. Jackson (1963) assessed changes by two administrations of the Marriage Role Expectation Inventory by Dunn (1960) to experimental and control groups. The former were enrolled in a course containing a six-week unit in family relations and the latter had no exposure to such a unit. Forty students participated in each group; they were similar in age, grade level in school, religion, suburban area, and all lived in the South. The post-test data from the experimental group showed significant differences in median scores on the total inventory and four subscales, whereas the control group had non-significant differences except in the subscale related to homemaking.

Curtis (1961) studied the effect of a six-week unit in marriage and family living upon the attitudes of 28 10th-grade girls toward marriage and family living. Changes in attitudes were assessed by two administrations of a 32-item attitude scale developed by the investigator. "Major" changes occurred on 12 of the 32 items; these items related to the desirability of a similar amount of education and common interests by marriage partners; faithfulness of the mates; wife having an allowance for personal and household expenses.

The effect of student self-evaluation upon achievement was investigated by Crowe (1965). Experimental and control classes were

set up; the former contained 15, the latter 14 seventh-grade pupils. The students had similar characteristics such as intelligence, socio-economic status, and self-concepts. Treatment of the experimental group differed only in the use of self-evaluation devices in a unit focusing on management in food preparation. Groups were pre- and post-tested using a multiple-choice test devised by the investigator. A comparison of the median gains showed that the experimental class gained twice as much as the control class; however, the former did not gain more than the latter when mean gains were compared. Thus, the effect of self-evaluation upon achievement is not clear. Crowe suggested this may be due to the small sample size or the lack of refinement of the instrument used to assess achievement.

Nine studies are reviewed which had as one of their major objectives the development of an instrument or a battery of evaluative instruments.

To develop an instrument for use by high school girls and teachers to assess the picture the student holds of her self-discipline, Kilpatrick (1961) studied four aspects of self-discipline: Becoming More Neat and Orderly; Becoming More Trustworthy and Dependable; Starting Things on My Own; and Finishing What I Start. A Q-sort of 80 statements was used by students, adults, and peers to delineate self-discipline. The girl's opinion of her self-discipline was compared with that by peers and adults; their responses tended to yield higher scores than those which girls gave themselves. Test-retest reliabilities of the students' sorts were 0.70 using the Pearson product-moment formula and 0.93 using the Kuder-Richardson formula.

Reed (1960) attempted as part of a larger study to devise a reliable criterion for measuring self-reliance in youth by combining ratings by self, parents, and teachers. She adapted Stott's inventory, Every-Day Life, which is a scale for the measurement of self-reliance, and obtained three instruments: Parent-Rating Inventory, Self-Rating Inventory, and Teacher-Rating Inventory. Responses were obtained from a random sample of 460 ninth-grade pupils from six junior high schools in New Mexico. Data from the three inventories were intercorrelated to determine whether they could be combined into a single criterion but the correlations indicated that combining scores from the three were not desirable.

In the construction of an instrument to measure attitudes toward money, Miller (1965) developed 85 attitude items and divided them into seven scales based on predetermined operational definitions. When responses of 225 boys and girls 16 and 17 years of age were analyzed, five of the seven scales proved to be acceptable for use in measuring group attitudes toward money: Democracy, Value and Goals, Satisfaction and Happiness, Budget, and Action Orientation. The reliability coefficients were between 0.57 and 0.76.

Keenan (1962) constructed an instrument designed to help students understand how various ways of spending can reflect the values held by an individual or family. The inventory consisted of 14 case problems, each describing a situation which required a choice among alternative ways of spending money. Reaons for the choices were keyed to one of seven selected values. Respondents assigned ranks to each reason to indicate their assessment of relative importance. Although the analysis of the responses of approximately 2,000 pupils

in family living classes in Illinois showed some commonness of pattern, the inventory did differentiate successfully among three groups, girls, boys, and home economics teachers, with respect to the values of recreation, education, beauty, health, relationships, and thrift.

A measure of the willingness of 12th-grade girls to perform homemaking activities involved in the role of homemaker was developed by Zachary (1962). Items were based upon activities identified by a group of 80 homemakers in Florida as common to the role of homemaking. Analysis of the responses of 110 12th-grade girls to the instrument indicated that 88 of the 94 items in the instrument yielded satisfactory reliabilities but only 37 were found to discriminate satisfactorily between high and low criterion groups.

Ross (1965) sought to develop two tests to accompany the self-instructional program on the use of the sewing machine developed by Moore (1963) and Shoffner (1964). One was a performance test: the other, a paper-and-pencil test involving matching and multiple-choice types of items. Inter-judge reliabilities of three judges were 0.91, 0.92, and 0.95 on the former. The split-half reliability of the latter was 0.82. Item analysis revealed the need for some revisions in both tests.

Corns (1965) attempted to develop a multiple-choice type of test to measure the level of conceptualization which pupils had attained in clothing selection. After identifying 135 concepts relating to physical characteristics, management of resources, and psychological satisfactions, she selected 40 dealing with design elements and developed a multiple-choice test using the definitions given by Iowa pupils. The choices represented different levels of conceptualization.

The respondents were to select the best description of the concept and also to indicate all other responses that were correct. To validate the test a parallel essay test was constructed. When both were administered to the same students, a correlation of 0.57 was obtained between the scores; hence, the multiple-choice test appears to be an unsatisfactory measure. Since the multiple-choice form yielded higher scores, it was assumed that pupils were able to recognize a higher level of conceptualization than they were able to verbalize.

To aid teachers in estimating the clothing construction ability of junior and senior high school pupils, Frandolig (1962) revised and validated two batteries of instruments and developed weighted scores for each. These consisted of two forms of a paper-and-pencil test, Clothing Construction, a Finger Dexterity Questionnaire, and Miller's Survey of Object Visualization. The criterion measures were two rating scales used by teachers in six schools in Iowa who observed and rated the skills and practices and also made a general estimate of construction ability of 392 pupils in their classes. Intercorrelations were obtained among the scores on the three predictors and the three criteria measures and regression equations were developed for predicting the ability of eighth-, ninth-, 10th-, 11th-, and 12th-grade pupils. Also, tables of weighted scores and means of interpreting estimates into three ability levels were developed for each grade.

An Attitudes Toward Work Scale has been developed by Blackwell, Nelson, and Jacoby (1966). The preliminary form was composed of 69 direct quotations from an open-end questionnaire administered to 106 boys and girls in New York State. An item analysis reduced the scale

to 49 items which involves attitudes toward the following: adequacy of school preparation for work, supervision, peers, choosing a job, rights and responsibilities of employees, inner-satisfactions of working, and expectation of future advancement. A split-half reliability of 0.87 and a test-retest reliability of 0.72 were obtained. The distribution of scores of 155 students approximated a normal curve. Rating scales also were developed for use in determining general employability, skill as a waitress, and as a home caterer. Teacher and self-ratings yielded correlations of 0.70, 0.47, and 0.11, respectively.

RESEARCH

Although the amount and the quality of research relating to home economics education are increasing, the need to improve both is clear. One avenue is through cooperative effort either within a university or among institutions. Some of the advantages and problems as well as the steps taken in such a venture are described by Coon (1962) and Coon and Ford (1962). Since such a large proportion of the research in the field is carried on by graduate students, Lehman (1960) has made two pertinent suggestions relating to students working toward the master's degree: (1) that all institutions require a thesis for the degree and (2) that several students cooperate on the solution to a problem by each studying one aspect or sampling a different area of the population.

In any field, two very important factors influencing quality of research are the number of qualified personnel and the instruments available for data collection. Considerable progress is evident with

respect to both in recent years. Space does not allow a listing of all research instruments developed in the past few years but a few are pointed out as illustrative.

In the area of curriculum for general education these inventories used by Moore and Holtzmann (1965) are worth consideration: Attitudes Toward Personal and Family Living, Concerns and Problems in Personal and Family Living, and Interests in Personal and Family Living. Others include Dunn's (1960) Marriage Role Expectations, Brown's (1964) My Ideas About Family Living, Petrick's (1965) What Do You Believe About Families?, Jeske's (1963) What Do You Do With Young Children?, Ferguson's (1964) Questions I Have About Little Children, Schwieger's (1966) My Experiences in Family Housing, and Mean's (1964) Experiences With Food.

Several tests and inventories that can be useful in assessing programs at the secondary level have been developed. In addition to some of those referred above, such as Petrick (1965) and Dunn (1960), are these: Miller's (1965) scales on attitude toward money, Zachary's (1962) Acceptance of the Role of Homemaker, Frandolig's (1962) batteries to predict clothing construction ability, Corn's (1965) test of concept attainment in clothing selection, Ross' (1965) performance test and multiple-choice test on the sewing machine, Byrd's (1963) What Do You Know About Children? and Concepts in Child Development, Roth's (1963) Knowledge Test, Spangler's (1963) Critical Thinking Test in Family Relations.

Only a bare beginning has been made in developing instruments for use in wage-earning programs. Blackwell, Nelson, and Jacoby (1966) have four instruments: Becoming Employable Scale, Attitudes Toward

Work Scale, Waitress Scale, and Caterer Scale. Loftis (1966) also has developed a scale, My Future Plans.

Illustrations of instruments that relate to teacher education include Cooper's (1962) test to measure ability to apply educational concepts, Osborn's (1960) inventory to determine value patterns, Loftis' (1962) Measure of Professional Commitment, Brigg's (1960) What Are Your Evaluation Practices? and Inventory of Beliefs, Lehman's (1962) Just Suppose Inventory, Ford and Hoyt's (1960) Criteria of Classroom Effectiveness for Homemaking Teachers and three high school teacher attitude inventories.

Unfortunately, many of these evaluative instruments are in need of revision after their preliminary trial. Following that state and national norms should be established for most effective use.

In addition to the need to develop and improve research instruments, it is obvious that in most areas much is yet to be done in finding solutions to our educational problems. Replications of studies are needed as well as investigations directed at relatively unexplored aspects. Only examples of some of the pertinent needs can be included here. A few states have made systematic studies basic to curriculum development for homemaking programs at the secondary level and at several institutions' projects relating to wage earning are now underway. Pilot studies are infrequent but are needed to explore new ways of teaching or organizing learning experiences to meet common or special needs. A few have been concerned with programs for special groups such as handicapped or high-ability pupils. As far as evaluation of state programs is concerned, little progress has been made.

Needed investigations relating to wage earning are illustrated by those pointed out at a national conference on food service called by the United States Department of Labor (1964). Doubtless these same needs are applicable to other wage-earning areas. Some of those listed were job identification, recruitment, selection of workers, qualifications for instruction, motivation of employees to greater productivity and upgrading, occupational mobility within the industry, labor-market practices, knowledge and abilities required for selected jobs, nature and extent of technological change in the industry, job descriptions and staffing patterns, attitudes toward employment in the industry and means of improving the attitudes, follow-up of graduates of training programs, vocational potential for disadvantaged youth, effective matching of people and jobs, testing of methods of training for clusters of occupations, factors affecting the types of applicants for jobs, and worker-traits conducive to success.

Recent publications which include recommendations concerning needed research or questions toward which research could well be pointed are: Simpson (1965), Anthony (1965), Hurt (1966), Christian (1963), and Chadderdon (1964).

As the amount of research data increases, the need for a system of storage and retrieval of information becomes increasingly essential if needless duplication of effort is to be avoided and if educators are to make the best use of the findings. Curry (1965) explored a possible system for the entire field of home economics by first establishing guidelines from a review of the literature pertaining to such systems. Following this, she developed a plan and evaluated it by having it used

by 21 non-trained persons to obtain information from several theses in the area of home economics education.

The U.S. Office of Education has established the Educational Resource Information Center (ERIC) in Washington, D.C., which is responsible for making available the public findings of Research supported by the Office of Education through Bureau of Research. ERIC also currently includes decentralized clearinghouses, each focused on a separate subject-matter area. The Center for Vocational and Technical Education in Columbus, Ohio, includes in its activities the Clearinghouse on Vocational and Technical Education. Home Economics Education is an important field within the focus of this Clearinghouse. Research documents and other materials will be available through the system in the form of microfiche or reproduction copy. This should prove to be a valuable resource to researchers in Home Economics Education.

CONCLUSIONS AND RECOMMENDATIONS

During the reviewing of the research in home economics education since 1959, two generalizations became clear: (1) considerable progress has been made in collecting and analyzing data relating to important problems and (2) there is great need to use resources to better advantage.

The first of these is documented by the research included in this review. The second comes, in part, from the large number of theses, particularly in curriculum, which are based on one school system. Useful as these may be locally, they contribute little to the whole. If institutions or states developed an over-all plan for sampling a

state or region, then studies by students could fit into the plan and make a greater contribution. Since in many institutions most of the research is that carried on by graduate students, making these more effective is very important. Another resource which needs to be used to a greater extent is statistical consultation and analysis. Although the sophistication level of several studies is relatively high, generally this is not true. Recognizing that statistical analyses are not appropriate in some types of investigations, they are sorely needed in others. Many resort to percentages as the only means of summarizing data when tests of significance are needed. Most researchers doubtless recognize that one or two courses in statistics do not a statistician make and so depend heavily on consultants. Fortunately such resources are now available in many colleges and universities. Another resource which probably needs to be tapped, particularly in wage earning, is the experience of researchers in other areas of vocational education.

Two additional suggestions for improvement came from this review experience. Theoretical bases are lacking in many of the research reports and often assumptions are involved which are not adequately examined for validity. Theories also need re-examination as research findings in education, psychology, and sociology become available. Relatively few studies were found in which new approaches were tried. The need for greater creativity is clear, leading to exploratory studies as the first step in finding solutions to important problems.

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*INDUSTRIAL ARTS, *LITERATURE REVIEWS, *BIBLIOGRAPHIES, LEARNING PROCESSES, EDUCATIONAL PHILOSOPHY, CURRICULUM DEVELOPMENT, TEACHING METHODS, INSTRUCTIONAL MATERIALS, STUDENT PERSONNEL SERVICES, EDUCATIONAL FACILITIES, EDUCATIONAL EQUIPMENT, TEACHER EDUCATION, EDUCATIONAL ADMINISTRATION, PROGRAM EVALUATION, *EDUCATIONAL RESEARCH, EDUCATIONAL NEEDS, EDUCATIONAL PLANNING, EDUCATIONAL OBJECTIVES, EDUCATIONAL PROGRAMS, *EDUCATIONAL TRENDS,

Dissertations, theses, staff studies, personal research, periodical articles, yearbooks, and speeches from 1960-66 are reviewed. Topics discussed are -- (1) Philosophy and Objectives, (2) Curriculum Development, (3) Instructional Materials and Devices, (4) Learning Processes and Teaching Methods, (5) Student Personnel Services, (6) Facilities and Equipment, (7) Teacher Education, (8) Administration and Supervision, (9) Evaluation, and (10) Research. Excellent examples of research exist in experimental work, followup research employing causal-comparative methods, and in some philosophical studies. However, much of the research done because of degree requirements is of extremely poor quality. By accepting low quality standards, institutions may be producing individuals who erroneously conceive themselves able and accomplished researchers. Major questions concern industrial arts objectives and teaching methodology. Research efforts, in the near future at least, will be directed to the concerns raised by the major curriculum projects. (EM)

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Review and Synthesis of Research in

INDUSTRIAL ARTS

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
The Ohio State University
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The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

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REVIEW AND SYNTHESIS OF RESEARCH IN INDUSTRIAL ARTS EDUCATION

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August 1966

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INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Industrial Arts Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of industrial arts education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings

generated by funds available through Section 4(c) of PL 88-210. Admittedly, the author had problems in securing all available material, but nevertheless, in our judgment, he has done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Business and Office Education; Distributive Education; Home Economics Education; Technical Education; Trade and Industrial Education; Agricultural Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to Jerry Streichler for his scholarship and efforts in providing the profession with this new benchmark and perspective on research in industrial arts education. Recognition should be given to Dr. Jerome Moss, Professor, Industrial Education, University of Minnesota, Minneapolis, Minnesota, for his critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. Willis E. Ray, Professor of Education, Industrial Arts Teacher Education, The Ohio State University, for his review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

PREFACE

This report covers research in industrial arts education from 1960 to 1966. Materials for this review were considered appropriate if there was evidence that specialized research techniques were used in organized attacks upon the stated problems.

The material includes doctoral and masters' theses, masters' research project reports, staff studies, and personal research. That studies are discussed or listed in the bibliography, or have been omitted, does not imply a qualitative judgment of the research. While quality and significance were sought in the available research, selection was not based upon these criteria alone. To have done so would have precluded a true representation of the status of research in the field.

To a limited degree, periodical articles of personal opinion, mainly in the areas of philosophy and objectives and curriculum, are reviewed. Similarly, some materials outside the delimited time span are discussed as they were judged pertinent to the full development of topics.

The material reviewed in this report was gathered from library sources, from individuals who conduct, direct, or report research in colleges and universities and from state supervisors of industrial arts. Whenever possible, complete research reports were reviewed.

It became necessary to consult abstracts and summaries of research when complete reports were unavailable.

The author gratefully acknowledges the assistance of the many state supervisors of industrial arts and the college and university department chairmen who responded to a request for aid. Eckart A. Jacobsen, Professor and Head of the Department of Industry and Technology at Northern Illinois University, was particularly helpful, as was Frank Francisco, teacher of industrial arts electronics at Princeton High School, whose research assistance was extremely valuable and appreciated.

Jerry Streichler

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PHILOSOPHY AND OBJECTIVES

Objectives are viewed in the broadest sense and embrace aims, functions, goals, purposes, values, and contributions that commentators have noted for the field. However, achievement of objectives is omitted from this section as it is a topic judged appropriate to the section on evaluation.

The nature of this section requires a departure from the established limitations. Statements in periodical articles and some material published prior to the period under consideration are reviewed. While the latter are kept to a minimum, their inclusion seems to aid in the development of the topic and, if anything, this reviewer may have erred by not including sufficient material of this kind.

It is common knowledge that there is disagreement within the ranks of industrial arts educators concerning aims and objectives. The many contributors to the debate over the objectives of industrial arts have tended to become so involved with the objectives *per se* that it is sometimes difficult to associate their suggestions with an existing educational philosophy or relate them to psychology of learning. Several studies reveal the diversity in opinion and extent of agreement concerning objectives. While Hammond (1956) found a diversity of aims and purposes in the field, he noted that the objectives of general education were becoming less distinguishable from those of industrial

education. Although the objectives published by the American Vocational Association (1953) were favored in 38 state guides, they did not recognize certain selected sociological factors of contemporary American society according to Miller (1961). Consideration of these factors which included (1) mechanical inventions, (2) population movements, and (3) natural resource changes would aid industrial arts in directing itself toward exploration emphasizing the student's personal development, certain personal-social traits in individuals, and would contribute to the guidance of individuals.

The AVA objectives of 1953 were considered in Talkington's (1962) study. Q-sort response method was used to determine whether there was agreement in the priority of industrial arts objectives between industrial arts teachers in Colorado and 35 selected industrial arts leaders throughout the nation. These two groups have identical rankings for three objectives but disagreed upon the priority ranking for six objectives. Within-group agreement of the Colorado teachers was determined by dividing them into six categories based upon experience and preparation. These six groups agreed on the priority of only two objectives.

Woody (1963) performed a similar study with teachers in Oklahoma and national leaders. While he found some agreement within the teachers' group and between teachers and national leaders, there was not enough agreement to suggest unanimity.

Hawse (1964) attacked the problem of acceptability and recognition of the objectives of industrial arts by studying opinionnaire responses from selected industrial teacher educators, industrial arts teachers, school administrators, industrial employment officers, and

selected parents in the State of Illinois. The responses caused him to conclude that a basic agreement existed on the value of industrial arts objectives subscribed to by industrial arts teachers in America.

Leaders in the field have commented on the objectives and their statements are diverse. In some instances, the general education values of industrial arts have been emphasized. For example, Beck and Nelson (1960) viewed industrial arts as a somewhat specific subject matter area making a primary contribution to general education. Dudley (1963) held the view that science and mathematics, problem solving, and sensitivity to human relations should be emphasized in industrial arts as general education. These would provide a proper understanding of industry. Duffy (1963) was concerned that understanding technology serve a general education function and suggested industrial arts school tracks appropriate to students with different abilities; Jarvis (1963) urged that industrial arts needs to develop a sequence of offerings which would serve college preparatory students; and Evans (1962) pointed out that industrial arts could serve a pre-engineering function and could do so if content and immediate objectives for this function were derived from recommendations of engineering educators.

Crawford (1961) studied the literature and the questionnaire responses from directors of adult programs. Industrial arts as general education, he learned, contributes to the extension of the education of the individual, the development of manipulative skills, and to the promotion of the conservation of human and material resources in recreational and do-it-yourself activities for adults. He further found that both men and women were active in courses of the industrial arts type on the adult level, that there was flexibility in the

offerings with respect to the fact that they conformed to student needs and demands, and that industrial arts as an area of the primary and secondary schools is better interpreted to the public through the participation of adults in these programs.

The adult programs are rewarding to the adults who take part through the things they make and they come to understand the values of industrial arts in the public schools.

The relationship between industrial arts and vocational education has attracted comment. The question of whether industrial arts is supplementary and preliminary to vocational education or whether it is a phase of vocational education has been argued by many contributors to the professional journals. In this regard, Streichler (1963a) suggested that industrial arts was on the industrial education continuum and has been closely related to all other facets of industrial education such as vocational trade and industrial education and technical education. He also pointed out that the schism between vocational and general education has prevented improvement of offerings in the industrial education field.

Some discussions concerning the relationship of industrial arts and vocational education revolve about particular or specific objectives of industrial arts. The guidance goal of industrial arts is not overlooked in the analyses of industrial arts objectives. An example of this view is seen in the work of Bateson and Stern (1963) who stressed the importance of the guidance objective. The gap between the world of work and industrial education, they said, can be bridged if this objective of vocational guidance is kept in mind. They suggested that this objective can be met if proper exploratory experiences

in the functions of industry are provided in the school shop and that these would prepare the student to deal more effectively with the problem of occupational choice.

Stadt (1962) and Moss and Stadt (1966) bridge the topics of objectives and philosophy. They suggested that the function of secondary education should be solely general education and that industrial arts, in order to be included in the secondary school of the future, must take on more of the attributes of general education. Some objectives dealing with the development of manipulative skills in the junior high school have been unrealistic, they declared, because students at that level have not attained the neuromuscular development required to master such skills. At the junior high school level, students should have first-hand laboratory experiences with various worker roles as they may be extracted from industrial functions. At the high school level, the study of industry would take on a more abstract, generalized form with possible integration and coordination with the study of business, distribution, and agriculture. They rejected the pre-vocational aspects of industrial arts and observed that the major benefit derived from programs of a vocational nature by most high school students is the general education they accumulate as a result of increased time in school. Some of the views expressed by Moss and Stadt are being considered in ongoing curriculum development projects which are discussed in the Curriculum Development section of this review. Those noted here serve as samples of philosophic considerations, some of which may have influenced curriculum development programs.

Some of DeVore's (1964) views have roots in earlier statements like those expressed in a 1947 proposal by Warner (1965) and those of Olson (1957). DeVore (1964) suggested that industrial arts may have reached the point of maturity where it could organize its knowledge to the level of a discipline and that this knowledge be organized about technology. He defined discipline and technology and pointed to those aspects of man that are related to technical endeavors. These aspects are man as a builder, a communicator, a producer, a transporter, a developer, an organizer and manager of work, and a craftsman. They would provide the themes around which content for industrial arts would be organized. Micheels and Sommers (1958) directed a staff study at the University of Minnesota which may be considered a benchmark with respect to philosophy and curriculum of industrial arts. While there is little evidence that this program has been entirely implemented, the report itself has some significance and may also be considered one of the stimuli for later curriculum development efforts. The staff determined the nature of the world of the future, what a person living in that world would need to know and understand, and what general skills he would need to possess in order to function in that world. Out of generalizations concerning this probe of the future, certain specific assumptions were made relating to the social, economic, and technological forces at work which would affect education and industrial arts education in particular. A curriculum for industrial arts teacher preparation was suggested with three major cores of experience: (1) science-mathematics, (2) technology, and (3) design. A coordinated flow of experiences between the three areas which would carry over into

the professional and so-called general education areas of the teacher education curriculum was recommended.

Baird (1961) analyzed Dewey's philosophy and applied it to a proposed industrial arts teacher education program. Baird sought an integration of action and thought and defined the role of instructor in relation to fulfillment of objectives of the experimentalist program which grows out of the social and industrial needs of man.

Svendsen (1961) observed that the theory and practices within industrial arts did not completely exploit the potential of the curriculum. While industrial arts reflected a vocational emphasis handed down from manual training, a liberalizing emphasis resulting from the Dewey-inspired philosophy contended with the vocational emphasis and resulted in a closer relationship between reflective thought and action. Only selected portions of Dewey's theory have become a part of the new industrial arts and there remains a dominance of physical activity over reflective thought. A combination of reflective thought and physical activity is necessary for a liberal study of industry, and an investigation of its technology by problem-solving methods will resist any force which seeks to confine the theory and practice of industrial arts to trade and fabrication activities and knowledge. This should be considered a benchmark study for its quality and its considerations of psychology of learning as related to values, purposes, and content of industrial arts.

Svendsen's study serves as a summary agent for this section. He noted some of the influences bearing on industrial arts: the residuals of manual training, the advocates of a vocational emphasis, and the supporters of general education. Objectives resulting from advocated

views are not uniformly accepted within the profession and leaders continue to promulgate differing purposes, goals, and functions for industrial arts. Thus, one sees eclectic philosophy and objectives which active curriculum development programs may eventually perpetuate or clarify.

MANPOWER NEEDS AND EMPLOYMENT

While some research relating to pre-vocational education and teacher recruitment and placement may have some relation to the heading of this section, they have been judged more appropriate to other categories. Consequently, no studies are reported here.

CURRICULUM DEVELOPMENT

The variety and diversity of philosophical opinions and statements concerning objectives have parallels in the area of curriculum development. To demonstrate this diversity, this section is divided in the following manner: (a) status, (b) curriculum proposals that have been made in the past, (c) curriculum proposals which are currently being formulated and tested are presented, and (d) curriculum proposals which cover a particular phase of industrial arts.

Two studies offer information on the national status of industrial arts. Schmitt, Harrison, and Pilley (1961) analyzed the state curriculum guides in the United States and found that their contents, essentially derived through the analysis technique, were concerned with hand tools and operation of machines and reflected little agreement among the states as to what should be taught.

Also, the guides were found to mirror the objectives developed by the American Vocational Association in 1953. Another factor in curriculum development is revealed by Schmitt (1964) who surveyed industrial arts courses, grades seven through 12, for the United States Office of Education. His figures reveal the enrollments and number of schools offering certain courses under the title of industrial arts. These notify the curriculum developer of the size and nature of the "establishment" with which he will work or which he will try to change. The number of shops and laboratories of certain types is itself revealing since curriculum proposals, it may be inferred, recommend facilities to accompany proposed content.

Some historical perspective relating to curriculum proposals seems desirable. One can trace many antecedents but one of Warner's (1965) works serves as a prime example. He and his students presented the results of a team effort to the 1947 convention of the American Industrial Arts Association. Several large divisions of subject matter resources, namely power, transportation, manufacture, construction, and communication and management, were proposed for industrial arts content. This certainly was one stimulus for industrial arts to reflect technology on all levels of education. Ten years later, Olson (1957) proposed eight major categories of industry which he identified as manufacturing, construction, power, transportation, electronics, research, services, and management; and, similar to the Warner team's effort, he identified subject matter groupings within the major categories. While this attempt resulted in an amalgam of products and materials, it too must be regarded as a significant

effort within the field of industrial arts and a precursor of present-day efforts.

In the 1960's, several proposals attacked the industrial arts curriculum problem. Ziel (1962) proposed the study of the world of work, its dominant technologies, and its complex social interrelationships as a program for secondary school industrial arts. Elements of general shop activity, a study of selected technologies, and subject matter related to finance, psychology, and sociology were evident in the proposal. The Functions of Industry approach (Bateson and Stern, 1963, and Stern, 1964) was somewhat more clearly defined than Ziel's proposal. The latter proposal sought content from the goods-producing and the goods-servicing branches of industry. Functions and sub-functions within the major branches were identified and organized around a sequential set of concepts. In another proposal, Yoho (1964) applied the Systems Network Analysis Process and developed SNAP MAPS or models. From a model of the total functioning society he extracted an Industrial Communication Arts SNAP MAP, from which the curriculum content for industrial arts could be derived. A variation of analysis of industry is represented in Larsen's (1964) work. He examined modern industrial management techniques, concepts, and practices. These he advocated as usable sources for curricular experiences, subject matter, and personnel organization patterns which should be applied to industrial arts.

Two current curriculum projects are attempting to refine some of the earlier work and eventually implement programs in schools. The Industrial Arts Curriculum Project (IACP) (Towers et al., 1966)

delimits and defines the subject matter of industrial arts with a view toward organization for instructional purposes. The supporting rationale for the project suggests that there is an area of man's knowledge into which the study of industry appropriately fits and that a body of knowledge which pertains to industry per se can be identified and separated. Some of the content which has been judged appropriate in the past is rejected as being more relevant to other disciplines and, when applied to industrial arts, is seen to create confusion in philosophy and practice. Essentially, the research workers on this project view the subject matter of industry as limited to the theory of man's practices in the transformation of materials by man and machine through the two major divisions of industry, construction and manufacturing. Knowledge of man's practices about these two major processes can be extracted and organized to form the content of industrial arts. Consequently, they differ with those who suggest that the content of industrial arts should include such areas as transportation, marketing, or banking and finance as major concerns of industrial arts.

Face and Flug (1965) are directing a major curriculum development program which they call American Industry. American Industry is seen in a broad context; all areas of subject matter directly related to industry (all knowledge used by industry, not only industrial knowledge as defined by IACP), and which in turn affect humans, seem to be judged pertinent for consideration as to their inclusion within the curriculum. Their pedagogical approach is based on concept teaching and learning, as is the IACP program. This represents recognition b

industrial arts leaders of recent findings of the educational psychologists and of awareness of curriculum directions in other disciplines.

Schwalm (1966) is also working on a conceptually-oriented and interdisciplinarily organized curriculum. He has selected one of the traditional areas of industrial arts, the graphic arts, and enlarges this area conceptually. He sees visual communication as the organizing agent for his concepts. Concepts apply to the conception, development, production, use, and evaluation of the effect of any type of visual communication in such a way that once understood for one type they aid in understanding all forms of visual communications. The curriculum effort is under way in several schools in the northwest where several tracks can be observed; something equivalent to a general education track, a pre-vocational track, and a pre-technical track leading into a junior college. An experimental curriculum on the college level is also under study.

Industrial arts has also been adapted to pre-vocational goals. The Richmond Plan (1962) is directed toward the engineering technician band of the occupational spectrum. The industrial arts instructor, known in this plan as the technical laboratory instructor, works in a team which includes himself, a science, a mathematics, an English teacher, and a guidance counselor who cooperatively plan an 11th- and 12th-grade high school program. Students are selected for the program after being identified as possessing certain abilities and interests. The plan was originally conceived to create a program of greater interest to students which would hold them in high school until completion and facilitate entry into a post-high school engineering technology program.

Kishkunas (1966) and Olson (1965) spoke of the total occupational, vocational, and technical curriculum in the Pittsburgh public schools. Here, it seems, industrial arts subjects in the junior high school grades emphasize exploration to permit a selection by the student of one of three high school tracks--occupational, vocational, or technical. In the high school, industrial arts courses become preparation for work in the occupational track by providing experiences for grouping of semi-skilled and service occupations.

Turnquist (1965) reported on a program conceived for the Detroit public schools which is similar to the effort in Pittsburgh. Here, too, one can see the use of industrial arts courses in a pre-vocational and vocational sense. These programs were developed in response to serious educational and manpower problems within these school systems and cities. Creative and forward-looking educators are working in these locales and their work should be studied carefully. Possibly, with the solution of immediate problems, school systems may change or add to the current emphasis in industrial arts programs in the junior and senior high schools.

Maley and Keeny (1962) held that industrial arts as general education should be oriented to the talents of different students. To demonstrate this view, a program of research and experimentation for high ability junior high school students was developed. This was based on activities and content derived from research, experimentation, and development functions of industry in the belief that students having a scientific or mathematics orientation could do well in laboratory work which reflected this industrial activity. This program

was established and tried out in some schools of Montgomery County, Maryland.

Several studies represent efforts to derive content of a specific nature and are applicable to subject area divisions within industrial arts. Jelden (1960) developed a list of 628 topics in electricity and electronics. With the cooperation of 134 college industrial arts departments and 20 manufacturers, the list of topics was evaluated regarding topic inclusion in instructional programs. While the industries agreed that theory and application of recent advances in electricity and electronics, such as transistors and semi-conductors, were important, the researcher noted that these materials were not necessarily present in existing electrical instruction or in the books used by instructors at the time of his research.

Fritz (1960) and Paulin (1964) did research in the area of the ceramic industry with emphasis on the technology inherent in that industry. The contemporary society in the United States, they agreed, is basically technological and educational institutions should reflect this technology. Fritz developed a subject matter outline which illustrates that available curricular elements are diversified and numerous and contain a wealth of material for potential units of instruction. Paulin, on the other hand, presented an analysis of the function and organization of the ceramic industry. The industry, he said, needs to be viewed as an enterprise which would require more penetrating plans to teach its importance and implications as an area of technology than those currently used to teach it as a simple craft.

In the field of plastics, Runnalls (1965) analyzed and described the production processes and materials used in the plastic industry and determined the extent to which industrial arts teacher educators gave instruction related to the body of knowledge he derived. He found it relatively simple to derive the content and suggested that processes can be determined and modified into instructional content. Results of his survey of teachers in education institutions, however, indicated that only 14 departments required a course in plastics for their industrial arts majors while 73 departments indicated that there were some instructional units in plastics included in other courses.

The role of industrial arts as a supporting activity for other disciplines reflects still another belief concerning its values and role in curriculum. In this regard, some guides have been developed and some research has been done. Engelbrektson (1961) suggested a way by which science education could be treated in the industrial arts shop to increase the scope of both science and industrial arts. Consequently, he developed a resource unit by researching textbooks, curricular statements, courses of study, handbooks, and astronomy books in order to develop a resource unit in astronomy for the industrial arts curriculum in junior high schools in New York State. Such industrial arts activities as pre-planning, design, and project-making were found to hold promise for the teaching of astronomy in the junior high school.

Griffin (1965) determined science concepts from textbooks used in grades four, five, and six. Members of the American Council for Elementary School Industrial Arts selected those concepts which they believed held promise for industrial arts related experiences. Since

this researcher found support for the contribution of industrial arts to the development of science concepts in grades four, five, and six, he suggested that industrial arts be implemented and utilized to reinforce science concepts. A unit on weather was developed by Champion (1965). The unit was experimentally tested with two groups of students. The researcher concluded that industrial arts could be implemented on the elementary school level and could serve to motivate the children in the unit to which it is related.

Another example of the related subject view of industrial arts in the California State Department of Education guide (1960) which aimed at improving the instruction in mathematics courses relating to industrial arts. Auto mechanics, drawing, electricity and radio, graphic arts, handicrafts, metal and wood are related to mathematics in this work prepared by teachers representing these areas during a summer workshop.

In summary, diverse views of industrial arts are apparent in curriculum development. To some, it is a motivating activity; to others, an occupational or pre-occupational subject; some view it as general education which serves all students while making provisions for different abilities; some derive its content from a broad interpretation of technology or American industry while others derive content from a delimited analysis of man's practices in industry in converting materials to products; some analyze processes and materials of specific industries to derive content and others analyze functions common to many industries. While the curriculum situation appears eclectic, it seems that the ongoing curriculum research and development programs may lead to a much needed agreement on the values of

industrial arts. Once the values are accepted, the various approaches which are and will be suggested for the achievement of value objectives will, of course, need to be tested empirically.

EDUCATIONAL PROGRAMS

Research which might have been reported under this heading was judged to be more appropriate to other categories. Consequently, no studies are reported here.

INSTRUCTIONAL MATERIALS AND DEVICES

The research reviewed here is limited to those studies in which emphasis is on development of or information about instructional materials and devices. Studies employing materials and devices in connection with learning processes and teaching methods are considered under the section following this.

The reviewer expects that much work is being done in developing instructional materials and devices that is not reported as research. Efforts that are so reported follow.

Lists of available materials can be useful. In this connection, MacLean (1963) determined the availability, value, organization, and effective use of United States Government publications. This effort resulted in a selected annotated bibliography indexed by subject which is available to industrial arts teachers and which directs them to many resources available from government publications. MacLean warned that the Monthly Catalog of United States Government Publications, while extremely useful, requires a continuous evaluation and cataloging in order to abstract pertinent materials for industrial arts.

All issues of Industrial Arts and Vocational Education for the period 1948 to 1958 were surveyed by Poray (1964) who listed the teaching aids and devices which appeared during that period. While the collection may not be of extensive value at this time, some of the conclusions which the researcher reached as a result of his survey may be pertinent to direction in research and significant to the field. He observed that only a limited number of instructors of subject matter was represented in the periodical and as a consequence many fine projects, teaching aids, and devices have gone unpublished and unknown to the field.

A study to determine the status of development and utilization of instructional media in industrial teacher education in selected colleges and universities was completed by Payne (1965). The data he gathered through a refined opinionnaire indicated that in the majority of institutions the responsibility for selecting and planning audio-visual materials such as models, mock-ups, and educational bulletin boards is borne by the individual instructors who use them, that 16 mm. motion pictures were used more than any other media and overhead transparencies ranked second in use. The least used medium at the time of the research was video tape recording.

The development of instructional materials and devices is a field to which many beginning researchers devote their energies. This type of work is represented by the efforts of Grobe (1962) who developed teaching aids for use in the high school machine shop. After analyzing subject matter and the associated teaching methods in a selected high school, four subject areas were identified as difficult to present in an effective manner. Teaching aids and suggested methods for their use were developed for these areas.

Rodrick (1964) pursued a similar objective. He produced ee-dimensional teaching aids which could be used for an eighth-grade unit in electricity. Types of three-dimensional teaching aids which should be selected, constructed, and used in the unit on electricity were recommended on the basis of a documentary review.

Another type of teaching device was developed by Van Rooy (1965). Out of his analysis of the explosive forming method in industry, a working explosive metal forming device was constructed. The developer believed this successfully demonstrated the concepts involved in high energy metal forming. It involved an explosive source transmitted through a hydraulic medium and acting on a work piece fastened over a vacuum.

A laboratory manual, another type of instructional aid, was developed by Allen (1965) for experimental metal cutting and metal tool performance. The manual included experiments on chip types in metal cutting, calorimetric determination of specific energy of metal removal, the effect of nose-radius, cutting speed and feed on surface finish, cutting forces and tool geometry, evaluation of cutting fluids for turning, machine tool deflection during cutting operations, and machine tool testing and evaluation.

There may not be a need for emphasizing more work in developing industrial arts instructional materials and devices. However, the question may be fairly raised which probes the competency in psychology, learning theory, and communication principles of those who develop devices without some sort of objective evaluative criteria. Some research orientation does exist in evaluating the effectiveness of

certain devices as they are developed. This is evident in the following section.

LEARNING PROCESSES AND TEACHING METHODS

The largest number, and possibly the best, of experimental studies has been done under this general heading in industrial arts. It is commendable that many of these operate within theoretical frameworks developed in educational psychology and attempt to test theories as they relate to or affect industrial arts practice.

Maturation, Perception, and Practice

One of the benchmark studies in this area was done by Fuzak (1958) whose findings, while almost 10 years old, have apparently not "trickled" down into the school program. He found that grip strength of junior high school students in industrial arts was highly, positively related to their ability to perform certain manipulative tasks and suggested that teacher expectations of achievement may often be beyond the student's capacity at that age level.

A study by Middleton (1962) revealed that successful achievement in beginning drafting on the eighth-grade level is partially dependent on adequate perceptual-motor development. Certain perceptual-motor tasks were found to be effective predictors of success or failure in beginning drafting. The description of surface configurations which are oblique to the principal planes of projection were more difficult for the eighth-grade students in the study and the perceptual-motor tasks which best predicted success in this area of drawing are the diagonal movements of right and left eyes.

Erickson's (1964) study was also revealing. A factor found to be significant in mechanical drawing achievement among adolescents is the visual-haptic aptitude, not formerly considered by teachers. A continuum was based on one extreme from visuals--students who tend to prefer optical experiences to the other extreme of haptics--students who predominantly rely on non-visual sensory stimuli.

Reading is related to perception. Miller (1966) sought to determine the effects of readability of textbook materials upon student achievement. The researcher rewrote selected material to a predetermined readability level and subjected two groups of students to a controlled experiment. No significant difference between achievement of students reading the original material and those reading the same material rewritten to a lower readability level was found.

The effect of practice on the performance of intellectual and manipulative tasks interested Hull (1964). He divided a group of high school students on the basis of I.Q. scores and subjected them to three treatments involving practice, repetition of training, and control in an intellectual and a manipulative task. The group with higher I.Q. scores was superior to the lower I.Q. score group in the performance of the intellectual task; the practice treatment group was superior to the no-practice treatment group in the performance of the manipulative task; and females were superior to males in the performance of the manipulative task.

Problem-Solving and Creativity

While there is much in the general literature of industrial arts on creativity and problem-solving, three experiments were found to

consider creativity and the problem-solving abilities of students in industrial arts. Sommers (1961) performed a study in a college drawing course in which a control group received the traditional instruction and the experimental group was exposed to a technique which the investigator calls "sketch storming." He found that certain abilities associated with creative thinking in an industrial arts laboratory type course can be improved while not negatively affecting the subject matter to be learned. Growth in creativity was found in an experiment by Anderson (1963) who compared two methods for developing creative problem-solving abilities in an industrial arts course. One treatment employed brochures with content dealing with creative thinking plus imagination exercises. A second group was exposed to group-type imagination exercises. A second group was exposed to group-type imagination exercises derived from the brain-storming technique, and a third group received instruction in the traditional manner. While there was no significant difference among final course test means of the three treatment groups, the researcher found that tests for creativity revealed a significant difference in the creative thinking of the group that used brochures and imagination exercises. Cornwell (1961) experimentally compared the effectiveness of the use of problem-centered instruction sheets as compared to the use of traditional instruction sheets. Although there was some method by instructor and instructor by method interactions, the problem method seemed to be favored in results of performance tests and retention tests.

Research interest in problem-solving and creativity has taken directions different from experimentation. Ferns (1962) reviewed

writings of authorities in education, educational philosophers, and experimental research studies dealing with problem-solving and developed principles which could guide individuals and groups in designing and conducting learning experiences for improving problem-solving abilities in the industrial arts; and an inventory composed of individual creative and non-creative behavior items was developed by Clay (1965) and administered to a random sample of junior and senior high school industrial arts teachers in the State of Michigan. Clay was attempting to determine whether differences could be found between encouragement of creative behavior and such variables as junior and senior high school teaching, multiple or limited area laboratory teaching, belief in the primary objective or purpose of industrial arts, and educational background and length of experience as well as the interrelationships among these variables. Teachers in multiple area laboratories tended to encourage creative behavior while teachers of limited area unit shops on the junior and senior high school levels tended to encourage non-creative behavior. Further, teachers who indicated that they emphasized skill development or the interpretation of industry objectives in industrial arts tended to indicate greater encouragement of non-creative behavior than the teachers who tended to emphasize self-realization objectives.

Renken (1962) performed a survey to determine whether the project approach or the problem-solving approach was most popular in industrial arts in high schools in the State of Kansas. He found that there was an increase in the use of the problem-solving approach and that more of it existed in metal working than in either the general shop or woodworking classes. Of possible significance at the time of this research

was the fact that nearly 30 per cent of the teachers responding had, themselves, never experienced the problem-solving approach in teacher education.

Two recently completed studies used the Minnesota Test of Creative Thinking, Abbreviated Form VII. Duenk (1966) found that the MTCT, Abbr. Form VII may be measuring factors other than those required of industrial arts students in the performance of creative tasks. He suggested that researchers should distinguish between creativity scores representing what the student is able to do and scores which indicate what he actually does. Both Duenk and Moss (1965a) agreed that a low or insignificant relationship exists between test measures of creativity and I.Q. for an above-average population and that there is a high relationship between unusualness and creativity.

However, Moss pointed out that the abilities presumably measured by the MTCT, Abbr. Form VII are inadequate to account for creative output. He suggested that such factors as motivation, emotions, familiarity with subject matter of problems, as well as I.Q. and substantive creativity, need to be considered for efficient prediction-explanation of creative output.

More work needs to be done in the area of problem-solving and creativity. Their true nature and definition seems unclear. And if clarified, techniques and applications require further investigation. Some techniques may already hold promise in this respect.

Techniques

The direct-detailed and the directed discovery methods of teaching have received some attention. The former consists of continuous

positive presentation of all the information to be acquired and understood while the latter method provides direct positive instruction for only that content considered basic and relies upon carefully structured and ordered questions and hints to facilitate the subject's discovery of the remaining information and relationships that are to be acquired and understood. Ray's (1957) study of the two methods in connection with teaching micrometer measurement techniques can be considered among the pioneer efforts in comparing the two methods with industrial arts content.

Moss (1960) performed an experiment which attempted to determine the relative effectiveness of the two methods described above in the teaching of non-manipulative, technical content (letterpress imposition). He found no significant difference between the methods with regard to initial learning, retention, or transfer, nor were there apparent advantages in using either of the methods with different intelligence level students.

Suess (1962) compared the effects of varying degrees of the directed discovery method on learning principles of orthographic projection. He, too, found that there was no significant difference in initial achievement, in retention, or in transfer between the experimental or control groups. The direct-detailed and directed discovery methods were also tested by Rowlett (1963). Information on orthographic projection was presented, using a tape recorder in conjunction with workbooks. The directed discovery method was superior for low ability students in terms of transferring principles and skills six weeks after instruction and subjects receiving direct discovery

instruction significantly improved their test scores one and six weeks after instruction.

An experimental comparison to determine the effectiveness of the use of instruction booklets and demonstrations was conducted by Hofer (1963). Taking four metal working operations--foundry, copper enameling, drilling and counterboring, and threading, the researcher directed the teaching of 50 seventh-grade boys by alternate methods of presentation. Each student received instruction on how to perform two groups of operations by demonstrations and the other two operations were taught via the instruction booklets with the student performing the operation as he read his instructions. Self-instructional materials, it was found, may be expected to produce slightly higher achievement than demonstrations with respect to the amount of terminology and knowledge of procedure learned and retained. However, the self-instructional materials require slightly more student time for instruction and performance than demonstrations which are followed immediately by performance; this difference in time should increase with students of lower intelligence and reading ability.

Programed materials were tested in various ways. A teaching machine designed by the researcher (Ruehl, 1961) could confirm a correct answer immediately through use of a green light which was absent in the event of an incorrect response. An experimental group using this machine was compared to a control group that received a 24-hour dealy in knowledge results. Students using the "comparator" machine achieved significantly better in a final test. This difference disappeared when a retention test was administered eight weeks later. Hinckley (1962) contrasted four methods of teaching wood identification

using Ruehl's automatic teaching machine for one method. All methods were found to give equal results. Consequently, the researcher concluded that those methods which were essentially student-directed were preferred to those that were teacher-directed. A commercially-prepared Skinnerian linear program was compared with a specially-prepared textbook on basic electronics by Lease (1964). There were no significant differences in the effectiveness of the Skinnerian program and the text in terms of material initially learned, material retained after six weeks, the ability of students to apply facts and principles initially learned, and their ability to apply facts and principles retained after six weeks. There was also no significant difference between two groups Kumro (1965) compared to determine the effectiveness of programed materials in teaching the notes and figures involved in screw threads.

Weffenstatte (1965) experimented in the area of basic electronics in a somewhat different manner. He was interested in determining the effect of the introduction of the variable of laboratory experiences on the learning of basic electronics when a programed instruction system was employed for two equated groups. Consequently, one group received laboratory instruction while the other did not. Holding other factors the same, including the use of a programed instructional system, the researcher found that basic electronics can be taught effectively by this method <u>without the laboratory</u> and suggests that this opens the way for many possibilities of savings and starting more programs.

The preceding studies reveal that certain values may be inherent in self-instruction devices. First, in programed instruction and teaching machines, the teacher is freed without measurable reduction in

learning. Second, the directed discovery method, which lends itself to automated instruction, may also be regarded as a problem-solving process involving insight as a phase of the process.

Laboratory activity before and after presentation of electrical theory in terms of student performance and achievement was found to make no difference in the achievement of the entire group. But Freeman (1965) found students with higher intelligence did better when theory preceded activity while students of lower intelligence did better when activity preceded theory. When the project method was compared to a combination of the project method and the use of quick circuitry in a college level introductory electricity course, Fowler (1965) found that there was no difference in the effectiveness of the two methods with respect to understanding fundamental principles and concepts, manipulative skills, and over-all retention. Koble (1963) experimentally compared a group method to an individual method of instruction with matched groups of seventh-grade graphic arts students. The results of pre- and post-test data revealed no significant difference in effectiveness of the teaching method.

Teaching techniques which employ different forms of visual aids have been tested. The effects on learning and retention in beginning woodworking when conventional methods of teaching are supplemented with overhead transparencies were studied by Brooks (1964). Achievement of the students in selected units of woodworking was significantly greater when special overhead transparencies were utilized in addition to convential methods of teaching. The experimental group's over-all retention was significantly greater than that of the control group.

According to the experimenter, the fact that the lower level intelligence groups possessing intelligence quotients of 100 and below in the experimental group were able to achieve and retain a mean score only 0.3 points lower than the mean raw score obtained by the upper intelligence sections in the control classes was of special significance. Yeager (1965) conducted an experimental study to determine the value of projectuals in presenting selected units of basic electricity in junior high school. Although Yeager's procedure was similar in concept to that of Brooks, his conclusion was somewhat different. He found that initial learning and over-all retention were equal in both methods. However, teaching time was reduced by one-third when projectuals were used.

Observer check sheets and job sheets were used by Herbert (1964) to evaluate the effectiveness of single-room closed circuit television in industrial education. Fifty televised classroom demonstrations conducted in wood techniques, printing, electricity, and metals were appraised. Students, demonstrators, and observers indicated a high degree of acceptance of the single-room closed circuit television primarily because it increased demonstration ability.

Horning (1964) compared the effectiveness of a conventional face-to-face demonstration with a closed circuit televised demonstration on trouble-shooting utilizing a particular kind of volt-ohm-meter. He found that the demonstration on trouble-shooting was as effective using closed circuit television as the conventional face-to-face classroom method. He also learned that it is possible for an inexperienced instructor to render effective demonstrations in a relatively short time by using the television media.

Using one control and one experimental group equated for reading ability, mechanical ability, and previous industrial arts experience, Snyder (1961) found that there was no significant difference in teaching a perceptual motor skill with a teacher-produced instructional film or with a live demonstration method on the junior high school level.

Organization of Content

The effectiveness of four ways of organizing complex technical content related to the metallurgy of carbon steel were compared by Tomlinson (1964). Using the entire junior and senior classes of a high school, the researcher allowed each of the subjects 45 minutes to read an identical word passage based on the subject matter which included 10 sections in the written passage. This was followed by a common 15-minute demonstration which illustrated the principles and relationships in the written passage. The passage was varied in four ways in order to test for significant differences in the organization. In the inductive method each section of written instructional material was closed with an underlined summary statement of the generalization or generalizations developed within the section. The inductive discovery confirmation method included at the end of each section of the instructional material a question to encourage the subject to develop his own generalization which he was permitted to check against generalizations on a provided check sheet. In the deductive method each section of the learning passage was introduced with a broad generalization or generalizations. Finally, the inductive discovery method closed each section with a question designed to encourage the student to develop his own generalization but the student was not permitted

to match his generalization against a check sheet. The inductive method was superior to all other methods with regard to initial learning. The four methods were equally effective for retention and transfer one week after instruction. The inductive-discovery-confirmation method was inferior as measured for retention transfer five weeks after instruction. A straight-forward expository method of presentation, either inductive or deductive, was superior to other methods containing questions designed to encourage the formulation of generalizations as measured for retention and transfer after five weeks.

Personnel in the Bureau of Industrial Arts Education in the State of New York (1965) were faced with a rather common problem. More instructional materials had been developed and disseminated than, it seemed, could possibly be organized for teaching during the time allotted in the seventh and eighth grades. Consequently, teachers from selected schools were asked to teach a series of lessons that were identified by the staff or the Bureau. In large measure, this was an attempt to support the basic concept of having the six industrial sections, which were evolved for the comprehensive general shop in New York, available at all times. These areas are general ceramics, general electricity, general metal work, general printing, general textiles, and general woodwork. The results of the study showed that conscientious organization of instructional materials and the teaching process would allow the instructor to cover more material than formerly thought possible. No data concerning effects upon learning were available.

The preparation step in teaching assumed a new dimension when Dawson (1965) sought to measure the effectiveness of what Ausubel calls subsuming concepts through the introduction of an advanced organizer in the presentation of typical industrial arts technical content. This involved the introduction of a reading passage structured at a higher level of generality, abstraction, and inclusiveness than the learning task that followed it. It was found that the organizer significantly facilitated initial learning but not retention and that the use of the organizer was more effective with lower ability students than with those of greater ability. Mass production has received wide attention in the general literature and some researchers have also been attracted by the approach. Smalley (1962) posed a philosophical point of view which supported teaching of mass production in the school shop and tested the feasibility of so doing. Students who experienced a mass production unit scored significantly higher on a researcher-designed test of knowledge of mass production than those who had no organized contact with mass production.

Two surveys were conducted to determine the status of mass production teaching in industrial arts. Ressler (1962) surveyed 27 regional high schools in New Jersey to determine whether mass production was included in the program. He learned that approximately 50 per cent of the schools use mass production techniques in industrial arts programs and those that were located closer to large cities tended to use the technique more than schools in outlying areas. Approximately four-fifths of the teachers using the technique had been educated and received their teaching experience within the state. A similar survey was conducted by McBain (1964) in suburban Chicago. He found that

the method was used in approximately 47 per cent of the secondary schools surveyed and that there was an indication that this would increase to 59 per cent during the following year. The greatest use of the mass production technique was indicated to be within the instructional areas of woodworking and graphic arts.

Learning processes and teaching methods are extremely fertile areas for the researcher. As theories of learning are promulgated, they need to be tested in industrial arts and as the technology of education advances, the new media must be examined with regard to the field. An opportunity, however, does exist here for further research which would support or reject theories of learning based upon activity *per se* and to further examine the efficacy of certain *kinds* of activity like projects, exercises, and experiments. The research reviewed does touch upon several of these problems. Much more needs to be conducted.

STUDENT PERSONNEL SERVICES

The material in this section divides itself into three topics. Studies which examine the guidance function of industrial arts make up one category; investigations which provide data relating to prediction of student success and advanced placement make up a second category: and a third deals with research attempts to characterize the abilities and/or nature of students who enroll in industrial arts courses.

The Guidance Function

Two studies were located which belong in this section. Miller (1965) performed a survey to determine the vocational guidance practices of industrial arts teachers in selected junior high schools in the United States. A majority of the industrial arts teachers who

responded had professional preparation in guidance. The guidance functions performed were of an incidental nature and were rarely included in the planned formal presentations to the class. The major difference in emphasis placed on the objectives of industrial arts existed between teachers who stressed guidance functions and those who did not. Those who did stress the guidance function considered one of the major functions of the junior high school to be exploration of industry while the others believed the major function to be the development of manipulative skills.

Prediction and Advanced Placement

Studies concerned with prediction of success in post-high school work have been done but have generally dealt with specific industrial arts subject areas. Karns (1963) attempted to determine the extent to which the background of high school students in drafting would affect achievement on the college level in the field of graphics. He studied the records of 946 students and found that the study of high school drafting did have an effect on college graphics. He infers that the lack of high school drafting might have been the cause of student drop-outs in college. Criteria for assigning students to accelerated sections of engineering drawing were determined by Lemons (1965). Mechanical drawing experience and measures of student academic ability consisting of mathematics and verbal score on the College Entrance Examination Board Scholastic Aptitude Test were considered for one group of students. The Essential High-School Content Battery of mathematics and English achievement scores and knowledge of drawing fundamentals were considered for the second group. Although students

with previous mechanical drawing experience did not have sufficient knowledge of drawing fundamentals to permit omitting that content from the college course, the number of semesters of high school mechanical drawing was the best single criterion of success determined. Students with at least two semesters of mechanical drawing experience had sufficient knowledge to qualify them for accelerated sections of college engineering drawing. Further, he found that for students with high school drawing experience, the most valid predictor of probable success in engineering drawing is a combination of mathematics aptitude scores, average mechanical drawing grade, and the number of semesters of mechanical drawing experienced.

Blum (1965), working at Texas A & M, sought to develop and standardize an achievement test which could be used for placing college students in general drafting courses. The content for the examination was gathered through a nation-wide survey of college drafting instructors and was evaluated by a panel of five subject matter specialists in the field. As a result of administering the test to a sample of students from six Texas colleges and universities and validating the items and the test itself, the researcher concluded that he had developed a comprehensive general drafting examination which may be considered a standardized measure of drafting achievement of satisfactory length which may be used as an advanced placement instrument.

Students Who Take Industrial Arts

One of the blocks to communication between the industrial arts theorist and practitioner is the premises from which they speak. One sees content, method, and objectives as they apply to a cross-section

of American youth. The other cannot unscramble or interpret these code-like pronouncements because he knows that he has never come in contact with, nor does he expect to teach, all students. The realities that one faces tend to make unrealistic ideals out of the statements of the other. But this raises a question that may have great pertinence. What has been done in the form of positive contributions, through the unique methods and techniques of industrial arts, for those students who do come or are assigned to the program?

A study which describes the type of student in a high school in Louisiana found that there were more than twice as many drop-outs enrolled in industrial arts courses as there were among other curriculums. This caused the researcher (Atkins, 1964) to recommend immediate improvement of industrial arts courses. Also the researcher suggests closer cooperation between the guidance and industrial arts departments for earlier identification of drop-outs. Possibly, drop-out-prone students were being assigned to the industrial arts department in extremely large numbers in this instance.

Grice (1965) came up with conclusions almost directly opposite to those of the preceding study. He surveyed the high school drop-out problem in a Louisiana parish and concluded that students who enrolled in industrial arts tended to stay in school one year longer than students not enrolled in industrial arts.

The academic ability of industrial arts students as compared with other students in seven secondary schools in the State of Kansas was determined by Winsor (1962). A survey of test results in areas of science, mathematics, English, social sciences, total achievement, general ability, clerical speed, and accuracy in spelling permitted

the researcher to conclude that industrial arts students ranked lower than other students in all areas but English, science, and mathematics.

Some reports were found dealing with the prediction of achievement in industrial arts classes. In three such studies, measures of general intelligence were shown to be insignificantly related to industrial arts grades (Hoagland, 1959, and Long, 1959) or less related to industrial arts grades than to grades in academic subjects (Larsen, 1959).

In light of the content of typical intelligence tests, it appears that success in industrial arts demands more than high verbal ability and convergent thinking. This is borne out in Long's study by the fact that language grades and scores on standardized reading tests did not contribute to a prediction of grades in senior high school industrial arts classes. But it should be remembered that these results can only be generalized to a particular student population and set at learning conditions.

Research can contribute much to the improvement of student personnel services. While industrial arts educators may blame guidance personnel for shortsightedness, there has been no discernible effort to demonstrate the values of industrial arts objectively. Federal funds have provided impetus to make up for this void and the curriculum projects discussed earlier must certainly gain the attention of those who serve student personnel.

FACILITIES AND EQUIPMENT

As the major curriculum projects develop, facilities and equipment, instructional materials and devices, and teaching methods will receive wider attention. There has been little research under this topic other than state guides generally developed by small committees or individuals. This reviewer has been unable to secure any other than tentative guides dated in the 1960's. A problem which applies to syllabi and teacher certification standards applies to equipment and facility guides with equal force. These may have unforeseen effects upon creative innovation and teaching unless provisions for change are included.

Some studies have covered equipment needs. Bonde (1964), Hansen (1964), and Doutt (1965) evaluated selected elementary school industrial arts hand tools. Elementary school educators were provided with a resource unit based on tool categories determined through a survey of members of the American Council for Elementary School Industrial Arts. Students in grades one through six utilized the tools in skill tests. Teachers in each grade have been provided with suggestions as to which tools, in terms of size and weight, to use. Suggestions were also made with respect to the elimination of certain tools in certain grades. Trapanese (1964) developed a handbook for administrators and teachers regarding shop facilities, tools, equipment and materials to be used in elementary school crafts programs in the State of New Jersey. This was the result of a survey within the state which revealed that there was no definite plan for inclusion of crafts programs or facilities in the elementary schools and that

those found were largely off-shoots from the art or industrial arts programs. There seems to be an implied differentiation here between arts, industrial arts, and crafts.

Finances relating to equipment and supplies seemed to have been of vital concern to Schad (1962), who performed a field study in the State of Virginia. Recommendations dealing largely with the financing of consumable supplies for industrial arts classes in that state resulted. He recommended certain monetary formuli which can be applied to different areas of industrial arts. For example, he suggested a per pupil clock hour range from .016 to .028 cents be applied to unit drawing programs. His recommendations covered annual appropriations, use of revolving fund systems, and the methods of collecting funds.

Koch (1964) attempted to determine basic educational specifications which he believed would serve as a guide to educators and architects in designing modern shops. The researcher limited his area of concern to general automotives, drafting, electricity, graphic arts, machine, sheet metal, and woodworking shops. He interviewed responsible parties in state education and local school agencies in order to acquire sufficient information to develop his recommendations. These cover the methods of planning, specific considerations of enrollment, class period length, curricula considerations, size of shops, auxiliary rooms, and specific comfort considerations which are particularly pertinent to industrial arts laboratories.

One area which seems not to have been touched at all, except slightly in the preceding study, is that of laboratory utilization.

Industrial cost accounting procedures may be applied in the laboratory utilization studies. Hopefully this would have a positive effect on expansion posibilities.

TEACHER EDUCATION

The research in this field falls into four categories. Much research has been done to identify the abilities and personality factors of those who would and those who do teach industrial arts. Some research has also been conducted in undergraduate teacher education curriculum, in problems of student and beginning teachers, and in graduate education.

Scholastic Achievement and Personality Factors

Several studies determined the relationship of certain scholarship factors for students enrolled in industrial arts teacher preparation programs. Reams (1963), using the scholarship criterion of grade point average through the first quarter of the senior year, found no relationship between amount and quality of high school industrial arts experiences and scholastic success, a significant relationship between number of grade points earned in high school mathematics and physical science subjects and a high correlation (.58) between SCAT verbal score and scholatic success. Similarly, both Turner (1965) and Maxey (1961) found no significant relationship between achievement in high school industrial arts courses and success in industrial arts teacher preparation programs. Torres (1963) found no significant relationship between first and third semester industrial arts and over-all grade point average earned and scores on the Owens-Bennett Test of Mechanical

Comprehension, Form CC, the Minnesota Paper Form Board Test, Series MA, and the Cooperative English Ability Test, Form AA. The subjects of this study were junior college transfer industrial arts majors at Long Beach State College.

While the preceding reflects an interest in and search for useful predictors, some industrial arts teacher educators may be faced with the problem of "image" on their respective campuses. Frover (1962) provided some data which may prove useful in connection with this problem. In comparing the performance of industrial arts, English, social science, speech, art, and home economics students at Kansas State College at Emporia, he found achievement of the groups in their majors was not significantly different and that all groups, except English majors, performed equally well outside the major area.

Another area of prediction seems natural in the sequence from high school grade relationships to within-college comparisons. That is, the relationship of scholastic attainment to rated success of secondary school industrial arts teachers. Powers (1961) sought to determine this relationship and found a low positive correlation (.32) between rated success and marks earned in undergraduate technical courses. However, he found higher positive correlations between rated teacher effectiveness and marks earned in "academic" courses (.52), professional education courses (.51), and total undergraduate scholarship (.51). While not entirely conclusive, these results should raise questions concerning the nature and distribution of professional, technical, and "academic" or general education courses in some institutions. They also raise certain questions related to the establishment of effective methods for evaluating industrial arts teachers.

Several studies attacked the problems of industrial arts teacher personality. Morgan (1961) determined personality variables which are prominent among industrial arts teachers as measured by the scale of the Edwards Personal Preference Schedule. He found that the instrument differentiated between industrial arts teachers and a normative group of college men and between successful and unsuccessful industrial arts teachers. Messman (1963) used the Edwards instrument and the Minnesota Vocational Interest Inventory and identified relationships between vocational interest patterns and personality traits of freshmen industrial arts majors. Rex A. Nelson (1964) used the Edwards instrument and the results differentiated between industrial arts college students and industrial arts teachers, between industrial arts college students and a normative group of college men in such a way as to provide effective aid in guiding incoming college freshman. Studies by Monroe (1960) and Vacek (1962) have also shown that the Edwards Personal Preference Schedule can be a valuable tool in teacher selection. The Schedule was capable of distinguishing between industrial arts freshmen and freshmen in five other curricula, between industrial arts freshmen and industrial arts seniors, between industrial arts freshmen and industrial arts teachers, and between "most and least successful" industrial arts teachers. In his work with the Minnesota Vocational Interest Inventory, Howard F. Nelson (1962) developed keys which discriminate between satisfied and dissatisfied experienced teachers as well as satisfied and disssatisfied freshmen in industrial arts teacher education programs.

The foregoing indicate that there are personality patterns unique to industrial arts teachers and students. While these findings are

not generalizable, some educators may receive it with mixed emotions. Yet one may rightly wonder what personality criteria--if any--beyond successful college entrance are being and can be applied in the recruitment, selection, and guidance of students in industrial arts education and the relationship of these criteria to teaching success.

Once they are prepared to teach, however, a measure of the success of the preparation is always interesting--even if the educator one day finds he has been preparing a teacher with the "wrong" kind of personality or scholastic profile. Researchers have been active in the area of attempting to appraise the product of teacher education institutions. Ehrenborg (1963) developed a device for identifying successful industrial arts teachers. The device contained items relating to the teacher's instructional program, management program, and to the teacher himself. These items were determined through a forced choice technique and were then used in rating teachers. The ratings on the device were analyzed to determine which dimensions were correlated significantly with the criterion of success--the principal rating.

Studies have evaluated the effectiveness of teacher education curricula using an opinionnaire approach. In one case (Erwin, 1963), graduates of one institution rated the shop courses they took to be of greater value than professional courses. Suggestions for improvement, however, included the desire for more specific instruction in methods, shop planning and organization, and curriculum construction. Another study (Padham, 1961), soliciting opinions from graduates of a different institution, found that of the professional courses taken, methods and

shop organization were considered most essential. In one study (Powers, 1961) 200 teachers, each with 10 or more years of experience, were rated by their supervisors. Measures of undergraduate scholastic success were also obtained for each teacher. The reported correlation coefficient between grades in professional education courses and rated teaching success was .51; the coefficient between success and technical course grades was only .32. Findings from a study by Scherer (1960) tend to support the importance of scholastic success in professional courses. Teachers with graduate credit and better grades in professional courses were rated higher by their principals than were teachers with no graduate credits or low grades in professional education courses.

Much has been learned about the achievement and personality patterns of industrial arts teachers. But much remains to be done. Curriculum changes, "upgrading," and the use of new media may call for teachers who possess different patterns from those revealed in the studies reviewed above.

Curriculum

Major curriculum research, appropriate to the secondary level, was discussed in the Curriculum Development section of this report. Curriculum work oriented more closely to the immediate concerns of those responsible for teacher education is discussed here.

Blomgren (1962) engaged in a study concerning the relative growth in understanding of American industry of selected industrial arts education majors. He compared the results of a test which he formulated and administered to freshman and senior groups of industrial arts

education majors and social science majors. While there are some limitations to the study, his conclusions, which should be examined by those interested in achievement of objectives on all levels, were: (a) freshman industrial arts students enter college with less understanding of industrial America than social science majors, (b) senior industrial arts majors showed a higher level of understanding than the freshman in the major, and (c) the industrial arts seniors were not superior to non-major seniors in any phase of understanding, and were comparatively lower in their understanding of labor in industry. While the researcher inferred that growth does take place between freshman and senior years, it is not clear that the growth can be attributed to the industrial arts curriculum. This opens avenues of research in the formulation and attainment of objectives and curriculum revision on the teacher education level.

Reynolds (1963) sought to determine the curriculum revision techniques and procedures utilized in selected institutions in the northeastern United States. He classified 123 procedural elements, surveyed 16 institutions, and intensively studied four through visitation. He found that revision techniques neglected research in the field, widespread staff and administrative participation, cooperatively determined procedures, and utilization of consultants.

Heilman (1963) developed a curriculum for the professional preparation of industrial arts teachers which, he states, could be accepted nationally. He justified his approach on need occasioned by increasing mobility of the teacher population. While he did not so state, the implication is clear that certification requirements should be uniform and nation-wide as well. In this regard, more uniformity

was found in state certification requirements than in college curriculums--in the southeastern United States, at least, by Turlington (1964). He noted a wide range in the college requirements for industrial education majors with emphasis on graphic arts, woods and construction, metals, electricity, crafts and mechanics within the major area, and a growing emphasis on mathematics and physical science outside of the major area.

Elementary industrial arts is a growing movement within the field. Little research effort has been directed to this area but there are two studies which have bearing on the movement and the preparation of teachers. Low (1963) questioned a sample of 217 elementary school teachers to determine the skills and techniques they judged necessary to teach industrial arts on their level in California. A parallel check list was submitted to college teachers of industrial arts classes for elementary teachers. The responses from both groups were in agreement. Further, the elementary school teachers urged that industrial arts experiences be provided on the undergraduate level for future elementary school teachers. Bruce (1964) learned that 94 of 165 industrial education departments responding to his survey were offering courses for elementary teachers. These were largely elective, concentrated on laboratory work, and were in the areas of wood and metal. He found considerable uniformity and was able to predict future growth on the basis of observable trends.

Several curriculum studies have been done in specific industrial arts areas. Sexton (1965) determined the status of design instruction in teacher education and compared the views of design teachers and industrial designers regarding content and instructional practices.

He constructed a comprehensive information form (which in itself represents a contribution to design teaching) which he mailed to educators and designers. The data revealed numbers of courses offered and textbooks used and 65 per cent projected growth in design offerings by industrial arts education departments. There was significant agreement between designers and educators over content and instructional practice. Brown (1960) determined the manipulative operations and equipment required in connection with these operations by electrical workers. He formulated recommendations for teacher education programs based upon the data gathered. Carlsen (1961) likewise considered industrial practices in graphic arts in order to make comparisons and recommendations for teacher preparation programs. His findings pointed to certain manipulative activities, informational topics, and equipment and facilities which should be included in graphic arts for teacher preparation. Further, work experience for teachers in training was strongly recommended.

The power area, like many others within industrial arts, is in flux. Two investigators surveyed the practices and trends in industrial arts teacher education with respect to courses in this area. Allen (1963) found the area growing with respect to offerings, trends toward a broad study of power and transportation, activity developed around problem solving and operations rather than projects and content essentially exploratory. Ecker (1965) observed a "traditional" position oriented to the service aspects of the automotive industry and advocates a "progressive" position which conceives the body of knowledge as being included under power, transportation, and service. Ecker developed a detailed program in power technology which

identified 50 applicable scientific principles and included each of the energy sources for prime movers.

The chicken and egg problem is obvious in teacher education. It is reflected in all phases of teacher education but it seems particularly strong in the area of curriculum. Dare the teacher educator expose his charges to experiences which may not be consistent with existing public school curriculum, content, facilities, and techniques--and to what extent? To what extent is the teacher educator obligated to provide training consistent with existing public school standards? Several studies reveal that certain college and university investigations have taken a lead in innovation. To what extent, however, has this resulted in change in teacher education institutions or in the secondary schools?

Student Teaching and Beginning Teachers

Christoffel (1960) developed a handbook for master teachers who work with student teachers in industrial arts. Cappiello (1964) studied selected teaching problems through the appraisals of supervising teachers and recent industrial arts graduates. He determined desirable experiences, methods, and techniques which pertain to the functions of the student teacher, the supervising teacher, and the responsible college personnel.

Poleszak (1964) administered a questionnaire and the Minnesota Teacher Attitude Inventory before and after State University of New York College at Buffalo students completed student teaching. A majority of the total expected and actual outcomes as verbalized by the students were related to the student teaching objectives of

"become acquainted with the role of the school; knowledge of methods and materials of teaching; and assuming the responsibilities of a regular classroom teacher." These industrial arts student teachers also felt that the most influential person with whom they came in contact was their supervising teacher. This was an outcome expected before and realized after the student teaching experience. Students with high positive scores on the MTAI held different expected and actual outcomes from students with low negative scores.

Thomas (1964) considered the relationship between competence and dogmatism as revealed on the Rokeach Dogmatism Scale. He found no significant relationship between competence of student teachers and dogmatism. He suggested also that there was a tendency for student teaching supervisors with low Rokeach Dogmatism scores to give high competence ratings to student teachers with high Dogmatism scores and the same supervisors tended to give low competency scores to student teachers with low Dogmatism Scale scores.

Walls (1964) investigated an aspect of beginning teaching through a questionnaire administered to a selected graduating group of a Michigan college. He determined that the same type of problems were anticipated by the respondents when they were students and in their first year of teaching, that the problems they encountered were more serious than expected, and that they felt much the same as seniors and as first-year teachers with regard to their preparation to handle problems. Rutherford (1962) was also concerned with beginning teachers. He surveyed the practices in California relating to the selection, placement, and guidance of beginning teachers. His findings are pertinent to curricular considerations since he makes recommendations

concerning major area, professional, and student teaching improvement. He also found a lack of mutual understanding between administrators and teachers.

Graduate Education

The monograph by Miller and Ginther (1965) contained the results of a nation-wide survey and provides comparative data and statistics relating to courses, enrollments, and requirements in graduate education. Swanson (1964) developed an instrument to gather data from department chairmen in institutions offering the master's degree in industrial education. This enabled the researcher to catalogue superior practices in graduate industrial education.

One is reminded of two yearbooks of the American Council on Industrial Arts Teacher Education. Hornbake and Maley (1955) dealt with superior practices in industrial arts teacher education and Norman and Bohn (1961) treated the topic of graduate study in industrial arts. Both provide historical perspective and data relative to status and trends in their respective areas and times.

Continued data gathering seems necessary and desirable in graduate education. A serious void seems to exist in information on training researchers in industrial arts education.

ADMINISTRATION AND SUPERVISION

Three investigations were located which centered on the functions of industrial arts supervisors.

Shank (1965) formulated a check list based upon reported duties, activities, and responsibilities of supervisors and he determined that

supervisors in industrial arts perform a number of functions different from other areas of education. McRobbie (1963) conducted interviews and utilized a critical incident technique with selected supervisors and teachers in California. Successful performance of industrial arts supervisors was largely determined by their successful performance in the area of human relations while making little effort in evaluation, research, and planning. He also found that industrial arts department heads contribute little to the improvement of instruction in schools where other kinds of industrial arts supervisors do not exist.

The role of the county industrial arts consultant in California was determined by questioning district superintendents, district industrial arts supervisors, teacher educators, and county consultants (Taxis, 1962). The cumulative judgments of the respondents indicated a useful role for county consultants in administrative and executive duties, professional and instructional improvement, and procurement of equipment, supplies, and housing.

Other areas of concern related to administration and supervision were reflected in Campbell's (1961) study concerning the relationship between student attitudes toward mandatory junior high school industrial arts and such variables as physical condition of the laboratory, methods and management used in the laboratory, the teacher's philosophy of education, the teacher's view of the administration's attitude toward industrial arts, and the amount of student time and experiences in industrial arts. He found no significant statistical relationship between the variables and student attitudes.

Industrial arts presents major challenges in administration and supervision. Creative leadership will be required and, one is

emboldened to observe, may very well be lacking today. Articulate leaders are needed who can understand and translate into active programs current movement in the field. Research may well be directed to the development of criteria which may identify qualities germane to this type of leadership.

EVALUATION

All research is evaluation of one form or another. Consequently, the reviewer was faced with problems of classification. Where does one locate the evaluation of an instructional method or a visual aid--under Instructional Materials, Teaching Methods, or Evaluation? Hopefully, the best and clearest judgments have been made. Two principal areas of evaluation are content and curriculum and achievement of objectives.

Content and Curriculum

Subject content has received attention in research circles. Bailey (1961) administered a design test to school students in Michigan in order to determine the relationship between experience in industrial arts and achievement in design. He found no relationship between experience (number of industrial arts courses) and an advanced knowledge of design. He did note that students who elected an increasing number of industrial arts courses tended to have lower intelligence. This report may also be considered an evaluation of attainment of objectives since design may have a relationship to appreciation and use, creativity, and problem solving.

A study more directly related to content was designed by Herring (1962), who developed a 60-item test of knowledge of electricity and administered it to eighth- and ninth-grade boys. The researcher reported that students who indicated interest and/or participation in electrical experiments, science experiments, amateur radio, reading, Cub Scouts, and Boy Scouts had significantly higher means than those who were non-participants. Subject groups that indicated interest and/or participation in sports, go-carts, and automobiles had means significantly lower than those who were non-participants in these activities. There was no statistically significant difference between subjects taking industrial arts electricity and those who were not. Apparently much of what is covered in textbooks in industrial arts electricity and electronics at the junior high school level is already known by the students.

Bohatch (1964) examined the automotive course offerings at a California college by soliciting information from graduates, most of whom indicated that the program was adequate but suggested addition of a course in small engines.

Achievement of Objectives

There were studies to determine the extent to which certain objectives were achieved in the schools. A questionnaire containing lists of student behavior relative to the objectives as published by the American Vocational Association (1953) was formulated and submitted to industrial arts instructors, coordinators of cooperative work experience, industrial arts students, and students of cooperative work experience by Hawlk (1960). The results showed that the students in cooperative work experience programs achieved at a higher estimated

level in only two of the objectives and achieved at approximately the same level for one objective.

Roy (1963) attempted to determine the degree of accomplishment of three industrial arts objectives in ninth-grade metalworking and woodworking classes. The objectives, interest in industry, appreciation and use, and shop skills and knowledge, were also derived from the American Vocational Association guide. It was found that ninth-grade metalworking and woodworking students made significantly higher grades on an interest in metalworking or woodworking industry test, on an appreciation and use of metal or wood products test, and on a shop skills and knowledge test than did ninth-grade industrial arts students who had not taken metalworking or woodworking. The findings do indicate effectiveness of metalworking and woodworking courses in meeting specific objectives but leave some question concerning the actual achievement of general objectives of industrial arts.

Arkema (1961) was interested in the relationship between industrial arts education and home leisure time activities. Students enrolled in industrial arts engaged in leisure time activities at home with their fathers. Students not enrolled in shop courses indicated that they engaged in very little leisure activity at home. Bagley (1965) pursued a similar course of research at the college level. He was interested in determining the contributions of industrial arts to the leisure time activities of certain graduates of a state college in Missouri. A large percentage of the graduates felt that portions of some college courses should be devoted to leisure time activity instruction and that graduates who had taken industrial arts courses while in college (not necessarily industrial arts education majors) were

more likely to be using an area of industrial arts as a major leisure time activity than those who had received no such instruction.

The opinions of former high school industrial arts students were secured about the occupational and general values of the program and Wallis (1960) reports that increased depth and specificity of skill development was desired.

Moss (1966) was interested in gathering information concerning the pre-vocational value of senior high school industrial arts. He compared the scholastic achievements of statistically equated groups of students in four different clusters of post-high school trade and technical curriculums on the basis of several industrial arts related variables. These variables were (a) amount of industrial arts taken (broken down among students who had no industrial arts, those who had some industrial arts, and those who had many semesters of industrial arts), (b) high or low achievement in senior high school industrial arts, (c) post-high school curriculum directly or indirectly related to the content of senior high school industrial arts courses taken, and (d) the relative emphasis on pre-vocational and vocational objectives in the senior high school industrial arts courses. He found that there were no differences in the scholastic achievement of students enrolled in any of the four post-high school trade and technical clusters which could have been attributed to any of the variables except grades earned in industrial arts. According to Moss (1966, p. 24):

> The study showed that academic courses, particularly the physical sciences, were apparently as effective in preparing the students <u>who took them</u> as industrial arts was for the students <u>who enrolled in it</u>. The results, therefore, indicate that industrial arts educators should be a

> great deal more conservative in the future than they have been in the past about justifying senior high school industrial arts on the basis of its greater pre-vocational value for all youth who intend to enter post-high school trade and technical curriculums. As most programs now exist, they are probably not in a position to "put up."

Moss has some justification in speaking as he does. He has moved into unexplored territory--the testing of objectives--with relatively sophisticated research techniques. It is an area in which much more work needs to be done.

The foregoing are samples of studies which fall in the category of evaluation--with the qualifications mentioned in the introduction to this section. Research into evaluation techniques is infrequent in the field although many research techniques reported in other sections are applicable to evaluation of programs, achievement of objectives, performance, and activity.

RESEARCH

History and Status

This section is included because it reflects an area in which there has been some volume of research and serves to more clearly depict the research posture of the field.

Sredl (1964) traced the history of industrial arts from 1920 to 1964. More than four decades of growth are revealed in which one may find the roots of present day lack of consistency in philosophy, objectives, and practice. In the fourth decade of this century, the researcher pointed out, two views emerged concerning industrial arts. The first view identified itself with the standards movement and rallied behind the findings and interpretations of the American

Vocational Association's committee on standards. The second interpretation championed the liberal view of the curriculum area. While growth of the field was interrupted during the first half of the 1940's by the Second World War, it provided a period of reappraisal which resulted in a multitude of new goals and even greater confusion with respect to aims and objectives of the curriculum area. The researcher found that one term, "defensive," denoted most of the positions of industrial arts educators in the period following the Second World War. Two philosophies in industrial arts emerged toward the 1950's. One emphasized the pre-vocational values in industrial arts and derived its content from an analysis of trades. The other attempted to stress the place of industrial arts in the contemporary technological society and identified it as a curriculum area which can most contribute to the understanding of today's world. The former influence seems to have permeated educational institutions to a far greater degree than the latter point of view.

For the most part, other histories have been devoted to the development of industrial arts or industrial education in states or communities. An equal emphasis has been found on histories or biographies of individuals in the field. Examples include Nix's (1964) work which is a history of industrial arts in Georgia. Various events and movements that contributed to industrial arts as a subject of study in the elementary and secondary schools in Georgia were traced. The severe setback that it suffered during the depression years of the 1930's was documented and it was at this time of crisis that the term industrial arts gained wide acceptance in the state. Following the Second World War, greater effort was given to expanding educational

facilities in Georgia and this was particularly true for industrial arts laboratories. He pointed out that teacher education facilities have kept pace and that supervision in the form of state coordinators has been provided as the program grew in the state.

A history of the evolution of industrial arts in a large city was done by Foytick (1962) for Pittsburgh, Pennsylvania. His starting point was the enactment of the Smith-Hughes Act and he traces three developmental periods, from 1917 to 1923, from 1923 to the beginning of World War II, and after World War II. He pointed to various innovations and experiments which the Board of Education attempted through the years as it tried to meet the needs of at first selected students and then of all the students through industrial arts and industrial education programs.

Hammer (1962) provided an example of biographical research. The educational contributions and philosophies of Charles A. Bennett are traced. Bennett's life is described as the reader is taken from his work as a mechanical engineer, to teaching assignments in Minnesota, to his appointment as professor of manual training at the school which was to become Teachers College, Columbia University, to his elevation to Dean of Manual Arts at Bradley Polytechnical School, to his publication work, and finally to his notable work in producing the two-volume History of Manual and Industrial Education.

Status studies by Cooper (1961), Thrower (1961), McLoney (1965), and Smith (1965) were undertaken for the States of Alabama, North Carolina, San Diego County in California, and the State of Oregon, respectively. Each of the researchers performed their investigations with some variations but essentially they searched available files

within the area in which they were working and used questionnaires to gather additional data. The recommendations as a result of these surveys are interestingly similar. Some differences may be attributed to the four-year difference in the work as well as the effect of the Vocational Education Act of 1963. Recommendations can be found for facilities, teacher education, increased supervision, safety standards, and increased breadth and depth, as well as for vocational emphases where the researcher believed it was needed.

Another type of status survey is reflected in Porter's (1961) attempt to determine the extent to which industrial arts teachers in Wisconsin assumed their responsibilities for extra-curricular and non-teaching duties. He found that approximately 75 per cent of these teachers were fulfilling their responsibilities for extra-curricular and non-teaching duties.

There is a body of literature which is improving and expanding and which should be mentioned in this section. This is the source of of published research in the field. The Journal of Industrial Teacher Education, first published in the fall of 1963, has provided a publication outlet for the researchers in the field and is certainly an avenue of dissemination for important research. The American Council on Industrial Arts Teacher Education supports a yearbook series which has also served to stimulate research. Two yearbooks are particularly pertinent to the topic of research; they are the 13th, titled Classroom Research in Industrial Arts, edited by Porter (1964), and the 15th yearbook, titled Status of Research in Industrial Arts, edited by Rowlett (1966).

Another publication series which has been launched recently by the American Council on Industrial Arts Teacher Education should also be noted. First of this series is a monograph by Miller and Ginther (1965) which determines the status of graduate work for industrial arts education personnel in the United States. Research in Industrial Education (1957) and the supplements prepared by Strong (1961 and 1962) provide summaries of studies which are reported for the period 1930 to 1959 in the areas of industrial education including industrial arts.

The importance of history and status research should not be diminished. This review itself has elements of both. It is an attempt to take stock and look about before moving forward. In this period of rapid growth and development, it may seem foolhardy to expend valuable research time and talent to determine the events of the past or present since the call of the future is enticing and, possibly, more exciting. More efficient techniques and methods need to be developed and employed in status and historical research. Automation should be extremely helpful; consequently, the ERIC at The Ohio State University will certainly contribute to this and other research areas.

SUMMARY

This is a general commentary concerning status, trends, direction, and quality of research in industrial arts. Specific comments have been made within the several sections of the review and they are not repeated here.

Quality of Research

Some excellent examples of research exist. Highly refined research techniques were employed and reflect high standards which should be emulated. This has been achieved mainly in some of the experimental work, some follow-up research employing causal-comparative methods, and in some philosophical studies. Cited ongoing curriculum projects reflect high standards of objectivity and clarity of purpose as far as this is possible in that type of research. Unfortunately, there is research in the field which does not achieve high standards.

"Contrived" research of extremely poor quality--the kind that seems to be done only because someone has to do it to obtain a degree--is discernible. Industrial arts has an unfair share of experiments which are poorly conceived, controlled, and treated: of surveys which are unclear as to instruments used, intent, population treated, and conclusions reached; and of philosophical and historical research in which the researcher is obviously unacquainted and unprepared to use the tools, procedures, and research methods peculiar to the type of research. This is not the place to consider causes but one is pressed to observe that institutions in the field, by accepting low quality standards, may be producing individuals who erroneously conceive themselves able and accomplished researchers. This is dangerous!

Some of the research cited has proceeded within a framework of theory. Observable trends in this respect point to more of this--a healthy approach. Further, the testing of theories in education suggests team research whereby behavioral scientists, social scientists, and industrial arts specialists cooperatively attack problems. Certainly, the industrial arts researcher must at least be

acquainted with research techniques in those fields if his research is personally conducted. A large number of studies have been done on a great variety of topics in the field and while there is room for criticism, quality seems to be improving.

Trends

The extent of acceptance of industrial arts objectives has not been clear. New directions and purposes are being framed and some existing objectives are being declared unachievable or unrealistic. Even so, studies reveal that content and curriculum offerings in public schools and in teacher education institutions are largely designed around "traditional" offerings.

Major questions which one may infer from a review of the research revolve about industrial arts teaching methodology. Some studies have raised questions concerning types of activity: some even suggest the accomplishment of certain course objectives without manipulative activity. Curriculum researchers who attempt to adopt concept teaching and learning must consider the question of type and extent of activity as well as means for measuring attainment of objectives they establish for their curriculums. Research in the field already associates different teaching methods with different ability groups and largely differentiates content for different groups as well. Certainly there will be experimental studies concerning similar content conceptually taught to all students. It seems that efforts, in the near future at least, will be directed to the concerns raised by the major curriculum development projects. These will influence teacher education, administration and supervision, teaching methods, facilities and equipment, and will have implications for research in evaluation and in research itself.

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VT 002 326

VT 002 326

Special Survey of Training Needs for Diesel Engine Maintenance and Repairman.

Connecticut State Dep. of Labor, Hartford. Empl Secur Div

Mar67

DOCUMENT NOT AVAILABLE FROM EDRS 7p.

*DIESEL MECHANICS, *OCCUPATIONAL SURVEYS,

Connecticut,

From a sample of 245 firms where the use of diesel engines was reasonably widespread, there were 166 responses. These employed 515 diesel engine repairmen and needed 63 more. Projections to March 1969 totaled 642. The greatest demand was in the heavy construction and diesel-engine equipment dealer industry groups. The primary source of training for workers was on-the-job training. (EM)

ED015348

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SPECIAL SURVEY OF TRAINING NEEDS

FOR

DIESEL ENGINE MAINTENANCE AND REPAIRMAN

MARCH 1967

Prepared by: Connecticut Labor Department
Employment Security Division
Research and Information
For: Connecticut Education Department
Bureau of Vocational Education

VT 02326

DIESEL-ENGINE MAINTENANCE AND REPAIRMAN SURVEY

A sample of 245 firms was selected to survey employment and future needs for diesel engine repairman. The firms were selected from industries where the use of diesel engines would be reasonably widespread: heavy construction, freight transportation, buslines, wholesale and retail diesel-engine equipment, dealers, manufacturers, and firms engaged specifically in diesel engine servicing and repair.

The number of firms responding to the survey totaled 166 or 67.7%. These firms had a combined payroll of more than 30,000 workers and employed 515 diesel engine repairmen, with a current need for 63 additional workers. The greatest demand was indicated in the heavy construction and diesel-engine equipment dealer industry groups. Projections of future employment to March 1969 totaled 642, indicating a net additional need for 127 repairmen. Expansion of this data estimates current employment of diesel repairmen to over 975 with a present-day need of 120 additional workers. Assuming that present economic trends continue, more than 250 diesel engine maintenance and repairmen will be needed by March 1969 bringing the statewide total over 1,225.

Other findings of the survey showed that the primary source of training for the workers engaged in this occupation was on-the-job training, indicated by 58 respondents.

Employers provided their estimates of the minimum education required for the job. The educational level and the number of respondents selecting it was as follows: O.J.T., 31; post technical school plus one year specialized training, 23; vocational technical school, 20; general high school, and post high school training at 11.

The average starting rate for all firms was $3.27 per hour, ranging from $2.15 to $5.25 per hour.

Several employers commented on the difficulty in obtaining trained diesel engine repairmen and suggested that a training program for this occupation soon be initiated.

Summary tables of the findings are attached.

CONNECTICUT LABOR DEPARTMENT
EMPLOYMENT SECURITY DIVISION
SPECIAL SURVEY OF TRAINING NEEDS
FOR
DIESEL ENGINE REPAIRMAN

Industry	Number of Firms Surveyed		Employment March 1967		Present Need		Number Expected to be Employed in This Job Two Years Hence		Expected Change March 1967 To March 1969	
	Sample	Response	Sample	Total	Sample	Total	Sample	Total	Sample	Total
Construction	131	88	105	318	21	59	123	387	+ 18	+ 69
Transportation	72	46	261	471	9	17	309	582	+ 48	+111
Wholesale - Retail	34	26	120	159	19	30	169	222	+ 49	+ 63
Miscellaneous Services & Manufacturing	8	6	29	29	14	14	41	41	+ 12	+ 12
Statewide Total	245	166	515	977	63	120	642	1,232	+127	+255

DIESEL ENGINE REPAIRMAN
SOURCES OF TRAINING AND EDUCATION

Source of Present Training	Statewide Total	Construction	Transportation	Wholesale Retail	Miscellaneous Services & Manufacturing
Vocational Technical School	5	2		1	2
On-The-Job Training	58	25	13	15	5
Apprenticeship	5	2	2	1	
Other (Factory Training Schools - G.M., Ford, Etc., Manufacturers Service Schools, Correspondence Schools, Unions)	13	7	3	2	1
Level of Education Desired:					
General High School or Less	11	2	2	5	2
Vocational Technical School	20	10	6	2	2
On-The-Job Training	31	17	5	8	1
Post H.S. Technical Training	11	4	4	2	1
Post Technical School Plus One Year Additional Training	23	12	6	4	1
Average Starting Wage	$3.27	$3.66	$3.21	$2.87	$2.90

DIESEL ENGINE REPAIRMAN SURVEY
SAMPLE DATA FOR AREA NEEDS

Area	Total			Construction			Trans-portation			Wholesale-Retail			Services & Manufacturing		
	#1	#2	#3	#1	#2	#3	#1	#2	#3	#1	#2	#3	#1	#2	#3
Ansonia	0	0	0												
Bridgeport	55	7	61	24	2	24*	29	3	33				2	2	4
Bristol	0	0	0												
Danbury	11	2	12	5	2	4*				6	0	8			
Danielson	2	0	4				0	0	2	2	0	2			
Hartford	109	12	149	24	4	37	20	1	21	65	7	91			
Meriden	22	1	25	6	0	6				16	1	19			
Middletown	3	2	5										3	2	5
New Britain	39	0	46	18	0	21	18	0	20	3	0	5			
New Haven	204	21	248	7	3	9	152	0	170	25	8	37	20	10	32
New London	17	1	21	1	0	1	12	1	20				4	0	0*
Norwalk	1	1	2				1	1	2						
Norwich	20	3	30				20	3	30						
Stamford	3	1	4	3	1	4									
Torrington	9	6	20	6	6	15	3	0	5						
Waterbury	10	0	8*	4	0	1*	6	0	6	0	0	1			
Willimantic	10	6	7*	7	3	1*				3	3	6			
Statewide	515	63	642	105	21	123	261	9	309	120	19	169	29	14	41

#1 - Number of Diesel Engine Repairmen employed March, 1967.
#2 - Number needed today if qualified workers are available.
#3 - Projected number needed by March, 1969.
* - Anticipated decrease in present operations utilizing Diesel Engine Repairmen.

VT 002 329

VT 002 329

A Report of a Study to Determine the Need for a Technical Institute in the New London-Groton Area. (Project no. 661).

Bennett, Robert E.

Connecticut State Dep. of Educ., Hartford

Nov66

DOCUMENT NOT AVAILABLE FROM EDRS 10p.

*FEASIBILITY STUDIES, *TECHNICAL INSTITUTES, *ENROLLMENT PROJECTIONS,

New London, Groton, Connecticut,

Estimated enrollment for a technical institute was obtained by computing 3.8 percent of the high school graduates within a ten mile radius and 3.5 percent of selected graduates beyond this distance. Projected enrollment for 1975-76 was divided between the Thames Valley Institute (286 students) and the projected institute (158 students). It was concluded that a school of this size would be uneconomical and limited in its program. (EM)

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ED015348

A REPORT OF

A STUDY TO DETERMINE THE NEED FOR A TECHNICAL INSTITUTE IN THE NEW LONDON-GROTON AREA

CONNECTICUT STATE
DEPARTMENT OF EDUCATION
NOVEMBER, 1966

DIVISION OF
VOCATIONAL EDUCATION

Project No. 661

VT 002329

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A
REPORT
OF
A STUDY TO DETERMINE THE NEED FOR A TECHNICAL
INSTITUTE IN THE NEW LONDON-GROTON AREA

CONCLUSIONS

As a result of the proximity of the two institutions and the comparatively small high school population in this area, the estimated enrollments for the two institutes up through 1975 are small. The Thames Valley Institute enrollment for 1975 would be 286 if an institute were built in the New London-Groton area. The estimated enrollment for the New London Groton Institute would be 158 by 1975. A school of this size would be uneconomical and limited in its program.

INTRODUCTION

House Bill #442, Special Act #135 of the Connecticut Legislature (1965) directed the State Board of Education to determine the need for a technical institute in the New London-Groton area.

Two major considerations for the establishment of a technical institute are (1) the need for technicians and (2) the expected enrollment. The need for technicians was estimated for the state and for the New London Labor Market Area in a study completed in 1965. This study confines itself to the questions of potential enrollments if a technical institute were to be located in the Southeastern Connecticut Area.

Because of the existence of the Thames Valley Technical Institute, in Norwich, located approximately 14 miles from the center of the area under study, any projection of enrollments must consider the effect a new institute would have on the existing one.

PROCEDURE

In order to provide a basis for projected enrollments for the proposed New London-Groton Institute, it is necessary to identify the towns which might provide the students. Since the new institute would be located within the short range of the Thames Valley Technical Institute, it is necessary to divide the area between them (Figure 1).

It was assumed that towns such as Montville and Ledyard would provide students to both institutions. Other towns included in the projections for the proposed institute are: New London, Groton, Old Lyme, Stonington, Waterford, East Haddam, Old Saybrook, Westbrook, Haddam, Guilford, Madison, Clinton, Chester, Lyme, East Lyme, Salem, Deep River and Essex.

The estimated enrollments were obtained by applying a percentage of 3.8% to the number of high school graduates of schools within a ten-mile radius and 3.5% for those towns outside this area. These percentages were obtained on the basis of a statewide study.

The number of graduates projected through 1975 was obtained by applying a growth percentage derived from data prepared by the Bureau of Research, Statistics and Finance, Connecticut State Department of Education, in its Research Bulletin #4, Connecticut's Need for New Teachers 1967-1981, Series 1965-1966.

In order to estimate the size of the senior class, an attrition rate of 47% was applied. This rate was obtained through an analysis of institute data. Enrollments at the Thames Valley Institute were estimated through 1975 on the basis of existing enrollments, expanded facilities, and increases in the number of high school graduates.

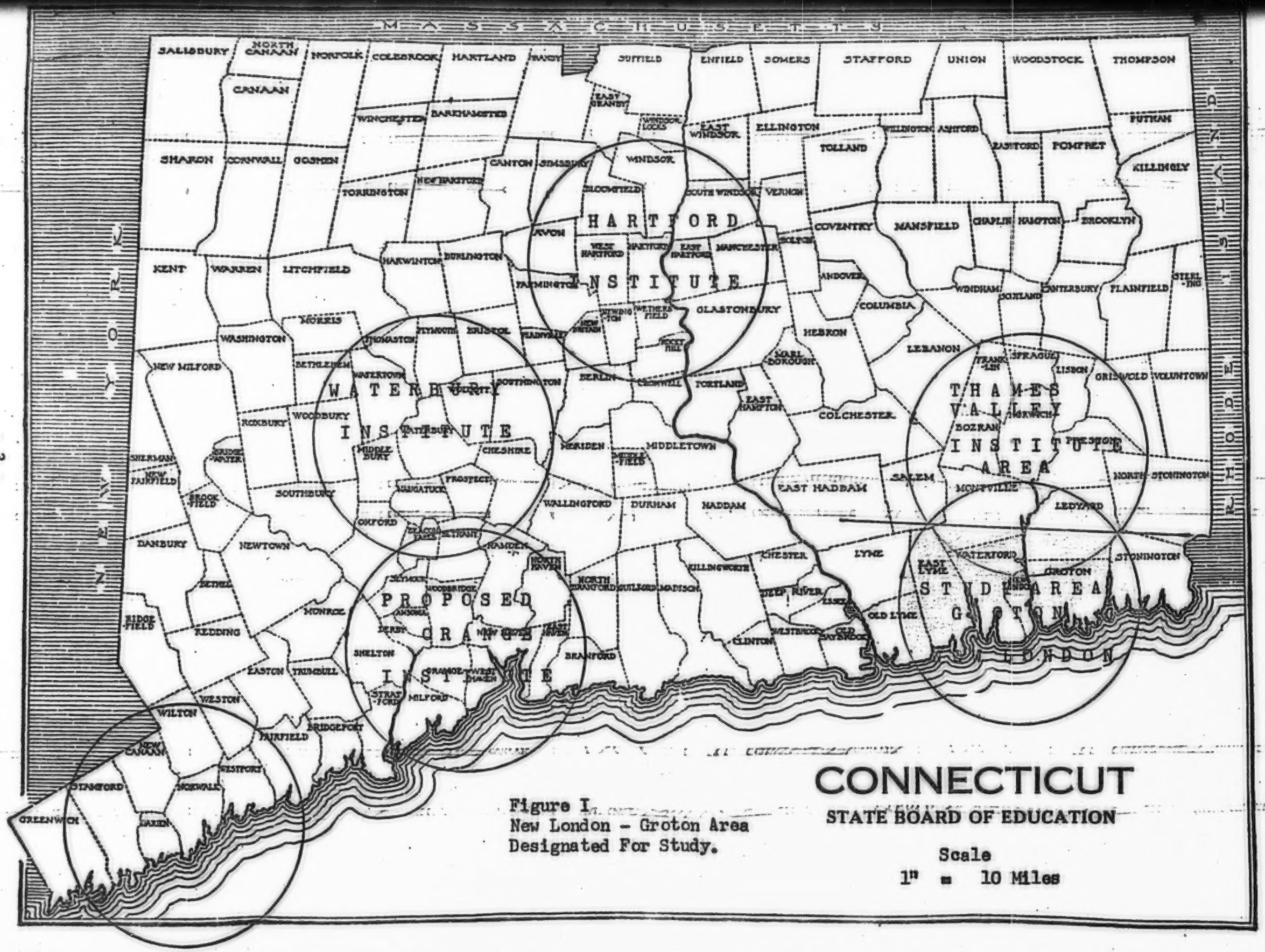

Figure I.
New London - Groton Area
Designated For Study.

CONNECTICUT
STATE BOARD OF EDUCATION

Scale
1" = 10 Miles

FINDINGS

The projected enrollments for the proposed New London-Groton Institute are shown in Table 1. Because of the restricted geographic area the school in this area can serve, estimates for 1975-1976 indicate an enrollment of only 158.

A comparison of enrollments for the Thames Valley Institute and the proposed New London-Groton Institute is shown in Table 2. The effect of the new institute would be to reduce enrollment at Thames Valley to 286 for 1975-1976. The combined enrollment of 444 for these areas could be accommodated at the Thames Valley Institute.

TABLE 1

ENROLLMENT PROJECTIONS FOR THE PROPOSED NEW LONDON - GROTON INSTITUTE

1970 - 1975

Year	Freshmen	Senior	Total
1970 - 71	88		88
1971 - 72	89	47	136
1972 - 73	93	47	140
1973 - 74	98	49	147
1974 - 75	99	52	151
1975 - 76	105	53	158

TABLE 2

COMPARATIVE ESTIMATED ENROLLMENTS

	Thames Valley	New London - Groton
1966 - 67	262 (actual)	
1967 - 68	300	
1968 - 69	355	
1969 - 70	373	
1970 - 71*	288	88
1971 - 72	255	136
1972 - 73	272	140
1973 - 74	271	147
1974 - 75	290	151
1975 - 76	286	158

* Estimated date of opening of proposed school

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Review and Synthesis of Research in Distributive Education.

Meyer, Warren G. * Logan, William B.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

Aug66

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*DISTRIBUTIVE EDUCATION, *LITERATURE REVIEWS, *BIBLIOGRAPHIES, EDUCATIONAL PHILOSOPHY, MANPOWER DEVELOPMENT, TEACHING METHODS, EMPLOYMENT OPPORTUNITIES, CURRICULUM DEVELOPMENT, INSTRUCTIONAL MATERIALS, LEARNING PROCESSES, STUDENT PERSONNEL SERVICES, TEACHER EDUCATION, EDUCATIONAL FACILITIES, EDUCATIONAL EQUIPMENT, PROGRAM EVALUATION, EDUCATIONAL ADMINISTRATION, *EDUCATIONAL RESEARCH, ON THE JOB TRAINING, EDUCATIONAL NEEDS, EDUCATIONAL PLANNING,

EDUCATIONAL OBJECTIVES, EDUCATIONAL PROGRAMS, EDUCATIONAL TRENDS,

Fifty-nine doctoral dissertations written since 1930, 120 masters studies completed from 1957-66, and 71 other studies are reviewed. Topics covered are -- (1) Philosophy and Objectives, (2) Manpower Needs and Employment Opportunities, (3) Curriculum Development, (4) Educational Programs, (5) Instructional Materials and Devices, (6) Learning Processes and Teaching Methods, (7) Student Personnel Services, (8) Facilities and Equipment, (9) Teacher Education, (10) Administration and Supervision, (11) Evaluation, and (12) Research. The commentary on the state of distributive education research is accompanied by five tables which present classification of research by graduate degrees, graduate institutions, years, geographic regions, and subjects. The bibliography provides a cross-index to the contents. Descriptive studies have dominated research in distributive education, and little use of tests has been made. Statistical methods, electronical data processing, and better research techniques are used increasingly. Use of experimental methods and the development of tests designed to measure specific educational outcomes are recommended. (SL)

ED015348

Review and Synthesis of Research in

DISTRIBUTIVE EDUCATION

VT 02333

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
The Ohio State University
980 Kinnear Rd.
Columbus , Ohio 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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REVIEW AND SYNTHESIS OF RESEARCH IN DISTRIBUTIVE EDUCATION,

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University of Minnesota
Minneapolis, Minnesota

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Professor of Education
The Ohio State University
Columbus, Ohio

August 1966

The Center for Research and Leadership Development in
Vocational and Technical Education
980 Kinnear Road
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Columbus, Ohio

INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Distributive Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of distributive education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings

generated by funds available through Section 4(c) of PL 88-210. Admittedly, the authors had problems in securing all available material, but nevertheless, in our judgment, they have done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Agricultural Education; Business and Office Education; Home Economics Education; Industrial Arts Education; Technical Education; Trade and Industrial Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to Warren G. Meyer and William B. Logan for their scholarship and efforts in providing the profession with this new benchmark and perspective on research in distributive education. Recognition should be given to Dr. Harland Samson, Associate Professor, Commerce and Education, School of Commerce, University of Wisconsin, Madison, Wisconsin, for his critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. Neal E. Vivian, Specialist in Distributive Education, at The Center, for his review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

PREFACE

This review and synthesis of research is one approach to the urgent need for a long-range plan of action in distributive education.

The report was written primarily for those leaders and planners who might construct a guide or a blueprint to bring about better co-ordination and efficiency of research efforts. The report should be valuable to researchers in the gathering of information in preparing funded projects, in the reviewing of research findings, and in the identification of needed studies. It should also be of value to practitioners as a guide to sources of information about distributive education problems.

The report includes all studies dealing with distributive education, including education and training done by business firms and by private, as well as public, educational institutions. The review and synthesis is divided into 12 regular categories plus a miscellaneous section which were outlined during the joint planning meeting of the authors from the several vocational fields at The Center for Vocational and Technical Education at The Ohio State University. Thus, easy comparisons can be made with research in other vocational fields. Organization within each category, however, was the prerogative of the authors; it varies among vocational fields and among categories within the field.

Included in this report are all of the doctoral dissertations in distributive education that the authors were able to locate, regardless of date; all of the masters' theses during the decade ending in June, 1966, whether classified locally as a thesis or a master's paper; and pertinent independent studies from a variety of sources. A fairly detailed description of the nature of the research studies may be found on page 165.

This report is subject to two limitations usually present in a project of this kind. First, the collection includes all studies about which the authors could obtain suitable information within the time limits of the project, but no claim is made that it is complete. Requests for identification and location of studies were sent to all state supervisors and teacher educators listed by the U.S. Office of Education, to all institutions listed by the National Association of Business Teacher Education, and to all persons who, in the judgment of the authors, might know about studies. The authors checked lists of studies in the fall and spring issues of the National Business Education Quarterly, Dissertation Abstracts, and Masters' Theses in Education. In addition, visits were made to several campuses. Limitations to the collection of these studies involve research respondents reporting studies which were not listed in any publication and institutional library policies not permitting loan of some of the studies.

Second, no attempt was made to assess the quality of individual research studies. This task, because of its unmanageability, has been left to the reader.

Mr. Roger Larson of the University of Minnesota prepared the summaries which constituted the raw material for the project. He also analyzed and synthesized the Iowa informal research reports. Many helpful suggestions were made by Dr. Robert E. Taylor, Dr. Virgil Christensen, and our counterparts in other vocational fields. We hope that the efforts expended in the preparation of this report will provide background information needed for future research efforts.

Warren G. Meyer

William B. Logan

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PHILOSOPHY AND OBJECTIVES

The emerging philosophy in distributive education has come primarily from independent studies by representatives of the U.S. Office of Education and state supervisors and distributive teacher educators. A comprehensive overview of distributive education was presented by Brown and Logan (1956) in the 50th anniversary edition of the American Vocational Journal. The article stressed that progress and sustained growth in distributive education is dependent upon the establishment of well-conceived objectives which are soundly implemented and carefully evaluated. Emick (1936) devoted a chapter to the aims of cooperative retail selling programs in his report on cooperative training in public secondary schools. His survey report showed the aims of training as stated by the syllabi or course of study, by the teachers and coordinators, and by merchants. It also showed their relationship to the aims of business education and of secondary education.

Characteristics and Trends

Personal interviews were conducted by Emick (1936) in a study to determine the status of cooperative training in retail selling and merchandising, to examine its growth and development, and to determine the results being obtained from classroom instruction coordinated with on-the-job training. The study showed (1) that the department store

prevailed as the training station; (2) the immaturity of students was emphasized by the merchants; (3) the students were primarily interested in selling and money; (4) the merchants felt a real need for this type of training; and (5) the merchants said that those who have taken the training are more successful in holding their positions than workers without this training.

Jones (1957) studied the practices and characteristics of distributive education programs in Pennsylvania. Eleven hundred questionnaires were sent to DE coordinators, cooperating merchants, school administrators, and DE students. He found that although program objectives were usually found to exist in some form, they were broadly stated and difficult to define. He said that more widespread publicity was needed and improvement would result if older students were available. Runge (1953) found that practices in junior (community) colleges, large high schools, and small high schools received accomplishment ratings in that order by national and state leaders in distributive education. The accomplishment ratings in the area of organization and administration of work experience programs were lower than any other area considered; many practices were permitted to crystallize and remain constant rather than to be improved; and, of the 154 practices mentioned in his check list, none were deemed undesirable. Gradoni (1957) found an agreement of objectives with actual programs in New York State. He found that trainee graduates and employers benefited materially as a result of their participation in the cooperative retail training programs; however, certain conditions had developed which he believed would adversely affect future program progress if not remedied. He concluded that aims and objectives in distributive

education must be restated in terms of more immediate and measurable goals. Warmke (1960) identified current issues in distributive education and surveyed the opinions of leaders on carefully selected issues. The response to his inquiry undoubtedly constituted a reflection of the philosophy of the leaders about distributive education. The study had two parts. In part one, it was concluded that objective certification requirements cannot serve as the complete answer in certifying DE personnel; high standards, though imperative, are difficult to maintain; DE teachers are better qualified than previously; and the issue of minimum requirements is of major importance in determining effective operating procedures in DE.

In part two, of the 62 issues there was almost complete agreement (90 per cent) on eight issues; on 18 issues, a considerable majority (67 to 89 per cent) tended toward agreement; on 23 issues, the respondents were divided on opinion, and on 13 issues there was complete lack of agreement.

Hermanstorfer (1962) compared the opinions of Iowa superintendents in 1962 with the opinions of Iowa superintendents in 1952 to determine what changes had taken place in regard to cooperative business education programs. She found a significant difference between the two groups on five important issues. She concluded that cooperative programs deserve an increasingly important place in the curriculum and that those characteristics of a good cooperative program receiving high agreement by superintendents of schools be put into practice in Iowa.

Ferguson (1964) found that many of the respondents in 102 different colleges and universities felt that occupational experience is

necessary for a distributive education coordinator. A lesser number felt that this experience should be required for high school teachers of retailing or distributive education who do no coordination of students on the job. Only 39 per cent of the universities offered an occupational work experience program whereby prospective coordinators could secure the qualifications necessary for state certification.

History of Distributive Education

Several researchers have written on the history of distributive education. Emick (1936) wrote about the early development of distributive education. Logan (1952) included a history in chapter two of his doctoral dissertation. Shoemaker (1961) wrote a history of the distributive education program in Ohio.

MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES

Probably the most significant predictive research indicating manpower needs and employment opportunities of the future was published by the U.S. Department of Labor in 1960 entitled Manpower -- Challenge of the 60's. The author stated that during the 1960's, professional, office, and sales jobs will grow faster than the average occupational group. He said that during the past decade, professional, office, and sales workers as a group exceeded for the first time in our history the number of persons employed in manual occupations (skilled, semi-skilled, and unskilled jobs). During the coming decade, he predicted that this trend would continue.

Job Stations of Co-operative Students

Haines (1957) asked state supervisors in each of the 13 states of the Central Region to furnish information about the placement of co-operative part-time students in relation to opportunities in distribution. In response to letters sent out during the spring of 1957, 10 of the 13 states returned the data about their placements. The data on number of establishments, sales, and number of workers were provided by the Bureau of the Census. The food group employed the most trainees (19.4 per cent). Four groups, food, variety, general merchandise, and apparel, accounted for 65 per cent of the trainees. Placements in the furniture and household group were greater than 2.5 per cent in every state. Most states had 4.5 per cent of trainees in gasoline service stations. The conclusions reached were: (1) heavy placements are being made in consumer goods stores while they are conspicuously absent in wholesale, eating, and other types of retail businesses, and (2) service is a number one training station in communities under 2,500 but drops somewhat in larger communities. Wholesale businesses account for the least number of training stations in communities under 100,000.

Feasibility Studies

Four feasibility studies that are of significance include a study by Biester (1949) of the possibilities for distributive education in Minnesota; Lowe (1963) made a study to determine the need for and ability to support a program of cooperative vocational business education in Utah; Rogers (1962) made a study to determine the possibilities for a DE program in a community in Iowa; and Strietelmeier (1962)

made a study to determine the need for a two-year post-high school retailing program in Ohio. Biester's study was divided into four main divisions: (1) the status of distributive education in Minnesota; (2) the need for distributive education; (3) its administration; and (4) a feasibility program that would meet the need in the state. The results indicated that the possibilities for distributive education in Minnesota were much greater than the extent of the existing program. She concluded that the development of distributive education commensurate with its possibilities would require much promotion, publicity, and education for school administrators, business people, and students in order to acquaint them with the possibilities. She recommended that a study be made to find out what occupations male distributive workers follow before they go into distributive jobs since the age statistics seemed to indicate that most men did not go into distributive work until they were 25 years of age or older.

In Lowe's study, three questionnaires were used; one was sent to 1,000 business firms; another to 40 business education teachers; and the third to 3,200 11th- and 12th-grade students in Salt Lake City. The findings: (1) a large number of students desired vocational training; (2) teachers expressed a desire for the program; (3) students expressed an interest in the program; (4) a large number of jobs would be available for high school students; (5) business firms indicated a willingness to cooperate in the venture; (6) teachers were willing to teach the necessary courses; and (7) funds were available.

In Roger's study, questionnaires were sent (1) to ninth- and 10th-grade students in Knoxville, Iowa; (2) to junior and senior high

school teachers and administrators; and (3) to selected parents of the ninth- and 10th-grade students. Two hundred and fifty students, 63 parents, and 31 teachers and administrators participated in the study. The conclusions were as follows: (1) a preliminary survey of this type was an important step in determining the feasibility of initiating a DE program in Knoxville, Iowa; (2) there were enough students (ninth- and 10th-grade) in the community who desired to participate in a DE program to justify its initiation; (3) all groups in the study were interested in supervised on-the-job training in the senior high school (78 per cent, 71 per cent, 73 per cent); (4) forms developed during the study could be helpful in deciding whether or not a program should be started; (5) the students did not seem to be aware of courses or subjects not currently offered by their school that would give them a better preparation for their occupational goals. Similar feasibility studies of local communities were made by Eaton (1957) in the North Park (San Diego) business area, by Johansen (1958) in Oelwein, Iowa, by Wakefield (1959) in Knoxville County, Tennessee, by D. Smith (1962) in Englewood, Colorado, and by Zabinski (1962) in Chula Vista, California.

Strietelmeier interviewed merchants in all areas of the state. The results indicated (1) that there was an abundance of placement opportunities in the retail field for students enrolled in a two-year post-high school program and that the opportunities would increase; (2) that the facilities for offering a two-year post-high school program in the state were inadequate; and (3) that the merchants interviewed were anxious to cooperate in the development of a program on the post-high school level.

CURRICULUM DEVELOPMENT

From the standpoint of some researchers, studies and projects relating to curriculum are considered suspect. Until recently there have been grave misgivings as to whether curriculum research exists as a field distinguished from educational research in general. While the curriculum literature has been rich in statements of purposes, philosophy, and principles, it lacks theoretical formulations which foster researchable hypotheses. A curriculum study is usually considered as a process of evaluation, as distinguished from formal research. In reality, the difference lies mostly in the degree of precision in the measures applied, not in the quality of research design. The purpose of this discussion on curriculum development is not to appraise the quality of research in this domain but to call to the reader's attention what has been done and what is being done. He can then examine those studies which interest him and use them as he sees fit.

Curriculum Development in General

In order to obtain perspective on curriculum development in distributive education one needs to view this segment in relation to the total field of curriculum research. With this purpose in mind, the writer first will abstract pertinent ideas from the Review of Educational Research, June, 1966, which treats curriculum planning and development. Then the distributive education studies will be reviewed with references to the development of curriculum research in general. The remaining material in this discussion of "The

Curriculum in General" is taken almost entirely from the Review and rearranged to fit the context of this project. The numbers in parenthesis refer to page numbers in the Review.

Curriculums respond to many forces--social, economic, demographic, technological, and political. Since Sputnik and the "technological explosion," great emphasis has been placed on subject matter. This has caused the moving down of topics usually taught in the higher grades. The tendency has been to focus on the revision of single subjects. Much attention has been given to the structure of the discipline or to the body of knowledge to be studied. Currently there is growing concern for viewing the curriculum as a means of achieving behavioral changes rather than cramming information into learners. There is also a trend toward the construction of new courses composed of a synthesis of information from several disciplines and an effort to develop competencies in the more complex process of the cognitive domain. Education at every level is now being viewed as a continuum from pre-school to the graduate school. "K-12" (kindergarten through the 12th grade) has become common parlance. Distributive education curriculum planners today seldom think in terms of the secondary offerings alone but in terms of the total program from the ninth grade through the adult component of the program.

The Structure of the Discipline

Much attention is now being given to re-examining the content of subject fields from the standpoint of the structure of knowledge and the method of inquiry. Structure of the discipline, defined as "the body of concepts that limit the subject matter and control research

about it," (362) commands great interest among educationists and academicians. Each discipline has distinct concepts and methods which distinguish it from other disciplines. This interest in the structure of the discipline was manifest in a paper by Nelson (1963) presented at the October 1963 National Clinic on Distributive Education, when he identified marketing as the basic discipline for this field and enumerated six functions of marketing as its basic components.

Current interest in the discretion of subjects and their organization as separate disciplines has caused some prominent educators to be concerned about the lack of a pattern of studies that fits coherently into the total curriculum. Kliebard (390) saw the "structure of the disciplines" as replacing former focal points in education such as "the whole child" and "education for democratic living." He feared that those disciplines exhibiting more structure and precise objectives may be relegated to a higher status than those with less structure. Conversely, others believe that the emphasis on formulating the fundamental structure of each discipline will result in an effective synthesis of related disciplines. The latter group believes that the contemporary efforts toward developing the structure of the separate disciplines may eventually produce the missing links for curricular interrelationship and synthesis. Miehl (365) viewed educational thought and curricular changes as functions of an ascending and enlarging spiral characterized by forces for separateness and specialization on one side of the spiral and by wholeness and synthesis on the other side.

In any discipline, the substantive content is linked to a corresponding way of thinking about and using it. In the minds of

some educators there is a conflict between content and process. This assumed dichotomy has caused considerable confusion. One author (365) referred to a current tendency within individual disciplines to shift from "inventory" to "transaction," terms which carry the same connotations that they do when applied to merchandising. Thus, a pedagogical pendulum of popular emphasis seems to swing between content and method. Bruner (365) viewed curriculum as "an enterprise where the line between subject matter and method grows necessarily indistinct."

The observation has been made that in comparison to the physical sciences, the biological sciences are more complex, diversified, and less formulated, while the social sciences are still more complex and diversified. Scriven (366) stated that the complex nature of the social sciences makes it impossible to produce vast theories; instead, the ultimate task of the social sciences, to his way of thinking, is the production of low-level generalizations and quantified assortments of phenomena. It appears as though the complex nature of the human oriented social sciences (anthropology, economics, history, political science, psychology, and sociology) together with business administration, upon which distributive education draws, are sufficiently complex to lend some credence to the idea of at least devoting initial efforts in curriculum development to so-called "low-level" generalizations and quantified assortments of phenomena.

The progression from the concrete and well-formulated disciplines to those which are complex and less well-formulated may be found among vocational fields and within the occupations, and certainly among the competencies within an occupation. Those knowledges in distributive

education which are relatively concrete and easily measured receive more attention in training, education, and research than theoretical elements. For example, contrast the collegiate school of business accounting department with selling or marketing as to the number of courses offered and enrollments.

Curriculum Revision

Zacharias and White (368) reported four phases in a program of curriculum revision: (1) the problem of determining the precise boundaries of the educational unit, (2) the process of identifying the subject matter to be treated within each unit, (3) the embodiment of the subject matter in material form, and (4) the preparation of teachers in the new subject matter and in the use of the materials.

Goodlad (368) pointed out four approaches for evaluating new programs: (1) observations of whether or not students appear to be progressing successfully, (2) casual and systematic questioning of teachers and students involved in the new programs, (3) periodic examinations of students by tests designed to cover the new materials, and (4) comparative testing of students in "new" and "old" programs with traditional and specially designed tests.

The problem of curriculum organization has been confused by an unreal dichotomy between the so-called "logical" ordering of knowledge and the psychological effects on the learner. The objective is to secure a logical scheme of organizing knowledge so that the learning outcomes are psychologically more desirable. Miehl (350) suggested two ways of organizing curricula, as problem-centered or discipline-centered; she proposed a combination of both methods.

The Role of Objectives

The centrality of the study of objectives has always been emphasized in curriculum planning and development. A division of curriculum and objectives has been established in the American Educational Research Association which has taken an interest in reworking and integrating objectives into curriculum work. Global statements, which previously were acceptable, must now be expressed more precisely before they can be treated as independent variables in a research program. The approach taken in the Taxonomy of Educational Objectives, Handbook I: Cognitive Domain by Bloom (1956) and the Handbook II: Affective Domain by Krathwohl, Bloom, and Masia (1964) has provided a basis for consistent application of objectives to curriculum development and planning. The authors believe that objectives can gain meaning in education through two processes: expression in behavioral terms and placement within an over-all matrix.

Flanagan (391) pointed out that defining educational objectives in behavioral terms is essential to enable teachers and other educators to distinguish mere innovation from genuine improvement and to frame separate sets of objectives for each student. Procedures for implementing the objectives approach were presented by Krathwohl (391) who suggested an analysis at increasing levels of specificity, including (a) broad general statements necessary to program development; (b) goals of sequences of courses, single courses, and instructional units; and (c) outcomes of sequences of lesson plans and of single lesson plans. The first level (a) appeared to be teacher aimed as distinguished from goals stated in terms of pupil behavior in levels (b) and (c) which would be appropriate to the latter two levels.

The Impact of Technology

Two kinds of technological advancement have influenced the curriculum: (1) industrial advances or automation and (2) educational technology. Automation has increased the demand for scientific and professional workers but decreased the need for unskilled labor. This development coincided with the introduction into the labor market of millions of newcomers arising out of the population explosion. This situation gave rise to the war on poverty and legislation which provided funds for a variety of displaced and disadvantaged youth and adults. It has made a strong impact on the curricula.

Technology also brought mechanical and electromechanical devices or "hardware" into the classroom. Thus, we have automated classrooms, complete with teaching machines, tapes, discs, television hookups, radios, films, classroom computers, and retrieval systems. Some of these media were developed with little reference to educational theory. Programed instruction, however, was developed by Skinner in accordance with principles of learning related to active participation of the learner, progression at individual rates, and immediate feedback. Lumsdaine (346) believed that "machines" made it possible to approximate an ideal learning sequence, revisions of program based on feedback from students, and emphasis on efficient learning conditions. Cronbach (366) called attention to an emerging problem in that the hypothetical basis, upon which many of the new curriculum programs are being designed, appear to run counter to programed instructional theory.

Curriculum Development in Vocational Education

Vocational educators can acquire much useful information about curriculum development and evaluation from studying the practices and procedures of general curriculum specialists and of specialists in allied disciplines. Common problems can be identified and an insight into the interrelationships of the several substantive fields can be gained. While a large portion of this information may be applied to vocational curriculum situations, common sense dictates that there are important differences in the settings, which should be kept in mind. For example, while vocational educators are interested in the development of the whole individual, their primary mission is directed toward employment entry, adjustment, and advancement. Work adjustment, which Scott et al. (1960) described as consisting of worker satisfaction and satisfactoriness to the employer, is a persistent criterion in judging learner performance. Another durable criterion is the employment, or unemployment, ratio. These are relatively tangible criteria compared to those of many general education areas. Thus, the opportunity in vocational education to assess individual and collective needs and to develop curricula which keep pace with changing times is a great deal easier than in many aspects of general education.

Work Adjustment

Dawis et al. (1964) have published a bulletin entitled A Theory of Work Adjustment, which provides a series of hypotheses of great value to vocational researchers. Weiss et al. (1964a) reported on the measurement of an individual's vocational needs and on the Minnesota Importance Questionnaire (1964b) which is a measure of job

satisfaction on 20 dimensions. Carlson et al. (1963) reported on the measurement of the worker's satisfactoriness to his employer. Thus, there is available to vocational education researchers and curriculum planners a battery of tests for studies in curriculum development and evaluation.

General Vocational Capabilities

Occupational change stimulated a search for general vocational capabilities exemplified in a study directed by Gagne' (1966). The most important implication of the study was that there is a definable and well-structured domain of vocational capabilities which has not previously been well defined and which is not being systematically taught. This domain is compatible with, and intimately related to, existing academic disciplines and specialized vocational training. In addition, the reporter of the study suggests that vocational content might be ordered along some underlying continuum such as hardware-to-people: (1) mechanical, (2) electrical, (3) special, (4) chemical and biological, (5) symbolic, and (6) people. Content categories along the hardware-to-people continuum were found to be highly compatible with a cross-cutting set of psychological processes arranged in a hierarchy of complexity--(a) sensing, (b) detecting, (c) role sequencing (chaining), (d) discriminating or identifying, (e) coding, (f) classifying, (g) discrete estimating, (h) continuous tracking, (i) logical manipulation, (j) rule using, (k) decision making, and (l) problem solving.

The suggestion of general vocational capabilities calls to mind Nelson's report (1963) in which he identified tool subject competencies

and personal qualities together with technological competencies and those based on the discipline of distribution mentioned earlier.

Curriculum Development in Distributive Education

General Content from Community Sources

Distributive education researchers are accustomed to utilizing the business community in gathering information for curriculum purposes and in using business personnel as participants in evaluating curriculum outcomes. Carter (1958) identified trends in distribution and reported the need for curriculum revision in the areas of display, preselected merchandise, high sensitivity goods and services, all advertising media, small business management, automation in inventory control, expansion of service businesses, increasing status of employees, and in the area of product developments.

Data processing and automation have received some, but inadequate, attention. Waltz (1959), through interviews and observations, found basic data processing systems dealing with selling, purchasing, and general accounting activities of the firm. Their reported role was to provide information at the time and place needed to (1) aid management in planning and controlling, (2) perform routing operations, and (3) meet external requirements of government agencies, associations, or other groups. Rose (1963) studied the impact of automation in American department store operation from the standpoint of revising the distributive education curriculum.

Several degree studies have been directed toward obtaining information on the education and training of managers and executives.

Johns (1962) studied educational, professional, and cultural factors contributing to the selection of potential business and industrial managers and found that the individual most likely to succeed was a graduate from a school of business administration whose undergraduate education included 50 per cent general education, who achieved high scholatic achievement and had demonstrated leadership in social, professional, and civic organizations. College courses considered necessary were also listed.

Kunsemiller (1961) studied the recognized needs of independent retail store owners in selected cities in California. Binford (1957) used questionnaires, interviews, and observations to identify the problems in operating small retail business establishments in Colorado. The problems were classified into six groups which provide clues for curriculum construction. He found that the managers were not well informed about current business practices, that they were very independent, and that they refused to follow or learn sound business practices. Mayer and Goldstein (1961) observed 81 small retail and service firms surviving their first two years of existence to determine the factors which differentiated between those surviving and those that closed. The study revealed that the motivation for starting a business may be more a matter of spur-of-the-moment decision than logic and that managerial experience appears to play a greater role in success than occupational experience. The report contains much information which may contribute to content selection for post-secondary and adult distributive education programs. Ovsiew (1962) directed a study of the educational attainment of service station operators in the United States, using a random sample of 69 persons

who were interviewed. He gathered information about their backgrounds, abilities, and personality and interaction items, which may be of value to curriculum researchers for this aspect of distribution. The report also sets forth a longitudinal research program which may give clues to more productive procedures for training service station operators.

Customers, a useful source of curriculum content which is infrequently used, were the source of information in a study by Barrett (1963) that compared ratings of retail store services with textbook treatment of those services within the realms: (1) greater variety of merchandise, (2) price, (3) better quality, (4) newer styles, and (5) special sales. Only the first was inadequately treated in textbooks. The investigator recommended that textbooks should also treat the topics of store hours and shopping days.

A third source of research data from the business community, a source which is almost untapped, is the worker himself. Lombard (1955), a Harvard professor of human relations, studied the needs and satisfactions received from their jobs by a group of department store children's wear salesgirls and also the interpersonal relations and sub-group structure of this group. Whereas many studies are concerned with output and productivity, this study focuses on ways people in business secure personal satisfactions. The study reveals that the most important influence which restricts the development of new behavior patterns in the department store as a whole are the assumptions about behavior underlying the executives' evaluation of service. The conclusions of the study point to a need for the re-education of executives in sensitivity to group behavior patterns and awareness of the effects of their own behavior on others.

A fourth source of curriculum information derived from the busi-community is the formal training done by business firms and organizations. Nesser (1961) found that training programs offered to college women graduates by department stores consisted of orientation concerning rules and policies, knowledge of the firm's products, services and trade areas, and about the technical skills.

Clark and Sloan (1962) studied the education and research carried on by 36 of the largest 38 American retailing concerns using a variety of information sources and found the amount of formal education conducted by retail establishments extremely limited as compared with industry. The annual training cost per employee for firms with sales of more than $100,000,000 was reported as ranging from $2.50 to $3.44. Clark and Sloan divided education by retail corporations into three categories: (1) rank-and-file orientation training, (2) more intensive training for person-to-person selling, and (3) managerial development programs. The report contains examples of managerial course content. It also contains a report of a U.S. Department of Agriculture study which concluded that the performance of retail salesclerks can be improved considerably by carefully planned instruction.

The Clark and Sloan report, Classrooms in Stores, pointed out only a relatively small number of workers have received any formal training for retailing either within or outside of the corporation but education is not wholly responsible for this condition. Research programs are likewise accountable because education disseminates new findings; and since the kind of research carried on by stores is concerned only with day-to-day operations, there is little basic innovation to be communicated through education. Data are reported which

show the relatively low-productivity growth of retailing as compared to agriculture and industry. Retailing is labeled as a bottleneck in the American economy because of its current inadequate contribution to the gross national product.

Adams (1959) studied sales training programs of 88 firms covering a variety of topics of interest to high school distributive educators from a guidance viewpoint but of particular interest to post-high school curriculum workers. For example, he found that (1) three-fourths of the companies match selectee's qualifications to job specifications but only a few firms make time-and-motion studies of salesmen and use these in training; (2) that most companies give product information, information about the company, and some formal class work in salesmanship; (3) that more than half of the companies also give courses covering the following subjects: organization and management, policy, human relations, credit department functions, company records and reports, advertising, and marketing channels; (4) a number of firms require of sales trainees actual experience in the factory; and (5) that most firms that sell through distributors furnish training aids and sales training to those distributors.

Another source of helpful information for curriculum development is the employer's appraisal of student-trainees and other workers. For example, Wiklund (1958) used employers and training-sponsors to identify adjustment problems of beginning workers. These problems were then used in guiding the selection of materials for teaching occupational adjustment. The investigators recommend this type of study periodically to check the relevancy and adequacy of current

general vocational content for classes of cooperative student-trainees.

Specific Occupational Content from Community Sources

When distributive education researchers seek to develop materials for student use in learning individual occupations they are prone to go directly to first-hand study of the positions classified under the occupational title concerned. Little (1962), in preparing a cashier-checker training manual, examined available materials, obtained opinions of selected employers concerning duties and responsibilities of this occupation, surveyed training methods, and estimated current employment needs. A tentative instructor's manual was developed and tried out in an actual classroom situation. A questionnaire based on the revised manual was sent to 200 members of the state grocers' association and the data was tabulated and analyzed. The investigation revealed many facts about the changing nature of this occupation which were not realized by the investigator who had a rich background in food distribution.

Two studies were related to the identification and selection of content in teaching retail drug store occupations. Samson (1956) found that beginning workers might be assigned to all but four of these departments. Employers reported that knowledge of products is the most important information to be learned by their employees. Hanson (1963) interviewed pharmacy graduates in different types of retail drug outlets to determine content essential to education about business and business operations which should be included in the preparation of pharmacists. Findings were assembled in 40 case studies.

Watson (1963) studied buyer understandings of life insurance. Although the purpose of the study was to provide a basis for improving the understandings of life insurance for personal and family use, the findings may be evaluated for use by distributive educators. Hamilton (1965) studied the educational needs and desires of savings and loan employees as perceived by interested personnel of savings and loan associations. Fuerst (1959) used a variety of direct and indirect sources in arriving at content for job-study-guides in retailing paint and wallpaper. C. White (1958) used a similar procedure in constructing job-study-guides for three main categories of women's ready-to-wear. He found that employers in this field also consider merchandise information most important for beginning workers.

Areas of Distribution Content from Community Sources

Distributive education curriculum workers are more inclined to look to colleges and universities for information when constructing curricula relating to an area of distribution such as selling, sales promotion, and market research, perhaps because of the greater complexity resulting from a broader scope; however, some studies involve a search of the business environment. Thompson (1953) recorded on tape the work of expert salespeople as they served customers to determine the essential elements of retail salesmanship in department stores. The recordings were transcribed and searched for the presence of essential elements as revealed by earlier studies. A jury of authorities verified the elements that were identified in the transcriptions. Thompson found that identical salesmanship elements are employed by the experts in 32 different selling departments,

implying that selling methods are similar even though merchandise and customers may differ.

Callister (1966) used a purposive sample of sales promotion specialists to determine topics to be included in an elementary course in sales promotion. A panel of sales promotion specialists participated in identification of necessary competencies for beginning positions in the sales promotion field. An achievement test was constructed based on behavioral objectives in both affective and cognitive domains. The test was administered, analyzed, and revised. V. Anderson (1965) produced a sound slide presentation on newspaper advertising by taking pictures in a local newspaper plant and then writing a script. She recommended its use at the beginning or at the end of a unit. Leipold (1964) used a questionnaire in a city of 40,000 population to obtain information about training needs of advertising personnel, qualifications for employment, and job duties. He found that a variety of media are used to communicate the advertising message; the need for various distributive personnel with general or specific knowledge of advertising practices varies greatly among businesses; planning an advertising budget is an important topic to be taught, as is where to advertise; and that there seems to be little interest in the mechanics of how an advertisement is produced.

Studies of Off-Farm Agricultural Occupations

Very interesting curriculum development work has been carried on in the area of off-farm programs, particularly in agricultural distribution. Taylor (1965) traced this kind of research activity in a presentation at the American Vocational Association in December,

1965. He reported that by September, 1964, about 40 states had undertaken studies to identify the competencies needed in these occupations. The Center for Vocational and Technical Education at The Ohio State University undertook the task of summarizing and synthesizing these studies. It organized them into training clusters and developed instructional materials. A task force, composed of some 30 vocational educators and headed by Glenn Z. Stevens and H. M. Hammond, was organized. Several national advisory meetings were held and five regional meetings for state staff and local persons interested in implementing the pilot programs took place. The five broad areas classified as needing the greatest number of agriculturally trained employees were: (1) marketing and distribution of agricultural supplies needed in farming; (2) processing and marketing of livestock and meat products, dairy products, and fruit and vegetable products; (3) ornamental horticulture; (4) agricultural machinery sales and services; and (5) agricultural service to farming and agri-business. Another outcome was a series of publications including a summary of the research. Course outlines were prepared. Seven of the most clearly defined competency factor groups for four clusters (manager, field man, salesman, bookkeeper, and service worker) were: (1) human relations, (2) salesmanship, (3) business management, (4) plant science, (5) animal science, (6) agricultural mechanic, and (7) building trades. A similar list of competency factor groups were developed to meet the needs of employees in agricultural machinery sales and service (manager, salesman, parts manager, bookkeeper, and mechanic).

Wilson (1965) described the Wytheville pilot program. A feasibility survey conducted by the Agricultural Education and Distributive

Education staffs of the Virginia Polytechnic Institute (1963) revealed that there were 61 agriculturally related business firms with 1,708 employees who were classified under 80 different job titles in the city of Wytheville, population 6,200. Eighty-nine per cent of the employees needed training in both agriculture and distributive subjects. A two-year course of study was developed offering a total of 180 hours of instruction each year.

Secondary School Distributive Education Curriculum Studies

There are approximately a score of studies which, on the whole or in part, are concerned with secondary school distributive education curriculum in general. In addition, there are more than a dozen studies that deal with segments of the secondary school curriculum in this field. In this review and synthesis of research, the two kinds of investigations will be discussed separately.

Secondary School General Distributive Education Curriculum Studies

The general studies relating to the high school curriculum reported here range in time from 1935 to present. They are grouped according to time periods rather than by source of data as was done in the preceding part of the curriculum development section of this report, the reason being that this means of classifying the studies seems to the reporters to be the most meaningful.

Early Curriculum Studies

The first curriculum study of national scope was done by Emick (1935). It described retail selling classes in operation in this

country during the school year 1932-33. Courses were divided into two general forms: (1) the core subjects in a special curriculum required of all those in this field, and (2) elective subjects or a sequence of subjects which may be taken by those pursuing the college-preparatory or other curriculums offered by the schools. This relatively complete study is helpful to researchers from the standpoint of developing a perspective on curriculum development. It stated the aims of programs, described the curriculums, identified curriculum problems, and furnished much general information about the programs prior to and at the time of the report.

Banks (1943) completed a dissertation based on the establishment of a cooperative distributive education program at Millville, New Jersey, High School. This early study had considerable effect on the high school curriculum because of numerous articles which were written about it in vocational education periodicals. Weale (1948) went about the identification of distributive education content for secondary schools systematically. He compiled a list of approximately 100 "skills and knowledges" which were classified by employers and coordinators separately as to importance and as to whether or not they should be learned primarily in school, primarily on the job, or partly on the job and partly in school.

Studies of the 1950's

Nearly a decade elapsed before another study bearing on the secondary school distributive education curriculum emerged. Gradoni (1957) broke the spell with another study dealing with cooperative education for retail occupations in New York State in which he used

interviews, observations, analysis of job performance ratings, and other means to determine the status of certain aspects of the cooperative program. Among his recommendations was his suggestion that there be additional specialization in curriculum content. In a study of the distributive education programs of Pennsylvania, Jones (1957) found that graduate follow-up studies made the poorest contribution to curriculum revision. Donaldson (1958) obtained a ranking by students of instructional units in the Illinois distributive education course of study. Harris (1959) polled coordinators on a nation-wide basis to inventory the practices used in teaching occupational group learnings at the several educational levels. He found considerable difference of opinion as to what should be taught in pre-employment courses as compared to classes for cooperative student-trainees. He recommended an analysis and comparison of course content in schools where students are enrolled first in pre-employment courses and later in cooperative classes, to reduce duplication. Raeker (1959) analyzed the courses of study of 15 states which published such materials and sent questionnaires to state supervisors. He found little similarity in the style and content among the courses of study and little consistency in terminology. The decision as to what should be included in the course of study was usually left to the individual teacher-coordinator. He also observed that populous states do much more than others in producing courses of study. Trimpe and Dannenberg (1959) reported a complete survey of distributive education subjects and programs of Michigan public high schools. In identifying issues in distributive education in 1959, Warmke (1960) obtained the opinions of 57 carefully selected leaders in this field. He obtained information about placement of

educational objectives at various educational levels. Opinion was divided on the percentage of class time in the distributive education cooperative program to be devoted by the student trainee to study his specific job ranging from less than one-fifth to more than one-half.

Studies of the Early 1960's

All of the studies of this period precede the Vocational Act of 1963. Ovsiew (1960) directed a team of observers who studied 21 large city distributive education programs for the purpose of producing a collection of practices to be shared with interested parties. Although this report can hardly be classified as research, it contains numerous clues to hypotheses which may be investigated. Viewpoints and supporting arguments are given on a variety of curriculum-oriented subjects such as decisions whether to offer a general or specific curriculum or both. The report indicated that "there is some evidence that metropolitan centers are seeking to identify, classify, and teach the general fundamentals which apply throughout the field of retailing. But for the present at least, the response to specific needs has high priority and, since success is its own best reason for being, it may be that the alertness and adaptability to local needs is distributive education's strongest characteristic." The influence of the study of general vocational capabilities by Gagne (1966), mentioned earlier, on the search for general vocational capabilities that apply throughout the field of retailing bears watching.

Mason (1961) made an analysis of the related instruction for cooperative part-time programs in distributive education in Illinois and found that there was not a precise fit between what business wants

from training and what teacher-coordinators do in providing training. Mason found that there was agreement between the importance of rankings of businessmen and teacher-coordinators on: (1) getting along with customers and fellow workers; (2) salesmanship fundamentals; (3) good work habits; and (4) merchandise information. The two groups agreed that these are the four most important areas of instruction but placed them in different rank order. Hecht (1963), in following up graduates of three New York high schools, found that general and social type units were judged to be more important than specific retailing units; only the selling techniques unit was judged among the first six. He concluded that more time should be spent on salesmanship, display techniques, buying, and advertising. A sequence based on student opinions was established for units which could be learned better in class than on the job. Johanson (1963) evaluated 30 Iowa high school distributive education programs using the principles included in the 1960 evaluative criteria of the National Society for the Study of Secondary School Evaluation (NSSSE). The study showed that there were major strengths in the "nature of offerings" aspect of the distributive education curriculum content.

In October, 1963, a national clinic on distributive education was sponsored by the Distributive Education Service of the U.S. Office of Education. Among the papers presented by members of the staff was that of Nelson (1963) which seems to have been a harbinger of a new emphasis in curriculum development for careers in distribution. Nelson briefly described four specific occupational competencies: (1) social competency, (2) basic skill competency, (3) technology competency, and (4) a marketing competency. Thereafter, occupational competencies

received primary emphasis in curriculum development and research. Warmke (1963) presented a paper on the relationship of economics to distributive education which also exerted some influence on distributive education curriculum development.

Baker (1963) surveyed the units of instruction taught in Marketing and Distribution I, II, III, and IV in Kansas. Hall (1963) wrote a suggested course of study for distributive education based on library research and materials from the Illinois State Board of Education. Attention was given to aims and objectives, nature of materials, and organization of a class. The resulting course of study was tested in distributive education classes. She reported that the most successful programs used the following topics: (1) Orientation, (2) Personal Development, (3) Salesmanship, (4) Arithmetic, (5) Merchandising, (6) Sales Promotion, Advertising and Display, (7) Store Organization, (8) Establishing a Store, (9) Planning and Control of Operations, and (10) Store Finance.

Studies Subsequent to the Vocational Education Act of 1963

Federal appropriation of funds earmarked for research under the Vocational Education Act of 1963 did not produce as large an increase in curriculum development and evaluation projects in distributive education as might have been expected. In fact, no studies dealing with the secondary school curriculum in general after 1963 were located. However, several studies have been completed which involve the secondary school curriculum and a funded project using the competency pattern approach to a teacher education curriculum for teacher-coordinators is under way.

Samson (1964) made a study of critical requirements for distributive education teacher-coordinators in Iowa. Some of the requirements reported have implications for curriculum development. For example, several requirements in the area of "instructional activities" infer the necessity of providing individual instruction to meet the special training needs of student-trainees. The same comment might be made regarding a similar study by Harris (1965) who studied both distributive and office occupations teacher-coordinators in Illinois and compared the two. Harris also used reasoned-judgment reactions of teacher-coordinators to several curriculum issues. Reactions to the advisability of using class time in cooperative part-time programs to the study of a student's job was almost unanimously positive. The same conclusion may be made regarding the use of class time for club activities. Willingness of the reader to generalize beyond the population sampled is his prerogative.

Following up on the current interest in teaching economic understandings, Vivian (1966) used the Test of Economic Understanding (Stalnaker) to measure achievement of 5,000 Indiana high school seniors including distributive education student-trainees. He found that formal instruction in economics, participation in the distributive education program, or participation in a Junior Achievement program were not significantly related to the level of economic understanding measured by the test. Although significant differences appeared on all three variables on the pre-test and post-test, this appeared to be a matter of selection rather than an effect of instruction as no significant differences were indicated on the adjusted gain scores. Klaurens (1965) evaluated experimental text material on economic

competencies for student-trainees in cooperative education programs which had been developed by Minnesota teacher-coordinators and University of Minnesota staff members. The Test of Economic Understandings - Form B, referred to in the Vivian study above, was administered to experimental groups which used the material and to control groups that did not use the material. This was done both prior to and after the material was studied by the experimental group. The experimental group achieved a mean gain score of 1.9 points which was significant at the .005 level of confidence while the control group did not show a significant gain. Teacher-coordinators who used the materials with average or better than average academic students reported gains as high as 6.7 score points. The reading level of the test is high; thus, students of below average academic ability have a difficult time reading the test. Klaurens questions the appropriateness of the test in evaluating the text materials. She found that there was a strong relationship between the teacher-coordinator's being involved in the production of the text materials and their reactions to it as well as the reaction of their student-trainees to it. This agrees with the contention of many curriculum workers that teacher involvement is essential to achieve changes in curriculums. A curriculum guide for teaching "Economics for Young Workers" has been prepared by the Distributive Education staff of the University of Minnesota for the Division of Vocational and Technical Education of the U.S. Office of Education, which culminates several years of curriculum development work in this area of study.

The competency pattern approach to curriculum research, which has been popularized recently in vocational education, was studied

by Crawford (1964) who later designed a proposal and became the principal investigator for a funded study of the competency pattern of a distributive occupations teacher-coordinator. This study, which is still in process, included job analyses of distributive occupations positions held by cooperative program student-trainees and of positions to which they are likely to advance. This information, when released, will be of considerable value to distributive education curriculum workers.

Carter (1966) studied the status of, opportunities for, and enrollment in business education (including distributive education) and in home economics in Indiana public schools. The abstract of this recent study does not distinguish between offerings in the area of office occupations and distributive occupations. Carter concluded that (1) high school courses in business education are not only ample, but generous, and those in home economics are compatible with the needs; (2) business education subjects are the most popular electives; (3) more students should elect home economics courses; (4) business education enrollments are almost as large as all other vocational education courses combined; (5) from 1946 to 1962, business education held its position percentage-wise while home economics declined; (6) adult education is confined to the larger schools; and (7) the opportunities in adult education are inadequate and are not being fully utilized.

Secondary School Areas of Distribution Content

Earlier in this discussion of curriculum development studies, a section was devoted to those under the title "Areas of Distribution

Content from Community Sources." Studies described in that section are not directed to any single level of instruction. The following studies were designed to produce or guide the production of secondary school curriculum materials only. These studies deal with the following areas of distribution or portions of areas of distribution: advertising, show-card writing, cash register operation and change making, salesmanship and occupational relations. With the exception of the study by Martin (1962), those reported are master's degree studies.

Olson (1957) investigated content and practices in teaching high school units of instruction on advertising to Minnesota distributive occupations student-trainees. He recommended that advertising be taught to these students regardless of type of program and that employment possibilities in the field of advertising should be stressed. Smith (1957) prepared a teaching unit in show-card writing for distributive education students. The teacher's manual was tried out by fifteen teacher-coordinators and judged successful. Smith concluded that show-card writing is not limited to distributive occupations; it should be taught early in the year and before advertising and display. It can be taught successfully on the pre-employment level of instruction, as well as in the cooperative program. Layout was found to be the most difficult lesson.

Embertson (1965) constructed a linear auto-instructional program in money handling and use of the cash register for distributive education students by following procedures recommended by experts in programed learning. During the course of its construction, 21 frames were added. He concluded that (1) programed learning could be an effective technique in the training of distributive education

students in these skills; (2) programed learning could provide adequate training in minimum time since each student works independently at his own individual rate; (3) programed learning could free the teacher-coordinator for additional student training in other areas; and (4) programed learning could develop skills within a range of student abilities.

One-half of the studies listed under "Secondary School Areas of Distribution Content" deal with salesmanship. Avritch (1958) built two units of instruction, "Why Consumers Buy" and "Obtaining Customers," based on an analysis of student needs. Incorvaia (1960) constructed a course of study for the teacher of salesmanship. Flannery (1961) surveyed 127 distributive education and diversified occupations teacher-coordinators of Illinois, Iowa, Minnesota, and Nebraska to determine the emphasis given to various salesmanship topics in pre-employment and cooperative part-time training courses, length of the salesmanship course, textbooks used, type of program taught, amount of overlapping content between pre-employment and cooperative courses, and titles of course. He found that (1) most coordinators reteach some units in 12th grade; (2) that the diversified occupations course with pre-employment salesmanship is extremely weak in the treatment of salesmanship; (3) diversified occupations coordinators placed more emphasis on the steps of a sale and mechanics whereas distributive education coordinators ranked the philosophy of selling much higher; (4) sales delivery was considered very important by both groups; (5) selling careers was considered a very important topic; (6) the time spent in teaching salesmanship varies greatly; (7) and the course is given 15 different titles.

Martin (1962) contributed information about content selection for retail salesmanship through an analysis of six textbooks dealing with this subject. He retained 279 of 539 different facts, principles, and concepts identified in the texts for study. To obtain customer acceptance, he submitted the items to 100 randomly selected parent-customers of Amsterdam, New York. Of the 279 items, 77.1 per cent were essential in terms of the expert opinion; 40.9 per cent were acceptable to the parent-customers, and 30.5 per cent were both essential and acceptable and were assumed to be the basic essentials.

Ortega (1962) developed a teaching unit for self-improvement for a course in salesmanship based on literature from several fields. It placed emphasis on oral communication, manners and grooming, and on personality and character traits. Sharper (1964) made a survey of formal in-service training programs for salespersons in selected retail firms with implications for improvement in the distributive education curriculum in the public high schools of Washington, D.C.

Work adjustment has long been a problem of employers and employees alike, yet little has been done by researchers in distributive education to alleviate it. In addition to the Lombard study (1955) discussed earlier, three masters' papers were completed in the late 1950's. Rosenwinkel (1957) polled teacher-coordinators in Minnesota, North Dakota, South Dakota, Iowa, and Illinois to identify what employer-employee and co-worker relations problems should be given most emphasis in cooperative part-time classes. He also solicited teaching devices used by teacher-coordinators in dealing with these problems. All respondents agreed on the following problems: the student-trainee (1) does not accept criticism and suggestions without

excuses, (2) does not realize what the employer has a right to expect of him, (3) does not listen to or follow directions carefully, (4) is not willing to put forth extra effort to improve his work, (5) does not accept corrections or advice from fellow workers, (6) fails to realize what fellow workers have a right to expect of him, (7) does not listen carefully to fellow workers' explanations of how a job is to be done, and (8) puts blame on others for shortcomings of poor work.

Wiklund (1958), in his study mentioned earlier, surveyed employers and training-sponsors to locate job adjustment problems of beginning workers. Respondents were pleased with the student-trainee's reactions to suggestions, with their understanding of what the employer has a right to expect of them, with the way they react to directions, and with their understanding of the chain-of-command. One-sixth of the training-sponsors felt that their own directions and explanations to new workers were not thorough and that there is a need for more and better classroom instruction in the area of co-worker relations. Nearly 30 per cent of the respondents felt that trainees did not ask enough questions. Johnson (1958) did a companion study at the same time using a questionnaire sent to 534 Minnesota high school student-trainees. The report showed that students, by and large, were well-satisfied with their training stations and felt that they were making satisfactory work adjustment. However, certain clues to improvement of learning both on the job and in the classroom were evident. Thirty per cent of the respondents indicated that there were times when they were uncertain as to the source of orders and directions. One out of five stated that he was not satisfied with the

answers employers gave to his questions. Problems encountered in getting acquainted with fellow workers were shyness, trying to remember names, and a difference in worker ages. Nearly one-half of the respondents indicated that the necessary business system and company policies were not explained to them by their employers. A number of the trainees indicated that they were learning things in their occupational relations class which were in direct disagreement, or had no relationship to their jobs. They also indicated a list of topics, that were not included in their classroom instruction, which they thought would be of help to a new employee on the job. Most frequently mentioned were employer-employee relations, together with more salesmanship and merchandising.

Post-Secondary Distributive Education Curriculum Studies

Up to the present time there have been very few studies designed specifically for post-secondary curriculum purposes. Less than a dozen are reported in this review and synthesis of research.

Post-Secondary Curriculum Surveys

Four post-secondary curriculum surveys were reviewed. Martin (1952) studied practices of California junior colleges to promote and maintain merchandising programs using literature, personal contacts, and questionnaires with school personnel. He found that instructors and coordinators rely on their work experience as a primary source of information, that work experience is considered feasible for students by all administrators, and that merchants and employees were generally not consulted when objectives for programs were being formulated.

White (1957) surveyed 360 public junior colleges to determine certain operating and curriculum practices. He found that credit was given for almost all courses and applied toward the Associate of Arts degree. Transfer to four-year colleges was possible with special consideration given to individual cases. The business and general courses in the 61 institutions where distributive education was offered included beginning accounting, English, mathematics, speech, beginning typewriting, social science, economics, business English, psychology, and introduction to business. Many colleges did not require a complete curriculum but developed individual student programs. Distributive courses concentrated around salesmanship, retailing, advertising, and merchandising. Like Martin (1952), Carver (1960) studied California Junior Colleges. He examined the changes in curriculum for the 20-year period, 1938 to 1958, and found that they had grown from a single-course offering to several curriculums; that the average number of semesters of distributive education courses within the curriculum had increased from 3.8 in 1938 to 5.6 in 1958; two of the newest curriculums are real estate and transportation; merchandising has remained the most popular curriculum; in second position are advertising, real estate, traffic and transportation, and business operation and management. Busher (1961) surveyed 29 community colleges in seven states and found that the Associate of Arts degree is offered in 26 of them and the Associate of Commerce in two; that considerable attention is given to general education; that 13 vocational courses are prescribed by one or more schools; and that the most common vocational courses are: retailing, accounting, salesmanship principles, business

correspondence, business mathematics, introduction to business, advertising, marketing, business law, and economics.

Post-Secondary Feasibility Studies

Very few feasibility studies for post-secondary programs have come to the attention of the persons preparing this review and synthesis of research. Mills (1966) did a study of the Kenosha, Wisconsin, trade area for the purpose of determining the advisability of installing an agri-business curriculum preparing students for horticulture-related occupations and for the purpose of obtaining suggestions for curriculum content in this field. Another study of this nature was completed by Hart (1962). However, the reviewers were unable to procure a summary of the study within the allotted time for preparing this report.

Post-Secondary Evaluative Studies

Two studies dealt with post-secondary curriculum evaluation. Corbman (1958) sent questionnaires to graduates of the Retail Distribution Department of New York Institute of Applied Arts and Sciences during the period 1947 through 1953 to determine what curriculum revisions might be made. The findings were very favorable to the existing curriculums. The program achieved its objectives; the competencies taught were necessary and useful; cooperative training was very helpful. The graduates felt that there was insufficient need for specific training in the areas of retail credit and interior decoration. While minor revisions should be made in the aims and objectives of the subject areas of retail management and personnel

problems, there was no general need for any additional training in the current curriculum. The investigator recommended that retail training should include all types of retailing organization and that consideration should be given to including in the curriculum training in retail personnel relations. Henkel (1965) received 56 responses to 99 questionnaires used in following up graduates of the two-year technical institute marketing programs in Wisconsin during the period 1960 through 1963. The report indicated that the courses most often recommended for addition to the curriculum were speech, more English, buying, and mathematics. The investigator recommended a follow-up of employers to get their viewpoint, greater choice of elective subjects, and on-the-job training for students who want it.

Areas of Distribution Studies Designed for Post-Secondary Curriculum

Areas of distribution studies specifically designed to improve content selection for post-secondary curriculums is almost non-existent. George Smith (1963) did a study of economic concepts basic to an understanding of introductory marketing. Although marketing is usually taught in the upper division of the collegiate school of business, the course is also taught frequently in post-high school programs and his findings seem appropriate to this discussion. Smith found that a pattern of relationship exists between a broad range of basic economic concepts and the subject matter of the collegiate introductory marketing course and groups of related topics therein. He concluded that the soundness of educational practice whereby students are permitted to enroll in collegiate introductory marketing

courses with no prior training in economics or with only one three-hour prerequisite course in economics is questionable. Vomhof (1965) did a documentary study leading to a bibliography of business ethics designed for distributive educators. He found reading materials scarce. Categories of his bibliography were: (1) need for teaching business ethics, (2) management ethics, (3) history of ethics, (4) employee ethics, (5) religion and ethics, (6) consumer ethics, and (7) methods of teaching ethics.

Adult Distributive Education Curriculum Studies

In the area of curriculum per se, only three adult education studies were located. Becker (1957) made an analytical study of adult distributive education course offerings and instructional practices in 52 cities of 200,000 population and over. The primary emphasis of the study was on adult education instructional and operational procedures, but the pattern of course offerings should be of interest to curriculum designers. Boranian (1959) used school and State Department of Education records and publicity brochures to study the evening school program of St. Paul, Minnesota, for the years 1949 to 1958. He found that the lack of proper physical facilities and the lack of a good central location restricted course offerings. Other than this, he found that the curriculum was flexible and responded to the needs of students. Creed (1966) did a descriptive study of classes offered in the adult distributive education program. An abstract of the study was not obtained in time to report the kind of population studied or the nature of the findings.

EDUCATIONAL PROGRAMS

From the outset, distributive education was offered both as an in-school program and as an out-of-school program. The in-school program consisted primarily of the cooperative program in the high school. Later a preparatory program in the high school and programs for high school students with special needs were added. Pre-employment and cooperative programs on the post-high school level were also introduced. Programs for youth and adults with special needs have been added to the out-of-school offerings in recent years.

In-School Programs on the High School Level

Five of the eight studies reviewed related to initiating and establishing distributive education on the secondary school level. One study by Thomas R. White (1965) described the characteristics of Ohio communities and high schools having distributive education. Twenty-five characteristics were identified. Among the characteristics were: (1) schools having distributive education were larger than the average; (2) the average distributive education teacher's salary was higher; (3) teacher turnover was related to salary; (4) the schools had an unfavorable counselor-student ratio; (5) most schools did not follow up graduates; (6) the tax valuation was slightly lower than the average; (7) 85 per cent of the schools had other vocational education programs; (8) there was no correlation between number of programs and size of community; and (9) most administrators permitted any student to enroll. In the second study, Young (1958) made a survey of distributive education in the Houston

(Texas) high schools. The third study was done by Fitzpatrick (1963) who drew up a proposal for a cooperative program in distributive education at Niles (Illinois) Township High School.

The other two studies resulted in manuals for use by high school coordinators and school administrators in initiating and conducting high school programs. A manual was developed by Allen (1959) working with an experienced group of distributive education coordinators. It was validated by submitting the manual to five other coordinators. Flis (1962) constructed a manual to be used by Minnesota school administrators and teacher-coordinators in establishing cooperative part-time programs. Materials for the manual were obtained from local and state literature, from teacher-coordinators, and state supervisors. The material received was reviewed and pertinent parts were selected for use in the manual. An outline and a manuscript were prepared. The manuscript was submitted to selected school personnel, to the state supervisor, and to the teacher educator for criticism and revisions.

The sixth study pertained to factors influencing growth or retardation of cooperative high school distributive education programs and was done by Petersen (1965). She reported that the apparent growth was primarily attributed to (1) cooperative and well-qualified distributive education coordinators and (2) federal legislation for vocational education. The seventh of the seven studies to be reported was done by Butler (1964). She made an analysis of the importance of distributive education. A summary of the study was not obtained for this report. The last of the eight studies on in-school programs at the high school level reported here was done by Labella (1958). Likewise, the summary of the study was not obtained for reviewal.

In-School Programs on the Post-High School Level

A relatively small number of post-high school distributive education programs are in operation in the United States. Most of the research is aimed at determining the status quo of the program. One study was made by Richard A. White (1957) to determine the extent of distributive education programs in the public junior colleges of the United States and to gather information about the schools and the curriculums. In 1957, 61 colleges offered work-experience programs including distributive education. The average enrollment in the colleges offering distribution education was 400 students more than those without programs. The schools were located in larger cities. Most colleges were public school or independent school districts. Few were governed by state authorities or were branches of other four-year colleges. Nearly every college also offered business and/or secretarial science. The average distributive education enrollment was 20 students. Faculty members were given limited time for coordination activities. Most of them had additional teaching duties.

In order to determine the need for post-high school distributive education in Ohio, one researcher, Edwards (1960), selected five factors and conducted personal interviews with experienced distributive education coordinators. She submitted a questionnaire to a sample of cooperating merchants to obtain the results. The five factors selected were: coordinators tended to think that there would be less of a problem in developing vocational interest in a post-high program than they were experiencing in high school; a majority of the coordinators thought that a distributive education program should be offered as a separate post-graduate course rather than as a continuation

of the present high school program; most coordinators thought that the high school was the best place to offer a distributive education program because too many students could not be reached otherwise; many merchants indicated a need for post-high school specialized training for distributive occupations; a large majority of the merchants said that they would cooperate with a post-high program; and most comments by merchants were in agreement with those of coordinators.

Her conclusions: a need does exist for post-high distributive education in Ohio but it varies with different communities and within different business classifications; and existing educational facilities will require consideration in any development of post-high distributive programs.

Two questionnaires were used by Busher (1961) to examine distributive education programs of selected public community colleges in the United States in 1961. He found that all of the schools required high school graduation for entrance and a 2.0 (on 4.0 scale) grade-point average to graduate. Course offerings and degrees granted were described in part three of this report. Sixty per cent of the schools reported that students might elect to take only vocational subjects and work-experience courses with the intention of remaining in school for one year only.

A study was made by Hoover (1960) to determine the types of cooperative job-training programs provided for business majors in a selected group of junior colleges and to determine the status of certain aspects of the program. Questionnaires were sent to 11 colleges accredited by the North Central Association of Secondary Schools and Colleges offering distributive education. The average

number of hours students spend on the job each week was 15. Credit hours earned were two. One out of three indicated specific prerequisites for admission to the program. The coordinator was responsible for obtaining job stations and evaluating student performance. Visits to job stations were made at least one time during the semester and more when possible.

A study was made by Tippett (1966) to determine the guidelines for selecting instructor-coordinators of post-secondary distributive education programs. Salisbury (1966) reported on post-high school distributive education in Bucks County, Pennsylvania. A summary was not immediately available.

Training in Business Establishments

The extent to which the retail segment of the economy engages in educational activities was sought in a major study by Clark and Sloan (1962). Thirty-six of the 38 largest retailing organizations as listed in Fortune magazine in 1960 participated in the study. Information was obtained through personal interviews, corporation publications, correspondence, and general literature. In addition, interviews were held with key persons in the retail field representing publications, trade associations, research agencies, and officials of retail corporations not included in the Fortune list. The report was prepared from the accumulation of the information. Evaluations were not made.

Clark and Sloan found that the total amount of formal education conducted by retail establishments was extremely limited. The smaller the establishment, the less likely it was to have formal training. It was found that education in retailing does increase the productivity

of the employees. Partially, as a result of the lack of widespread employee training, retailing is an area of low-productivity growth, lower than agriculture or manufacturing and lower than the average for the economy as a whole. The research carried on by the large retailers is mostly concerned with day-to-day operations; little exploratory research is done.

Clark and Sloan said that those large establishments which do engage in educational activities emphasize sales and managerial development and are inclined to adhere closely to the bare essentials which promise maximum results and minimum expense. Though there were many and varied opportunities for retail training outside the corporation, they touched but a relatively small number of the approximately eight million people employed in retailing establishments. They stated that retailing was beginning to mechanize some of its operations and since mechanization, followed by exploratory research, ushered in a period of unprecedented productivity growth in agriculture, it might do the same for retailing. They stated further that machine teaching offers retailers a rare opportunity and many training programs could be established where none existed. Lastly, programs could have been broadened to offer more extensive educational opportunities.

Three degree studies treating company training programs will be reviewed. Tregilgus (1954) evaluated employee training programs in the laundry and dry cleaning industries of Indiana. The first part of the study dealt with the status of training within the industry; the second was an evaluation of the effectiveness of the training. He found that most employees received some training for their jobs. Route salesmen usually received longer and more intensive training

than other workers. Instructional materials were developed by the trainers. These materials were inadequate, yet the available teaching tools were not used. Little use was made of distributive education. The objectives of the training program usually were achieved and the program seemed to meet the needs of the industry. The training programs were considered worth their cost but should have been evaluated and modified to meet the changing needs of the industry. More attention should have been given to "human engineering." Cameron (1958) prepared a validated questionnaire which was sent to 276 department stores with annual sales volume in excess of $5,000,000 to examine policy and practices of training programs for potential executives. The abstract of his study provides more information on qualifications and recruitment practices than on training practices. The following conclusions related to training programs. Eighty-seven per cent of the stores recruited executive development trainees from in-service personnel. Eighty-three per cent of the stores required high school graduation for admission to the program. Forty-eight per cent of the respondents felt that their trainees' salaries were not competitive with those offered college graduates in other fields of work. There was little uniformity in the so-called job rotation plans of the participating stores and it would seem that the term "job rotation" was misused when trainees' assignments on any particular job extended over 12, 16, 20, 24, and 52 weeks. Sixty-two per cent of the respondents felt that their training efforts over the previous five years had not produced a sufficient quantity of qualified young management personnel. Peterson (1965) made a survey of the recommended and actual training practices for restaurant service personnel. Results of this study did not reach the reviewers in time to be included in this review.

Adult Education in
Small Communities

Chrismer (1960) attempted to determine the method and procedures for bringing adult distributive education to communities of 5,000 population or less. Information was obtained from the literature and from community surveys. Questionnaires were sent to all state supervisors of distributive education and to local leaders where significant activities were under way or contemplated. The researcher found that communities of less than 5,000 population had a definite need for adult distributive education. Chrismer concluded that (1) successful programs were possible in communities of this size; (2) state authorities should assist in planning programs; and (3) the most successful method to reach small communities is through the use of itinerant teachers.

Ruth (1966) conducted a study to determine the factors needed to improve the quality and scope of adult distributive education in the State of Ohio and to identify some of the basic problems in the organization and development of adult distributive education. He concluded that trade associations and chambers of commerce are interested in promoting adult distributive education and would be interested in expanding much more effort if they had an explanation of the adult program and local directors of the program were active. He further concluded that the prime reason for success of local adult distributive education programs was the fact that the coordinator was devoting more than 10 per cent of his time to this aspect of the distributive education program.

INSTRUCTIONAL MATERIALS AND DEVICES

The amount of research on instructional materials and devices seems small in relation to that done on problems associated with the curriculum, instructional methods, and guidance. Research in this area is primarily composed of master's degree studies. One reason for this situation may be that distributive education is still relatively young and problems relating to instructional materials have been absorbed into those of curriculum development. Under the leadership of the State Department of Education, many states produce curriculum guides and courses of study which embrace instructional materials, methods, and devices. Superior teacher-coordinators are frequently employed to prepare materials or the materials are produced in workshops. Another factor in the low productivity of this kind of research may be the current tendency to think of content, materials, and methods as a trinity rather than as separate aspects of instructional preparation.

The material that follows will be discussed under two broad headings--teacher materials and devices and student materials. The line of demarcation between them may not always be clear, but this division will serve satisfactorily as an organizational pattern for this discussion.

Teacher Materials and Devices

State Courses of Study

The amount of material produced and distributed by vocational education divisions of state departments of education is abundant. Some states support research staffs which work closely with local

distributive education personnel in the production of instructional materials. To identify the states that produce excellent materials is inappropriate here and would consume considerable space. The only research reviewed that treated state courses of study was conducted by Raeker (1959) who analyzed distributive education courses of study from 15 states according to content, organization, typographical form, and other physical features. He found little consistency in terminology and little similarity in the style and content. Some states showed little regard for a consistent format among their own publications. No single method of duplicating or binding prevailed.

Source Lists

Without doubt, the most widely used general source list for distributive educators was the Distributive Education Bibliography first produced in 1954 under the direction of Mrs. Pauline Burbrink at the University of Texas, Division of Extension, Austin, Texas. Supplements were issued in 1957, 1959, and 1961. The most recent publication of this kind to receive wide distribution is that of Levendowski (1966). Robert E. Smith (1956) surveyed the existing sources of films and filmstrips to locate materials pertaining to distributive education. He reviewed and evaluated the material that he located, prepared a resource file indicating the areas of study in which the films could be used to best advantage, and described some of the problems encountered by teachers in their use. Arnold (1959) prepared an annotated bibliography of periodical articles appearing in eight widely used business and vocational education periodicals during the years 1947 through 1958. The bibliography was a comprehensive review of 565 articles briefly annotated. The information

was later used in the preparation of a publication entitled, An Annotated Bibliography of Periodical Literature Relating to Distributive Education 1947-61 by Arnold, Poland, Meyer, and Haines, which was distributed by the Office of Publications, College of Education, Michigan State University.

Care and Storage of Materials

Two master's degree studies dealt with the care and storage of materials. Figge (1957) devised a filing system for teacher-coordinators which was a modification of the Veridex system. Duxstad (1963) devised a system for clipping and storing articles from trade magazines.

Achievement Tests

Achievement tests are discussed elsewhere in this review: however, they warrant mentioning here to identify them with teacher materials and devices. Callister (1966) prepared an achievement test for a unit on sales promotion. Ashmun (1966) prepared an achievement test for a post-high school unit on business problems as part of a doctoral dissertation.

Student Materials

For discussion purposes, student materials will be divided into four categories: textbook related studies, audio-visual materials, and individual study materials and group instruction materials.

Textbook Related Studies

Pope (1959) did a study of the reliability of salesmanship, merchandising and retailing textbooks. A summary of the study was

not immediately available for review. Harris (1959) studied course content and evaluated distributive education textbooks. He sent questionnaires to 360 teacher-coordinators in 48 states and received 142 replies. He found that 39 different textbooks were considered basic. His findings related to the composition of the books, the content areas, the end-of-chapter activities, format, and other mechanical features. A study by Flannery (1961) included the collection of data on textbooks used in distributive education classes in Illinois, Iowa, Minnesota, and Nebraska.

Audio-Visual Materials

Studies dealing with audio-visual materials were completed by Wheeler (1961), Christianson and Lorenz (1957), and Anderson (1965). These studies are reported on page 64 under the heading Resource Characteristics.

Individual Study Materials

White (1958), Fuerst (1959), Kohns (1963), Embertson (1965), Goodenough (1965), and Russell (1966) worked in the area of individual study materials. Their findings are described on page 65 under the heading Resource Characteristics.

Group Instruction Materials

Case problems, business games, and role-playing situations were studied by Ashmun (1961), McClanahan (1964), Kieffer (1959), Mayer and Goldstein (1961), and Hinsverk (1963). These group instructional material studies are reported on pages 64 and 66 under the heading Resource Characteristics.

LEARNING PROCESSES AND TEACHING METHODS

Teaching methods, particularly as they apply to "non-cooperative" secondary school distributive education students, have taken the spotlight during the past few years. Many distributive educators are presently concerned about maintaining the vocationality of the instruction of students who are not concurrently employed. Evidence of this concernment was reflected by Marks (1963) who delivered a paper which spelled out means of providing for the development of vocational competencies of students in occupational preparatory classes as this task was conceived by the Distributive Education Service of the U.S. Office of Education. This apprehension about maintaining the vocationality of instruction is only one of several instructional situations which are related to similar problems throughout secondary and post-secondary educational fields.

There seems to be increasing concern about instructional and teaching methods which is not confined to distributive education. In describing the present interest in educational methods, Phillips (1966) shed some light on factors which stimulate the distributive educators' interest in this subject. He pointed out that until recently few educators made a sharp distinction between a curriculum and the means of achieving its goals; it was assumed that the essential ingredients were simply the teacher and the curriculum guide and that the teacher, with a few "aids," would implement the curriculum. The concept that instructional and learning materials are mere aids to ongoing instruction has come under even more searching analysis. He raised the question whether the materials are "aids"

or are "indispensables," and whether or not a coherent body of learning resources should be designed concurrently with a new curriculum to make possible its implementation.

Another influence on teaching methods in distributive education which sounds a familiar chord to readers associated with managerial training is the instructional-systems concept. Phillips described the systems approach to education as follows:

> The fundamental question underlying the systems concept is: Which resource or combination of resources (people, places, media) is appropriate for teaching what type of subject matter to what learners under what conditions (time, place, size of group, and so on) to achieve what purpose?[1]

Vander Meer (1964) pointed out that differing views would inevitably lead to different systems because an analysis must begin with a specification of goals. Since system design requires an analysis of the system's components, the characteristics of the different resources must be studied in order to combine them into meaningful subsystems of the larger systems called "the school" and "education."

Finn (1963) indicated that there are two concomitant developments taking place--one, a technology associated with mass instruction, the other a technology associated with individualized instruction--and that these two technologies are being united into an all-encompassing instructional technology. Distributive education manifests this problem of blending individual and mass technologies in its life-long debate over the allocation of time to be devoted to individual and group instruction in the classroom. The issue in distributive

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[1]Phillips, Murray G., "Learning Materials and Their Implementation," Review of Educational Research. 36:374: June, 1966.

education has not been a matter of one or the other but rather how much of each should be allocated in a given situation.

Inasmuch as the systems approach to learning has an appeal which bridges education and business, it seems reasonable to use it as a model for the organization of a discussion of research pertaining to the learning process and teaching methods in distributive education. It appears that in distributive education, a distinguishable approach to instruction has emerged which may be analyzed along the lines of the components used in systems analysis: (1) learner characteristics, (2) resource characteristics, (3) teacher characteristics, (4) instructional methodology, and (5) administrative problems.

Learner Characteristics

Much has been said about the characteristics of high school and post-high school distributive education students but very little research has been done to support these descriptions. C. Mills (1964) made observations of high school students based on a nation-wide sample of 85 schools in 28 states. He found that more than 80 per cent of the cooperative program students have mental maturity scores between 85 and 114; six per cent have scores below 85; more than 70 per cent of these students ranked in the lower two quartiles of their respective classes for all three years of the study, which included the years 1954-55, 57-58, and 60-61. The study indicated that the achievement of distributive education cooperative high school students compared favorably with their abilities as reflected in their mental maturity scores and that there was a greater tendency for them to complete high school than their fellow students. Lucas (1964) gathered data on 44

students in the Ohio Wholesale Management Program. He found a strong relationship between the grade-point average of these students and their American College Testing scores as well as their high school rank. He concluded that allowance should be made for possible delayed maturity and increased motivation of certain students. These recommendations provide some clues to the characteristics of these students.

Schadt (1965) compared creativity test scores of Kenosha Technical Institute marketing majors with students majoring in secretarial science, data processing, and accounting. He found that marketing students had the highest over-all level of creativity among the four groups as measured by the test and that second-year students scored higher than first-year students. He recommended the use of creative-type teaching methods for these students.

Leister (1964) compared 218 Dallas, Texas, distributive education high school students with 218 non-distributive education students using cumulative records and employer reports. She found that the existing health problems of the students of the two groups tended to be similar but that the distributive education students were reported to have visited the school clinic more frequently than other students. She also found that the families of the distributive education students were significantly larger, that more of them were married, and that the number of them who lived with their parents was significantly smaller than the group representing the general high school population.

Occupational orientation of distributive education students may be gleaned from the Warmke study (1960) and the Harris study (1965). A cardinal principle of guidance in distributive education at the

secondary and post-secondary levels is the necessity of the student's possessing proper occupational aptitudes and interests, yet little research on this learner characteristic was located. In a survey of 515 distributive education students in 15 Iowa high schools, Reed (1957) found that 77.7 per cent enrolled because they wanted work experience.

Rountree (1965) conducted a well-designed study of the attitudes of 191 North Carolina distributive education high school students to determine their attitudes toward classroom instruction, their work experience, and toward careers in distribution. (A modified version of a summated rating scale, providing for both objective and subjective responses, was used to determine student attitudes. Validity was determined by internal consistency and logical or curricular methods. The split-halves method was used to determine reliability. Use of a scoring key insured objectivity.) On the classroom instruction scale, 91 per cent of the students scored above the 75. On the work experience scale, 87 per cent scored above 75. On the careers in distribution scale, 78 per cent scored above this figure.

Studies by Rosenwinkel (1957), Wiklund (1958), and Johnson (1958) mentioned earlier, which identified the problems of beginning student-trainees in cooperative programs, provide some clues to the characteristics of high school learners. Apparently the adult distributive education student is almost a forgotten man in recent research on learner characteristics since only one study was classified in this category, that of Lombard (1955), a sociologist rather than an educator.

No description of learner characteristics would be complete without some discussion of the influence of the employed worker's job environment on his behavior as a learner, for in the understanding of the work situation lies the clues to the solution of many pedagogical problems. Whether or not an employed student is willing and able to apply what he learns in the classroom depends on his value system, on volition, and on the will of the employee group of which he is a member. As Lombard revealed in his report, Behavior in a Selling Group, much also depends on the kind of supervision he experiences. In most classes, each member brings to class with him the influence of a different occupational setting. Lombard provides an excellent description of individual values and occupational group environments which contribute to learner behavior.

Resource Characteristics

Numerous rich resources for learning and teaching materials have characterized distributive education since its inception. Virtually born in a real-life occupational environment, the instructional problems until recently were largely those of optimal use of cooperative training stations as the major problem and intelligent use of the model stores and individual learning aids as important concerns bearing on learning a job and an occupation. Recent provision for federal reimbursement of pre-employment instruction has increased the use of the model store. Emphasis on occupational competencies has revitalized individual study and brought to light new competencies which can best be developed through club activities. The discussion of resource characteristics to follow will center around (1) classroom resources, (2) job and community resources, and (3) student club resources.

Classroom Resources

The near dearth of literature on physical facilities in distributive education may be partially attributed to the dominance of cooperative education and the early notion that a model store is not necessary under the cooperative plan. Only a half-dozen studies treating the model store and school stores were located, three of these being devoted primarily to the subject. The discussion of physical facilities at this time will be limited to their use as a learning resource. Other facets of the subject will be discussed later.

Model Stores and School Stores

Peart (1961) examined the objectives of high school and junior college facilities for distributive education and analyzed practices in their use. From the standpoint of instructional resources, he concluded that (1) lists of implemental activities, ranked according to relative importance, provide a more reliable basis for an evaluation of the utilization of a classroom laboratory than do lists of objectives: (2) the laboratory may serve as an appropriate supplement to occupational experience; (3) it provides students with an opportunity to perform as many different tasks as their interests and abilities warrant: and (4) that it provides facilities for properly demonstrating basic skills and information. Peart also concluded that the classroom laboratory cannot be considered a substitute for cooperative occupational experience and that the coordinator should give high priority to the practice of maintaining standards of workmanship and productivity comparable to those in the business community and to adjusting the operations to meet the changing conditions in business establishments. Dorr (1962) included in his case studies of weaknesses in coordination

practices a case on failure to make maximum use of training opportunities afforded by the retail classroom laboratory. This provides a clue to an important problem in relation to physical facilities. Warmke (1960) reported that 80 per cent of the distributive education leaders in the United States thought that the distributive education classroom should have a model store unit.

Yormark (1960) evaluated school-operated stores in the State of Washington. He found that these student-operated businesses within the school were valuable tools of instruction in developing salesmanship skills but that there are weaknesses and shortcomings in their use. He listed as shortcomings the lure of profits for club projects and the temptation to develop a large-scale operation. He cautioned that the store should be considered in perspective to other enrichment techniques and that a school store without a clear-cut statement of policy can cause misunderstanding and community resentment. He concluded that a store which does not have formal systems of organization, buying, pricing, receiving, and accounting cannot be considered a realistic laboratory for retail training.

Audio-Visual Materials

Nesser (1961) studied the training practices of 100 department stores and found that manuals, movies, textbooks, and filmstrips were the most popular teaching aids used. Clark and Sloan (1962) reported a similar sequence. The use of more audio-visual materials that are up-to-date was 10th in a list of 28 distributive education students as reported by Donaldson (1958). Films and other forms of audio-visual materials are frequently used in distributive education classrooms at all instructional levels, yet little research has been reported in

this area by distributive educators during the past decade. The only work reported was the preparation of poster boards and scripts for three filmstrips on suggested methods of solving human relations problems by Wheeler (1961) and the preparation of similar materials for seven filmstrips on retail selling for high school and post-high school student viewers by Christianson and Lorenz (1957). The latter series was made into a series of sound filmstrips with the aid of Sears Roebuck Foundation funds. V. Anderson (1965) produced a set of slides with accompanying sound as a substitute for a field trip to the local newspaper plant. In summary, the only research on the use of audio-visual materials reported relates to student preferences concerning instructional methods.

Business Games

The preparation and testing of business games for post-secondary and secondary school classes is a refreshing innovation in distributive education research. Ashmun (1961) prepared and tried out a non-computer business game to teach post-secondary students the mathematical relationships in a business operation. He concluded that the game was not only useful in teaching this subject matter but that it helped to develop certain important business attitudes. McClanahan (1964) used a similar game on the same kind of subject matter at the high school level and reported favorable results.

Case Problems

Case problems continue to be a popular source of instructional material; however, the quantity of materials of this kind based on research is very limited. Kieffer (1959) prepared 20 case problems for

teaching human relations to high school and post-high school distributive education students. Mayer and Goldstein (1961) included some excellent case problems in the Small Business Administration publication, The First Two Years: Problems of Small Firm Growth and Survival.

Job Study Guides

The preparation of job study guides to meet degree research requirements seems to have waned in recent years. White (1958) prepared several guides in the women's ready-to-wear field. Fuerst (1959) prepared individual study guides for jobs in retailing paint and wallpaper. In light of the current interest in programed instruction and the advantage of the program's being a self-contained instructional unit, we may expect the trend to be toward programed instruction in fulfilling the need for individual study of merchandise information.

Programed Instructional Materials

Although large retail firms such as Sears Roebuck and Montgomery Ward use programed instruction in teaching store system, the amount of material programed by distributive educators is small. Kohns (1963) programed instruction in the use of the Coit pen in showcard lettering and invented a view-box for testing the accuracy of the lettering. Goodenough (1965) prepared auto-instructional material on pricing and profits which he used in an experimental study of the relative effectiveness of programed instruction. Embertson (1965) prepared a linear auto-instructional program in money handling and the use of the cash register for the distributive education student. Hartzler produced a programed textbook in salesmanship for adults which was used in an experiment directed by Russell (1966). Experimental work with programed instruction will be described later in this review.

Role-Playing Problem Situations

Role-playing situations were developed in only one study reported. Hinsverk (1963) reviewed the literature on role-playing, surveyed the ways it was used in Minnesota, and developed 21 role-playing problem situations on employer-employee and co-worker relations. Harrison (1957) investigated the importance of role-playing in developing an employable personality.

Material for Students With Special Needs

A curriculum guide for teachers of marketing and distribution, entitled Basic Instruction for Personal Employability, was prepared under contract for the U.S. Office of Education (1965). Although no mention is made of supporting research, current interest in this content field and the composition of this document seem to warrant its being called to the reader's attention in this review.

Facilities for the Care and Use of Printed Materials

Two studies have dealt with the preparation for use and care of printed material, a difficult problem for many distributive educators. Figge (1957) tried out several filing procedures and prepared a system of classifying and filing bulletins, pamphlets, and other reference materials. Duxstad (1963) devised a system for preparing, indexing, and filing trade magazine articles.

Job and Community Resources

The business community continues to be a rich source for instructional content. Numerous studies described in this review under the section on curriculum development illustrate the various kinds of

subject-matter content derived from employers, employees, customers, and others associated with the business community. However, no mention has yet been made of the use of the job and the community as a laboratory for distributive education classes. The following discussion will deal with this aspect of the distributive education program.

The Value of Occupational Experience

For a very large majority of the students, occupational experience is very beneficial in their preparation for careers in distribution. Bicanich (1964) reported that Minnesota distributive education students ranked the effectiveness of co-workers, training-sponsors, and on-the-job training very high. Dorn (1961) found that South Carolina graduates of high school distributive education programs rated on-the-job training excellent. Henkel (1965) found that graduates of Wisconsin post-high school marketing programs who worked in marketing related fields felt that their work experience had been of benefit to them in their full-time employment since graduation. Hermanstorfer (1962) interrogated Iowa school superintendents who reported that cooperative programs are definitely worthwhile and deserve an increasingly important place in the curriculum of their high schools. Jones (1957) found that Pennsylvania high school principals believed that coordinator and student contacts with merchants were important factors in improving public relations with the business community.

Needed Improvement in On-The-Job Experiences

Insufficient research has been done on the on-the-job experiences of cooperative program student-workers. That much improvement is needed in this phase of cooperative education is indicated by the fact that six of the 14 case-problems on weaknesses in coordinating practices collected by Dorr (1962) related to situations on the job--two pertain to planned coordination calls, two to training-sponsors, and two to the selection of training stations. Perhaps the most comprehensive study of the occupational training segment of cooperative education at the high school level was done by Gradoni (1957) who investigated 14 programs and 157 training stations in New York State. He concluded that: (1) increased merchant support, adjusted work schedules, and better use of participating training stations could minimize the problems created by the seasonal nature of retailing and the need for continuity in work experience; (2) the use of advisory committees should result in better coordination between program activities and community employment needs; (3) all trainees should obtain required work experience; (4) teacher-coordinators should make greater use of specialized instructional techniques particularly suited to cooperative work experience; (5) the time allotted for coordination duties should be devoted to such work, and school officials should require written coordination reports; (6) many training station problems could be avoided by the use of written training agreements; and (7) school personnel should assist merchants in developing more effective methods for evaluating trainee and graduate work performance.

Distributive Occupational
Adjustment Sources

Perhaps one of the most active areas of distributive education research in the years ahead will be occupational adjustment. Reference was made earlier to the following studies which relate to this field: Lombard (1955), Clark and Sloan (1962), Rosenwinkel (1957), Johnson (1958), and Wiklund (1958).

Club Resources

Although the Distributive Education Clubs of America membership has experienced excellent growth and is highly regarded in most states as an integral part of the distributive education program, very few research studies dealing with clubs and co-curricular activities were located. At the time of the Warmke study (1960), 82 per cent of the nation's distributive education leaders indicated that the primary purpose of the distributive education club should be educational. Two-thirds of them believed that post-high school distributive education students should be permitted membership in DECA but felt a separate section with its own objectives should be established. Bicanich (1964) reported that 88 per cent of Minnesota high school distributive education students rated the club as being important to the distributive education program and approximately 80 per cent of them felt that the club was of personal benefit to them. His study also showed that students belonging to distributive education clubs were better satisfied with the distributive education program. Henkel (1965) found that the majority of the respondents in a survey of graduates of Wisconsin post-high school marketing programs felt that participation in club activities had been of benefit to them in the

following ways: (1) it improved their ability to meet and deal with people effectively, (2) it developed leadership abilities, (3) it helped them improve their self-expression, (4) it helped them develop self-confidence, and (5) it provided them with a better knowledge of marketing.

Samson's study of critical requirements of Iowa distributive education teacher-coordinators (1964) revealed eight effective and eight ineffective behaviors in the category, "Direction of Club Program and Project." The effective behaviors are as follows: (1) assists student in DECA projects and actively aids and trains them in preparation for contests, (2) provides suggestions for fund-raising activities and helps students carry out projects, (3) exercises personal control over some club activities and forcibly directs students' participation in some functions, (4) assists in the club's organization and administration but allows students to make operational decisions, (5) promotes the club program and its activities through banquets, blazers, recognition events, and all school involvement, (7) informs students of conduct expected at leadership conferences and enforces compliance, and (8) enters into club meetings and social activities as leader and participant.

M. Buckner (1964) prepared a student handbook for the Florida Association of Distributive Education Clubs of America drawn from information found in materials from 11 states and from a survey of the opinions of 32 Florida teacher-coordinators. Robeck (1956) recommended a procedure for evaluating all kinds of cooperative education clubs in Minnesota. A number of effective distributive education practices related to the club were listed in the Ovsiew directed study (1960).

McGee (1965) studied the problems of beginning teachers in 13 states and found the following difficulties relating to community activities: (1) getting participation in club activities, (2) effectively conducting all contests sponsored by DECA, and (3) getting students interested in club work.

Cottrell (1966) devoted an entire study to factors influencing student participation in distributive education clubs in Minnesota. He came to the following conclusions: (1) club activities are a necessary and valuable part of the total distributive education program; (2) coordinators do not clearly understand the goals and objectives of the distributive education club; (3) the cooperative education program does reduce participation in extra-curricular activities other than the distributive education club; (4) students need to participate in an organization in order to develop effectively certain skills; (5) administrative policies in some schools prevent clubs from using selling activities for fund-raising purposes; (6) a large number of coordinators really do not understand their students' opinions and attitudes; (7) many coordinators are perplexed by the role of the coordinator in club activities; (8) many prospective students are not effectively introduced to the club program; (9) some students need encouragement to participate in various club activities and their coordinators do not know how to motivate them; and (10) more effective methods of publicity and promotion are needed on the local, state, and national levels.

Teacher Characteristics

Teacher characteristics and teacher-coordinator qualifications for various distributive education positions have been controversial topics since the inception of the program and have been researched relatively often. It was recognized from the outset that a certain amount of experience in distributive occupations, a certain amount of course work in the content field, and a certain amount of professional education are necessary to insure sufficient competency to direct the learning of students in distributive education classes. Since no measure of teaching effectiveness has been agreed upon, research has been limited to surveys of the opinions of various authorities in business and in education and to tabulations of state plan certification requirements. Consequently, findings vary widely.

In addition to occupational and educational requirements, certain personal characteristics are needed for successful teaching in various distributive education positions. Administrators, supervisors, and teacher educators have been concerned about the identification and development of these traits, and research is being carried on to find answers to problems in this area of study. To summarize the results of research on either certification requirements or personal qualifications would be very difficult. Therefore, these studies will be described briefly and only occasional findings will be discussed.

Certification Requirements

The Emick study (1936) gives a complete description of secondary school teachers of cooperative retail selling classes including institutional preparation, majors, minors, graduate majors and minors,

teaching experience, business experience, certificates held, professional activities, and teaching load. While the figures are of little current value, the scope and depth of the report makes reading it worthwhile. Keeling (1946) did a descriptive study of the distributive education coordinator. Another earlier analysis of the activities of distributive education coordinators of federally-reimbursable high school programs was made by Cassady (1950) based on Illinois personnel. Willis (1954) gathered data from state plans, correspondence, and personal interviews on certification requirements throughout the United States and compared them with the opinions of a jury of experts. She found great variation in certification requirements for teacher-coordinators and some variation between existing certification requirements and those recommended by the jury.

Warmke (1960) studied 10 minimum requirements for eight distributive education positions (adult instructor, evening-school coordinator, area supervisor, state supervisor, and teacher educator) by surveying the opinions of more than 50 carefully selected leaders. Means, modes, and standard deviations were calculated for general professional education, specific professional education, technical education, full-time occupational experience, part-time occupational experience, supervised occupational experience, student teaching, and previous teaching experience. The leaders felt that objective requirements could never serve as the complete answer in selecting distributive education personnel, that high standards are difficult to maintain but are imperative, and that distributive education teachers were better qualified than previously. The majority (58 per cent) of the respondents considered the minimum requirements issue to be of major

importance in determining effective operating procedures in distributive education; 35 per cent considered the issue as crucial.

Personal Characteristics

Personal characteristics are implicit in the lists of effective and ineffective behaviors of Iowa distributive education teacher-coordinators in the Samson study (1964). Each of the 127 critical requirements relates to a personal characteristic. For examples of critical behaviors, refer to the discussion of club resources on page 69. Samson collected 1,548 usable critical incidents which produced 1,574 critical behaviors. These behaviors were classified into six areas of distributive education teacher-coordinator responsibility as follows:

I. Student Discipline and Control

II. Direction of Club Program and Projects

III. Administration and Operation of the Program

IV. Instructional Activities

V. Coordination

VI. Personal and Professional Relationships

A stereotype of an Iowa teacher-coordinator may be discerned from studying the effective and ineffective behaviors. Generalization to characteristics in other states depends on the degree of similarity of the population of the sample and the group for which the generalization is to be made.

Harris (1965) compared Illinois distributive and office occupations teacher-coordinators on the basis of critical requirements and on reasoned-judgment responses to 20 selected issues treated in the Warmke study (1960). Sixty-one critical requirements were delineated for the

distributive education coordinator and 16 for office education teacher-coordinators. The Illinois office education and distributive education teacher-coordinator groups were in closer agreement with each other than either group was in agreement with the national leaders of distributive education of 1959 in their responses to a majority of the selected issues. One may speculate as to whether this is a function of supervision and training or of the time interval between the gatherings of the data.

Instructional Methodology

In order to comprehend the instructional methodology of distributive education, one must first understand the characteristics of the competencies required in distributive occupations. Although the distributive occupations are numerous and diverse in nature, there are certain competencies which, in the minds of many practitioners and seasoned educators, distinguish them from other occupational groups. No research was located which confirms this belief. However, the studies which inventory distributive education teaching methods reveal a pattern of instructional methods which are easily identifiable. This pattern of instructional methodology has developed empirically out of teaching experiences in a field which, through the years, has been closely attached to the occupations it serves. Nearly all distributive educators agree that most distributive occupations do not require a high degree of manipulative skill and that a large number deal with the use of factual information, choice-making among numerous variables, the use of good judgment, and decision-making abilities. Many of them involve contact with customers and numerous co-workers. Effective domain outcomes are usually very important, and so on.

The review of research which follows immediately will describe the studies which treat distributive education instructional methodology in general--the kind of teaching methods used, preferences of learners, and so on. Thereafter, studies dealing with particular methods and learning devices will be discussed.

Instructional Practices

Instructional practices have not changed a great deal through three decades, probably because of the prevalence of accompanying occupational experience. As in other aspects of the program, the earliest research to come to the readers' attention was the Emick study (1936) which dealt with data collected during the school year 1932-33. The rank order of the methods of presenting subject matter was as follows: (1) discussion of problems encountered by the students in their store practice; (2) demonstration sales by the pupil; (3) text or reference assignments and subsequent class discussion; (4) the assignment of problems; (5) group discussion of assigned problems; (6) addresses by businessmen, store managers, personnel directors, and others; (7) lectures by the teachers; and (8) demonstration sales by the teacher. Emick explains that problems may take any number of forms, the most common one being the preparation of project books or merchandise manuals. He generalized by saying that the training in most schools was being offered from a practical rather than a theoretical standpoint as indicated by two facts: (1) the methods under which the teacher plays an important part either by demonstrating sales or by lecturing are infrequently mentioned, and (2) methods under which pupil learning activities are emphasized are frequently mentioned. Other methods mentioned were trips to stores, dramatizations, special

merchandise reports, student reports on merchandise research, reading trade journals, moving pictures, getting merchandise information from producers, reading store manuals, preparing job manuals, tests of materials, reports on interviews with store executives, writing of special sales manuals, and use of the contract plans. The methods most frequently mentioned were also those found to be most successful by the teachers responding to the inquiry. Practices varied in regard to the amount of time when pupil's store experiences were discussed.

Weale (1950) gathered information on the effectiveness of teaching methods reported by 40 New York State "coordinator-instructors." The rank order was as follows: (1) demonstration, (2) discussion, (3) field trips, (4) films, (5) oral reports, (6) speakers, (7) project manuals, (8) case method, (9) lecture, (10) workbooks, and (11) diaries. Donaldson (1958) had several hundred Illinois students rate 25 classroom activities. The first 12 were as follows: (1) talks by businessmen, (2) giving sales demonstrations, (3) movies, (4) discussion of job problems, (5) discussion of text material, (6) field trips to other communities during class time, (7) field trips to local community during class time, (8) individual conferences with the teacher about job and other problems, (9) taking objective examinations, (10) observing sales demonstrations in class, (11) putting in window displays, and (12) viewing sound-slide films.

As a result of a study of the recognized needs of independent retail store owners in selected California cities, Kunsemiller (1962) drew several conclusions relating to instructional methodology. They were: (1) a management program for small businessmen should develop a broad range of interests in preference to over-specialization; (2) education for small businessmen should develop analytical abilities and

discriminatory capacities of conceptualization; and (3) teaching methods involving case problems, management games, and role-playing should be expanded. Johansen (1963) concluded that on the basis of the National Study of Secondary School Evaluation there were major strengths in the area of instruction in Iowa distributive education programs; there were major weaknesses in instructional materials; and there were major strengths in the area of methods of student evaluation and appraisal. The list of 25 effective and 14 ineffective instructional activities in Samson's critical requirements study (1964) warrant careful study by scholars in educational methodology because of the emphasis on individualized assistance in learning. The first four effective behaviors were: (1) counsels with students and provides individual help on problems connected with jobs, training-sponsors, or other related actions; (2) gives special training to individual students, building up skills in necessary areas, and providing suggestions on how to improve classwork; (3) conducts individual conferences with students on their personal problems or behaviors (grooming, personality, attitude, etc.); and (4) counsels with students on educational plans, encourages them to continue their education and not to drop out. Harris (1965) developed similar lists and found that the same kind of critical requirements, for example, (1) holds conferences with students who need improvement and provides them with positive suggestions for improving, and (2) effectively utilizes the resources of local business establishments to supplement the instructional facilities of the school.

Instructional Methods and Devices

Very little research on instructional methods and devices has been done other than frequency counts of the methods used and preferences for various methods. Perhaps the most important reasons for this situation are the lack of proper conditions for methods experiments, the absence of measuring instruments which actually measure the proper desired outcomes, and the lack of sophistication in educational research design and use of statistical tools on the part of researchers up to this time. While a number of studies deal with the production of materials for use by teachers in administering an instructional method such as the case problem, less than a dozen investigations treat the value of one method as compared to another in a given instructional situation or actually pursue the techniques of administering a method. The discussion that follows includes studies on the value of an instructional method, the construction of teaching devices, the use of projects, and the measurement of instructional outcomes.

Business Games

Perhaps it was Ashmun (1966) who did the first purely experimental study in distributive education. He compared the effectiveness of a non-computer business game in teaching post-high school students mathematical relationships in a business operation with a traditional lecture-discussion method. A three-way analysis of variance was used. He found that students taught with the use of the business game obtained higher mean scores on a test constructed for the purpose with a probability of greater than .10 but less than .05 that the difference was attributed to chance. Higher-ability students as

measured by American College Test scores in both experimental and control groups did better than low-ability students. Fourteenth-year students obtained higher, but not significantly higher, mean scores on the unit achievement test than did thirteenth-year students. The students who participated in the business game reacted in a highly favorable manner to this instructional method.

Retail Merchandising Conference

Kokjer (1951) did a doctoral study on the retail merchandising conference as a technique in distributive education. (Results of the study are not included in this review because materials were not available for examination in time for publication.)

Programed Instruction

Kohns (1963) used programed instruction and a "viewbox" which he designed for self-evaluation of showcards, to teach Coit's pen lettering. He concluded that the students mastered the skill in 15 hours as compared to 25 hours when the machines were not used. He concluded that students could better acquire lettering skills at their own best rate of learning, that the machines provide immediate learning reinforcement without fear of subjective teacher criticism, and that the student is better motivated in that clear-cut learning goals are presented by the programed instruction.

In a master's paper, Goodenough (1965) compared the relative effectiveness of the auto-instructional method with the lecture-discussion method in teaching the mathematics of pricing and profits. A t-test was used to test the significance of the differences between mean scores of experimental and control groups on a unit test and on

the final examination for the course. The difference was not significant at the .05 level of confidence although the instruction seemed to be as effective as the conventional method. Student opinions regarding the auto-instructional materials revealed a cooperative attitude and general approval of the use of the material and an appreciation for being able to work at their own speed and to see and correct their own mistakes.

As mentioned earlier, Embertson (1965) constructed an auto-instructional program in money handling and the use of the cash register. From the methodological viewpoint, his contribution lies in the procedure he used in constructing the program.

Clark and Sloan (1962) pointed up the value of teaching machines to many merchants who cannot afford an educational program, even though the need for one is recognized. Seven pages of their small book is devoted to a discussion of teaching machines in stores.

The most recent study of programed instruction to be reported was done by F. E. Hartzler under the direction of Russell (1966). The purpose of this study, which was funded through the Small Contract Program of the Cooperative Research Branch of the U.S. Office of Education, was to develop a programed text in salesmanship for testing feasibility in adult education. It was the impression of the investigator that the program was very successful and the college printed an additional one thousand manuals at its own expense in order to continue the program. The summary of the report indicated that this type of program is particularly useful in areas of sparse population and wide geographical range.

Role-Playing

Earlier it was mentioned that Hinsverk (1963) developed a score of situations suitable for role-playing. Prior to doing so, he conducted a survey of Minnesota teacher-coordinators to determine the extensiveness and frequency of use of this method in teaching employer-employee and co-worker relations to distributive education students, and to determine the kinds of problems encountered in teaching this material. He found that they were using role-playing to teach salesmanship but not often as a means of teaching employer-employee and co-worker relations. He also found that the teaching problem causing the most difficulty was that students are inexperienced and do not know how to involve themselves adequately. He recommended that role-playing be used only after careful consideration of class objectives and that students should be encouraged to create role-playing situations from their own experiences rather than using a situation that they have not experienced.

Service Shopping Report

Bikkie (1957) designed a service shopping report for use in retail and service establishments and in education, either as a device to be used by students in shopping sales personnel for learning purposes or as an evaluative instrument to measure the student's performance in a sales situation. The study revealed the differences in desired sales practices of managements. For example, some firms desired strictly "soft-sell" methods and preferred that their sales force follow such practices.

Projects

Strongin (1965) designed a marketing research project and carried it out with members of her Oceanside (New York) High School chapter of DECA. The study dealt with supermarkets and self-service areas of Abraham and Strauss department store.

Measurement of Learner Achievement

Callister (1966) constructed a test to measure competencies in sales promotion--advertising display and public relations. He used a purposive sample of sales promotion specialists to identify needed entry occupations competencies. A panel of sales promotion specialists was used to determine course objectives, to construct a course outline, and to supply initial items for a 100-item objective type test. The use of open-end test questions in pilot tests were given to students to obtain appropriate distractors for multiple-choice items. This practice was not satisfactory. The test was administered in four schools to determine the difficulty level of the questions, the discriminatory factor of the questions, and the suitability of the questions for high school distributive education students.

The Administrative Factor

The last component of this section of the review and synthesis of research is the administrative factor. In a systems approach to educational problems, consideration is given to (1) system objectives, (2) to resources, and (3) to means of achieving the system objectives. In the preceding section on instructional methodology means of achieving the system goals and objectives via the instructional staff were

discussed; but the instructional staff is not the only group responsible for the character of the instruction. Those who administer the program also influence its character and, therefore, are an integral part of the description of the means of achieving objectives. Sometimes, as in cooperative education, a person has a combination of responsibilities which include a large measure of administrative responsibilities. The discussion that follows treats only those administrative aspects of distributive education that directly influence instruction.

Policy Making and Planning

Policy making and planning should start with the program's purposes and objectives. As indicated in the section on curriculum development, little research has been done to date in this area. Warmke (1960) used national leaders to react to the purposes of programs at the high school and post-high school levels when one or the other existed separately and when both were present. Two-thirds or more of the respondents expressed the preference that high school students should prepare for initial employment on specific jobs and that they should learn certain management concepts applicable to distributive occupations in general, whether or not a post-high vocational distributive occupations instruction was offered. When this kind of instruction is available in both the high school and the post-high school institution, 53 per cent of the respondents indicated that post-high school students should be prepared for initial employment on mid-management positions and that the concentration should be on learning management concepts. Opinions were divided on the purpose

of instruction for post-high school students when no vocational distributive occupations instruction is offered in the high school. Both Warmke (1960) and Harris (1965) collected opinions as to the eligibility of students for the high school program. A majority of the respondents were of the opinion that cooperative classes on the secondary school level should be open to those who want the instruction, are considered employable, and who plan to pursue a career in distribution. They also thought that college preparatory students should be allowed to enroll in high school cooperative distributive education classes if they are considered employable and plan to study distribution in college. More than 70 per cent of the respondents in the Warmke study were of the opinion that in either the high school or post-high school institutions classroom instruction and on-the-job experience are of equal importance. More than four-fifths of the same respondents felt that high school classroom instruction for cooperative student-trainees should be limited primarily to content specific to distribution, but with occasional instruction (when needed) in other subject areas such as English, mathematics, and social studies. Fifty-five per cent of them expressed the same opinion regarding the post-high school program. Other than this, there is little "scientific" evidence to back up the program's purposes and objectives. Gradoni (1957) concluded that aims and objectives must be restated in terms of the more immediate and measurable goals--a recommendation that still has not been fulfilled. Wilson (1963), over a period of several years, developed a cooperative program for a low-income community in Nebraska.

Follow-Up Studies of Graduates

Follow-up studies of distributive education graduates have been disappointing from the standpoint of providing verifiable information on instructional outcomes. Jones (1957) found that the lowest accomplishment with relation to the curriculum organization factor was reported in using follow-up studies of graduates as a guide to curriculum revision. However, Warmke (1960) found that distributive education leaders believed that follow-up of graduates and drop-outs were of sufficient value to justify the time and expense involved in conducting them.

Advisory Committees

In view of the small amount of valid supporting evidence from other sources, the advisory committee has come to serve as a consulting group on matters of local objectives and policy formation. Gradoni (1957) recommended that the use of advisory committees in New York State should result in better coordination between program activities and community employment needs. Warmke (1960) submitted 11 issues regarding advisory and steering committees to distributive education leaders to establish a number of beliefs about their value and use. Ovsiew (1960) listed 10 successful practices on the use of advisory committees.

Administering the Cooperative Program of On-The-Job Learning

Research on operating practices affecting the quality of learning that takes place on the job in cooperative programs appears in

relatively greater quantity. Unfortunately or fortunately, there seems to be a discrepancy between what leaders and administrators think ought to be done and what actually transpires. While the Gradoni study (1957) is based on only a single state at a given point in time, it serves to alert those responsible for program administration to the need for research. Gradoni recommended that the time allocated for coordination duties should be devoted to such work and that school officials should require written coordination reports. He concluded that (1) many training station problems could be avoided by the use of written training agreements, (2) school personnel should assist merchants in developing more effective methods for evaluating trainee work performance, and (3) increased merchant support, adjusted work schedules, and better use of participating training stations could minimize the problems created by the seasonal nature of retailing and the need for continuity in work experience.

In appraising the contribution of Ohio's cooperative program training stations, Barton (1960) found that (1) job assignment procedures for distributive education students did not comply with objectives established by the State Department of Education, (2) job rotation did not take place often, (3) job instruction procedures rarely satisfied the objectives, and (4) coordinators did not have the proper materials for related study. On the other hand, he found that evaluation procedures for distributive education student-trainees ordinarily did meet the objectives. These studies point to the need for administrative practices and devices to improve the quality of learning on the job.

Research on Hours and Wages for Cooperative Student-Trainees

Hours of work and wages of secondary school student-trainees has been a popular subject of inquiry from the program's beginning. Emick (1936) provided an inventory of wage and hour practices. Warmke (1960) and others provided information on pooled judgments of administrators, teacher educators, and coordinators on maximum and minimum hours a student should work, on using Saturday work to meet legal requirements, and on working during school holidays. Current information on these topics is important in instructional planning and in program administration. It is relatively tangible and easy to collect.

STUDENT PERSONNEL SERVICES

The number of distributive education research studies relating to secondary school guidance is relatively high but there are virtually none in the adult field. Within the area of guidance itself, the largest number of studies deal with the dissesmination of information--particularly occupational information. The first group of studies to be discussed in this section of the review will deal with a persistent problem--that of defining the guidance duties and responsibilities of the distributive education teacher-coordinator. Succeeding sections will deal with studies relating to five guidance functions: (1) the appraisal, evaluation, and selection function, (2) the information and dissemination function, (3) the counseling function, (4) the placement function, and (5) the follow-up function.

The Teacher-Coordinator's Role in Guidance

Although all teachers are said to have guidance functions to perform, the duties and responsibilities of a distributive education teacher-coordinator seem to be more extensive in most schools, largely because placement of cooperative program students in training positions in the business community is an integral part of his job. Problems arise as to what guidance, counseling, and personnel services he should be responsible for; which aspects of the appraisal service, the information service, or the counseling service he should share or participate in; which aspects of these responsibilities should be assigned to others; and so on. It is difficult to answer these and similar questions at this time with anything other than the opinions of qualified authorities.

Guidance, Counseling, and Personnel Service Tasks

Perhaps the most valuable list of the tasks of a distributive education teacher-coordinator at the present time is that compiled by Samson (1964) as a part of his critical requirements study of Iowa teacher-coordinators. While Samson did not establish a category for guidance tasks, they may be found in Category Three, Administration and Operation of the Program; Category Four, Instructional Activities; and Category Five, Coordination. Also, some of the tasks in Category Six, Personal and Professional Relationships, which relate to students, might be classified as being primarily guidance in nature. Harris (1965) prepared a similar list of critical requirements of teacher-coordinators of Illinois. In his study, guidance tasks are

listed under Category Two, Selection of Training Station and Placement Activities; Category Three, Evaluation and Selection of Students; Category Four, Personal and Professional Relationships; Category Five, Adjusting Student Training Station Performance Problems; and Category Six, Adjusting Student Problems. Earlier studies of the distributive education teacher-coordinator, such as those of Keeling (1946) and Cassady (1950), which the reviewers were unable to examine, undoubtedly deal with guidance duties as well as many others. This also is probably true for a recent study of New Mexico Coordinators by Lloyd (1965), which was unavailable before the deadline date for this report.

Role Conflicts

Helling (1963) used a questionnaire to study the role perceptions of Minnesota distributive education teacher-coordinators and guidance counselors. He listed 40 tasks and forced the respondents (more than 90 per cent in each group) to answer the question, "If only one person could handle the job, who should it be?" A chi-square statistic was used to determine if the two groups agreed in the direction of their voting and to determine whether or not a majority was significant in the group as a whole. Six tasks on which there was no agreement were (1) use of the Dictionary of Occupational Titles (D.O.T.) as well as other sources for interpretation to distributive education students, (2) first screening of applicants for the cooperative program, (3) counseling former cooperative program students, (4) assisting pupils in solving their educational problems pertinent to the cooperative program, (5) placement of students not in the

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distributive education program on jobs, and (6) responsibility for the cooperation of business personnel on "Career Days."

The Appraisal, Evaluation, and Selection Function

Gradoni (1957) concluded that in New York the confusion that existed regarding students' qualifications for cooperative work training had to be resolved through the joint efforts of school officials, coordinators, and employers. This question struck at the roots of the distributive education program; namely, the designation of the students to be served. Was the purpose of the program to be primarily vocational education, general education, or both? Later, Warmke (1960) obtained the opinions of the leaders in distributive education and found that on the secondary school level the program was for those who wanted the instruction, are considered employable, and who plan to pursue a career in distribution. Respondents indicated that college preparatory student should be allowed to enroll in high school cooperative distributive education classes if they are considered employable and plan to study distribution in college. Harris (1965) asked Illinois distributive education coordinators the same questions. The larger percentages of them responded in the same way but with less concern for the requirement that the students pursue a career in distribution. The requirement of employability seems to persist; thus, there is some commonly accepted basis for admission standards, although they may be broad.

Student Appraisal

Although many different kinds of tests have been administered to distributive and other vocational students during the past decade, little research work has been done which is designed particularly for young people who are considering careers in distribution. On the other hand, adult norms have been established for various kinds of distributive occupations on any number of tests.

Kunsemiller (1962) studied above-average and below-average independent retail store owners in selected California cities in terms of their management knowledge, procedures, problems, personality characteristics. He concluded that the Structured-Objective Rorschach test is potentially an additional means of obtaining information for student counseling and advising.

As mentioned earlier, Schadt (1965) found that marketing majors at Kenosha (Wisconsin) Technical Institute scored higher on the Minnesota Test of Creative Thinking, Abbreviated Form VII.

Wallace (1960) conducted a study to determine whether creative thinking ability contributed to high sales productivity for experienced female salespeople and whether it affected the amount of service the salesperson gave a customer. He found that (1) the mean scores of those employed in high-service departments were significantly higher than those employed in low-service departments; (2) mean scores of those with high sales productivity were significantly higher than low producers; (3) the performance of the group classified as low in both variables was considerably lower than the other groups in measured creativity while the high group in both variables obtained higher mean scores. There was no significant interaction between the two

variables and the differences between total mean scores were significant at the .05 level. Later, Wallace (1964) followed up his earlier study with a study of creative thinking as a factor in the performance of industrial salesmen. His subjects were 223 sales and marketing executives, division sales managers, industrial salesmen, and consumer salesmen employed by the Reynolds Metals Company. Using appropriate statistical tools on the data gathered, he arrived at the following conclusions: (1) top-level sales and marketing executives and certain industrial salesmen are more fluent and original in producing ideas than other members of the sales force; (2) top-level executives are more able to exercise curiosity in questioning and forming hypotheses about causes and consequences than are the others; (3) industrial salesmen with a relatively high degree of technical training and education are more prone to elaborate on ideas in pictorial or figural form than those without such training; and (4) salesmen ranked high in self-motivation are likely to be high in three kinds of creative thinking abilities--ideational fluency, originality, and figural or non-figural imagination.

Coffey (1949) studied characteristics determining success in non-selling positions in the distributive trades. He found that the Hoppock Job Satisfaction Scale had little validity when used on an occupationally immature group. Coffey's study included the use of the Tiffin and Lawsche Adaptability Test, Form B; a store arithmetic test and a store systems test constructed for the purpose, the Minnesota Clerical Test by Andrew and Patterson, and the Kuder Preference Record. (The findings are not clear.)

Student Evaluation

Emick (1936) inventoried the admission and selection procedures of 37 schools in 1932-33. Personal, mental, and physical standards (including size of the student) were tabulated and exceptions to the standards were listed. Kraushar (1956) examined the skills, knowledges, and personal characteristics of 100 randomly-selected cooperative secondary school student-trainees employed in retail department, variety, chain, and specialty stores. Student-trainees were classified into six occupational groups: cashier, delivery boy, sales boy or girl, shipping and receiving clerks, stock worker, and wrapper. Data was collected by interview, analysis of published sources, rating sheets, and job element check lists. The rating sheet and check list, which the cooperating employers helped devise, was divided into four efficiency factors, 11 personality factors, and one physical factor. Kraushar found that the personality factors outweighed efficiency factors by two to one and the one physical factor by 12 to one. The degree of general acceptance of student-trainees by their employers was 72 per cent.

C. Mills (1964) described the academic status of high school cooperative student-trainees throughout the United States in large, medium, and small schools. Academic status was measured in terms of mental maturity scores, rank in respective graduating class, and overall grade-point average. Included were the school years 1954-55, 1957-58, and 1960-61. He found that: 80 per cent of the student-trainees had mental maturity scores of between 85 and 114; six per cent had scores below 85. More than 70 per cent of these students ranked in the lower half of their classes. Eighty per cent carried

average or below-average grades for all three of the years studied. Their achievement compared favorably with their abilities as reflected in their mental maturity scores. There was a greater tendency for them to complete high school than for their fellow students. The variety of enrollment methods used to select these students, along with teacher-coordinator turnover, may affect the academic level of students enrolled.

Leister (1964) examined the cumulative health records, clinical referral forms, and employer reports on 218 student-trainees and on 218 other students in Dallas (Texas) senior high schools. She found that the health problems were similar but that the distributive education students had more uncorrected defects and visited the school clinic more frequently. She also found that the families of the distributive education students were larger than those of the families of the general school population and the number living with both natural parents was significantly smaller than that of the other group.

Lucas (1964) constructed a profile of the students in the Ohio Wholesale Management Development program using as his sources of information their cumulative information files, American College Test scores, student questionnaires, and wholesaler questionnaires. There was a high degree of relationship between the student's grade-point average and his American College Test scores and high school percentiles. Lucas recommended that allowances should be made for possible delayed maturity and increased motivation of certain students.

Hartzler (1964) compared rural and urban youth on selected traits and abilities at the time of high school graduation. He found that

(1) the response of rural youth to supervision by strangers may be a difficult adjustment problem and that it may be disconcerting for them to consider supervision as an employment goal: (2) rural youth are more interested in salary and working conditions than urban youth and do not conceive of work as much of a source of satisfaction as do urban youth--an attitude that is particularly unfortunate in marketing and distribution where beginning jobs are low paying but promotion is likely; (3) they have a limited view of the range of occupations: (4) they have more personality difficulties and tend to be unsure of themselves in their dealings with other people; and (5) they do not have a high regard for the functions of marketing but do have a high regard for mechanical labor and for production. Hartzler concluded that there seemed to be two types of rural males: boys who want to leave the farm and those who do not. The first group, according to the review of the literature, showed them to be more sure of themselves and that they could adjust well to careers in marketing. Hartzler recommended that (1) before rural youth are trained in marketing and distribution they should be given a battery of tests to determine whether or not they can be happy in dealing with people, (2) that human relations training be included in their training, (3) that their training include working with strangers under supervision, and (4) that field trips should be included in their training to widen their vocational horizons.

Stark (1966) compared two Leavenworth, Kansas, distributive education classes (1962 and 1965) with other members of the senior class.

Selection Procedures

Heley (1958) did a study to determine an appropriate selection procedure for Idaho Falls High School. Mascari (1964) surveyed the recruitment and selection of students in cooperative distributive education programs in Illinois. The two methods that were used almost unanimously in recruitment of new students were personal interviews and application forms. Selection factors most frequently used were grades (31 per cent), teacher recommendations (25 per cent), student interest in distributive education (23 per cent), student attendance (23 per cent), and interviews with students (19 per cent). Requirements for enrollment in the distributive education program varied according to the type of plan under which a program operated. Jones (1957) found that 80 per cent of the coordinators received help from school counselors in determining students' aptitudes for distributive training.

Austin (1954) reviewed the research on the selection of sales personnel and found that interviews lacked both reliability and validity--even the guided or patterned interviews were lacking. About the only way salesmen could be differentiated from non-salesmen was by means of interest inventories. He concluded that research on sales personnel selection is still in an immature stage but that those responsible for the selection of salesmen have not taken advantage of the methods developed by research. He also concluded that little research was done by educators, either in predicting success in sales occupations or in predicting success in sales courses. He also concluded that no test or set of tests can be used by counselors which will provide positive assurance to guidance problems in distributive education.

The Information and Dissemination Function

For many years, distributive educators have been active in the collection and dissemination of information concerning careers in distribution and ways of preparing for them. Some educators have said that the people in distributive education have failed to differentiate between the techniques of selling merchandise and those of providing accurate information about occupations. Nevertheless, there are good, as well as mediocre, studies in the field of information and dissemination. The plan of discussion will be to describe the various research papers relating to occupational information first, then continue with a description of educational information, and close with a review of the dissemination practices.

Occupational Guidance Information

Notwithstanding the large number of people employed in distributive occupations and the large earnings in high school positions, the prestige of this field is not great in many educational circles. The required occupational competencies in most instances are difficult to measure and workers continue to enter the field without special training. For these and other reasons, the preparation and dissemination of appropriate occupational information is vital to the success of distributive education. The situation is reflected in the McGee study of the problems of beginning distributive education teachers. They were identified as (1) recruiting good students who can profit from the program, (2) guidance staff not knowledgeable about distributive education, (3) local school administration lacking proper understanding

of the program, and (4) other staff members considering distributive education as an easy course not designed for brighter students.

Another study which reflected the image of an important distributive occupation was the Meystre (1959) study of the salesmen in American novels from 1900 to 1958. His definition included traveling salesmen, specialty salesmen, and the Madison Avenue advertising man. He found no valid stereotype of a salesman; there was no uniformity of depiction of salesmen by novelists. The depiction of the salesman was, on the whole, such as to diminish his stature in the minds of readers. He pointed out the pre World War I salesman was not concerned with status seeking; the salesman of the 20's was; the salesman of the 30's had to work too hard to be concerned with status; and the post World War II salesman did most of this status seeking within the company he worked for.

Three very similar studies in different kinds and sizes of communities indicated that senior high school students' image of retail and sales occupations is not unfavorable during the time they are in school. Swenson (1960) surveyed the high school student body of an agricultural community of 10,000 population; Levendowski (1961) did a similar study in Hayward, California, a city of 75,000 people in the San Francisco Bay area; and Akenson (1961) replicated the Swenson study in a middle-class suburb of Minneapolis. The general attitude of students toward retail and sales occupations was quite favorable. They reacted positively toward working conditions, working hours, and the amount of skill and training needed in retail sales work. They were most critical in their attitudes toward wages and job security in retailing. In general, girls were more critical of retail sales

work than were boys; seniors were more critical of retail store and selling occupations than were sophomores and juniors. Urban students in the agricultural community held more favorable attitudes toward distributive occupations than did rural students. This is in agreement with the Hartzler study findings. In each city, the factor considered most important in the selection of an occupation by students was finding an occupation that matched their abilities and interests. Wages were second in the two larger communities and third in the agricultural community. Security was second in the agricultural community and third in the other two communities. Opportunity for making a social contribution was fourth in all three communities; working conditions was fifth. Independence and working hours were ranked sixth or seventh. Parental approval was ranked eighth; and prestige was ranked last. Griffith (1961) studied the duties of training directors in selected business firms of the San Francisco Bay area. This study provided information of guidance value.

Descriptive Occupational Studies

A number of degree studies deal with descriptions of occupations--some with occupations within a certain kind of business such as a variety store, some with clusters of occupations such as advertising and sales promotion, and some with an occupational level such as beginning jobs or managerial positions. Haines (1955) used personal interviews to analyze the backgrounds of 170 workers in limited-line stores by sex, job level, line of merchandise handled, type of store ownership, and city in which they were employed to discover differences which might be of value in guidance and curriculum planning. Using the Kruskal-Wallis H-test of significance, he found no identifiable

patterns of value for these purposes. However, the need for early occupational guidance and early occupational experience was substantiated. Jefferson (1963) studied the backgrounds of 200 randomly-selected variety store managers in Illinois. He found that four out of five of them received their first occupational experience in some phase of retailing and distribution and that 30 per cent of them indicated they had a family member in retailing. Johns (1962) collected background information on managers from 157 business and industrial firms in the Denver metropolitan area. He found an increasing number of the management team personnel coming from background where the father's occupation was in agricultural, skilled, or semi-skilled category; and that an individual who had brought some experience into the firm from a dissimilar organization, or was employed in the firm for several years before moving up through the ranks, was successful. Harms (1963) surveyed 75 leading retail stores throughout the nation and found that no definite standards or requirements for entrance to the field of retail clothing had been established and that there were a number of paths of preparation available for women anticipating entrance into this field: direct entrance after high school, a two-year retailing school, or four years of college with a variety of majors. Personnel managers recommended part-time work experience as an extremely helpful background.

Local Descriptive Occupational Studies

Local occupational information is of particular value in guidance work. Some examples of this kind of investigation are the Fray study (1963) in which beginning jobs in selected retail firms in Emporia,

Kansas, were analyzed; Newlin's study (1961) in which he inventoried distributive occupations open to recent high school graduates in selected retail stores in Sacramento; and the Maggi study (1958) involving an occupational survey of officers and sales personnel in Orville, California.

Career Monographs

Marr (1958) used National Vocational Guidance Association criteria in appraising 224 occupational information monographs from 54 different publishers covering 18 broad fields of distributive occupations. Approximately 100 of the monographs were considered as acceptable. A list was published which has not been revised. Marr concluded that a great deal of information about distributive occupations is available, that the best available criteria is that of the N.V.G.A., that most of the monographs are relatively inexpensive, that one of the weaknesses in the area of occupational information was the lack of research, and that information of this kind should be used in a continuous learning process and should always be readily available to the students.

Educational Guidance Information

One side of the occupational guidance information coin relates to the facts about the nature of an occupation and the competencies required to enter and succeed in it; the other side treats the appropriate information about the ways a person may prepare himself for a career in the occupational field. Some of the studies reported here deal with both kinds of occupational guidance information.

Guidance Information about Secondary School Education for Careers in Distribution

A number of the evaluative-type studies discussed earlier in the Curriculum Development section of this review, and many studies to be discussed later in the section on Evaluation, have a bearing on guidance information about secondary school education for careers in distributive occupations. Looking at the meager research evidence at hand, one may question the advisability of placing a great amount of confidence in the ability of large groups of businessmen to judge what subjects should be taught in school at any level. The ability of businessmen to judge the quality of job performance of an individual or to identify the strengths and weaknesses of employees in terms of their firm's objectives cannot be easily refuted, but assigning businessmen the responsibility of recommending courses of study is subject to question. The Jefferson study (1963) mentioned earlier illustrates this point. Of the 200 variety store managers, 90 per cent were over 35 years of age (from 10 to 17 years removed from their high school or college courses). Regarding formal education, 46 per cent completed high school; 41 per cent had some college work; 21.5 per cent had 16 years of education. The composition of this group from the standpoint of years of formal education completed provides some indication to their qualifications to judge curriculum at the various levels. Jefferson concluded that the respondents tended to recommend courses similar to those they had taken themselves, including English, bookkeeping, general business, business management, and economics. Specific retailing courses were not often listed as having value (perhaps because the respondents

had not taken them and did not want to make a judgment). Managers recommended taking high school business education courses, work experience, four years of college training, and chain company training programs.

Guidance Information about Post-High Education for Careers in Distribution

Two of the studies examined contribute to the store of information about educational guidance at the post-high school level. In following up the graduates of marketing majors in Wisconsin technical institutes, Henkel (1965) received the following suggestions for course additions: speech, more English, buying, and math. These suggestions represented felt needs of graduates who were not far removed in time from their course work. They also recommended greater choice of electives. Information provided by the Leipold study (1964) should be of value to students in post-high school programs who intend to be employed in Wausau or similar communities. Leipold found that some distributive personnel in most businesses spend at least part of their time in planning, preparing, or scheduling advertising and that most of the distributive personnel who are concerned with advertising spend part of their time on other duties--most personnel responsible for advertising spend less than one-fourth of their time on advertising. Harms (1963), in the study referred to earlier, reached an interesting conclusion. She concluded that the programs offered by two-year retailing schools are excellent preparation for the field (preparing women to enter the retail clothing field) insofar as they go. These programs are not long enough, however, to be adequate training in

themselves. The average student is not mature enough after only two years of schooling and these retailing schools are not able to offer enough liberal arts in only a two-year program.

Lockley's study (1962), which was supported by the Ford Foundation, of 100 heads of small- and medium-sized businesses has implications for educational guidance. Retail and wholesale firms accounted for 22.1 per cent of the sample; the median number of employees was 26 to 100; one-third of the firms hired more than 100 employees; and 11 hired more than 500 workers. Seventy-three interviewees mentioned that they themselves would like to have had more knowledge of highly specific vocational information. The courses or areas most often mentioned specifically were those commonly offered in the traditional school of business curriculum. A high premium was placed on the qualities of good administrators and on personal qualities of vigor and morality. They thought that these qualities could be developed through experience or education such as formal management-development programs. They wanted the new college graduate to earn his salary when he is hired, not to become "ripe" a decade later. The only changes they would like in the curricula of the schools of business would be in the direction of making courses more vocational and more practical.

These findings are explicit in reflecting the desires of these business managers when employing young people and should be helpful in educational planning. Whether they are sufficient unto themselves in the matter of educational planning is debatable when other findings of the study are known. They were as follows: (1) business managers' thinking is concerned with the performance of the

normal routines of business; they rarely think about social questions or in terms of future problems; (2) they feel considerable pressure from competition and concentrate their thinking largely on their businesses; (3) their reading is largely for relaxation and entertainment and they are more likely to read magazines than to read books; (4) the business reading they do must give them technical business answers. They are not interested in theoretical discussion, even in the fields of their own businesses; (5) they think of a college education as a general good, which, increasingly, all people should have; (6) they seem to be entirely unaware of any discussion concerning the nature of business school curricula and unaware of any trends toward enrichment or change in the offerings of schools of business; (7) they do not, actually, regard themselves as needing any new points of view or of needing any intellectual re-activation; and (8) they are doing just what they want to do and about the way they want to do it, and most of them would plan no change in their ways of life if they were suddenly visited with riches.

Guidance Information about Collegiate Education for Distributive Careers

The Lockley study described above could also easily be classified as information about collegiate education for careers in distribution, even though the outcomes desired by business managers appear to be more in line with commonly conceived aims of post-secondary programs. Clearly within the collegiate realm, however, are two studies which do not deal with federally-reimbursed programs directly but which strongly influenced the curriculums of the collegiate schools of business and indirectly affected distributive education. These studies

by Gordon and Howell (1959) and Pierson and others (1959) were appropriately summarized by Silk (1960). Among the recommendations for improving collegiate business schools were the following ones which have a bearing on public school distributive education: (1) admission requirements to the business school should be raised; (2) college and university business curricula must be pruned to reduce vocationalism and over-specialization; (3) at least 50 per cent of the undergraduate programs in business should consist of courses in the liberal arts; and (4) the focus of business studies should be upon "managerial decision-making" with emphasis upon the application of scientific knowledge to business problems.

The Value of Collegiate Education in Retailing

Hampton (1961) concluded that while collegiate retail training is generally acceptable, there is some doubt as to whether it gives the student a marketable skill that makes a retailing graduate a more desirable and valuable retail employee. As yet there is no proof that a student with aspirations for a retailing career can derive any special benefits by selecting a retail educational pattern over any other type of collegiate education. His study dealt with perceptions of retailers and retail educators in California state colleges. Retailers saw the worthiness of collegiate retail education as generating an interest in the field, whereas the collegiate faculty looked upon retailing as a part of the business curriculum and as a discipline of the field of marketing, the purpose of which was the teaching of management skills in the retailing area. The investigator concluded that retailers were generally quite ignorant about the type

and quality of retail education taught at the California state colleges; they generally believed the retailing faculty to be inexperienced in the field of retailing, which was contrary to the facts.

Courses Recommended for Career-Oriented College Students

Research to date on selection of college courses for people preparing for careers in distribution is largely confined to surveys of opinions of selected groups of "authorities." Many investigators seem to have lost sight of the fact that distribution is a very broad field and that there is great diversity in the nature and operating practices of the different kinds of distributive institutions--retailing, wholesaling, service businesses, and the distributive functions of manufacturing. Furthermore, within the area of retailing there are sharp differences in policies and practices--compare food supermarket operations with those of high-fashion millinery or a distributorship for farm implements. Thus, it appears to be dangerous to generalize a great deal concerning the findings of studies in this category and it would seem prudent to keep in mind the limitations of the respondents discussed earlier. Five studies will be reviewed, each representing a step in a progression from a specific kind of preparation to preparation for a broad field.

For women entering the retail clothing business, Harms (1963) reported that the dominant opinion of 75 leading retail store personnel executives was that the best educational background for a woman was a college degree in clothing and textiles and merchandising; also, that the current clothing and textile majors in the leading

colleges and universities appeared to offer the basic training advantages for a woman entering the retail clothing field but store managers tended to feel a need for more business courses and fewer home economics courses.

For men or women entering employment in New York Metropolitan Area retail organizations employing 1,000 or more workers, Gillespie (1959) found that only seven of 86 college courses were rated as essential by 30 senior executives in 10 business firms. They were human relations, human relations in retailing, human relations in business, speech, business English, English composition, and economics. Thirty-two specialized and 11 liberal arts courses were considered essential or desirable.

For women entering employment in department stores, Nesser (1961) found that the educational background preferred by a majority of respondents from 100 stores included education in business. She also found that participation in college activities was strongly preferred by department stores when considering applicants for the training program.

For men or women entering business firms as training directors, Griffith (1961) found that members of the Northern California Chapter of the American Society of Training Directors considered a college degree essential and that a training director must have extensive experience in the firm. They also indicated that he must have the skills of a teacher although he may not exercise these skills himself.

In regard to becoming a business or industrial manager in firms employing more than 75 persons, Johns (1962) found the following: (1) the individual most likely to succeed in management was a graduate from

the program of business administration whose undergraduate education included about 50 per cent of general education, high-indicated scholastic achievement and demonstrated leadership in social, professional, and civic organizations; (2) course of study content considered necessary by the management included, in order of rank, accounting, written communications, business finance, oral communications, mathematics, economics, personnel management, marketing, psychology, and industrial management; and (3) 85 per cent said scholastic achievement should be above average.

Dissemination of Occupational and Educational Information

Productivity in research on the dissemination of guidance information has been surprisingly low in light of the importance of this function in distributive education. No study that deals with this subject in its entirety was located. However, a number of investigations encompass dissemination responsibilities and practices.

Secondary School Information Dissemination Practices

Samson (1964) identified information dissemination duties of coordinators which included media for carrying out the activities and contained inferences for dissemination practices in his Category III, "Administration and Operation of Program." Mascari (1964) studied the recruitment and selection of students in secondary school distributive education programs in Illinois. He reported that the two almost universally used methods were personal interviews and application forms. He concluded that "recruitment" in distributive education should be a year-around process if the program is to be successful.

McAfee (1958) concentrated his research efforts on parents and the media for reaching that particular group. He found that Minnesota coordinators made greatest use of the school paper and the conference at school. Small community teacher-coordinators used the newspapers. Open houses were used extensively. Guest speakers and personal explanations of the program were frequently used. Ovsiew (1960) reported 30 effective distributive education practices in the area of promotion and publicity which dealt with the dissemination of various kinds of information about the program at secondary school and adult levels of instruction. As is so often the situation, the earliest study including this aspect of the guidance function was done by Emick (1936) during 1932-33. Sample section captions in his report are "Measures Taken to Counteract Adverse Attitude on Part of Pupils" and "Measures Taken to Counteract Adverse Attitude on Part of Parents."

Reed (1957) analyzed factors influencing enrollment in Iowa high school distributive education programs and reported the following findings which provide suggestions on the kind of information students want: (1) approximately 80 per cent of the students enrolled because they wanted the work experience offered; (2) 81 per cent indicated that persons who had been in the program were the most helpful sources of information; (3) a personal conference with the coordinator before enrolling in the program was indicated by 54.9 per cent of the students; (4) graduates of the distributive education program proved to be the best advertising for the program while other publicity media rated very low as sources of information; (5) 54 per cent of the students did not become interested in the program until the eleventh grade; and (6) many of the business education courses

were factors influencing students to enroll in the program. Students suggested the distributive education club as an effective type of publicity. Jones' findings (1957) concerning the value of graduates as disseminators of information supported that of Reed. He concluded that distributive education graduates were the most influential persons in students' decisions to apply for distributive education.

Post-Secondary and Collegiate Information Dissemination Practices

The post-secondary distributive education studies reviewed did not deal with information dissemination with the exception of a small portion of the Henkel study (1965) of graduates of Wisconsin Technical Institutes, who indicated need for more specific occupational information and a broader coverage of the distributive occupations. Factors influencing enrollment in the marketing program most frequently mentioned were employment opportunities, high school counseling, and recommendation of friends.

The Jefferson study (1963) offered information regarding the kind of occupational information which may be useful in guidance concerning variety store merchandising careers. The investigator reported that the factors influencing managers to enter retailing were the opportunity for employment, the type of work offered, friends, and relatives. Information from friends, relatives, and fathers is helpful in confirming the managers' choice of an occupation. Advantages of variety store management which were given included salary, prestige, retirement, security, and self-employment.

On the collegiate level, Hampton (1961) found that there was surprisingly little communication or contact between the retailer

in the field and the retailing educator in the college classroom. Harms (1963) reported that in the women's retail clothing business, an interview was the most widely used of all selection instruments and the college recommendation was second. Tests were used by a number of stores, but there did not appear to be any definite pattern as to the use of either a definite test or type of test. She also reported that initiative and enthusiasm appeared to be the most outstanding of all personal characteristics beneficial to a person in the retail clothing field. A suggestion as to appropriate subjects for recruitment came from the Johns study (1962) in which he reported that an increasing number of the members of management teams came from backgrounds where the father's occupation was in the agricultural, skilled, or semi-skilled category.

The most recent study bearing on occupational information was done by Buckner (1966). The study reported tangible information about retail executives' age, education, career patterns and job stability, attitude toward the field, attitude toward retailing as a profession, and appraisal of the competencies needed by their successors.

The Counseling Function

The counseling function of the distributive education teacher and teacher-coordinator have not been clearly defined. The small amount of inquiry that exists deals with the counseling role of the teacher-coordinator and is derived from two sources: (1) critical incidents as reported by student-trainees, supervising school administrators, faculty members and training-sponsors, and (2) from opinions of teacher-coordinators and guidance counselors. Thus, the

definitions of the coordinator's role in counseling comes from both inside and outside the profession.

The Counselor Function

Counseling is not a category for the classification of teacher-coordinator behaviors in the Samson study (1964); therefore, counseling tasks are not easily located. One must first formulate a definition of counseling and apply the criteria of the definition to the behaviors under various categories. For the purposes of this discussion, the term "counseling" will be limited to dealing with problems of individuals that concern matters of vocational, educational, and personal choice making. This excludes group counseling and dealing with social needs, which, for the sake of convenience, are treated as instruction in an earlier section. Even with this restricted definition, counseling behaviors are sometimes difficult to identify in some cases because the behavior does not sufficiently delimit the purpose of the activity; e.g., "conducts conferences with training-sponsors, parents, and others on student-learner behavior." Other counseling behaviors in the Samson list identified by the authors are: (1) counsels with students and provides individual help on problems connected with job, training-sponsors, or other related actions; (2) conducts individual conferences with students on their personal problems or behaviors (grooming, personality, attitude, etc.); (3) counsels with students on educational plans, encourages them to continue their education, and not to drop out; (4) assists in developing appropriate class schedule; (5) explains to students employers' rating sheets and the grading system, then counsels with students when employers' ratings have been made; (6) counsels with students who are inattentive or not doing well in distributive

education and other classes and tries to help them improve; (7) invites students to talk over problems and is willing to do so at any time; and (8) discusses with students their job problems and makes suggestions on how to handle situations or how to improve.

In the Helling study (1963), the status of selected counseling tasks in Minnesota was as follows: three-fourths or more of the responding coordinators and counselors agreed that these tasks should be performed by the coordinator: (1) counsels with an employer on the student's behalf when a problem on the job comes up, (2) assists students in solving their vocational problems pertinent to the distributive education program, (3) counsels and discusses with parents of cooperative class students about students' decisions or progress on the job, and (4) assists pupils in solving their personal problems pertinent to the cooperative program. The agreement on "counsel adults in the evening school program" and "counsel former cooperative students" was only mildly in favor of the coordinator. There was strong agreement that the counselor should be primarily responsible for "counseling and choosing of electives for cooperative students" and "counsel students as to the best utilization of their needs in relation to aptitudes and interests (will they profit from the experience?)." There was disagreement among the counselor and coordinators on two counseling tasks: (1) counsel students as to the decision to become cooperative enrollees, and (2) assist pupils in solving their educational problems pertinent to the cooperative program.

The Counseling Process

Interested distributive education researchers may be referred to a discussion of counselor models by Daane and McGreevy (1966) for clues to research in this important area.

The Placement Function

The placement function of the distributive education program includes services to several groups of students: (1) those who have been accepted for a cooperative education program, (2) secondary and post-secondary students who are not affiliated with cooperative education, and (3) distributive education graduates of the several programs. In each situation the objectives are quite different.

The Teacher-Coordinator's Role in Placement

Placement of cooperative students in training positions has traditionally been a duty of the teacher-coordinators; however, the responsibility for placement of high school and post-high school students not enrolled in the program and placement of graduates of the program is not as clear.

According to the Warmke study (1960), distributive education leaders reacted to placement responsibilities as follows: (1) 49 per cent of the respondents indicated that the advisory committee and coordinator working together should select the training stations for cooperative students; 35 per cent indicated that this should be done by the coordinators; and (2) 31 per cent indicated that the student placement activities of the distributive education coordinator should include only distributive education jobs for students enrolled in the

cooperative part-time program; 39 per cent indicated that he should be responsible only for distributive education jobs but for the total school placement program; 20 per cent indicated that he should be responsible for the total school placement program when possible. In contrast to the first item of the Warmke study above, Harris (1965) found that 77.1 per cent of the Illinois distributive education coordinators felt that training stations should be selected by the coordinator alone. In Minnesota, Helling (1963) found 100 per cent agreement between coordinators and counselors that placement of distributive education cooperative students on jobs was the coordinator's responsibility. Opinion as to the responsibility for placing students not in the distributive education program on jobs was almost evenly divided with 57 per cent of the total respondents assigning the duty to the counselor. Placement of seasonal part-time students not connected with the program was assigned to the counselor by a narrow but significant margin of 66 per cent of the entire group of respondents.

More specific placement tasks were reported by Samson (1964) as follows: (1) promptly reassigns students to different training stations when students lose jobs or when other circumstances indicate desirability of job change; (2) makes personal visits to businesses to secure their cooperation as potential training stations and obtains jobs for students; (3) provides suggestions on where students might find a job and refers them to possible training stations; (4) sets up interviews for students at training stations and allows students to decide which training station they will work for; and (5) provides employer with information on student employment and advises them of

the characteristics and abilities of students. An additional task taken from the Harris study (1965) is "secures the cooperation of understanding employers and training-sponsors to give students with known limitations effective training." Ineffective behaviors listed by Harris provide clues to proper practices: e.g., "places students in training stations where the training received is not consistent with the program or student career objectives," and "places students who are lazy, indifferent, or poorly adjusted in another training station."

Selection of Training Stations

The earliest study reported in this review, that of Emick (1936), contains one of the most interesting treatments of the selection of training stations. It lists cooperating store requirements and cooperative job requirements. It provides a list of standards for cooperative jobs--general standards, kinds of jobs for which credit is granted, and job and organization analysis. Ten pages are devoted to descriptions of training agreements and their use. Ovsiew (1960) listed a half-dozen effective practices in placement of students. Warmke (1960) found that 82 per cent of the distributive education leaders of 1959 believed that placement of cooperative part-time students in training stations could best be accomplished by the coordinator's selecting several suitable students to apply and final selection being left to the discretion of the business firm personnel. Miller (1959) found that businesses with less than 10 employees served as training agencies for 57 per cent of the distributive occupations student-trainees in Tennessee, and that department stores, food stores, and limited-price variety stores accounted for 63 per cent of the

trainees. In assessing the degree of fulfillment of purposes of training stations, Barton (1960) found that employment procedures for distributive education trainees in Ohio compiled in most instances with the objectives established by the State Department of Education.

Kurtz (1966) explored the possibility of on-the-job training of high school students in manufacturing establishments in Ohio. He found no correlation between willingness to employ and train distributive education students and the size of the firm, the size of the sales force, or the type of product manufactured. He reported that the manufacturers studied had little or no knowledge of distributive education and did not relate it to marketing, that few of the manufacturers had any sales training program, and that most of them have a meager type of training within the company. Kurtz reported further that in hiring sales personnel, sales ability ranks first and that only 20 per cent of the manufacturers required a bachelor's degree of their sales personnel while 45 per cent listed high school graduation as their minimum educational level for employment. Kurtz concluded distributive education can become a vital source of employees for manufacturers in employment for sales and marketing positions.

Opportunities for Placement Research in Cooperative Education

Other than the identification of placement duties and responsibilities and the enumeration of a few placement practices, the entire area of placing cooperative part-time students is virtually barren of research. Yet placement is without doubt one of the most crucial

elements in cooperative education. Recently the works of Wallace (1960 and 1964) and Schadt (1965) appeared to signal an interest in measuring creative abilities but no research has been reported which puts the tests to use in placement of students.

Appropriate instruments are now available for use in measuring a student's vocational needs and for measuring his satisfaction with his job. Instruments for measuring an employer's satisfaction with an employee or student-worker are also available. (See references by Weiss and others, Dawis and others, and Scott and others.) Knowledge of these testing instruments may spur research in this field.

Placement of Graduates

Placement of graduates has recently become a topic of great interest to those persons who are involved in federally-reimbursed vocational programs because of a provision of the Vocational Education Act of 1963 calling for periodic evaluation. Several studies have been directed toward program evaluation, with placement as an important criterion of successful program operation. These studies will be described later in a section on Evaluation. No research dealing with the practices in placing graduates during the past 10 years was located. Even though this activity is inherent in the primary goal of vocational education, it is apparently overlooked or ignored by distributive education researchers.

The Follow-Up Function

For purposes of discussion in this section of the review, the term "follow-up" refers to a service for employed students if they are enrolled in cooperative programs or have graduated from a distributive

education program. It refers to services provided in making job adjustments and career decisions. In this sense, follow-up has characterized distributive education throughout its history. It is often referred to as "follow-up coordination."

The Need for Accompanying Occupational Experience

In response to Warmke's question (1960), "Is classroom instruction, with no provision for business experience, adequate for a secondary school student who plans a career in a distributive occupation?," 55 per cent of the national leaders responded "seldom" and 37 per cent said "never." Illinois distributive education coordinators five years later responded to Harris (1965) in a similar manner: "seldom" was checked by 68.7 per cent and "never" was checked by 18.7 per cent. Corbman (1958) concluded that cooperative training was very helpful as a training technique for the post-high school retail distribution program of the New York Institute of Applied Arts and Sciences. Gradoni (1957) concluded that all New York trainees should obtain required work experience. Apparently the need for accompanying occupational experience is well established.

The Teacher-Coordinator's Role in Follow-Up of Students

Distributive education leaders of 1959 polled by Warmke (1960) overwhelmingly indicated that the student's occupational experience must be coordinated by a teacher-coordinator or coordinator. Eighty per cent of them said that coordination in school systems with more than one cooperative distributive education program should be done by the person who teaches the student. In the Harris study (1965),

91.7 per cent of the teacher-coordinators agreed with this policy. In order to achieve the educational goals, nearly 60 per cent of the nation's leaders indicated that the teacher-coordinator should be employed 10 months per year and 35 per cent said on a year-around contract. Illinois coordinators responded to Harris's inquiry in a similar manner.

A considerable number of critical behaviors from the Samson study (1964) provide an insight into the nature of the teacher-coordinator's follow-up duties: (1) works with training stations to develop suitable work assignments, revises work schedule, and carries out special learning projects; (2) meets with employers or training-sponsors and discusses disagreements on hours and pay and the behavior and relationships of students and personnel at training stations; (3) regularly and frequently visits student on the job inquiring how they are getting along, providing suggestions on work, and showing interest in students' activities on the job; and (4) helps students get off work to attend school functions or other activities. Harris (1965) added activities of a similar nature--"explains to employers the possible reasons for the students' behaviors to aid them in making fair decisions," "secures the cooperation of training-station personnel to help students develop better employee-employer relations," and "holds conferences with employers prior to time students are actually discharged." As might be expected, Helling (1963) found no conflict of opinion between counselors and coordinators on the coordinator's responsibility for counseling students with regard to problems on the job. The same results were found in relation to the coordinator's counseling and discussing student's job progress and student's decisions with their parents and with employers.

On-the-Job Follow-Up Procedures and Practices

Warmke (1960) obtained the opinions of distributive education leaders in the year 1959 on nine procedures and practices in follow-up activities. Seventy-five per cent of the respondents thought that the minimum number of hours a week that a student-trainee should work was 15; the maximum hours of work was not as definite with two-thirds of the respondents stating between 25 and 30 hours.

Responses to the Harris (1965) inquiry by Illinois coordinators were similar. In the Warmke study (1960), 55 per cent of the respondents indicated that the student-learner should be allowed to meet the minimum requirements of hours of business experience by working Saturdays and during school holidays and vacation periods (excluding summers) if the work was supervised by the coordinator. Ninety-two per cent of the same respondents indicated that cooperative part-time student-trainees should receive the prevailing wage for the type of work they did. To the question, "Is a designated job rotation schedule . . . necessary?," 61 per cent said "usually" and 29 per cent said "always." Forty-five per cent indicated that the coordinator should visit the student-trainee on the job once every two weeks: 24 per cent indicated once a week. Illinois coordinators responding to the Harris inquiry were inclined toward less frequent visits. Nearly two-thirds of the 1959 leaders of the field indicated that a student-trainee should seldom be allowed to work throughout the year at a job which requires a short learning period: 33 per cent said "never." Thirty-three per cent of the Illinois teacher-coordinators checked the answer to the same question as "usually," indicating a

rather sharp difference of opinion from that of the leaders. Judging from the results of the Warmke and Harris studies, it appears that the allocation of coordination time on the basis of one-half hour per student per week is the most prevalent opinion. Seventy-one per cent of the leaders indicated that one unit of academic credit should be given for one year of supervised occupational experience in a secondary school cooperative program.

The Training Station's Contribution

In the Jones study (1957) of Pennsylvania cooperative distributive education programs, merchants reported the following ways in which their businesses cooperated with local programs: (1) by always employing distributive education students, (2) by providing good supervisors, and (3) by providing progressive training and experiences. On the other hand, they reported limited job opportunities for advancement for graduating distributive education students. Of the nine positions listed, only that of salesman was indicated by more than 25 per cent of the merchants as being available to such students. Kraushar (1956) studied the skills, knowledges, and personal characteristics essential to success of cooperative student-trainees by enlisting the help of employers in deciding on items for rating sheets and job analysis check lists. The rating sheet was analyzed into four efficiency factors, 11 personality factors, and one physical factor. The check list consisted of 246 duties and requirements.

Evaluation of Cooperative Occupational Experience

In measuring the degree of fulfillment of objectives of Ohio's cooperating training stations, Barton (1960) found job assignment

procedures for distributive education students did not comply with objectives as established by the State Department of Education. Job rotation often did not take place. He also found the job instruction procedures rarely satisfy the objectives. Training programs are rarely developed. Coordinators do not have materials for related study. Miller (1959) found that among Tennessee trainees the most frequently mentioned good points of the program were learning to meet people and experience in salesmanship; the weak points were working too long and poor pay. In the Jones study (1957), all involved groups were satisfied with the distributive education program. Ninety per cent of the principals, coordinators, and students reported that they were satisfied; merchants, 72 per cent. In Minnesota, Bicanich (1964) found that students ranked co-workers, on-the-job supervisors, and on-the-job training very high. Almost 40 per cent said that they received more training and assistance on the job than other part-time workers. On-the-job training was rated 5.3 per cent higher than classroom instruction.

Opportunities for Research on Follow-Up Students on Their Jobs

Research on following up students on their jobs during the 1960's was of a very general nature. We know from the inquiries that including on-the-job training is a good educational practice and that present operations in this area of the coordinator's activities need improvement, as was indicated in several studies. The great need, however, is for specific information which will lead to knowledge of how to improve it. Studies which expose the many problems of student-trainees in achieving occupational adjustments are needed such as those of Lombard (1955), Rosenwinkel (1957), Johnson (1958), and Wiklund (1958).

FACILITIES AND EQUIPMENT

At present, there seems to be little research on distributive education facilities and equipment--a situation which should change with the current emphasis on the project method. No experimental studies were located. Like so many other aspects of distributive education, the explorations which have been made are confined to the collection of opinions.

The Need for Equipment

Some conception to earlier thinking about the use of model stores is shown in the answers to two questions asked distributive education leaders in the Warmke study (1960). Sixty-three per cent indicated that on-the-job business experience was all that was necessary for distributive education students; 33 per cent indicated both on-the-job experience and a model store in the school were necessary. Replies to the question, "Should the distributive education classroom have a model store unit?" were: 18 per cent answered "seldom," 51 per cent checked "usually," and 14 per cent checked "always." The need for equipment in Illinois secondary school programs was indicated by graduates in the Donaldson study (1958). Among the suggestions for improving the classroom phase of instruction, the following items relating to facilities and equipment were reported: first, provide adequate equipment; fourth, need larger classroom; sixth, have more display projects; ninth, secure actual merchandise with which to work; and 12th, install full-sized window for display practice. Johansen (1963) found that one of the major weaknesses of the Iowa

distributive education programs when evaluated in terms of the NSSSE evaluative criteria, 1960 edition, was lack of physical facilities. A recent survey of the opinions of Wisconsin technical institute graduates by Henkel (1965) showed that 75 per cent thought the physical facilities were good to excellent.

Characteristics of Equipment

Peart (1961) concluded that there may be differences in the basic function of the high school laboratory when compared with that of the junior college laboratory. The high school coordinators placed their major emphasis on those functions and activities in the laboratory which are related to the habits, skills, and information needed by the students in their store training stations. The junior college coordinators seemed to place greater emphasis on the functions of the laboratory to develop the individual interests and talents of the student irrespective of the requirement of individual training stations. He pointed out that the Washington, D.C., officials showed greater concern for the public relations and adult training aspects of the laboratory program than did the high school and junior college coordinators. An examination of the top fourth of the activities ranked by the three groups of observers revealed that the Washington, D.C., officials gave greater priority than the coordinators to such practices as inviting members of the advisory committee, employers, business people, and the public to various functions in the laboratory. Findings on the use of the laboratory for instructional purposes were described earlier. Jackson (1963) used the NSSSE evaluative criteria in evaluating 30 Tennessee high schools. His report showed the kind

and quantity of equipment used. He judged some schools to be adequately equipped while others were not.

School Stores

The use of the school store, where merchandise is actually bought and sold, was discussed in the section on the learning process and teaching methods. Yormark (1960) did the only study treating this subject that was reported during the past decade. He concluded that the coordinator must realize and be able to explain and defend the basic purpose of having the school store. This purpose should be one that considers the public relations with the faculty and the business community. This basic purpose should be one that is educationally sound. Of the many purposes reported in the literature and interviews, only one appeared to meet this criterion--that being where the store was considered as a tool of instruction in the teaching of distributive education.

TEACHER EDUCATION

Distributive teacher education prior to World War II was performed almost entirely on an in-service basis through workshops, summer-session courses, supervisory conferences, and on-the-job supervisory visits. Following the war, a number of colleges and universities installed pre-service distributive teacher education programs headed by practitioners who built curriculums based on their own educational and occupational experience with advice from their colleagues and state supervisory personnel. Distributive teacher education seems to be emerging from a pioneering stage with little research in this

realm to date. It appears that a new phase of development is at hand--one in which research will play a much more important role.

So that unity may be given to a truncated sequence of investigations, the following discussion will treat a mixture of studies and events. A logical sequence of topics seems to be (1) the role of teacher education and teacher educators, (2) pre-service teacher education curriculums, (3) in-service teacher education, and (4) evaluation of distributive teacher education.

The Role of Teacher Education and Teacher Educators

The role of teacher education and teacher-education responsibilities of various distributive educators has been a dynamic one and probably will continue to exhibit this characteristic. It has been one in which formal specialized preparation for distributive education positions has become increasingly recognized as being important and necessary. Presently, the teacher-education function is performed by many kinds of educators: teacher educators, state and local supervisors, vocational directors, school administrators, and teacher-coordinators. Role clarification is greatly needed.

Early Studies and Conference Reports

In the report of the Emick study (1936), Chapter XIII, entitled, "The Teaching Personnel," is worth reading today from the standpoint of developing an understanding of the background of distributive teacher-education problems of 1932-33. Some of the problems related are still with us. Another document, one which cannot be classified as a research report but which has more to offer than its historical

value, is the report of the First National Training Conference for Distributive Education called by the U.S. Office of Education (1939) held at Dunwoody Industrial Institute, Minneapolis, Minnesota, August 14-25, 1939. This report contains the role of teacher education as conceived by the conference members who were selected for the task.

During the war period, what little institutional teacher education that had existed was recessed in many institutions. Teacher "training" took a new direction in that packaged courses were introduced. These "cookbook" type courses in Job Instruction Training and Human Relations Training were prepared under the auspices of the U.S. Office of Education. State supervisors and teacher educators were trained in their use by regional representatives of U.S. Office of Education, who in turn trained adult education instructors in their states to teach the courses to supervisory personnel in business establishments.

After the war, it was necessary to retool and continue where teacher education left off in 1942. A National Workshop Conference on Distributive Education was held in May of 1948 under the direction of the U.S. Office of Education. The report of the 1948 National Committee on Teacher Training (1949) is another document of value in tracing the development of distributive teacher education.

Early doctoral studies relating to cooperative program organization and administration, such as the Banks study (1943) and the Runge study (1953), and to the duties and responsibilities of a teacher-coordinator, such as the Keeling study (1946) and the Cassady study (1950), contributed to the development of curriculum content. This was particularly true of the Runge study which furnished information for a teacher-education textbook.

Teacher Education During the 1950's

The Willis study (1954) was the first to be devoted entirely to "teacher training." Willis gathered information from numerous sources to ascertain the status of distributive teacher education and subjected her findings to a jury of experts. She reported (1) great variation in certification requirements for distributive education teacher-coordinators, (2) great variation in the teacher education curricula, (3) some variation between existing certification requirements and those recommended by the jury, (4) great variation between courses listed as required for certification and those offered at teacher-education institutions, and (5) little variation between courses listed in certification requirements and those recommended by the jury.

The Warmke study (1960) of distributive education issues in 1959 was of considerable value to teacher education from two viewpoints. It provided the opinions of leaders in the field on certification requirements and qualificatios and it increased teacher educators' confidence in the practices and procedures which they were teaching.

During the last year of the decade, the U.S. Office of Education published a bulletin entitled, The Role of Teacher Education in Distributive Education (1959). This was the first bulletin devoted to the total distributive education program, although two earlier bulletins had dealt with the adult phase of the program.

Studies and Reports Since 1960

Marks and Beaumont (1962) prepared a report on the first (and last) conference of national leaders in distributive teacher

education in Chicago, June, 1961. This report on the U.S. Office of Education-sponsored conference is the most comprehensive publication on distributive teacher education to date. It covers the role of teacher education and that of the teacher educator as follows: (1) objectives and philosophy of teacher education, (2) developing distributive education, (3) the curriculum in teacher education, and (4) advanced professional programs.

The Council for Distributive Teacher Education was organized and its constitution adopted at the annual meeting of the American Vocational Association in December, 1961. Each year since its inception, it has published two professional bulletins. Two of these bulletins deal with special aspects of the role of the teacher educator. Carter (1963) was the author of the third bulletin issued, which dealt with the role of the distributive teacher educator in adult education. Scannell (1963) was the author of the fourth bulletin, which described the off-campus responsibilities of teacher educators.

At the 1962 Central Regional Conference of State Supervisors and Teacher Educators, a formal request was made to the U.S. Office of Education for a meeting of teacher educators. The U.S. Office of Education (1962) sponsored the meeting which was held at the State College of Iowa in October, 1962. The report of this meeting (again the only one of its kind) deals with the distributive teacher education curriculum, research, evaluation of teacher education, and in-service teacher education.

The last national meeting of distributive educators under the auspices of the U.S. Office of Education was the National Clinic on

Distributive Education in October, 1963. This clinic did not focus on teacher education as such; consequently no report on teacher education is included.

Pre-Service Teacher Education Curriculums

Although some interesting research is currently under way that promises valuable information for the development of distributive teacher-education curriculums, teacher educators have had to depend on other areas of research for support in curriculum building. The materials currently available may be divided into four categories: (1) desired behaviors of distributive occupations personnel, (2) desired behaviors of teacher-coordinators, (3) teacher education curriculum related studies, and (4) studies concerning the occupational experience of teachers.

Desired Behaviors of Distributive Occupations Personnel

In the absence of research information specifically designed for distributive teacher education, teacher educators look to studies whic give clues to content materials for their students, studies which reveal the traits, skills, attitudes, and abilities believed appropriate for success in distribution. Thus, reports of studies such as the following prove valuable: Binford (1957), Buckner (1966), Clark and Sloan (1962), Harms (1963), Jefferson (1963), Johns (1962), Lockley (1962), and Silk (1960).

Desired Behaviors of Teacher-Coordinators

Studies relating to the role and characteristics of teacher-coordinators and other distributive education personnel are very helpful in arriving at course objectives for professional education courses. Some of these studies are: Samson (1964), Warmke (1960), Harris (1965), Baggett (1965), Conley (1965), Hibner (1959), Lloyd (1965), Rountree (1965), and Tippett (1966).

Teacher-Education Curriculum Inquiries

Many questions about the distributive teacher-education curriculum have been posed but few attempts have been made to arrive at verified answers. Knouse (1962), in the first professional bulletin for the Council for Distributive Teacher Education, received 29 responses from 32 teacher educators concerning four areas of interest.

The five aspects of teacher education needing most attention at that time were: (1) more emphasis on experience in coordination activities in practice-teaching programs, including greater opportunity to work directly with merchants; (2) more emphasis on all aspects of adult education; (3) more emphasis on occupational experience with greater attention being given to college industry-arranged internship experience; (4) more technical distributive education course offerings, and (5) more attention to the development and use of criteria for the selection of prospective distributive education teacher-coordinators. Thus, the first four of the five related to the curriculum.

There was a wide range of suggestions offered under the heading "Emerging Considerations for Teacher Educators"; most of these related to curriculum and instruction. The 29 suggestions grouped according

to frequency are as follows: (1) club training--four, (2) content suggestions--four, (3) training for post-high school positions--three, (4) providing occupational experience for future teachers--three, (5) conducting and training for research--three, (6) developing measuring instruments--two, (7) preparing students for teaching in the pre-employment program--one, (8) preparing students for adult education responsibilities--one, and (9) preparing teacher-education textbooks--one.

Suggestions on operational considerations were as follows: (1) better recruitment and guidance--two, (2) better cooperation with other departments--vocational and general education--two, (3) area cooperation in teacher education--one, and (4) dealing with accreditation requirements--one.

Reports on recent improvements in teacher education were culminated by matters pertaining to curriculums. Reports on planned improvements covered a variety of fields.

From a historical point of view, the Emick study (1936) provides some interesting information. Detailed information is given about the professional preparation of teachers and administrators who attended professional schools and about those who did not follow this pattern of preparation. The Willis study (1954), referred to earlier, also provides information about the curriculum of historical value. The recommendations of the jury of experts on curriculum provide food for thought today.

Haines (1964) studied the differences between the preparation needed by high school teachers of distributive subjects and teacher-coordinators in distributive education to teach the elements of

subject matter in the classroom. This was done by using a questionnaire and a check list of subject-matter elements to be rated by schools offering distributive teacher education. Almost every respondent supported the notion that there should be no fundamental difference in the mastery of content in marketing between the two groups. A few teacher educators felt that depth of content was more essential to the teacher-coordinator because of his intimate contacts with distributive businessmen and because of his role as a teacher of adult classes for employees, supervisors, and managers. This concern for depth is supported by the fact that for many topics in the outline a few more "votes" were recorded for "must-know" for coordinators rather than "desirable-to-know." A number of respondents felt that requirements in technical content could be tempered if the candidates' occupational-experience record showed extensive opportunities to acquire depth in marketing. Teacher-coordinators felt that some courses--particularly in accounting and finance--are not of first priority for distributive teachers and coordinators. The study showed that teacher educators believed that the series of marketing courses taught in most colleges and universities did not provide all the content deemed essential for the teacher of distribution; therefore, the teacher-education curriculum must draw on non-business departments for such subjects as textiles, color and design, and display.

Meisner (1966) found that no causal relationship existed between the amount of teacher preparation in economics by distributive teachers and the level of economic understanding achieved by their students as measured by the Test of Economic Understanding - Form B in the population which he studied. This comparison was between six teachers with

the most preparation in economics and their 75 students and six teachers with least preparation in economics and the same number of students. Because neither the teachers nor the students in this study were a random sample of the population from which they were drawn, the findings are only applicable to those involved in the study.

The Hampton study (1961) dealing with the collegiate education for retailing has implications for distributive teacher education, even though the reported attitudes of retailers toward the collegiate program is not as positive as might be hoped. Hampton concluded that even though in practice retailers did not necessarily give preference in hiring to persons with a business or retailing background, the "ideal" recommended college curricula for people planning on a retailing career was a combination business and retailing major.

No comprehensive or intensive research on the distributive teacher-education curriculum has been completed recently. However, Crawford (1964) reviewed the literature on the competency approach to curriculum construction or revision for distributive teacher education and a funded study is under way which will provide the basic information for curriculum investigations.

Inquiries Concerning Occupational Experience for Distributive Educators

Ferguson (1964) used a questionnaire to survey the practices for college distributive education and retailing occupational-experience programs. The questionnaire was sent to 102 institutions listed by the U.S. Office of Education, the American Collegiate Retailing Association, and a selection of schools listed in the roster of the

National Association of Business Teacher Education. Findings were reported for the entire group of institutions and for those offering distributive teacher education. The data were organized under four major categories: (1) the format of the occupational-experience program, (2) the coordination of the occupational-experience programs, (3) the supervisor's opinions about occupational experience and the regulations in his state regarding occupational experience, and (4) an attempt to determine the availability of persons who had been exposed to occupational-experience programs.

Sheehan (1964) used the questionnaire to gather basic information from 91 teacher-education institutions concerning work experience for future business teachers. Five representatives questioning its value were interviewed in depth. Eighty-five per cent of the respondents believed philosophically in the value of work-experience programs for future business teachers. Twenty-nine per cent of the institutions had an existing store work-experience program and 30 per cent had an existing office work-experience program with college credit.

During the summer of 1966, 30 selected distributive education teachers and teacher-coordinators from Upper Midwest high schools, area technical schools, and junior colleges participated in phase one of a pilot training program involving occupational experience. This project, directed by Meyer (1966), enlisted the cooperation of distributive businesses in the Twin City Area and the assistance of faculty members from the University of Minnesota Industrial Relations Center and Occupational Guidance unit of the counselor education program.

In-Service Teacher Education
Studies and Reports

Both Council for Distributive Teacher Education professional bulletins of 1963 deal with aspects of in-service teacher education. Scannel (1963) investigated off-campus responsibilities of distributive teacher educators receiving a 94.12 per cent return from 34 questionnaires. He found that off-campus activities accounted for 27 per cent of the teacher educator's time and off-campus administrative duties another 18.2 per cent. Data was also gathered on the number of credit hours taught, variation of teaching loads, and faculty credit-hour loads, all of which have a relationship to problems concerning off-campus activities. Highlights of his findings relating to professional off-campus activities are as follows: (1) the largest single group (43.5 per cent) tried to schedule one day a week for this kind of activity, 13 per cent usually spent two days a week in the field, and 21.7 per cent allowed three days a week of off-campus functions; (2) more than half of the respondents offered professional courses for credit off-campus; (3) over 90 per cent scheduled individual visitations to their coordinators; (4) in-service education was conducted by 91.3 per cent; (5) local schools were visited by 95.6 per cent; (6) nearly 74 per cent had responsibility for off-campus student-teachers in distributive education; (7) nearly 70 per cent participated in checking the effectiveness of their high school programs; (8) slightly more than half of the teacher educators participated in planned periodic evaluation; and (9) nearly all of them (95.6 per cent) were involved with coordinators' conferences.

Carter (1963) gathered data on the role of the distributive teacher educator in adult education. He contacted 25 institutions

in 23 states by letter and received a list of functions performed by the teacher educator during the previous two years. From this information, he formulated a questionnaire and received returns from 22 institutions in 20 states. His findings are too numerous to report. Categories of his findings are: (1) organizational patterns, (2) services performed for business organizations or groups, including courses presented, (3) services performed for teachers and local school systems, (4) services performed for both business and school organizations, and (5) professional affiliations, organizations, research, comments, and suggestions.

Evaluation of Distributive Teacher Education

Only two studies dealing with the evaluation of distributive teacher education during the past decade were located for review. A third study of a related nature is an inventory of needs of teacher education institutions. The most comprehensive study, by Willis (1954), covered all existing teacher education programs at the time of the study. It involved the collection of a large amount of data, the formulation of a check list, and an evaluation of it by a jury of experts. The important findings of this study were described earlier in this section under the caption, "Teacher Education During the 1950's."

Cheshire (1964) did a follow-up study on 1956-63 graduates of Virginia Polytechnic Institute, receiving 100 responses to 101 questionnaires. He collected data on the location of residences, marital status, expression of a need for additional education, and number continuing their education, positions in which they were

employed, number remaining on their first job, number who took their first job as teacher-coordinators, starting salaries, average annual salaries, and number serving in the armed forces. A very high percentage of the graduates indicated that they profited from their student-teaching. The off-campus experiences were rated high in all areas of evaluation.

The study referred to above as being a related kind of study is the Knouse study (1962), the findings of which were described in considerable detail in this section under the caption, "Teacher Education Curriculum Inquiries."

ADMINISTRATION AND SUPERVISION

The number of studies reviewed that were classified as Administration and Supervision was surprisingly small. Only eight studies dealt in whole or in part with administrative problems--six of them pertaining to local programs and two to state programs. For discussion purposes, the reports of these studies are divided into two groups: those dealing with state-level problems and those at the local level.

One reason for the small number of studies reported in this section of the review is that research activities relating to evaluation of state and local programs are reported in the next chapter. Perhaps the most important reason, however, for this apparent near-dearth lies in the fact that very few of the research activities performed by state supervisors and their staffs breaks into print.

State and area supervisors and some teacher educators, particularly those who travel the state, almost incessantly gather information about local operations which is used in making decisions and in forming recommendations to local school administrations and teaching

personnel, to their state directors and boards of education, and to the U.S. Office of Education. Data is gathered periodically for a variety of committees of the National Association of State Supervisors of Distributive Education (NASSDE), an affiliate of the American Vocational Association, and to the parent organization. For example, appended to the minutes of the December, 1965, meeting of NASSDE were the following reports: (1) responses to a questionnaire on public relations, (2) responses to a questionnaire on research and development, and (3) responses to a questionnaire on guidance and counseling goals. Unfortunately, the information and data contained in reports such as these are seldom reported formally and distributed beyond the membership of the organization. Thus, false impressions arise regarding the research activities at this level of program operation.

State Administration and Supervision

Shipka (1957) conducted a survey to determine the functions of the state supervisors of distributive education and the services provided to schools. He sought information about size of staff, number of schools served, nature of the services offered, and similar information so that realistic recommendations might be made regarding the distributive education staff to the Minnesota State Board of Education. Fifty-one questionnaires were mailed to state departments of education and 46 were answered. More than half of the state supervisors reported that they were responsible for supervision of the teacher-education program. Ninety-one per cent of them were responsible for recommendations for certification of teacher-coordinators. Twelve of the

respondents were also acting as teacher educators and many commented that state supervisors should not have this responsibility. Twenty-two states reported that they had advisory committees. Teacher procurement and placement was an activity performed by two-thirds of the responding state supervisors.

The second study classified in this category was done by Canada (1966) who studied the relationship of distributive education in Colorado to state-plan requirements. It was not possible to review a summary of the findings in time for this review.

Local Administration and Supervision

Studies dealing with local administration and supervision of distributive education are entirely descriptive. They are based almost completely on the opinions of practitioners. They seem to fall logically into three groups: (1) General Practices, (2) Advisory Committees, and (3) Public Relations.

General Practices

Ovsiew (1960) directed a study of distributive education practices in a number of large city school systems. He employed three distributive educators and two marketing professors to conduct depth interviews in the cities visited. A large percentage of the practices reported may be classified as administrative and supervisory under such headings as the following: Administration, Adult Program, Advisory Committee, Coordinators, Curriculum Committee, Directors, DE Clubs, DE Week, and so on. The contribution of the report lies largely in the innovative practices described. Another source of information on administration and supervision of distributive

education is the Warmke study (1960) which provides the opinions of national leaders on a wide variety of practices. A comprehensive report on opinions regarding certification criteria and standards is included in the study.

Two master's degree studies involved the construction of manuals or handbooks on distributive education. Allen (1959) gathered information and data for a handbook for Iowa coordinators of distributive education. Bolton (1960) studied some of the factors involved in planning and coordinating a distributive education program with emphasis on Longview (Texas) Negro High School. Flis (1962) developed a manual for initiating and operating secondary school cooperative part-time programs. This manual included procedures for a principal, a coordinator, and a counselor. The practices and procedures were based on experiences with the program in Minnesota.

Advisory Committees

Powell (1965) devoted an entire master's study to an evaluation of advisory committees of the distributive education programs of Kansas. Ten practices reported in the Ovsiew study (1960) pertain to activities of to the local advisory committee. Warmke (1960) devoted a large section of his report to opinions of distributive education leaders relating to the composition and use of advisory committees in distributive education.

Public Relations

McAfee (1958) surveyed coordinators in Minnesota to identify the public relations media considered valuable in getting the cooperation of parents. He compiled a list of techniques used and constructed a

manual on parent relations for the use of distributive education coordinators. The school paper ranked first in use among the media. Other media used included conferences at the school, newspapers, and open-house programs.

EVALUATION

Evaluation has been one of the more popular types of research conducted by graduate students and other researchers since the beginning of distributive education. Assessments have been made of drop-outs as well as graduates. Processes and methods used in teaching and outcomes of various programs have been measured. Many devices have been employed to determine the quality of the program; however, the most widely used has been the questionnaire sent to students.

Evaluative Criteria for Distributive Education

Logan (1952) developed criteria for evaluating a state-wide in-school distributive education program. A series of panels of experts assisted in the determination of a list of standards governing the operation of a program in a state and in a community. A list of observable criteria was prepared for each standard. An instrument was then prepared for use by a committee in evaluating both a local and state program. The instrument was tried out in Springfield, Ohio, and in the Ohio State Department of Education.

Johansen (1963) developed a set of evaluative criteria to measure the effectiveness of 30 Iowa distributive education programs. In constructing the instrument, 56 check list statements were used with the guiding principles developed by the National Study of Secondary School

Evaluation. Specific criteria were developed for each of the check-list statements. Data were obtained by visitation to each of the high schools.

Follow-Up Placement Studies

Six follow-up studies have been summarized from the numerous follow-up studies conducted since the inception of distributive education. The wide variation in the types of information sought is noteworthy. Lack of uniformity in the structure of the questionnaires resulted in the inability of the authors to compare findings properly. The following discussion will reveal some of the problems involved in a comparison of findings.

Haines (1965) made a study of high school cooperative trainees to determine how they fare in the labor market. The study is a continuing project which began in 1961. Questionnaires were sent to 4,036 Michigan high school graduates in April, 1964, 10 months following their graduation. There was a 36 per cent return of the questionnaires. Major findings were that the unemployment rate was low; 38 per cent were attending college or some type of post-high institution; 43 per cent were not in the labor market (38 per cent were in school and five per cent were housewives); 35 per cent of the distributive trainees were working in a distributive occupation; and cooperative trainees were better-than-average students academically.

On the basis of the findings, one can conclude that cooperative vocational education contributes to helping young people secure employment and does not prevent them from furthering their education. Employers benefit because many trainees remain with their cooperative employer full-time after graduation.

Miller (1959) surveyed 401 distributive education trainees in Tennessee High Schools, 1949-50. The three largest cities in Tennessee accounted for 38 per cent of the trainees. Three-fourths of the trainees did not expect to attend college. Most frequently mentioned good points of distributive education were "learning to meet people" and "experience in salesmanship."

Hecht (1963) conducted a follow-up study of high school graduates of three New York State high schools to determine why they had selected distributive education, whether a substantial number remained in the field, and what their evaluation of the program was after obtaining store experience. Six hundred and fifty questionnaires were sent and 213 replies were received. Forty-six per cent of the respondents said that the training helped them advance more rapidly in their careers. They felt that they knew more than other part-time workers. They said that they chose distributive education for vocational reasons and because the field offered advancement and opportunities. They indicated that the chance to earn both graduation credits and money stimulated them to enroll. Only 13 per cent remained in the field one to three years following graduation. Fifty per cent left the field within six months because of inadequate salaries and long hours. The five units checked most often as those which could be learned better in the classroom than on the job were: public relations, contacting customers for outside selling, personality development, how to buy merchandise for resale, and how to get along with others. The fields most graduates entered upon leaving retailing were: homemaking, wholesaling, self-employment, and manufacturing.

Zancanella (1965) conducted an exploratory study of the effect of the secondary cooperative distributive education program on selected employment factors. He sought to determine whether or not there were important differences in selected criteria between distributive occupations employees who had participated as distributive education students and distributive occupations employees who did not participate in such a program during their high school attendance. No significant differences were found in types of employment firms, titles of position, main job function performed, job-performance ratings, reasons for changing employment, and salary. Significant difference did exist in intentions to remain in their present type of work.

Ely (1964) conducted a follow-up survey of 2,903 DE students in Virginia who graduated between 1957 and 1961. The purpose of the survey was to assist in evaluating the effectiveness of the distributive education high school program in terms of job stability of former students, numbers of graduates who continue their education beyond high school, and the impact of the program in later years on graduates. A total of 66 per cent were in the labor force. Of this number, 84 per cent were working full-time and 16 per cent were working part-time. Sixty-one per cent were still employed in distribution. More than one-third were still employed in the same business establishment in which they received their training. Thirty-three per cent had left the field of distribution for other employment. The percentage of employment in the retailing field showed a decrease, while permanent employment in service and wholesale establishments increased. More than 30 per cent of distributive education graduates in Virginia continued their

education beyond high school. More than 10 per cent were attending school and working part-time. Sixty-eight per cent of the distributive education graduates were cognizant of benefits which they received from the program. Three-fourths of the graduates recalled their distributive education work-experience with pleasure. Sixty-five per cent recalled classroom instruction pleasantly and almost half cited the personal help of the distributive education coordinator.

Donaldson (1958) measured the effectiveness of the federally-reimbursed part-time cooperative distributive education program in public secondary schools in Illinois. Questionnaires were sent to 833 persons in Illinois, including graduates of the program, school administrators, guidance personnel, employers of cooperative students, parents, distributive education coordinators, business teachers, chambers of commerce officials, and non-business education teachers. The sample included about 50 per cent of the cooperative distributive education programs in Illinois (outside Chicago).

Parents' opinions were favorable. All segments of the sample stressed the importance of the expert guidance and selection in helping students to decide for or against entering the program. A great many of the weaknesses of the program were attributed to the presence of students in it who were not interested or suited for employment in retailing.

Shotwell and Bikkie (1962) also made a state-wide follow-up study. They conducted an independent study of graduates of Kansas high school cooperative program graduates for the school years ending 1955, 1958, and 1961.

Four "follow-up of graduates" master's degree studies of local community scope will be mentioned for the benefit of those interested in this kind of evaluation. They are as follows: Elias (1962) who followed up the graduates of Burlington (Iowa) High School, Hancock (1960) who studied Edmonds High School graduates (Sumpter, South Carolina) during the years 1948 through 1957, Outwin (1960) who conducted a similar study of Bemidji (Minnesota) High School graduates for the years 1947 through 1954, and Zenk (1958) who studied the graduates of Zanesville (Ohio) High School.

General Follow-Up Studies

Corbman (1958) evaluated the retail distribution curriculum of a technical institute in New York City through a follow-up study of graduates during its experimental period of April, 1947, to August, 1953. A questionnaire was prepared which inquired about the frequency with which the graduates engaged in retailing activities related to material taught in the curriculum. With noted few exceptions, those competencies, information, and attitudes pertaining to the aims and objectives of the retailing subjects in the curriculum were sufficiently necessary and useful in the performance of the graduates' retailing duties and responsibilities to warrant retention of that training in the curriculum. Cooperative training was very helpful as a training technique.

Pierce (1959) conducted a follow-up study of the graduates of Kansas State Teachers College who majored in business and business education from 1918 to 1958. Questionnaires were mailed to 1,067 graduates--753 replies were received. A questionnaire was sent to the 89 graduates of sales and insurance curriculums--a total of 58

replies were received. The respondents were asked to indicate the courses which had proved to be most valuable to them.

Dorn (1961) conducted a follow-up study of 3,325 graduates of 37 high school distributive education programs in South Carolina between 1950 and 1960. Forty-five per cent responded. Almost all respondents stated that they had elected distributive education on their own volition. Excellent or adequate ratings were given on classroom instruction, on-the-job training, counseling by the distributive education teacher, and classroom discussion of job problems and demonstrations. The most important instructional units, according to the respondents, were school and store relationships and retail merchandising. Aspects of the program rated least satisfactory were: instructional activities, talks by businessmen, instructional materials, trade magazines, instructional units, legal aspects of business, and accounting and control. More than one-third of the respondents had at least one year of post-high school training and a substantial number had earned an academic degree. Almost half were employed in a distributive occupation.

A comparison of findings with those of Crawford, Zenk, and Donaldson gave an interesting twist to this follow-up study. For example, Donaldson had found talks by businessmen rated highly as an instructional activity although Dorn did not. Dorn's findings were in agreement with others that selection, guidance, job placement, and promotion of the program needed improvement.

Mock (1965) conducted an evaluation of the federally-reimbursable part-time cooperative distributive education programs in public secondary schools of Arkansas.

Evaluative studies of programs within an area were done by Murray (1957) on the Knoxville and Knox County (Tennessee) high schools, by Moore (1958) on the White County (Illinois) high schools, by Sommers (1958) on the Peoria and Springfield (Illinois) high schools, and by Seibel (1961) on the secondary schools of the suburbs of Chicago.

Local distributive education program evaluations were made by Wilson (1958) on the Marshalltown (Iowa) High School program and by Merritt (1964) on the Durham (North Carolina) High School program.

Evaluation of Process and Method

The development of curriculum in distributive education has come primarily from teachers of distributive education, state courses of study, textbooks, and teacher educators in a small number of states. Samson (1964) stated that broad, comprehensive studies of needs in total curriculum for preparing distributive workers at the secondary level had not been conducted. He further stated that the dearth of studies made the soundness of some areas suspect.

Rose (1963) made a study of the need for revision in the course content of distributive education programs as a result of the progress of automation in retailing. Though retailing was behind other segments of business and industry in automation, it was growing at a rapid pace. Rose found that automation in retailing affected a number of store functions such as management and stock control, purchasing, and credit. Little attention was being given to automation in high school or junior college programs. Supervisors and teacher educators had little background in automation. He recommended that distributive education

coordinators should receive training in automation and data processing.

Martin (1962) analyzed the retail store salesmanship content of selected distributive education textbooks to determine the basic essentials that should be included. There was substantial agreement between the textbook authors and the experts of other research in regard to essentiality. There was limited agreement between textbook authors and the parent-customers in regard to acceptability. Textbook authors favored a management viewpoint, whereas parent-customers favored a consumer viewpoint.

Peart (1961) analyzed objectives and practices in distributive education laboratories in high schools and junior colleges of the United States. He found that activities in the high school laboratories were coordinated more closely with the requirements of the students' store work-training stations than were those in the junior college. He observed that officials in the U.S. Office of Education showed more concern for those functions in the laboratory that are related to public relations and adult training than do the high school or junior college coordinators. He concluded that the distributive education laboratory supplements students' store work experiences as an instructional device for providing the training necessary for the distributive occupations.

Ashmun (1961) studied the use of business games in DE. He found that business games are useful as an aid in assisting students in getting an understanding of complex functional business relationships as well as a better understanding of the mathematical relationships in a business operation. He stated that games should not be an end

in themselves. When a game is devised to represent a specific business, it should be played first by persons employed.

Harris (1959) evaluated course content and textbooks in distributive education. Thirty-nine textbooks were used by the 142 respondents. One-third suggested more illustrations. There was a considerable difference of opinion as to what should be taught in pre-employment; however, there was much better agreement as to the units of instruction for cooperative DE classes.

Duxstad (1963) reported that trade magazines were used on a casual basis. Ninety per cent of the respondents reported that they leaf through the magazines and read appealing articles. Ninety-five per cent clipped articles for further reference. A variety of learning activities are used in conjunction with magazine articles. There was a consistency of opinion about the most useful magazines. Timeliness was the most important criterion in selecting articles to be clipped. Files were not accessible to students in approximately half of the classrooms.

Smith (1962) evaluated work experience in distributive education in the northern 21 counties of Illinois. Thirty-nine per cent of the respondents worked in stores having 10 employees or less. Eighty per cent were supervised by someone with more responsibility than a regular employee. Selling and stock work were the types of work performed most frequently. Thirty-six per cent felt they did not receive enough training for the job. Parents were satisfied with the program and most students were glad to be in it. Coordinators, supervisors, and students tended to agree that work experience is a necessary part of the program.

Shupe (1962) evaluated the worth and value of cooperative education from the viewpoint of high school teachers. The study can be replicated in other schools. The teachers in the high school surveyed felt strongly that the cooperative program is a vital part of the total school program and should be available to more students. There is evidently a problem of study time for students enrolled in the co-op program. Also, there is a need for a more careful selection of students.

Kohns (1963) found that the attitude of post-high school students in a class in show-card writing toward teaching machines was quite favorable. As the result of a report that 85 per cent of coordinators teach advertising, Olson (1957) produced a visual-aid for use in teaching the psychology of advertising.

Schadt (1965) found that Kenosha (Wisconsin) Technical Institute marketing students scored highest in creativity among four departments of post-secondary business administration, as measured by abbreviated Form VII of the Minnesota Tests of Creative Thinking. Data-processing students were second, accounting third, and secretarial science fourth.

Kintz (1965) did an evaluation of project approach distributive education classes with the use of questionnaires sent to 218 distributive education coordinators in schools where project-approach programs were in operation. He found that 22 of 27 units listed in his questionnaire were taught in 80 per cent of the classes and that the method of teaching was "strictly academic." He concluded that of the subjects that were not presented in classes, some were covered in other classes or they were not a part of a distributive occupation.

He also concluded that coordinators are not using the project-approach to its fullest extent in teaching.

Evaluation of Outcomes

The producer must know the value of the end product; otherwise he will never know how or where or when to make improvements. Distributive educators have been seeking to find a more effective way to learn about the end product.

Mason (1961) analyzed the content of related instruction for cooperative part-time programs in distributive education in Illinois. He sought to determine whether or not the content and structure of related instruction reach beyond preparation and success in the entry job. He found that growth and advancement on the job as the result of the training was not pronounced when comparing the distributive education graduates and the non-distributive education graduates. Employer opinion, however, gave stronger indication of growth and advancement of the graduates of the program when compared to those who were not. Distributive education graduates were relatively more in the top management bracket than the non-distributive education graduates. Indications were that the graduates were prepared for advancement positions rather than entry positions. There was not a precise fit between what business wants from the training and what teacher-coordinators do in providing the training.

Barton (1960) sought to determine the degree of fulfillment of objectives in Ohio's distributive education training stations. A frequency rating scale was developed to make it possible for the teacher-coordinator to indicate the degree of fulfillment of the questions or objectives in relation to the effectiveness of their

training stations. The four areas of inquiry were: (1) employment procedure, (2) job assignment, (3) job instruction, and (4) progress evaluation.

He found that employment procedures comply in most instances with stated objectives. Job-assignment procedures rarely satisfy the objectives. Job-instruction procedures rarely satisfy objectives. Progress-evaluation procedures ordinarily do meet the objectives.

Chester O. Mills (1964) sought the answer to the question posed by businessmen, teacher educators, and teacher coordinators as to the academic quality of the distributive education cooperative high school student. Academic status was defined in terms of mental maturity scores, rank in respective graduating class, and over-all GPA. Also considered were student drop-out rates in high school and recruitment methods used to enroll distributive education students. Twelfth-grade students from 85 schools in 28 states were represented. Three school years were included: 1954-55, 1957-58, and 1960-61. For all three years, data indicated that more than 80 per cent of the cooperative students had mental maturity scores of between 85 and 114. Six per cent had scores below 85.

There is a trend toward lower placement of distributive education high school students in their respective graduating classes beginning in 1954. More than 70 per cent of these students ranked in the lower two quartiles of their respective classes for all three years of the study. More than 80 per cent had over-all grade-point averages of average or below-average for all three years studied. Distributive education cooperative students had a greater tendency to complete high school than their fellow students in the secondary school.

Johansen (1963) found major weaknesses in the organizational pattern of Iowa high school distributive education, although minor strengths did exist. There were major strengths in the curriculum content, instructional activities, and methods of student evaluation and appraisal. Major weaknesses occurred in physical facilities, instructional staff, and instructional materials.

Gradoni (1957) studied the status of certain aspects of cooperative work training in selected federally-reimbursed distributive education programs in New York State. He found that trainee graduates and employers benefited materially as a result of their participation. He reported that certain conditions had developed which would adversely affect future program progress if not remedied.

Boone (1964) evaluated the status of distributive education in the public high schools of North Carolina. Included in the evaluation were curriculum, instructional activities including selection and placement of students, and adequacy of facilities. Observations were made to compare the North Carolina program with published practices in New York and Virginia. Boone found the curriculum basically similar but more standardized in North Carolina, therefore less flexible. Teaching methods were similar but the lecture method was overused. The interview was the primary method of selecting students; next, school records; third, guidance counselors. Many schools lacked basic items of equipment. Progress was somewhat spotty, particularly in Negro high schools, due to the segregated pattern in education and employment.

Vogley (1958) made a comparative study of distributive and non-distributive education high school graduates. From the initial

questionnaire to 1951 graduates from three public high schools offering distributive education in Erie, Pennsylvania, three groups were selected: (1) forty-six distributive education graduates who had completed two semesters of the merchandising course in high school, (2) forty-six non-distributive education graduates who did not take the merchandising course in high school but who were, or had been, in some phase of distribution since graduation, and (3) the control group of 46 persons who were neither enrolled in the merchandising course in high school nor had they ever been employed in a full-time distributive occupation since graduation.

Vogley found that there were no outstanding characteristics revealed among three groups that might be used to identify distributive education students. No statistically significant differences were demonstrated among the three groups on the California Test of Mental Maturity scores. The control group had a higher grade-point average at graduation than the distributive education group. Employers cooperating with the distributive education work-training program generally felt that student-trainees were no more outstanding than those who were not. No statistically significant difference was demonstrated among the three groups as to performance of work after graduation. The distributive education graduates did not remain in the field of distribution as long as the non-distributive education graduates.

Pappas (1964) conducted a study to evaluate the post-secondary Ohio Wholesale Management Development Program. He found that the program met the objectives expected by the trainees and the employers. The trainees progressed much faster in the areas of personal

appearance, capacity for growth, quality and quantity of work, and human relations than the control group which had not had the training. The control group progressed faster than the trainees in the areas of job knowledge, product knowledge, customer service, and accuracy with figures. The employers felt that more assistance was needed in establishing the program and that more visitations should be made by the coordinator. The program attracted trainees of a higher caliber than those normally employed by the wholesaler. The program was able to hold the majority of the trainees. The employers, in most cases, offered the trainees important jobs upon graduation.

Henkel (1965) conducted a subjective evaluation of the two-year post-high school marketing curriculum in Wisconsin from the viewpoint of the graduates. He found a need for more specific occupational information with a broader coverage of the distributive occupations. Respondents were generally satisfied with the guidance services. Factors influencing enrollment in the marketing program most frequently mentioned were employment opportunities, high school counseling, and recommendations of friends. Little difficulty was experienced in obtaining employment following graduation. Ninety-three per cent of the respondents were in distributive occupations.

In addition to Vivian's findings (1966), reported earlier, that Indiana high school seniors participating in distributive education classes, in Junior Achievement, or in economics courses did not score significantly higher on the Test of Economic Understanding, he found that socio-economic background was not significantly related to the level of economic understanding of the student but that scholastic ability was. He recommended that experimental studies be made to

help improve the effectiveness of the three factors and that studies should be conducted in an attempt to determine what economic concepts or understandings are being learned in these three kinds of activities.

Louthen (1957) did a study of the effect of part-time employment upon the future vocational choices of high school seniors which will be of interest to distributive educators.

Robertson (1965) gathered information to appraise the effect of cooperative education programs in the secondary schools on beginning workers, using selected factors which were related to job success and satisfaction. The abstract of the study does not describe the occupational fields of cooperative students in the sample; nevertheless, the findings are of value from the standpoint of comparison with those of other studies. Cooperative education did not appear to have any effect upon any of the 11 factors studied although it was found beneficial to those students who wanted to begin working immediately after graduation from high school. Mean scores on the Job Satisfaction Scale were 66.29 for the cooperative group and 64.49 for the non-cooperative group; on the employee rating form it was 38.44 for the cooperative group and 37.09 for the non-cooperative. Of the cooperative employees, 58.82 per cent began work immediately after graduation compared with 34.28 per cent of the non-cooperative group. Cooperative employees had held an average of 2.06 jobs since graduation; the non-cooperative employees had held an average of 1.74. Gross weekly wages for cooperative employees was $86.03 and for the non-cooperative group, $81.56. Expected persistence in the line of work in which they were engaged was similar as were the reasons why they changed jobs.

Mock (1965) evaluated practices and procedures in the cooperative distributive education programs in the public secondary schools of Arkansas. The evaluative criteria developed by Logan (1952) were used to evaluate 15 local programs. The evaluation committee gave high ratings to the following items: (1) extent to which the programs were based on employment opportunities and needs of youth, (2) recognition given the program by the local school, (3) utilization of all resources in the development of the programs by the local school administrations, (4) care with which the teaching staffs were selected, (5) protection of students' best interests, (6) personal qualifications of distributive education staff members, (7) contributions by these staff members to the total general and vocational education programs, and (8) friendly and mutual relationships between coordinators and their students.

The following items received a low rating by the evaluating committee: (1) extent to which surveys of employment opportunities, follow-up studies, and interest studies had been made, (2) extent to which interested groups in the community had evaluated the need for distributive education, (3) degree to which the students had succeeded in general education programs prior to entering distributive education, (4) availability of suitable physical facilities, equipment, and instructional materials for the program, (5) utilization of advice of interested persons and groups in program development, (6) extent to which a sufficient number and variety of placement opportunities were provided by merchants, (7) extent to which information about distributive occupations reached students, and (8) promotion of the program by coordinators. Eight recommendations for program improvement were made to correct the weaknesses suggested by the low ratings.

Attitudes of Students

Rountree (1965) analyzed distributive education students' attitudes toward their classroom instruction, their work experience, and careers in distribution. A modified version of a summated rating scale, providing for both objective and subjective responses, was used to determine students' attitudes. Validity was determined by internal consistency and logical or circular methods. The split-halves method was used to determine reliability. Use of a scoring key insured objectivity.

Analysis of quantitative and qualitative data indicated distributive education students tend to express through ratings and opinions, favorable rather than unfavorable attitudes toward their classroom instruction, their work experience, and careers in distribution. Better employer-employee relations, better working hours, higher salaries, and a higher regard for the role of distributive education by training stations and distributive occupations personnel are improvements desired by students.

Patterson (1963) analyzed Ohio distributive education students' attitudes toward school and work. He sought to determine attitudes held by in-school distributive education students with regard to their schooling and future plans. From a population of 1,382, replies were received for 1,148. Replies came from 68 out of 71 programs.

Fifty-seven per cent said they intended to stay with present employer following graduation. Forty-four per cent said they would like to be working in a business similar to their present one in five years. Greatest influence upon choice of distributive education program was efforts of distributive education students; next, the

coordinator; third, the counselor. Few students said they were influenced by an employer or another businessman. Forty per cent had jobs when they applied for the program. Fifty-nine per cent liked school when they signed up for distributive education. Fourteen per cent did not like school when they signed up. Forty-one per cent had a change in attitude about school since they had enrolled. Of these, 51 per cent changed from dislike and indifference to favorable. Eleven per cent changed from like to dislike. Sixty per cent indicated that they planned to go on to further schooling after graduation from high school.

Merriman (1966) conducted a study in a big city to determine the stratification and comparison of a high school population by their degree of relationship to the distributive education program. The study was developed as a paradigm for the use of data processing in a research problem based on hypotheses developed from sociological theory and observed characteristics of vocational students. The study indicated that the differences between groups were generally not those which were considered to be typical of the distributive education student.

Bicanich (1964) received very favorable reports from Minnesota high school distributive education students in their reactions to the cooperative distributive education program. Eighty-five per cent of the respondents said they would choose distributive education if they were to make the choice again. The largest percentage of students (34.4 per cent) planning to stay in distribution were from suburban schools, followed by out-of-state schools (30.4 per cent), and then metropolitan schools (18.7 per cent). Out-of-state school students were best satisfied with the program (87.9 per cent) followed by

suburban school students (85.3 per cent) and Twin City schools (79.3 per cent). Twenty-eight per cent of the respondents planned to follow a career in distribution; 45.1 per cent were undecided and 24.8 per cent said that they were leaving the field.

RESEARCH

Early in this decade, Samson (1962) and Larson (1961) described distributive education research as being almost entirely descriptive in nature. Larson surveyed state departments of education and teacher education institutions offering distributive education and found that 27 per cent of the studies reported were occupational surveys, whereas only two per cent of the problems suggested for research by state supervisors and teacher educators were classified in this category. Facts such as this may be expected when an investigation includes the complete range of "research" activities. Neophite researchers, who are greatly needed in distributive education, were able to make descriptive investigations, and since there were many more beginners than there were sophisticated researchers, descriptive studies were dominant.

The Nature of Past Research

Whether or not the dominance of descriptive research is an unhealthy situation is subject to question. Certainly, good descriptive studies serve a useful purpose: they may be forerunners of experimental research; they may lead to the development of appropriate instruments for measuring desired learning outcomes in a vocational field; they may serve as stimuli to further research on the part of the researcher and others; and so on. But can distributive education

improve and expand on the strength of descriptive research alone? The answer is obvious--not for long. Experimental studies are needed to indicate which direction to follow. Unfortunately, only one or two experimental studies in distributive education have come to the attention of the reviewers.

Fifty-eight doctoral dissertations concerning distributive education have been referred to in this report, yet only one--that of Ashmun (1966)--is classified as experimental. Another, by Vivian (1966), has some experimental study characteristics and is sometimes referred to as a comparative-type study. A person may wonder about this heavy emphasis on descriptive studies. One reason may be the lack of appropriate measuring instruments. Experimental studies are of little or no value if the testing instruments used do not measure the precise desired outcomes from teaching. In many experimental studies, it is necessary to construct a test that will measure these outcomes and usually a doctoral candidate is not in a position to accept this rigorous assignment. Another reason for the lack of experimental researchers may be the scarcity of situations in which there is a sufficient number of students or classes to form bona fide experimental and control groups. In light of the growth of distributive education, the latter reason is diminishing fast.

Measuring Instruments

Only two distributive education studies reported contained refined tests designed for the study in which they were used. On the other hand, several studies utilized existing achievement tests which were appropriate to the purposes for which the tests were designed but did not measure important outcomes in distribution. Conversely, at

least one study included the use of an acceptable test of job satisfaction--a kind of measure which holds promise for research in all vocational fields. Three studies involved the discrete use of creativity tests. Thus, it seems as though little use of tests has been made by distributive education researchers up to the present time, that some published tests are suitable for research in this field when properly selected, and that the development of tests designed for the measurement of specific distributive education outcomes is a necessity and is overdue.

One impediment to the development of tests appropriate for use in distributive education has been confusion concerning goals and outcomes. Another has been the mistaken idea that a comprehensive test is the only desirable measure. This brings to mind the words of President Maucker (1962) of the State College of Iowa in his charge to the Central Region Distributive Teacher Education Conference.

> I would like to express the hope that in your deliberations, somewhere you will stress the evaluation of outcomes, and I mean hardheaded evaluation of outcomes: measurement of whatever facets of achievement (that) can be measured. I think we have hidden behind the idea that we can't measure all of the outcomes, so we don't measure any of them.

Improvement in Descriptive Research

It appears to the reviewers that the quality of descriptive studies in distributive education is improving. Certainly, the use of recognized statistical methods is increasing. In most studies, data were gathered on the entire group being studied. However, in the newer studies when the group to be studied was of sufficient size to warrant sampling, good sampling procedures were usually present.

The variety of techniques for collecting data has increased perceptibly. Although the questionnaire is the dominant device, interviews are being used increasingly. Job analyses are being complemented by critical-requirement studies in which critical incidents were used to gather data. Various kinds of attitude, aptitude, interest, and personality tests are being administered to relatively large groups of subjects.

Processing of data has improved greatly with the use of electronic data processing. Measures of central tendency are more frequently and appropriately used. Tests of significance of differences between means are becoming common and analysis of variance is not uncommon.

The Need for Researchers

Without doubt, the greatest impediment to the development of research in distributive education is the dearth of qualified researchers with backgrounds in this field. As might be expected, this relatively new kind of vocational education has been largely confined to practitioners. Many people believe this situation to be a necessary element for survival through infancy years.

Doctoral Degree Researchers

Although a doctoral degree offers no assurance of research proficiency, it may be a rough index of sophistication in research methodology. Of the 60 doctoral studies included in this report, 29 were Ed.D. studies; 25 were Ph.D. dissertations; three were Doctor of Business Administration (D.B.A.) studies; and the remaining three were not classified in the documents reviewed. This inventory

included all doctoral studies, which could be located, extending back to the early 1930's. A number of these studies were done by persons outside of distributive education or by persons who later left the field. Thus, it will be seen that there is a great need for persons who have the proper background and training to direct or conduct research studies in distributive education.

Master's Degree Researchers

Although master's degree studies do not necessarily indicate a great deal of research knowledge on the part of the investigator, some masters' studies make better contributions to distributive education research than do a number of the doctoral studies. In this review and synthesis, more than 120 masters' studies are included. Only those completed during the 10-year period beginning in 1957 were included with one or two exceptions. Nevertheless, the number is small in relation to the need for researchers.

Informal Research Investigators

Notwithstanding its status in the research hierarchy, informal or practical research has made a substantial contribution to the development of distributive education and will continue to do so. Meyer (1966), Larson (1961), and Rosenwinkel (1957) described the nature of informal research in distributive education, explained the need for it, pointed out the advantages of informal research activities, and suggested means of implementing a program of this kind. The importance for informal research was reinforced in U.S. Office of Education Bulletin, OE-82009 (1962), which presents the findings and conclusions of a three-day panel discussion on research in distributive

education held in 1961. The section of the report on findings of the panel contains the following quotation which captured the attitude of the participants: "Both formal and informal studies have a place in distributive education research."

Partly as a result of recommendations made by participants of the 1961 Panel on Distributive Education Research, the first and only publication to date on practical research in distributive education was prepared by Kneeland (1963). This bulletin is designed as a manual for beginners in practical research. It is used widely by vocational educators from other fields and by some general educators.

Iowa distributive educators carried on a well-organized program of informal research beginning in 1960. Reports of 43 studies were published in spring issues of Distributive Keynotes from 1961 through 1964 by the State of Iowa Department of Public Instruction. Samson (1962) differentiated informal research from the everyday "doing" type of study as "research when the approach to the problem is purposefully structured and is replicable." The Iowa informal research studies may be grouped into seven categories. The categories and number of studies in each are as follows: (1) evaluation of student performance--seven; (2) curriculum content--six; (3) methods of instruction and instructional materials--six; (4) student appraisal and selection--six; (5) public relations--six; (6) community service--four; and (7) follow-up and program evaluation--eight.

Data and information for the Iowa informal studies were gathered from a large variety of sources: questionnaires sent to employers, employees, customers, students, student-workers, club members, and parents; personal interviews with similar groups, direct observations

of practices and procedures, records, and literature. The projects undertaken by the Iowa coordinators indicate the usefulness of the research in obtaining answers to problems that confront individual coordinators. The tendency of the researcher to embark on second and third projects after an initial effort seems to indicate a sense of satisfaction and an increased awareness of the usefulness of informal research.

Progress in Distributive Education Research

Relatively slow progress was made in the development of distributive education research since its inception, during the first decade of the current century through the middle of the 1950's. However, the general interest in research seems to have had its effect on this field. Samson (1962) stated that the growth in research activity during the six-year period, 1956-62, appeared to exceed that of all previous years. If this is true, the rapid rate of increase in distributive education studies did not persist during the following four-year period as will be seen in the number of studies reported in Table 1. During the four and one-half year period ending in June of 1966, five more doctoral studies were produced than in the previous five-year period. The increase in master's degree investigations for the same period was only a few, notwithstanding the fact that a number of colleges had added the master's degree program to their curriculums. These data suggest further investigation

TABLE 1

MASTERS' AND DOCTORS' STUDIES IN DISTRIBUTIVE EDUCATION, 1957-1966

Year	57	58	59	60	61	62	63	64	65	66	Total
Doctors' studies	3	5	4	2	4	3	7	5	6	4*	43
Masters' studies	14	14	8	10	13	12	13	14	16	9*	123

*First six months only.

The mean number of doctor's degree studies during the 10-year period is 4.5 as compared to 12.9 masters' studies. Approximately three master's degree studies are reported for each doctoral study. This does not imply that three persons earn masters' degrees for each doctor's degree because in a number of schools, a master's paper for thesis is optional or is not included in the program. It seems that the total number of studies at each educational level is low in light of the current interest in distributive education.

Areas of Research

Table 2 shows the number of references made to masters' degrees (M), doctors' degrees (D), and other kinds of studies (O), according to 13 content areas and by the year in which the study was made. This table provides some indication of the number of contributions made from three kinds of studies--it does not show the importance of such contributions. The data reveals that even though there were three times as many masters' studies reported during the decade, more references were made to doctoral dissertations--166 doctoral references as compared to 162 masters' references. The chart also shows the areas of study

TABLE 2

REFERENCES MADE TO STUDIES REPORTED
BY YEARS AND SUBJECTS

Subject Area	Prior to '57	'57	'58	'59	'60	'61	'62	'63	'64	'65	'66*	Total
I. Philosophy and Objectives												
M						1	1					2
D	4	2			1							7
O									1			1
2.7 %T	4	2	0	0	1	1	1	0	1	0	0	10
II. Manpower Needs and Employment Opportunities												
M			1	1			4					6
D	1							1				2
O		1										1
3.6 %T	1	1	1	1	0	0	4	1	0	0	0	9
III. Curriculum Development												
M	1	4	5	5	1	3	2	1	3	4	3	32
D	5	3	2	2	1	2	2	7	1	1	2	28
O	1			1	1	1	2			1		7
18.4 %T	7	7	7	8	3	6	6	8	4	6	5	67
IV. Educational Programs												
M		1		1	2	1	1		1			7
D	1		1		1						1	4
O							1				1	2
3.6 %T	1	1	1	1	3	1	2	0	1	0	2	13
V. Instructional Materials and Devices												
M	1			1								2
D												
O												
0.5 %T	1	0	0	1	0	0	0	0	0	0	0	2
VI. Learning Processes and Teaching Methods												
M	1	5	4	3	1	4	1	6	4	11	2	42
D	7	6	1		10	1	1	1	4	5	1	37
O	2				1	1	4				1	9
23.9 %T	10	11	5	3	12	6	6	7	8	16	4	88
VII. Student Personnel Services												
M		3	4		3	3		8	7	4	1	33
D	8	7	2	1	6	2	5		8	9		48
O	1				2				1			4
23.4 %T	9	10	6	1	11	5	5	8	16	13	1	85
VIII. Facilities and Equipment												
M					1				1	2		4
D			1		1	1		1				4
O												
1.9 %T	0	0	1	0	2	1	0	1	1	2	0	8

TABLE 2--Continued

Subject Area		Prior to '57	'57	'58	'59	'60	'61	'62	'63	'64	'65	'66*	Total
IX. Teacher Education													
	M								1	3	1	2	7
	D	9	1		1	2	1	1		1	1	1	18
	O							3	4	2			9
9.3	%T	9	1	0	1	2	1	4	5	6	2	3	34
X. Administration and Supervision													
	M	1	1	1							1		4
	D												
	O												
0.8	%T	1	1	1	0	0	0	0	0	0	1	0	4
XI. Evaluation													
	M		1	2	3	3	3	3	3	2	3	1	24
	D	1	1	3			2	2	4	3	1	1	18
	O							1		1	1		3
11.5	%T	1	2	5	3	3	5	6	7	6	5	2	45
XII. Research													
	M							1					1
	D											2	2
	O							1					1
	T	0	0	0	0	0	0	2	0	0	0	2	4
XIII. Miscellaneous													
	M	1			1						4		6
	D												
	O				1								1
0.5	%T	1	0	0	2	0	0	0	0	0	4	0	7
Total by Year													
	M	5	15	17	15	11	15	13	19	21	30	9	170
	D	36	20	10	4	22	9	11	14	17	17	8	168
	O	4	1	0	2	4	2	12	4	5	2	2	38
	T	45	36	27	21	37	26	36	37	43	49	19	376

* - First six months only
M - Master's Degree
D - Doctor's Degree
O - Other researches
T - Total

in which a particular kind of research is dominant. For example, doctoral references exceed those of the master's degree studies and other kinds of studies in the areas of philosophy and objectives, guidance, and teacher education, while masters' studies tend to contribute more in the areas of curriculum development, learning process and teaching methods, and evaluation. Independent studies, done by teacher-education institutions, state departments, and research institutions, contribute to all areas except instructional materials and devices, facilities and equipment, and administration and supervision. They are most often referred to in the areas of learning processes and teaching methods, teacher education, and curriculum development. From these data, it appears as though a pattern of research responsibility is evolving with certain kinds of endeavor being assumed by those who do masters' papers, and those who direct studies for institutions. More data will be needed before any definite pattern can be verified.

A comparison of the number of contributions to this review and synthesis of research that were recorded for each of the 12 major areas may stimulate some interesting conjectures. The areas in order of frequency are as shown in Table 3.

These figures are not a valid estimate of the relative amount of research activities among the categories for at least two reasons: they do not include informal researches and the number of contributions per category depends on the selective judgment of the reviewers: and the limited time that was available to procure and review the documents. For example, it is reasonable to assume that there was a great deal of local occupational survey work relating to employment needs that did not

TABLE 3

FREQUENCIES WITHIN AREAS OF RESEARCH

1.	Learning processes and teaching methods	88 (23.84)
2.	Student personnel services	85 (23.03)
3.	Curriculum development	67 (18.15)
4.	Evaluation	45 (12.19)
5.	Teacher education	34 (9.21)
6.	Educational programs	13 (3.52)
7.	Philosophy and objectives	10 (2.71)
8.	Manpower needs and employment opportunities	9 (2.43)
9.	Facilities and equipment	8 (2.17)
10.	Research	4 (1.08)
11.	Administration and supervision	4 (1.08)
12.	Instructional materials and devices	2 (.54)
	Total	369 (99.95)

The first five areas of research contributions account for nearly 87 per cent of the references included in this review.

come to the writers' attention. Further, the demands on the reviewers' time was such that detailed study of all the documents was impossible.

Notwithstanding these inadequacies, the categorical frequencies for the 12 areas have meaning. For example, they point up the inadequacies of research in the area of facilities and equipment which is a pressing problem area at this time when the preparatory project method is being developed. Most distributive educators agree that little is known about local supervision of distributive education in large school systems, yet only three contributions were reported in the area of administration and supervision. Certainly greater knowledge of the philosophy and objectives of distributive education held by various groups of distributive educators is needed to achieve unity of purpose and for the development of evaluative criteria for the program as a whole as well as for individual units of the program.

Looking to the top of the contribution frequency list, the high rank of student personnel services category may impress some readers. The relatively large number of contributions in this area undoubtedly reflects the concern of distributive educators in this area. On the other hand, the ranks of the remaining categories are not likely to surprise state supervisors and teacher educators. Feasibility and sophistication in research methods apparently are important factors in the determination of these ranks.

Institutions Producing Degree Research

Table 4 shows that there are 55 institutions of higher learning contributing to degree research in distributive education. Masters' studies were completed in 38 institutions which produced 125 studies. Doctor's degree studies were produced in 24 institutions which furnished 60 studies. Thus, it will be seen that with few exceptions, degree research studies in distributive education are widely scattered among institutions at the master's and doctor's degree levels. This distribution provides both advantages and disadvantages to distributive education which allows lattitude for discussion outside of this review.

The purpose of these data is to provide some insight into the number and location of colleges and universities contributing degree research and to point up the number of studies and location of schools rather than to measure advanced degree productivity. The reader is again reminded that frequency counts of master's degree studies have very little relationship to the number of masters' degrees earned because of the fact that a number of institutions do not require a research thesis or master's paper to meet degree requirements.

TABLE 4

COLLEGES AND UNIVERSITIES CONTRIBUTING MASTER'S AND DOCTOR'S DEGREE STUDIES

	Name of College or University	Masters' Studies 1957-67	Doctors' Studies All Years
1.	Adelphi University (Garden City, N.Y.)	1	
2.	Arizona State University (Tempe)	2	
3.	Boston University (Boston, Mass.)	1	
4.	Bowling Green University (Bowling Green, Ohio)	1	
5.	Catholic University of America (Washington, D.C.)	1	
6.	Colorado State College (Greeley)		3
7.	Columbia University, Teachers College (New York City)		2
8.	Florida State University (Tallahassee)	1	1
9.	George Washington University (Washington, D.C.)		1
10.	Howard Payne College (Brownswood, Texas)	1	
11.	Illinois State Normal University (Normal)	3	
12.	Indiana University (Bloomington)		11
13.	Iowa State University (Ames)	1	
14.	Kansas State Teachers College (Emporia)	9	
15.	Kansas State Teachers College (Pittsburg)	2	
16.	Kent State University (Kent, Ohio)	1	
17.	Madison College (Harrisonburg, Va.)	1	
18.	Mankato State College (Mankato, Minnesota)	1	
19.	Michigan State University (East Lansing)	1	
20.	Montana State University (Missoula)	1	
21.	New York University (New York City)		8
22.	North Carolina University (Durham)	2	
23.	North Dakota University (Grand Forks)		1
24.	Northern Illinois University (DeKalb)	5	1
25.	Ohio State University (Columbus)	11*	4
26.	Pembroke State College (Pembroke, N.C.)		1
27.	Sacramento State College (Sacramento, California)	1	
28.	San Diego State College (San Diego, California)	2	
29.	San Francisco State College (San Francisco, California)	1	
30.	Stanford University (Palo Alto, California)		2
31.	State College of Eastern Tennessee (Johnson City)	1	
32.	State College of Iowa (Cedar Falls)	6	
33.	State University of Iowa (Iowa City)		4
34.	Stout State University (Menomonie, Wisconsin)	1	

TABLE 4--Continued

Name of College or University	Masters' Studies 1957-67	Doctors' Studies All Years
35. Temple University (Philadelphia, Pa.)		1
36. Texas College (Tyler)	1	
37. Texas Woman's University (Denton)	1	
38. University of Arkansas (Fayetteville)		1
39. University of Denver (Denver, Colorado)		1
40. University of Idaho (Moscow)	1	
41. University of Illinois (Urbana)		1
42. University of Michigan (Ann Arbor)	1	1
43. University of Minnesota (Minneapolis)	48*	8
44. University of Nebraska (Lincoln)		1
45. University of North Carolina (Greensboro)	1	
46. University of Oklahoma (Norman)		1
47. University of San Francisco (San Francisco, California)	1	
48. University of Southern California (L.A.)	1	3
49. University of Tennessee (Knoxville)	5	
50. University of Texas (Austin)	1	1
51. University of Virginia (Charlottsville)		1
52. University of Wisconsin (Madison)	4	
53. University of Washington (Seattle)	1	
54. Utah State University (Logan)		1
55. Virginia Polytechnic Institute (Blacksburg)	1	
Totals	125	60

*Reports of studies readily available.

An analysis of the data in Table 4 reveals that there is a wide range in the size of schools contributing degree research and that the size of the institution appears to have little relationship to the number of studies produced.

Comparative data on research productivity by geographical regions has generated considerable interest in the past. Therefore, Table 5 was compiled. Although the regional organization of vocational

TABLE 5

REGIONAL DISTRIBUTION OF INSTITUTIONS AND DEGREE STUDIES

Kinds of Studies Produced	Central Region		North Atlantic Region		Southern Region		Western Region	
	Institutions	No. of Studies	Institutions	No. of Studies	Institutions	No. of Studies	Institutions	No. of Studies
Master's only	11	30	3	3	8	13	9	11
Doctor's only	5	18	4	12	4	4	4	7
Both kinds of studies	4	79	0	0	2	4	1	4
Totals	20	127	7	15	14	21	14	22

education by subject-matter field seems to have been discarded, there are enough advantages to merit its use here.

Table 5 shows the number of institutions and the number of masters' and doctors' studies produced in the four regions--Central, North Atlantic, Southern, and Western. The Central Region contains the most schools contributing distributive education studies (20 schools or 40 per cent) and produces the largest number of studies (127 or 69 per cent). Note also that there appears to be a higher rate of productivity in institutions where there are both master's and doctor's degree studies in distributive education.

Independent and Funded Studies

Substantial contributions to distributive education research in recent years have been made through independent studies by individuals

or groups of teacher educators and/or state supervisors, by state departments of education, and by private and public research agencies with financial support from government and foundation funds.

Distributive Education
Centered Studies

Early attempts at group research were started by Central Region state supervisors and teacher educators in the mid 1950's when little research money was available. An example of this effort is a study entitled, Training Placement of Cooperative Part-Time Students in Relation to Opportunities in Distribution, published by State College of Iowa. (See Haines and Samson, 1957.) This kind of activity was perpetuated by the Council for Distributive Teacher Education (CDTE) soon after it was organized. This organization, which is affiliated with the Distributive Education Division of the American Vocational Association, has published two studies per year since 1962. (See Knouse, 1962, for first bulletin.) Another joint venture was spearheaded by Haines (1964), who chaired a committee of the National Association of Business Teacher Educators (NABTE), and CDTE, which published a report on the technical content competencies needed by teachers of retail subjects.

State departments of education and teacher education institutions have conducted research jointly and independently, which has made increasingly valuable contributions in Virginia, Michigan, Kansas, Pennsylvania, and other states. Studies such as these and those done by professional organizations provide an optimistic note for distributive education research in the future.

The U.S. Office of Education has encouraged distributive education research through conferences, the publication of bulletins, and other activities. The first publication of the Office of Education relating to research was the frequently quoted Emick study (1936). Another kind of research involvement of the Office of Education is found in partial funding of a study of distributive education practices in large cities conducted by Temple University Educational Service Bureau. (See Ovsiew, 1962.) Current practice is for the Office to contract for projects or to fund research proposals under Section 4c of the Vocational Education Act of 1963.

Distribution-Centered Studies

As mentioned earlier, good research in distribution is not plentiful. However, some interesting studies of distributive business practices have been made which provide valuable information for distributive educators. Examples of such distribution-oriented studies are the Lombard study (1955) of the motivation of sales personnel and departmental group dynamics, the Clark and Sloan study (1962), which characterized and criticized store training practices, and the Mayer and Goldstein study (1962), which identified factors in small business failures and successes. It is doubtful that distributive educators have fully capitalized on these studies which were sponsored by the Ford Foundation, by the Small Business Administration, and by the Institute for Instructional Improvement. Two other studies, which have had a heavy impact on distributive education, are the Pierson report (1959), sponsored by the Carnegie Foundation, and the Gordon and Howell report (1959), sponsored by the Ford Foundation. The

impact of these studies on distributive teacher education, the identification of the role of the collegiate school of business administration, and the obligations of distributive education to small and large business firms entitles them to a place in this review.

Research Under Way

No attempt was made in this review to inventory research that is under way. However, some selected observations will be made. Currently, the only source of information about distributive education degree studies under way may be found in the Spring issue of the National Business Education Quarterly. Unfortunately, many distributive education studies are not listed in this publication. Proposals for research in all vocational fields that have been approved for funding by the U.S. Office of Education have been described briefly in a section of the American Vocational Journal. Also, lists of approved projects are released at intervals by the Division of Adult and Vocational Research, Bureau of Research.

Funded Studies in Agri-Distribution

An examination of the list of proposals approved through November 30, 1965, provides some interesting information for distributive education researchers. Thirteen projects deal with problems usually conceived as being in the distributive domain. Seven of the 13 treat non-farm agricultural occupations education problems; three deal with the training of food service employees; and three involve distributive educators in problems of curriculum, methods, and teacher education. This situation reflects several deficiencies centering around the

dearth of research-oriented distributive education personnel. Termination dates indicate that the studies directed by the following persons were to be completed by September 30, 1966, in the area of non-farm agricultural occupations education: Taylor (1965), Coster (1965), Albracht (1965), and Dillon (1965). Similar-type studies are under way, according to the listing, by Mondart (1965), Binkley (1965), and Hull (1965).

Funded Studies for Food Service Employee Training

Public Law 88-210 requires that 10 per cent of home economics moneys must be spent on gainful employment training in the very near future. According to the list of approved proposals, two projects have termination dates in 1966--those by McKinley and Chadderdon (1965) and by Hollandsworth (1965). Another large grant has been made to Iowa State University under the direction of McKinley (1965).

Funded Studies in Distributive Education

The termination date of the first proposals approved by the Office of Education indicates that a project to develop a programed textbook in salesmanship for experimental use in adult education has been completed under the direction of Russell (1964). F. E. Hartzler, Teacher Educator, Kansas State Teachers College, Emporia, writes:

> We have now printed our four-thousandth copy and our adult specialist last year achieved sixteen thousand man-hours of instruction through the use of the programed text. He has at this time, more enrollment in adult instruction than previously achieved in an entire year.

A training program proposal by Samson (1965) to conduct an experimental vocational institute for the preparation of teacher-coordinators of

newly-emerging high school vocational programs was the second project which had an expiration date of June 30, 1966. The third project relates to the competency pattern approach to curriculum construction in distributive teacher education by Crawford (1965). The latter promises to make one of the most valuable contributions of research to distributive education to date. It entails (1) a validated list of basic beliefs about distributive education, (2) an identification of the critical tasks of the distributive teacher-coordinator, and (3) the knowhow for the performance of these tasks and for the implementation of the basic beliefs. The last step includes an understanding of the occupations in which student-trainees are employed.

Another funded project, which was not in the list mentioned above, is a two-phase study dealing with occupational experience and career development directed by Meyer (1965) and Tennyson and Meyer (1966). The first phase was a pilot-training project based on directed occupational experience for teachers of distribution and marketing, the purpose of which was to maximize the value of planned occupational experience. Phase two of the project is intended to deal with the teacher and the teacher-coordinator's responsibilities for the career development of their students and student trainees.

Donald T. Balasky is the director of a funded project at Michigan State University entitled, "The Role Expectations of Distributive Education Teacher-Coordinators in Nine Selected States," which is scheduled for completion in March, 1967.

Research Training Institutes

In recent years, selected leaders in distributive education have participation in a series of one-week seminars or institutes, along with vocational educators from other fields. The history and background of these institutes, which treated a variety of subjects, was described by Hill (1966), project director for the six training institutes conducted during 1966. These research training institutes have helped stimulate interest in research among the leaders of the respective vocational fields. It is quite likely that they provided the stimulus for the development of the proposals for the U.S. Office of Education funded projects mentioned above.

MISCELLANEOUS INFORMATION

This part of the Review and Synthesis of Research will include a description of a study of distributive education in Europe, a brief review of three American studies about which information came to our attention recently, and notations of studies which may be of value but for which summaries or abstracts were not obtained.

European Distributive Education

Hannaford (1959), Principal of the College of Distributive Trades in London, prepared a report on "the education and training" (he makes a distinction) for distributive trades in the Organization for European Economic Co-operation countries. The report was based on a survey by national "rapporteurs" in Austria, Belgium, Denmark, Eire, France, Germany, Italy, Luxembourg, The Netherlands, Norway, Sweden, Switzerland, and the United Kingdom. It dealt with the extent and kind of vocational

training with a view to raising productivity. The report makes recommendations for improving the level of professional education in this field and gives information on training "programmes" and examination requirements, as well as statistical data. It deals with distributive education by state and local governments, by the distributive trades, by individual business firms, and private educational enterprises.

The bulletin containing this report deserves careful study by sophisticated distributive educators who will be able to identify American counterparts in the European development of distributive education and to improve their predictions of future developments in our program by virtue of a knowledge of European experience. The report is analytical, critical, and optimistic, and provides some keen insights into the problems of distributive education.

Studies Reviewed at a Late Date

Green (1965) did an independent "study in depth of curriculum planning for the high school distributive education curriculum." The purpose of the study was to determine the placement of students in the distributive education cooperative programs within the State of Ohio, then make recommendations as to what should be offered in the curriculum. Information was gathered regarding what other states were doing to up-grade and up-date their distributive education programs, particularly any new trends which had developed. Job-placement information on Ohio students was collected. State supervisors in all states were contacted relative to supplying approximately 25 per cent of the names of the coordinators within their state. Forty-six

supervisors responded with the names of 356 coordinators. Questionnaires were answered by 134 of them.

A table was constructed showing the placement of 1,316 students during the 1964-65 school year. Retailing accounted for 91 per cent of the placements. One-fifth of the placements were in department stores, another one-fifth in grocery stores, and one-tenth in variety stores. Schools with fewer than 500 students accounted for 15 per cent of the placements, while schools with over 1,500 students enrolled 34 per cent. In the preparatory courses, there was a preponderance of schools offering business arithmetic, salesmanship, economics, and business law on a half-year basis. Units of study in specialized areas in the 12th-year cooperative classes are generally of four weeks duration. Retail merchandising (buying and selling) units of study were taught in varying lengths of time from four weeks to 12 weeks.

Green (1965) recommended that (1) units of study in specialized areas in the 12th-year cooperative classes should include at least four weeks each of sales promotion, retail operations, store management, retail mathematics, and economics of distribution; (2) economics as a requirement for distributive education students should definitely be considered; (3) at least six weeks time should be devoted to each unit of study in the 12th-year cooperative class with reference to merchandising, sales promotion, and retail mathematics; and (4) business communications may be offered in the 12th year as a practical substitute for English 4, if four years of English is a local or state requirement for graduation.

Hill (1965) did a study, the purpose of which was to overview Bayesian statistics and relate the Bayesian approach to marketing,

specifically to pricing in a spray products firm. He reported that Bayesian analysis allows statistical approaches to be combined with subjective feelings before a final mathematical conclusion is reached; that the approach is valid if the prerequisites to a Bayesian analysis are present; and that marketing can make beneficial use of the approach.

Maxey (1965) studied office and sales occupations in selected business firms in Deerfield, Illinois, using personal interviews and questionnaire check lists to gather data. Her findings related mostly to the office occupations. Those dealing with distributive occupations were: (1) women are preferred for the majority of positions in office and sales occupations; (2) there are opportunities in office and sales occupations in Deerfield for part-time and full-time employment during the school term and during the summer months.

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Review and Synthesis of Research in

BUSINESS and OFFICE OCCUPTIONS EDUCATION

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
The Ohio State University
980 Kinnear Rd.
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3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

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REVIEW AND SYNTHESIS OF RESEARCH IN BUSINESS AND OFFICE EDUCATION

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INTRODUCTION

In keeping with The Center's responsibility for stimulating and facilitating research in vocational and technical education and its commitments to information retrieval and dissemination, this Review and Synthesis of Research in Business and Office Education has been developed. The stimulus for this paper evolved from the recognition of need for establishing a base or "benchmark" for current research efforts and for the national information retrieval and dissemination system being developed by The Center and linked to the Educational Research Information Center in the U.S. Office of Education.

This review paper should aid researchers and practitioners in assessing the current state of the art in research for the field of business and office education. Further, it should assist in identifying voids in our present research framework and help "sharpen" future studies, both in terms of their substantive focus and methodological approaches. It is logical to assume that this compact review should also assist practitioners in accelerating the applications of research findings to current practice in vocational and technical education programs.

It is recognized that since the ERIC network and its information retrieval and dissemination system was not yet operative when this paper was prepared, the review is subject to gaps and that, in the main, the paper does not reflect the rapidly evolving findings

generated by funds available through Section 4(c) of PL 88-210. Admittedly, the authors had problems in securing all available material, but nevertheless, in our judgment, they have done a splendid job of "pulling together" the significant research in the area.

This paper is one of seven published by The Center dealing with research in a substantive area of vocational and technical education. Other research review papers include: Agricultural Education; Distributive Education; Home Economics Education; Industrial Arts Education; Technical Education; Trade and Industrial Education.

Through The Center and the ERIC Clearinghouse for Vocational and Technical Education, it is anticipated that in the immediate future, other research review and synthesis papers will be developed to assist the profession in assessing an updated "state of the art" and of the potential impact of research on educational practice.

We are indebted to Frank W. Lanham and J. M. Trytten for their scholarship and efforts in providing the profession with this new benchmark and perspective on research in business and office education. Recognition should be given to Dr. John Rowe, Chairman, Business Education Department, University of North Dakota, Grand Forks, North Dakota, for his critical review and helpful suggestions for refining the manuscript prior to publication. Acknowledgment is also due Dr. Virgil E. Christensen, of The Center staff, for coordinating the work of the several authors.

Final acknowledgment is given to Dr. Harry Huffman, Specialist in Business and Office Education, at The Center, for his review and assistance in the development of this publication.

We solicit the suggestions and comments of the profession for improving these publications.

Robert E. Taylor
Director

PREFACE

This paper is one of a series of reviews and syntheses of research in technical and vocational education. As a "state of the art" paper, it was conceived as a forerunner of the USOE Educational Research Information Center's clearinghouse in vocational education, that phase of ERIC located at The Center for Vocational and Technical Education, The Ohio State University.

With the exception of antecedent studies that could be considered either as "classics" or as bibliographical compendiums of earlier research, the review of the literature was limited to 1960 onward. The search included usual library sources, survey of key teacher educators and state supervisors, personal letters and exchanges.

Topics outside the scope of business and office education as defined in the Vocational Education Act of 1963 were omitted. Thus, research reports included are primarily those relevant to business and office preparation at the senior high school, area vocational school, community college, or youth and adult programs operated by these public institutions. Also included are reports of teacher preparation for these areas and institutions.

The interpretation of what constitutes preparatory or vocational business and office education was of necessity broad because of the breadth of state plans for business and office education operating

under the provisions of the Vocational Education Act of 1963. Haines and Coleman (1966) concluded from their analysis of state plans for office education that:

> The most significant fact found here is that almost every office course in the curriculum can be deemed as vocational in almost half or more of the states with the exception of general business courses. . . .
> At the post high level, states regard most of the courses in office education as "vocational.". . .

Within the foregoing limitations, quality dimensions of research reports were arbitrarily imposed to determine the inclusion of studies. The studies herein reported provided (1) some unique or systematic manner of attacking problems not previously solved in the field, (2) more than a temporary or narrow geographic result, or (3) a representative picture of current status of the research art which in turn can aid researchers to assess the gaps in systematic solutions to our problems.

A threefold screening of potential reports was used to reduce the bulk to manageable size: (1) by title, (2) by abstract, and (3) by primary source. Such screening may have done an injustice to some reports whose value were not apparent by title or by abstracts. Time, money, and accessibility, however, imposed the screening. And, in some instances, the unavailability of "hard" copy through normal sources of supply (or even direct appeals to professional colleagues) required the report of some studies to rely on secondary sources.

In a more systematic and leisurely perusal of "hard" copy, a condition resulting from a clearinghouse of technical research, future reviewers from The Center for Vocational and Technical Education should be in a position to extract the essence of research in business and office education in a more comprehensive way.

Areas of overlap in the review do occur as among other fields of vocational preparation. Inclusion of such reports are based on their import to researchers in business and office education and thus are included to insure that the specific relationship to the area is not overlooked. Some areas of research and their resulting theories from the behavioral sciences have been mentioned as they promise fruitful avenues of future investigation in business and office education.

The team for this review of research in business and office education consisted of the co-authors and Edwin J. Weber, instructor and doctoral student, School of Education, The University of Michigan. Mrs. Edwin J. Weber was responsible for editorial and clerical assistance.

One phase of the search was a survey by mail of representatives of the National Association of Business Teacher Education, state supervisors, and teacher educators. This survey was conducted in collaboration with Dr. Warren Meyer and Roger A. Larson, University of Minnesota, a team responsible for a similar review in the area of distributive education.

Frank W. Lanham

J. M. Trytten

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PHILOSOPHY AND OBJECTIVES

In every area of education a philosophy is essential, for it must serve as the basis for all important decisions: those that have to do with objectives, curriculum, personnel, and evaluation. In business education is there a philosophy? Are there many philosophies? Is there a best philosophy? Can we through research develop a philosophy as an appropriate guide to the specific aims on which to focus in the various programs and at the several levels which we serve?

Research in the area of philosophy requires a degree of research sophistication and philosophical interest that is rare--at least among business educators. An interesting study and a valuable contribution would be an application of the technique used in Middletown by the Lynds (1937). This technique applied to business education would ignore what might be said to explain or account for actions. Rather, it would collect a host of incidents in decision-requiring situations and the resulting decision in each. Analysis of enough decisions should shed light on whether the operation is basically concerned with pupil development, "empire" building, a "factory" operation to supply custom-made manpower for local industry, or perhaps an attitude of "let's not rock the boat."

Objectives

The objectives of business programs on both the secondary and community college level have been at least part of the design in many

masters' theses, many doctoral studies, and a number of conferences sponsored by governmental and other agencies. The exploratory study of major issues in the field (Hanna, 1939) highlighted the relationship of vocational and general education. Hanna's study, replicated by Hayden (1950) and later by Gratz (1960), by means of questionnaire returns, presented representative opinions on objectives and other issues for the years 1939, 1950, and 1960, respectively. The time is ripe now for a statement of the best thinking rather than the status quo or representative thinking about the aims of education for business. As Woodring (1957) said of the aims of education, when a suitable statement is made, it will not be by survey or consensus but most likely it will be by one man of experience, insight, and vision whose statement reads so convincingly that it compels acceptance.

General or Vocational Education

Hanna found that his jury of specialists held business education to be principally vocational education with minor support for its general education function. At the same time, authoritative thinking differed. The Dictionary of Education, even the 1959 edition, except for distributive education, does not recognize business and office programs in its definition of vocational education, at least at the secondary level:

> A program of education below college grade organized to prepare the learner for entrance into a particular chosen vocation or to upgrade employed workers; includes such divisions as trade and industrial education, technical education, agricultural education, distributive education, and home economics education.

The definition was dictated by provisions of federal vocational education acts which, until 1963, failed to provide funds for business and office education. Despite this lack of recognition in federal legislation, however, business teachers included themselves among vocational educators. The trend since the middle 30's has been consistently and increasingly in the direction of general education, or what may more properly be called general occupational education. The increasing availability of community college education is moving much of the vocational function to that level, although Harris (1964) emphasized that the junior college too must fuse general with vocational development.

The critical distinction between general and vocational education may be the definiteness of the target. Before a definite target is known, basic understandings, information, and skills are the proper focus with the best available tools--for instance, typewriters for communication, adding and calculating machines for competence in mathematics. The program can be more specific when the target has been set but Mead (1951) saw that the target is not easily identified:

> We are now at the point where we must educate people in what nobody knew yesterday, and prepare in our schools for what no one knows yet, but what some people must know tomorrow.

The problem of preparing pupils to meet the uncertainties of tomorrow leaves us no time to do for students things which develop talents whose purpose soon become obsolete. Russell (1962) spoke for devoting time to developing the talents that will not become obsolete: the ability to read, to write, to compute; the understanding of one's life, time, and environmental influences; and "to the extent that the

school tries to develop employable skills, it should aim at transferable skills and it should not attempt to train for specific jobs that are only temporarily open."

In the selection of aims, should the criterion be the judgment of the business department, the school administration, the needs of businessmen of the community, the judgment of parents and taxpayers, or a consensus? At least, it would be helpful to have the judgment of all of the groups concerned. Downey, Seager, and Slagle (1959) devised an instrument to assay the perception of educational objectives held by various subpublics. They reached 1,286 past and present educators, 2,544 non-educators in rural, industrial, and residential communities of the west, midwest, east, south, and Canada. In all regions and all publics, top priority was given to cultivation of a "love for knowledge" and "the skills for acquiring and communicating knowledges." Both of these seem to be applicable and appropriate to business classes.

Junior High School

The role of business education in the junior high school must be, by definition of that stage, general education. Maze (1962) related the evolving thinking of business education to the currently accepted purposes of the junior high school. He concluded that the role of business classes is to support the development of the basic skills of communication and thinking. Their resources are superior tools and meaningful problem experiences in personal and consumer business situations. Unique opportunities, Maze concluded, are in exploration and guidance.

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Senior High Schools

Recent research regarding objectives in secondary level business education emanates from speculation over the adequacy of the program in the writer's high school, his state, or region, i.e., Pennsylvania (Routh, 1961); New Jersey (Martin, 1962); North West Arkansas (Wheeless, 1964). The barrage of masters' and doctoral reports stipulate such purposes as "to improve weaknesses," "to evaluate the business program," "to study the need for." Frequently reference is not made to the philosophy of the school; and usually the design makes no provision for examining the appropriateness of the philosophy. When the investigator has made some reference to the philosophy, agreement with evaluative criteria of a professional organization such as the North Central Association of Secondary Schools and Colleges of the National Association for Business Teacher Education is held to have established validity. The business education philosophy needs to be examined--and re-examined--as changes occur in clientele, in social conditions, and in the business world.

Challenges of philosophy that are leveled at business education usually come from observers other than business educators. Frequently, the challenges are inherent in programs developed outside the field. Large-scale industries, for example, develop programs of their own for the education of their workers, which can give us some cues as to the needs of office and sales employees.

Russell (1962), speaking as an educational planner, challenged: "Does economic gain, good as it is, qualify as an educational goal? Should there not be a longer-range goal--and guide to the proposed education program--expressed in terms of some desired benefit to human beings in addition to the economic benefit?"

Hampton Institute's experiment with training hard-core unemployed (Brooks, 1964) is pregnant with implications for those working with the reluctant learners, the drop-outs, the hangers-back. Unemployed, unskilled adults, 200 in number, were involved. The objectives were to provide each with a skilled trade with supporting basic education, occupational information, and human relations skills. By the end of six months, 66 men were employed in their special fields, 12 in related fields, and 12 in nonrelated fields. Brooks identified the major problem (which have their counterparts in school work) among the defeated, unmotivated. The recruiter was shunned as though he might be a debt collector and the anonymity of the prospect was protected by relatives and friends until patient, persistent efforts by the recruiter dissipated the reluctance.

Community Colleges

The community college is a rapidly growing institution--most of them new enough to have recently re-examined their philosophy and role. Poland (1962) surveyed the opinions of 241 educators and members of the National Office Management Association and discussed the implications with 53 educators in Michigan community colleges. He found that the eight trends emerging from his study held few or no implications for philosophy or objectives.

The community colleges have the same question to answer that the secondary schools have had to meet, the relationship of the short-range, terminal, skill interest of the student to basic educational needs and long-range personal interest. Goddard (1962), on the basis of his search of the literature and pertinent studies of post-high

school education and business education, concluded that the role of the community college calls for a comprehensive program with increasing emphasis on communicative ability, problem solving, and logical, creative thinking. He also concluded that the role would require programs for transfer and terminal vocational education as well as for general adult education.

Russell (1962) implied a long-range goal for education aimed at values other than economic gain. Swanson (1963) would add another dimension to the role of vocational education, probably a special challenge to the community college to fit into its philosophy:

> There may be a further protest associated with a basic role of vocational education. Can it be assumed that vocational education's only task is job-filling? Is there no responsibility for job-creating? What is the source of entrepreneurs? When and how does a skilled worker become a skilled employer? In sum, how does a creative and innovative role emerge as a normative aspect of vocational and technical education?

The dominating trend with regard to the philosophy of vocational education is toward the integration of vocational and general education because of the contribution of each to the other and for the sake both of the individual and of society. Balance is emphasized by Williams (1965), Venn (1964), Watson (1963), and others. After arguing for redoubled efforts and goals too dimly seen, Harris (1964) concluded: "The community junior college has both the growth potential and the educational philosophy to serve as the capstone to the occupational education structure needed in the 1970's."

Summary

Discussions of business education are in the main concerned with content, procedures, and problems which state or imply a philosophy of

education, but there is little evidence that educators of the field feel a need for a critical inquiry into the appropriateness of accepted goals or aims. The implied philosophies seem to have been accepted, taken for granted, rather than on the basis of perception resulting from observation and study. One finds focus on entry skills to help youth get a foot in the door; emphasis on specific skills and standards when general occupational understandings and skills might be more appropriate; very seldom evidence of preparation for self-employment. The balance between, and the integration of, occupational and general education is a question at all levels from junior high school through community college. A philosophy is a matter of values. The need is for a philosopher and competent interpreters who can bring the philosophy to bear on the curriculum and on classroom practices.

MANPOWER NEEDS AND EMPLOYMENT OPPORTUNITIES

The magnitude and the specifics of the twin problems of an adequate and suitable supply of manpower for business and industry and employment opportunities to assure to all people a life as well as a living have been exhaustively detailed in several comprehensive reports: Reports to the President on Manpower Requirements, Resources, Utilization, and Training (U.S. Department of Labor, 1963, 1964); and the report of the Symposium on the Impact of Automation on Education by Evans and Arnstein (1962).

The accelerating onrush of the technological avalanche has swept away skill jobs as obsolete while creating jobs calling for new skills with no lead time for workers to prepare for them. This condition of people without jobs while good jobs are unfilled is a double-faced

phenomenon: it is making possible on the one hand higher standards of living through increased leisure, improved products and services; on the other hand, it is making for human misery through unemployment and withering skills no longer saleable. Technological unemployment occurs when the discovery of means of economizing the use of labor outruns the pace at which new uses for the labor can be found.

The need for manpower to keep the wheels of industry spinning calls for human hands and, even more importantly, for human intelligence and judgment. Venn (1962) saw the need to be for more people--first of all, simply for more people. Then the demand is for the right kind of people; for well-trained people; and for well-educated people. He estimated that by 1970 technical highly skilled occupations will account for more than half of all job opportunities. Estimates of the need for technicians vary from a conservative 100,000 additional per year (Federal Government estimate) to a more probable 200,000 per year additional (Emerson, 1962). The emphasis clearly must be increasingly on quality:

> In an economy which allows fewer mistakes and in which an intelligent and systematic matching of our human talents and manpower requirements becomes crucial, the best middle level manpower must be sought out and developed, be it age 21 or 51, white or Negro, male or female, rural or urban, wealthy or poor.

The education of people to enter these jobs must be concerned with their minds as well as their skills. Technical competence, important as it is, is not more so than competence in general knowledge in the realm of ideas and their application to one's chosen occupation.

The economy also demands a mobile people. Companies move and the work force moves, too. Government contracts shift from region to region, causing a shifting of workers. New inventions wipe out whole industries and other inventions start new industries in new places.

There is evidence of the need for manpower in quantities and description as stated above in the fact that large industries are conducting training programs of their own, not only induction and orientation programs but upgrading and retraining programs as well. Clark (1958) said that:

> A large number of these (large scale) concerns are committed to the proposition that education and training programs should extend from the operatives level through lower, middle, and upper management.

The demand for clerical workers in the decade of 1950-1960 increased relatively faster than for any other classification. During the present decade, employment in office occupations is expected to increase by 27 per cent, or nearly 3,000,000 new jobs (Venn, 1962). In addition 400,000 new workers are needed annually as replacements in the high turnover field. The need is not only for more workers but for people with more advanced and specialized training. Increasing use of electronic office equipment and the expansion of secretarial opportunities in scientific, engineering, medical, and other special fields will require a higher level of education and skill for many of the new entrants into the secretarial and other office occupations.

The problems related to manpower projection as an instrument of educational planning was investigated by Hollister (1965). He argued that the occupational characteristics of the labor force at any given time are determined primarily by the nature of the educational system

over the previous 60 years. Since the embodiment of skill through education takes time and has a long-lasting influence on labor quality, it is important that present educational planning be consistent with expectation about the future characteristics of the labor force. Hollister's analysis isolated three types of problems: first, the effect of the composition of output on the requirements for skills; second, the question of the degree to which it is possible to substitute among skills and between skills and other inputs--the major part of the study focuses on this issue; the third is the effect of technological change on the relation between the pattern of outputs and the pattern of skill requirements.

Another part of Hollister's study was an empirical study which focused on the central problem of determining the degree of substitution among skills and other inputs. Both the theoretical and empirical analyses provided in this study indicated that present methods of manpower projection have serious shortcomings. Hollister's evidence suggested relationships more complex and subtle than existing manpower projection methods imply. Current methods also fail to consider the scope and complexity of the effects of technological change. In consequence, omitted from current projections are the interrelationships among patterns of occupational (and, therefore, educational) requirements. Omitted also are patterns of economic outputs. Determination of the degree of substitution among skills and other inputs must await methods for overcoming these shortcomings of manpower projection.

Work Opportunities

The shifting needs of industry for workers of various kinds and of different levels of competence are to the world of production an economic problem; but they are even more an educational problem in that workers must be educated, trained, and retrained to qualify for the waiting opportunities. The schools, industry, and government have all accepted roles for themselves in the educational effort.

The acts in support of occupational training, which represent the role of the government, extend from the Smith-Hughes Act of 1917, restricted in scope and appropriation and rigidly interpreted in application, to the Vocational Education Act of 1963, which in scope embraces all programs preparing workers for new positions, alternative positions, or advanced occupations. These acts together with the interim programs (like ARA and MDTA) have been reviewed in recent literature (Venn, 1964; Liles, 1964; Selden, 1966; and Wood, 1966).

A case study of trainees and nontrainees in a Midwest redevelopment area found that ARA and MDTA programs had been effective in that area since 75 per cent of the enrollees were successfully placed but that the programs reached too few of the population in need of help to be a significant answer. Devine (1964) found that the people most in need of help--the unskilled, poorly educated, older workers and the high school drop-outs--had not been significantly helped. The high cost of retraining programs restrained the unions and the educational institutions. Large corporations were best able to afford training programs for their employees and should develop more on-the-job programs. The unions could help most by liberalizing rules and contract provisions which restrict entry into jobs and apprenticeship programs.

The bleak prospects for these more needy (the unskilled, uneducated) were described by Harrington (1962) as "condemned to the economic underworld; to low paying service industries; to backward factories and businesses; to no-future, dead-end jobs. Automation could create a permanent army of poverty stricken."

In a similar study of an MDTA program in St. Louis (224 youth) Luy (1964) described the enrollees in that group. Eighty-seven per cent were school drop-outs; one-half were from homes in which parents were not living together; only 12 per cent had had previous vocational training. Luy's data are no doubt true of other groups in these programs. Johnson (1960) found two-thirds of the drop-outs from the Beaumont, Texas, high schools had failed in some subject and the majority of them had had low grades.

For high school graduates, information is available from many studies varying in depth (Cook, 1966; Jones, 1964; Brown, 1966; Cook and Lanham, 1966). These studies found that there are jobs available that can be filled by youth with not more than a high school education, with at least one skill, typewriting. Today about 60 per cent of the population is engaged in providing services, with three services that have no foreseeable limits: health, education of all kinds, and recreation and leisure (Clark, 1962). In Detroit, clerical job titles were found with as high as 98 per cent of the jobs not requiring one single skill (Cook and Lanham, 1966). Of those specifying a skill, typewriting was the desired skill in 87 per cent of the jobs.

Data collected by personal interview from 212 Detroit area companies (Cook, 1966) showed that:

> . . . Basically, a high school education is sufficient for securing employment in a data processing installation. This has been so in the past, is the pattern today, and was the

> projected pattern for the immediate future in all but two job classifications--systems analysts and supervisors. In the latter cases, approximately 40 per cent of the companies have hired and will hire persons with no more than high school training for even these two positions.

Equality of opportunity is an area in which reliable data are wanting. Cook and Lanham (1966) found in Detroit that being a Negro female was the most potent factor (.001 level of significance) associated with not obtaining an entry job. While Negro males believed that race was a discriminating factor, the proportion from the sample of Negro males who had in fact obtained entry employment was not significantly different from that of the white male sample. Race and sex, however, were significant factors in determining the nature of the entry job. Bowman (1962) collected data by interview and questionnaire from eight firms (500 to 10,000 employees) and seven groups representative of business in general bearing on the employer's image of a promotable person. She found that three-fourths of the subjects believed that race and nationality should be irrelevant but thought that, in fact, being male, under 45, white, and born on the mainland of the United States were "plus" factors. Bowman concluded that equality of opportunity in employment requires application of: (1) external discipline (law); (2) internal discipline (company policy): (3) and personal discipline (understanding and acceptance).

Nature of Preparation

The schools at every level will find it necessary to understand the influence of office changes and to adjust content and emphases to the demands of occupations, many of whose specifics will not be known until after the graduate has entered upon his job. Berry (1963) found

that basic skills of general education, especially communication skills, should have priority in office training classes and that a "common sense" acquaintance level with machines, procedures, and practices would be quickly brought to a good operating level on the job. She found executives anticipating that mechanization will demand upgrading of technical qualifications for general office personnel within the next five years, while, significantly, office practice teachers say "there will be little impact from office mechanization and automation on either the content in the office practice course, or on the general or technical qualifications of future enrollees of the course."

While a prescribed training program on the high school level is not possible nor desirable, there is enough information from the many studies to guide the secondary efforts into sound courses of preparation for office positions. A course introducing students to automation might well include units on the types of automated equipment available; employment opportunities available in the field of automation; orientation to data processing and automated equipment operation (LaSalle, 1963). He added that workers in automated business offices are generally expected to possess skills in the areas of communication, problem-solving, and logical-thinking, as well as being able to get along well with others. Conclusions drawn by Jones (1964) from her study of clerical workers in first level entry jobs in digital computer installations likewise called for training that will develop flexibility, inform students of occupations that exist, and impress them with what it takes to qualify and the importance of continuing their education.

Opportunities for continuing their education should not only be stressed but students should know that industry will meet them more than half way. Carter (1965) reported that his questionnaire and interview data from 50 Denver firms with computer installations showed that beginning positions are available to both men and women in a majority of the operator and clerical classifications and that a majority of the firms with and without regular training programs automatically enroll trainees; train beginners at their regular work stations; provide individual instruction on a part-time basis: and use a variety of teaching methods such as demonstrations, manuals, actual practice, and job rotation. Clark (1958) reported that 75 per cent of all large-scale industrial concerns have programs for the educational training of their workers. It should be significant to both school curriculum makers and to students that the courses offered are not merely skill or skill-oriented courses but include a wide range of general education courses, history, English, foreign languages, arts and crafts: courses which industry values highly enough to pay for them.

Advanced Opportunities

The next step in preparing for higher level opportunities may take the student into nonpublicly-supported education programs or into one of several public-supported institutions: area vocational schools, community colleges, or the four-year degree-granting liberal arts college or university. Studies having to do with the area vocational schools are of local significance and have not contrasted the role of the area school with that of the community college.

The community college has become a strategic factor in connecting youth with employment opportunities as a result of the changed function of the business office. Sims (1963) sought to determine the growing importance of the office function in business planning, organizing, and controlling. He found major influences to be: (1) developments that have placed new and increased demands on information, such as growth of the corporate form of organization, separation of ownership and management, technology and research and development, international dimensions of management, separation of planning from performance, and increased attention to personnel problems; (2) management's need for information for effective planning, for effective control, for proper delegation, and for effective communication; (3) management research and development which includes both the traditional planning and control techniques and the newer planning and control techniques; and (4) management's changed attitude toward the use of information. The semi-professional specialties that have resulted from the influence of technology call for a level of preparation found in the community colleges. These semi-professional specialties may be office manager (Sims, 1963); middle management (Shaul, 1964); secretarial specialties (Venn, 1964); and a specialty that vocational business programs have not properly recognized--self-managed business (Mayer and Goldstein, 1961; Pickle, 1964; Lewis, 1958; Kunsemiller, 1961).

Summary

Manpower is needed. In spite of technological innovations and obsolescence of skills and jobs, there will always be need of human hands, minds, judgment, and special talents. The problem is to avoid

waste of human resources, which is an extravagance to the extent that we have unemployment, underemployment, arbitrary barriers to employment, and inadequate training.

The acuteness of employment problems has accelerated and intensified a three-party attack on the education, training, retraining, and upgrading of workers: government, industry, and the schools have all accepted a role. The effort is not cooperative in that the roles of each are not coordinated with the other but progress is being made toward that end.

Opportunities for work are available at appropriate jobs for those who have a high school education or more. With less, the prospect is bleak. The opportunities appear to be unlimited in certain fields: health, education, government service, recreation and leisure related, and other service businesses. The limitations on opportunity to work are those of the individual's desire to learn, desire to earn, and his willingness to pay the price in application.

CURRICULUM DEVELOPMENT

The status of the curriculum in business education is one of uneasiness and confusion. The percentage of studies designed to investigate, improve, or evaluate the curriculum appearing in the National Business Education Quarterly testifies to the feeling that all is not well with the program with which we are working to make boys and girls economically literate and occupationally competent. That the operation of the department deserves investigation is not hard to understand: business responds overnight to promising innovative

suggestions; education paces change in terms of years or generations. Changes in the curriculum are made by teachers, too many of whom find their preparation oriented to the business office, not of the present generation of students but to that of their parents (Slaten, 1965: Brown, 1961).

Studies are needed that provide imaginative and workable suggestions on how to effect changes in the curriculum and how to determine the direction the changes should take. Goodlad (1960) observed that curriculum study must consider the influences that bear on any school program: forces generated by special interest groups (taxpayers, vendors of equipment or teaching materials, et al.), forces arising out of general social conditions and technological trends and particularly the forces arising from new insights in the scholarly fields such as the nature of man as a learner, the dynamics of group action, and the school as a social agency.

Goodlad's characterization (1960) of curriculum research in general is a fair appraisal of activity in business education research as well:

> Curriculum theorizing to date is best described as abstract speculation; curriculum research, as "dust bowl" empiricism; and curriculum practice, as rule of thumb guesswork (often a wet thumb, at that, held aloft to test the direction of the prevailing breeze).

Frankel (1958), in his effort to move the curriculum orientation toward economic understanding, identified certain major strategies which curriculum effort should build into the design. Curriculum change is a concern of the business education department shared with all the other areas of the secondary schools. It must be a whole-school effort. The rapid and far-reaching changes in occupational

patterns will affect the lives of all the school's population--changes that occur so rapidly that little time is available for adjustment. Some workers go jobless while some jobs go unfilled. The times place a premium on the kind of learning that enables a person to adjust to new jobs, to a new occupation which usually will require more education and training. The numbers involved make the business curriculum more than a departmental responsibility. It is estimated that 80 per cent of the high schools in the United States have programs preparing for occupations, and enroll about 1,800,000 students. The secondary schools employ more than 60,000 teachers in the field of business compared to 37,000 teachers engaged in all of the federally-aided vocational programs. Business subjects form by far the biggest program among the community colleges, and they are one of the most widely taught in the adult education programs (Venn, 1964). Evidence also indicates that a high proportion of initial jobs for youth, 16 to 21 years old, are in office and retailing Dictionary of Occupations Titles. In the Detroit sample, 54 per cent of all entry jobs were in these two areas (Cook and Lanham, 1966).

None of the many subjects and curriculums exist in isolation nor will their skills and knowledges function in isolation. Learnings should be acquired in the way they will function--a package of skills, knowledges, insights which merge in the student's perception of a task or situation. The curriculum, therefore, calls for "across-the-board" thinking in which administration, counselors, and related departments join in contriving content and situations that can best prepare youth for the world of uncertainties they are about to enter.

Curriculum Strategies

Among the strategies for curriculum adjustment, change through classroom experimentation has been the subject of several studies. Frisbie (1961), in a study of the influence of digital electronic data processing systems on the curriculum, concluded that there should be general stress in the classroom on logical thinking and mathematical thinking as well as (and even more than) the skills of specific occupational goals. These mental skills might be of "rational inquiry and empirical validation," which Russell (1962) proposed as a first priority objective in the classroom: "the harnessing, through logic and evidence of the abilities to imagine and recall, to classify and generalize, to evaluate and compare, to analyze and synthesize, to deduce and infer."

Changes that wipe out old jobs that need now obsolete skills and create instead new jobs that demand new training, challenge teachers to new ways in the classroom--to be creative and to teach for creativity. Five qualities that seem to be associated with creativity and certainly with the ability to adjust quickly to a new job are (1) originality--the ability to produce uncommon, clever, remote responses; (2) redefinition--the ability to shift attack and use objects in a new way; (3) adaptive flexibility--ability to change set to meet changing problems; (4) spontaneous flexibility--ability to change set when chances are unrestricted; and (5) sensitivity to problems--ability to recognize practical problems.

Another obvious strategy which schools at all levels use in their search for cues to better service to students is to follow the

experiences of their graduates and other school leavers, although unfortunately few do so continuously and in sufficient depth. Naturally many of these follow-up studies are mainly of local value with little to interest a wider readership. While findings and interpretations of data in such reports must be accepted with caution, some findings give insights of more than local significance. Johnson (1960), for instance, interviewed 93 student drop-outs from five Beaumont high schools for the school year 1956-57 and the findings help school people to understand better the youth with whom the school has failed. These findings are: that two-thirds of them had failed in some subject and a large majority had had low grades; that there seemed to be no relationship to size of family, length of residence in the community, or to family stability; and that there was direct relationship to the educational level of the family.

West (1960) looked to the post-graduation occupational history of alumni (Southern Illinois University) to test the philosophy and content of a collegiate program of education for business. His study indicated that accountants and educators found their specific undergraduate program appropriate but that for the others the case for a specific preparatory program was not so clear. This is relevant to the principle that a job-oriented program should be flexible to the extent that the individual is committed to the occupation. Secondary occupational preparatory programs should recognize the principle.

Frankel's field study (1958) in four school systems that participated in the Cooperating Schools Project of the Joint Council on Economic Education identified certain major strategies for curriculum change. The problem was to achieve curriculum change through content

that was so broadly related to living that it could serve as a thread to relate learning and thinking in one area to several others. The common interest in the study was economic understandings. Frankel concluded that necessary strategies for effecting change in the curriculum were: (1) administrative approval and involvement; (2) across-the-board planning, organization, and democratic behavior, both of these for the sake of adequate communication and team morale. The curriculum effort must be associated with recognition of need and willingness on the part of the teachers to change. Other necessary conditions are requisite funds to initiate and complete studies and a program of in-service development of teachers.

The significance of perception to learning is but slowly affecting classroom procedures where exposure and memorization seem to have undeserved acceptance. However, the role of perception may be inferred from the findings of such studies as Hicks (1949) (business vocabularies) and Madisen (1961) (economic concepts). These studies both sought to compare the understandings of students who had "taken courses" in an area with those of students who had not had the benefit of specific courses. Both studies found that understanding of concepts and vocabulary correlated significantly with intelligence and only slightly with courses studied. We can easily underappreciate the business and economic educational influence of out-of-school experiences or question too little the effectiveness of classroom exposure and methods.

Wanous (1964) argues for a curriculum (pupil program) that is a planned whole rather than an accumulation of courses. Two wielders of a trowel may be equally skillful but one thinks of himself as "laying bricks" while the other is building a cathedral. Kish (1961) implies

that the same kind of purposing applies also to builders of business personalities. A definite image of the final, total product of the man or woman who "is to be" is of utmost importance when dealing with the reluctant learners, the drop-outs, the defeated. With inferior bricks, one has to think in terms of what the contemplated structure can be. Luy (1964) interviewed 224 youths enrolled in an MDTA program in St. Louis, found that one-half of the youths were from homes in which parents were not living together; 87 per cent were school drop-outs; only 12 per cent had had previous training of a vocational nature; but 67 per cent aspired to jobs of a skilled nature--in a line which was realistic for them.

The Community College

The youth who come to the community college will be not only students who are ready and able to enter upon an advanced program of education but also many students of undistinguished scholarship, dim goals, and abilities yet to be discovered. There will be some youth to whom the community college looms up as just two more years of school to occupy their time until somehow the naive hope of a job is realized. The community college inherits the curriculum challenge which for a long time has been a problem of the secondary school--still unsolved. The challenge is a guidance matter first, rather than a curriculum matter. The youth is mature enough now to have purpose, to know that he should have a purpose, and to commit himself to a purpose, even though tentative, that will give direction to his program. The purpose will then guide him into a curriculum leading to continuation into a four-year program, or a "career" program, both of which can be as specific as the student's commitment permits.

The role of the area school as compared with the community college is an issue. Erwin (1963) explored the need for an area school in Illinois but his needs and conclusions for an area school were not contrasted with the community college. They seem to apply to either equally well. Harris (1964) in his study for the American Association of Junior Colleges makes a convincing case for the community college to serve as the area vocational school.

The incidence of drop-outs from the four-year school of business tends to question the suitability of the four-year school as an answer to the desire for business education beyond high school. Kidwell (1959) followed two complete freshman classes at the University of Arizona. Almost two-thirds (62.5 per cent) dropped out before graduation, 83 per cent of these before the end of the second year. Delayed specialization, inadequate and inappropriate counseling service, and impersonal teaching techniques were causes of dissatisfaction that could have been less true of a community college.

The role of the community college is to businessmen pretty much in concept, as is the secondary business program, based on clerical skills in the office as of now, with usually no attempt to anticipate the competencies of tomorrow. Farley's (1961) findings would in all probability stand up under repeated investigations. His questionnaire and interview study classified 27 per cent of the office employees as semiprofessional: supervisory, accounting, statistical, and more responsible clerical positions. There needs to be focus still on skills: calculators, typewriting, letter composition, report writing, preparation of statistics, but sharper focus and more emphasis on the competencies for higher level responsibilities.

Summary

The business curriculum of the typical high school is an aggregate of courses rather than a curriculum: it is concerned with the traditional secretarial and office skills; and by and large has little appeal for boys and for the students who are looking forward to college or other advanced learning. The influences determining the curriculum have been: momentum of the traditional offerings; the more readily available instructional materials for the usual courses; the loyalty of teachers to the skill courses; and the success of the program in passing the rather easy test of entry on some job for most of the graduates. Evidence is lacking, except for a few notable exceptions, of adjustment to the realities of the offices which the present students will enter.

Curriculum projects are needed which employ all of the strategies of change stipulated by Frankel (1958): administrative approval and involvement; democratic planning, organization, and behavior; recognition of need and willingness to change; in-service education programs for teachers; use of appropriate consultants; funds made available to initiate and complete studies. Curriculum improvement must be an across-the-board activity with free communication among all who have an interest in the school.

Gaps

The evidence from the employing public indicates that the teaching of the conventional office skills is meeting office needs reasonably well. Much more serious is the need of teachers for an appreciation of the newer (or newly-recognized) skills--logic,

imaginative thinking, communication--and how they can be exercised in the classroom; and the need for an understanding of how the modern office handles the familiar functions of information control: collection, storage, retrieval, and use.

The curriculum must not be just the sum of a number of parts. It should be so operated that the perception of the teacher of his job will not be that of the assembly line worker identifying his contribution with an isolated operation but rather one that identifies him with the ultimate product in the preparation of which he feels that he had a part.

EDUCATIONAL PROGRAMS

The business program in today's secondary school probably should not be called a vocational program, implying that it consists of related courses in sequence planned to prepare for a definite occupation. The offerings of the typical business department will be a number of individual courses, skill oriented, in which sequence and integration to the extent they exist are fashioned according to the studied judgment of a present or former decision maker in the department rather than on a research base.

If we can think of them as programs, we may expect to find a strongly entrenched secretarial program, an office employment program with or without on-the-job experience, and less often a distributive education program. More recent and as yet rare programs are management and data processing, offered as office training on a level aiming enough higher than the conventional office program to qualify them as separate tracks.

Insofar as research is available into these programs, most often it is found to be dealing with content or teaching method of individual courses (bookkeeping, shorthand, basic business) and will be discussed in the part of the report dealing with instructional methods.

Typewriting

Typewriting may be treated as a program in itself--a tool useful in any occupation and fast becoming a recognized general education tool at levels from kindergarten to college and graduate school. Much of the research comes from psychologists who saw in typewriting a fruitful and strategic area in which to study how skills are developed. Book (1925), Wood and Freeman (1932), Dvorak (1936. O'Rourke (1934) sought to determine realistic standards for the stenographic skills. He measured the proficiency of all the office employees in 10 of the largest companies in the United States, assuming that the proficiency of the workers in a situation may be taken as a defensible target for schools that are training workers for that situation. Crawford's (1956) experimental study of production-type activities in the vocational typewriting class would shift instruction to a production emphasis. The discussion of typewriting history, theory, and issues in his introductory chapters is comprehensive and expertly interpreted. More recently (1959), three centers[1] replicated the study of Wood and Freeman, in part, to test the influence of the typewriter in the elementary school as an educational tool, with grants from the Royal McBee Corporation of Port Chester, New York.

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[1] Boston University School of Education, Teachers College of Columbia University and the College of Education of the University of Illinois.

Office Occupations

From the studies of Nichols (1927), many reports relating to office occupations have been concerned with entry opportunities and requirements for office jobs which might be open to high school graduates. Nichols was prophetic about the lag in educational change to match changing entry opportunities and requirements for office jobs when he said:

> Office procedure has undergone great changes since business courses were first offered, and yet these courses, which are supposed to train for the performance of office duties, have undergone little change as far as the great majority of secondary-school commercial pupils are concerned. (Nichols, 1927, p. 20.)

Potter's research (1944) in analyzing the tasks of general clerical workers stands out as one of the influential studies that effected some curriculum changes recommended by Nichols. Many of the other studies that purported to define changing office occupations have not been so impressive. Review of most of these latter flood of studies takes one through reports characterized by hasty and naive designs, untested subjective opinion and faulty communication because of inexpertly-prepared questionnaire interview instruments.

Fortunately, more dependable information is becoming available as research funds are obtainable, federal and state, and from various foundations and industries. Much needed data, for instance, is now at hand relating to high school programs in office occupations and the jobs for which they are preparing workers. The Des Moines Public Schools developed a data processing program in cooperation with the IBM experts of the Des Moines office, reported by Wood and Scannell (1961). The objectives of the program were (1) to prepare students

for various EDP applications: keypunch operators, machine operators, computer programers, and technical personnel; (2) to utilize the equipment for school records; (3) to meet the national need for qualified personnel: business and scientific applications--and national defense, for EDP equipment is definitely a "war weapon." The program involved training at the high school level, two years post-high school, and adult upgrading (the adult instruction for both retraining and initial training).

The needs and opportunities for high school programs in the Detroit Standard Metropolitan Area have been recently reported and both information and techniques apply to other metropolitan areas. Companion studies were conducted by Cook (1964) and Brown (1965) in the Detroit Standard Metropolitan Area in 1964-65 to ascertain the need for in-school training programs through a survey of current employment in data processing installations.

The two studies were identical except for interviewers used: amateurs (business teachers) in Brown's and professionals in Cook's. (Data collected by amateurs were as reliable as those collected by professionals is a finding of the combined report.) Basically, the combined reports concluded: A high school education is sufficient for securing employment in a data processing installation.

Data are also available from the Detroit area on what happens to school leavers after high school. Cook and Lanham (1966) reported a study of opportunities and requirements for initial employment of school leavers based on an interview sampling technique of the employment history of 7,752 Detroit high school leavers (Class of 1963: 7,422 graduates and 330 senior-year drop-outs, and 35,901 businesses to which they went for employment).

Included in the findings are these: Four per cent of the companies of 100 or more employees account for 55 per cent of all office and retail entry jobs. Only 19 per cent of the companies sampled employed inexperienced workers; only 10 per cent hired inexperienced office or retail workers. Incompetence and inability to do the job were the most frequent reasons given by employers for dismissing workers.

Preparation for first-entry positions has been the focus of several other studies. Jones (1964) found in her study of 69 computer installations that 27 first-level occupations were open to high school graduates and that larger installations and larger organizations offered the high school graduate the better chance for employment. She recommended:

> Because of the characteristics of the rapidly developing computer technology, the type of education or training program needed in the high school is one that will provide the student with flexibility; emphasize to him the need for continuing education because of changes in technology; and inform him of the occupations which exist, the background of education and work experience he will need, and the agencies which will provide him with the appropriate education and training.

Deihl (1964), in a similar study of supervisors at the first-entry level, found opportunities for high school graduates but more education obviously desirable. Members of the Administrative Management Society, his source of information, were apparently reluctant to make dogmatic statements about qualifications. High school courses were not as important as communication and human relations skills.

The value of a program naturally depends upon how faithfully and adequately it is pursued and supported. Shultz (1961) presented a report of cooperative office programs in a selected group of Pennsylvania

schools, from which study he found that coordinators tend to do an inadequate job because of lack of time and lack of funds. Advisory councils were also thought to be of little value in the schools studied. He concluded from his observations that the experience was good for the students in that it made for good morale and self-confidence.

In the Detroit sample of cooperative work study students of the Class of 1963 (Cook and Lanham, 1966), a significantly higher percentage (at the .02 level of confidence) of cooperative work study pupils had held entry jobs than all other graduates. Retention of jobs, however, by "co-ops" was not significantly different (at the .05 level) than all other graduates.

Advanced Level Office Programs

Researchers into the opportunities, entrance qualifications, and learning specifics associated with data processing and other technological innovations took their investigations to the community college and four-year college level, where programs more appropriate to the requirements of the automated office could be offered, specialized to a degree that could not be justified in the secondary school. Venn (1964) concluded that the increasing use of electronic office equipment and the expansion of secretarial opportunities in scientific, engineering, medical, and other special fields will require a higher level of education and skill for many of the new entrants into the secretarial and office occupations. The need is not only for more but also for more specialized programs in these occupations.

The need for continuing educational opportunities will also affect adult programs of the public schools. Drummond (1963) found that women 35 years of age or over return to the labor market and find need for refresher training or new training before applying for re-employment. She found that government and education offices and service occupations were most receptive to these more mature women. Drummond recommended to high schools and community colleges that they counsel with the girls to impress them with the importance of keeping their skills alive during their lay-off years and their contacts with offices alive.

Automation

Data processing systems and other technological developments are bulldozing their way into the world of business educators, sweeping old jobs away, replacing old skills with the need for new ones, and bringing in new equipment and new systems to understand and manage. Unfortunately the new learnings are mastered only to be "tossed" aside again for newer developments. Learning how to learn has become the basic objective for students. The processing of data, its effect on employment, and the uncertainty as to the competencies and qualifications that will be needed in the scramble to qualify for the gradually upgraded positions have motivated many investigations into various aspects of the problems of adjusting education to the automated office. These studies report findings with implications for the secondary level, post-high school level, and also learning opportunities available in industry and through manufacturers of equipment.

Evidence should not be needed to show us how inappropriate for a program of preparation for the automated office is one that treats

each single skill as though it were a goal in itself. Gibson (1961) described data handling as a team effort involving accountants, mathematicians, specialists in subject matter, engineers, technicians, programers, and operators, each of whom has general understanding of the whole process. He suggests a course, appropriate on the community college level, fusing business, mathematics, and engineering into a management science program.

LaSalle (1963) by questionnaire, supplemented by interviews, secured data from 102 educators, 20 producers, and 99 users of automated data processing equipment relative to the role of the secondary school in preparing students for the office of tomorrow. He found that little emphasis is apparent in high school departments on the significance of automated processes for prospective office workers, although automation is increasing at an ever accelerating pace. He concluded that business education departments should offer a one-year course, on the 12th-grade level, which should include units on types of automated equipment available, employment opportunities in the field of automation, an orientation to data processing, and automated equipment operation. Objectives appropriate are competencies in communication skills, problem solving, logical thinking, and human relations skills. Wenner (1965), too, found that few high schools are making adjustments to the needs of automated offices; only three programs were offered in the schools of Iowa, one of which was a "quickie," noncredit summer course.

Wenner found five electronic data processing positions well suited to recent high school graduates with no previous training in electronic processing: keypunch and verifier operator, tab equipment

operator, auxiliary equipment operator, console operator, and equipment operator. Firms hiring persons for these positions will train them on the job or send them to schools of equipment operators. There are four data processing positions open to high school graduates only after extensive training and some experience: punch card methods analyst, programer, coder, and maintenance technician.

The functions of the office are not new, as David (1959) concluded from interviews and observation with 16 firms. Automated processing has to do with the flow of data: receiving and collecting, recording, verifying, treating (including classifying, summarizing, analyzing, interpreting, and displaying), reporting, storing, and retrieving. The student in the high school program should see these operations as a continuous flow or system.

Carter (1965), through interviews and questionnaires, made contacts with 219 companies in Denver, each of which had a data processing installation, at least 100 employees, and some form of training program for beginning workers. His purpose was to determine the opportunities available in data processing for beginning operator, technical, and clerical personnel, particularly with reference to the role of the secondary school. Carter found that a majority of the firms with beginning positions emphasize on-the-job training and selection tests for operators; selection tests, training before assignment, education beyond high school and on-the-job training for technicians; and on-the-job training for clerical workers. He found also that a majority of the companies with and without regular training programs emphasize data-processing courses for the high schools at the junior and senior levels; keypunch, sorter tabulator, and reproducer equipment; objectives

of business applications, machine acquaintance, and occupational information; entrance requirements such as machine interest, tests, and inclination to detail; and company aid in the form of cooperative work experience programs, talks, field trips, and career information.

Sanders (1965) cautions against impulsive adoption of an automated system. From his study of 100 firms in four Texas cities, he found that only one-half of them had made a formal computer feasibility study with little or no systems redesign prior to the use of EDP; and the entire project was typically a part-time project of the responsible executive of less than three months duration. The finding, therefore, that almost two-thirds of the executives were disappointed with some phase of the installation is not surprising. Resistance to change was the rule among the personnel--particularly middle management and employees of two or more years of tenure.

The community college and the four-year college instructors will be interested in studies by Niemi (1959) (findings of the most popular applications, the important emphases for training programs and suggestions for course content); in McMichael's (1961) conclusions as to the impact of integrated data processing on organization structure; and specific applications such as Skousen's (1962) to bank procedures.

Management

Secondary education has strangely made little more than incidental effort to develop the qualities that one associates with the term "businessmen:" Alertness to recognize an opportunity, initiative to act on it, and confidence enough to risk money on his judgment are qualities of the "take-charge" youth who is not reached by the clerical

program. The skill-oriented offerings, ignoring the challenge of "risk and reward" emphasis, has assumed, no doubt correctly, that to get a job is a more realistic purpose for a high school boy or girl than to make a job. Most of the studies in the area of management deal with preparation and opportunities on the post-high school level, which too implies that the image of the product of the high school business department is not that of a "businessman."

Evidence is plentiful, however, that high school age youth will and can respond to and successfully meet the challenges of managing an operation. The Future Farmers of America have been offering their members more of a real business training for many years than do the business departments of most high schools. The Junior Achievement movement has demonstrated both the interest and the competence of both boys and girls for involvement in management experience.

At what age can youth enter into the responsibilities of management? Many high school students already are managing a business of their own, most of them without awareness of such experience on the part of their teachers. Mayer and Goldstein (1961), in a study of "The First Two Years: Problems of Growth and Survival," reported that in their sample of 81 businesses (92 proprietors), 20 per cent had no schooling beyond the eighth grade and 75 per cent of the subjects had no more than high school education. The findings are not surprising but it would be interesting to know what they could have been if management problems had been a part of their school training. The investigators found that (1) the less the education, the higher the rate of discontinuance; (2) experience in a given line of business did not result in higher survival rate in that same line: (3) previous

experience as an owner in some line did increase survival chances; (4) businesses taken over as going concerns (35 in number) showed about the same survival rate as the 46 that were started as new firms; (5) those that were more rationally motivated and had planned more extensively had a better survival rate.

Pickle (1964) analyzed the traits of managers of small businesses with implications for college programs but the qualities sought are quite appropriate for the management-minded youth in the high school: communication skills, human relations sensitivity, thinking ability, technical knowledge, and drive. Kunsemiller (1961) interviewed 102 owners of independent retail stores in 66 California cities, comparing the above-average with the below-average operators. His interest, too, was in the management of small businesses. Qualities that seemed to make a difference, he concluded, were analytic ability, discriminating thinking, problem solving, and decision making. A broad range of interests and information is better than over-specialization. Cooperative on-the-job learning is good and he recommended that cooperative programs be expanded.

The advantages of business experience under circumstances where the situations encountered can serve as the grist for the operation in the classroom were suggested by Crump (1959) after interviewing and observing 100 Negro managers, most of whom completed their formal schooling at or before high school graduation. Pertinent findings from her study were: (1) the managers had had no preparation for managerial responsibilities; (2) the managers did not appreciate the need for continuous personal development; (3) the managers did not really comprehend the nature of competition in a capitalistic

society; (4) the managers did not seek competent guidance in isolating and solving their problems.

Rich (1964) wanted to find out what use was made of records in typical small businesses. He secured his information by interview and observation of managers and bookkeepers in 50 businesses in the Bloomington, Indiana, area. He drew the conclusion that in general "accounting records were basically used for historical purposes, for preparing required reports to fulfill legal requirements, usually of a tax nature, and were not fully used as a means of providing data for policy formation and managerial decisions" having to do with the long-run performance of the business and communication with owners and other interested parties.

The operator of a small business, like the executive of a large operation, needs consulting help at times but is not able to retain the services of experts in special areas. The need is real but Dobson (1962) found that managers of 31 small business firms in Florida who had used the services of management consultants were not all happy about the service. Of the 31 firms, 17 were pleased, nine were moderately satisfied, and five were unhappy. The reasons given for calling in a consultant identified the problems of the manager of a small business: (1) there is need for outside objectivity; (2) managers meet problems of types and in areas with which they are not familiar; (3) the manager is working with staff, limited in size, but also limited in breadth of experience; (4) the small business is unable to keep up with changing economic conditions.

Summary

Vocational programs typically offered in the secondary school are secretarial and cooperative office and retail programs. The secretarial elements are shorthand, typing, and, to varying extent, office machines and pre-automation information-handling procedures. Both "co-op" and secretarial programs form strong features of the community college curriculum. Typewriting is not only an integral part of the secretarial program but it is growing increasingly important as an input device in connection with the modern data handling equipment.

New and long overdue emphasis is coming to economics as a basic element of literacy for its citizenship importance and certainly for anyone entering the business world.

The most profitable area of exploration for the secondary school is what content to combine into a program for top-level students that will enable them to become knowledgeable in the field of business: why and how business operates, its problems, opportunities and responsibilities. The elements can be extracted from economics, law, accounting theory, business management, and others. Preparation for positions connected with electronic data processing installations would add to present skills those of logical thinking, quantitative thinking, accounting principles, and human relations.

The community college building on the high school foundation has before it the exciting opportunity to explore the manpower needs as they follow the influences of technological changes and to lead mature and able youth in their effort to learn what no one knows today but someone must know tomorrow.

INSTRUCTIONAL MATERIALS AND DEVICES

Because of overlapping content, some studies that could be classified as instructional materials and devices are included in other sections of this review: (1) studies related to devices or tools involving equipment have been reported in the section titled, Facilities and Equipment; i.e., reports on the use of the controlled reader, shorthand listening laboratories, and electronic data processing; (2) some studies involving materials and devices appeared to fit better under the broader topic of Learning Processes and Teaching Methods and have been inserted there.

Perhaps somewhat arbitrarily, then, the discussion of research here is limited to those relating directly to materials in the various business and office subjects plus a classification of recent demonstrations in the use of programed instruction in the area.

Shorthand Materials

Rankin's (1963) study of methods and materials in building transcribing skill from 1900-1960 provides both historical perspective and bibliography. As in other educational areas, the lag between changed methods, materials, and evaluative techniques, according to Rankin, ranges "from a few years to several decades."

Two systems of hand notation (Carter's Briefhand and Gregg Shorthand Simplified) were compared by Harper (1964). While recognizing the uncontrolled variables in his classroom demonstration, he gave the edge to briefhand as a one-semester nonvocational system requring notation at less than 70 wpm. Gregg "won" as a vocational system. The foregoing conclusions from uncontrolled experimental

variables are at least equal to the uncontrolled observations that a teacher of shorthand might have made.

With more than 90 per cent of shorthand teaching in the United States now using the Gregg system, comparative studies of this type have not proved too fruitful in the past. Should a better hand notation system be proved, one suspects a low possibility of its acceptance in the United States--as low as proved disinterest in changing from the hit-and-miss placement of keys on the standard typewriter keyboard to the simplified keyboard developed by Dvorak (1936).

Technological change sponsored by private enterprise may, however, displace hand notation systems and, perhaps, typewriters or even keypunches in the future. While Bell Laboratories continues experimentation in voice-actuated computer transcripts, the experimentation of ITEX and Stenograph Corporation in using machine notetaking as computer input for translation and almost simultaneous transcript output may be nearer to realization. Successful adaptation of the computer could obsolete hand notation systems in business, keypunch, and typewriting in favor of machine notation systems as computer input. The problems of such a computer application are the same as those of computer translation of languages.

Accounting Materials

Dow (1963) compared the use of practice sets versus the use of short problems in an elementary accounting course. Using scores from an achievement test of the American Institute of Certified Public Accountants as a criterion, no statistically significant results were obtained as between experimental and control groups.

Larson (1962) applied three treatments to laboratory groups in elementary accounting: (1) "neglected" (no formal laboratory period); (2) "regular" ("traditional" laboratory period); (3) "enriched" (extensive use of visual aids, review lectures, greater attention to detail and individual instruction). "Enriched" treatment provided significantly higher scores than other treatments on criteria measures.

Higley (1962) analyzed various goals of teaching accounting and accepted the list of the Committee on Professional Education in Accounting as the "most satisfactory." He proposed the separation of students according to whether they seek public accountancy or private. He found support for (1) accounting laboratories in elementary accounting; (2) absence of support for practice sets; (3) support for internship during summers; (4) support for those directed toward public accounting to gain knowledge of applications through a "clinical method of instruction;" (5) support for transfer of some accounting to "teaching machines;" (6) business games should be developed as a tool of accounting teaching.

Business Communication and Readability

Checking readability was, in the past, a popular pastime of researchers, probably because of the ease of application of predetermined formulae such as Flesch, Gunning, or others. Some early studies applied formulae to the various textbooks in business and office education. A few dealt with the heavy technical vocabulary load expected in a one-year bookkeeping and other subject textbooks.

More recently, Peterson (1959) checked readability, using Flesch and Gunning formulae, of 300 business letters in 15 Utah

companies. Peterson found no significant differences as between the "best" 20 and "poorest" 20. One can still visualize such readability measurement as an important teaching technique for pupils in communication classes (secondary, community colleges, or adult levels) to learn at firsthand notions about the components of difficulty experienced by the readers of written communication. Apparently, though, such a use of these and similar readability measures was not considered in the investigation.

Also in the area of business communication, Cleary (1962) produced a supplementary textbook-workbook to treat the special needs of the transcriber of business correspondence. Previous research, textbook analysis, and jury rating was used in developing these classroom materials.

Economic Education

Due primarily to the influence of the Joint Council on Economic Education and related state councils, economic understandings have proved popular areas of investigation with results favoring inclusion of economic content in business and office education.

With the support of the Michigan Council for Economic Education, Barron (1966) surveyed Michigan schools to determine the status of economic education (kindergarten through grade 12). With 90 per cent coverage of Michigan schools, Barron reported for grades nine through 12 that 53 per cent of the public and nonpublic schools offer an economics course, usually in the 11th or 12th grade, usually a one-semester course taught by a social studies teacher with a major in history. He reported, too, that one out of eight secondary students enroll in such a course.

Deitz (1963) used a 43-item Survey of Economic Understanding instrument to measure 3,908 secondary school seniors in 19 randomly-selected (but stratified according to size) California high schools. He found that these seniors possessed 55 per cent of the economic "concepts deemed minimal for effective citizenship" by the National Task Force on Economic Education. His recommendation that added economic instruction should be included in business courses appears by the nature of other investigations to be a popular instructional attempt.

Thus, Griffith (1962) integrated economic concepts in bookkeeping with significant differences in criterion measures as between experimental and control groups favoring the inclusion of such concepts without loss of achievement in bookkeeping.

Clayton (1962) indicated by title a bias of inclusion of economic concepts "incidentally" in beginning typewriting. Through such "incidental" economic materials used in the form of timed writing, he too found gains in economic understandings without loss of typewriting skill progress in experimental over control groups.

Programed Instruction

In the absence of computer based instruction, programed textbook materials have proved as effective as those utilizing hardware devices. Programed instruction has proved to be a popular application in several of the business subject areas during the past five years.

Taylor (1963) at Tennessee programed Lessons 1-40 of Gregg Simplified Shorthand for Colleges and Henson (1964) developed 1,535 frames for the first five chapters of instruction in the secondary

level Gregg textbook. Waters (1963) prepared programed homework. Presumably, all three experimenters followed the sequential order developed by textbook authors. Testing of programs in Taylor's and Henson's studies was comparative; i.e., "traditional" or previously used methods as control versus programed experimental groups. Henson generally found that experimental group achievement according to criterion tests was significantly better. In Water's experiment, classwork and homework for 76 class periods were presented and tested in control and experimental groups by magnetic tape recordings. He found a significant difference in favor of the programed homework over the traditional homework. Henson found a saving in time as did Waters in the application of programs. Taylor did not find a significant difference in time or in achievement. Taylor's conflicting findings still lend support to the value of the tool in shorthand methodology.

Myers (1965) tested results of programed business mathematics against a traditional textbook. With "matched" experimental and control groups, he found significant differences in scores on criterion post-tests of learning and a differential in time both favoring the experimental group.

Pinkerton (1963), in the area of business communication, used 13 classes with variable experimental factors (programed instruction with text, lecture-discussion combination, programed text-quiz combination, and no-regular-class-quiz combination). All the foregoing treatment groups scored significantly higher on criterion tests than classes using the program text-in-class only and regular text outside class combination. While recognizing significant differences on criterion tests in favor of programed instruction classes over control groups, Pinkerson

also alluded to individual differences of instructors in their effectiveness within programed groups along. While the variables not controlled appear to be greater than those controlled, Pinkerton did attempt to wrestle with the changed role and function of the teacher in a system of learning affected by educational technology.

Payne's (1964) demonstration of programing which followed the order of eight chapters of a popular accounting textbook contributed little more than similar demonstrations in other areas of instruction--"it can be done" and additional "research and experimenting needs to be done. . . ."

In the field of programed instruction, we do not visualize a flood of new materials coming from the classroom teacher. The quality of writing must be equal to or exceed that of successful textbook writers. The ability to develop defensible goals, to determine entry behavior and ending behavior of learners, to sequentially determine through "successive approximation" the steps needed to move the learner from beginning to ending behavior are characteristics in common with textbook authors. To a degree, even reinforcement through immediate knowledge of results is included in well-written textbooks. One distinct advantage exists over the usual textbook: the pragmatic testing with potential users, revision, retesting, and revision again as a specification for programing which, if followed, promises materials whose preparation have involved pupils, the focus of all learning materials.

In the broader area of educational technology, Poland (1966) reported a 1965 survey of NABTE member schools on the use of television instruction: six schools were then televising typewriting courses;

12, accounting; three, business mathematics; two each, law and shorthand; one each, business English, management, personal finance, principles of advertising, real estate, and social studies.

Frequently, innovations such as educational television, other tools of educational technology, and other instructional materials and resources suffer from lack of adequate evaluation from the field after their introduction. Such can be charged against the decreasing interest evidenced in the last two years in reported programed instruction studies. Yet, perhaps the breakthrough in more effective learning will result not from research on any separate tool but in applications of systems of learning involving a variety of combinations of materials, tools, and human energy--a discussion of the next section.

LEARNING PROCESSES AND TEACHING METHODS

Learning processes and teaching methods in business and office education will be discussed according to the following topics: (1) investigations in areas of learning processes and teaching methods related to business and office education; (2) research contributions from business and industry; (3) substance from other disciplines; (4) informal classroom experimentation.

Except for typewriting and telegraphy, business and office education (as opposed to business and industry) has contributed little to learning theory. As described earlier, psychologists utilized the typewriter early as a base for study of skill learning (Book, 1925; Wood and Freeman, 1932; O'Rourke, 1934; Dvorak, 1936). More recently, psychologists' interest has waned in the study of typewriting skill, as such, shifting rather to the typewriter as a tool in cognitive learning

by young children (Royal McBee, 1959). With experimentation now proceeding in computer-based instruction at the classroom level, the typewriter continues as input and output of systems for learning such basic skills as arithmetic and reading.

There has been a flagging interest of psychologists in the typewriter as a skill tool, an interest that should be revived. A promising method for the future could be coordinated research by those who teach skills (e.g., physical, industrial, music, and business and office educators with interdisciplinary aid of other behavioral scientists) to isolate the elements of skill learning. This isolation of elements would provide a better foundation for further study of their interrelatedness and complexity in learning.

While not an interdisciplinary approach, Johnson's (1963) typewriting experiment to determine the effectiveness of high speed drill on speed and accuracy development in beginning typewriting is in substantial agreement with the generalization of West (1961):

> . . . that substantial periods of attention to speed, followed by briefer focus on accuracy, produce better results than (a) much accuracy practice in relation to the amount of speed practice and than (b) approximately equal attention to speed and to accuracy.

Innovations in classroom size (usually increasing the number of pupils per class) and team teaching of typewriting are occurring. Systematic evaluations of results, however, have not been reported. In one study, varying patterns of time in relation to learning typewriting was tested and reported by Yuen (1959). He found that varying the number of typewriting class periods per week from two, three, four, or six and doubling the length of the 40-minute periods used in the four- and six-meeting groups did not affect significantly the outcomes from

the experimental groups compared to the usual five-class-meetings-per-week control group. Anticipating a renewed emphasis on various applications of block-time programs in business and office occupations, Yuen's results should be a reminder that time per se may not be the important variable in learning. Rather, it is the utilization of time that will determine whether or not learning occurs.

Rahe compiled recent bibliographies of research in both typewriting (Rahe, 1963) and shorthand-secretarial (Rahe, 1965) fields. His writings about the implications of typewriting research are also a contribution (Rahe, 1961 and 1964).

Shifting to research in shorthand, because of the "foreign" language nature of most hand systems of rapid notation, interdisciplinary interest may be more difficult to rouse in shorthand skill research. Research on the basic elements to learn shorthand skill, thus, will continue to be the responsibility of those who know and teach such a system--designing their research on sound theoretical bases.

Approaching the meaning of sound theoretical bases are the researches of Hillestad (1960), Farmer (1961), Baggett (1964), and Uthe (1966). Each was concerned with a single element of the shorthand skill complex, the difficulty of shorthand dictation materials. Hillestad examined 16 characteristics of the Gregg shorthand system (syllables; vocabulary level; brief forms and brief form derivations; blends; "oo" and "o" sounds; dipthongs; "are-air-er" sounds; terminal "t's;" plural, past tense, and other endings; disjoined endings, word beginnings, and words beyond the first 1,500 on Silverthorn's list). She arrived at a tentative formula of difficulty. Vocabulary level and number of syllables were found by Hillestad to be the best single

criterions of difficulty. She concluded that elements of the shorthand system are mainly valuable as instructional problems to be recognized. In analyzing errors, she found brief forms to be easier to write than words written by principle; error rate increases as words become longer; inconsistent forms (called "choice making" forms by Young--see below) induce more errors than consistent ones; and past tense, omitted vowels "t" following an "s" or "k" sound produce more errors.

Farmer (1961) used Hillestad's formula to determine three levels of difficulty of letters. In testing these with students using Pitman shorthand, she established two levels of difficulty as between the highly difficult and the combined medium and easy but could find no significant difference in the lower two levels. She could not conclude, therefore, that Hillestad's formula was a predictor of difficulty for transcripts made from Pitman shorthand.

Baggett (1964) used the Hillestad formula to predict six levels of letter difficulty and tested these in classes in California. He found some significant interation between classes and letter error means and schools and letter error means. While the formula could discriminate between the difficulty of the six letters, it was not effective in predicting their order of difficulty. Uthe (1966), in her yet-to-be-released dissertation, increased the analysis of difficulty from 16 to 35 characteristics to derive what is purported to be an improved formula for determining difficulty of Gregg shorthand.

Young (1964) utilized slow-motion pictures to examine the writing of "choice making words," defined as words in Pitman or Gregg shorthand that could be written in more than one way (called "inconsistent forms" by Hillestad--see above). From an "index of

hesitancy" established for 40 experimental words included in dictated matter, he concluded that "choice making" was a primary element in hesitancy and thus he would eliminate choices in outline construction in shorthand systems. "Choice making" by Young and "inconsistent forms" by Hillestad as a characteristic of difficulty in shorthand is consistent with the rationale on which the recent initial teaching alphabet in learning to read and write is based.

Palmer (1964), also using slow-motion pictures and shorthand notes, examined the differences in 12 first-year shorthand students writing at 80 words a minute and 12 second-year shorthand students writing at 120 words a minute. She found significant improvement of 120-word subjects to write unfamiliar words over the first-year group. This finding was offset by the absence of any increase in accuracy of the second-year group over the first as judged from shorthand notes and completed transcripts.

Looking at shorthand achievement, Haggblade (1965) analyzed 11 factors: (1) ability to write theoretically correct outlines for high-frequency words, (2) ability to write "correct" brief forms, (3) phrasing ability, (4) quality of shorthand penmanship, (5) dictation-taking speed, (6) ability to write "correct" low-frequency words, (7) typewriting speed and (8) accuracy, (9) transcription speed and (10) accuracy, and (11) shorthand reading ability. Multiple correlation coefficient for the 11 variables was .88. Through regression analysis, factors numbers 1, 5, and 9 were found to contribute most.

In transcription, Jester (1959) used time study techniques to examine each of several activities related to transcribing letters: typewriting erasing, deciphering notes, proofreading, dealing with

spelling problems, making ready, and the like. From data consisting of frequency and duration of each activity, he found that transcription production was associated more with activities other than typewriting speed.

Many of the theoretical foundations and their applications to all other business and office education subjects in such areas of behavioral science as interaction research, inquiry research, group dynamics, persuasion, social change, child growth and development, cognitive and affective learning provide fertile fields for business and office classroom application and testing--application and testing that could contribute toward the total knowledge of learning process and teacher methodology.

Dannenberg's study (1965) of a linear program titled the Free Enterprise System (Lumsden, 1963) in which current programed instruction concepts of "reinforcement" are evaluated in relation to intelligence levels is of this nature. Dannenberg used three groups of subjects of differing levels of intelligence to test three variable ratios of reinforcement on learning subject content.

Most promising future contributions of business and office education research to learning and methodology will of necessity be of an applied nature. Yet, if those applications are rooted in the theoretical foundations of behavioral sciences, their contribution can improve the business and office classroom productivity as well as contribute to the broader field of learning theory.

Research Contributions from
Business and Industry

One might expect that business and office educators would be in the vanguard of business and industry research that was contributed to learning process and methodology. Yet, the earlier concepts of business and office education as "skills" preparation in shorthand, typewriting, bookkeeping, and handwriting divorced the early practictioner-turned-teacher from the mainstream of business research. And the breech, as between what the business and office teacher needs to know versus what the major schools of business administration teach, has continued to place many of these teachers on the periphery of business and industry research contributions.

Thus, Taylor (1911), the Gilbreths (Frank B., 1911 and 1912, and Mrs. Lillian Maller, 1914), and others contributed "scientific management" concepts. Industrial educators, however, have been more adept in applying job analysis and other of the management techniques to classroom methodology than have the business and office educators. Advances have been made recently, of course, in the revised Dictionary of Occupational Titles (1965) in identifying and generalizing the analyses of new and changing jobs. Refining the tool of job analysis, however, to reflect more accurately both cognitive and affective requirements of changing office work (as, perhaps, all work) continues to be a promising area for future research.

These early areas of research in "scientific management" for running business and industry have long been resisted by educators as not having a place in learning process or methodology. As these earlier areas of research have merged into systems design and development research and communication science, their relevance to

learning process and methodology are gradually being recognized. Especially is this true as such systems analyses have related to the totality of man, machine, materials system involved in classroom learning.

Systems of learning are being developed and tested, either in business and industry or areas of education other than office. Significantly, application of systems design and analysis has made possible the entrance of business organizations into learning and teaching enterprises: either operating large learning centers such as federally-sponsored job-corps centers or marketing learning systems to institutions of education.

A rapidly-changing education technology, the increasing numbers remaining in school longer or returning to be educated in training or retraining, and the increasing costs of educating these masses--these factors require an increased productivity in learning from all educational programs. And a systems approach, borrowed from business and industry, provides an area of research in learning process and methodology which, even if the system does not prove to result in greater productivity, can be used to at least evaluate the results obtained.

Let's move now to another research contribution from business and industry. Stemming from the 1936 debacle of the Literary Digest, survey research methodology has developed with recent improvements coming from psychologists working primarily to solve business and industry's problems.

Survey techniques, in addition to the local follow-up or community business survey, are being utilized in business and office

education to determine learning process, methodology, or materials. Of varying worth, the following are representative of those in which the business community has been surveyed to help answer a teaching problem. Most could have profited through more regard to the systematic techniques of survey research.

Frazier (1962) identified problems of beginning secretaries with dictation and notes. To obtain problems, she interviewed 50 teams, each composed of a secretary and a dictator. Five categories of problems were those related to (1) office organization, (2) policies and regulations, (3) layout and physical facilities, (4) nature of dictation, and (5) personality traits.

Vezeau (1960) identified from file materials of 101 lawyers a legal technical vocabulary of 971 terms deemed "essential" in the training of legal secretaries. The extent to which successful practicing legal secretaries did, in fact, possess this vocabulary or where and how the vocabulary actually possessed was learned was not explained.

Griffin (1961) attempted to identify needs in record management curriculums through questionnaires to members of the American Records Management association and the Association of Records Executives and Administrators. To determine status of instruction, she used a questionnaire with 97 member representatives participating from American Association of Collegiate Schools of Business and check lists with 110 teachers of records management for data on curriculum status, content, organization, and equipment.

Greene (1963), while limiting his study to competencies in arithmetic needed by the junior college business graduate in

Georgia, developed a priority listing of competencies normally expected from general arithmetic or business arithmetic at much lower levels. That businessmen in Georgia (and elsewhere) desire competency in addition, subtraction, multiplication, division, percentage, "short-cuts" in division and multiplication, decimal fractions, etc., might not have required as much energy to determine as his questionnaire-by-mail type of survey did.

James (1963) used a rather cumbersome procedure of opinion gathering to find that both technical skill and personal traits are required of beginning and promotable stenographic workers. The weaknesses cited of the beginning stenographer could have been drawn from the exhortation of hundreds of businessmen speakers at educational meetings over the preceding fifty years: "poor spelling, poor grammar, poor dictation and transcription, poor typewriting, and lack of English fundamentals;" and personal weaknesses, "lack of proper grooming, lack of interest, poor selection of wearing apparel, poor diction and voice, use of too much makeup, immaturity, and lack of conscientiousness." Had the effort expended by the investigator been used to collect concrete behavioral incidents to represent these abstractions, case studies or specific teaching materials could have resulted.

Another area of research contribution emanating from business and industry is that of persuasion, represented by advertising and market research. Because of proprietary interests, however, business research of this type frequently is as the alchemist's secret that is unavailable to educators in published forms. Substance that exists comes from behavioral fields.

Persuasion in the teaching-learning process makes the topic more important as a potential field of investigation--and thus more important than the amount of substantive information coming from business and industry might first suggest.

In an analysis of theory and concepts of persuasion from the behavioral field, Brock (1963) examined these in relation to practices used in written business communications. While he concluded that most findings from behavioral research were being practiced, he identified needed research in written business communications in persuasion (e.g., ethics of persuasion, one-sided persuasive appeals, logic versus emotion, and communicator versus communicatee conclusion drawing.

Because of its relation to the total field of educational methodology and practice, then, persuasion investigation deserves a greater emphasis by educational researchers in the future.

Thus, while business and industry has contributed to learning process and methodology in the total area of education, its impact has yet to be exploited to a large extent in business and office education.

Substance from Other Disciplines

The work of B. F. Skinner (e.g., Skinner, 1953, 1957, and Ferster and Skinner, 1957), Bruner (e.g., 1966), and other behavioral scientists deserve more firsthand study by business and office educators. Yet, the quickening pace of new knowledge in all the behavioral sciences extends the lag between what is changing and available in behavioral sciences and what a business and office educator can keep up with in learning process and methodology. Thus, in the absence of firsthand knowledge, syntheses of research from related disciplines

are needed to disseminate the new and important to business and office educators.

Such a synthesis is that of West's (1961) in his Implications of Research for Teaching Typewriting. While West does not purport to go beyond basic psychological principles related to process and methodology, his title might cause one to think that he does. In fact, worthwhile contributions such as West's are needed from all the other behavioral fields as their basic principles from research are brought to bear on typewriting as well as on all other business and office subjects.

In accounting, a similar attempt at synthesis has been less effective. In his integration of learning theory and accounting education, Johnson (1965) appears as an accountant in a strange country of the psychologist, a country somewhat remote to the "real live" world of the college accounting instructor. Yet, aimed at and accepted by his audience his effort could provide process and methodological innovation in the accounting classroom. Johnson's and similar syntheses, however, could be strengthened in their preparation through interdisciplinary collaboration.

Informal Classroom Research

As intimated earlier, numerous studies of local significance and limited control have found their way into the literature. Among these studies are the numerous ones of teaching--Method A - versus - Method B variety in which there has often been selection of an infinitesimal ripple of variable for experimental treatment from an ocean of available variables. Without micrometer-like measuring devices sensitive

enough to measure the ripple effect, no significant relationship of the ripple-like variable to total learning is an expected result. Should significance be determined, one suspects chance, "Hawthorne effect," or other intervening variables as the reason. To the researcher seeking substance, the presence of many documents as these is an annoyance in time and energy he is often ill-prepared to spend. To say, then, that the bulk of such "informal classroom research" should be increased may appear at first to be a contradiction.

The apparent contradiction, of course, is research as substantive results (which we have attempted to synthesize to this point) versus research methodology in the classroom as learning process. As a hypothesis, the level of classroom productivity will increase as practitioners become addicts of innovation and experimentation. Even a first step in utilizing research methodology in the classroom and the resulting excitement of "trying something new" could lead to a second, third, and fourth step in moving toward including controls desired by the serious researcher. As suggested by Harold Clark (1958), classroom productivity could increase because of the Hawthorne effect (frequently uncontrolled in methodology of even the more sophisticated educational researcher--let alone the classroom practitioner who is not immersed in research design). Thus, because the teacher is thinking more, reading more, doing something different, the excitement of the teacher becomes contagious and pupils react favorably to a different, an extra-special treatment as he seeks to learn.

Many masters' degree theses reported are of the "informal classroom research" that should be encouraged. Thus, while conceptual framework, design, measurement and/or reporting are usually subject to

criticism because of their lack of rigor, the learning by the researcher should be reinforced. "Straight-Copy Standards for College Typewriting" at one college is not an outcome beyond local import. Yet, a second step for Igo (1966) might well be the identification, control, and measurement of other defensible goals. Similarly, Herschelmann (1964), though recognizing her lack of variable control, was able to demonstrate that creative letter writing could be taught, not incidental to the tool of typewriting but by utilizing the tool with no apparent loss in skill acquisition.

Limitations imposed of time, money, geography, and perception may frequently cause research output at other levels to be categorized as "informal classroom research," too. Some of these have been identified elsewhere in this review. For the future, sophistication in design at levels beyond the master's degree would be a hope. Yet, this result will obtain to the extent that a greater emphasis on research and research findings are introduced at the undergraduate through the masters' and doctoral levels of study which will lead to productive postdoctoral research.

STUDENT PERSONNEL SERVICES

For purposes of this discussion, student personnel services deals with research in business and office education classified as: (1) general nature of the responsibility for and inclusion of personnel services in school programs, (2) prognostic, aptitude, or achievement devices used for guiding youth, (3) occupational information, and (4) guiding youth with a special need, e.g., the handicapped person in typewriting.

Admittedly, much of the literature in the field of guidance and counseling and education psychology includes topics of broader problems of responsibilities for guiding youth and implementing school programs involving services for maturing youth--youth preparing for and entering the labor market. Thomas (1956), in a comprehensive treatise, synthesized most of the research literature as it relates the nature of the occupational structure to educational responsibility.

Related directly to business and office education, Moriwaki's (1962) review and synthesis of research and thought narrowed guidance functions to this area. Including studies (100 in number) and periodical articles (141 in number) dating from 1926 through 1961, she classified student services according to (1) personnel, (2) cumulative records, (3) counseling activities, (4) utilization of test and evaluative instruments in guiding youth, and (5) educational and vocational guidance. According to function, she identified responsibilities of administrators (to develop the program, assign staff personnel, provide guidance for students, and maintain cumulative records and occupational information); of business teachers (counsel student in subject selection, in educational planning, in occupational choices, and in personal problems); of counselors (similar, but perhaps broader responsibilities for functions listed as those of the business teacher). From her review, Moriwaki observes that business educators (1) "have done well" in rendering educational and vocational guidance, (2) can help students make wise occupational choices, (3) should use information from tests and cumulative records to assess occupational competencies, and (4) should use an advisory (versus "dogmatic") approach in counseling.

From a review of literature and employer interview information, Anderberg (1962) identified business educators' guidance responsibilities to be (1) providing youth with occupational and requisites of preparation information needed for specific occupations, (2) administering interest and aptitude instruments, (3) keeping up-to-date through job analysis, and (4) focusing on office employment opportunities with materials. Anderberg suggested, then, that the business educator's function is that of catalyst between information and student with the aim of developing "self-guidance" within students. Implicit in this statement is the need for material for informing, testing, and preparation of students to meet present and future employment needs.

White (1965) surveyed business educators, counselors, and principals in Louisiana to examine the degree of understanding and cooperation that exists between departments of business education and of guidance and counseling. He proposed that business education departments be involved in research for determining vocational training and skill levels required for entry job placement, that guidance departments help in determining business department course offerings, and that guidance and business education jointly implement placement and follow-up studies.

Studies Related to Prognostic Devices and Testing

It is probably safe to say that we do not have any single devices for predicting success in business subjects either in the skill area (typewriting, shorthand, office machines) or in the general knowledge area. Some attempts have been made to establish such prognostic devices which could become welcome tools in guiding and counseling youth.

In a document of historical significance, Tschider (1960) reported on shorthand prognosis from 1914 to 1960. Similar historical studies of prognosis in other business and office education areas would avoid duplication of failures in previous attempts at prognosis.

Allyn (1960) attempted to develop a shorthand aptitude test using recognized shorthand strokes in its construction; subtests showed slight to negligible relationship with achievement criteria.

Lang (1960) investigated aptitude for modern foreign language, vocabulary, linguistic ability, and general scholastic aptitude in relation to dictation and transcription achievement. She found the variance too great for any of the aptitudes tested to serve as a single predictor at the beginning level of transcription achievement.

In the field of recordkeeping, bookkeeping, and accounting, Byrnside (1961) attempted to determine the validity of an aptitude test of 78 items for recordkeeping and bookkeeping. Twenty-one schools and 1,163 students were involved. His findings indicated a significant degree of validity, particularly for the high achiever. His study should be replicated.

Allen (1961) found in his study of 170 freshmen secretarial students (1959) and later (1960-61) a study of 181 students that high school grades are the best single predictor of success for secretarial majors at the Women's College of the University of North Carolina.

Anderson (1961) found in her study of the effectiveness of high school bookkeeping and shorthand rates as indicators of college success (which also included indices involving English and social studies) that no one of the high school indices examined could be considered effective as a single, comprehensive indicator of college achievement.

It seems reasonable to conclude that no single device has been developed which predicts success or failure in any business or office subject with any degree of reliability. It also seems likely that the limited-resource attempts which have been made in the past will not produce the kind of instrument needed in student personnel services.

Occupational Information

The collection and dissemination of current occupational information is one area of student personnel services in which business and office education can participate effectively. Research literature in business and office education abounds in surveys and other types of reports which provide occupational information with specific job descriptions that include education and training requirements.

Occupational information appears in the research in such studies as Sears (1961) who attempted to predict the roles of the stenographer and secretary in the future business office; predicting a change to administrative capacity not requiring typical stenographic skills in her study of the effects of automation in stenographic and secretarial positions--a 1961 forecast. During the intervening five years--1961 to 1966--her predicted trend is more clearly discernible. Graves (1961) reported on job specifications for clerical and stenographic positions available to recent high school graduates.

In more specialized occupations, Shankel (1960) reported through the normative survey of the preparation and training of 69 active Certified Shorthand Reporters in the state of Kansas. Reese (1960) analyzed the professional status of the official circuit court reporters in the 20 judicial districts of Illinois specifically to

gather information which could be used as a guide for the secondary school student in the selection of a career. Griffin (1961) reported on education needed for administrators of records management programs as a result of a survey of duties and responsibilities of records management personnel.

Casey (1961), in a follow-up study of the medical assistants who graduated from the New York City Community College, provided a detailed job description and suggestions for the preparation and training of personnel.

Fried (1964) reported a sociological study of the occupation of shorthand reporter. Deihl (1964) considered the selection of first-level office supervision with implications for business education. Formal education, requisite qualities, bases for selection, and the prevalence and nature of formal in-service training programs are discussed.

An area which has been the target of much research which has produced usable and needed occupational information has been that of electronic data processing. In the 1950's, studies such as Edwards' (1959) on the effects of automation on accounting jobs began to appear. Backlund (1964) investigated the preparation, duties, and qualifications of programers in the city of Portland, Oregon. Hanke (1964) reported on the education and training of business computer programers in selected business in Northern Illinois. Jones (1964), as discussed in the section on Educational Programs and Offerings, surveyed business and industry data processing installations in Ohio to determine the knowledge and skill needed by clerical workers in first-level entry occupations in digital computer installations. And Wenner

(1965) reported on the minimum data processing employment requirements in selected Iowa businesses.

The problems involved here are not so much the collection of occupational information as reducing it to usable form and disseminating it to business teachers and counselors for their use in guiding youth toward intelligent vocational choices.

Follow-Up Studies

Follow-up studies can provide feedback which result in changes in vocational offerings more nearly attuned to existing job skill standards.

Lowry (1958) developed a guide to follow-up research in business education through the historical and normative survey. His report is valuable for its bibliography. DeRodeff (1965) sought to improve the follow-up study process in schools and recommended (1) a pattern of continuous follow-up, (2) a systematic approach in gathering data, (3) utilization of simple charts and graphs to explain data, (4) analysis of data to gain a more intensive and longitudinal study of an adequate sampling of a group of graduates, and (5) modifications of existing programs in accordance with follow-up findings.

Haines (1963 and 1965) reported on follow-ups of the 1962 and 1963 graduates of Michigan high schools who received training for distributive, office, or trade and industrial occupations. One finding of special interest to business and office educators was that 76 per cent of office trainees and 58 per cent of distributive education trainees were academically in the upper half of their class; 47 per cent of the office trainee were in the upper quarter. This finding,

though distorted by questionnaire-by-mail methodology, was similar to that of the Detroit study (Cook and Lanham, 1966).

Special Problems

Two studies point to the student personnel services that business education courses can contribute in the solution of special problems. Purkhiser (1959) and Espeseth (1961) both studied the ability of cerebral palsied students to learn typewriting with positive results. Espeseth proposed a methodological approach to the teaching of the physically handicapped. Research such as this suggests vocational preparation is possible for handicapped persons. Additional research in the vocational preparation of other kinds of handicapped people is needed.

Summary

Business and office education research can make its contribution to the total student personnel services offered by a school system to its youth: an area of personal guidance and counseling, by offering up-to-date occupational information, by developing prognostic devices and reliable test instruments, by providing feedback from business and industry through follow-up procedures for program changes, and by looking for ways to make the handicapped youngster occupationally competent.

FACILITIES AND EQUIPMENT

Research in business and office education which deals specifically with facilities and equipment seems almost nonexistent except for an occasional survey.

Monograph 81 (South-Western, 1953) is based on a state-wide survey of practices in layouts and facilities for business education in California. This source is primarily of historical interest. For example, at that time there was naturally little interest on the part of business educators in EDP equipment since the first business applications of computers did not appear on the scene until 1952.

Walker (1959) developed a standard list of equipment for high school and junior college classrooms and the cost of classrooms so equipped. He estimated that classrooms requiring a large number of office machines are approximately eight to 14 times as expensive to furnish and equip as are general purpose rooms.

The EBTA Yearbook for 1963 is concerned with the problem of facilities, supplies, and aids. The treatment by authors makes this Yearbook a source of information about current practice. As one would expect from such a nonresearch source, however, basic assumptions made by the authors are not generally documented.

Selden (1964) developed Monograph 112 (South-Western), Planning the Facilities for Business Education. Again, the information is based primarily on the experience and reading of the author rather than on research evidence.

The nature and extent of the business education program determines in large measure the requirements for facilities and equipment. Yet little of the research in business and office education has dealt directly with what the facilities and equipment should be. Indirectly, however, some studies that deal with the "nature" of the program are concerned with equipment usage. By implication, then, perhaps some indication of the facilities and equipment can be deduced from these.

Prewitt (1961) reported on research findings and nonresearch periodical literature pertaining to the area of office practice instruction for the period 1951-1959. Her synthesis is based on 124 research abstracts and 287 articles of professional literature, some of which do deal with facilities and equipment.

In the area of data processing, Niemi (1959) reported that computer manufacturers were indicated as the first choice of training agency by the majority of respondents (heads of computer installations) for digital computer programing, advanced programing techniques, and digital computer operation. His survey dealt with the skills, knowledges, and understandings of EDP that colleges and universities should provide their business students. A similar conclusion was reached by Brown (1965) and Cook (1966) in the City of Detroit. However, their focus was on secondary levels of instruction.

MacDonald (1964) found that lack of equipment was one barrier to effective electronic data processing instruction at the secondary level. (Other barriers included the lack of teachers with adequate training in the subject and the lack of suitable teaching materials.)

Cook (1966), in the most recent study available, recommended that "the high schools in the Detroit Standard Metropolitan Statistical Area should be assisted through vocational education funds to acquire necessary equipment . . . to prepare graduates to enter these emerging occupations." He further recommended that "this study be replicated annually to determine . . . changes in equipment used and concomitant need for changes in the training program." A recommendation of this study which is at odds with some current policy at federal and state levels is that EDP equipment should be rented by schools to avoid

obsolescence due to rapid technological change. The study includes data about equipment used and training needs of operators.

Shifting from studies related to data processing and office practice needs, some recent studies deal with equipment needs in shorthand dictation laboratories and other laboratory tools. Crandall (1960) reported no significant difference as between experimental and control groups in shorthand transcription rates on the criterion test. The control group was taught according to the Teachers Handbook which accompanied the text. Of the three experimental groups, one used a special notebook; one used only tapes with the instructor in the room at all times; and one, the instructor left the room after the 10th lesson (of 50) to return only for testing.

Concerning dictation laboratories, Phillips (1964) suggested a major omission from current research: "The greatest weakness seems to be that not enough experiments have been conducted to test the assumption that the improvement is greater because of the electronic dictation laboratories. . . ." Lensing (1961) reported no significant difference between groups using teacher dictation as opposed to taped dictation. Palmer (1963) also reported no significant difference between experimental and control groups in a similar experiment. Conflicting results, however, were reported by Coleman (1964) who found that students in the control group (taught in a "traditional" method of shorthand) performed significantly better than did the students in the experimental group utilizing tape-laboratory instruction. He called for further research to determine the most efficient methods of use for tape or recorded types of presentations.

The use of the controlled reader in typewriting instruction has produced similarly conflicting results. Kline (1961) reported a significant difference at the .01 level in speed and accuracy in favor of the experimental group over the control group. On the other hand, Perkins (1963) reported no significant difference in speed and accuracy in typewriting through the use of the controlled reader. And Johnson (1962) found that "in beginning typewriting classes at the college level, the Skill-Builder Controlled Reader may not be expected to be particularly helpful. In intermediate classes those utilizing the Skill-Builder Controlled Reader may be expected to perform significantly better than those not using the instrument." With such conflicting evidence, the value of this tool in the typewriting laboratory remains to be proved.

In the only report found dealing with the use of the controlled reader in shorthand instruction, Nisdorf (1962) reported significant results in transcription through its use. The experimental class improved 100 per cent in median score of words compared with a 32 per cent increase in the control group. On both three-minute and five-minute dictations, the experimental class scored approximately 25 per cent higher than did the control class in the ability to take dictation of new-matter material.

In the area of educational technology, the literature is almost devoid of any substantial evidence. Team teaching, educational television, ungraded school, "Trump" plan arrangements for staff and facilities, closed circuit television, or other audio-visual resources and the like in which some schools are innovating in their business and

office education areas have not resulted in "hard" data, even of a normative nature of original cost of facilities and equipment, repair, or replacement--let alone comparative data with traditional facilities and equipment under these headings.

One bit of evidence dealing with library resources at the teacher education level does exist. McKitrick (1960) rated library resources in 27 Ohio teacher education institutions. Library resources were rated "entirely adequate" or "adequate" in more than half of these schools in principles of and applied economics, business administration, office training, basic business, and methods. However, "business education research holdings" were noted only "partly adequate" in more than half of the libraries.

Obvious research gaps exist in the area of facilities and equipment in business and office education. One would hope that, even on a normative basis, data involving practices related to drawing educational specifications, facility and equipment specifications, procurement on both a capital outlay and replacement basis, and repair and maintenance practices would soon be made available. With such normative data available, a variety of problems related to the marketplace (e.g., group buying, off-season buying, comparative practices of contracting or in-school repair, depreciation rates in relation to use and to kind of machine) could begin to be solved on a basis extended beyond the experience or bias of local administrators.

TEACHER EDUCATION

Research With General Program Implications

The quality of any business education program is determined in large measure by the quality of the business teacher and, therefore, to some extent, by the quality of teacher education programs. On a non-research basis, many would agree with Wanous (1966) who wrote:

> There is a widespread consensus that business teachers should spend five years in collegiate preparation for a teaching career. This preparation should consist of the following five parts:
>
> A broad background in the arts and sciences.
> A comprehensive knowledge of the fields of business and economics including, of course, those subjects in these fields that are to be taught.
> An understanding of learner behavior and the learning process.
> A knowledge of the curricular materials that are available in the subject specialty of the teacher, and further, an understanding of the approaches that may be used to evaluate these materials.
> Skill in managing a classroom, organizing learning activities, working with students, and supervising the learning process.

While few would disagree with Wanous' ideal, little evidence is available that proves the efficacy of five-year preparation over four years or, for that matter, the proportion of each of the five major items of preparation if, indeed, each is a necessity that should be provided.

Another source of information on the preparation of business teachers will be available with the publication of the Guidelines for the Preparation of Office Occupations Teachers developed by Cook (1966) and others through a USOE-funded project. By design, the project must

be described as "action" research. The value of the guidelines rests on the spread of authoritative opinion throughout the United States on what teacher education should be.

Both of the foregoing authoritative sources, however, may do a disservice by discouraging future innovation and research--research in which teaching functions could be reclassified into numerous professional and paraprofessional levels of performance in business and office education.

In one such attempt at classification and description, Crunk (1959) reported on research and other professional literature related to guidance, counseling, and evaluation of students in teacher education for attainment of those qualifications (knowledges, skills, abilities, and personal qualities) important to effectiveness as a teacher, with special reference to the business teacher. Her findings include a list of qualifications desirable for an effective business teacher and a list of concepts pertaining to guiding, counseling, and progressively evaluating business teacher trainees toward attainment of these qualifications. Her voluminous (1,190 pp.) study is also an important bibliographic reference of previous research.

National Business Education Quarterly (Winter, 1962-63), Suggested Content for Professional Courses in Business Education, is illustrative of program needs in business teacher preparation as expressed by teachers in the field. This report was developed by specialists in subject matter areas to answer critics who were seeking to eliminate specialized business teacher education courses from business teacher preparation.

National Business Education Quarterly (Winter, 1963-64), The Business Teacher Education Curriculum--A Study of Subject Matter Elements, Part I, reported the results of a survey by questionnaire of 78 in number or 28 per cent of the then 278 member schools of the National Association for Business Teacher Education to determine what should be included in the teacher education program for future business teachers. Three of the seven studies were reported: curriculum planning, personnel services (guidance), and teaching methodology; secretarial and related office machines; and student teaching and other laboratory school experiences.

National Business Education Quarterly (Winter, 1964-65) continued with Part II of the NABTE study of the business teacher education curriculum with reports on business administration and economic education; bookkeeping, accounting, and related office education; the distributive subjects; and the methods courses in business education.

The Committee that developed the NBEQ reports cautioned:

> When using the committee reports as an aid to curriculum or course of study construction, business educators should keep in mind the preparation which future business teachers will need to bring about desirable changes in the curriculums of their schools to keep them in harmony with the economic, social, and educational developments. Among these developments are the catapulting uses of the electronic computer and other automated devices in factories, stores, and offices; the trend toward more diverse and less definitive duties of office and store employees; the increasing vocational and personal needs for general education, economic education, and technical education; the need for a higher level of business and personal ethics; and instructional innovations such as programed courses, team teaching, and electronic classrooms.

Whiting and Yetka (1963), through questionnaires and interviews of 104 administrators and 205 business teachers in Wyoming and

Colorado, collected opinion of beliefs and practices based on an authoritative statement by the Policies Commission for Business and Economic Education (1960), This We Believe About Business Education in the High School. The groups of business teachers interviewed expressed a need for additional training in curriculum planning, public relations, and guidance activities. That these teachers "did not know how to cope with low-ability students" is of current relevancy providing foundation for interdisciplinary designs for controlled evaluation of teacher practices and their effectiveness in the numerous local, state, and federal programs currently pointed toward the "disadvantaged." Substantive research in other educational areas could, of course, supplement the absence of specific knowledges and applications in this field.

In a different approach to the problem of qualifications of business teachers, Sears (1959) formulated an evaluative check list based on the responses to questionnaires sent to administrators of public secondary schools in the State of California, employed business teachers, and directors of placement bureaus affiliated with teacher education institutions; on suggestions from the literature; and on results from the use of a jury of authorities. The instrument developed is to be used as a device to appraise qualifications presented by a candidate for a business teacher position. It refers to six factors related to business teacher preparation and qualifications: reference letter factors, interview factors, professional preparation factors, experience factors, professional preparation factors, experience factors, activities record factors, and other administrative appraisal factors.

And in a still different approach, Weston (1961) employed the critical-incidents technique to determine the critical requirements of the typewriting teacher. His study included the collection of 294 incidents from which he was able to derive 26 critical requirements. Because of the similarity of his final list of requirements to others (e.g., Kessel, 1957, and Farra, 1962) about business teachers, Weston concluded that similar studies in other single business education skill subjects would not be productive. He did, however, suggest using the critical-incident technique for determining critical requirements for teachers of skill subjects in general or for teachers of nonskill subjects.

Davis (1963) commented that our interest in research related to business teacher preparation should take two directions: doing research and using it. He further pointed out that while our research efforts to date have been comparatively puny, one of the marks of a great profession is a willingness to devote a considerable portion of time and money to research and to promote on the part of the professional practitioner a positive orientation toward doing and using research. Both doing research and using it should probably be a part of the preparation of all business and office teachers.

Research With Implications for Programs for Beginning Teachers

Gress (1952), in a survey of 271 graduates of 153 teacher-training institutions, reported on the eight major areas of teaching difficulties of beginning business teachers: testing and grading, discipline, teaching subject matter, classroom organization and management, student activities, personal considerations, teaching aids and

techniques, and administrative difficulties. Polson (1960) surveyed 112 recent business education graduates and reported similar difficulties of beginning teachers as one of his findings.

Bonner (1964), University of Southern Mississippi, and Green (1964), Arkansas, reported on the effectiveness of teacher education programs of local institutions of teacher education. Bonner identified 17 problem categories and the extent and nature of weaknesses associated with each. Green found that (1) the general education subjects most frequently considered important to teaching effectiveness were psychology and English; (2) the general education subject considered most useful was public speaking; and (3) the most important business subjects in the teaching field of business graduates were considered to be shorthand, accounting, and typewriting.

Bateman (1963) reported on the development of an evaluative instrument in an exploratory attempt at measurement of understandings of the professional elements of business teaching. One finding in particular merits further study: "There is a need for a kind of evaluation that extends beyond measurement of facts and knowledge relationships which people possess." The exploration of the noncognitive areas of teacher preparation and activity is untouched in business education research.

The development by Krathwohl, Bloom et al. (1956) of a research tool of classification in the affective (and cognitive) domain makes the application of such a taxonomy to business teacher preparation a fruitful area of investigation.

Research With Implications
for Student Teaching

One critical area of business teacher education which has received considerable attention from researchers is student teaching.

A National Association for Business Teacher Education Bulletin (1961) dealt in some detail with desirable experiences of business student teachers. A panel of Liguori, Gibbons, and Adams identified six principles for business student teaching:

(1) Consideration should be given to a long-term plan for the provision of preteaching experiences.
(2) Prospective business teachers should meet some qualitative criteria and undergo some screening procedures.
(3) The supervising teacher is the key to a successful program of student teaching.
(4) The practice of placing student teachers depends upon the locale.
(5) The role of the university or college coordinator lies in the realm of public relations.
(6) The five-year program is under consideration in a number of states.

Prickett (1959), through analysis and interpretation of available literature, also sought basic principles of student teaching and designed an instrument, "Criteria for Evaluation of Student Teaching in Business Education."

Ebert (1961) established from a survey of research a variety of roles assigned to student teachers of business subjects in six areas of curriculum, guidance, instruction, extraclass activities, liaison, and professionalism. Each of the major roles involves many minor aspects of competence which she defined, described in detail, and carefully authenticated.

National Business Education Quarterly (Winter, 1963-64) reported on a comprehensive attempt to classify, analyze, and interpret a check

list on student teaching and other laboratory experiences. The purpose was to determine the degree of essentiality of competencies that should be developed through student teaching and other professional laboratory school experiences. The method involved collection of authoritative opinion from teacher educators. Rated essential by 75 per cent or more of 154 respondents (55 per cent of NABTE member schools) were: understanding and skill necessary for effective human relations, appropriate personal qualities, ability to plan effective learning experiences, skill necessary to evaluate classroom procedures, understanding and skill necessary to guide students through learning experiences, and skill necessary for effective classroom management. A list of suggested activities to develop these competencies is also included in the report. NABTE Bulletin 82 (1965) is an extension of the above report on current developments in student teaching.

Stanford University's experimentation in micro-teaching has not been reported as used in business student teacher preparation. Micro-teaching is a promising technique developed as "a scaled-down teaching encounter . . . to serve two purposes: (1) as preliminary experience and practice in teaching and (2) as a research vehicle to explore training effects under controlled conditions" (Bush and Allen, 1964; Allen and Fortune, 1965).

The recency of reporting and the ongoing nature of the experimentation has not as yet caused micro-teaching, except on an extremely limited basis, to be adapted to or used in business and office education. With pilot study now going on in business teacher preparation, one would expect a variety of research utilizing adaptations of micro-teaching concepts and design to be reported soon in business teacher education as in all fields.

Supervising Teachers

The supervising teacher, as well as the student teacher, has been singled out for special attention in research.

Gibbons (1960) studied the factors that influence the excellence of superior supervising teachers in business education and concluded that:

> The superior supervising teacher's outlook on student teaching was the key characteristic of the general personal and professional characteristics which differentiated the two groups . . . the superior supervising teachers were more active in terms of teaching activities and professional extraclass activities than were the typical teachers.

Six distinguishing operating methods of supervising teachers were found. From these, she developed "a professional image" of a superior supervising teacher in business education.

Hoskinson (1962) investigated the in-service needs of business education supervising teachers in the Indiana State Teachers College program. His report dealt with phases of supervisor activities in three categories: those needing much, some, or little improvement. Much improvement was needed in a supervising teacher's working as an integral part of the teacher education program, in becoming acquainted with the student teacher and planning his program, in guiding his professional and personal growth activities, and in helping him prepare for his first job.

Cooper (1962) studied differences in attitudes toward classroom activities held by methods, by supervising, and by student teachers. He found that student teachers tend to be influenced more by their supervising teacher than by their methods teacher. They adjust satisfactorily, however, to what could sometimes be an uncomfortable situation because of these differences.

Perry (1964) employed the critical-incident technique to identify the critical requirements for supervising business teachers. Critical incidents were analyzed and classified according to major areas of job responsibility as follows: orientation, observation, preparation, classroom teaching experiences, classroom management, extraclass activities, evaluation, and personal and professional relationships. In addition, he listed six observations about effective supervising teacher behavior as involved with student teachers.

Harven (1964) reported on The Supervising Teacher: A Synthesis of Research Findings and Thought. Abstracts were prepared for 216 research reports and notes were taken on 211 professional articles prior to 1962. Findings included the work of the supervising teacher as a three-fold task involving preparing for the arrival of the student teacher, inducting the student teacher into responsible teaching, and developing within the student the ability to impart and evaluate instruction.

Research With Implications for Graduate Education

Continuing research on graduate programs first reported in 1960 (reported herein under Research), Hammer (1966) made recommendations concerning the Ph.D. and Ed.D. programs as follows:

(1) The Ph.D. degree should continue to serve the purpose it has historically, to prepare highly specialized and competent research workers.
(2) The Ed.D. degree should serve as a preparation for master college teachers and other educational workers whose primary duties do not involve research competencies.
(3) The dissertation research requirement in the Ed.D. program should be eliminated.

(4) As a condition of receiving the Ed.D. degree, the candidate should demonstrate his teaching competencies at some cooperating college through a two-year internship under the supervision and guidance of his doctoral committee.

Rahmlow (1965) investigated the statistical computing needs of graduate students in education and developed a technique for introducing computer usage to graduate students by inserting a unit of work in the advanced statistics course with satisfactory results.

Both of these investigators, of course, uncovered needed and significant information. Both used their studies in attempts to improve the quality of graduate business and office teacher preparation programs. Further research is needed to identify desirable patterns of graduate business and office teacher preparation more closely related to his professional role as a teacher.

Summary

Teacher education research has been concerned with classifications and descriptions of qualifications and requirements for teachers of business and office education. These attempts have utilized mainly the survey and questionnaire technique. While helpful in telling us where we are, they are of little value in telling us where we ought to be. The use of Flanagan's (1950) critical-incident technique by Weston and others is one improved approach to determining teacher qualifications and requirements. Sound instruments to evaluate further preparation and performance are needed.

Questionnaire and similar survey techniques characterize a primary method used to examine the role of the student and supervising teacher. Innovative research designs and demonstrations, like microteaching, are needed.

ADMINISTRATION AND SUPERVISION

Status of Research

Significant studies dealing specifically with questions of administration and/or supervision of business education have not appeared in recent literature. The published aids to the business educator are mainly three in nature: (1) yearbooks issued by the major associations in the field (Eastern Business Teachers Association and National Business Teachers Association) and periodicals concentrating on business education; (2) many new and excellent textbooks on school administration, defining and elaborating on the principles of administration, all of which apply to business education, and one (Hansen and Liles, 1964) dealing specifically with business education: and (3) compilations of activities and responsibilities of business leaders at the several levels. The 1966 EBTA yearbook, for instance, discusses functions of the state consultant (Kozelka), the city supervisor (Clippinger), and the department chairman (Kalb).

The position of administrator, in fact, is not research-oriented. The holder is in a decision-demanding situation. He is in many situations where it is more important that a decision be prompt and firm than that it be the best possible decision with no time to research for better answers. Some graduate schools recognize this characteristic of administration in their exploration of a nonresearch doctorate for superintendents and principals. Decisions are made on the basis of the administrator's background experience, his best informed judgment, and, when time allows, exchange of thinking with respected sources in conferences or through published pertinent discussion.

Scope

Some problems do not require immediate decisions but they invite research for long-term planning or because they are recurring situations. Such problems are common to leaders of the other fields as well as business education falling in such areas as budget, staff, physical facilities, curriculum, pupil personnel, organization, community relations, and evaluation. There are investigations reported dealing with questions within these subfields. For instance, one year's issues of microfilm abstracts summarized eight dissertations dealing with merit rating of teachers. In this report, such studies, if specifically related to business education, were discussed in the appropriate section, i.e., objectives, curriculum, learning processes, or others.

Since the business administrator is faced with the problems common to administrators, paucity of impressive accumulations of research findings in his special field is compensated for by the easily available literature in the periodicals for educational administrators with information about administrative responsibilities, their interpretation and guides to professional behavior. Koenig (1966) summarized concepts, which hold at all levels. They hold also in all fields: (1) that broad spans of control between superior and subordinate relationships should be evident; there is some evidence to support the contention that a superior should not be responsible for more than five or six subordinates if his efforts are to be efficient and effective; (2) that a flat organization, one in which authority levels are kept at a minimum, individual units are given considerable autonomy, responsibilities are distributed among many persons, and

specialists serve teachers is to be preferred; (3) that the building unit be considered as the primary unit in the organization and its internal sub-units be organized to relate to its functional needs; (4) that specialists be staff officers to whom teachers and others can turn for advice and counsel rather than direction and command; (5) that the organization be decentralized to assure that both the number and importance of decisions are affected by persons closer to the operational level; and (6) that institutional purpose be the primary criterion for organization and that individuals be employed and assigned roles in the organization on the basis of its needs rather than on the basis of individual personalities.

EVALUATION

This discussion will deal with investigations to evaluate business education programs, teaching staff, and classroom instruction. Studies purporting to evaluate other aspects of business education have been commented on earlier, each in connection with its related phase.

The term evaluation has been lightly incorporated into the title by investigators frequently as a loose synonym for measurement, inventory, or classification, or perhaps as a word to dignify the study: evidence of evaluation is, more often than not, too incidental and scanty to justify the use of the term in the description. One study, as an example, undertook "to describe, analyze, and evaluate business education in the State of Washington: objectives, organization and administration, subject offerings and curriculum, plant, equipment, materials, methods, standard ersonnel services, problems and

achievements" (Wilsing, 1959). Even with a measuring stick of established reliability and validity, the most one could attribute to such a procedure is measurement.

Evaluation must involve the use of value judgments--judgments based upon an accumulation of data of various kinds, related to predetermined goals and standards. Evaluation is the process of making judgments and coming to decisions about the value of an experience. The process, according to Schwartz and Tiedeman (1957), "consists of two elements: (1) a goal or objective for the experience to be evaluated must be set and (2) some measure of amount, status, or progress must be made. An evaluation of the experience then involves a carefully considered judgment as to the adequacy or effectiveness of the experience as measured in the light of the objectives set for it." Measurement never gives more than an answer to the question, "How much?" Evaluation, on the other hand, seeks an answer to the question, "Of what value" is the measure (amount) when compared with the instructional or operational objectives. It should be remembered always that the basic purpose of evaluation in education, whatever the specific forms or tools may be, is to determine the nature and extent of changed behavior in students.

Programs

A multitude of signs make it apparent that officials and teachers are asking themselves, "How well do present programs reflect the changes that are pushing yesterday's skills on to the closet shelves to rust away with yesterday's equipment?" On the basis of a survey reaching 402 secondary schools in 50 states, Wanous (1964) stipulated

several basic planks for an evaluation platform. Among them were these: (1) there must be a variety of offerings serving a wide range of learners, whose differences in background, learning rate, learning purpose, and physical development must be accommodated by the program; (2) suitable aims for each element of the program should be defined, understood, and appreciated by teachers, counselors, and parents, as well as by the teacher and the students involved in each; (3) aims and procedures should be under constant study; and (4) results must be examined in terms of both the specific and the basic aims of the program.

The changes occurring have affected teaching procedures, curriculum content and structure, teacher utilization across-the-board in the secondary school, and equally in the community college. Following the appearance of Focus on Change, Trump (1961), experimental programs and innovations were introduced nation-wide. The writer visited pilot programs in Florida, Arizona, Colorado, California, Illinois, and Michigan. The atmosphere in these schools was exciting but two negative observations were made: the perception of these participating in the innovation were expressed in terms of "what we are doing" or "how we are going about this," and in no case to "how the student will be different and how we expect to identify the differences." The second significant observation was that in many of the schools, the innovative practice or experiment was not participated in by the business department. There still are schools where the business instruction is not in the main stream of education but a sort of private business college attachment at public expense.

The logical test of a program is a follow-up of graduates and other leavers and as would be expected a mass of reports exists; long, short; continuous, intermittent and once-only; master's level, doctoral and independent. Valuable as such a study can be, the findings tend to be pertinent to the school making the study, except as the design be drawn with a view to more general significance.

The evaluative criteria of the regional accrediting associations have sparked attempts to devise similar instruments for business education. Wyllie (1961) developed an evaluation plan for secondary school programs but reliability testing was limited to a gesture (try-out by 20 teachers), the finding being that "the teachers believed" that the instrument had helped to improve the department.

Staff

Evaluation of personnel in education is an unlighted area at all levels and occupational niches. Administrators and public alike deplore the velvet rut in which even the incompetent and uninspiring teachers can rest comfortably until retirement age rolls them out. Toffler (1966), in a discussion of what parents can do about "bad" teachers, presented fairly the importance for education of some effective rating method. Teachers are "evaluated," in fact, though the process results in grading too coarse and unreliable to be justified.

Business has had to devise practices by which to appraise employees in spite of the fact that there, too, evaluation of human performance and potential is not easy. Yet the fact that good results do occur has been reasonably well established by personnel departments (Place, 1960). Rating is affected by the training, experience, and

understanding of rating programs and techniques which the supervisor has. Unfortunately, most school administrators do not possess these technical requisites nor have their observations--brief, accidental, shallow--provided enough data for a fair and discriminating judgment.

Place discusses also the use by business personnel officials of a "significant incident" method of evaluating employees, a variation of the anecdotal record. A significant behavior incident is recorded on a two-tone sheet, one-half tinted a light shade of pink and the other a faint green. If favorable, the incident is recorded on the green half; if not commendable, it is recorded on the pink half. The incident then becomes the occasion for and the basis of a conference with the employee--for this purpose green area data being fully as important as the pink area records. Merits of the plan in the experience of one company using it are that (1) discussions are of things which an employee actually did; (2) they are discussed at a time when they are well remembered; (3) dependence upon memory and emotion is reduced to a minimum; and (4) both the good and the bad are equally discussed. There is reason to think that staff morale would benefit significantly in a school willing to adopt it.

Instruction

Evaluation of instruction is recognized to involve identification of changes in the behavior of students. Much effort has gone into refinement of measuring instruments only to have nice discrimination dissipated by conversion into an unrefined grade report. An evaluation of "C" tells parent or student nothing meaningful, no matter how much study and nicety of observation went into the determination of it.

Evidence from studies dealing with evaluation of teachers, critic teachers, and student teachers compels the conclusion that more attention is fastened on what the instructor is doing than on why and on how the "why" is to be measured; on how the teacher teaches rather than on how the learner learns and what the learner learns (Gratz, 1966). Strang (1960) discussed the cultivation of techniques for detecting and encouraging qualitative gains in behavior by students and made the point that habitual relating of such gains to the basic objectives of education develops evaluative instinct, skill, and an understanding of pupils as persons that makes working with them exciting. She referred to such techniques as controlled observation, informal chats with students, unstructured compositions, the use of hypothetical problems or situations, and others.

Materials and Instruments

The many studies concerned with the evaluation of materials, facilities, and other phases of business education relate to specifics and are discussed in the appropriate section of this report. Mention will be made, however, of some dealing with special research interest. Gephart (1965) developed an instrument for evaluating reports of educational research, which applied to 20 randomly selected reports (after a pilot application to another 20 reports) and let him to two conclusions: the documentation of significant differences between research reports in a specific area demands continued systematic research on research; and studies must be systematically evaluated as they are presented to the consumer to avoid the erroneous acceptance of research produced "facts." Instruments were devised by Higgins

(1962) to evaluate adequacy of knowledge of the fundamentals of business and by Erickson and Oliverio (1964) to establish criteria for evaluating survey instruments.

Such tests as the National Business Entrance tests and the examination for certified professional secretaries have potential significance which calls for validation. Studies were made by Natale (1963) of the stenographic and typewriting tests of the National Business Entrance Tests and of the Certified Professional Secretary's examination by Zaugg (1961).

Summary

Business education programs and instruction are now evaluated largely in terms of imposed criteria, contrived or borrowed check lists, opinionnaires, class grades, and, in some particulars, objectively measured achievement. But there are clues to the direction that evaluation now can and should move to serve the need for upgraded office positions. Appraisal of staff and appraisal of student learning both call for development of skill in evaluating qualitative behavior; the acquisition of expertness in the use of nonformal appraisal devices; and for self-evaluation techniques by teachers and by pupils. The hope, then, is that the graduate will enter employment with standards of work and confidence in his workmanship based on awareness of the merits of his performance.

The foot-in-the-door test of the business program is no longer sufficient evidence of the merits of the program. Much needed is continuous year-by-year follow-up of leavers and longitudinal case studies that tell in full depth the story of program adequacies and weaknesses.

RESEARCH

Status of Research

Research in business and office education is a development of the last three or four decades. Previous to that time, the few colleges offering instruction in business education perceived their function to be the training of business teachers for secondary schools, for positions as department heads and supervisors. Research competence and activity was not thought of as a special or high priority objective of students. Any notable research related to business education at that early stage was contributed by researchers in other fields, principally psychologists, who saw in typewriting, for instance, possibilities for investigations into the growth of skill. Bryan and Harter (1899) studied the acquisition of telegraphy skills, which at that time were accented in the private business colleges. They established that a skill does not continue to grow on the job merely from occupational use. The "branch line" level remained at branch line level unless motivation and continued effort were applied to raise the competence to "main line" requirements. Psychologists Book (1925) and Dvorak (1936) made landmark studies on which students of typewriting skill have built. Speculation about the influence of the typewriter as a learning tool led Wood and Freeman (1932) to a two-year experiment in which typewriters were made accessible as a writing tool for pupils at all grade levels in the elementary schools. In the early forties, also, Fuller (1945) published his study about reading factors in learning to type. These studies stimulated teachers to experiment and observe, to supplement, extend and refine skill-building procedures. In this way our present body of research literature has developed.

During the last 40 years, colleges offering instruction in business have increased to 295, according to the roster of the National Association for Business Teacher Education; and from programs meeting minimum requirements for teacher certification, service has expanded to include research activity at the master degree level for most and the doctoral level for scores of institutions. Research studies in business education have increased from an early annual appearance of only an incidental report to a present annual output of more than 200. A recent annual summary (National Business Education Quarterly, 1960) listed for the one-year period 169 masters' theses completed, three investigations for the education specialists degree, three independent studies, and 26 doctoral dissertations. Another recent issue of the same publication listed for the year 1961 a total of 123 masters' theses completed, 46 doctoral dissertations, and two independent studies.

Increase in volume, however, is not necessarily good. The number of doctoral studies implies a corresponding number of business educators with research training and experience embodied in their educational preparation. However, they have not continued their research activity beyond graduation to produce the studies of depth and significance one would anticipate. The budding research interest could not compete for time and energies with teaching responsibilities, the demands of administrative activities, or the lure of publishing textbooks and other instructional materials. The mounting research has been almost exclusively produced by graduate students, motivated by degree requirements. This novice level research is admittedly and understandably faulty because of the limitations of time and funds

under which a graduate student must operate as well as his yet undeveloped expertness in research design and data handling.

Evidence is needed that the doctoral research experience is justified as the universal element in a leadership training program that it is now assumed to be. One line of evidence seems logical: the quality of research proposals submitted to the United States Office of Education for funding, Smith (1964) inventoried the inadequacies found in a selected sample of 100 research proposals drawn from a population of 675 proposals submitted to the Cooperative Research Program of the U.S.O.E. during the fiscal years 1958-60. A jury of three experienced researchers agreed on the following findings: insignificant problems, 66 per cent; theoretical orientation absent or inadequate, 87 per cent; inadequate knowledge of the related research literature, 45 per cent; superficial research goals present in high percentages; design inappropriate in 48 per cent. Among the conclusions which Smith takes to be justified from this study are: (1) the state of educational research is at a relatively low level of sophistication: (2) much of educational research is focused on relatively simple, straight-forward "surface" problems with little in the way of theory to guide its conduct; and (3) educational researchers appear to be making little use of past research.

Another line of evidence available is the perception of the value of the research experience by those who have participated: the student researchers and the faculty sponsors. Hammer (1960) sought to determine the value of the research degree experience in the opinion of holders of the Doctor of Education degree and the values research directors expected candidates would get from the experience.

Data were obtained by questionnaire from 124 degree holders (return of 83 per cent) and from 16 colleges (80 per cent return). The judgment of the college research supervisors was that the experience did not result in the extent expected in insight into scientific thinking and methods, competence in the use of statistics, and skill in the use of interview techniques. Attitudes of objectivity and thoroughness did not significantly carry over into classroom teaching. One can infer that the learnings from the research experience were not thorough enough to carry over adequately into further research.

The principles of research in business education are the same as those adequately treated in the research literature of related fields: psychology, sociology, economics, and others. There have recently appeared, however, reports and discussions in which research techniques are oriented to business education. Lomax and Wilson (1962) treated comprehensively the improvement of research in business education; West (1962) presented a score card with bases for evaluating research; West (1963) and Mandel (1965) discussed critical aspects of statistical sampling.

The review of research in various interest areas in business has been facilitated by a cluster of studies each of which has inventoried the significant research in an important area, analyzing and classifying the findings and relating them to the philosophy or principles of that area. Reports are available on research in the following areas:

Rahe (1952 and 1963). Bibliography of Research Studies in Typewriting.

Rahe (1959 and 1963). Bibliography of Research Studies in Stenographic-Secretarial Training and Work Reported Prior to 1959.

Frink (1961). Research and Thought Pertaining to Shorthand and Typewriting, 1946-57.

Miller (1961). Thought Pertaining to Office Practice Instruction.

Prewitt (1961). Research Findings and Thought in the Area of Office Practice Instruction, 1951-1959.

Devine (1962). Research Findings and Thought on the Teaching of Bookkeeping and Accounting, 1950-1960.

Moriwaki (1962). Research Findings and Thought on Guidance in Business Education.

Green (1964). The Teaching of Economics: Research Findings and Thought.

Similar studies have recently been made, each analyzing the research and thought on one of the levels of business education:

Maze (1962). The Role of Business Education in the Junior High School.

Goddard (1962). The Potential Role of the Junior College in Education for Business.

Green (1964). A Study of the Thought Underlying Graduate Business Education.

Research Techniques

Studies using varied and imaginative techniques are few in the literature of the field of business education. Those using questionnaires and interviews naturally dominate the research reports, lending themselves readily as they do to hurried collection of much data whose inadequacies escape notice except under closer scrutiny than most readers can or will bring to bear. Normative surveys, when conducted with expertness, are indispensable as a research tool but as our researchers through experience acquire ingenuity in selecting and devising other appropriate techniques, more information will be available to give us keener insight into the process of helping youth grow into businessmen and women. Normative surveys tend to develop a picture of the

status quo; directing attention to the norm, they trim out of the picture the extremes, the unusual, and the evidences of the more imaginative and bold thinking.

Frontier exploration does not necessarily involve new techniques. Case study procedure permits analysis of the ahead-of-his-time person or the out-in-front practice, concept, or movement. Since Flanagan (1950) publicized the critical-incidents technique, it has been used to identify what the outcomes of various training programs should be. Kessel (1957) on the basis of critical incidents analyzed the performance of business teachers. Kozy (1959) defined the training requirements for private secretaries on the basis of behavior in critical situations. The most logical and reliable of available techniques, experimentation, has been conspicuously by-passed by contributors to the store of research literature in business education. The field is waiting for much needed experimental studies, imaginatively conceived and designed with ingenuity to test the many assumptions we have comfortably lived with.

Galloping change makes the need for research critical. The curriculum, responding as it should to occupational changes, must move: from obsolescing skills to new skills; from manual skills to mental skills; from focus on skills to development of understandings. The adjustment by teachers to new targets, new materials, and new procedures will involve new measurement techniques and understandings, to mention just one challenge. Simple devices are not available to measure some gains of rising priority, say effectiveness in creative and productive thinking. Hutchinson (1963) captured class activities for whole periods on tape, which then permitted analysis of such

categories as: routine learning behavior, communication skills, cognitive (memory) behavior, convergent thinking, divergent thinking, and general evaluation.

There is no more urgent need for research, or greater opportunity in research, than in the field of measurement. No scientific field has made strides beyond the limits set by its perception of what to measure and its ingenuity in contriving how to measure.

Research Instruments

The researcher is fortunate who is able to find an instrument of established reliability appropriate for his purpose. In most of the studies reviewed the construction of the instrument was one of the steps in the procedure: questionnaire, interview, follow-up survey, evaluative check list, and the like. In some of the studies, the construction of the instrument developed into the principal objective of the project. Gephart (1965) found in the professional literature seven instruments for rating research, two check lists, and three articles presenting evaluative criteria. Evaluative criteria for survey instruments are presented by Erickson and Oliverio (1964) and an instrument for evaluating the business education program of the secondary school was developed by Wyllie (1961). The usefulness of such by-product instruments (tests, check lists, guides, rating instruments) would depend upon how appropriate they are to the specific purpose of an investigator and on their reliability, which he would have to establish in justifying their use.

Organizational Influence
on Research

As early as 1955, the Committee to Coordinate and Integrate Research in Business Education, an *ad hoc* committee of Delta Pi Epsilon and the National Business Education Association, published needed research in the field (Trytten, 1955). Delta Pi Epsilon's *Research Bulletin No. 1* (1960) was a later look at questions needing answers.

The National Association of Business Teacher Education, as reported herein under Teacher Education, has prepared authoritative opinion and status reports, with data collected from respondents variously in member schools, related to aspects of teacher education. Dissemination of research literature has been an output of Delta Pi Epsilon and the Research Foundation of NBEA.

A technique worth future consideration, inaugurated by Oliverio and Anderson during their tenure in the Research Foundation, was that of developing a research network with a competent researcher in each of the states committed to state-wide data collection following a nationally-designed study.

The potential of such a network would be enhanced through a revival of a roster of faculty research manpower developed by Trytten as chairman of CCIRBE. Or, as suggested by Huffman and others, an "Academy of Research in Business Education" could be a vehicle for implementation of such a network. Similarly, the funding of centers responsible for cooperative research ventures, such as The Center for Research and Leadership Development in Vocational and Technical Education, is a coordinating unit for various combinations of cooperative research relationships.

Currently, the American Vocational Association has held research training conferences, funded by USOE, to upgrade competence of teacher educators and state supervisors in business education research methodology. Gratz at Shippensburg State College (Pennsylvania) held a recent conference to develop guidelines for research in business education. Price with Pi Chapter of Delta Pi Epsilon is testing, on a pilot basis, a research format for collecting data nationally on the status of business education.

The 1965 research design conference of Delta Pi Epsilon (Cook, 1965) laid the foundation for two USOE funded projects now in process: Curricular Implications for Automated Data Processing for Educational Institutions (Bangs, F. Kendrick, University of Colorado, Boulder) and Factors Associated With Successful Adaptation to the Secretarial-Stenographic Role (Cook, Fred S., Wayne State University, Detroit). Sponsored through seed money from DPE and South-Western Publishing Company, plans are for continuing and expanding the 1967 design conference in collaboration with the Research Foundation.

Summary

The future for research in business education is most encouraging. Federal recognition of the importance of research in education and the provisions for investing money in research have been extended to include all areas of education. The field is now ready to take advantage of the corps of educators, free to direct their efforts according to priorities of interest and importance, with such release from other responsibilities as the nature and importance of the investigation demands. We can expect an increasing number of

post-doctoral studies, whose scope can be determined by the nature of the problem and whose design and technical handling can be as scientific as the combined expertness of the investigator and available consultant specialists can contrive.

The future is not a distant one. Such studies are even now getting off the ground. Information from the Office of Education is at hand to the effect that 18 research proposals have been recommended for funding. One of these has been completed: Cooperative Research Project No. 2378 (Cook and Lanham, 1966). Opportunities and Requirements for Initial Employment of School Leavers With Emphasis on Office and Retail Jobs. Project No. 5-0144, Bangs and Hillestad, is in process, a report on which is expected to be released soon. Others in process are: No. 5,8434, West; No. 5-0048, Haines; No. 5-1214, McGregor. Several proposals have been approved for summer workshops for purposes such as converting office practice teachers to trainers for electronic data processing occupations; clinics for office business education teachers; development of special programs; evaluation and surveys of new programs.

The "new look" for business education is encouraging. An evident quickening of interest in research has resulted from the higher lifting of the gates of the sluices flowing a stream of funds that will permit the power wheels not only to revolve faster but to do things that could not be done at all with the dribble heretofore trickling down. Long vexing problems need not longer loom up as phenomena to be deplored, rationalized, speculated about, or ignored; but indeed they may now be viewed as challenges whose solutions are limited only by the strength of purpose, the persistence of interest, and the informed competence which the investigator brings to bear on the problem.

CONCLUSIONS AND RECOMMENDATIONS

Business and office education research reflects a past and present quality of productivity which is not as reliable and useful as it could or should be. Looking to the future, business and office education research has not been as good as it will be. Our major conclusion, therefore, is self-deprecation of the past and present but a recommendation and a hope for the future.

Self-deprecation of research from within an area is dangerous because of possible misunderstandings both from within and without. Those from within the field may charge hypercritical treatment of some studies which distort our own self-image of worth to an outside world. Those from without, on the other hand, may seek comfort in rationalizing research faults in their own field. Neither reaction is sensible or justified.

To those within the area of business and office education, self-deprecation is a sign of maturity--a maturity unafraid to recognize faults which can be used to improve the future. And it is the belief of the writers that improvement in our research can come only through a "ruthless criticism of technique, findings, and conclusions that discoveries are subjected to in other fields (Trytten and Lanham, 1966)."

But let not those from without cast stones. The faults we reflect in research of business and office education are faults common to educational research in general--and, we dare add, some of the disciplines from which educational research is derived.

(1) Studies tend to be vulnerable because of overuse of the survey-type of research with inadequate evaluation of facts and findings.

(2) The studies have frequently been restricted to small, heterogeneous, or unrepresentative samples with limited general significance.

(3) There are too few carefully controlled experiments.

(4) Too often there is failure to evaluate and apply promising experiments for the improvement of education.

(5) Statistical design and analysis in many researchers are naive. (AACTE, 1954)

Our recommendations, growing out of the current review, are these:

1. A changed and changing business world demands answers to changed and changing instructional problems. We recommend, on the one hand, the continued infusion of research funds, sometimes massive funds, sufficient to provide dependable answers; on the other hand, we recommend masses of informal innovative classroom applications of research.

2. We recommend that masses of informal classroom research be organized to produce a massive and dependable result. As in medical science, while the case study of one practitioner does not provide dependable knowledge, organized observation, collection, and synthesis of case studies can.

3. We recommend a growing critical dialogue about research, an evaluation and selection of research methodology and findings. For researcher and practitioner alike, such a dialogue can help business and office educators to begin "to know how they know what they know."

4. We recommend renewed efforts for total dissemination of (at times synthesized) research findings. The organization of ERIC

clearinghouses is but a first step. For all studies in the public domain, the lag between completion and availability of reports should be cut from months or years to weeks. The infusion of federal funds to do research is wasted until findings can be made available and used. (In the current review the team was frequently handicapped in obtaining "hard" copy of research completed even two or three years ago.)

5. We recommend the continued stimulation and upgrading of research competencies, first among teacher educators and second among their graduate students. Developing graduate students with majors in research design is a high priority need for the future of research in business and office education. For the current teacher educators, we support the continuance and expansion of research clinics such as those sponsored through the American Vocational Association and funded federally; and those sponsored by Delta Pi Epsilon and The Center for Vocational and Technical Education.

6. In research clinics for upgrading competencies of present educators, we urge expanded use of consultants of experience and imagination who have demonstrated expertness in design and ingenuity in the use of research techniques.

7. We urge an increased interdisciplinary effort in stimulating research in business and office education, in conducting, in synthesizing, and applying interdisciplinary research findings.

8. We commend The Center for Vocational and Technical Education for this first step in review and synthesis. We recommend the continuation of the series. We believe also that business and office education can profit as much from similar reviews from all other ERIC clearinghouses as they can and will profit from the present series.

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VT 002 341

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Business Education Curriculum Implications of the Effects of Technology on the Types of Office Machines Used by Selected Connecticut Businesses.

Clow, Cletus A.

Central Connecticut State Coll., New Britain

Connecticut State Dep of Educ., Hartford. Div of Vocat Ed

Apr67

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*OFFICE OCCUPATIONS EDUCATION, *OFFICE MACHINES, BUSINESS, *EDUCATIONAL NEEDS, *CURRICULUM PLANNING, QUESTIONNAIRES, SURVEYS,

Connecticut,

With the ultimate objective of upgrading vocational programs of office education, a study was made to determine the types of office machines used in selected businesses of Connecticut, the number of employees using them, and the business education curriculum implications of the increasing or decreasing use of any type of office machines. Questionnaire responses were obtained from 3,168 Connecticut businesses, representing 59 different types located in the 17 labor market areas, and from 124 high schools, representing 95 percent of the 131 Connecticut public high schools offering instruction on the use of office machines. Findings from the survey of businesses showed -- (1) an almost 2 to 1 use of the ten-key adding machine over the full-key board, (2) widespread use of the rotary and printing calculator, (3) use of bookkeeping and accounting machines by almost 24.5 percent of the businesses, (4) use of the offset type of duplicator by 35 percent of the 1,434 businesses which used a type of office duplicator, (5) a decreased use of the key-driven calculators, and (6) many full-time job opportunities for card punch, verifier, and transcribing machine operators. Business education curriculum implications included -- (1) the necessity to provide adequate instruction in using 10-key listing machine, card punch machine, offset process of copy reproduction, and printing calculator, and (2) the need for increased training in machine transcribing activities. (PS)

ED015348

BUSINESS EDUCATION CURRICULUM IMPLICATIONS OF THE EFFECTS OF TECHNOLOGY ON THE TYPES OF OFFICE MACHINES USED BY SELECTED CONNECTICUT BUSINESSES

April, 1967

Connecticut State Department of Education
Division of Vocational Education
Hartford, Connecticut

in cooperation with

U. S. Department of Health, Education, and Welfare

Office of Education

Bureau of Research

VT002841

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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BUSINESS EDUCATION CURRICULUM IMPLICATIONS OF THE EFFECTS OF TECHNOLOGY ON THE TYPES OF OFFICE MACHINES USED BY SELECTED CONNECTICUT BUSINESSES

A subcontract of

Contract No. OE-5-85-121

Dr. Cletus A. Clow

April, 1967

The research reported herein was pursuant to a contract with the Office of Education, U. S. Department of Health, Education, and Welfare in cooperation with Connecticut State Department of Education, Division of Vocational Education. Contractors undertaking such projects under government sponsorship are encouraged to freely express their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

CENTRAL CONNECTICUT STATE COLLEGE

NEW BRITAIN, CONNECTICUT

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INTRODUCTION

Under the Vocational Education Act of 1963, provision was made for upgrading the vocational programs of office education. Until this Federal aid became available, many schools were unable, because of limited funds for vocational education, to expand their program in the office occupations. Under the provisions of the Connecticut State Plan for Vocational Education, a substantial portion of the monies provided by the Vocational Education Act of 1963 will be requested by local school authorities for the purchase of office machines for instructional purposes at the high school level.

At the present time very little, if any, information is available to the educator relative to the types of office machines being used by the businesses of Connecticut. A survey of the literature revealed that no research report or professional literature provided this type of information.

STATEMENT OF THE PROBLEM

The purpose of this study was to ascertain the types of office machines used in selected businesses of Connecticut, the number of employees using this equipment, and the business education curriculum implications of the increasing or decreasing use of any type or types of office machine. More specifically the purposes of this study were:

1. To determine the types of office machines used in select businesses throughout the State of Connecticut.

2. To determine the types of office machines used for instructional purposes in the Business Education Departments of the public high schools of Connecticut.

3. To determine if the use of certain types of office machines in business offices is diminishing or becoming obsolete.

4. To determine if a trend toward the increased use of any type or types of office machine is apparent in the businesses of Connecticut.

5. To provide a source of information for local school systems use when making decisions as to the type of office machine to be purchased for instructional use.

6. To provide a source of information for Connecticut State Education Department officials who evaluate the request from local school systems for funds provided by the provisions of the Vocational Education Act.

7. To provide data which may be used as the basis for high school business education curriculum revision.

8. To gather data which would provide essential background information for possible future studies relative to the vocational competency attained by high school students who have received instruction on the use of office machines.

RESEARCH PROCEDURE

Development of the Instruments. Questionnaires were prepared to obtain data from a sample of Connecticut businesses and the public high schools of Connecticut with business education departments using office machines for instructional purposes.

Representatives from twenty different types of businesses, located in six different labor market areas were asked by the principal investigator to evaluate the questionnaire designed for collecting data from Connecticut businesses. This pilot group was comprised of businesses ranging in size from a small two-employee office to a major employer of office personnel. The pilot group's consensus was that the questionnaire was satisfactory and would be favorably received. This questionnaire is in Appendix A.

Selection of Sample. The 1966 Directory of Connecticut Manufacturing and Mechanical Establishments published by the Connecticut Labor Department was used to obtain twenty-four different types of businesses located within the seventeen labor market areas of Connecticut. From this Directory a sample was selected which consisted of every business employing more than fifty people and a system of random numbers was used to select 30 per cent of those businesses, located in each of the seventeen labor market areas, employing fewer than fifty people.

The yellow pages of every Connecticut telephone directory were used as a source to obtain twenty-five additional types of businesses located within the seventeen labor market areas of Connecticut. A system of random numbers was used to select a sample consisting of 30 per cent of each of the twenty-five additional types of businesses located in each of the seventeen labor market areas.

A total of 5232 Connecticut businesses, representing 59 different types of businesses located in the 17 labor market areas of Connecticut, were selected as the sample for this investigation. A master file of this total sample was compiled with each business coded as to type and labor market area.

The 1965-1966 Directory of Connecticut Business Education Teacher Personnel issued by the Connecticut State Department of Education was used to determine the high schools offering instruction on the use of office machines. A file was compilied of the 131 Connecticut public high schools offering instruction on the use of office machines. Each of these schools was classified as to labor market area. The questionnaire used to gather data from this sample is presented in Appendix B.

Collection of Data. Useable data was returned from 2189 businesses in the Connecticut business sample in response to the first mailing of the questionnaire. These 2189 returns represented 42 per cent of the businesses in the sample. A follow-up was made of the remainder of the sample which didn't return completed questionnaires. Nine hundred seventy nine returns were made in response to the follow-up. A total of 3168 useable responses were obtained. The 3168 responses represented 61 per cent of the 5232 businesses in the sample.

One hundred two useable responses were returned from the public high schools of Connecticut as a result of the first mailing of the questionnaire. These 102 returns represented 78 per cent of the public high schools using office machines for instructional purposes. Twenty-two additional responses were obtained from the remainder of this sample in response to a follow-up request. for data. A total of 124 useable responses were obtained. The 124 responses represented 95 per cent of the 131 public high schools in the sample.

MAJOR FINDINGS

Office Machines currently used by Connecticut Businesses. The data with regard to the types of office machines used by the office personnel of selected Connecticut businesses are presented in Table I, page 4.

A study of this data reveals:

1. An almost 2 to 1 use of the ten-key adding machine over the full-key board adding machine.

2. The wide-spread use of the rotary and printing calculator.

3. Seven hundred seventy nine (24.5 per cent of the respondees) businesses use bookkeeping and accounting machines in their offices.

4. Of the 1434 businesses who use a type of office duplicator, 503 (35 per cent) use the offset type of office duplicator.

5. Many full-time job opportunities are available for card punch machine and verifier machine operators.

6. Many full- and part-time job opportunities exist for transcribing machine operators.

A complete breakdown of the use of office machines by each of the 59 different types of businesses in the 17 labor market areas of Connecticut is presented in Appendix C.

The number of employees using these office machines on a full- or part-time basis is reported by type of office machine and labor market area in Appendix D.

The number of employees using office machines in each of the 59 different types of business in the sample is presented in Appendix E.

Contemplated changes in types of office machines now in use in businesses comprising this sample. An analysis of the data gathered reveals the following contemplated changes in the types of office machines now in use in the Connecticut businesses comprising the sample for this study:

1. Bookkeeping and Accounting Machines. Eleven (forty-four full- and part-time machine operators) of the seven hundred seventy nine businesses using bookkeeping and accounting machines contemplate the discontinued use of these machines and the utilization of the services of a data processing service bureau. However, it is important to note that the great majority of businesses using bookkeeping and accounting machines indicated no contemplated discontinuance of their use at the present time.

2. Unit Record Installations--Accounting Machines. Fifteen (fifty full- and part-time accounting machine operators) of the one hundred fifty four firms using accounting machines as a part of unit record installations contemplate replacing these machines by either the installation of a computer or the utilization of the services of a data processing service bureau. This change is contemplated by approximately 9 per cent of the firms using this type of unit record equipment.

TABLE I

OFFICE MACHINES USED BY CONNECTICUT BUSINESSES AND THE NUMBER OF FULL-TIME AND PART-TIME OPERATORS OF THESE OFFICE MACHINES

Type of Machine	Number of Businesses Using	Machine Operators Full-time	Machine Operators Part-time
Adding Machines			
Full key	1257	594	6743
Ten key	2442	1107	10306
Calculators			
Rotary	589	1918	4876
Key driven	338	329	893
Printing	537	616	2209
Electronic	197	139	509
Bookkeeping and Accounting Machines			
Bookkeeping	428	633	411
Accounting	351	488	395
Office Duplicators			
Spirit	561	23	2336
Stencil	370	19	1100
Offset	503	439	754
Unit Record Equipment			
Card Punch	291	1624	436
Sorter	242	47	799
Reproducer	205	69	577
Verifier	166	538	235
Accounting Machine	154	196	461
Calculating Punch	66	28	215
Collators	183	51	505
Computers			
Small	71	274	141
Medium	34	164	110
Large	9	150	57
Miscellaneous			
Transcribing Machines	550	2229	2012
Proportional Space Typewriters	580	1223	919
Punched Tape Machines	165	272	225

3. Key-Driven Calculators. Thirty-four (10 per cent) of the three hundred thirty eight firms using key-driven calculators indicated the contemplated discontinuance of their use. This change would affect 775, or 64.5 per cent, of the total of 1200 full-time and part-time key-driven calculator operators. The printing calculator was designated as the replacement for the key-driven calculator.

4. Rotary Calculators. A total of 85 firms, or 15 per cent of the 589 firms using rotary calculators, contemplate the discontinuance of the use of this type of office machine. This would involve approximately 700 full-time and part-time rotary calculator operators. The printing calculator was indicated as the type of office machine to replace the rotary calculator.

5. Office Duplicators--Offset Process Printing. A total of 66 firms, or 7 per cent of the 931 firms using office duplicators, contemplate changing from the stencil process or spirit process to the use of on-premise offset process duplication. This contemplated change affects 510 part-time stencil process and spirit process duplicating machine operators.

Business machines used for instructional purposes in Connecticut public high schools. A study of the data in Table II, page 6, reveals:

1. The number of key-driven calculators used for instructional purposes is almost 2 1/2 times as large as the number of printing calculators used for instructional purposes.

2. Very few accounting machines are available for instructional use.

3. Very few business education departments of Connecticut public high schools have offset equipment available for instructional use.

4. Instruction on the use of unit record equipment is offered in a limited number of high schools.

5. No "hands-on" computer training is offered in any Connecticut public high school.

6. The number of rotary calculators used for instructional purposes is twice as large as the number of printing calculators used for instructional purposes.

The number of office machines available for instructional use in Connecticut public high schools is presented in Appendix F.

TABLE II

OFFICE MACHINES USED FOR INSTRUCTIONAL PURPOSES IN CONNECTICUT'S PUBLIC HIGH SCHOOLS

Type of machine	Number available	
Adding Machines		
Full key	262	
Ten key	441	
Calculators		
Rotary	380	
Key driven	436	
Printing	180	
Electronic	19	
Bookkeeping and Accounting Machines		
Bookkeeping	80	
Accounting	5	
Office Duplicators		
Spirit	159	
Stencil	127	
Offset	5	
Unit Record Equipment		
Card Punch	33	(8*)
Sorter	14	(7*)
Reproducer	2	(2*)
Verifier	1	(1*)
Accounting Machine	8	(5*)
Calculating Punch	0	
Collators	0	(2*)
Computers		
Small	0	
Medium	0	
Large	0	
Miscellaneous		
Transcribing Machines	422	
Proportional Space Typewriters	85	
Punched Tape Machines	1	

*These machines are located in administrative offices--limited availability for instructional purposes.

SUMMARY

The purpose of this study was to ascertain the types of office machines used in selected businesses of Connecticut, the number of employees using this equipment, and the business education curriculum implications of the increasing or decreasing use of any type or types of office machine.

A total of 5232 Connecticut businesses, representing 59 different types of businesses located in the 17 labor market area of Connecticut, were selected as the sample for this investigation. A total of 3168 useable responses were obtained. The 3168 responses represented 61 per cent of the 5232 businesses in the sample.

One hundred thirty one public high schools in Connecticut were contacted. These high schools offered instruction on the use of office machines. A total of 124 useable responses were obtained. The 124 responses represented 95 per cent of 131 public high schools in the sample.

The data gathered as to the types of office machines used by Connecticut business firms indicated:

1. An almost 2 to 1 use of the ten-key adding machine over the full-key board adding machine.

2. The wide-spread use of the rotary and printing calculator.

3. Seven hundred seventy nine (24.5 per cent of the respondees) businesses use bookkeeping and accounting machines in their offices.

4. Of the 1434 businesses who use a type of office duplicator, 503 (35 per cent) use the offset type of office duplicator.

5. Many full-time job opportunities are available for card punch machine and verifier machine operators.

6. Many full- and part-time job opportunities exist for transcribing machine operators.

The most significant trends relative to the future use of certain types of office machines were:

1. The continued growth of the use of the printing calculator.

2. The increased use of on-premise offset duplication.

3. The great majority of firms using bookkeeping and accounting machines indicated no discontinuance of their use at the present time.

4. The decreased use of key-driven calculators in the businesses comprising the sample of this investigation.

5. The increasing use of the ten-key type of keyboard.

RECOMMENDATIONS

The high school business education curriculum implications of this study, with consideration accorded to the local labor market area needs, are:

1. The necessity to provide adequate instruction using the ten-key listing machine which is preferred by business 2 to 1 over the full-keyboard type.

2. Since the need for key-driven calculator operators is decreasing, the continued instructional use of the key-driven calculator is questioned.

3. There is a need for increased card punch machine training to meet the increasing demand for this type of skill.

4. Because of the increased use of on-premise offset duplicating in the offices of Connecticut businesses, instruction should be provided on the use of the offset process of copy reproduction.

5. Due to the many job opportunities available to people possessing this skill, increased training should be given in the area of machine transcribing activities.

6. Due to the increasing use of the printing calculator in the offices of Connecticut businesses, increased instruction should be provided on the use of the printing calculator.

IMPLICATIONS FOR FUTURE RESEARCH

The data collected in this study indicates the wide-spread use of different types of office machines by many different types of businesses located in Connecticut. Many full-time and part-time positions exist for office machine operators. What is the role of the business education departments of the high school in preparing students to fill these positions? Research is needed to answer:

1. What is a marketable skill in the area of office machines?

2. What should be the expected level of competency attained by high school students in the area of office machines--acquaintanceship or vocational competency?

3. What are the on-the-job applications of the use of various office machines?

4. How can these on-the-job applications of the use of office machines be best presented within the framework of the high school business education curriculum?

RETURN TO:
Dr. C. A. Clow
Central Connecticut State College
New Britain, Connecticut

DO NOT WRITE IN THIS SPACE
Date Mailed_____
Date Returned_____
CCSC BE1_____

TYPES OF OFFICE MACHINES
AND NUMBER OF EMPLOYEES USING THESE MACHINES

1. ADDING MACHINES

Do the employees of your company use

1.1. Full-key adding machines Yes____ No____
1.11. Number of employees using machine on a (a) full-time basis___ (b) part-time basis___

1.2. Ten-key adding machines Yes____ No____
1.12. Number of employees using machine on a (a) full-time basis___ (b) part-time basis___

Are you contemplating replacing any of these adding machines with another type of office machine? Yes___ Type to be replaced_____
No ___

If your answer is Yes, what type of office machine is being considered as the replacement?_____

2. CALCULATORS

Do the employees of your company use

2.1. Rotary calculators Yes____ No____
2.11. Number of employees using machine on a (a) full-time basis___ (b) part-time basis___

2.2. Key-driven calculators Yes____ No____
2.21. Number of employees using machine on a (a) full-time basis___ (b) part-time basis___

2.3. Printing calculators Yes____ No____
2.31. Number of employees using machine on a (a) full-time basis___ (b) part-time basis___

2.4. Electronic calculators Yes____ No____
2.41. Number of employees using machine on a (a) full-time basis___ (b) part-time basis___

Are you contemplating replacing any of these calculators with another type of office machine? Yes___ Type to be replaced_____
No ____

If your answer is Yes, what type of office machine is being considered as the replacement?_____

APPENDIX A

501 to 56

3. BOOKKEEPING AND ACCOUNTING MACHINES

Do the employees of your company use

3.1. Bookkeeping machines (without typewriter keyboard) Yes____ No____
3.11. Number of employees using
machines on a (a) full-time basis___ (b) part-time basis___

3.2. Accounting machines (with typewriter keyboard) Yes____ No____
3.21. Number of employees using
machines on a (a) full-time basis___ (b) part-time basis___

Are you contemplating replacing any of these bookkeeping and accounting machines with another type of office machine? Yes____ No____
Type to be replaced_____

If your answer is Yes, what type of office machine is being considered as the replacement?_____

4. OFFICE DUPLICATORS

Do the employees of your company use

4.1. Spirit process duplicators Yes____ No____
4.11. Number of employees using
machine on a (a) full-time basis___ (b) part-time basis____

4.2. Stencil process duplicators Yes____ No____
4.21. Number of employees using
machine on a (a) full-time basis___ (b) part-time basis____

4.3. Offset process duplicator Yes____ No____
4.31. Number of employees using
machine on a (a) full-time basis___ (b) part-time basis____

Are you contemplating replacing any of these machines with another type of office machine? Yes____ Type to be replaced_____
No ____

If your answer is Yes, what type of office machine is being considered as the replacement?_____

5. UNIT RECORD EQUIPMENT

Do the employees of your company use

5.1. Card punch Yes____ No____
5.11. Number of employees using
machine on a (a) full-time basis___ (b) part-time basis____

5.2. Sorter Yes____ No____
5.21. Number of employees using
machine on a (a) full-time basis___ (b) part-time basis____

5.3. Reproducing punch Yes____ No____
5.31. Number of employees using
machine on a (a) full-time basis___ (b) part-time basis____

5.4. Card punch verifier Yes____ No____
5.41. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

5.5. Accounting machines Yes____ No____
5.51. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

5.6. Calculating punch Yes____ No____
5.61. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

5.7. Collators Yes____ No____
5.71. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

Are you contemplating replacing any of these machines with another type of office machine? Yes____ No____

If your answer is Yes, what type of office machine is being considered as the replacement? _____

6. COMPUTERS

Do the employees of your company use

6.1. Small computers (core size, under 20,000 positions or 4096 words, and 2 or more input or output devices) Yes____ No____
6.11. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

6.2. Medium computers (core size, from 20,000 to 64,000 positions or 8192 words, and 3 or more input or output devices) Yes____ No____
6.21. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

6.3. Large computers (core size, above 64,000 positions or 16384 words or more, and 6 or more input or output devices) Yes____ No____
6.31. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

7. MISCELLANEOUS OFFICE MACHINES

Do the employees of your company use

7.1. Transcribing machines Yes____ No____
7.11. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

APPENDIX A

7.2. Proportional space typewriters Yes____ No____

7.21. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

7.3. Punched tape producing machines Yes____ No____

7.31. Number of employees using machine on a (a) full-time basis____ (b) part-time basis____

Are you contemplating adding any type of new office machine not discussed in this questionnaire? Yes____ No____

If your answer is Yes, what type of office machines are being considered as additions? _____

_____

_____

_____

APPENDIX A

RETURN TO
Dr. C. A. Clow
Central Connecticut State College
New Britain, Connecticut

DO NOT WRITE IN THIS SPACE
Date Mailed_____
Date Returned_____
CCSC BE2_____

TYPES OF OFFICE MACHINES USED FOR INSTRUCTIONAL PURPOSES BY THE BUSINESS EDUCATION DEPARTMENTS OF CONNECTICUT PUBLIC HIGH SCHOOLS

1. ADDING MACHINES

Do the business education students of your school receive instruction on the use of

1.1. Full-key adding machines Yes_____ No_____

1.11. Number of students who received instruction on these machines during the 1965-66 school year _____

1.12. Number of these machines available for instructional use _____

1.2. Ten-key adding machines Yes_____ No_____

1.21. Number of students who received instruction on these machines during the 1965-66 school year _____

1.22. Number of these machines available for instructional use _____

2. CALCULATORS

Do the business education students of your school receive instruction on the use of

2.1. Rotary Calculators Yes_____ No_____

2.11. Number of students who received instruction on these machines during the 1965-66 school year _____

2.12. Number of these machines available for instructional use _____

2.2. Key-driven calculators Yes_____ No_____

2.21. Number of students who received instruction on these machines during the 1965-66 school year _____

2.22. Number of these machines available for instructional use _____

2.3. Printing calculators Yes_____ No_____

2.31. Number of students who received instruction on these machines during the 1965-66 school year _____

2.32. Number of these machines available for instructional use _____

2. CALCULATORS (Con't.)

2.4. Electronic calculators Yes____ No____

2.41. Number of students who received instruction on these machines during the 1965-66 school year ____

2.42. Number of these machines available for instructional use ____

3. BOOKKEEPING AND ACCOUNTING MACHINES

Do the business education students of your school receive instruction on the use of

3.1. Bookkeeping machines (no typewriter keyboard) Yes____ No____

3.11. Number of students who received instruction on these machines during the 1965-66 school year ____

3.12. Number of these machines available for instructional use ____

3.2. Accounting machines (with typewriter keyboard) Yes____ No____

3.21. Number of students who received instruction on these machines during the 1965-66 school year ____

3.22. Number of these machines available for instructional use ____

4. OFFICE DUPLICATORS

Do the business education students of your school receive instruction on the use of

4.1. Spirit process duplicators Yes____ No____

4.11. Number of students who received instruction on these machines during the 1965-66 school year ____

4.12. Number of these machines available for instructional use ____

4.2. Stencil process duplicators Yes____ No____

4.21. Number of students who received instruction on these machines during the 1965-66 school year ____

4.22. Number of these machines available for instructional use ____

APPENDIX B

4. OFFICE DUPLICATORS (Con't.)

4.3. Offset process duplicator Yes____ No____

4.31. Number of students who received instruction on these machines during the 1965-66 school year ____

4.32. Number of these machines available for instructional use ____

5. UNIT RECORD EQUIPMENT

Do the business education students of your school receive instruction on the use of

5.1. Card punch Yes____ No____

5.11. Number of students who received instruction on these machines during the 1965-66 school year ____

5.12. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

5.2. Sorter Yes____ No____

5.21. Number of students who received instruction on these machines during the 1965-66 school year ____

5.22. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

5.3. Reproducing punch Yes____ No____

5.31. Number of students who received instruction on these machines during the 1965-66 school year ____

5.32. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

5.4. Card punch verifier Yes____ No____

5.41. Number of students who received instruction on these machines during the 1965-66 school year ____

5.42. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

APPENDIX B

5. UNIT RECORD EQUIPMENT (Con't.)

5.5. Accounting machines Yes____ No____

5.51. Number of students who received instruction on these machines during the 1965-66 school year ____

5.52. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

5.6. Calculating punch Yes____ No____

5.61. Number of students who received instruction on these machines during the 1965-66 school year ____

5.62. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

5.7. Collators Yes____ No____

5.71. Number of students who received instruction on these machines during the 1965-66 school year ____

5.72. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

6. COMPUTERS

Do the business education students of your school receive instruction on the use of

6.1. Computers Yes____ No____

6.11. Number of students who received instruction on these machines during the 1965-66 school year ____

6.12. Number of these machines available for instructional use in (a) business education class rooms ____
(b) administration offices ____

7. MISCELLANEOUS OFFICE MACHINES

Do the business education students of your school receive instruction on the use of

7.1. Transcribing machines Yes____ No____

7.11. Number of students who received instruction on these machines during the 1965-66 school year ____

7.12. Number of these machines available for instructional use ____

7. MISCELLANEOUS OFFICE MACHINES (Con't.)

7.2. Proportional space typewriters Yes____ No____

7.21. Number of students who received instruction on these machines during the 1965-66 school year ____

7.22. Number of these machines available for instructional use ____

7.3. Punched tape producing machines Yes____ No____

7.31. Number of students who received instruction on these machines during the 1965-66 school year ____

7.32. Number of these machines available for instructional use ____

8. Are you contemplating adding any type of new office machine not discussed in this questionnaire? Yes____ No____

If your answer is Yes, what type of office machine/machines are being considered as additions? _____

_____

_____

_____

During what fiscal year/years do you plan to order this additional equipment? _____

_____

APPENDIX B

OFFICE MACHINES USED BY FIFTY-NINE DIFFERENT TYPES OF BUSINESSES IN CONNECTICUT'S SEVENTEEN LABOR MARKET AREAS

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Advertising Agents	5**	Bridgeport		4				
	14	Hartford	3	8	3	1	3	
	3	New Britain		3			1	
	5	New Haven	1	3				
	2	Norwalk	1	1				
	1	Stamford		1				
	1	Waterbury	1	1	1			
Totals	31		6	21	4	1	4	0
Auto Dealers, New Car	2	Ansonia	1	2			1	
	19	Bridgeport	9	13	3	1	2	
	8	Bristol	4	7			1	
	9	Danbury	8	7				
	14	Danielson	7	11	3	1		
	32	Hartford	11	28	4	1	8	1
	16	Meriden	6	13		1	2	1
	7	Middletown	2	6	1		1	
	11	New Britain	4	11		1	2	1
	19	New Haven	7	15	1		2	1
	6	New London	1	6			1	
	8	Norwalk	5	6	2		1	1
	7	Norwich	3	5		1	2	
	9	Stamford	5	6		1	1	
	16	Torrington	7	10		1	1	
	7	Waterbury	5	4			2	
	2	Willimantic	2	2	1		1	
Totals	192		87	152	15	8	28	5
Auto Repair Shops	1	Ansonia		1				
	14	Bridgeport	6	10			3	
	3	Bristol	2	2				
	5	Danbury	1	4				1
	1	Danielson		1				
	18	Hartford	6	10			1	2
	1	Meriden		1				
	3	Middletown	2	1				
	1	New Britain		1				
	4	New Haven	2	2	2			1
	2	New London	1	2			1	
	7	Norwalk	3	6	1	1		
	1	Norwich	1	1				
	6	Stamford	4	3			1	
	1	Torrington	1					
	8	Waterbury	6	7		1		
	2	Willimantic		2				
Totals	78		35	54	3	2	6	4

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven; PC = Printing; EC = Electronic

**These data are interpreted as follows: Five businesses, classified as Advertising Agents and located in the Bridgeport labor market area, replied and four of these five use the ten-key adding machine in their offices.

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Auto Supplies	9	Bridgeport	5	5			1	
& Parts--	6	Danbury	2	5				
Whsle & Mfg.	11	Hartford	5	7	2	1	2	
	3	Meriden	1	1				
	4	Middletown	1	3	1		1	
	3	New Britain		2				
	9	New Haven	2	7		1	1	2
	5	New London	1	3		1	1	
	6	Norwalk	2	5	1			
	3	Norwich		2		1		
	6	Stamford	2	4				
	4	Waterbury	1	3				1
Totals	69		22	47	4	4	6	3
Bakers -	6	Bridgeport	3	6	1	1		1
Whsle	5	Hartford	1	3				1
	3	Meriden	1	2	1			
	6	New Haven	1	5				
	2	New London		2	1			
	2	Norwalk		2		1		
	2	Norwich	1	1				
	1	Stamford		1				
	3	Waterbury	2	2		1		
Totals	30		9	24	3	3	0	2
Banks	5	Ansonia	3	3	1	1		
	5	Bridgeport	3	2	2			
	1	Bristol	1	1	1			
	7	Danbury	3	5	2			
	5	Danielson	2	4	3		1	
	16	Hartford	13	7	5	2	2	
	7	Meriden	5	4	2	1	1	
	9	Middletown	7	6	1	1	2	1
	5	New Britain	5	2	3	2	1	
	6	New Haven	5	4	5	1	3	
	3	New London	3	2	2	1	2	
	5	Norwalk	5	1	3	1	1	
	3	Norwich	3	1	2			
	4	Stamford	4	1		2		1
	9	Torrington	8	4	3	2	3	2
	7	Waterbury	6	4	5	1	3	
	1	Willimantic	1			1		
Totals	98		77	51	40	16	19	4
Beauty Shop	5	Ansonia	1	4				
Equipment &	5	Bristol	1	5				
Supplies	7	Hartford	1	5				
	4	New Haven	2	3				
Totals	21		5	17	0	0	0	0

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Bedding -	4	Danbury	1	3				
Whsle & Mfg.	5	Hartford	1	4				
	5	Stamford	3	2				
Totals	14		5	9	0	0	0	0
Beer & Ale -	4	Bridgeport		4		1	1	
Whsle	3	Danielson	1	2				
	4	Hartford	1	3		1	1	
	5	New Haven	2	4			1	
	1	Norwich		1				1
	1	Torrington	1	1		1		
	2	Waterbury		2				
	1	Willimantic		1			1	
Totals	21		5	18	0	3	4	1
Beverages,	2	Ansonia		2				
non-alcoholic	2	Bridgeport		2		1		
	3	Bristol		3		1		
	4	Danielson	1	3	1			
	6	Hartford	2	5			2	
	3	Middletown	1	3				
	2	New Britain	1	1				
	2	New London	1	2	1	1		
	1	Norwich	1	1				
	2	Waterbury	1	1				
Totals	27		8	23	2	3	2	0
Boilers -	3	Bristol		3				
Mfg. * Dist.	8	Hartford	2	4		1	3	
	2	New Haven	1	1	1	1		
	1	New London	1	1	1			
Totals	14		4	9	2	2	3	0
Boxes Folding,	3	Bristol	1	2	1	1		
Mfg.	3	Meriden	1	2				
	4	New Haven		3		1		2
Totals	10		2	7	1	2	0	2
Brokers, Stock	3	Bridgeport	2	2			1	
& Bond	2	Danbury	1	2		1		
	8	Hartford	2	6			1	1
	2	Meriden		2				
	2	New Britain		2			1	
	7	New Haven	3	4	1		1	
	2	Norwalk	2					
	1	Norwich	1	1	1			
	3	Stamford		3				
	2	Torrington	1	1				
	3	Waterbury	1	2				1
Totals	35		13	25	2	1	4	2

*FK = Full Key: TK = Ten key; RC = Rotary; KD = Key driven; PC = Printing; EC = Electronic

Business	Replies	Market	FK*	TK*	RC*	KD*	PC*	EC*
Building Material	6	Bridgeport	1	3	1			
Whsle & Mfg	9	Hartford	2	5	4	1	1	
	8	New Haven	3	4		1		
	6	Norwalk	1	3		1	1	
	7	Stamford	1	4		1	1	
	5	Torrington	1	3			1	
	5	Waterbury	3	1				
Totals	46		12	23	5	4	4	0
Candy &	5	Bridgeport	1	4				
Confectionary	3	Danbury	1	3				
	7	Hartford	1	6			1	
	3	New Haven	2	2				1
	2	Norwich	1	2	1			
	2	Stamford	1	2				
	1	Waterbury	1	1				
Totals	23		8	20	1	0	1	1
Chemicals -	10	Bridgeport	5	6	1	1		
Mfg.	5	Danbury	1	4		1		
	3	Danielson	1	2				
	10	Hartford	4	9	4		4	
	4	Meriden	1	3		1	1	1
	4	Middletown	2	4	1		1	
	3	New Britain	1	2	1			
	16	New Haven	5	13	2	2	5	2
	4	New London	3	4	3			
	9	Norwalk	4	5	2	2	1	
	3	Stamford	1	2	1	1	3	1
	1	Torrington					1	
	5	Waterbury	2	4	3	1	2	1
Totals	77		30	58	18	9	18	5
Cigar, Cigarette	2	Ansonia	1	1				
& Tobacco - Whsle	2	Bridgeport	1	2				
	6	Hartford	1	5	1		1	1
	2	New Haven	2	1	1	1		
	1	New London		1	1			
Totals	13		5	10	3	1	1	1
Clothing - Mfg.	2	Ansonia	1	1				
& Whsle	15	Bridgeport	6	11	4	1	4	
(Apparel)	10	Danbury	4	5	1	1		
	8	Danielson	2	5	1	1	3	
	9	Hartford	5	8	2	1	2	1
	4	Meriden	1	3		1	1	
	6	Middletown	1	5				
	4	New Britain	2	2				
	25	New Haven	10	16	3	3	1	3
	4	New London	2	3	1	1	2	
	3	Norwalk	1	2	1	2	1	
	4	Norwich	1	3		1	3	
	3	Stamford	1	2			1	1
	2	Torrington	1	2	1			
Totals	99		38	68	14	12	18	5

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing: EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Contractors Equipment-- Whsle & Mfg.	10	Bridgeport	3	8			1	1
	5	Danbury	2	4			1	
	3	Danielson		3				
	16	Hartford	6	14			4	
	6	Meriden	2	4		2	1	
	2	New Britain		2	1		1	
	5	New Haven	2	4				
	2	Norwalk	1	2				
	2	Stamford		2	1		1	
	5	Torrington	1	4		1	1	
	1	Waterbury		1				
	2	Willimantic		1		1		
Totals	59		17	49	2	4	10	1
Department Stores	3	Ansonia		3		1		
	14	Bridgeport	6	10	1	2	2	
	5	Bristol	2	4				
	3	Danbury	1	3			1	1
	3	Danielson	1	4				
	10	Hartford	7	6	1	1		1
	2	Meriden		2				
	7	Middletown	3	5	2	1		
	3	New Britain	1	3				
	11	New Haven	5	8	3	2		
	4	New London	1	3				
	3	Norwich	1	2	1		1	
	11	Stamford	6	6	1	2		
	6	Torrington	3	5	1			
	2	Waterbury	1	1		1		
	2	Willimantic	1	2	1	1	1	
Totals	89		39	67	11	11	5	2
Electric Equipment-- Whsle & Mfg.	3	Ansonia		3				
	18	Bridgeport	6	15	4	3	4	
	14	Danbury	4	11	3	2	4	
	21	Hartford	8	14	5	2	2	3
	7	Meriden	2	6	3	1	2	
	9	Middletown	3	7	1	2	3	2
	6	New Britain	2	5	2	1	1	2
	7	New Haven	2	7	2	2		2
	13	Norwalk	5	11	8		7	3
	10	Stamford	4	9	3	1	4	4
	4	Torrington	2	4	1	2	2	
	11	Waterbury	6	9	7	2	4	2
	1	Willimantic	1	1	1			
Totals	124		45	102	40	18	33	18
Electric Light & Power Co.	1	Hartford	1	1	1			
	1	Meriden	1	1		1	1	1
	1	Middletown	1	1	1			
	1	New Haven	1			1		
	1	Norwich	1	1			1	
Totals	5		5	4	2	2	2	1

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven; PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Electronic	3	Bridgeport	1	2				
Equip. &	3	Danielson		3				
Supplies--	5	Hartford	1	4			1	1
Whsle & Mfg.	3	Meriden	1	3				
	7	New Haven	2	6	1	1		
	3	New London	1	3	1	1	1	
	3	Norwalk	1	2		1		
	5	Stamford	1	4			2	1
Totals	32		8	27	2	3	4	2
Express Co.	3	Ansonia	1	2				
	7	Hartford	3	5	1		1	
	3	Middletown	1	2			1	
	2	New Britain		2				
	4	New Haven	1	3	1	1	1	1
	1	New London		1				
	1	Torrington		1				
Totals	21		6	16	2	1	3	1
Fabricated	10	Ansonia	5	8	1	1	2	
Metals	38	Bridgeport	17	31	9	4	11	2
	6	Bristol	4	5	3	2	1	
	6	Danbury	3	4	1	2	2	
	1	Danielson	1	1	1			
	38	Hartford	12	31	7	3	9	3
	15	Meriden	7	14	3	1	3	3
	11	Middletown	5	11	4	2	1	
	24	New Britain	10	21	8	3	6	3
	18	New Haven	9	16	7	2	4	3
	3	New London	3	1	1	1		1
	8	Norwalk	4	8	2	2	2	1
	3	Norwich	2	3	2	2	1	1
	3	Stamford		2	2			
	2	Torrington		2		1	1	
	31	Waterbury	15	23	13	3	7	3
	1	Willimantic		1				1
Totals	218		97	182	64	29	50	21
Fruit &	1	Bridgeport		1				
Produce--	1	Bristol		1				
Whsle	16	Hartford	8	10		2	1	
	6	Meriden	3	5				
	7	New Haven	3	5			2	
	1	Stamford		1				
	2	Waterbury	1	2				
Totals	34		15	25	0	2	3	0
Furniture--	3	Ansonia	2	3				
new	17	Bridgeport	8	13		1	1	1
	4	Bristol	1	3				
	5	Danbury	3	3		1		
	6	Danielson	1	5	1			1
	16	Hartford	8	10	2	2	4	1
	6	Meriden	4	4		2	1	1

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Furniture-- new (Con't.)	7	Middletown	1	6		1	1	
	6	New Britain	3	5			2	
	11	New Haven	4	8			1	
	2	New London		2	1		1	
	4	Norwalk		4	1		1	
	1	Norwich				1		
	5	Stamford	3	2	1		1	
	7	Torrington	2	5	1		1	
	8	Waterbury	3	5		1	1	
	2	Willimantic	2	1				
Totals	110		45	79	7	9	15	4
Gas Company-- Public Utility	2	Bridgeport	1	1	1		1	1
Totals	2		1	1	1	0	1	1
Gasoline-- Whsle	3	Bridgeport	1	3	1		1	
	4	Danbury	2	4		1	2	1
	2	Danielson	1	2		1	1	
	7	Hartford	3	4	1	2	1	
	4	Middletown	2	4	2	1	1	
	2	New Britain		1				
	2	New Haven		2				
	2	Norwich		1	1	1		
	2	Stamford	1	2			1	
	2	Torrington	1	2				
	2	Waterbury		2		1		1
	1	Willimantic	1	1		1		
Totals	33		12	28	5	8	7	2
Grocers Whsle-- Food	1	Ansonia		1				
	16	Bridgeport	5	13	2	3	1	4
	4	Bristol		4			1	
	5	Danbury	3	3	1	2		
	1	Danielson	1	1		1		
	26	Hartford	15	22	8	4	7	2
	5	Meriden	1	5				
	5	Middletown	2	4			1	
	5	New Britain	2	4				
	16	New Haven	7	13	4	2	2	
	3	New London		3				1
	5	Norwalk	2	3	1		2	1
	1	Norwich		1				
	3	Stamford		3	1		1	
	3	Torrington	2	2	2	1		2
	10	Waterbury	5	6	3	1		
Totals	109		45	88	22	14	15	10
Heating Equip. & Supplies-- Whsle & Mfg.	3	Bridgeport	1	2	1	1		
	4	Danielson	1	3				
	9	Hartford	2	8	2	2	1	
	3	Middletown	1	2		1		
	10	New Haven	3	8	1	1	1	

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven; PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Heating Equip.	3	New London		3		1		
& Supplies--	3	Norwalk	1	3	1	1		
Whsle & Mfg.	3	Norwich	1	3	1			
(Con't.)	3	Stamford	1	3	1			
	4	Waterbury	2	3	1			
Totals	45		13	38	8	7	2	0
Hotels	5	Hartford	1	4	1		1	1
	1	Meriden		1		1		
	1	New Britain	1	1				1
	4	New Haven	2	4		2	1	
	6	New London	3	5				
	1	Stamford		1				
	1	Torrington	1	1		1		
	1	Waterbury	1					1
	1	Willimantic	1	1				
Totals	21		10	18	1	4	2	3
Instruments	2	Ansonia		2				
& Clocks	10	Bridgeport	5	9	3	1	3	1
	7	Danbury	3	6	2	2	1	1
	4	Danielson	2	3		2	1	1
	14	Hartford	3	14	5	2	3	1
	1	Meriden	1					
	1	Middletown	1	1	1	1	1	
	5	New Britain	1	5	2	1	1	1
	5	New Haven	2	4	1	1	1	
	1	New London		1			1	
	2	Norwalk	2	2	1		1	1
	5	Stamford	1	4	2		2	
	1	Torrington		1	1	1		
	9	Waterbury	7	8	3	4	4	2
Totals	67		28	60	21	15	19	8
Insurance	4	Ansonia	1	4				
	1	Bridgeport	1		1			
	4	Bristol	2	2	1		1	
	2	Danbury		1				
	15	Hartford	6	12	6	2	5	1
	5	Meriden	1	3			1	
	1	Middletown		1				
	1	New Britain	1					
	6	New Haven	2	6	2		1	1
	1	Norwalk	1		1			
	2	Norwich		2				
	2	Stamford		2	1	1		1
	4	Torrington	1	4	2		1	
	3	Waterbury	1	3				
	1	Willimantic		1				
Totals	52		17	41	14	3	9	3

*FC = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Leather	1	Bridgeport		1				
	1	Hartford	1	1	1			
	1	New Haven		1		1		
	3	Norwalk	1	3		1	1	
	1	Norwich	1	1				
	7		3	7	1	2	1	0
Liquors--	10	Bridgeport	5	9	2	1	2	
whsle.	11	Hartford	4	9	2	2	2	1
	2	New Haven	1	2		1		1
	2	Stamford	2	2	1			1
	1	Waterbury	1	1				
Totals	26		13	23	5	4	4	3
Lumber--	5	Bridgeport	1	5	1	1		
whsel.	3	Danbury	1	2	1			
	17	Hartford	7	10	2	2	1	2
	2	Meriden		2				2
	1	Middletown		1				
	1	New Britain		1				
	9	New Haven	2	8	3	3	1	1
	1	Stamford	1					
	7	Torrington	2	4	3	1	1	1
	4	Waterbury	3	3	2	3	1	
	1	Willimantic	1					
Totals	51		18	36	12	10	4	6
Machinery	2	Ansonia	1	2	1		1	
	43	Bridgeport	14	28	8	5	6	2
	4	Bristol		4			1	
	15	Danbury	4	10	1	3	2	1
	4	Danielson	1	3	2	1		
	63	Hartford	25	51	14	9	16	7
	9	Meriden	3	6	2	2	1	
	8	Middletown	2	6	3	2	2	1
	21	New Britain	9	17	5	3	4	
	25	New Haven	8	21	8	3	5	3
	5	New London	3	4	2	1	1	
	5	Norwalk	2	4	1		2	
	14	Stamford	7	10	4	2	6	2
	6	Torrington	1	5	3			
	13	Waterbury	6	9	4	2	2	2
	3	Willimantic	1	3	1	1	1	
Totals	240		87	183	59	34	50	18
Meat	1	Ansonia	1	1				
Packers	1	Danbury		1	1			1
	2	Hartford	1	1	1			1
Totals	4		2	3	2	0	0	2

*FC = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Meat--	8	Ansonia	4	5	1	1	1	1
Whsle.	4	Hartford	1	3		1	2	
	6	New Haven	3	5	2			
	1	Norwich		1	1			
	5	Stamford	2	4	1	1		1
	3	Waterbury		3		1		1
	1	Willimantic	1					
Totals	28		11	21	5	4	3	3
Miscellaneous	14	Bridgeport	4	9	3	1	1	
Manufacturing	4	Danielson		3	1			1
Industry	12	Hartford	2	10	3	3	2	1
	9	Meriden	3	5	1	2	2	
	6	Middletown	3	4	2		2	
	3	New Britain		2		1		
	7	New Haven	2	5		1	1	1
	1	Norwalk	1			1		
	7	Stamford	2	5	1		2	
	3	Torrington	1	3	1		2	
	5	Waterbury	4	4	3	2	1	
Totals	71		22	50	15	11	13	3
Motels	2	Danbury		2				
	2	Danielson	1	1			1	
	8	Hartford	2	6				
	4	Meriden		3				
	7	New Haven	2	5	1	1	1	
	3	New London	1	2		1	1	
	1	Norwalk		1				
	3	Stamford	1	2		1		
	2	Torrington		2				
	1	Waterbury	1	1				
Totals	33		8	25	1	3	3	0
Newspapers	1	Ansonia	1	1	1			
	2	Bridgeport		2			1	1
	1	Bristol	1	1				
	1	Danbury	1	1	1			
	1	Danielson		1				
	5	Hartford	2	3	1	1	1	
	2	Meriden	2	2				
	2	Middletown	1	2		1		
	2	New London		2			1	1
	1	Norwich	1	1	1	1		
	2	Stamford	1	2		1		
	1	Willimantic	1	1				
Totals	21		11	10	4	4	3	2
Ordnance	3	Ansonia	1	3				
	2	Bridgeport	1	2	1	1		
	4	New Haven	1	4	2	1	2	2
Totals	9		3	9	3	2	2	2

*FC = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Other	11	Ansonia	4	8	1	1		1
Mechanical	42	Bridgeport	12	30	3	4	8	2
Workshops	2	Danbury	2		1			
	48	Hartford	16	46	8	5	9	2
	8	Meriden	3	5	1	1		
	1	Middletown		1	1			
	9	New Britain	3	6		1	1	
	18	New Haven	8	15	1	2	1	
	3	New London	1	2				
	2	Norwalk	2	1	1			
	2	Norwich	1	1				
	14	Stamford	5	9	2	2	1	
	2	Torrington		2				
	4	Waterbury	2	3	1	1		
	1	Willimantic	1		1			
Totals	167		60	129	21	17	20	5
Plumbing	4	Ansonia	1	4				
Supplies--	6	Bridgeport	2	6	2	2	1	
Whsle	4	Bristol	1	4	1	1	2	
	2	Danbury	1	1	1		1	
	10	Hartford	3	9	3	1		1
	6	Middletown	2	3	2	1		
	5	New Haven	2	3	2	1		
	2	New London		2	1			
	3	Norwalk		3	1	1		
	4	Stamford	2	2	2			
	1	Torrington		1				
	2	Waterbury	1	2	1		1	
Totals	49		15	40	16	7	5	1
Primary	9	Ansonia	4	4	1	1	3	
Metals	14	Bridgeport	8	9	5	2	3	1
	3	Bristol	2	1		1		
	8	Danbury	2	7	2	1	3	
	2	Danielson	2				1	
	10	Hartford	4	7	1	2	1	1
	10	Meriden	4	8	2		3	
	4	Middletown	3	2	3		3	
	2	New Britain	2		1			
	18	New Haven	3	16	6	1	4	1
	6	New London	1	5	2	1		
	2	Norwalk	1	2	1		1	
	2	Norwich	1	2	1			
	2	Stamford		2	1		1	
	4	Torrington	3	3	2		1	
	8	Waterbury	2	6	2	1	3	2
Totals	104		42	74	30	10	27	5

*FC = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Printing & Publishing	6	Ansonia	3	6	1		1	
	13	Bridgeport	13	13	2	2	9	1
	2	Bristol	1	1				
	2	Danbury	1	2				
	2	Danielson	2	1	1		1	
	15	Hartford	15	14	4	2	4	4
	3	Meriden	1	2	1			
	1	Middletown	1	4	1	2		
	2	New Britain	2	2			1	
	7	New Haven	6	5	3	3	4	2
	5	New London	3	5	3		2	
	4	Norwalk	2	4	2	1	4	1
	3	Norwich	3	3	1	1		1
	6	Stamford	5	6	4	2	6	
	3	Torrington	3	3	2			
	5	Waterbury	2	5	2	1	2	
Totals	79		63	76	27	14	34	9
Products of Petroleum & Coal	1	New Haven	1	1	1			1
	1	Stamford	1		1		1	
	1	Waterbury	1			1		
Totals	3		3	1	2	1	1	1
Radio & TV	2	Bridgeport	2	2				
	1	Bristol	1					
	4	Hartford		3	1		1	
	1	Middletown		1				
	1	New Britain		1	1			
	2	New Haven		2	1	1		
	1	Norwalk		1				
	1	Waterbury		1				
	1	Willimantic		1				
Totals	14		3	12	3	1	1	0
Roofing Material--Whsle.	4	Bridgeport	2	3	1	1	1	
	2	Danielson		2		1		
	4	Hartford		4			1	
	2	New Haven	1	1	1			
Totals	12		3	10	2	2	2	0
Rubber & Fabricated Plastics	4	Ansonia		3			1	
	8	Bridgeport	4	7	2	1	3	
	3	Bristol		2				
	4	Danbury	1	3	1			
	2	Danielson	1	1	1			
	6	Hartford	2	4	2	1	2	2
	3	Meriden	1	2	1			
	4	Middletown		3			1	
	8	New Haven	4	4	1	2	3	
	2	New London		1				
	4	Norwalk	1	3				
	2	Stamford	2	2		1	1	
	1	Torrington		1				
	3	Waterbury	1	3	2		1	
Totals	54		17	39	10	5	12	2

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven; PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Saving & Loan Associations	3	Bridgeport	3	3			1	
	3	Hartford	3	2	1		2	1
Totals	6		6	5	1	0	3	1
Steel Mfg.	2	Bridgeport	2	2	2	1	1	
	1	Danielson		1		1		
	1	Hartford	1	1	1		1	
	1	Meriden	1					
	1	New Haven		1				1
Totals	6		4	5	3	2	2	1
Stone, Clay, & Glass	10	Bridgeport	3	9	3		2	1
	4	Danbury	1	4			1	
	3	Danielson	1	2				
	14	Hartford	5	9	3	1	4	
	6	Meriden	1	5	3		1	
	2	Middletown	1	2		1	1	
	5	New Britain	1	4	1	2		
	3	New Haven	1	3	3	1	3	1
	3	New London	1	2			1	
	3	Norwalk	1	2			1	
	1	Stamford	1	1			1	
	1	Torrington	1				1	
	1	Waterbury	1	1	1			
Totals	56		19	44	14	5	16	2
Textiles	7	Ansonia	3	5	1			
	2	Bridgeport	1	2	1			
	2	Danbury		2			1	
	12	Danielson	4	7	1	1	1	1
	19	Hartford	8	14	6		1	3
	5	Middletown	1	4				1
	4	New Haven	2	3	2			2
	1	New London		1				
	5	Norwalk	3	4	2			
	7	Norwich	3	5	2		1	
	1	Stamford		1	1			
	2	Torrington	1	2	1			
	2	Willimantic	2	2			1	
Totals	69		28	52	17	1	5	7
Toys-- Whsle. & mfg.	8	Bridgeport	2	5				
	10	Hartford	4	7	1			
	4	New Londong	1	4				
	3	Norwalk	1	3				
Totals	25		8	19	1	0	0	0

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven; PC = Printing; EC = Electronic

Type of Business	Replies	Labor Market	ADDING FK*	ADDING TK*	CALCULATORS RC*	CALCULATORS KD*	CALCULATORS PC*	CALCULATORS EC*
Transportation Equipment	11	Bridgeport	5	9	5		3	1
	2	Danbury	1	1				
	1	Danielson		1	1			1
	16	Hartford	5	16	5	1	6	4
	2	Meriden		1				
	5	Middletown	3	4				
	2	New Britain	1	2	1		1	
	6	New Haven	2	4	1		2	2
	2	Norwalk		1				
	7	Stamford	1	6				
	1	Waterbury		1	1			
Totals	55		18	46	14	1	12	8
Laundry & Cleaning	3	Ansonia	1	2				
	6	Bridgeport	2	5			1	
	3	Bristol		3				
	10	Hartford	4	6	1		1	1
	5	Meriden	1	4				
	6	New Britain	1	5			1	
	4	New Haven		4			1	2
	3	New London	2	1	1		2	
	3	Norwalk	1	3				
	6	Stamford	4	4			1	
	2	Torrington		2			1	
	8	Waterbury	2	6			2	1
Totals	59		18	45	2	0	10	4
GRAND TOTALS	3168		1257	2442	589	338	537	197

*FK = Full key; TK = Ten key; RC = Rotary; KD = Key driven;
PC = Printing; EC = Electronic

Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Advertising Agents	Bridgeport (5)**				1	2		1	1
	Hartford (14)		1	2		5	3	4	
	New Britain (3)			1		1		1	
	Norwalk (2)						1		
	Totals	0	1	3	1	8	4	6	1
Auto Dealers, New Car	Ansonia (2)	2				1			
	Bridgeport (19)	3	1	3	3	2		1	2
	Bristol (8)	4		1		1		1	
	Danbury (9)	2		1	1	1		2	
	Danielson (14)		1			1	1	3	
	Hartford (32)	14	4	5	4	4		6	
	Meriden (16)	1	1	6	1			3	1
	Middletown (7)	2		1		2			
	New Britain (11)	3		3		2		4	
	New Haven (19)	4	1	3	1	2	1	2	2
	New London (6)			1				3	
	Norwalk (8)			1				2	
	Norwich (7)	2	2	2				2	
	Stamford (9)	3	2	1		1		2	
	Torrington (16)	3		2		1	3		
	Willimantic (2)	1	1		1				
	Totals	44	13	30	11	18	5	31	5
Auto Repair Shops	Ansonia (1)							1	
	Bridgeport (14)	3				3		2	
	Bristol (3)							1	
	Danbury (5)	1		1		1	1	1	
	Hartford (18)	3			1	2	2	1	
	New Haven (4)	3		1				2	
	New London (2)	2			1			1	
	Norwalk (7)	1	1		1			1	
	Norwich (1)	1							
	Stamford (6)	1	1		1			2	
	Waterbury (8)	2		1	1			3	
	Totals	17	2	3	5	6	3	15	0
Auto Supplies & Parts-- Whsle & Mfg.	Bridgeport (9)	1	1		1	1		1	
	Danbury (6)	1							
	Hartford (11)	3	1	2	2	1	1	1	
	Middletown (4)	1	1	1	1		1	1	1
	New Haven (9)	4	1	2	1	2	1	2	
	New London (5)	1	2	1				2	
	Norwalk (6)	2				1			
	Norwich (3)	1		1					
	Stamford (6)	1		1					
	Waterbury (4)		1						
	Totals	15	7	8	5	5	3	7	1

*BK = Bookkeeping; AC = Accounting; ST = Stencil; SP = Spirit; OF = Offset; TR = Machine transcribing; PR = Proportional space typewriter; PT = Punched tape

**Number of replies received from a type of business within a labor market area. One of the five uses the stencil process; two of the five uses the offset process; one of the five uses a proportional space typewriter; and one of the five uses a punched tape machine.

Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Bakers--Whsle.	Bridgeport (6)	1		1	1			3	
	New London (2)	1			1			1	
	Norwalk (2)		1	1		1	1	1	
	Waterbury (3)	1				1		1	
	Totals	3	1	2	2	2	1	6	0
Banks	Ansonia (5)	2		1		1			
	Bridgeport (5)	2			1	1		1	1
	Bristol (1)		1	1					
	Danbury (7)	1	2	1	1	1		1	
	Danielson (5)	2	1	1	1	2		1	
	Hartford (16)	10	6	5	2	5	5	4	2
	Meriden (7)	1	3	2	1	2	2	1	2
	Middletown (9)	4	2	5			2	3	
	New Britain (5)	3	5	1	2		3	2	1
	New Haven (6)	2	4	2	3	1	2	2	2
	New London (3)	3	2	2	1	1	1		
	Norwalk (5)	4	2	2		2	2	1	1
	Norwich, (3)	2	1		2		1		
	Stamford (4)	2	2		1		2	1	
	Torrington (9)	4	4	3	4	2	1	2	
	Waterbury (7)	4	3	3	1	2	3	3	3
	Willimantic (1)		1						
	Totals	46	39	29	21	20	24	22	12
Beauty Shop Equipment & Supplies	Bristol (5)		1	1	1		1		
	Hartford (7)	1		1				1	
	New Haven (4)	1						1	
	Totals	2	1	2	1	0	1	2	0
Bedding--Whsle. & Mfg.	Hartford (5)		1	1				1	
	Totals	0	1	1	0	0	0	1	0
Bear & Ale--Whsle.	Bridgeport (4)			1	1		1		
	Danielson (3)							1	
	Hartford (4)	1						2	
	New Haven (5)	1		1					
	Torrington (1)	1							
	Waterbury (2)							1	
	Willimantic (1)	1							
	Totals	4	0	2	1	0	1	4	0
Beverages, non-alcoholic	Ansonia (2)					1			
	Bridgeport (2)	1							
	Bristol (3)		1			2	1	1	
	Danielson (4)	1				1			
	Hartford (6)		2			2			
	Middletown (3)							1	
	New Britain (2)				1			1	
	New London (2)	2						1	
	Waterbury (2)	1				1			
	Totals	5	3	0	1	7	1	4	0

*BK = Bookkeeping; AC = Accounting; SP = Spirit; ST = Stencil; OF = Offset; TR = Machine transcribing; PR = Proportional space typewriter; PT = Punched tape

Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Boilers--Mfg. & Dist.	Bristol (3)			1				1	
	Hartford (8)	1	1	2					
	New Haven (2)				1			1	
	New London (1)	1					1		
	Totals	2	1	3	1	0	1	2	0
Boxes Folding, Mfg.	Bristol (3)				1				
	Meriden (3)				1				
	New Haven (4)				1				
	Totals	0	0	0	3	0	0	0	0
Brokers, Stock & Bond	Danbury (2)			1	1	1	1		1
	Hartford (8)		1	2	1	2	1	2	1
	Meriden (2)			1					
	New Haven (7)		1	2	2	2	1	1	
	Norwalk (2)				1				
	Stamford (3)			1					
	Waterbury (3)	1							
	Totals	1	2	7	5	5	3	3	2
Building Material--Whsle. & Mfg.	Hartford (9)	1	2		2			1	
	New Haven (8)	1		1				1	
	Norwalk (6)	1		1			1	1	
	Stamford (7)	1			1				
	Torrington (5)			1					
	Waterbury (5)			1					
	Totals	4	2	4	3	0	1	3	0
Candy & Confectionary	Danbury (3)	1							
	Hartford (7)	2	1		1			2	
	New Haven (3)	2		2				1	
	Norwich (2)							1	
	Stamford (2)	1		1				1	
	Totals	6	1	3	1	0	0	5	0
Chemicals--Mfg.	Bridgeport (10)	1		2	2	1	1	2	
	Danbury (5)				1	1	1		
	Hartford (10)		1	1	1	3	4	3	
	Meriden (4)		1	1	1	1	1		
	Middletown (4)			1	1	1	2	1	
	New Britain (3)		1			1	1		
	New Haven (16)	1	3	5	2	7	6	6	1
	New London (4)	1	1	1	1	3	3	3	
	Norwalk (9)		2	2	2	2	4	1	
	Stamford (3)		2	1	1	1	2	2	
	Torrington (1)				1				
	Waterbury (5)		1	4	1	1	4	2	1
	Totals	3	12	18	12	22	29	20	2
Cigar, Cigarette & Tobacco--Whsle.	Hartford (6)			1			1	2	
	New Haven (2)	2					1		
	New London (1)	1							
	Totals	3	0	1	0	0	2	2	0

*BK = Bookkeeping; AC = Accounting; SP = Spirit; ST = Stencil; OF = Offset; TR = Machine transcribing; PR = Proportional space typewriter; PT = Punched tape

Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Clothing-- Mfg. & Whsle., (Apparel)	Bridgeport (15)	4	3	3	1	3	1	5	1
	Danbury (10)	1	1			1		1	
	Danielson (8)		1	2	3	1	2		
	Hartford (9)	2	3	2	2	3	1	2	1
	Middletown (6)			1		1		3	
	New Britain (4)							1	
	New Haven (25)	4	4	7	4	3	5	4	
	New London (4)		1	1	1			2	
	Norwalk (3)	1	2	2		1	2	1	
	Norwich (4)	1			1		1	3	
	Stamford (3)	2			1				
	Torrington (2)	1			1				
	Totals	16	15	18	14	13	12	22	2
Contractors Equipment-- Whsle. & Mfg.	Bridgeport (10)	1				2		2	
	Danbury (5)					2			
	Hartford (16)	2	2	2		3	5	2	
	Meriden (6)		1		2	1		1	
	New Britain (2)	1		1			1	1	
	New Haven (5)	1		1		1	1	1	
	Stamford (2)	1							
	Torrington (5)	1			1	1		2	
	Willimantic (2)		1	1			1	1	1
	Totals	7	4	5	3	10	8	10	1
Department Stores	Bridgeport (14)	2	2	1	2	2		3	1
	Bristol (5)	1				1			
	Danbury (3)					1			
	Hartford (10)	2	1		1	2		2	
	Meriden (2)				1			1	
	Middletown (8)	2	1	1		1		2	
	New Britain (3)		1						
	New Haven (11)	1	3	3	1	3		1	
	New London (4)					1			
	Norwich (3)	1							
	Stamford (11)	2		2		1		1	
	Torrington (6)		2						
	Waterbury (2)							1	
	Willimantic (2)	1			1			1	
	Totals	12	10	7	6	12	0	12	1
Electric Equip.-- Whsle. & Mfg.	Ansonia (3)			1					1
	Bridgeport (18)	2	2	7	5	7	9	8	3
	Danbury (14)	1	2	9	4	3	5	3	4
	Hartford (21)	3	2	8	4	3	6	2	
	Meriden (7)		1	3	1	2	3	4	1
	Middletown (9)	2	2	2	2	4	6	2	2
	New Britain (6)	1		4	2	2	2	2	1
	New Haven (7)	1	3	3	2	2	4	2	2
	Norwalk (13)		4	11	2	5	7	8	3
	Stamford (10)	1	2	5	3	3	4	5	2
	Torrington (4)			1	2	2	1	1	1
	Waterbury (16)	1	2	6	3	2	5	5	2
	Willimantic (17)		1	1				1	
	Totals	12	21	61	30	35	52	43	22

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Electric Light & Power Co.	Hartford (1)			1		1	1	1	
	Meriden (1)			1		1			
	New Haven (1)	1		1				1	
	Norwich (1)		1		1		1		
	Totals	1	1	3	1	2	2	2	0
Electronic Equip. & Supplies--Whsle. & Mfg.	Bridgeport (3)			1	1				
	Danielson (3)				1				
	Meriden (3)			1					
	New Haven (7)	1		1	1		1	1	1
	New London (3)				1				
	Norwalk (3)			1			1	1	
	Stamford (5)		1				1		
	Totals	1	1	4	4	0	3	2	1
Express Co.	Hartford (7)	1	1						
	Middletown (8)	1							
	New Britain (2)							1	
	New Haven (4)	1				2			
	New London (1)	1				1			
	Totals	4	1	0	0	3	0	1	0
Fabricated Metals	Ansonia (10)	1	1	1		2	4	3	
	Bridgeport (38)	1	12	17	6	6	11	8	3
	Bristol (6)		1	2	2		2		
	Danbury (6)	1	1	1	2	3	3	1	1
	Hartford (38)	3	4	10	8	6	6	5	1
	Meriden (15)	3	4	4	2	3	2		
	Middletown (11)	2	3	2	4	3	3	2	
	New Britain (24)	6		6	1	7	6	5	5
	New Haven (18)	1	3	8	2	1	6	5	
	New London (3)	1	1	2	1	1	2	1	1
	Norwalk (8)	1	1	4	2	1	4	1	
	Norwich (3)	1	1	2	2	2	3	2	
	Stamford (3)		2		1	1	2		1
	Torrington (2)	1		1					
	Waterbury (31)	6	5	13	1	5	11	8	4
	Willimantic (1)	1							
	Totals	29	39	73	34	41	65	41	16
Fruit & Produce--Whsle.	Bristol (1)	1				1			
	Hartford (16)	2	1		1			1	
	Meriden (6)			1				1	
	New Haven (7)	1						1	
	Stamford (1)	1				1			
	Totals	5	1	1	1	2	0	3	0
Furniture--new	Ansonia (3)	2		1	1		1	2	
	Bridgeport (17)	2	1	2	2	1	1	2	
	Bristol (4)	1						1	
	Danbury (5)		2	1				3	
	Danielson (6)		1		2		2	2	
	Hartford (16		2	2	2	1	2	4	

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Furniture--new (Con't.)	Meriden (6)	1	1	1		1		1	
	Middletown (7)	2		1			2	4	
	New Britain (6)	1	1	1				1	
	New Haven (11)	2	1		1	1		5	
	New London (2)			1				1	
	Norwalk (4)			1				1	
	Norwich (1)			1			1		
	Stamford (5)			1	1		1	2	1
	Torrington (7)	1	2	2	1	1	1	1	
	Waterbury (8)	1	2	2	2	1	1	1	
	Totals	8	7	11	5	4	6	17	1
Gas Company--Public Utility	Bridgeport (2)			1		2	1		
	Totals	0	0	1	0	2	1	0	0
Gasoline--Whsle.	Bridgeport (3)	1	1	1	1	1			
	Danbury (4)	1					1	1	
	Middletown (8)	1		1				1	
	New Britain (2)		1	1			1		
	Norwich (2)	1							
	Stamford (2)	1			1				
	Torrington (2)							1	
	Waterbury (2)			1					
	Willimantic (1)			1				1	
	Totals	5	2	5	2	1	2	4	0
Grocers--Whsle (Food)	Bridgeport (16)	2	1	4	2	1		1	1
	Danbury (5)				1	2			
	Danielson (1)			1					
	Hartford (26)	5	1	1	9	5	2	3	3
	Meriden (5)				1	2			
	Middletown (5)					1		1	
	New Haven (16)	4		3	3	3		3	3
	New London (3)	1	1		1				
	Norwalk (5)	2		1	3	1	1	1	1
	Stamford (3)	1			1		1	1	
	Torrington (3)	2			2		1		
	Waterbury (10)	1	2		1	2	1	1	
	Totals	18	5	10	24	17	6	11	8
Heating Equip. & Supplies--Whsle. & Mfg.	Bridgeport (3)		1						
	Danielson (4)	1							
	Hartford (9)	2	1		2			2	
	New Haven (10)	2		2	2		1	1	
	Norwalk (3)			1				1	
	Norwich (3)			1					
	Stamford (3)							1	
	Waterbury (4)	2			2				
	Totals	7	2	4	6	0	1	5	0

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Hotels	Hartford (5)	2	1	2			2	1	1
	Meriden (1)	1			1			1	
	New Britain (1)				1			1	
	New Haven (4)		1	1	1	1	1	2	
	New London (6)	1		1	2				
	Torrington (1)			1				1	
	Totals	4	2	5	5	1	3	6	1
Instruments & Clocks	Ansonia (2)		1	1			1	1	
	Bridgeport (10)	1	1	3	2	3	3		4
	Danbury (7)	1	2	2	2	3	4	1	1
	Danielson (4)			1	1	1	1		
	Hartford (14)		4	7	3	4	5	4	2
	Middletown (1)		1	1		1	1		
	New Britain (5)		1			1	1		
	New Haven (5)				1	3	3		
	New London (1)		1	1			1		
	Norwalk (2)		1			1	1		1
	Stamford (5)		2	3		1	2	1	
	Torrington (1)			1	1			1	
	Waterbury (9)	2	1	4	2	4	4	3	3
	Totals	4	15	24	12	22	27	11	11
Insurance	Ansonia (4)					1	1		
	Bristol (4)				1			1	
	Hartford (15)	1	2	3	2	4	9	4	1
	Meriden (5)			1					
	New Britain (1)							1	
	New Haven (6)			3		2	1		
	Norwalk (1)				1				
	Stamford (2)			1	2	1	2	2	
	Torrington (4)	1				1	1	2	
	Waterbury (3)			2			1		
	Totals	2	2	10	6	9	15	10	1
Leather	New Haven (1)				1			1	
	Norwalk (3)	2		1		2			
	Norwich (1)	1				1			
	Totals	3	0	1	1	3	0	1	0
Liquors--Whsle.	Bridgeport (10)			1	2	1		2	
	Hartford (11)	2	1	2	3	2	1	2	
	New Haven (2)						1		
	Stamford (2)			2	2			1	
	Totals	2	1	5	7	3	2	5	0
Lumber--Whsle	Bridgeport (5)	1	1	1		2	1		
	Danbury (3)	1						1	
	Hartford (17)	2		2	1	2		3	
	New Britain (1)							1	
	New Haven (9)	2	1	1	1	2	1	1	
	Torrington (7)	1	1	1	2	3	1	2	
	Waterbury (4)		1	1	1	3	1	1	1
	Totals	7	4	6	5	12	4	9	1

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Machinery	Ansonia (2)						1	2	
	Bridgeport (43)	5	4	6	5	5	6	6	5
	Bristol (4)			1			1		
	Danbury (15)	1	2	2	1	2	3	1	
	Danielson (4)	1		3	1		1	1	
	Hartford (63)		9	7	8	9	19	8	7
	Meriden (9)					2	3	2	1
	Middletown (8)	1	1	3	1	2	3	2	
	New Britain (21)			3	1	4	3	2	1
	New Haven (25)	5	2	9	3	2	10	8	2
	New London (5)	1	2	3	1	2	4	3	1
	Norwalk (5)	1		2	1	2	2	1	2
	Stamford (14)	1		3	2	4	7	7	1
	Torrington (6)			1	1	1	1		
	Waterbury (13)	1		1	1	2	4	2	1
	Willimantic (3)		1		1		1		
	Totals	17	21	44	27	37	69	45	21
Meat Packers	Danbury (1)						1		
	Hartford (2)	2							
	Totals	2	0	0	0	0	1	0	0
Meat--Whsle.	Ansonia (8)		1	1	1			1	
	Hartford (4)	1						1	
	New Haven (10)	2						1	2
	Norwich (1)	1			1				
	Stamford (5)	2				1		1	
	Waterbury (3)							1	
	Willimantic (1)				1				
	Totals	6	1	1	3	1	0	5	2
Miscellaneous Mfg. Industry	Bridgeport (14)	1	1		1	2	2	1	1
	Danielson (4)		1		1		1		
	Hartford (12)		1	2		3	1	2	1
	Meriden (9)	1		3	1	1	3	2	
	Middletown (6)	1	2	1	1	2	1		
	New Britain (3)				1		1		
	New Haven (7)		2	3		2	1		
	Stamford (7)			1	1	2	1	1	
	Torrington (3)			1	1	3	3		1
	Waterbury (5)	1	2	2	2	2	3	2	1
	Totals	4	11	13	9	17	17	8	4
Motels	Danielson (2)				1				
	Hartford (8)							2	
	Meriden (4)			1					
	New Haven (7)	1	1	1	1	1			
	New London (3)				1				
	Stamford (3)	1							
	Totals	2	1	2	3	1	0	2	0

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Newspapers	Bridgeport (2)			1			1	1	
	Bristol (1)		1	1					
	Danbury (1)		1		1				
	Hartford (5)	1	1	1				1	2
	Middletown (2)	1	1			1			
	New London (2)		1	1	1				
	Norwich (1)					1	1	1	1
	Stamford (2)		2	1	1				
	Willimantic (1)	1							1
	Totals	3	8	5	3	2	2	3	4
Ordnance	Ansonia (3)	1		1	1			1	1
	Bridgeport (2)		1	1	1	1	1	1	
	New Haven (4)		2	2	2	1	2		
	Totals	1	3	4	4	2	3	2	1
Other Mechanical Workshops	Ansonia (11)		1	2	2	1	2	3	
	Bridgeport (42)	5	2	9	4	4	5	3	
	Danbury (2)						1		
	Hartford (48)	9	5	8	3	7	7	14	2
	Meriden (8)			1	1	2	3	2	1
	New Britain (9)	1				1			
	New Haven (18)		2	4	2	2	2	6	
	New London (3)	1		1					
	Norwich (2)							1	
	Stamford (14)	1			1	3	1	4	1
	Waterbury(4)			1	1			1	
	Willimantic (1)	1							
	Totals	18	10	26	14	20	21	34	4
Plumbing Supplies-- Whsle.	Bridgeport (6)	1		1		1		1	
	Bristol (4)	2							
	Danbury (2)			1					
	Hartford (10)	3	1	1	2	2	1	1	
	Middletown (6)	2	1	1			1	1	
	New Haven (5)		1	1				1	
	New London (2)	1		1				1	
	Norwalk (3)	2		1		1			
	Stamford (4)		1			1			
	Waterbury (2)	1	1	1		1		1	
	Totals	12	5	8	2	6	2	6	0
Primary Metals	Ansonia (9)	1	1	3	2	3	3	2	3
	Bridgeport (14)		1	3	1	4	5	2	1
	Bristol (3)			1				1	
	Danbury (8)	1	2	1	2	2	4	2	3
	Hartford (10)			1	2	2	2	2	
	Meriden (10)	2	1	2	2	5	2	3	2
	Middletown (4)			2		1	1		
	New Britain (2)	1		1				1	
	New Haven (18)	3	4	7	3	5	7	5	2
	New London (6)		1	1	1		2	1	
	Norwich (2)		1		1		1		1

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Primary Metals (Con't.)	Stamford (2)		1	1			1		
	Torrington (4)			1			1	1	
	Waterbury (8)	2	1	1	1	2	5	3	1
	Totals	10	14	25	15	24	34	23	13
Printing & Publishing	Ansonia (6)		1		1		1		
	Bridgeport (13)	3	1	1	1	4	4	3	2
	Bristol (2)					1		1	
	Danbury (2)					1	1	1	
	Danielson (2)	1		1		1	1	2	
	Hartford (15)	4	5	5	5	12	5	12	3
	Meriden (3)	1	1		1			2	1
	Middletown (1)			1		1	1	1	1
	New Britain (2)					1			1
	New Haven (7)	2	6	2	2	5	3	5	2
	New London (5)	2	1	2	2	3	2	3	3
	Norwalk (4)	2	1	1		1	2	1	
	Norwich (3)					3	2	2	
	Stamford (6)		5	4	4	3	4	2	4
	Torrington (3)			1	1	2	1	1	1
	Waterbury (5)		1			2	1		1
	Totals	15	22	18	17	40	28	36	19
Products of Petroleum & Coal	New Haven (1)				1		1		
	Stamford (1)				1		1	1	
	Waterbury (1)					1			
	Totals	0	0	0	2	1	2	1	0
Radio & TV	Bridgeport (2)			1	1	1	1	1	
	Bristol (1)			1	1			1	
	Hartford (4)			1				1	
	Middletown (1)						1	1	
	New Britain (1)	1		1	1			1	
	New Haven (2)		2	2		2	1	1	
	Waterbury (1)					1			
	Totals	1	2	6	3	4	3	6	0
Roofing Material--Whsle.	Bridgeport (4)		1						
	Danielson (2)	1		1	1			1	
	Hartford (4)		1	1	1				
	New Haven (2)	1							
	Totals	2	2	2	2	0	0	1	0
Rubber & Fabricated Plastics	Ansonia (4)					1			
	Bridgeport (8)	1	1	1	2	3	4	2	2
	Bristol (3)			1				1	
	Danbury (4)					1	1	1	
	Danielson (2)	1						1	
	Hartford (6)			1		2	2	1	
	Meriden (3)				1	1			
	Middletown (4)					1	1	1	1

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Rubber & Fabricated Plastics (Con't.)	New Haven (8)	1			2	3	5	1	1
	Norwalk (4)		1	1		1	1	1	
	Stamford (2)			1		2	2	1	
	Waterbury (3)						1		
	Totals	3	2	5	5	15	18	10	2
Saving & Loan Association	Bridgeport (3)	2		1	1			1	
	Hartford (3)	2	3	1	1	1	1		1
	Totals	4	3	2	2	1	1	1	1
Steel Manufacturers	Bridgeport (2)				1	1		1	1
	Danielson (1)					1			
	Hartford (1)					1		1	
	Meriden (1)							1	
	Totals	0	0	0	1	3	0	3	1
Stone, Clay, & Glass	Bridgeport (10)	3	1	4		3	2	3	2
	Danbury (4)							1	
	Hartford (14)		3	4	2	2	1	4	1
	Meriden (6)		2	3	2	1	2	1	
	Middletown (2)	1	1						
	New Britain (5)	1	1	1		1	1	1	
	New Haven (3)	1	2	1		1	2	1	
	New London (3)		1				1	1	
	Norwalk (3)						1	2	
	Stamford (1)		1						
	Torrington (1)	1							
	Waterbury (1)		1				1	1	
	Totals	7	13	13	4	8	11	15	3
Textiles	Ansonia (7)	1	1		1	1			
	Bridgeport (2)						1		
	Danielson (12)	2	1	1	2	2	3	2	2
	Hartford (19)	1	1	3	1	3	3	2	
	Middletown (8)					1	1	1	
	New Haven (4)		1			2		1	
	New London (1)						1		
	Norwalk (5)		1			2	1		
	Norwich (7)					2	1		
	Torrington (2)					1	1	1	1
	Willimantic (2)					1			
	Totals	4	5	4	4	15	12	7	3
Toys-- Whsle. & Mfg.	Bridgeport (8)		1						
	Hartford (10)	1				2	3	1	
	New London (4)	1				1			
	Norwalk (3)	1							
	Totals	3	1	0	0	3	3	1	0

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Type of Business	Labor Market	ACCOUNTING BK*	AC*	DUPLICATING SP*	ST*	OF*	MISCELLANEOUS TR*	PR*	PT*
Transportation Equipment	Bridgeport (11)				2	2	4	1	1
	Danielson (1)					1	1		
	Hartford (16)		2	1	1	4	5	2	2
	Meriden (2)					1	1		1
	Middletown (5)		1						
	New Britain (4)		1	1		2	1	1	
	New Haven (8)	2				2	3	2	1
	Stamford (10)						1		
	Waterbury (1)		1						
	Totals	2	5	2	3	12	16	6	5
Laundry & Cleaning	Bridgeport (6)	1					1		
	Hartford (10)	1				1	1	1	
	New Britain (6)						1	1	
	New Haven (4)	3		1		2			
	New London (3)				1		1	1	
	Stamford (6)					1			
	Waterbury (8)					1	1	1	
	Totals	5	0	1	1	5	5	4	0
	GRAND TOTALS	428	351	561	370	503	550	580	165

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Type of Business	Labor Market	UNIT RECORD EQUIPMENT CP*	SO*	RE*	VE*	AM*	CA*	CO*	COMPUTERS SM*	ME*	LA*
Auto Dealers, New Car	Danielson (14)**	2									
	Meriden (16)	1	1	1		1					
	Totals	3	1	1	0	1	0	0	0	0	0
Auto Repair Shops	Bridgeport (14)	1									
	Totals	1	0	0	0	0	0	0	0	0	0
Auto Supplies & Parts-- Whsle. & Mfg.	Middletown (8)	1	1	1	1	1		1		1	
	New Haven (10)	2	1		1	1		1			
	Totals	3	2	1	2	2	0	2	0	1	0
Bakers--Whsle.	Norwalk (2)	1	1	1	1	1	1	1			
	Totals	1	1	1	1	1	1	1	0	0	0
Banks	Ansonia (5)	1	1	1		1		1			
	Hartford (16)	1	1	1	1			1	1	1	
	Meriden (7)	2	1	1		1		1			
	New Haven (6)	3	3	3		1		3	1	1	
	New London (3)	1	1	1	1				1		1
	Norwalk (5)	1	1	1	1	1		1	1	1	
	Stamford (4)	1	1	1	1	1		1			
	Waterbury (7)	3	3	3	3	2	1	3	2		1
	Totals	13	12	12	7	7	1	11	6	3	2
Bedding-- Whsle. & Mfg.	Hartford (5)	1									
	Totals	1	0	0	0	0	0	0	0	0	0
Beer & Ale-- Whsle.	Bridgeport (4)	1	1	1		1		1			
	Totals	1	1	1	0	1	0	1	0	0	0
Beverages, non-alcoholic	New Britain (2)	1									
	Totals	1	0	0	0	0	0	0	0	0	0
Boilers-- Mfg. & Distr.	Hartford (8)	1	1			1	1	1			
	Totals	1	1	0	0	1	1	1	0	0	0
Boxes Folding, Mfg.	New Haven (4)	1	1	1	1	1	1	1			
	Totals	1	1	1	1	1	1	1	0	0	0
Brokers, Stock & Bond	Danbury (2)	1	1	1	1	1	1	1			
	Hartford (8)	1									
	Totals	2	1	1	1	1	1	1	0	0	0
Building Material-- Whsle. & Mfg.	Hartford (9)	1	1	1		1					
	Totals	1	1	1	0	1	0	0	0	0	0

*CP = Card punch; SO = Sorter; RE = Reproducer; VE = Verifier; AM = Accounting machine; CA = Calculating punch; CO = Collator; SM = Small computer; ME = Medium computer; LA = Large computer

**Two of the fourteen auto dealers who replied use card punch machines at their place of business.

Type of Business	Labor Market	UNIT RECORD EQUIPMENT CP*	SO*	RE*	VE*	AM*	CA*	CO*	COMPUTERS SM*	ME*	LA*
Chemicals--Mfg.	Danbury (5)	1									
	Hartford (10)	2	2	1	1			1	1	1	
	Meriden (4)	1	1	1	1			1	1		
	Middletown (4)	1	1	1	1	1	1	1			
	New Britain (3)	1									
	New Haven (16)	2	2	2	2			2	1	1	
	New London (4)	1	1	1	1			1	1		
	Stamford (3)	1	1	1	1			1			1
	Waterbury (5)	2	1	1	1	1	1	1			
	Totals	12	9	8	8	2	2	8	4	2	1
Cigar, tobacco, cigarette, whsle.	New London (1)	1	1	1		1					
	Totals	1	1	1	0	1	0	0	0	0	0
Clothing--Mfg. & Whsle. (Apparel)	Ansonia (2)	1									
	Hartford (9)	1	1	1		1		1			
	Middletown (6)	1									
	New Haven (25)	3	2	1	2	1		1	2		
	Norwalk (3)	1	1	1	1	1	1	1			
	Norwich (4)	1	1	1		1		1	1		
	Totals	8	5	4	3	4	1	4	3	0	0
Contractors Equipment--Whsle. & Mfg.	Hartford (16	1			1						
	Meriden (6)	1			1						
	New Britain (2)	1	1	1	1	1	1	1			
	Totals	3	1	1	3	1	1	1	0	0	0
Department Stores	Hartford (10)	1	1	1	1	1	1	1			
	Totals	1	1	1	1	1	1	1	0	0	0
Electric Equipment--Whsle. & Mfg.	Bridgeport (18)	4	4	4	3	2	1	3	2	2	1
	Danbury (14)	3	2	2	3	1	1	2		1	
	Hartford (21)	3	3	2	1	3	3	3			
	Meriden (7)	4	4	4	3	2	2	4	2		
	Middletown (8)	3	2	2	2	1		3	1	1	
	New Britain (6)	1	1	1	1	1		1		1	
	New Haven (7)	3	2	2	1			2	1		
	Norwalk (13)	2	2	2	2			2	1	1	
	Stamford (10)	4	4	3	3			3	2	1	
	Torrington (4)	1	1	1	1	1	1	1			
	Waterbury (11)	3	2	3	3			2	1		
	Totals	31	27	26	23	11	8	26	10	7	1
Electric Light & Power Co.	Hartford (1)	1	1	1	1	1		1			
	Meriden (1)	1	1	1	1	1		1			
	Norwich (1)	1	1	1	1	1		1			
	Totals	3	3	3	3	3	0	3	0	0	0

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Type of Business	Labor Market	UNIT RECORD EQUIPMENT CP*	SO*	RE*	VE*	AM*	CA*	CO*	COMPUTERS SM*	ME*	LA*
Electronic Equipment & Supplies--Whsle. & Mfg.	New Haven (7)	1	1	1	1	1	1	1			
	Stamford (5)	1	1	1	1	1		1			
	Totals	2	2	2	2	2	1	2	0	0	0
Express Co.	New Haven (4)	2	2	1		1		1			
	Totals	2	2	1	0	1	0	1	0	0	0
Fabricated Metals	Ansonia (10)	1	1	1	1	1	1	1			
	Bridgeport (38)	5	4	3	3	2	1	3	4		
	Danbury (6)	1	1	1	1	1	1	1	1		
	Hartford (38)	4	3	1	2	1	1	2	1	1	
	Meriden (15)	1	1	1		1		1			
	Middletown (11)	1	1		1	1		1	1		
	New Britain (24)	4	4	4	3	2	1	3	2		
	New Haven (18)	1									
	New London (3)	1	1	1	1	1	1	1			
	Norwalk (8)	1	1	1	1	1	1	1			
	Norwich (3)	1	1	1	1			1	1		
	Waterbury (31)	4	3	3	4	3	1	3	1		1
	Totals	25	21	17	18	14	8	18	11	1	1
Fruit & Produce--Whsle.	Hartford (16)	1									
	Totals	1	0	0	0	0	0	0	0	0	0
Furniture--New	Danielson (6)	1	1	1	1	1		1		1	
	Hartford (16)	1									
	Meriden (6)	1	1	1	1	1	1	1			
	New Haven (11)	1									
	Norwich (1)	1									
	Stamford (5)	1	1	1	1	1	1	1			
	Torrington (7)	1	1	1		1		1			
	Waterbury (8)	1	1	1		1		1			
	Totals	8	5	5	3	5	2	5	0	1	0
Gas Company-Public Utility	Bridgeport (2)	2	2	2	1	2	2	2			
	Totals	2	2	2	1	2	2	2	0	0	0
Gasoline--Whsle.	Bridgeport (3)	1	1		1			1	1		
	Totals	1	1	0	1	0	0	1	1	0	0
Grocers--Whsle. (Food)	Hartford (26)	2	2	1	2	1		2			2
	New Haven (16)	1	1	1		1	1	1			
	Norwalk (5)	1	1	1		1					
	Torrington (3)	1	1	1	1			1		1	
	Totals	5	5	4	3	3	1	4	0	1	2
Hotels	Hartford (5)	2	1								
	Totals	2	1	0	0	0	0	0	0	0	0

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Type of Business	Labor Market	UNIT RECORD EQUIPMENT CP*	SO*	RE*	VE*	AM*	CA*	CO*	COMPUTERS SM*	ME*	LA*
Instruments & Clocks	Bridgeport (10)	4	4	3	2	2		3	1	2	
	Danbury (7)	3	3	3	3	2	1	3	2		
	Danielson (4)	1	1	1		1		1			
	Hartford (14)	5	4	4	3	3	1	3	2		
	New Haven (5)	1	1	1	1	1	1	1			
	Stamford (5)	1	1	1	1			1	1		
	Waterbury (9)	4	4	3	3	3	2	3	1	1	
	Totals	19	17	16	13	12	5	15	7	3	0
Insurance	Hartford (15)	6	5	4	6	4		5	4	2	2
	Totals	6	5	4	6	4	0	5	4	2	2
Leather	New Haven (1)	1			1						
	Totals	1	0	0	1	0	0	0	0	0	0
Liquors--Whsle.	Bridgeport (10)	4	4	4	2	3		3			
	Hartford (11)	5	5	4		4		2			
	New Haven (2)	2	2	2		1					
	Stamford (2)	1	1	1		1					
	Totals	12	12	11	2	9	0	5	0	0	0
Lumber--Whsle.	Waterbury (4)	1	1	1	1	1		1			
	Totals	1	1	1	1	1	0	1	0	0	0
Machinery	Bridgeport (43)	3	2	2	1	1	1	1	2	1	
	Danbury (15)	1	1	1	1	1	1	1			
	Hartford (63)	12	7	7	5	3	3	6	2	2	
	Meriden (9)	1	1	1	1	1		1	1		
	Middletown (8)	1	1	1							
	New Britain (21)	2	2	2	2	2		2	1		1
	New Haven (25)	3	1	1		1	1	1			
	New London (5)	2	2	2		1		2	1		
	Norwalk (5)	2	2	2	2			2	1	1	
	Stamford (14)	5	4	5	4	3	2	5	1	1	1
	Waterbury (13)	3	3	1	1	3	1	1			
	Totals	35	26	25	17	16	9	22	9	5	2
Meat--Whsle.	Stamford (5)	1	1	1				1		1	
	Totals	1	1	1	0	0	0	1	0	1	0
Miscellaneous Manufacturing Industry	Bridgeport (14)	1	1	1	1	1		1	1		
	Danielson (4)	1	1	1		1					
	Hartford (12)	1	1					1		1	
	Meriden (9)	1									
	Middletown (6)	1	2	2	2	2	1	1	2	1	
	New Britain (3)	1	1	1		1	1	1			
	New Haven (7)	1	1	1	1			1	1		
	Stamford (7)	1	1	1	1	1	1	1			
	Torrington (3)	1	1	1	1	1	1	1			
	Waterbury (5)	2	2	2	1	1	2	2	1		
	Totals	11	11	10	7	8	6	9	5	2	0

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Type of Business	Labor Market	UNIT RECORD EQUIPMENT CP*	SO*	RE*	VE*	AM*	CA*	CO*	COMPUTERS SM*	ME*	LA*
Newspapers	Norwich (1)	1			1						
	Totals	1	0	0	1	0	0	0	0	0	0
Ordnance	Bridgeport (2)	1	1	1	1	1		1	1		
	New Haven (4)	2	2	2	1	2		2	1		
	Totals	3	3	3	2	3	0	3	2	0	0
Other Mechanical Workshops	Ansonia (11)	1	1	1	1	1		1		1	
	Bridgeport (42)	3	3	2		3		1	1	1	
	Danbury (2)	1	1		1						
	Hartford (48)	2	2	1	2						
	Meriden (8)	1	1					1			
	Totals	8	8	4	4	4	0	3	1	2	0
Plumbing Supplies--Whsle.	Middletown (6)	1	1	1	1	1	1	1			
	Totals	1	1	1	1	1	1	1	0	0	0
Primary Metals	Ansonia (9)	2	1	1	1	1	1	1			
	Bridgeport (14)	3	1	1	1	1	1	1			
	Danbury (8)	2	2		1				1		
	Meriden (10)	1	1		1	1					
	New Haven (18)	3	3	3	3	3	1	1	1		
	Norwich (2)	1	1	1				1	1		
	Torrington (4)	1	1			1					
	Waterbury (8)	2	2	2	1	2	1	1			
	Totals	15	12	8	8	9	4	5	3	0	0
Printing & Publishing	Ansonia (6)	2	1	1	1	1		1	1		
	Bridgeport (13)	1									
	Danielson (2)	1	1			1					
	Hartford (15)	1									
	New Haven (7)	1			1						
	New London (5)	2	2		1	1					
	Norwich (3)	3	3	3	2	1					
	Stamford (6)	2	2	1				2			
	Totals	13	9	5	5	4	0	3	1	0	0
Products of Petroleum & Coal	Stamford (1)	1	1	1	1	1	1				
	Totals	1	1	1	1	1	1	0	0	0	0
Radio & TV	Hartford (4)	1	1	1		1		1			
	Totals	1	1	1	0	1	0	1	0	0	0
Rubber & Fabricated Plastics	Bridgeport (8)	3	2	2	1	2	1	2		1	
	Danbury (4)	1									
	Meriden (3)	1									
	New Haven (8)	3	3		2			1		1	
	Totals	8	5	2	3	2	1	3	0	2	0

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Type of Business	Labor Market	UNIT RECORD EQUIPMENT CP*	SO*	RE*	VE*	AM*	CA*	CO*	COMPUTERS SM*	ME*	LA*
Saving & Loan Association	Hartford (3)	1	1					1		1	
	Totals	1	1	0	0	0	0	1	0	1	0
Steel Manufacturers	Hartford (1)	1	1	1		1	1	1			
	Totals	1	1	1	0	1	1	1	0	0	0
Stone, Clay, & Glass	Bridgeport (10)	1	1	1		1		1	1		
	Totals	1	1	1	0	1	0	1	1	0	0
Textiles	Hartford (19)	2	2	2	2	1	1	2			
	Willimantic (2)	1	1	1	1						
	Totals	3	3	3	3	1	1	2	0	0	0
Toys-- Whsle. & Mfg.	Hartford (10)	1	1	1	1	1		1			
	Totals	1	1	1	1	1	0	1	0	0	0
Transportation Equipment	Bridgeport (11)	3	3	3	3	3	2	3	1		
	Danielson (1)	1	1	1		1					
	Hartford (16)	6	5	4	3	4	2	4	1		
	Meriden (2)	1	1	1							
	New Haven (8)	2	2	2	2	2	1	1			
	Totals	13	12	11	8	10	5	8	2	0	0
	GRAND TOTALS	291	242	205	166	154	66	183	71	34	9

*CP = Card punch; SO = Sorter; RE = Reproducer; VE = Verifier; AM = Accounting machine; CA = Calculating punch; CO = Collator; SM = Small computer; ME = Medium computer; LA = Large computer

NUMBER OF EMPLOYEES USING OFFICE MACHINES IN BUSINESSES IN THE SAMPLE LOCATED IN CONNECTICUT'S SEVENTEEN LABOR MARKET AREAS

ADDING MACHINES

Labor Market Area*	Full Key			Ten Key		
	Firms	FT**	PT**	Firms	FT	PT
1	40	14	131	87	18	127
2	181	55	747	353	114	1082
3	24	7	40	51	12	79
4	62	19	110	119	34	261
5	34	9	92	82	9	138
6	258	158	1645	514	482	3029
7	59	9	330	128	36	328
8	53	21	263	112	27	334
9	53	34	362	114	45	377
10	143	37	777	291	81	1053
11	35	22	166	78	26	329
12	57	43	259	98	50	558
13	27	5	119	43	7	96
14	75	21	200	126	74	1254
15	45	11	228	76	20	184
16	89	118	1212	150	61	1009
17	22	9	62	20	11	68
TOTALS	1257	594	6743	2442	1107	10306

*See page 58.

**FT = Full-time; PT = Part-time

CALCULATORS

Labor Market Area*	Rotary			Key Driven			Printing			Electronic		
	Firms	FT**	PT**	Firms	FT	PT	Firms	FT	PT	Firms	FT	PT
1	21	33	64	5	3	7	11	8	20	3	3	6
2	77	228	482	43	62	101	78	86	277	19	10	96
3	12	3	10	6	2	4	8	4	10	0	0	0
4	20	20	69	17	13	32	19	18	32	6	1	6
5	18	14	95	10	8	15	10	4	11	5	12	15
6	105	1162	1741	59	46	172	134	274	670	51	31	89
7	25	40	109	18	16	38	21	13	48	9	6	25
8	26	30	110	17	9	37	23	15	57	5	9	32
9	24	39	344	15	42	82	24	26	74	7	4	8
10	77	98	389	49	34	119	56	37	122	36	23	69
11	21	24	231	10	9	14	19	17	33	4	5	10
12	30	40	217	16	30	56	27	11	100	8	3	18
13	18	11	27	9	4	16	9	12	45	3	4	9
14	36	57	217	19	15	47	39	59	120	13	8	29
15	21	9	16	12	8	10	18	11	23	5	1	9
16	52	102	647	28	22	136	36	18	560	19	19	88
17	6	8	8	5	6	7	5	3	7	0	0	0
TOTALS	589	1918	4876	338	329	893	537	616	2209	197	139	509

*See page 58.

**FT = Full-time; PT = Part-time

BOOKKEEPING AND ACCOUNTING

Labor Market Area*	Bookkeeping			Accounting		
	Firms	FT**	PT*	Firms	FT	PT
1	12	16	15	8	4	4
2	50	72	35	40	89	41
3	9	17	1	5	4	7
4	13	28	1	13	21	23
5	10	7	7	8	8	7
6	85	145	101	79	123	87
7	11	14	12	15	15	27
8	23	35	26	17	10	22
9	21	39	31	13	20	28
10	66	80	77	52	77	41
11	22	26	13	15	13	5
12	18	28	11	17	35	30
13	12	14	6	6	4	8
14	23	40	14	22	18	26
15	17	24	11	10	9	11
16	30	39	44	24	37	28
17	6	9	6	5	1	0
TOTALS	428	633	411	351	488	395

*See page 58.

**FT = Full-time; PT = Part-time

OFFICE DUPLICATORS

Labor Market Area*	Spirit			Stencil			Offset		
	Firms	FT**	PT**	Firms	FT	PT	Firms	FT	PT
1	19	1	29	10	1	21	13	4	109
2	86	1	310	53	3	147	74	66	118
3	10	2	28	7	0	7	7	7	5
4	19	2	74	13	1	49	23	8	24
5	11	0	79	17	0	30	11	1	10
6	105	12	450	75	7	278	117	154	68
7	33	1	231	20	1	39	26	25	35
8	23	1	93	12	0	70	22	10	53
9	22	2	101	12	1	41	23	9	33
10	84	2	353	43	1	173	68	28	67
11	20	1	69	16	1	53	13	13	24
12	32	2	104	14	0	55	23	34	20
13	7	1	49	9	0	23	6	1	23
14	30	2	102	24	1	44	28	32	64
15	17	1	54	19	0	32	20	15	6
16	40	2	201	23	1	42	28	28	95
17	3	0	9	3	0	10	1	4	0
TOTALS	613	23	2336	370	19	1100	503	439	754

*See Page 58.

**FT = Full-time; PT = Part-time

UNIT RECORD EQUIPMENT

Labor Market Area*	Card Punch			Sorter			Reproducer			Verifier		
	Firms	FT**	PT**	Firms	FT	PT	Firms	FT	PT	Firms	FT	PT
1	7	82	6	5	1	32	6	4	8	4	4	4
2	36	182	36	33	5	89	34	4	65	20	40	20
3	1	1	0	0	0	0	0	0	0	0	0	0
4	11	41	18	10	2	21	10	2	29	12	15	9
5	6	20	12	5	1	13	5	1	9	1	5	0
6	68	654	167	60	13	206	60	24	128	33	273	82
7	19	3	29	12	2	46	14	4	25	10	12	16
8	10	114	9	9	1	48	10	4	23	8	17	3
9	11	79	15	7	3	60	11	2	41	7	46	13
10	39	139	31	34	8	78	31	4	77	20	25	23
11	11	25	10	8	1	32	9	2	15	4	6	2
12	10	67	9	8	1	24	11	4	16	8	24	9
13	10	28	8	8	1	19	8	4	23	5	8	3
14	21	54	11	16	2	36	21	4	33	14	16	9
15	4	10	15	4	1	16	4	2	8	2	3	10
16	26	94	56	22	5	75	24	4	73	17	43	31
17	1	31	4	1	0	4	1	0	4	1	1	0
TOTALS	291	1624	436	242	47	799	205	69	577	166	538	235

NOTE: Unit Record Equipment is continued on page 55.

*See page 58.

**FT = Full-time; PT = Part-time

UNIT RECORD EQUIPMENT (Con*t.)

Labor Market Area*	Accounting Machine			Calculating Punch			Collators		
	Firms	FT**	PT**	Firms	FT	PT	Firms	FT	PT
1	6	4	8	2	1	10	6	1	10
2	26	26	52	9	4	25	27	5	66
3	0	0	0	0	0	0	0	0	0
4	5	10	23	5	3	11	8	3	11
5	5	2	13	1	0	3	2	3	5
6	29	63	120	13	4	34	34	13	28
7	8	4	19	3	1	13	11	3	27
8	7	12	21	3	4	20	8	4	23
9	7	7	23	3	1	11	8	2	32
10	18	9	30	7	4	25	21	4	55
11	4	8	21	1	0	2	4	1	14
12	5	6	16	3	1	9	8	1	12
13	3	7	12	1	1	7	7	2	13
14	9	13	19	4	0	9	18	3	26
15	5	5	11	2	1	8	4	2	27
16	16	20	73	8	1	8	16	1	7
17	0	0	0	1	2	20	2	3	46
TOTALS	154	196	461	66	28	215	183	51	505

*See page 58.

**FT = Full-time; PT = Part-time

COMPUTERS

Labor Market Area*	Small			Medium			Large		
	Firms	FT**	PT**	Firms	FT	PT	Firms	FT	PT
1	1	7	3	1	2	0	0	0	0
2	16	47	43	7	59	32	1	33	31
3	0	0	0	0	0	0	0	0	0
4	4	3	5	1	5	0	0	0	0
5	15	3	1	1	0	2	1	11	2
6	4	84	15	9	30	13	1	30	6
7	4	9	17	1	4	6	0	0	0
8	3	5	2	2	29	5	0	0	0
9	8	6	14	1	4	4	1	21	2
10	2	21	12	4	14	14	1	15	0
11	3	12	0	1	1	2	1	10	5
12	3	12	3	2	6	15	1	9	6
13	3	6	5	0	0	0	0	0	0
14	2	31	6	2	6	9	1	11	3
15	0	0	0	0	0	0	0	0	0
16	5	24	15	2	4	8	1	10	2
17	1	4	0	0	0	0	0	0	0
TOTALS	71	274	141	34	164	110	9	150	57

*See page 58.

*FT = Full-time; PT = Part-time

MISCELLANEOUS OFFICE MACHINES

Labor Market Area*	Transcribing Machines			Proportional Space Typewriters			Punched Tape Machines		
	Firms	FT**	PT**	Firms	FT	PT	Firms	FT	PT
1	14	24	20	14	36	45	5	7	2
2	59	218	135	64	92	114	30	84	25
3	5	10	4	10	14	12	1	0	4
4	27	31	42	23	69	42	11	12	3
5	14	19	12	16	67	37	2	2	1
6	118	1236	951	122	161	82	23	32	32
7	27	42	42	28	175	49	13	20	10
8	29	38	28	28	50	51	5	5	8
9	22	69	120	28	56	43	19	28	23
10	72	117	176	82	170	111	17	12	30
11	19	46	44	28	60	42	5	7	9
12	31	88	127	25	45	39	8	8	11
13	12	10	57	13	16	119	2	4	2
14	32	189	59	39	109	23	10	10	10
15	18	7	19	15	24	19	7	4	11
16	48	83	175	40	76	71	15	30	19
17	3	2	5	5	3	20	2	7	5
TOTALS	550	2229	2012	580	1223	919	165	272	225

*See page 58.

**FT = Full-time; PT = Part-time

CONNECTICUT LABOR MARKET AREAS

1. ANSONIA -- The Ansonia labor market area is comprised of the four towns of Ansonia, Derby, Oxford, and Seymour.

2. BRIDGEPORT--The Bridgeport labor market area comprises the city of Bridgeport and the towns of Trumbull, Easton, Shelton, Stratford, Fairfield, Monroe and Milford.

3. BRISTOL--The Bristol labor market area is comprised of the towns of Bristol and Plymouth.

4. DANBURY--The Danbury labor market area includes the city of Danbury and the towns of Bethel, Brookfield, New Fairfield, Newton, Redding, Ridgefield and Sherman in Fairfield County, and Bridgewater, Kent, New Milford, Roxbury, Warren and Washington in Litchfield County.

5. DANIELSON--The Danielson labor market area is comprised of the towns of Brooklyn, Canterbury, Eastford, Plainfield, Pomfret, Putnam, Sterling, Thompson, Woodstock and Killingly, which includes Danielson.

6. HARTFORD--The Hartford labor market area comprises the city of Hartford and the towns of Avon, Bloomfield, Bolton, Canton, East Granby, East Hartford, East Windsor, Ellington, Enfield, Farmington, Glastonbury, Granby, Manchester, Newington, Rocky Hill, Simsbury, Somers, South Windsor, Stafford, Suffield, Tolland, Vernon, West Hartford, Wethersfield, Windsor and Windsor Locks.

7. MERIDEN--The Meriden labor market area includes the city of Meriden and the adjoining towns of Southington and Wallingford.

8. MIDDLETOWN--The Middletown labor market area includes the towns of Chester, Clinton, Cromwell, Deepr River, Durham, East Haddam, East Hampton, Essex, Haddam, Killingworth, Marlborough, Middlefield, Middletown, Old Saybrook, Portland and Westbrook.

9. NEW BRITAIN--The New Britain labor market area is comprised of the city of New Britain and the adjacent towns of Berlin and Plainville.

10. NEW HAVEN--The New Haven labor market area, comprising the city of New Haven and the towns of Bethan, Branford, East Haven, Guilford, Hamden, Madison, North Branford, North Haven, Orange, West Haven, and Woodbridge.

11. NEW LONDON--The New London labor market area includes the towns of East Lyme, Groton, Ledyard, Lyme, Montville, New London, North Stonington, Old Lyme, Salem, Stonington and Waterford.

12. NORWALK--The Norwalk labor market area includes the city of Norwalk and the towns of Westport, Wilton and Weston.

CONNECTICUT LABOR MARKET AREAS (Con't.)

13. NORWICH--The Norwich labor market area consists of the city of Noawich and the eight surrounding towns of Bozrah, Colchester, Franklin, Griswold, Lisbon, Preston, Sprague and Voluntown.

14. STAMFORD--The Stamford labor market area includes the city of Stamford and the towns of Darien, Greenwich and New Canaan.

15. TORRINGTON--The Torrington area incorporates the fifteen towns of Barkhamsted, Canaan, Colebrook, Cornwall, Goshen, Harwinton, Litchfield, Morris, New Hartford, Norfolk, North Canaan, Salisbury, Sharon, Torrington, and Winchester in Litchfield County and the two towns of Burlington and Hartland in Hartford County.

16. WATERBURY--The Waterbury labor market area covers 280 square miles and includes, in addition to the city of Waterbury, the surrounding towns of Beacon Falls, Bethlehem, Cheshire, Middlebury, Naugatuck, Prospect, Southbury, Thomaston, Watertown, Wolcott and Woodbury.

17. WILLIMANTIC--The Willimantic labor market area consists of the towns of Andover, Ashford, Chaplin, Columbia, Coventry, Hampton, Hebron, Lebanon, Mansfield, Scotland, Union, Willington and Windham, containing the city of Willimantic.

NUMBER OF EMPLOYEES USING OFFICE MACHINES IN EACH OF THE FIFTY-NINE DIFFERENT TYPES OF BUSINESSES IN THE SAMPLE

	ADDING MACHINES				CALCULATORS							
Type of	Full Key		Ten Key		Rotary		Key Driven		Printing		Electronic	
Business	FT*	PT*	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
1**	1	14	4	43	16	15	2	7	3	3	0	0
2	28	178	60	327	7	19	4	9	18	42	2	3
3	8	72	18	132	9	9	2	3	4	7	0	1
4	4	47	5	88	6	16	2	3	2	16	2	2
5	11	104	27	215	7	17	16	27	0	0	0	0
6	153	2469	21	632	95	302	12	40	18	59	3	3
7	2	11	3	12	0	0	0	0	0	0	0	0
8	1	8	1	8	0	0	0	0	0	0	0	0
9	4	8	6	35	0	0	1	1	3	5	2	8
10	3	16	5	28	2	5	1	1	1	3	0	0
11	2	9	1	12	7	9	1	1	1	6	0	0
12	1	2	3	19	0	1	2	6	0	0	1	3
13	5	30	8	64	9	15	2	2	5	8	0	0
14	2	0	1	16	1	9	1	4	1	6	0	0
15	1	17	2	34	0	1	1	1	0	0	0	0
16	6	126	40	488	66	428	11	34	15	80	6	12
17	1	18	3	11	1	8	0	1	0	1	0	4
18	9	78	13	160	6	39	8	24	19	59	7	12
19	3	32	7	69	1	8	1	1	7	18	0	0
20	17	132	23	216	13	83	8	15	6	16	1	3
21	17	349	68	1006	50	355	13	90	34	164	14	75
22	3	33	2	138	0	83	1	1	1	5	0	2
23	2	13	5	31	10	10	4	4	5	5	2	3
24	3	4	3	28	1	5	1	1	1	2	0	0
25	54	390	54	1016	61	537	38	115	36	625	15	57
26	2	15	4	24	0	0	2	2	1	3	0	0
27	13	113	18	179	2	35	4	4	8	25	3	10
28	1	18	1	29	2	12	0	2	1	9	0	8
29	3	27	6	37	2	5	1	5	3	7	0	0
30	23	259	25	244	35	61	6	21	9	76	5	10
31	3	28	3	31	9	14	3	3	3	3	0	0
32	4	26	7	58	1	2	1	1	2	4	3	3
33	9	153	12	357	15	159	7	71	8	51	2	34
34	7	183	332	1522	984	1051	7	30	183	221	2	3
35	3	4	3	29	1	2	0	2	0	1	0	0
36	7	27	8	57	5	7	1	1	0	1	3	5
37	24	164	4	72	21	79	4	10	1	2	15	57
38	23	229	90	885	110	432	56	133	67	255	9	47
39	1	8	2	11	6	10	1	1	1	1	0	0
40	3	21	7	37	7	13	1	2	2	3	0	3
41	3	81	7	112	8	110	8	31	6	33	5	16

*FT = Full-time
*PT = Part-time
**See page 66.

ADDING MACHINES AND CALCULATORS (Con't.)

Type of Business	ADDING MACHINES: Full Key FT*	Full Key PT*	Ten Key FT	Ten Key PT	CALCULATORS: Rotary FT	Rotary PT	Key Driven FT	Key Driven PT	Printing FT	Printing PT	Electronic FT	Electronic PT
42**	4	7	4	44	1	3	1	1	1	2	0	0
43	4	38	12	77	3	7	1	5	3	10	3	11
44	23	92	7	35	83	82	16	13	0	2	2	10
45	16	149	25	284	16	70	10	30	18	70	2	15
46	4	36	4	41	12	38	4	6	2	5	0	1
47	6	110	23	239	94	215	9	19	15	41	7	9
48	18	196	34	359	31	142	7	20	27	71	7	13
49	0	1	2	11	0	1	1	1	0	0	0	1
50	1	4	3	31	7	8	0	1	0	0	0	0
51	1	3	2	10	1	1	1	4	1	1	0	0
52	7	104	19	143	30	56	16	21	15	47	4	12
53	1	111	3	19	0	10	2	5	0	7	0	4
54	4	7	4	32	1	32	1	6	0	2	0	3
55	2	76	12	104	6	78	3	5	19	42	1	5
56	13	140	8	83	20	71	14	27	4	11	5	15
57	2	7	3	10	0	0	0	2	0	0	0	0
58	14	107	23	181	37	92	7	10	35	67	5	24
59	4	39	7	91	0	4	2	7	1	6	1	2
TOTALS	594	6743	1107	10306	1918	4876	329	893	616	2209	139	509

BOOKKEEPING MACHINES, ACCOUNTING MACHINES, OFFICE DUPLICATORS AND MISCELLANEOUS OFFICE MACHINES

Type of Business	BOOKKEEPING & ACCOUNTING: BK FT*	BK PT*	AC FT	AC PT	OFFICE DUPLICATORS: SP FT	SP PT	ST FT	ST PT	OF FT	OF PT	MISCELLANEOUS: TR FT	TR PT	PR FT	PR PT	PT FT	PT PT
1**	0	0	0	2	0	6	0	2	11	11	0	12	2	3	2	0
2	62	15	13	6	1	60	1	14	11	8	38	15	12	8	0	3
3	20	12	1	0	0	12	0	7	5	15	0	0	30	12	5	1
4	11	7	3	8	0	28	0	20	0	4	1	5	2	19	5	3
5	1	3	4	3	0	5	0	5	2	9	0	3	12	16	0	0
6	134	148	65	64	1	104	1	79	19	24	45	61	39	63	15	7
7	2	1	2	0	0	10	0	3	0	0	6	0	5	5	0	0
8	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0
9	4	2	0	0	0	1	0	1	0	0	0	1	3	5	0	0
10	7	0	1	4	0	3	0	3	5	5	0	1	5	1	3	0

BK = Bookkeeping Machine; AC = Accounting Machine; SP = Spirit; ST = Stencil; OF = Offset; TR = Transcribing Machine; PR = Proportional Space Typewriter; PT = Punched Tape Machine

*FT = Full-time; PT = Part-time

**See Page 66.

BOOKKEEPING MACHINES, ACCOUNTING MACHINES,
OFFICE DUPLICATORS AND MISCELLANEOUS OFFICE MACHINES (Con't.)

Type of Business	BOOKKEEPING & ACCOUNTING				OFFICE DUPLICATORS						MISCELLANEOUS					
	BK		AC		SP		ST		OF		TR		PR		PT	
	FT*	PT*	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
11**	2	2	2	0	0	6	0	2	0	0	1	1	3	2	0	0
12	0	0	0	0	0	1	0	7	0	0	0	0	0	0	0	0
13	0	0	9	0	0	12	0	11	1	5	10	4	3	0	3	0
14	4	6	1	3	0	7	0	4	0	0	2	0	1	2	2	0
15	6	3	0	1	0	1	0	2	0	0	0	0	2	4	0	0
16	0	3	21	16	1	45	1	72	14	8	101	118	44	22	7	2
17	3	2	0	0	0	4	0	0	0	0	0	3	6	0	0	0
18	15	7	19	11	1	54	1	20	3	4	10	22	29	15	3	3
19	6	4	4	2	0	6	0	4	7	3	4	9	10	8	0	1
20	25	8	25	6	1	34	0	19	7	3	0	0	21	14	13	12
21	9	10	26	24	1	404	3	105	37	154	190	216	180	60	43	14
22	0	2	2	1	1	23	0	8	5	8	0	4	0	0	0	0
23	2	0	0	0	0	5	0	6	0	0	1	5	7	0	0	1
24	3	1	1	3	0	0	0	0	2	7	0	0	2	0	0	0
25	36	26	49	38	1	239	2	65	47	86	99	199	71	226	24	30
26	8	1	0	0	0	4	0	3	0	5	0	0	2	1	0	0
27	12	10	11	9	1	41	0	26	1	6	12	6	33	34	0	5
28	0	0	1	6	0	1	0	1	0	6	0	6	0	0	0	0
29	9	4	2	1	0	11	0	1	0	0	0	2	2	11	0	0
30	24	9	4	6	1	22	1	48	5	8	6	7	11	10	12	10
31	10	1	3	0	0	14	0	11	0	0	0	2	8	0	0	1
32	14	0	5	0	1	27	0	9	1	0	15	0	13	5	0	1
33	5	4	16	16	1	146	1	51	31	29	73	83	12	13	13	13
34	3	1	16	2	1	124	1	37	37	11	976	811	41	16	7	1
35	2	1	0	0	0	1	0	2	7	3	2	0	3	7	0	0
36	1	1	1	0	0	5	0	12	1	0	2	2	5	11	0	0
37	5	6	3	3	0	19	0	7	3	9	12	0	7	13	4	4
38	19	12	43	30	1	222	2	130	34	29	341	83	184	45	25	21
39	3	3	1	0	0	0	0	1	0	0	0	0	1	0	0	0
40	11	2	0	0	0	1	0	4	1	0	0	4	5	5	0	0
41	5	3	9	11	1	41	0	15	2	3	38	19	11	19	2	6
42	7	3	0	0	0	1	0	0	6	4	0	0	2	0	0	0
43	5	2	14	20	0	7	0	14	4	16	0	1	1	8	6	8
44	2	0	6	2	0	10	0	10	4	4	22	1	3	0	5	0
45	33	17	12	6	1	61	1	28	4	19	18	26	35	36	14	14
46	13	6	3	6	0	11	0	3	2	13	1	4	7	3	0	0
47	9	5	13	9	1	161	1	49	12	124	52	122	32	36	12	14
48	12	12	18	24	1	86	1	50	51	48	46	37	75	45	26	14
49	0	0	0	0	0	1	0	2	0	4	1	2	4	0	0	0
50	1	0	1	5	1	12	1	24	1	5	0	9	24	0	0	0
51	1	1	3	1	0	4	0	3	0	0	0	0	1	0	0	0
52	6	2	13	1	1	33	1	34	7	20	84	17	31	8	3	6
53	17	16	3	3	0	19	0	9	1	4	2	4	5	3	0	1

BK = Bookkeeping Machine; AC = Accounting Machine; SP = Spirit; ST = Stencil; OF = Offset; TR = Transcribing Machine; PR = Proportional Space Typewriter; PT = Punched Tape Machine

*FT = Full-time; PT = Part-time

**See page 66.

BOOKKEEPING MACHINES, ACCOUNTING MACHINES,
OFFICE DUPLICATORS AND MISCELLANEOUS OFFICE MACHINES (Con't.)

Type of Business	BOOKKEEPING & ACCOUNTING				OFFICE DUPLICATORS						MISCELLANEOUS					
	BK		AC		SP		ST		OF		TR		PR		PT	
	FT*	PT*	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
54**	0	0	1	2	0	1	0	8	2	6	0	0	4	1	3	0
55	10	3	13	17	1	54	0	12	5	0	4	49	42	24	2	6
56	3	6	7	8	1	39	0	12	5	6	13	16	47	27	0	8
57	3	1	4	0	0	8	0	0	2	0	0	1	2	5	0	0
58	15	5	13	12	1	72	0	14	34	8	1	23	73	36	12	15
59	13	12	0	1	0	1	0	7	0	4	0	0	7	12	1	0
TOTALS	633	411	488	395	23	2336	19	1100	439	754	2229	2012	1223	919	272	225

BK = Bookkeeping Machine; AC = Accounting Machine; SP = Spirit; ST = Stencil; OF = Offset; TR = Transcribing Machine; PR = Proportional Space Typewriter; PT = Punched Tape Machine
*FT = Full-time; PT = Part-time

- -

UNIT RECORD EQUIPMENT

Type of Business	CP		SO		RE		VE		AM		CA		CO	
	FT*	PT*	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	6	5	0	2	0	2	0	0	8	14	0	0	0	0
3	5	1	0	0	0	0	0	0	1	5	0	0	0	0
4	4	4	1	3	1	2	0	3	1	3	0	0	1	3
5	10	1	1	4	4	1	6	1	3	3	1	4	1	4
6	83	55	3	69	7	50	22	11	22	53	1	15	1	60
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	2	0	0	0	0	0	0	0	0	0	0	0	0	0
9	2	0	0	5	2	0	0	0	2	4	1	5	0	2
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	1	0	0	2	0	0	0	0	0	1	0	1	0	1
12	2	0	0	3	2	0	2	0	0	2	0	3	0	5
13	9	0	0	7	5	1	2	0	1	4	0	5	0	5
14	0	1	0	1	0	1	0	0	0	1	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	52	10	3	56	5	41	23	9	11	11	5	19	2	32

CP = Card punch; SO = Sorter; RE = Reproducer; VE = Verifier; AM = Accounting machine; CA = Calculating punch; CO = Collator
*FT = Full-time; PT = Part-time
**See page 66.

UNIT RECORD EQUIPMENT (Con't.)

Type of Business	CP		SO		RE		VE		AM		CA		CO	
	FT*	PT*	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
17**	1	2	3	3	0	3	0	0	1	2	0	0	0	0
18	214	3	0	7	2	27	1	1	9	10	0	0	1	5
19	3	4	0	3	0	3	2	3	0	3	0	3	0	3
20	33	5	0	11	3	0	3	1	5	8	1	4	1	3
21	125	26	4	84	3	63	44	36	13	21	6	34	2	44
22	14	0	0	14	0	14	7	4	4	7	1	5	6	14
23	5	1	0	5	1	5	3	0	1	4	0	1	0	1
24	4	0	0	4	0	3	0	0	0	1	0	0	0	3
25	143	25	4	65	1	49	29	19	9	35	3	14	7	40
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	11	12	1	10	1	7	1	9	2	14	0	11	1	6
28	2	6	1	10	0	5	0	0	2	4	0	5	0	7
29	3	0	0	1	0	0	0	1	1	4	0	0	0	1
30	28	4	1	20	2	11	11	2	6	7	1	5	6	17
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	1	0	0	1	0	0	0	0	0	6	0	0	0	0
33	51	31	5	55	2	43	19	15	8	40	3	7	5	39
34	340	80	5	70	5	62	181	56	36	53	0	0	7	56
35	2	0	0	0	0	0	2	0	0	0	0	0	0	0
36	13	22	2	32	4	12	9	8	1	7	2	11	0	0
37	12	8	1	17	2	16	8	6	5	13	0	0	0	0
38	132	46	5	85	5	64	69	13	16	45	2	25	7	69
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	3	1	1	1	1	0	3	1	0	0	0	0	0	1
41	16	16	2	21	1	12	7	11	3	12	1	9	1	8
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	3	0	0	0	0	0	3	0	0	0	0	0	0
44	16	3	0	8	1	4	3	0	1	3	0	2	1	4
45	60	13	1	14	1	9	2	3	5	9	0	2	0	3
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	26	16	2	34	5	16	8	7	6	12	0	7	0	14
48	69	12	2	20	1	12	6	4	5	9	0	1	1	25
49	2	0	0	1	0	1	1	0	0	1	0	1	0	1
50	1	0	0	2	0	2	0	0	0	2	0	0	0	2
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	21	1	0	6	0	3	4	4	1	2	0	2	0	2
53	2	2	0	2	0	0	0	0	0	0	0	0	0	2
54	5	2	0	5	0	3	2	0	0	3	0	0	0	2
55	6	1	0	4	0	4	0	0	2	1	0	4	0	4
56	5	5	1	11	1	10	2	0	0	7	0	6	0	5
57	0	1	0	2	0	1	0	0	0	1	0	0	0	1
58	79	8	1	19	1	15	56	4	5	14	0	4	0	11
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	1624	436	47	799	69	577	538	235	196	461	28	215	51	505

CP = Card punch; SO = Sorter; RE = Reproducer; VE = Verifier; AM = Accounting machine; CA = Calculating punch; CO = Collator

*FT = Full-time; PT = Part-time

**See page 66.

COMPUTERS

Type of Business	Small		Medium		Large	
	FT*	PT*	FT	PT	FT	PT
2**	0	0	0	0	4	0
4	0	0	1	3	0	0
6	23	17	47	27	18	13
16	19	17	17	1	14	0
18	15	2	0	0	0	0
21	15	23	15	11	9	4
23	3	1	0	0	0	0
25	20	25	3	5	6	0
27	0	3	8	4	0	0
29	0	4	0	0	0	0
30	2	0	2	0	6	2
31	5	0	0	0	0	0
33	17	4	11	5	0	0
34	52	8	8	7	16	0
37	7	0	0	0	0	0
38	35	2	8	5	26	6
40	0	0	0	0	3	0
41	7	1	0	0	4	2
44	0	3	0	0	0	0
45	2	2	5	4	0	0
46	0	1	0	0	0	0
47	6	0	0	0	0	0
48	11	1	5	2	0	0
52	0	0	8	4	12	0
53	0	0	2	2	0	0
54	11	5	0	0	0	0
55	2	1	0	0	0	0
56	7	0	1	0	0	0
58	15	21	23	30	32	30
TOTALS	274	141	164	110	150	57

*FT = Full-time; PT = Part-time

**See page 66.

TYPES OF BUSINESSES IN SAMPLE

1. Advertising Agents (31)*
2. Auto Dealers, New Car (192)
3. Auto Repair Shops (78)
4. Auto Supplies & Parts--Whsle. & Mfg. (69)
5. Bakers--Whsle. (30)
6. Banks (98)
7. Beauty Shop Equipment & Supplies (21)
8. Bedding--Whsle. & Mfg. (14)
9. Beer & Ale--Whsle. (21)
10. Beverages, non-alcoholic (27)
11. Boilers--Mfg. & Dist. (14)
12. Boxes Folding, Mfg. (10)
13. Brokers, Stock & Bond (35)
14. Building Material--Whsle. & Mfg. (46)
15. Candy & Confectionary (23)
16. Chemicals--Mfg. (77)
17. Cigar, Cigarette & Tobacco--Whsle. (13)
18. Clothing--Mfg. & Whsle (99)
19. Contractors' Equipment--Whsle. & Mfg. (59)
20. Department Stores (89)
21. Electric Equipment--Whsle & Mfg. (124)
22. Electric Light & Power Co. (5)
23. Electronic Equipment & Supplies--Whsle. & Mfg. (32)
24. Express Company (21)
25. Fabricated Metals (218)
26. Fruit & Produce--Whsle. (34)
27. Furniture--new (110)
28. Gas Company--public utility (2)
29. Gasoline--Whsle. (33)
30. Grocers--Whsle--(Food) (109)
31. Heating Equipment & Supplies--Whsle. & Mfg. (45)
32. Hotels (21)
33. Instruments & Clocks (67)
34. Insurance (52)
35. Leather (7)
36. Liquors--Whsle. (26)
37. Lumber-- Whsle. (51)
38. Machinery (240)
39. Meat Packers (4)
40. Meat--Whsle. (28)
41. Miscellaneous Manufacturing (71)
42. Motels (33)
43. Newspapers (21)
44. Ordnance (9)
45. Other Mechanical Workshops (167)
46. Plumbing Supplies--Whsle. (49)
47. Primary Metals (104)
48. Printing & Publishing (79)
49. Products of Petroleum & Coal (3)
50. Radio & Television (14)
51. Roofing Material--Whsle. (12)
52. Rubber & Fabricated Plastics (54)
53. Saving & Loan Association (6)
54. Steel Manufacture (6)
55. Stone, Clay & Glass (56)
56. Textiles (69)
57. Toys--Whsle. & Mfg. (25)
58. Transportation Equipment (55)
59. Laundry & Cleaning (59)

*Total number of responses for a particular type of business.

OFFICE MACHINES AVAILABLE FOR INSTRUCTIONAL USE IN CONNECTICUT PUBLIC HIGH SCHOOLS

Type of Machine	Number of Office Machines Per School								
	0	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15+
Adding Machines									
Full key*	17	70	25	8	2	2			
Ten key	2	55	36	18	7	2	1		3
Calculators									
Rotary	8	56	42	7	6	1	1	1	1
Key driven	28	47	23	12	3	4	1	1	5
Printing	38	68	13	3			1		1
Electronic	113	9	1	1					
Bookkeeping & Accounting Machines									
Bookkeeping	65	54	5						
Accounting	119	5							
Office Duplicators									
Spirit	4	114	6						
Stencil	8	115	1						
Offset	119	5							
Unit Record Equipment									
Card Punch	101	23							
Sorter	106	18							
Reproducer	120	5							
Verifier	122	2							
Accounting Machine	112	12							
Calculating Punch	124								
Collators	124								
Computers									
Small	124								
Medium	124								
Large	124								
Miscellaneous Office Equipment									
Transcribing Machines	7	57	38	13	3	2			4
Proportional Space Typewriters	106	16		1					1
Punched Tape Machines	123	1							

*This appendix should be read as follows: Seventeen high schools had no full key adding machines; seventy high schools had one or two of these machines; twenty-five high schools had three or four of these machines; and so on.

VT 002 530

VT 002 530 ED

National Leadership Development Institutes in Technical Education. Final Report.

Cotrell, Calvin J. * Valentine, Ivan E.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

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*TECHNICAL EDUCATION, *LEADERSHIP TRAINING, EDUCATIONAL PROGRAMS, *NATIONAL PROGRAMS, EVALUATION TECHNIQUES, SELF EVALUATION, PROGRAM EVALUATION, QUESTIONNAIRES, *INSTITUTES (TRAINING PROGRAMS), INSTRUCTIONAL MATERIALS,

The nationwide growth in technical education, stimulated by the demand for greater numbers of technicians, has brought about tremendous need for leadership personnel. The purpose of this project was to plan, develop, implement, and evaluate five 2-week leadership development institutes in technical education designed to provide training for current and potential leaders in technical education. Institutes were conducted at Colorado State University, Oklahoma State University, Rutgers - The State University, University of Florida, and the University of Illinois with The Center for Vocational and Technical Education, Ohio State University, serving as the coordinating agency for the consortium. The majority of the 195 participants from 46 states and Puerto Rico were employed in administrative or supervisory positions at the state or local level. The project evaluation revealed that participants reported a gain in knowledge of concepts in technical education and were generally satisfied with the content and operation of the institutes. A majority of the participants received above average scores in applying knowledge gained during the institutes, indicated plans for implementing changes in their programs, and received average ratings by institute directors for their demonstrated leadership skills. Instructional materials developed for the project included a "Compilation of Technical Education Materials" and two supplements (VT 2928, 2930, 2936). (PS)

ED015348

FINAL REPORT
Project No. 6-1888
Grant No. OEG-3-6-061888-0722

PA 08

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

April 30, 1967

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

VT002530

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Project No. 6-1888
Grant No. OEG-3-6-061888-0722

Calvin J. Cotrell
Project Director
and
Ivan E. Valentine
Project Coordinator

April 30, 1967

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THE CENTER FOR VOCATIONAL
AND TECHNICAL EDUCATION

The Ohio State University

Columbus, Ohio

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INTRODUCTION

Need for the Project

The nationwide growth thrust of technical education is apparent from data compiled in The Summary Report of Vocational and Technical Program Development by the Division of Vocational and Technical Education, Bureau of Adult and Vocational Education, U. S. Office of Education. The publication cites, for example, the millions of dollars being spent, the astronomical building programs underway, and the projections for expansion of present programs and staffs in technical education throughout the nation. The need for developing existing and emerging leaders is well documented in that publication. The National Leadership Development Institutes in Technical Education project was a system designed to meet this demand.

Pre-Planning Meeting

During the summer of 1965, Robert E. Taylor, Director of The Center for Vocational and Technical Education, The Ohio State University (the institution hereinafter referred to as The Center), and Mr. Robert Knoebel, Director of the Technical Education Unit, Division of Vocational and Technical Education, U.S.O.E., met and discussed the potential role of The Center in meeting the leadership needs in technical education. As a result of this conference, a select group of vocational and technical educators was invited to a conference at The Center on August 27, 1965, to explore means to assist the states and the nation in the further development of technical education. (See list of participants in Appendix A-1.)

The committee's deliberations considered all the needs in technical education which included such priority areas as administrative and supervisory training, teacher education, curriculum development and facilities planning. After considering the various ways of making the greatest impact on the improvement and expansion of technical education in a short period of time, the committee recommended the implementation of a series of two-week leadership development institutes geographically dispersed to blanket the nation. A program similar to the administrative training clinics conducted by Dr. Maurice Roney of Oklahoma State University was suggested.

Several technical educators were identified by the participants at the Pre-Planning Meeting and were recommended for service on a 12 to 15 member committee to assist The Center in planning the institutes.

Purpose of the Project

The purpose of the project was to plan, develop, implement, and evaluate five two-week leadership development institutes in technical education. These institutes were to be designed to provide training for present and potential leaders who, then, would conduct state and locally

sponsored leadership training activities, thereby achieving a "ripple effect" from the project to impact on a long-range improvement and expansion effort in technical education throughout the nation.

Objectives

Specific objectives of the project were:

1. To provide a training program to improve program planning, development, implementation and evaluation skills of present and prospective leaders in technical education.

2. To stimulate and strengthen the long-range interests of institutions of higher education in research and leadership development activities in technical education.

3. To provide evidence for the evaluation of two-week institutes as an administrative tool for accelerating the development of leadership for technical education.

4. To provide data for assessing the effectiveness of the consortium approach to a project wherein one institution coordinates the planning, funding, development of instructional materials, operation, and evaluation of a training program offered by several cooperating institutions.

Description of Project Organization

The National Leadership Development Institutes in Technical Education project was organized as a national consortium of the following institutions: Colorado State University; University of Florida; University of Illinois; Oklahoma State University; Rutgers - The State University; and The Center for Vocational and Technical Education, The Ohio State University.

The Center served as the coordinating agency for designing the program, obtaining funds, preparing the core of institute staff, recommending consultants, collecting, preparing and disseminating instructional materials, recruiting and selecting participants, evaluating the institutes, and preparing the final report.

Each of the five cooperating institutions sponsored one two-week institute with a pre-established leadership training program for forty participants, thereby offering training for 200 persons.

Structure of the Report

An explanation of the organization and the structure of the Procedures, Results, and Discussion sections of this report is presented in the following. The Procedures section of the report is concerned primarily with reporting the major activities of the project. Following the description of each procedure, when it is appropriate, there is a presentation

of the outcomes, highlights, strengths, and weaknesses of the activity. However, the one exception to this pattern is the treatment of the project evaluation activity which was of such magnitude that the typical research reporting format was used. Consequently, the Procedures section contains only the description phase of the project evaluation activity; the Results section presents the outcomes of the evaluation; and the Discussion section contains the interpretation of the results.

PROCEDURES

The Procedures section of this report begins with a description of the Planning Committee efforts, which launched the institutes. It then presents other project activities in a chronological order, insofar as possible, until it ends with a description of the development of supplemental instructional materials, which was the last project activity.

Planning Committee Meeting

On November 15 and 16, 1965, a conference was held at The Center for Vocational and Technical Education, The Ohio State University, for the purpose of planning the proposed project for leadership development institutes in technical education. The most capable national, state, and local leaders in technical education were selected for service on the Planning Committee. The members of the Committee are listed in Appendix A-2.

Through the conference discussion and problem-solving sessions, the Committee assisted The Center staff in developing the following:

- A topical outline of the instructional program of the institutes (Appendix A-4)
- A tentative daily schedule for the institutes
- The personnel requirements
- Budgets for the institutes
- Criteria for participant selection
- Tentative evaluation procedures

The conference was successful in generating ideas and materials to assist The Center staff substantially in the preparation of an operational plan for the project, as well as in the preparation of the proposal for funding the project. The success of this Committee's efforts is indicated by the fact that the project was approved for funding on April 20, 1966.

Determining Instructional Materials Required

The Center for Vocational and Technical Education provided the coordination and functioned as a clearinghouse for cooperatively designing, financing, and preparing the instructional materials. It also served as a centralized point for disseminating information and instructional materials.

Dr. Lynn A. Emerson, Technical Education Consultant, was employed by The Center on January 31, 1966, to develop a priority list of instructional materials to be used in the institutes.

501096

The institute directors, The Center staff, and consultants met in Chicago, Illinois, on March 17, 1966, to review the proposed list of instructional material needs which was developed by Dr. Emerson (Appendix B). It was agreed by all persons attending the meeting that Dr. Emerson should develop as many of the priority items as possible within the time limitations. In a subsequent meeting at The Center, Dr. Emerson and The Center staff agreed upon the tasks that each would perform to develop and obtain the desired instructional materials.

Preparation of Instructional Materials

Dr. Emerson, working with the Vocational Curriculum Laboratory of Rutgers - The State University, and Dr. Milton E. Larson, Adviser, The Department of Vocational and Technical Education, developed, and/or reproduced the following instructional materials for the institutes:

1. A Compilation of Technical Education Materials which provided a common core of instructional materials for the staff and participants of the five institutes. The compilation included lithographed copies of all materials prepared for staff members of the institutes, i.e., transparencies, charts, tables, and graphs which could be reproduced by the participants and used as instructional aids in future leadership training activities.

2. A set of six wall charts and twenty-three transparencies, which were provided for the staff of each of the five institutes.

The Center staff prepared and assembled the following:

1. A technical education guidance film-strip and record entitled, "Your Future Through Technical Education," produced by Guidance Associates of Pleasantville, New York, for the Guidance and Testing Services, Division of Vocational Education, State Department of Education, Columbus, Ohio, was provided for each institute.

2. A Bibliography on Technical Education was prepared for distribution to the participants of the institutes. A copy of the revised bibliography appears in Part V of the Compilation of Technical Education Instructional Materials, Supplement I, New and Revised Informational Resources.

3. State department of education and institutional materials on technical education were obtained from state directors and selected institutions offering technical education.

To obtain the materials developed by state departments of education and technical education institutions, letters were sent on May 3, 1966, to the state directors of vocational education of each of the selected states and to chief administrative officers of each of the selected local

institutions, requesting the contribution of publications and other materials which would be useful in the institutes. Appendix D includes a copy of the letter sent to state directors and local administrators and lists of the materials requested. The resources collected were sent to each of the cooperating institutes to be used as library and instructional materials.

Additional teaching aids would have been desirable, but several time limitations handicapped the development and procurement of the instructional materials; however, the institute directors and staff were pleased with those materials which they received. The project staff members learned that the development of instructional materials is a difficult and time-consuming task, and they were very grateful for the services of those who assisted and cooperated in the effort. For future projects of this nature, it would be essential to arrange for approximately three more months of time, prior to the institutes, for instructional materials preparation.

Recruitment of Participants

The recruitment effort consisted primarily of the announcement of the leadership development institutes through contact by mail and selected media.

Materials prepared and used in contacting prospective participants and announcing the institutes via the U. S. Mail service consisted of a brochure, an application form, and a recommendation sheet. These materials were prepared by The Center staff, reviewed by the institute directors and representatives of the U.S.O.E., Division of Vocational and Technical Education, revised, and then duplicated.

The first announcements were mailed to state directors of vocational and technical education with a memorandum asking each director to nominate participants from his state (Appendix C-1). Within three days after the state directors were contacted, the announcement package including the brochure, application form, and recommendation sheet was sent to approximately 1,000 head state supervisors and teacher educators for all vocational and technical education services. At approximately the same time, 1,425 members of the American Technical Education Association were sent the announcement package. Dr. William Fenninger, Executive Secretary of the A.T.E.A., arranged for the mailing envelopes to be addressed through the addressograph service provided for that Association by the Delmar Publishing Company. Announcements were also sent to the chief administrative officers of 850 institutions listed in the Technician Education Yearbook and to prospective participants who made inquiry by mail and telephone. A total of approximately 3,400 persons received the set of materials in the recruitment effort.

Announcement of the institutes was also achieved through the following media:

- The U. S. Office of Education, Division of Vocational Technical Education Circular Letter.

- The American Technical Education Association Newsletter.

- The Centergram publication of The Center for Vocational and Technical Education, The Ohio State University, Columbus, Ohio.

Members of the Division of Vocational and Technical Education staff of the U. S. Office of Education and Regional Field Offices assisted the recruitment effort by announcing the institutes at various national conferences and regional meetings.

The brochure, application form, and recommendation sheet, prepared for announcing the institutes and recruiting participants, may be examined in Appendix C.

The recruitment effort resulted in 403 applications (Appendix C-6) being sent to the Admissions Committee. A very limited response was received from state directors; in fact, only eight sent nominations.

The announcement procedure began on April 3, 1966, the day after the Congressional representative's public announcement of the project approval. However, this beginning date was at least one month later than the time recommended by the institute Planning Committee. It is believed that many highly qualified potential participants did not have adequate time to obtain information and apply. This statement is supported by numerous letters of inquiry which were received by the Admissions Committee after enrollment was closed for all five institutes.

The very limited number of nominations received from state directors of vocational and technical education may have resulted from the short period of time for their response prior to selection of participants, which began on April 26, and the fact that the directors were extremely busy with other problems, especially after April 15. It should be mentioned, however, that excellent cooperation was received from the state directors in the completion of recommendation sheets required of each candidate.

Except for a tendency on the part of some applicants to misinterpret Item Six of the application form, the instrument served the purpose for which it was intended. While the recommendation sheet was completely satisfactory, a quick check rating scale would probably be less time consuming for administrators to complete and be just as effective.

The announcement package and centralized recruitment conducted by the coordinating institution proved to be very productive even though the time available to conduct the recruitment process was limited. An additional month or more for recruiting participants would be desirable for future institutes.

Participant Selection

The Admissions Committee, consisting of institute directors, Center staff, and a representative from the U. S. Office of Education, Bureau of Adult and Vocational Education, Division of Vocational and Technical Education, met in Chicago, April 26, 1966, reviewed the applications, and selected the participants and alternates for the five institutes. Preference was given to state staff members, teacher educators, and other applicants having high leadership responsibility or potential as indicated by recommendations from their state directors and other administrative superiors. Consideration was also given to maintaining balance and diversity in each of the institutes with regard to representation of participants in terms of geographical mix, field of vocational or technical education specialization, and the nature of the participants' current positions in vocational and technical education.

There were more than twice as many applications (403) as openings (200) for institute enrollment. The number of applicants, however, did not complicate the process as much as other items, such as travel costs in arranging the geographic mix, and the problems encountered in arranging for a balance in representation by vocational service, position, or duties. Four sets of biographical data cards were prepared and sorted to facilitate the selection process. While the process of using the data cards was very successful, it was extremely time consuming to prepare the cards (one original and three carbons) with a typewriter and to complete the sorting by hand. For future institutes, IBM cards could be punched, sorted, and print outs obtained by electronic data processing for each criterion in the selection process.

The institute directors and The Center staff were very pleased with the centralized participant selection process. The greatest problem in the selection procedure was the manipulation of applications for the four institutes held June 6-17. A great number of applicants could not be considered for these institutes because of scheduled duties or commitments conflicting with the June dates. Future summer institutes should be conducted in July and August to avoid conflicts with the prospective participants' institutional commitments in June. Furthermore, the months of April and October should be given serious consideration for institutes designed primarily for state staff members.

Because of problems not anticipated at the time applications were received, some of the initially selected participants had to be replaced by alternates. No attempt was made to analyze the biographical data of the applicants who were not selected as participants. However, detailed treatment of the biographical data of applicants selected as participants is presented in the project evaluation part of this report under Description of Participants.

Development of Evaluation Procedures and Instruments

The process of developing evaluation procedures and forms was guided by the following primary objectives as stated in the contract:

1. To establish a biographical data base concerning leadership personnel in technical education.

2. To measure the success of the institutes relative to established criteria.

Under the primary objective of establishing a biographical data base on technical education leadership personnel, several specific objectives were stated, and these were:

1. To describe the present state of technical education leadership personnel in the United States.

2. To provide a data base to guide institute directors in the operation of their respective institutes.

3. To provide a data base for evaluating future leadership development institutes in technical education.

4. To provide data to serve as independent variables in the analysis of the success of the proposed institutes.

Probably the most important objective of evaluation was that of measuring the success of the institutes relative to established criteria. The proposal states that success would be measured in terms of:

1. Participants' gain in knowledge acquired from the institutes.

2. Satisfaction of participants and directors with the content, presentations, and operation of the institutes.

3. Ability of participants to apply knowledge gained from the institutes.

4. Leadership skills demonstrated by participants through participation and involvement in the institutes.

5. Ability of participants to utilize knowledge gained from the institutes for program planning and implementing change.

The aforementioned were the major and supporting objectives of evaluation which guided the development of evaluation instruments and procedures.

When the original Planning Committee met, ideas concerning evaluation were generated; and many of these ideas became objectives, as listed above, and were included in the final research proposal. When the proposal was approved and became the contract, the institute directors, a representative of the U. S. Office of Education, and members of The Center staff met in Chicago and reviewed the evaluation procedures stated in the contract. At this meeting, various alternative procedures for evaluating the institutes, in keeping with the contract, were reviewed and discussed.

The institute directors emphasized the importance of three major considerations, other than objectives, as alternative evaluation plans were considered, and these were:

1. The need to hold to a minimum the amount of time consumed by evaluation activity.

2. The need to hold the number of interruptions and distractions to a minimum.

3. The need to conduct a meaningful and practical evaluation by monitoring the sessions of each institute daily to improve the activity during the two weeks and generate information which would assist in planning future institutes.

After discussing alternatives with persons involved in the meeting in Chicago, proposed instruments and procedures for evaluation were prepared by Center staff members and were reviewed by a number of competent technical educators, a representative of the U.S.O.E., the institute directors, associate directors, and consultants. Hence, considerable support exists for the content validity of the instruments since they were reviewed by many qualified persons. The final forms were then printed and distributed to the institutes.

Description of the Evaluation Instruments

Instruments were developed in keeping with the first two primary objectives of the institutes which were: (1) the establishment of a data base and (2) the evaluation of the operation of the institutes. The first instrument was developed to facilitate the establishment of a data base as well as to facilitate participant selection; the other six instruments were developed to achieve the second objective.

Participant's application and confidential recommendation sheet.--The application form (Appendix C-3) solicited the name, address, present position title, and present position duties of the applicant; professional and non-educational employment record; educational background; and long-range goals of the applicant. In addition, it requested that the applicant have his local chief administrative officer and chief state official for technical education complete the confidential recommendation sheet. The application and recommendation sheet are both included in Appendix C of the report.

Participant's self-appraisal.--The participant self-appraisal form (Appendix E-1) was developed to be used as a pre-test and post-test evaluation instrument. This scale requested participants to assess their knowledge of selected topics at the beginning of the institutes and again at the end of the institutes. Each participant was asked to appraise his knowledge of selected technical education topics by using a five-point scale in which a rating of one meant that he did not feel very knowledgeable concerning the topic and a rating of five meant that

he felt very knowledgeable concerning the topic. This instrument was developed to assess the gain in knowledge acquired by the participant from the institute--one of the stated objectives of the evaluation.

Participant's evaluation of major topics.--The instrument for participant evaluation of major institute topics (Appendix E-5) was developed to measure the extent to which participants were satisfied with the content, presentations, and operation of the institutes. The instrument requested each participant to rate each of the major topics on the outline of content to be covered in the institute. Participants rated the value of the content and the quality of the presentations on five point scales where one indicated a very poor rating and five a very good rating. The instrument also provided space for the participants to state new concepts they had gained, what additional information they would have desired, and what changes they would suggest for sessions on similar topics in future institutes. Participants were asked to complete one of these instruments after the completion of each of the major topics covered in the institutes.

Evaluation of major topics by institute directors.--The evaluation of major topics by institute directors provided a second indicator of the degree of satisfaction with the content, presentations, and operation of the institutes. This form (Appendix E-6) served as a record of the institute directors' evaluations of each of the major topics of the institutes.

The directors of each of the institutes rated each topic with the instrument, and these ratings were submitted with the final report to the coordinating agency. These instruments helped to identify some of the better consultants and resource people and provided information about the adequacy of the coverage of each topic.

Participant's problem solution.--One objective of the evaluation of the institutes was to determine the participant's ability to apply the information which he gained from the institute; thus, a hypothetical problem was presented to which the participant had to develop a solution. The problem description (Appendix E-7) told the participant to assume that he had been appointed head of technical education in a new school which was to be planned and built. The problem statement provided certain given information which described the limitations within which the participant could work in arriving at a solution to the problem. The participant was asked to identify leadership tasks which would be his responsibility in getting the technical education program successfully started and to indicate his approach to implementing his plan, both immediately and over the long-term period. Each participant completed the problem, and the institute staff evaluated the problems and rated each participant's solution. The scores on the assigned problem ranged from one to five, with one being the lowest score and five being the highest score.

The appraisal of the participants by the institute directors.--Consistent with the objective of evaluating the leadership skills demonstrated by participants through participation and involvement in the institutes, an instrument (Appendix E-8) was developed for use by

institute directors in the appraisal of the leadership skills which each participant demonstrated during the two-week period. The factors which were used to appraise leadership ability of the participants were:

1. Communications ability

2. Quality and quantity of contributions made to the institute

3. Human relations ability demonstrated

Participant's plans and objectives.--Consistent with the stated objective of determining the participant's ability to utilize knowledge gained from the institute for program planning and implementing change, participants were asked to respond to a broad question about their plans for implementing what they learned at the institute and about their plans for changing their programs as a result of participating in the institute. This instrument (Appendix E-9) asked the participant to include in his answers his plans for conducting or extending leadership development activities in his home state and his desires and plans for furthering his professional education and training. Scores on this instrument were analyzed and interpreted as indicators of the success of the institutes. However, the primary use of the data obtained from this instrument will be in the follow-up of the participants to determine to what extent they have, in fact, put in practice some of their plans, and to what extent they have reached some of their stated objectives.

Description of the Procedures for Evaluation

After the evaluation instruments had been developed in conformance with the original objectives and restrictions, procedures for conducting the evaluation during the operation of the institutes had to be developed. These procedures (Appendix F) stipulated when and how each evaluation instrument was to be administered. On the first day of the institute, the institute directors introduced the idea of evaluation and clarified its purpose. Also, during that same day, the participant's self-appraisal was administered as a pre-test. The participants were asked to mark their answers on an IBM card, and the instruments and cards were collected. Then, throughout the remainder of the institute, participants and directors completed a topic evaluation instrument at the completion of each of the major topics covered in the institutes. These were collected immediately after they were completed by the participants and reviewed daily. The problem to be solved by each of the participants was administered sometime during the first week of the institute as part of the instructional program and was collected by the directors near the end of the second week of each institute. Also, during the second week of the institute, on Wednesday, the instrument entitled, "Participant's Plans and Objectives," was distributed to all the participants, and they were instructed to complete the instrument at their leisure and turn it in on the last day of the institute. Finally, on the last day of the institute, the participant's self-appraisal form was administered again as a post-test.

Review of Evaluation Forms and Procedures

A review of the evaluation activity for the institutes indicated the evaluation forms and procedures were appropriate for the training project. The procedures complied with the originally stated objectives of the evaluation and the restrictions which were added in planning for the evaluation. Measures were obtained relative to each of the stated objectives, and interruptions and time consumption were held to a minimum. More sophisticated measurement techniques might have been employed, e.g., a multiple-choice achievement test rather than a self-appraisal scale. However, the objectives of the institutes were quite broad and the time period for the institutes rather brief, both of which tended to make impractical the use of an achievement test. In fact, the evaluation procedures probably could have been improved by making them even more simple. For example, every instrument which asked open-ended or essay questions probably could have been improved by providing a self-coding rating scale. This change would have reduced the time required for responding and the coding time required for processing the data. These possibilities for improvement should be considered in future institutes.

Final Planning Meeting with Institute Directors

The final planning conference, involving the institute directors, associate directors, consultants, and Center staff, was held at The Center, May 18-19, 1966. At this meeting, the instructional materials, which had earlier been specified by this group, were presented for their review. The evaluation forms prepared by The Center staff were presented and critiqued. The group also developed a common certificate (Appendix J) for participants, reviewed the duties of the recorder-evaluators, and finalized the procedures for operating and evaluating the institutes.

The meeting was successful in preparing the institute staff for the use of instructional materials, and it was extremely valuable in helping to refine the evaluation procedures and instruments. The meeting was helpful in promoting communications within the consortium, and it improved the operation of the institutes.

Selection and Preparation of Recorder-Evaluators

The recorder-evaluators were graduate students selected by each institute director to assist with the administration of the institutes by recording activities and collecting data to be used in evaluating each institute and the project.

On June 1, 1966, an orientation and training conference for the recorder-evaluators was held at The Center and conducted by The Center staff. The duties of the recorder-evaluators and the instruments and procedures for collecting and recording data for the evaluation of the institutes were presented and discussed.

Printed materials containing the duties and instructions which were provided the recorder-evaluators as the uniform system to use in performing their duties may be examined in Appendix F.

The quality of individual institute reports and the data collected with evaluation instruments reflect the success of the selection and training process for the recorder-evaluators. The Center project staff and institute directors were very pleased with the performance of the recorder-evaluators.

There was a deviation from the original project plan which called for an exchange of recorder-evaluators within the five institutes. This was not possible due to scheduling conflicts between institutes and personnel; however, this change was not detrimental to the operation or the evaluation of the institutes.

The cooperating institutions did not follow the original summary report format. However, the project director accepts the full responsibility for the poor communications which resulted in the inconsistency of the summary reports. Although it was not a serious handicap, the difference in reporting resulted in some difficulty in developing instructional materials based upon the content of the summary reports.

Operation of the Institutes

The leadership development institutes were conducted at the following universities on the indicated dates:

- Colorado State University, July 11-27, 1966
- Oklahoma State University, June 6-17, 1966
- Rutgers - The State University, June 6-17, 1966
- University of Florida, June 6-17, 1966
- University of Illinois, June 6-17, 1966

The instructional program.--Each of the institutes covered the following major topics from the course outline (Appendix A-4) which was agreed upon by the institute directors and developed by the Planning Committee:

- The Leadership Role and Charge
- The Rationale and Need for Technical Education
- Description of the Technical Education Student
- Administrative Structure of Technical Education
- Program Patterns and Curriculum Development

- Facilities and Equipment for Technical Education
- Staffing Technical Education Programs
- Financing Technical Education
- Supervision of the In-Service Education Program
- Establishing Research and Development Needs

There was no prescribed order or method of presentation of the topics, and each institution varied the order of topics to comply with its schedule of consultants and other local considerations. A detailed program for each institute is provided in Appendix G.

Methods and techniques.--In most instances, major presentations by consultants were followed by activities such as small group discussions, brain-storming sessions, participant led discussions, symposiums, participant panels, individual assignments for participants, and committee work. Visual aids were used extensively in all institutes. Consultants and resource persons were drawn from education, industry, and government.

Daily schedule.--The institutes were scheduled to begin at 9:00 a.m. on Monday of the first week and to end at noon on Friday of the second week. A typical daily schedule for participants was as follows:

7:00 - 9:00	Breakfast, individual preparation, special interest group assignment activities
9:00 - 10:30	Lecture or formal presentation by resource people
10:30 - 12:00	Group discussion with resource persons of various sessions present
12:00 - 1:00	Lunch
1:00 - 3:00	Group discussion led by institute director and usually with a person or specialist other than the morning speaker present
3:00 - 4:30	Special interests group activity period--may involve group discussion, group effort on structuring a report, preparing an item of material to be added to institute resources
4:30 - 5:30	Free time, group recreation, individual consultation with the host institution staff specialist
5:30 - 7:00	Dinner
7:00 - 9:30	Library study, small group conferences with staff

The participants' schedule was well organized. The institute staff met each evening to review each of the presentations and the day's activities, and to review plans for the next day.

Institute staff.--In general, the institutes were staffed with a director, assistant-director, recorder-evaluator, selected consultants, and clerical personnel. A detailed staffing summary for the institutes is presented in Appendix H.

Attendance.--The institutes served 195 participants (191 men and 4 women) from 46 states and Puerto Rico.

The Colorado Institute had a total of 36 participants representing 21 states. In addition, one Canadian observer attended this institute. (The airline strike prevented four participants from attending the Colorado Institute.) The Oklahoma Institute had a total of 40 participants representing 25 states. The Rutgers Institute had a total of 39 participants from 26 states and also one Canadian observer. The Florida Institute had a total of 40 participants representing 23 states. The Illinois Institute had a total of 40 participants representing 23 states.

In all institutes, a certificate of attendance (Appendix J) was given each participant who completed the two-week institute. A detailed list of participants is presented in Appendix I.

The dates for the five institutes were chosen to offer a time schedule that would be convenient for the cooperating universities in terms of housing, staff, and facilities; however, many applicants either preferred or were limited to the July date because of conflicts with their professional duties and institutional schedules.

Evaluation.--The institute evaluation procedures (Appendix F) proved to be satisfactory to participants and institute directors and caused little confusion or delay in the operation of the institutes. The recorder-evaluators implemented the plans for recording and evaluating each institute and summarized the activities of the institutes in reports sent to the coordinating agency.

Members of The Center staff visited four of the five institutes during their operation. This resulted in an exchange of information about the operation of institutes and was valuable in the project evaluation and in planning future leadership development institutes.

Project Evaluation

The project evaluation was both objective and subjective in nature and was based primarily upon the number one objective of the project as stated in the Introduction of this report. The evaluation was designed to determine the participant's:

- Gain in knowledge acquired from the institute
- Satisfaction with the content, presentations, and operation of the institute
- Ability to apply knowledge gained from the institute
- Leadership skills demonstrated through participation and involvement in the institute
- Ability to utilize knowledge gained for program planning and implementing change

Data used in evaluating the institutes were collected from the five participating institutes and were derived from the instruments listed below:

- The application form for participants (Appendix C-3)
- The participant's self-appraisal form as a pre-test and post-test (Appendix E-1)
- The topic evaluation form completed by participants (Appendix E-5)
- The problem to test participant's ability to apply knowledge gained (Appendix E-7)
- The participant's leadership rating form (Appendix E-8)
- The form for participant's plans and objectives (Appendix E-9)

Electronic data processing equipment was used in the data reduction. The programs selected to process the data were determined by analyzing the previously stated objectives for the project evaluation. Description of electronic data processing programs and the procedures (including the variables considered) are presented in the following paragraphs.

Description of participants.--The biographical data, which were collected on participants through the application form and which provided independent variables in the project evaluation, were analyzed to obtain a description of participants in terms of:

- Regional representation
- State representation
- Institutional classification
- Present position classification
- Age grouping

- Vocational service area
- Highest degree earned
- Non-educational work experience (years)
- Professional education work experience (years)

Participant's gain in knowledge.--To obtain a measure of the participant's gain in knowledge, for each classification group in the Participant's Self-Appraisal (pre-test and post-test), a frequency count and a percentage response for each response level for each question was requested. A comparison of the responses of participants between the two test administrations (pre-test and post-test) to the same question was also obtained. The Ohio State Questionnaire Analysis was used and included:

- A comparison for each item on the questionnaire, the mean answer of both groups, and the difference of the means
- The Kolmogorov-Smirnov Statistic
- The Chi-square approximation and significance level for each item

The following kinds of scores were obtained by processing data from the instrument designed to measure participant's level of self-confidence regarding knowledge of technical education:

- Summary of the average pre-test scores for the institute
- Summary of the average post-test scores for the institute
- Participant's average gain in raw score points by item from pre-test to post-test (participant's self-appraisal) by vocational service area
- Average gain score by item from pre-test to post-test (participant's self-appraisal) by institute
- Average percentage of gain by participants from pre-test to post-test (participant's self-appraisal) by institute
- Average percentage of gain by highest degree earned

To obtain other evaluation data, which served as independent variables in the analysis, the following kinds of participant scores were summarized:

1. Participant's evaluation of institute topics--The participant's evaluations of nine major topics presented in the institutes.

2. Participant's ability to apply knowledge gained--The institute director's evaluation of the participant's solution to the problem which he had been assigned.

3. Participant's leadership abilities--The institute director's ratings of individual participants in each institute which represented the opinion of the director relative to the participant's leadership ability.

4. Participant's plans and objectives--The participant's scores on plans for implementing what he learned in the institute and his future ultimate professional objectives.

Investigation of relationships.--The data were analyzed to investigate possible interesting relationships. Chi-square and contingency coefficient were calculated to examine several meaningful combinations of dependent and independent variables. The program selected for this investigation was the Bio-medical Program for Chi-square (BMD 080). Output of this program included:

- Frequency tables for all combinations of variables
- The Chi-square values and the degrees of freedom for each table
- The mean, standard deviation, and correlation coefficient for each pair of variables

The 16 variables selected for the investigation were arranged in 40 independent and dependent variable combinations (Appendix K) with the first 11 serving as independent and the last five serving as dependent variables. The variables were:

- Participant's pre-test score
- Institute
- Participant's age
- Service area of participants
- Non-educational work experience classifications
- Participant's institution classifications
- Participant's present position title
- Years of service in present position
- Professional education work experience in years
- Number of years for non-educational work experience

- Highest degree earned
- Topic evaluation (nine major topics) by participants
- Percentage of gain by participants
- Participant's score on the assigned problem
- Participant's plans and objectives
- Participant's leadership abilities

Review of evaluation.--A meeting to review and interpret the project evaluation was held at The Center on October 10 and 11, 1966. The meeting was attended by the institute directors, the recorder-evaluators, a representative from the Division of Vocational and Technical Education, U. S. Office of Education, and The Center staff concerned with the project. The institute directors and recorder-evaluators reviewed the institute evaluation results which had been prepared by the project staff. These included all of the findings of the data analysis and reduction previously described in this section of the report. A copy of the program for the evaluation meeting and a list of participants are included as part of Appendix L of this report. Although the evaluation of the consortium effort is part of the long-range evaluation of the project planned for October 1967, and not part of this contract, facets of The Center's role as the coordinating institution for the consortium were also reviewed.

Preparation of Additional Instructional Materials

Through the experience of the institutes and the project evaluation meeting, the institute directors and Center staff identified instructional resources which were needed but not incorporated in the original Compilation of Technical Education Materials.

The Project Evaluation Committee recommended that additional instructional material be prepared and distributed to the institute participants and staff for use in conducting future state and locally sponsored leadership development institutes in technical education.

In compliance with these suggestions, two supplements for the original Compilation were prepared. Supplement I, New and Revised Informational Resources consists of the following commissioned papers and other materials:

1. Four papers as follows:

   a. "Administrative Patterns in Technical Education" by Dr. Lynn A. Emerson

   b. "Facilities Planning for Technical Education Programs" by Dr. Milton E. Larson

c. "The Evaluation of Technical Education Programs" by Mr. Lucian Lombardi and Mr. Carmelo Greco

d. "Financing Programs of Technical Education" by Dr. Joseph T. Nerden

2. A technical education bibliography which was compiled by David L. Larimore

3. New and revised informational resources which were prepared and compiled by Ivan E. Valentine

Supplement II, Institute Presentations is a compilation of presentations by outstanding educators and industrialists who served as consultants for the five institutes.

The collection and preparation of these materials was a time-consuming but rewarding task. While it is too early to assess the value of these materials, the project staff and the members of the coordinating institution are confident that these informative resources will fill some of the voids that exist in the literature and assist with future leadership development efforts in technical education.

RESULTS

The results of the project evaluation are organized in the same order and under the same headings used in reporting the evaluation activities in the Procedures section of this report.

Description of Participants

Regional representation.--Table 1 indicates the distribution of participants in attendance at the five National Leadership Development Institutes in Technical Education and the number of individuals assigned alternate status for attendance by the Department of Health, Education, and Welfare regions. The attendance ranged from a high of 47 from Region V to a low of 7 from Region VIII. The average attendance by region was 21.66. The number of applicants given alternate status ranged from a high of 37 for Region IX to a low of 10 for Region VIII. An average of 21.8 individuals per region were given alternate status.

TABLE 1

REGIONAL DISTRIBUTION OF PARTICIPANTS AND ALTERNATES

	Number of Participants in Attendance	Number of Applicants Given Alternate Status
Region I	8	15
Region II	17	26
Region III	26	21
Region IV	26	22
Region V	47	38
Region VI	24	16
Region VII	17	12
Region VIII	7	10
Region IX	23	37
TOTALS	195	197

State representation.--Table 2 shows the distribution of participants who attended the 1966 National Leadership Development Institutes in Technical Education by state and territory. The examination of geographic mix of participants illustrated in Table 2 indicates that all states were represented with the exception of Idaho, Maine, Nebraska, North Dakota, and Wyoming. The number of participants by state ranged from 14 for Wisconsin and Florida to a low of one for Alaska, Arkansas, Delaware, Hawaii, Maryland, Montana, Nevada, New Mexico, Puerto Rico, Rhode Island, and Vermont. The average attendance by state was 4.2 individuals, and this provided for a favorable representation by the majority of states.

TABLE 2

GEOGRAPHICAL DISTRIBUTION OF PARTICIPANTS BY STATE

State	Number of Participants	State	Number of Participants
Alabama	3	Nevada	1
Alaska	1	New Hampshire	2
Arizona	4	New Jersey	7
Arkansas	1	New Mexico	1
California	5	New York	4
Colorado	4	North Carolina	13
Connecticut	2	North Dakota	0
Delaware	1	Ohio	8
Florida	14	Oklahoma	4
Georgia	2	Oregon	3
Hawaii	1	Pennsylvania	5
Idaho	0	Puerto Rico	1
Illinois	11	Rhode Island	1
Indiana	3	South Carolina	3
Iowa	5	South Dakota	4
Kansas	7	Tennessee	2
Kentucky	2	Texas	6
Louisiana	5	Utah	2
Maine	0	Vermont	1
Maryland	1	Virginia	5
Massachusetts	2	Washington	8
Michigan	11	West Virginia	4
Minnesota	4	Wisconsin	14
Mississippi	2	Wyoming	0
Missouri	4	District of Columbia	0
Montana	1		
Nebraska	0	TOTAL	195

Institutional classification.--The number of participants associated with different types of institutions is presented in Table 3. Forty-six participants were from universities or colleges, 51 participants were from community-junior colleges, 33 were from technical institutes, 23 were from area vocational-technical schools, one was from a technical high school, 15 were from comprehensive high schools, and 24 were from state departments of education and other types of institutions not classified above. The majority (79%) of the participants were from post-high school type programs--university or college, community or junior college, technical institutes, or area vocational-technical schools. The number of participants from technical high schools and comprehensive high schools accounted for 8.3 percent of those in attendance, and 13 percent were from institutions classified as state department or other agencies. Institutional classification data were not available for two participants.

TABLE 3

DISTRIBUTION OF PARTICIPANTS BY INSTITUTIONAL CLASSIFICATION

Institution Classification	Participants Number	Participants Percent
University or College (4 year)	46	23.8
Community - Jr. College (2 year)	51	26.4
Technical Institute	33	17.1
Area Vocational-Technical School	23	11.9
Technical High School	1	.5
High School - Comprehensive	15	7.8
State Department and Other Agencies	24	13.0
TOTAL	193	

Present position classification.--Table 4 reveals that of the 195 participants, 73 were in state or local administration; 43 were in state or local supervision; 50 were in instruction, either as department heads or instructors; three were in curriculum; 19 were in teacher education; and seven were not classified under any of these headings. The majority of the participants (59.5%) were currently employed in administrative or supervisory positions at the state or local level. Participants who were classified in the area of instruction constituted the next major block (25.6%). Individuals from teacher education accounted for 9.7 percent of the total. Participants from the area of curriculum accounted for 1.5 percent, and those classified as "other" accounted for 3.7 percent of those in attendance.

TABLE 4

DISTRIBUTION OF PARTICIPANTS BY POSITION CLASSIFICATION

Position Classification		Participants Number	Participants Percent
Administration		73	37.4
State	4		
Local	69		
Supervision		43	22.1
State	21		
Local	22		
Instruction		50	25.6
Department Heads	29		
Instructors	21		

TABLE 4 (continued)

Position Classification	Participants Number	Participants Percent
Curriculum	3	1.5
Teacher Education	19	9.7
Not Otherwise Classified	7	3.7
TOTAL	195	

Age grouping.--A summary of the age grouping of the participants is exhibited in Table 5. Four (2.1%) were in the age group 25-29, 35 (18.8%) were in the 30-34 age group, 21 (11.2%) were in the 35-39 age group, 51 (27.4%) were in the 40-44 age group, 42 (22.5%) were in the age group 45-49, 18 (9.6%) were in the 50-54 age group, and 15 (8%) were in the age group classified as 55 and over. Nine participants failed to report their ages.

TABLE 5

DISTRIBUTION OF PARTICIPANTS BY AGE

Participant Age Grouping	Participants Number	Participants Percent
55 and over	15	8.0
50-54	18	9.6
45-49	42	22.5
40-44	51	27.4
35-39	21	11.2
30-34	35	18.8
25-29	4	2.1
TOTAL	186	

Vocational service area.--Table 6 indicates that 193 participants for whom data were available were classified as being associated with agriculture, business, distributive education, home economics, health education, technical education, trade and industrial education, and state departments of education classified as "other." The largest percentage (67.4%) of the participants were from the area of technical education. One other sizeable group was that of trade and industrial education (16.2%). The percentages of participants from other areas were 3.1 percent from agriculture, 4.6 percent from business, .5 percent from distributive education, 1.0 percent from home economics, .5 percent from health education, and 6.7 percent from those classified as "other."

TABLE 6

DISTRIBUTION OF PARTICIPANTS BY SERVICE AREA

Vocational Service Area	Participants Number	Participants Percent
Agriculture	6	3.1
Business	9	4.6
Distributive Education	1	.5
Home Economics	2	1.0
Health Education	1	.5
Technical Education	130	67.4
Trade & Industrial	31	16.2
Other	13	6.7
TOTAL	193	

Highest degree earned.--Table 7 reveals that of the 192 participants for which data were collected, 21 held the Ph.D. or Ed.D., 149 held a Master's degree, and 22 held a Bachelor's degree. Seventy-seven percent of the participants held the Master's degree, 12.1 percent held the Bachelor's degree, and 10.9 percent held the Ph.D. or Ed.D. degree. Degree data were not available on three application forms.

TABLE 7

DISTRIBUTION OF PARTICIPANTS BY HIGHEST DEGREE EARNED

Highest Degree Earned	Participants Number	Participants Percent
Ph.D. or Ed.D.	21	10.9
Master's	149	77.0
B. S. or B. A.	22	12.1
TOTAL	192	

Non-educational work experience in years.--Table 8 shows that the participants' non-educational work experience in years was broken into five major categories. A total of 182 participants were included in the analysis; 40 (22%) were in the 1-3 year category, 63 (35%) were in the 4-7 year category, 49 (27%) were in the 8-11 year category, 13 (7%) were in the 12-15 year category, and 17 (9%) were in the 16 and over category. Thirteen participants did not provide non-educational work experience data in their applications.

TABLE 8

DISTRIBUTION OF PARTICIPANTS BY NON-EDUCATIONAL WORK EXPERIENCE IN YEARS

Years of Non-Educational Work Experience	Participants Number	Participants Percent
1-3	40	22
4-7	63	35
8-11	49	27
12-15	13	7
16 and over	17	9
TOTAL	182	

Professional education work experience in years.--Table 9 indicates that the participants' professional education work experience in years was divided into five broad categories. A total of 189 participants were included in this analysis, 25 (13%) were in the 1-5 year range, 51 (27%) were in the 6-10 year range, 44 (23%) were in the 11-15 year range, 43 (22%) were in the 16-20 year range, and 26 (14%) were in the 21 and over range. Six participants did not provide professional education work experience data in their applications.

TABLE 9

DISTRIBUTION OF PARTICIPANTS BY PROFESSIONAL EDUCATION WORK EXPERIENCE IN YEARS

Years of Professional Education Work Experience	Participants Number	Participants Percent
1-5	25	13
6-10	51	27
11-15	44	23
16-20	43	22
21 and over	26	14
TOTAL	189	

Description of the typical participant.--The typical institute participant was employed in a post-high school institution in an administrative or supervisory position. He was 42 years of age, gave technical education as his service area, held a Master's degree, and had an average of five years of non-educational work experience, and eight years of professional educational work experience.

Participant's Gain in Knowledge

The results of the analysis of data on several facets of the participants' gain in knowledge are presented in the following paragraphs:

Summary of the average pre-test raw score (participant's self-appraisal).--Table 10 indicates that the average pre-test raw score (participant self-appraisal) for all institutes was 134.7. The possible raw score range was from 45-225. The average pre-test scores by institute were: Colorado State University--139.7; Oklahoma State University--135.6; University of Illinois--134.8; University of Florida--133.6; and Rutgers - The State University--130.5.

TABLE 10

SUMMARY OF AVERAGE PRE-TEST SCORES

Average Pre-Test Score for All Institutes	Average Pre-Test Score by Institute				
	Colo.	Okla.	Rutgers	Fla.	Illinois
134.7	139.7	135.6	130.5	133.6	134.8

Summary of average post-test raw scores.--Table 11 indicates that the average post-test raw score (participant self-appraisal) for all institutes was 176.0. The possible raw score range was from 45-225. The scores by institute were: Colorado State University--183.6; University of Illinois--178.0; Rutgers - The State University--177.1; University of Florida--174.3; and Oklahoma State University--167.6.

TABLE 11

SUMMARY OF AVERAGE POST-TEST RAW SCORES

Average Post-Test Score for All Institutes	Average Post-Test Score by Institute				
	Colo.	Okla.	Rutgers	Fla.	Illinois
176.0	183.6	167.6	177.1	174.3	178.0

Participant's average gain in raw score by each item from the pre-test to post-test by vocational service area.--Table 12 indicates the average gain in raw score for each item in the participant self-appraisal by vocational service area. The average gain in raw score from the pre-test to the post-test for the institute was 1.09. The average gains in raw score per item by service area were: home economics--2.07; business education--1.06; technical education--.85; distributive education--.76; agriculture--.86; trade and industrial education--.99; and those classified as other--1.06.

TABLE 12

AVERAGE GAIN IN RAW SCORE BY EACH ITEM FOR THE PRE-TEST TO POST-TEST BY PARTICIPANTS' VOCATIONAL SERVICE AREAS

Vocational Service Area	Average Gain in Raw Score
Home Economics	2.07
Business Education	1.06
Other	1.06
Trade & Industrial	.99
Agriculture	.86
Technical Education	.85
Distributive	.76

Average gain score by item from the pre-test to post-test by institute.--Table 13 indicates that the average gain score (1-5 scale) for each item from the pre-test to post-test (participant self-appraisal) for all institutes was .907. The average gain score by item by institute was: Rutgers - The State University--1.062; Colorado State University--.975; University of Florida--.882; University of Illinois--.871; and Oklahoma State University--.729.

TABLE 13

AVERAGE GAIN SCORE BY ITEM FOR THE PRE-TEST TO POST-TEST FOR INSTITUTES AND BY INDIVIDUAL INSTITUTE

Average Gain for All Institutes	Average Gain by Institute				
	Colo.	Okla.	Rutgers	Fla.	Illinois
.907	.975	.729	1.062	.882	.871

Average percentage of gain by participants from pre-test to post-test by institute.--Table 14 indicates that the average percentage of gain by participants for all institutes was 29.6 percent. The average percent of gain from the participant self-appraisal (pre-test and post-test) by institute was 35 percent for Rutgers - The State University, 31 percent for the Colorado State University, 30 percent for the University of Florida, 29 percent for the University of Illinois, and 23 percent for Oklahoma State University. When percentage of gain was partitioned into three categories (high, medium, and low) and a Chi-square value was calculated, there was a significant difference in the percentage of gain among the institutes.

TABLE 14

AVERAGE PERCENT OF GAIN BY PARTICIPANTS FROM PRE-TEST TO POST-TEST BY INSTITUTE

Institute	Average Percent of Gain
Colorado State University	31.0
Oklahoma State University	23.0
Rutgers - The State University	35.0
University of Florida	30.0
University of Illinois	29.0
All Institutes	29.6

Average percentage of gain by highest degree earned.--Table 15 indicates the average percentage of gain (pre-test to post-test participant self-appraisal) made by each of the three classifications--those holding Bachelors' degrees, Masters' degrees, or doctorates. The highest average percentage of gain (33%) was made by participants holding Bachelors' degrees; those holding the Master's degree gained an average of 22 percent, and the lowest average gain (16%) was made by those participants holding doctor's degrees.

TABLE 15

PARTICIPANT'S HIGHEST DEGREE EARNED AND THE AVERAGE PERCENTAGE OF GAIN

Highest Degree Earned	Average Percent of Gain
Ph.D. or Ed.D.	16
Master's	22
B. S. or B. A.	33

Summary of participant's gain.--The average participant received a gain score of .907 on a five point scale for each item and a percentage of gain of 29.6 from the pre-test to post-test administered as a self-appraisal of his knowledge of concepts in technical education. Participants holding a Bachelor's degree made the highest average percentage of gain, and those holding the Doctor's degree achieved the lowest average percentage of gain.

Participant's Evaluation of Institute Topics

Table 16 is a summary of the average scores for the participants' evaluations of the nine major topics (Appendix A) presented in the institutes. The data from participants' topic evaluation sheets were totaled by major topics except for "The Leadership Role and Charge" which was primarily an orientation topic. The average total score by topic for each institute and grand mean for all institutes was computed. In essence, the average score represents the judgment of participants concerning the value of each topic and what it contributed to the overall effectiveness of the institute. The highest possible rating by topic was 19. The average score for all institutes for the nine major topics ranged from a high of 14.9 for topic five to a low of 13.2 for topic nine. The average rating by participants for the nine major topics ranged from a high of 16.5 on topic number 7 at Oklahoma State University to a low of 11.3 on topic number one at Colorado State University.

TABLE 16

AVERAGE SCORES AND STANDARD DEVIATIONS FOR THE PARTICIPANTS' EVALUATIONS OF THE NINE MAJOR TOPICS

Topic		All Institutes	Individual Institutes				
			Colorado	Oklahoma	Rutgers	Florida	Illinois
1	M	13.7	11.3	14.3	13.7	14.2	14.9
	SD	3.7	3.4	3.2	4.7	3.0	3.2
2	M	14.1	13.4	14.4	14.8	13.8	14.3
	SD	3.2	2.5	2.5	2.5	4.4	3.5
3	M	14.0	13.2	13.0	13.8	14.7	15.3
	SD	2.6	2.8	1.5	2.3	2.4	3.2
4	M	13.9	13.8	13.4	13.2	14.5	14.5
	SD	3.2	2.5	2.7	4.0	3.4	3.0
5	M	14.9	14.9	15.3	16.4	13.0	14.6
	SD	3.1	3.3	2.4	3.3	2.9	2.9
6	M	13.7	15.1	10.9	14.1	13.5	15.2
	SD	3.0	2.6	2.9	2.7	2.5	2.3
7	M	14.2	14.8	16.5	12.9	13.0	13.5
	SD	3.4	2.6	2.1	4.2	3.2	3.0
8	M	13.9	13.9	15.7	11.1	13.1	15.4
	SD	3.6	2.7	2.1	5.4	2.6	1.9
9	M	13.2	12.2	14.4	12.5	13.4	13.7
	SD	3.9	5.1	2.7	5.2	2.1	3.3

Participant's Ability to Apply Knowledge Gained

A problem was structured to have each participant identify the leadership tasks which would be required in getting a technical education program successfully started. The problem specified the community setting, area population, source of financial support and the lead time before the date of operation. The institute directors and staffs reviewed and scored the solutions to the problem. The participant's possible score ranged from a low of one to a high of five. A total of 188 participants completed the problem; and of this number, 30 received a score of five, 71 a score of four, 70 a score of three, and 17 participants received a score of two.

Participant's Leadership Abilities

Table 17 is a summary of the institute directors' ratings for the participants' leadership abilities. The possible score range was from a low of one to a high of five. A total of 189 participants were included in the analysis and 25 (13.3%) were rated 15, 23 (12.2%) were rated 14, 24 (12.7%) were rated 13, 30 (15.8%) were rated 12, 13 (6.8%) were rated 11, 25 (13.3%) were rated 10, 33 (17.4%) were rated 9, and 16 (8.5%) were rated 8. Ratings were not reported for six participants.

TABLE 17

INSTITUTE DIRECTORS' RATINGS FOR PARTICIPANTS' LEADERSHIP ABILITIES

Participants' Rating by Institute Directors	Participants	
	Number	Percent
15	25	13.3
14	23	12.2
13	24	12.7
12	30	15.8
11	13	6.8
10	25	13.3
9	33	17.4
8	16	8.5
TOTAL	189	

Participant's Plans and Objectives

Results indicated that of the 188 participants, 73 percent had definite plans for implementing new concepts gained from the institutes. One-third (33%) expressed a desire to further their education to foster professional growth objectives. A minority (3%) of the participants indicated that their plans for the future were uncertain or that they were content to remain in their present positions.

Relationships

From the 16 variables selected for analysis, 40 separate contingency tables, utilizing selected combinations of these variables, (Appendix K) were generated. Chi-square values, degrees of freedom, means, standard deviations, and contingency coefficients for each pair of variables were obtained. Of the 40 combinations, there were only five indicating a degree of significance above the .05 level.

The participant's percentage of gain and institute.--A contingency table was constructed for these two variables, and the values of 17.0, .31, and .05 were obtained for the Chi-square value, the contingency coefficient, and the level of significance, respectively.

Institute director's appraisal of participant's leadership ability and the participant's length of service in present position.--Both variables were partitioned into three categories. The categories of the institute director's appraisal of participants were low, middle, and high. Participant's length of service in present position was set into three categories by number of years--1-6, 7-12, and 13 and over. A contingency table was constructed, and the values of 10.4, -.27, and .05 were obtained for the Chi-square value, the contingency coefficient, and the level of significance, respectively.

Institute director's appraisal of participant's leadership ability and participant's present position title.--The institute director's appraisal of participants was set into three categories--low, middle, and high. The present position title was partitioned into six categories--administration, supervision, instruction, curriculum, teacher education, and not otherwise classified. A contingency table was constructed, and the values of 23.9, .362, and .01 were obtained for the Chi-square, the contingency coefficient, and the level of significance, respectively.

Institute director's appraisal of participant's leadership ability and institute.--The institute director's appraisal of participants was set into three categories--low, middle, and high. The variables for the institute were broken into five categories, one for each of the five institutes. A contingency table was constructed, and the resulting value for Chi-square was 62.9, the contingency coefficient was .56, and these were significant at the .001 level.

The participant's percentage of gain and participant's pre-test scores.--Both of these variables were partitioned into three categories--low, middle, and high. A contingency table was constructed and resulting values for Chi-square and the contingency coefficient were calculated and tested. The value calculated for Chi-square was 108.7, the contingency coefficient was .73, and these were significant at the .001 level.

General summary of results.--The participants in the institutes may be assumed to be fairly typical of those found in key leadership positions in technical education. An analysis of the data indicated that they gained

new leadership skills and knowledge in technical education and that they expressed a high degree of overall satisfaction with the content, consultants, and mechanics of the institutes. Ninety percent of the participants received an average score or higher (54 percent received good to excellent scores) on the problem designed to test their ability to apply knowledge gained from the institutes. All participants received a better than average score in the institute directors' ratings of their leadership abilities. A majority of the participants had plans for implementing new concepts gained from the institutes, and approximately one-third had plans for furthering their professional education.

Review of Evaluation

The members of the project evaluation committee discussed all aspects of the previously mentioned evaluation results as well as other factors such as the consortium approach and the coordination of the project. The institute directors and recorder-evaluators were pleasantly surprised by the participants' gain in knowledge acquired from the institutes which was reported. The report on the satisfaction of participants with the content and operation of the institutes was also gratifying to the institute representatives. A discussion of the directors' evaluations of major topics of content of the institutes revealed that the data were primarily helpful in developing a list of the best consultants and resource persons for future institutes; and according to the institute directors, the instrument was also helpful, during the operation of the institutes, in reviewing the daily activities as well as in providing some assistance in planning the next day's agenda. Generally, the discussion of the results of the evaluation indicated that there was an appreciable gain by participants, and the Project Evaluation Committee was pleased with this finding.

The success of the consortium approach used in the project and the coordinating institution's role in the following activities were also discussed:

- Planning for the project
- Funding of the project
- Developing instructional materials
- Selecting participants
- Developing evaluation procedures and forms

The appraisal was generally favorable, particularly after consideration of the operating time schedule of the project. The most tangible measure of success for the consortium effort was the desire on the part of each institute director to participate with The Center in a similar project in 1967.

While the committee members were pleased with the instructional materials which had been prepared, they suggested that additional materials be prepared and supplied to the institute participants and staffs for use in conducting future state and locally sponsored leadership training programs in technical education.

Their specific suggestions for supplemental materials included:

- A more complete bibliography of technical education materials
- Commissioned papers on finance, facilities, administrative patterns, and evaluation of technical education
- Revision of information on enrollments and other topics in the original Compilation of Technical Education Materials
- The compilation of selected presentations and summaries of presentations from all institutes

One of the secondary objectives of the National Leadership Development Institutes in Technical Education was to stimulate interest in research and leadership development activities in institutions of higher education. The conclusion that this objective had been accomplished was reached as a result of the discussion of the participants at the Project Evaluation Meeting. Their discussion is summarized in the following statements:

- Institutional representatives from the 1966 institutes indicated a desire to conduct the same type of institutes in 1967
- Mississippi State University representation expressed a desire to conduct an institute in 1967
- North Carolina, Pennsylvania, and Wisconsin were reported to have made plans for follow-up conferences to disseminate institute information
- The University of Illinois institute participants were reported to have plans for a 1967 seminar
- The Center at The Ohio State University announced plans for similar institutes to be conducted in 1967
- Committee members indicated an interest in seminars on teacher education and educational media to be conducted by The Center
- Committee members expressed an interest in and a desire for institutional participation in research projects concerning teacher education which were being planned by The Center

DISCUSSION

Interpretations of the results for each part of the evaluation have been presented in the Discussion section in the same order that they appeared in the Procedures and Results sections of this report.

Description of Participants

Representation by the U. S. Office of Education Regions.--The selection process resulted in an equitable distribution of participants and alternates among the U. S. Office of Education Regions. All regions were well represented with the exceptions of Regions VIII and I. The lack of extensive technical education programs in these regions may account for the low attendance from these states; timing and the communication of the announcements also could have hampered the response by individuals from these two regions. Overall, the institute directors and The Center staff were pleased with the regional distribution of participants attending the institute.

Representation by state.--The Admissions Committee's attempt to obtain a geographic mix of participants was successful; however, an insufficient number of applicants from several states resulted in five states having no participants, and 11 states being represented by only one participant. The states who had no participants--Idaho, Maine, Nebraska, North Dakota, and Wyoming, have a limited population and their technical education programs are in the developmental stages. These factors could account for the poor attendance from these states. Another major factor in the limited participation by some states was the time of year the institutes were conducted. Many local and state administrators have responsibilities for year-end reports and end-of-the-fiscal-year duties which tend to restrict their schedules. Also, many technical educators had already committed themselves to other special professional activities prior to the announcement of the institute; thus, timing was a definite factor for many potential participants.

Institutional classification.--The greatest representation to the institutes was from the post-high school institutions. This might be explained by the fact that most technical education is offered in institutions at the post-high school level, such as universities or four-year colleges, community junior colleges, technical institutes, and area vocational-technical schools. A minority (9 percent) of the participants were from technical or comprehensive high schools. The selection process for future institutes should not rule out participants from the latter category since the participant's leadership potential should be emphasized rather than the institution classification.

Present position classification.--The greatest number of participants attending the institutes were employed in administrative or supervisory positions at the state or local level. The project plans provided for selecting participants currently employed in key leadership positions or

selecting individuals with the potential for moving into administration or supervision. The selection criteria and the final selection process adequately provided a balance in the number of participants selected by position classification. However, future institutes might be designed to obtain a better balance between administrators, supervisors, instructors, curriculum specialists, and teacher educators. In the planning of new institutes for leadership training, it may be desirable to sharpen the definitions of the types of position classifications since these would be helpful in selecting potential participants.

Age grouping.--The average age (40 plus) of participants was consistent with the age criteria established by the Planning Committee for participant selection. The age of the participant was not a critical factor in selecting qualified leaders or potential leaders for attendance at the institute. In the selection of participants for future institutes, emphasis should be placed on formal training, experience, and potential rather than on age or experience alone.

Vocational service area.--The participants in the leadership development institutes were mainly from technical education; this is as it was planned and expected to be. They represented areas, such as agriculture technology, health education technology, and other specialized fields. It can be assumed that those from the vocational services and those classified as "other" had an interest in, or the intent to move into, technical education leadership roles for their particular services. The selection process provided for an occupational or area mix which was one of the minor objectives of the project.

Highest degree earned.--A majority of the participants held the Master's degree. This could be explained by the fact that certification requirements for local administrators of technical education and state staff personnel, a large number of whom were solicited in the recruitment process, include the completion of the Master's degree. The remainder of the participants was divided equally between those holding the Doctor's (Ph.D. or Ed.D) and the Bachelor's degree.

Non-educational work experience in years.--The non-educational work experience of participants was not a major criterion used in the selection process. The majority of the participants (35 percent) had four through seven years of work experience which may be explained by the fact that most leaders in technical education must meet state certification requirements; and in general these requirements stipulate a minimum of at least five years of work experience. It is significant to note, however, that 22 percent of all participants were in the one through three years category. This can be explained in part by the fact that many of the participants came to the institute from community or junior colleges which have varied requirements for certification. In fact, some states have no certification requirements for personnel employed in these institutions.

Professional education work experience in years.--The participant's professional education work experience represented the entire employment

history of the individual and included his teaching, supervisory, administrative, teacher education, and curriculum development experience. A sizeable group (27 percent) were in the six through ten years category, and 23 percent were in the 11 through 15 years category. The selection criteria and process would tend to favor persons from these two categories. Present day administrators normally come from the ranks of the profession which would explain why nearly 50 percent of the participants had appropriate professional work experience prior to attending the institutes.

Participant's Gain in Knowledge

The interpretation of the participant's gain in knowledge is treated in the following paragraphs. The measure of participant's knowledge as defined in connection with the self-appraisal form is the individual's estimate of his understanding of a given concept.

Summary of the average pre-test raw scores.--The average pre-test score (Participant's Self-Appraisal) for all institutes was 134.7. In general, the institute having the lowest average pre-test score tended to have the greatest overall average percentage of gain. The data used to evaluate the institutes seem to indicate that the participants' gain scores were not only related to the quality of the institute, but also to the knowledge and skill the participants brought with them.

Summary of the average post-test scores for the institute.--Analysis of data revealed there was gain in each of the institutes from the pre-test to the post-test, and the results indicated that there were significant differences between institutes with regard to participant gain in knowledge. However, due to the existence of uncontrolled variables (participant's age, experience, and professional education), and because of limitations of the data available to evaluate the qualitative and quantitative value of the institutes, one should not make definite conclusions that one institute was of better quality than another.

Participant's average gain in raw score points by item from pre-test to post-test (Participant Self-Appraisal) by vocational service area.--Participant's average gain in raw score by item was 1.09. The gain scores ranged from a high of 2.07 for those from home economics to a low of .76 for those participants representing distributive education. The assumption could be that those from home economics education came to the institutes with less knowledge and professional work experience in technical education, and, therefore, a greater gain in knowledge could be expected. The rationale for the gain of .85 in raw score by item on the pre-test to post-test self-appraisal instrument administered to those representing technical education might be explained by the theory that those in technical education brought more skill and knowledge to the institutes and had, therefore, less room for growth than those representing other vocational services. However, it is significant that representatives of all services did show a gain in the raw score from pre-test to post-test, and it is assumed that the gain was a direct result of participation in the institutes.

Average gain score by item for pre-test to post-test by institute.--The average gain score (.907) on a five-point scale by item from the Participant's Self-Appraisal for the institute tends to indicate that the participants believed that they had acquired new knowledge and skill in leadership. The uncontrolled variables in participant selection and in the different methods of operating the institutes may have contributed to the variation in the average gain score by institute.

Average percentage of gain by participants from pre-test to post-test by institute.--The results suggest that at least one institute was superior to the others; however, caution must be exercised if one is to evaluate or rank order the institutes on the basis of the average percentage of gain by participants. The selection of participants did not provide for categorizing them by professional education attainment or by professional education work experience. It could be that by chance the most capable and experienced participants were clustered in the institute showing the lowest percentage of average gain; if this were the case, then one might assume that this group came to the institute much better prepared and qualified. Therefore, the institute that had the highest pre-test score would tend to show a lower average percentage of gain. Conversely, the greatest average percentage of gain by a given institute's participants might be caused by the grouping of participants who by chance were less qualified by educational level and professional work experience. This phenomenon would create a greater growth span for those participants who had low pre-test scores and could influence the overall average percentage of gain by participants for that particular institute.

It would be misleading to evaluate the growth of participants based solely upon the average percentage of gain from the self-appraisal pre-test to post-test. There were significant differences between institutes with regard to average gain, but there were also significant gains by participants in each of the institutes.

Average percentage of gain by highest degree earned.--There was an inverse relationship between the level of the highest degree earned and the gain made in the institutes. This might be explained by assuming that the participants with the Doctor's degree came to the institute better prepared and probably had less room to grow professionally. Conversely, those with the Bachelor's degree may have had greater room for growth, and this could account for the fact that they had the greatest average percentage of gain from the pre-test to the post-test.

Participant's Evaluation of Institute Topics

The topic evaluation analysis provided The Center staff and institute staffs with some indication of the participants' satisfaction with the subject content of the major topics presented in the institutes. The institutes' schedules were well organized. All topics were evaluated at the end of each presentation by participants. The institute staffs met each evening and reviewed the participants' formal evaluations of the topics which resulted in adjustments in schedules and personnel as a direct result of the participants' topic evaluations. The average rating

for each major topic represents a judgment by the participants of the technical content and the quality of the presentation by the consultant. Caution must be exercised in concluding that one topic or consultant was superior to another. One could conclude, however, that the participants were generally pleased with the treatment of the majority of the topics. In addition to providing topic evaluation data, the topic evaluation forms provided an indirect benefit because the evaluation committee reviewed those topics with the highest average rating, and this assisted in identifying the more important topics and those consultants and resource persons who did an outstanding job in presenting their topics.

Participant's Ability to Apply Knowledge Gained

The methods used in solving the assigned problem varied between institutes. Two institutes required each participant to complete the assigned problem, and three institutes used a committee of four to complete the assignment. The methods used in solving the problem tended to distort the individual scores for those using the committee approach since these scores were computed on an average for the committee's solution and not on an individual basis. The scores indicated, however, that the participants' solutions to the assigned problem were realistic and acceptable to the institute staffs. These results, although not conclusive, provided evidence that participants acquired new concepts in solving problems in technical education program development.

Participant's Leadership Abilities

The data from the leadership rating forms represented the opinions of the institute directors and staffs relative to the participants' leadership abilities. The validity of the ratings was probably limited since the period of observation was only two weeks. Factors used to appraise the leadership abilities were: (a) communication ability; (b) quality and quantity of contributions made; (c) human relations ability demonstrated; and (d) comments by the directors.

Participant's Plans and Objectives

The results indicated that a majority of the participants (73 percent) planned to implement changes in technical education as a result of learning new concepts and techniques. The data also indicated that participants generally planned to develop and conduct leadership institutes in their representative states. It was interesting that 33 percent of the participants expressed a desire to further their education either to the Master's degree level or the Doctor's degree level. Coding judgment which had to be made in quantifying the data on participants' plans and objectives tended to produce error in the analysis. The real value of this instrument, however, is reflected in the implied objectives stated by participants and their implications for the participants' future professional growth. Generally, it can be assumed that the institute did influence participants to set higher and more challenging goals for their professional careers.

Relationships

Interpretation.--Chi-square and contingency coefficient calculations were used to determine how several selected dependent and independent variables were related. These calculations resulted in the discovery of only five interesting combinations which are discussed in the following paragraphs.

The participant's percentage of gain and institute.--The method of selecting the participants provided for a geographic mix of participants with a variety of educational backgrounds and work experience. The selection technique, however, could create a phenomenon that would tend to lead to a differential in the percentage of gain by institute. A possible, but not conclusive, interpretation of these results, is that there were significant differences between institutes' percentage of gain. However, it was found elsewhere in analyzing the data that all institutes showed significant gains from start to finish.

Institute director's appraisal of participant's leadership abilities and length of service in present position.--The results tend to indicate that those participants with shorter amounts of service in their present positions were rated higher in leadership potential by the institute directors and staff. These results, although not conclusive, may have implications for future institutes whose content would be directed more toward special groupings of participants by length of service and job classification.

Institute director's appraisal of participant's leadership abilities and participant's present position title.--There were significant differences in institute staff appraisal ratings between the various present position title groups. Persons in certain supervisory or second echelon administrative positions were appraised by directors as having greater leadership potential than those in positions that require little or no leadership skills. The differences in appraisals of the participants could be explained by the difference in the raters.

Institute director's appraisal of participants and institute.--The institute directors' appraisals of the participants indicated an overall satisfaction with the quality of the participants. However, there was a significant difference in institute directors' appraisal ratings among the institutes. Caution must be exercised in drawing conclusions from this finding since the difference in ratings may have been due to real differences in the quality of participants in the various institutes, or it may have been due to differences in raters in the five institutes.

The percentage of gain and pre-test score.--The following two possible explanations are offered for the results indicating that the percentage of gain and pre-test score were significant at the .001 level:

1. There actually were differences in percentage of gain for various pre-test score groups. Those who had a low pre-test score showed a high percentage of gain. Thus, the institutes were most valuable to those with a lower pre-test score.

2. The mathematics of the percentage of gain score tend to discriminate against persons with high starting scores; thus, there may have been no real differences in the percentage of gain between the pre-test score groups.

Review of Evaluation

The Project Evaluation Meeting provided results which required no analysis of hard data as in the case of other evaluation activities; consequently, there are no interpretations of results to be presented here. The reader is referred to the Results section of the report for the outcomes of the review of the evaluation which was the purpose of the Project Evaluation Meeting.

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Conclusions

The conclusions which have been developed for the project evaluation are presented in the following statements:

1. The centralized efforts which included program planning for the institutes, instructional materials preparation, and recruitment and selection of participants were successful.

2. The evaluation procedures and instruments functioned successfully without distraction for each of the institutes and were effective in achieving the stated objectives of evaluation. However, a quick check rating scale could have been used on the evaluation forms rather than the open-ended questions.

3. All institutes were operated effectively and in a manner deserving commendation. The instructional program varied by institute, but all institutions covered the major topics in the course outline. The attendance was excellent for all institutes.

4. The institutes attracted a geographical mix of participants, which promoted an exchange of varied information about technical education practices.

5. The project achieved a service area mix of participants and a cross sectional representation of position classifications. Nevertheless, more state staff and teacher educators should have attended the institutes to provide a more desirable balance of participants and to secure more long-range benefits through the power structure of state leadership.

6. Participants in all institutes experienced a gain in knowledge. While there were variations in gain scores from one institute to another, it would be difficult to conclude that one institute was better than another because of limitations on the data available.

7. Institute participants were generally pleased and satisfied with the content and quality of the institute programs.

8. Institute participants demonstrated above average ability to apply knowledge gained in the institutes as evidenced by their success in solving the assigned problem.

9. The participants possessed good leadership potential since the directors gave them above average and higher ratings on their demonstrated leadership abilities.

10. A majority of the participants indicated that they planned to implement changes in their technical education programs as the result of information which they acquired during the institutes.

11. Based upon evidence obtained during the project evaluation conference, the project succeeded in developing the interest of institutions of higher education to engage in other research and leadership development activities in technical education.

12. The consortium approach, with The Center in the coordinating role, was successful in planning, developing, implementing, and evaluating the institutes, according to the findings of the Project Evaluation Committee.

Implications

The implications of the findings and experience of this training project for planning and conducting similar projects in the future are outlined in the following:

1. Adequate time should be allowed for instructional materials preparation and participant recruitment activities.

2. The early June dates should be avoided because of scheduling conflicts for participants.

3. There is a need to determine how to attract more state staff and teacher education personnel.

4. Evaluation instruments should be designed with a quick check rating scale rather than with open-ended questions.

5. The problem assignment should be conducted in a uniform manner for all institutes.

Recommendations

Based on the experience of the five institutes conducted in 1966, the following recommendations are offered regarding the nature and need for future training projects in technical education:

1. Additional national leadership development institutes should be conducted because of the number of people who could not be served by the 1966 institutes, the success of the institutes, and the expanding need for leaders in all service areas, including the new and emerging areas of technical education which may not have been adequately represented in the past institutes.

2. A study should be conducted to determine how to attract more state staff and teacher educators to similar institutes.

3. Institutions, in addition to those participating in 1966, should be encouraged to sponsor institutes to provide continuing leadership development training programs serving all states.

4. The consortium approach to training projects with national technical education advisory services, centralized coordination for program planning, instructional materials development, recruitment and selection of participants, and project evaluation should be continued.

5. Leadership and program development training in technical education, supported by federal funds and national advisory services should be continued.

SUMMARY

The nation-wide growth thrust in technical education, stimulated by the demand for greater numbers of technicians, has brought about a tremendous need for leadership personnel in technical education. The critical necessity for developing existing and emerging leaders has been expressed in many professional meetings and publications; hence, the National Leadership Development Institutes in Technical Education project was designed to impact on this problem.

Project Description

The National Leadership Development Institutes in Technical Education was a training project conducted as a consortium effort involving five cooperating universities (Colorado State University, Oklahoma State University, Rutgers - The State University, the University of Florida, and the University of Illinois) and The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University (the institution hereinafter referred to as The Center), which served as the coordinating agency. Each of the five cooperating universities sponsored a two-week institute during the summer of 1966, and therefore provided geographical locations to blanket the nation with 200 opportunities for participation. The Center coordinated the program planning, funding, instructional materials development, recruitment and selection of participants, and evaluation activities of the project.

Purpose of the Project

The purpose of the project was to plan, develop, implement, and evaluate five two-week leadership development institutes in technical education which were designed to provide training for current and potential leaders in technical education, who would later conduct state and locally sponsored leadership training activities, thereby, achieving a "ripple effect" from the project to impact on the improvement and expansion of technical education throughout the nation. The primary objective of the project was to provide a training program to improve and develop program planning, development, implementation, and evaluation skills of current and prospective leaders in technical education.

Procedures

Several important procedures were implemented throughout the duration of the project which are described briefly in the following paragraphs.

Planning committee.--A committee consisting of 15 national leaders of vocational and technical education assisted The Center in planning the training project.

Preparation of instructional materials.--The Center was assisted by Dr. Lynn Emerson, Technical Education Consultant, who, with assistance from members of the Department of Vocational and Technical Education at Rutgers - The State University, determined instructional materials needs and directed the preparation of A Compilation of Technical Education Materials, charts and transparencies which were made available to the institutes' staffs and participants.

Many other resource meaterials were obtained from technical education institutions and state directors of vocational and technical education and sent to the cooperating institutions to be used as instructional resources.

Recruitment of participants.--Participants for the institutes were recruited through a centralized effort conducted by The Center. An announcement brochure, application form, and recommendation sheet were mailed to approximately 3,400 persons. Four-hundred and three applications were received by the Admissions Committee as a result of the recruitment effort which included the aforementioned mailing, announcements via articles in selected media, and presentations to national conferences of vocational and technical educators.

Selection of participants.--Since there were more than twice as many applicants as enrollment opportunities in the five institutes, a great amount of selectivity was possible. Preference was given to state staff members, teacher educators, and other applicants having high leadership responsibility or potential as indicated by recommendations by state directors of vocational education and other administrative superiors. Serious consideration was given to maintaining balance and diversity in each of the institutes with regard to participant representation in terms of geographical mix, field of vocational or technical education specialization, and the nature of the participants' positions.

Development of evaluation procedures.--Procedures and instruments were prepared to comply with the evaluation objectives of the project. The following instruments were developed in addition to the participant's application form which provided biographical data used in the evaluation:

- Participant's Self-Appraisal
- Participant's Evaluation of Major Topics
- Evaluation of Major Topics by Institute Directors
- Appraisal of the Participants by Institute Directors
- A Problem
- Participant's Plans and Objectives

Final planning meeting with institute directors.--A final planning conference was held with the directors and associate directors to review the instructional materials, the evaluation procedures, and other important matters concerning the operation of the institutes. The meeting improved the communications with the cooperating institutions and facilitated preparation for the operation of the institutes.

Selection and preparation of recorder-evaluators.--The recorder-evaluators were graduate students selected by each institute director to assist with the administration of the institutes by recording activities and collecting data to be used in evaluating each institute and the project. An orientation and training conference for the recorder-evaluators was held at The Center on June 1, 1966, to acquaint them with a uniform system to be used in performing their duties.

Operation of the institutes.--The leadership development institutes were conducted at Colorado State University on July 11-27, 1966; Oklahoma State University, Rutgers - The State University, the University of Florida, and the University of Illinois on June 6-17, 1966.

The program of each institute covered the following major topics:

- The Leadership Role and Charge
- The Rationale and Need for Technical Education
- Description of the Technical Education Student
- Administrative Structure of Technical Education
- Program Patterns and Curriculum Development
- Facilities and Equipment for Technical Education
- Staffing Technical Education Programs
- Financing Technical Education
- Supervision of the In-Service Education Program
- Establishing Research and Development Needs

Consultants and resource persons were drawn from education, industry, and government and were used extensively in the activity of each of the institutes.

The institutes served 195 participants (191 men and 4 women) from 46 states and Puerto Rico.

Project evaluation.--The project evaluation was designed to determine the participant's:

- Gain in knowledge acquired from the institutes
- Satisfaction with the content, presentations, and operation of the institutes
- Ability to apply knowledge gained from the institutes
- Leadership skills demonstrated through participation and involvement in the institutes
- Ability to utilize knowledge gained for program planning and implementing change

The data used in evaluating the institutes were obtained from the application form and five specifically prepared instruments. Electronic data processing programs used in the data reduction included The Ohio State Questionnaire Analysis and the Bio-medical Program for Chi-square.

A meeting to review and interpret the project evaluation was held at The Center on October 10-11, 1966.

Preparation of additional instructional materials.--The Project Evaluation Committee recommended that additional instructional materials be prepared and distributed to the institute participants and staff for use in conducting future state and locally sponsored leadership development institutes in technical education. The following supplements for the original Compilation of Technical Education Materials were prepared and distributed to the participants and the staffs of the institutes:

- Supplement I, New and Revised Informational Resources
- Supplement II, Institute Presentations

Results

The results of the project evaluation and highlights of these findings are summarized in the following paragraphs:

Description of participants.--The typical institute participant was employed in a post-high school institution in an administrative or supervisory position. He was 42 years of age, gave technical education as his service area, held a Master's degree, and had an average of five years of non-educational work experience and eight years of professional educational work experience.

Participant's gain in knowledge.--The average participant received a gain score of .907 on a five-point scale for each item and a percentage of gain of 29.6 from the pre-test to post-test administered as a self-

appraisal of his knowledge of concepts in technical education. Participants holding a Bachelor's degree made the highest average percentage of gain and those holding the Doctor's degree achieved the lowest average percentage of gain.

Participant's evaluation of institute topics.--The average score for major topics evaluated by the participants was 14.9 with 19.0 as the highest possible rating by topic.

Participant's ability to apply knowledge gained.--A majority of the participants received an above average score on a problem which was assigned to determine their ability to apply knowledge gained during the institute.

Participant's leadership abilities.--More than half of the participants received an above average rating by the institute directors for leadership abilities which they demonstrated during the institutes. The validity of these ratings was probably limited, however, because the period of observation was only two weeks.

Participant's plans and objectives.--A majority of the participants had plans for implementing in their programs new concepts gained from the institutes. Approximately one-third expressed a desire to further their professional education.

Discussion

The evaluation results tend to indicate that the institutes were successful in attracting desirable participants who represented a geographical mix, a service area mix, and a professional position classification mix; but a greater participation by state supervisory and teacher education personnel would have been desirable.

The institutes were operated in a highly creditable manner and enjoyed excellent attendance. Participants achieved gains in knowledge, obtained favorable scores in applying knowledge, and were generally satisfied with the content and operation of the institute programs. Institute directors were favorably impressed with the demonstrated leadership abilities of the participants. According to the project evaluation review meeting, the coordinating agency was successful in program planning, instructional materials preparation, recruitment and selection of participants, and evaluation of the institutes. The institute directors were sufficiently pleased with The Center staff's performance as the coordinating agency for the consortium that each director offered to engage in a similar project with The Center in 1967.

Conclusions

The conclusions which have been developed for the project evaluation are presented in the following statements:

- The centralized efforts which included program planning for the institutes, instructional materials preparation, and recruitment and selection of participants were successful.

- The evaluation procedures and instruments functioned successfully without distraction for each of the institutes and were effective in achieving the stated objectives of evaluation. However, a quick check rating scale could have been used on the evaluation forms rather than the open-ended questions.

- All institutes were operated effectively and in a manner deserving commendation. The instructional program varied by institute, but all institutions covered the major topics in the course outline. The attendance was excellent for all institutes.

- The institutes attracted a geographical mix of participants, which promoted an exchange of varied information about technical education practices.

- The project achieved a service area mix of participants and a cross sectional representation of position classifications. Nevertheless, more state staff and teacher educators should have attended the institutes to provide a more desirable balance of participants and to secure more long-range benefits through the power structure of state leadership.

- Participants in all institutes experienced a gain in knowledge. While there were variations in gain scores from one institute to another, it would be difficult to conclude that one institute was better than another because of limitations on the data available.

- Institute participants were generally pleased and satisfied with the content and quality of the institute programs.

- Institute participants demonstrated above average ability to apply knowledge gained in the institutes as evidenced by their success in solving the assigned problem.

- The participants possessed good leadership potential since the directors gave them above average and higher ratings on their demonstrated leadership abilities.

- A majority of the participants indicated that they planned to implement changes in their technical education programs as the result of information which they acquired during the institutes.

- Based upon evidence obtained during the project evaluation conference, the project succeeded in developing the interest of institutions of higher education to engage in other research and leadership development activities in technical education.

- The consortium approach, with The Center in the coordinating role, was successful in planning, developing, implementing, and evaluating the institutes, according to the findings of the project evaluation committee.

Implications

The implications of the findings and experience of this training project for planning and conducting similar projects in the future are outlined in the following:

- Adequate time should be allowed for instructional materials preparation and participant recruitment activities.

- The early June dates should be avoided because of scheduling conflicts for participants.

- There is a need to determine how to attract more state staff and teacher education personnel.

- Evaluation instruments should be designed with a quick check rating scale rather than with open-ended questions.

- The problem assignment should be conducted in a uniform manner for all institutes.

Recommendations

Based on the experience of the five institutes conducted in 1966, the following recommendations are offered regarding the nature and need for future training projects in technical education:

- Additional national leadership development institutes should be conducted because of the number of people who could not be served by the 1966 institutes, the success of the institutes, and the expanding need for leaders in all service areas, including the new and emerging areas of technical education which may not have been adequately represented in the past institutes.

- A study should be conducted to determine how to attract more state staff and teacher educators to similar institutes.

- Institutions, in addition to those participating in 1966, should be encouraged to sponsor institutes to provide continuing leadership development training programs serving all states.

- The consortium approach to training projects with national technical education advisory services, centralized coordination for program planning, instructional materials development, recruitment and selection of participants, and project evaluation should be continued.

- Leadership and program development training in technical education, supported by federal funds and national advisory services should be continued.

APPENDIX A

PARTICIPANTS

Pre-Planning Meeting

August 27, 1965

The Center for Vocational and Technical Education
The Ohio State University

Robert E. Taylor, Director
The Center for Vocational and Technical Education
The Ohio State University

Robert M. Knoebel, Head
Technical Education Unit
Vocational and Technical Education Division
Bureau of Adult and Vocational Education
U. S. Office of Education

James W. Hensel
Specialist in Vocational Agriculture
The Center for Vocational and Technical Education
The Ohio State University

Byrl R. Shoemaker
Director of Vocational Education
Ohio State Department of Education

Edward R. Towers
Professor of Industrial Arts Education
The Ohio State University

R. O. Brinkman, Superintendent
Springfield and Clark County
Joint Vocational School District
Springfield, Ohio

C. J. Cotrell
Senior Research Scientist
American Institutes for Research
Pittsburgh, Pennsylvania

PARTICIPANTS

Planning Committee Meeting

November 15-16, 1965

The Center for Vocational and Technical Education
The Ohio State University

Title	Institution
H. L. Benson, Professor and Head Department of Vocational Education	Colorado State University Fort Collins, Colorado
R. O. Brinkman, Superintendent	Joint Vocational School District Springfield and Clark Counties Springfield, Ohio
V. E. Christensen Research Consultant	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
C. J. Cotrell, Specialist Trade and Industrial Education	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
J. K. Doss, Head Teacher Trainer Trade and Industrial Education College of Education	University of Georgia Athens, Georgia
L. A. Emerson, Professor Emeritus School of Industrial and Labor Relations	Cornell University Ithaca, New York
M. R. Karnes, Chairman Department of Vocational and Technical Education	University of Illinois Urbana, Illinois
R. M. Knoebel, Head Technical Education Unit Division of Vocational and Technical Education	U. S. Office of Education Department of Health, Education, and Welfare
T. A. Koschler, Director Computer Center and Federal Assistance Program	Miami-Dade Junior College Miami, Florida

Title	Institution
M. E. Larson, Adviser Department of Vocational-Technical Education	Rutgers - The State University New Brunswick, New Jersey
J. T. Nerden, Professor Industrial Education School of Education	North Carolina State University Raleigh, North Carolina
Maurice W. Roney, Director School of Industrial Education	Oklahoma State University Stillwater, Oklahoma
J. E. Shenton, President	Erie County Technical Institute Buffalo, New York
Byrl Shoemaker, Director Vocational Education	State Department of Education Columbus, Ohio
Robert E. Taylor, Director	The Center for Vocational and Technical Education The Ohio State University Columbus, Ohio
E. R. Towers, Professor Industrial Arts Education School of Education	The Ohio State University Columbus, Ohio
Ralph C. Wenrich, Professor Vocational Education and Practical Arts	University of Michigan Ann Arbor, Michigan

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

Outline of Instructional Units

I. The Leadership Role and Charge

A. The campus

B. The institute program

C. The role and responsibility of leaders

II. The Rationale and Need for Technical Education

A. Nature, scope, and level of technical education

1. The role of the technician

2. Objectives of technical education

B. Studies and surveys

1. Labor market trends

a. Local
b. State
c. National
d. International

2. Population growth trends

a. General
b. School
c. Mobility
d. Immigration

3. Changes in occupations

4. Changes in sources of technicians

5. Changes in school attendance

6. Assessment of present and future needs

7. The rate of change in technology

8. Technician placement studies

9. Social, economic, and psychological needs of the individual for training and employment

10. The employers' needs for technicians

11. The shift in educational emphasis from doing to thinking to feeling

III. Description of the Technical Education Student

A. Economic need of individuals

B. Persons who can profit from technical education

C. Programs to meet needs of various age groups

D. Criteria for selecting students

E. Sources of students

IV. Administrative Structure of Technical Education Institutions

A. Statewide patterns

B. Public schools

1. Community colleges

2. Technical institutes

3. Area schools

4. Four-year colleges

C. Private schools

D. Military services

E. Other governmental agencies

F. Correspondence schools

V. Program Patterns and Curriculum Development

A. Flexibility

B. Diversity

C. Broad cluster training approach to curricula

D. Comprehensiveness

E. Continuous reexamination of purpose

F. Continuing change of program with new knowledge

G. Community oriented program

H. Exploiting community resources

I. Student appeal

J. Response to the needs of people

K. Anticipation of future needs

1. New products

2. New processes

L. Continuing education

VI. Facilities and Equipment for Technical Education Programs

A. The site

1. Using advisory committees

2. Selection

3. Location

B. Building (Type of Construction)

C. Equipment (Comparable to industry)

D. Provision for modern teaching

E. Illumination

F. Development of laboratories

1. Time required

2. Planning

G. Conference facilities

H. Library

I. Cafeteria

J. Supplies

K. Anticipatory planning

VII. Staffing Technical Education Programs

A. Types of personnel

1. Technical teachers

2. Mathematics and science teachers

3. General education teachers

4. Auxiliary course teachers

5. Librarians

6. Supervisors

7. Administrators

B. Qualifications for each type of staff member

C. Functions of administrators and supervisors

D. Sources of supply for staff

1. Recruitment

2. Selection

VIII. Financing Technical Education Programs

A. Capital outlay

1. Plant

2. Equipment

3. Sites

a. Free sites
b. Selected sites

B. Operating costs

1. Personnel services

2. Overhead

C. Comparative costs

1. Cost per student per year

2. Justification for costs

3. Room utilization

D. Financing patterns

IX. Supervision and In-Service Teacher Education

A. Personnel services

B. Effective use of facilities

C. Curriculum improvement

D. Effective techniques of evaluation

E. Accreditation

X. Establishing Research and Development Needs

A. The role of research and development

B. Utilization of research in administration of technical education

C. Identification of critical research and development problems

APPENDIX B

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

Suggested Instructional Aids

by

Lynn A. Emerson

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
UNIT 1. THE LEADERSHIP ROLE	
Role and responsibility of leaders Pre-test (if used)	Tests for use at beginning and close of the institute
UNIT 2. RATIONALE AND NEED FOR TECHNICAL EDUCATION	
Technological change and impacts on the labor force	"Cybernation - The Silent Conquest" Summary of recent articles and BLS bulletins
Labor market data and trends: National surveys Projections of technician needs and supply Methods of projection Use of Census data Calculation of attrition	BLS bulletin data (NSF and other bulletins) BLS "Technical Manpower" (manuscript form at present): Projections and bases of projections, calculating attrition, etc. Charts and tables to be prepared.
State and SMSA surveys: Nature and extent of the state surveys; pertinent findings.	Samples of state surveys, such as New York, North Carolina, etc.; samples of SMSA surveys. Graphs and charts illustrating findings.
Local occupational surveys: Purpose - nature - scope Procedures	Charts showing steps in making surveys; time table. Sample surveys available for study.
Population data and trends: National - regional - SMSA - states Migration - interstate, intrastate	Charts and maps of pertinent data
School population data and trends: Projection of enrollment	Table showing sample projected enrollments
Current enrollments in types of institutions	Enrollments in relation to population by states.
Geographical area served by school	Sample maps of area served with attendance from districts.
Placement market of a technical school	Chart or map showing location of graduates
Sources of trained technicians - estimates of numbers	Chart listing sources Chart showing relative numbers from different sources BLS "Technical Manpower"
Potential supply of technicians in relation to needs. Enrollments in technical schools	Chart or table using data in BLS "Technical Manpower" bulletin
UNIT 3. THE TECHNICAL EDUCATION STUDENT	
Economic needs of students Scholarships - work-study opportunity	Chart of state practices re scholarships Data on funds available for work-study programs
Types of students who can profit from technical study	
Program types to meet the needs of students of wide-range of ability Engineering technology curriculums Industrial technology curriculums Technical specialist curriculums	Chart showing types of programs of differing scope and level
Criteria for student selection	Sample listing of criteria, on chart
Sources of students High school graduates, dropouts with work experience, employed and unemployed adults	Chart listing sources

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Entrance requirements	Chart of comparative entrance requirements for typical programs, by states
Potential numbers of students available Surveys of individual high school students Projections on basis of: Number of high school students in area Number of high school graduates Availability in relation to distance of travel	Table of ratios for selected states Map showing sources of students in relation to geographical location of school
Recruiting practices Day and evening students Relationships with "feeder" schools	Sample posters used for evening classes Samples of publicity materials - slides, brochures, etc. used with feeder schools
Women as technical students	Chart showing data from BLS "Technical Manpower"
Student personnel services Organization - personnel - procedures	

UNIT 4. ADMINISTRATIVE STRUCTURE OF TECHNICAL EDUCATION

Statewide patterns for technical education Types of institutions offering technical programs Schools offering technical programs	Chart of highlights of selected state administrative patterns Chart (see Appendix I, p. 56) Table of schools, by type of school, by states (numbers of such schools)
Statewide planning for technical education programs Relation of individual institution to state master plan	Table of elements found in a statewide master plan.
Federal-state-local relationships for technical education Federal laws and regulations	Copies of typical state plans O/E bulletins showing legislation O/E Plan Guide
Structure of the local program, by types of curriculums and courses Preemployment-updating-upgrading-retraining programs Full-time-part-time-cooperative What goes on during a typical day and evening in a technical school	Chart listing types of offerings in a comprehensive institution Time schedule of a typical comprehensive program, in chart form
Comparative roles of the community college, technical institute, area vocational/technical school, high school with respect to technical education Relative assets and liabilities of these types of institutions.	Possible chart showing relative numbers enrolled in each type of school, on national basis (for institutions that report to the O/E)
Enrollments in programs subsidized under Title III Preemployment-extension, by curriculums, etc.	Table showing enrollments, by states, by preemployment and extension Table of national enrollments, by curriculums, sex, etc.
Accreditation of curriculums and schools Agencies concerned Accreditation procedures	Chart or table showing ECPD curriculums accredited, by states, by schools Map of U. S. showing location of schools with ECPD accredited curriculums
Recent changes in state administrative patterns for technical education Changes in legislation Nationwide trends in administrative patterns	Listing of changes in North Carolina, Virginia, New Jersey, etc.

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Technician training programs within industry	
Place of the private technical institute in the total pattern	List of schools affiliated with the National Council
Statewide master planning	
UNIT 5. PROGRAM PLANNING AND CURRICULUM DEVELOPMENT	
Steps in program planning Selection of programs to be offered	Chart showing items to be considered List of titles of curriculums offered today in the U. S.
Types of programs that might be offered Preemployment full-time day programs Extended day programs - updating, upgrading, retraining (MDTA) Cooperative programs	Chart of comparative full-time and extension enrollments, by states Chart of typical coop periods used
Curriculum development Different ways of building curriculums Steps in curriculum building by occupational analysis	Chart or handout sheet showing steps
The occupational cluster as a curriculum objective	O/E bulletin on cluster identification Chart from New York State bulletin showing cluster for building construction
Curriculum design problems Controls that affect curriculums Effect of institutional policies Sequence of courses in a curriculum	Chart showing items that affect sequence
Distribution of content in the technical curriculum Mathematics - scope, level and integration with technology Science - type, scope, level integration Technology - major field - ancillary fields Industrial management content General education content	Charts showing subject matter distribution in selected schools Chart of course titles found in typical curriculums Chart of general education course titles and allotment of time to general education in selected curriculums
Laboratory, shop, drafting, and classroom portions of the curriculum Options in curriculums	See relation to need for facilities
Curriculum content distribution by fields Averages for large number of schools	Check-chart listing averages from studies such as Roney's and Henninger's
Curriculum comparisons, by specific courses, in selected schools	Chart showing distribution of technical and other content, by semester hours, for selected schools
Comparison of curriculum content distribution for technician, technologist, engineer, and craftsman training	Chart showing content distribution
Range and frequency of curriculums offered in the U. S.	Chart showing titles and frequency of offering
Technical programs in fields other than engineering-related	List of typical programs in business, paramedical, agri-business, and other fields
Trends concerning vocational/technical program offerings with respect to age-grade level	Chart showing "tracks" of the comprehensive high school of tomorrow Chart illustrating basic or cluster patterns for comprehensive high school
Enrollment trends in high school and post-high school curriculums	Chart showing enrollments, by states, for 1959 and 1964
Procedures in the development of courses of study Course planning for organized curriculums Course planning for extended day unit-course offerings	List of steps in course of study development

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Development of instructional materials for technical programs Types of materials Steps involved in development	Chart showing sequential steps in instructional materials development
Credentials awarded in technical education programs Certificates, diplomas, associate degrees	
Recent innovations in curriculum offerings	Listing in chart form of some of the newer curriculum developments
UNIT 6. FACILITIES AND EQUIPMENT	
Overall planning of facilities and equipment In relation to present plant Planning for future growth (including multiple campuses) Importance of "image" of institution as influenced by physical plant	List of steps involved in overall planning
Site selection Size and location - travel facilities Importance of parking space Free sites - assets and liabilities Staff involvement in planning Time schedule of plant development	Check list of items to be considered when selecting sites Table showing typical and average acreage of selected schools Chart showing items and time required
Building planning Using a computer for building planning Use of modular construction Laboratory design Size - shapes - services needed Functional design in terms of relation to course content	See article on St. Louis Junior College in Junior College Journal Check list for items to be considered in laboratory planning Sample laboratory layout drawings, for selected curriculums
Instructional equipment Decision concerning equipment needed in relation to course of study content Items considered when specifying equipment to be purchased Sources (Vendors or manufacturers) of commonly used equipment in technical education laboratories	Check list of items List of manufacturers of equipment for selected fields
Equipment Surplus and government loan equipment Sources and procedures Assets and liabilities	
Physical plant for technical education compared with that for vocational-industrial programs Relative numbers of shops, laboratories, and classrooms Location of classrooms Nature of equipment required	
Recently constructed facilities for technical education	Photographs and outline plans of newly constructed plant
Utilization of rented space when starting technical programs	
Educational specifications	
Purchase vs rental of equipment	

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
UNIT 7. STAFFING THE TECHNICAL PROGRAM	
Types of teachers needed for technical education programs	
Qualifications desired for teaching staff Technology teachers - laboratory and classroom Mathematics - science - general education teachers General education desired Technical training needed Experience in industry required	
Qualifications desired for guidance counselors, department heads, supervisors	
Certification requirements for teachers Types of institutions to which state certification requirements are applicable	Chart showing certification requirements by states
Sources of technical program teachers	Chart showing sources
Recruitment practices for staff Direct hiring Use of agencies or organizations in locating qualified staff	
Present-day salaries of teachers and other staff personnel	Charted data from recent studies
Profile of the good technical teacher	Data from recent study by Storm (Oregon State University), ASEE study and others
Teacher-student ratios in technical education programs	Chart showing data from typical schools
UNIT 8. FINANCING TECHNICAL EDUCATION	
Financial provisions of PL 88-210 and other federal acts	Chart showing funds and purposes for which they can be used
Policies concerning funding of local programs from state and federal funds Basis of reimbursement	Sample state plans for vocational education
Fund raising for capital outlay Bond issues and other sources Procedures in bond issues	
State-local patterns of sharing costs of technical education programs - capital outlay, operating costs	Chart showing patterns of typical states in financing community college and other programs
Bases for estimating costs from experience of going institutions Building cost per square foot Building cost per FTE student Parking area needed per student Operating costs per student	Charts showing costs in selected schools
Salaries for instructional and other staff	Listing of salary schedules for typical schools
Non-public sources of financial support Typical types of program receiving Foundation support	
Equipment costs For selected laboratories	List of equipment and costs, available in O/E and other bulletins

SUGGESTED TOPICS	SUGGESTED INSTRUCTIONAL AIDS
Financial aspects of room utilization Load factors (room usage) of typical programs	
UNIT 9. SUPERVISION AND IN-SERVICE TRAINING	
Supervisory functions Efficient and economical operation Maintenance of good personnel relations between faculty and administration Professional assistance to teachers Evaluation of teacher service Upgrading and updating of staff	
Types of professional improvement programs in typical institutions	
Professional training for evening and other part-time teachers	
UNIT 10. RESEARCH AND DEVELOPMENT NEEDS	
The role of R and D in technical education	
Utilization of research in teaching and administration	
Areas of content, procedures, etc., where research is needed	See Appendix I - Chapter on research - (Education for a Changing World of Work)
Research procedures and techniques Defining the problem, gathering data, etc. Funds available for R and D under PL 88-210	
Procedures in submitting research proposals under PL 88-210 - 4(c)	O/E bulletin
MISCELLANEOUS ITEMS NOT FULLY COVERED UNDER OTHER HEADINGS	
Elements of long-range planning	Charts showing steps involved
Advisory committees - functions and use Public relations - relations with employers, organizations, professional societies	Chapter 2 - "Technical Training beyond High School See Appendix I, p. 106
Federal acts affecting technical education	Chart showing highlights
Federal appropriations available to a state	Chart showing appropriations by states Chart showing distribution of federal funds within a state
Team teaching - techniques and values	
Closed circuit TV use for instruction	
Certification of technicians	
The technician and his job Job titles, characteristic tasks, etc.	
Textbooks used in selected schools by courses and curriculums	Publishers' catalogs available
Bibliography - annotated - classified under headings used for the institute	Technical Education Yearbook--Technical Education News---BLS "Technical Manpower"--Oklahoma report, etc.
Objectives of technical programs in terms of types of learning achieved by the student	

The Center For RESEARCH AND LEADERSHIP DEVELOPMENT IN
Vocational and Technical Education

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COLUMBUS, OHIO 43212

APPENDIX C

M E M O

TO: State Directors of Vocational and Technical Education

FROM: C. J. Cotrell, Specialist

SUBJECT: Nomination of Participants for National Leadership Development Institutes in Technical Education

DATE: April 1, 1966

Please nominate persons from your state who qualify for participation in the National Leadership Development Institutes in Technical Education which are announced in the enclosed materials.

If you will send us the names and addresses of your nominees, we will send them announcements and applications.

Thank you in advance for this assistance.

Enclosures

IN COOPERATION WITH THE DIVISION OF ADULT AND VOCATIONAL RESEARCH, UNITED STATES OFFICE OF EDUCATION

SUMMER 1966

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

COLORADO STATE UNIVERSITY

OKLAHOMA STATE UNIVERSITY

RUTGERS - THE STATE UNIVERSITY

UNIVERSITY OF FLORIDA

UNIVERSITY OF ILLINOIS

These institutes are a cooperative effort of the five universities and *The Center for Research and Leadership Development in Vocational and Technical Education*, The Ohio State University, Columbus, Ohio.

PURPOSE

The purpose of the institutes is to develop and expand the leadership capacity of technical education in the United States through five two-week summer institutes. Following the institutes, it is anticipated that participants will assist in similar activities in their home states.

ELIGIBILITY OF PARTICIPANTS

Applicants must have administrative, supervisory, or teacher education experience in technical education, or must have demonstrated potential for such leadership positions. Applicants must also be recommended by the head of the local institution (where applicable) and by the appropriate chief state education officer. Consideration will be given to insure a wide range of participants with regard to geographical regions, areas of specialization and professional positions represented at each institute.

CREDIT

Successful completion of the two-week institute may entitle the participant to academic credit depending on (1) the status of the participant, and (2) the policy of the host institution in granting credit for short term courses. Participants desiring college credit, are advised to request specific information from the director of the institution that they are invited to attend. Tuition charges for such credit will be the responsibility of the participant.

TRAVEL AND PER DIEM

Each participant will be reimbursed an amount not to exceed air tourist fare for a round trip from his home to the institute and provided $75 per week for subsistance. No fees will be charged at the institute other than a nominal registration fee.

ADMISSION PROCEDURE

The attached application must be completed and sent to:

Admissions Committee
National Leadership Development Institutes in Technical Education
The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Applications will be processed in the order received. The first meeting of the Admissions Committee will be April 26, 1966.

The attached recommendation sheets must be completed and forwarded to the Admissions Committee by the head of the applicant's local institution (when appropriate) and by the chief state education officer (State Director of Vocational Education, Director of Community Colleges, etc.) responsible for technical education.

NOTE: It shall be the applicant's responsibility to make certain that the recommendation sheets are sent to the Admissions Committee.

CONTENT

The content of the two-week institutes will be covered through a variety of media. These include lecture presentations, discussions with leaders in the field, small group work, individual study, and field trips.

Each institute will include the following major topics:

- The Leadership Role and Charge
- Nature, Scope, and Levels of Technical Occupations
- The Rationale and Need for Technical Education
- Description of the Technical Education Student
- Administrative Structure of Technical Education Institutions
- Program Patterns and Curriculum Development
- Staffing Technical Education Programs
- Facilities and Equipment for Technical Education
- Financing Technical Education
- Supervision and In-Service Teacher Education
- Establishing Research and Development Needs

LOCATIONS, DATES AND INSTITUTE DIRECTORS

COLORADO

Colorado State University, Fort Collins
July 11 - 22, 1966
Herbert L. Benson, Director

FLORIDA

University of Florida, Gainesville
June 6 - 17, 1966
E. L. Kurth, Director

ILLINOIS

University of Illinois, Urbana
June 6 - 17, 1966
M. Ray Karnes, Director

NEW JERSEY

Rutgers - The State University, New Brunswick
June 6 - 17, 1966
Milton E. Larson, Director

OKLAHOMA

Oklahoma State University, Stillwater
June 6 - 17, 1966
Maurice J. Roney, Director

APPLICATION

National Leadership Development Institutes
in Technical Education

1. Name of Applicant Mr.
Mrs.
Miss _____
(Last) (First) (Middle)

2. Age _____

3. Address

Street _____ City _____

State _____ Zip Code _____ Telephone _____

4. Present Position Title _____

5. Present Position Duties _____

_____

_____

_____

6. Professional Education Employment Record. List experience in the field of education. (List most recent experience first and give the last four positions only.)

Position	Institution	City	State	No. of Years

7. Non-educational Employment Record. List experience in business, industry, government, etc. (List most recent experience first.)

Position	Institution	City	State	No. of Years

8. Formal Education

Institution	Degree	Year Received	Major Field

(over)

9. List any other education and training which you feel has helped you in your professional development with respect to technical education.

_____

_____

_____

10. What are your long range goals with regard to technical education?

_____

_____

_____

_____

11. Is graduate credit for this institute mandatory? Yes ____ No ____

12. If selected, are you willing to attend any one of the institutes?

Yes ____ No ____ If no, please explain. _____

_____

_____

_____

13. List below the name(s) and address(es) of the person(s) whom you have asked to send recommendation sheets.

Name	Title	Address

(Local chief administrative officer when applicable)

(State official)

14. Date _____ Applicant's Signature _____

15. Send your application to:

Admissions Committee
National Leadership Development Institutes
in Technical Education
The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

CONFIDENTIAL RECOMMENDATION SHEET

National Leadership Development Institutes in Technical Education

_____ is applying for admission to one of five two-week National Leadership Development Institutes in Technical Education designed to develop and expand the leadership capacity of technical education in the United States. It is anticipated that the participants will return to their home states and conduct or assist in state and area leadership development activities.

We request your candid appraisal of the applicant in regard to:

Administrative capacity -

Professional vision -

Probable ultimate level of professional attainment -

Capability to conduct or help conduct state and area leadership development institutes if requested by the state -

Date _____ Signed _____

Position _____

Agency or Institution _____

After completing the recommendation sheet, please mail it to:

Admissions Committee
National Leadership Development Institutes
in Technical Education
The Center for Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

SUMMARY OF APPLICATIONS FOR THE INSTITUTES

Origin	Number of Applications	Origin	Number of Applications
Alabama	9	New Hampshire	5
Alaska	1	New Jersey	9
Arizona	9	New Mexico	1
Arkansas	2	New York	15
California	21	North Carolina	21
Colorado	7	North Dakota	0
Connecticut	5	Ohio	12
Delaware	2	Oklahoma	10
Florida	22	Oregon	10
Georgia	3	Pennsylvania	17
Hawaii	5	Rhode Island	2
Idaho	3	South Carolina	3
Illinois	21	South Dakota	4
Indiana	7	Tennessee	5
Iowa	7	Texas	12
Kansas	8	Utah	5
Kentucky	3	Vermont	2
Louisiana	6	Virginia	13
Maine	3	Washington	12
Maryland	1	West Virginia	5
Massachusetts	5	Wisconsin	29
Michigan	16	Wyoming	0
Minnesota	6	District of Columbia	3
Mississippi	6	Puerto Rico	2
Missouri	11	Virgin Islands	1
Montana	1	American Samoa	0
Nebraska	3	Guam	0
Nevada	4	Canada	8
		Total	403

APPENDIX D

The Center For RESEARCH AND LEADERSHIP DEVELOPMENT IN

Vocational and Technical Education

THE OHIO STATE UNIVERSITY
980 KINNEAR ROAD
COLUMBUS, OHIO 43212

May 3, 1966

Dear

The Center is coordinating national leadership development institutes in technical education which will be offered this summer by five leading universities. Outstanding personnel in technical education will be involved as institute staff and participants. (See attached announcement).

These institutes are extremely vital to the future development of technical education, and we would like to ask your help in making them successful. Many of the instructional materials which are important to the success of the institutes, must be obtained through persons in the field. You can help us by supplying some of the extremely essential materials listed on the enclosed sheet.

If at all possible, we would like a dozen copies of each item since this would provide one copy for each group of twenty participants. After the institutes, the material will be placed in the technical education libraries of the host universities. In the event that there is a charge for the materials, we would be grateful if you would send one sample copy with information concerning the cost and availability of additional copies. We need the materials by May 20, 1966, in order to send them to the cooperating universities.

Thank you very much, and we shall look forward to hearing from you soon.

Cordially yours,

Calvin J. Cotrell
Specialist

CJC/sl
Enclosures

IN COOPERATION WITH THE DIVISION OF ADULT AND VOCATIONAL RESEARCH, UNITED STATES OFFICE OF EDUCATION

501 p 66

REQUEST FOR SELECTED ITEMS FOR USE IN NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Please send twelve (12) copies of:

1. State operating manual for vocational and technical education
2. Latest printed annual report on vocational and technical education
3. 1964-65 report to Washington on technical enrollments
4. Any available reports of school and community technical education surveys in the state
5. Any available special bulletins on technical education
6. Brief statements of any recent developments in technical education of special importance, such as new curriculums, new construction, etc.

NOTE: The above mentioned materials are needed by May 20, 1966. Please mail to:

Dr. Calvin J. Cotrell
The Center for Research and Leadership Development in Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Sent To: Twenty State Directors of Vocational Education

REQUEST FOR SELECTED ITEMS FOR USE IN NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Please provide the following:

1. Copies of latest available catalog

2. Lists of preferred textbooks by technical curriculum (Book list if printed)

NOTE: The above materials and information are needed by May 20, 1966. Please mail to:

Dr. Calvin J. Cotrell
The Center for Research and Leadership Development in Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Sent To: Sixty Technical Education Institutions

REQUEST FOR SELECTED ITEMS FOR USE IN NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

Please provide the following:

1. Copies of latest available catalog

2. Lists of preferred textbooks by technical curriculum (Book list if printed)

3. Materials and information that are readily available concerning recently built physical plant

   a. Photograph of plant (in printed brochure)

   b. Floor plans of technical education laboratories (small size)

   c. Equipment lists of major items, by technical education laboratory

NOTE: The above materials and information are needed by May 20, 1966. Please mail to:

Dr. Calvin J. Cotrell
The Center for Research and Leadership Development in Vocational and Technical Education
The Ohio State University
980 Kinnear Road
Columbus, Ohio 43212

Sent To: Twenty Technical Education Institutions

APPENDIX E

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

PARTICIPANT SELF-APPRAISAL

DIRECTIONS: Appraise your knowledge of the following technical education topics by using the five point scale, 1 meaning "Do not feel knowledgeable at all" and 5 meaning "Feel very knowledgeable." Please circle the number which indicates how you feel about your knowledge of the topic.

	Do Not Feel Knowledgeable				Feel Very Knowledgeable
Rationale and Need for Technical Education					
1. Present and future technician needs	1	2	3	4	5
2. Technician placement patterns	1	2	3	4	5
3. New occupations requiring technician level employees	1	2	3	4	5
4. Size of technician enrollments	1	2	3	4	5
5. Economic, social, and individual needs for technician education	1	2	3	4	5
Role of Technicians					
6. Difference between the "professional" and the technician	1	2	3	4	5
7. Various levels of technician training	1	2	3	4	5
8. Fields of the "work world" in which technicians are employed	1	2	3	4	5
9. The place of the technician in the occupational spectrum	1	2	3	4	5
10. The difference between the technician and a skilled employee	1	2	3	4	5
Administrative Structure of Technical Education Institutions					
11. The development and operation of state-wide plans for technical education	1	2	3	4	5

	Do Not Feel Knowledgeable			Feel Very Knowledgeable	
12. The relation of individual institutions to state master plans	1	2	3	4	5
13. The federal, state, and local relationships for technical education	1	2	3	4	5
14. Different organizational structures of local programs of technical education	1	2	3	4	5
15. Accreditation procedures for technical education	1	2	3	4	5
Description of the Technical Education Student					
16. Program variations necessary with different student age levels	1	2	3	4	5
17. Selection criteria for technical education students	1	2	3	4	5
18. Sources of students for technical education	1	2	3	4	5
19. Means of determining the number of potential students	1	2	3	4	5
20. Desirable recruiting practices	1	2	3	4	5
Program Patterns and Curriculum Development					
21. Interrelationships of laboratory and shop courses with science and mathematics	1	2	3	4	5
22. The use of advisory committees in planning technical programs	1	2	3	4	5
23. The cluster approach in curriculum development	1	2	3	4	5
24. Curricula for the various offerings in technical education	1	2	3	4	5
25. Steps in curriculum development through occupational analysis	1	2	3	4	5

	Do Not Feel Knowledgeable			Feel Very Knowledgeable	
Facilities and Equipment for Technical Education Programs					
26. Educational specifications	1	2	3	4	5
27. Building sites for technical education programs	1	2	3	4	5
28. Equipment requirements for various technical education programs	1	2	3	4	5
29. Modern media, aids, and equipment needs	1	2	3	4	5
30. Role of school staff in planning facilities and equipment	1	2	3	4	5
Financing Technical Education Programs					
31. Capital outlay for site, buildings and equipment	1	2	3	4	5
32. Cost per student per year	1	2	3	4	5
33. Financing patterns	1	2	3	4	5
34. Annual operating costs	1	2	3	4	5
35. Personnel costs	1	2	3	4	5
Staffing Technical Education Programs					
36. Necessary qualifications of instructional staff	1	2	3	4	5
37. Necessary qualifications of supervisory personnel	1	2	3	4	5
38. Various sources of personnel	1	2	3	4	5
39. Teacher recruitment procedures	1	2	3	4	5
40. Teacher selection criteria	1	2	3	4	5
Technical Education Supervision and Teacher Education					
41. Evaluation	1	2	3	4	5

	Do Not Feel Knowledgeable			Feel Very Knowledgeable	
42. Curriculum improvement	1	2	3	4	5
43. Accreditation	1	2	3	4	5
44. Programs for developing teaching skills	1	2	3	4	5
45. Programs for upgrading technical competence of instructors	1	2	3	4	5

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

PARTICIPANT EVALUATION OF MAJOR TOPICS

Topic_____ Date_____

1. Indicate on the five point scale below your opinion concerning the value of the content and quality of the presentation. Circling 1 means you feel the content or presentation was "very poor," and circling 5 means you feel the content or presentation was "very good."

	Very Poor				Very Good
Content value	1	2	3	4	5
Presentation quality	1	2	3	4	5

2. What new concepts have you gained through the sessions on this topic?

3. What additional information would you have desired?

4. What changes would you suggest for sessions on a similar topic in the future?

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

EVALUATION OF MAJOR TOPICS BY INSTITUTE DIRECTORS

Topic _____

Consultant _____

1. What were the best features of this topic?

2. What were the least desirable features of this topic?

3. To what do you attribute the success in question #1?

4. What changes would have eliminated the undesirable features in question #2? (Or what changes would you suggest?)

_____
Initials of Director
or Associate Director

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

PROBLEM

Assume you have been appointed head of technical education for a new school which is to be planned and built.

The following are given:

1. Six months lead time until you must begin operations.

2. The area produces 2,000 high school graduates per year.

3. The area has a population of 100,000.

4. The school will have both local and state financial support.

5. You are responsible for the technical education program.

Identify leadership tasks which will be your responsibility in getting the technical education program successfully started. Indicate your plan for implementation, both immediate and long range.

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

APPRAISAL OF THE PARTICIPANT BY INSTITUTE DIRECTORS

DIRECTIONS: By circling the appropriate number on the five point scale below, indicate your opinion concerning the leadership skills demonstrated by the participant through his involvement in the institute. In the scale, 1 means you feel the participant demonstrated "no leadership ability" and 5 means you feel the participant demonstrated "excellent leadership ability."

	No Leadership Ability			Excellent Leadership Ability	
1. Communications ability	1	2	3	4	5
2. Quality and quantity of contributions made	1	2	3	4	5
3. Human relations ability demonstrated	1	2	3	4	5

COMMENTS: _____

_____

_____

_____

_____
Initials of Director
or Associate Director

Participant
Number ____

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
IN TECHNICAL EDUCATION

PARTICIPANT'S PLANS AND OBJECTIVES

Participant's Plans for Implementation

Indicate below your plans for implementing what you have learned in this institute. Please include plans for making changes in your program as a result of the institute, or your plans for initiating and/or conducting leadership development activities when you return home.

Participant's Professional Objectives

What are your ultimate professional objectives for five and ten years from now? How will the information obtained in these institutes help you reach these objectives?

APPENDIX F

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

RECORDER-EVALUATOR INSTRUCTIONS

Duties of the Recorder

1. Collect 2 copies of each item distributed during the institute.

2. Keep a record of participant attendance.

3. Keep a record of items that come up in discussion which should be treated at some time during the institute. Discuss these items with the Institute Director.

4. Arrange to have pictures made of people and materials at the institute.

5. Tape record presentations when written copy is not available.

6. Prepare (or arrange for) a record of each presentation. The following should be included in the record:

    a. Topic
    b. The presenter
    c. Date
    d. The "high points" of the presentation
    e. Identification data on aids used, including the name, source, etc.

7. Prepare the final report for the institute and send it to The Center.

8. Send to The Center one copy of each paper and/or instructional aid collected during the institute.

Duties of the Evaluator

1. Distribute and collect all evaluation instruments.

2. Give the participants instructions concerning how to complete each evaluation instrument.

3. Tabulate topic evaluation results for use by Institute Director.

4. Summarize the topic evaluations and report to the Institute Director

Schedule and Procedures for the Evaluator

1. Obtain a roster of participants and assign a code number for each participant. Prepare a 3 x 5 card with the participant's name on one side and his personal code number on the reverse side. (Each evaluator will be given the range of numbers for his institute during the June 1 meeting.) A roster with the code numbers must accompany the materials sent to The Center.

2. Introduction. - During the first morning of the institute, the Institute Director should introduce the idea of evaluation, comment on the need for it, and clarify its purpose.

3. Give each participant the card with his name and personal code number. Ask that he keep the card and record this number on each evaluation form completed during the institute.

4. Pre-test. - (Participant Self-Appraisal). - The pre-test should be administered and collected Monday morning of the first week. This procedure should be followed:

   a. Distribute instruments, IBM answer cards and special pencils.

   b. Request each participant to write his code number in the space for "student number" on the front of the IBM answer card. The number 1 should also be written in the space for "sequence number."

   c. Read the directions, and clarify any questions. Participants will not write on the self-appraisal booklet. Their answers will be placed on the IBM answer cards.

   d. Allow participants to begin.

   e. Collect the completed cards and test booklets. (Note: Check that each card has a participant code number and that there are no omissions or duplications of numbers recorded in the code range assigned.)

5. Topic Evaluations by Participants, Institute Directors and Associate Directors. - After the completion of each major topic, administer and collect topic evaluations. There will usually be no more than 12 major topics covered in each institute. This is the procedure which should be followed:

   a. Distribute instruments. (Note: There are 2 different forms, i.e. participant's (white) and Director's (green).

b. Ask the participants to put their code numbers in the upper right hand corner of the page and write in the title of the topic.

c. Read the directions, and ask if there are any questions.

d. Allow participants to begin.

e. Collect completed instruments being certain that each has a code number. (Note: This will become a routine procedure after the first 2 or 3 topics.)

6. Problem. - Remind the Director to introduce the problem as part of the instructional program. This should not be identified as part of the evaluation procedure. The Director will collect the papers with names on each. (The Directors have agreed to introduce the problem by the end of the first week.)

7. Participant's Plans and Objectives. - During the second week, Tuesday or Wednesday, administer this instrument. These are the procedures to be followed:

a. Distribute the instruments.

b. Ask the participants to put their code number in the upper right hand corner. Also ask them to record their present position title, institution and years in this position.

c. Read the questions, and ask if there are questions from the participants concerning these items.

d. Ask the participants to complete this instrument at their leisure and to return it on Thursday when it is requested.

e. Collect completed instruments on Thursday.

8. Re-examination of Topic Evaluations. - On Thursday of the second week, the topic evaluations which have been completed by the participants should be re-examined and modified. This is the procedure:

a. Distribute to each participant the topic evaluation forms which he has completed during the institute.

b. Ask the participants to review their comments relative to Item #3.

c. Collect all the forms.

9. Problem. - Remind the Director to collect the problem solution from the participants no later than Thursday of the second week.

10. Post-test. (Participant Self-Appraisal). - This test should be administered on the last day. The instructions are the same as the pre-test except the "sequence number" of 2 must be placed after the code number on the front of the IBM answer card.

11. Ask the Institute Director to evaluate each participant using the green form - Appraisal of the Participant by Institute Directors.

12. Collect all evaluation instruments and materials and send them to The Center with a copy of the roster indicating the assigned participant code numbers.

APPENDIX G

COLORADO STATE UNIVERSITY
INSTITUTE PROGRAM

Sunday, July 10

4:00 p.m.-6:00 p.m.
Registration, Parmelee Hall

5:30 p.m.-6:30 p.m.
Buffet, Parmelee Hall

Monday, July 11 - Student Center, Rooms 202-204

8:30 a.m. Orientation Session

Welcome: Dr. Courtlyn Hotchkiss, Dean Summer Session
Get acquainted: Mr. H. L. Benson, Professor and Head, Department of Vocational Education
Campus orientation: Mr. H. L. Benson
Plan of the institute: Mr. F. J. Konecny, Dean, James Connally Technical Institute, and Mr. Theodore Koschler, Vice President, Miami-Dade County Junior College
The Role and Responsibility of Leaders: Dr. J. Stanley Ahmann, Vice President

10:30 Coffee Break

10:50 Pre-test evaluation: Mr. Jack Annan, Recorder-Evaluator and Instructor, Department of Agriculture, Northeastern Junior College, Sterling, Colorado

Lunch

1:30 p.m. Rationale and Need for Technical Education: Dr. Lynn A. Emerson, Professor Emeritus, Cornell University, and Consultant--Technical Education, and Mr. R. M. Knoebel, Acting Assistant Director, State Vocational Service Branch, Division of Vocational and Technical Education, U. S. Office of Education

Studies and surveys

1. Labor market trends
2. Population growth trends
3. Changes in occupations
4. Changes in sources of technicians

3:00 Coffee Break

3:20 5. Changes in school attendance
6. Assessment of present and future needs

3:30 Discussion. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignments and Dismissal

7:00 Staff Conference

Tuesday, July 12 - Student Center, Rooms 202-204

8:30 a.m. Rationale and Need for Technical Education (Continued): Dr. Lynn A. Emerson, Mr. R. M. Knoebel, and Mr. Dan Mirich, Department of Personnel, Hewlett-Packard Company, Loveland, Colorado

7. The rate of change in technology
8. Technician placement studies
9. Social, economic and sociological need of the individual for training and employment
10. The employer's need for technicians
11. The shift in educational emphasis from doing to thinking and feeling.

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Description of the Technical Education Student: Dr. Robert McKee, President, Northern Virginia Technical College, Baileys Crossroads, Virginia

A. Economic needs in individuals
B. Persons who can profit from technical education
C. Programs to meet needs of various age groups
D. Criteria for selecting students
E. Sources of students

3:00 Coffee Break

3.20 Discussion Groups. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignment and Dismissal

7:30 Staff Conference and Committee Work

Wednesday, July 13 - Student Center, Rooms 202-204

8:30 a.m. Administrative Structure of Technical Education Institutes: Dr. Robert McKee

A. Statewide patterns
B. Public schools

1. Community colleges
2. Technical institutes
3. Area schools
4. Four-year colleges

C. Private schools
D. Military services
E. Correspondence schools
F. Other governmental agencies

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 Facilities and Equipment for Technical Programs: Dr. Robert McKee and Mr. John Fortin, Administrative Associate, Dunwoody Institute, Minneapolis, Minnesota

A. The site

1. Use of advisory committees
2. Selection
3. Location

B. Building plans
C. Provisions for modern teaching
D. Equipment
E. Illumination

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignment and Dismissal

7:00 Staff Conferences, Committee, and Library Work

Thursday, July 14 - Student Center, Rooms 202-204

8:30 a.m. Facilities and Equipment for Technical Programs (Continued): Dr. Robert L. McKee and Mr. John Fortin

F. Development of laboratories
G. Conference facilities
H. Library
I. Cafeteria
J. Supplies
K. Anticipatory planning

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Program Patterns and Curriculum Development: Mr. Ivan E. Valentine, Assistant Director, Department of Community Colleges, Raleigh, North Carolina

A. Flexibility
B. Diversity
C. Broad cluster training approach to curricula
D. Comprehensiveness

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Koschler and Konecny, Rooms 203-205

4:30 Assignment and Dismissal

Friday, July 15 - Student Center, Rooms 202-204

8:30 a.m. Program Patterns and Curriculum Development (Continued.) Messrs. Valentine and Fortin

E. Continuous reexamination of purpose
F. Continuing change of program with new knowledge
G. Community oriented program
H. Exploring community resources

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Program Patterns and Curriculum Development (Continued): Messrs. Valentine and Fortin

I. Student appeal
J. Response to needs of people
K. Anticipation of future needs

1. New products
2. New processes

L. Continuing education

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Assignment and Dismissal

7:00 Staff Conference and Library Work

Monday, July 18 - National Bureau of Standards, Boulder, Colorado

8:00 a.m. Bus Departure

Tuesday, July 19 - Student Center, Rooms 202-204

8:30 a.m. Staffing Technical Education: Dr. Joseph T. Nerden, Professor, Department of Industrial and Technical Education, North Carolina State University

A. Types of personnel

1. Technical teachers
2. Mathematics and science teachers
3. General education teachers
4. Auxiliary course teachers
5. Librarians
6. Supervisors
7. Administrators

B. Qualifications for each type of staff member

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Staffing Technical Education (Continued): Dr. Joseph T. Nerden

C. Functions of Administration and Supervisors
D. Sources of supply for staff

1. Recruitment
2. Selection

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Assignments and Dismissal

7:00 Staff Conference

Wednesday, July 20 - Student Center, Rooms 202-204

8:30 a.m. Financing Technical Education Programs: Dr. Joseph T. Nerden

A. Capital outlay

1. Plant
2. Equipment
3. Sites

a. Free sites
b. Selected sites

B. Operating costs

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Financing Technical Education Programs (Continued): Dr. Joseph T. Nerden

C. Comparative costs

1. Personnel services
2. Overhead
3. Room utilization

D. Financing patterns

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Assignment and Dismissal

7:00 Staff Conference

Thursday, July 21 - Student Center, Rooms 202-204

8:30 a.m. Supervision and In-Service Teacher Education: Dr. Jerry S. Dobrovolny, Professor and Head, Department of General Engineering, University of Illinois

A. Personnel services
B. Effective use of facilities
C. Curriculum improvement

10:30 Coffee Break

10:50 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

Lunch

1:30 p.m. Supervision and In-Service Teacher Education (Continued): Dr. Jerry S. Dobrovolny

D. Effective techniques of evaluation
E. Accreditation

3:00 Coffee Break

3:20 Discussion Groups. Messrs. Konecny and Koschler, Rooms 203-205

4:30 Dismissal

6:30 Banquet - East Ballroom of Student Center

Friday, July 22 - Student Center, Rooms 202-204

8:30 a.m. Establishing Research and Development Needs: Messrs. Koschler, Konecny, Dobrovolny, et al.

A. The role of research and development
B. Utilization of research in administration of technical education
C. Identification of critical research and development problems

10:30 Coffee Break

11:00 Evaluation and Summary

12:00 Noon Dismissal and Close of Sessions

OKLAHOMA STATE UNIVERSITY
INSTITUTE PROGRAM

Monday, June 6 - Circus Room, Student Union

8:30 a.m. Registration

Welcome: Dr. Robert B. Kamm, Vice President, Oklahoma State University
Introduction of Participants
Purpose and Objectives of the Institute
Institute Procedures

10:30 Review of Developments and Problems in the Several States by Participants

11:30 Lunch

1:00 p.m. Elements of Long-Range Planning in Education. Circus Room

Discussion. Reporting Groups--Topic No. 1

Group A:	Group B:
L. Arueste, Chairman	E. Archer, Chairman
M. Gregg	L. Harrell
J. Arnold	J. Guthrie
S. Bowlan	H. Rahn

Tuesday, June 7 - Circus Room

8:30 a.m. The Technician Occupations: Dr. Lynn A. Emerson, Professor Emeritus, Cornell University, and Consultant--Technical Education

10:30 Discussion

11:30 Lunch

1:00 p.m. Group A - Patterns of Training - South Tower, Student Union

Group B - Description of a Technical Program - Room 128 Industrial Building

2:15 Break

2:45 Group A - Description of a Technical Program - Room 128 Industrial Building

Group B - Patterns of Training - South Tower, Student Union

6:00 Get Acquainted Picnic. Reporting Groups--Topic No. 2
Technical Occupations and Patterns of Training

Group A:	Group B:
R. Bodenhamer, Co-Chairman	G. Hardy, Chairman
P. Hull	L. McKinney
A. Batten	R. Roy
R. Dow	B. Laman

Wednesday, June 8

8:30 a.m. Group A - Program Planning - North Tower, Student Union

Group B - Identifying and Publicizing Program Needs - South Tower, Student Union

11:30 Lunch

1:00 p.m. Group A - Identifying and Publicizing Program Needs - South Tower, Student Union

Group B - Program Planning - North Tower, Student Union

Reporting Groups--Topic No. 3
Identifying and Publicizing Program Needs
--Topic No. 4
Program Planning

Group A:	Group B:
L. Cunningham, Co-Chairman	L. Harrell, Chairman
W. Putas	G. Polak
S. Bowlan	M. Severson
L. Heiny	A. Potthast

Thursday, June 9

8:30 a.m. Visit to the O. S. U. Technical Institute

Metals Technology
Fire Protection Technology
Nuclear Technology

11:30 Lunch

1:00 p.m. Curriculum Design - Groups A and B - Circus Room

2:45 Discussion. Reporting Groups--Topic No. 5
Group A - North Tower
Group B - South Tower

Group A:	Group B:
M. Gregg, Chairman	B. Laman, Co-Chairman
B. Hanning	B. Powers
R. Dow	H. Rahn
P. Komatz	M. Sykes

Friday, June 10

8:30 a.m. Group A - Science in the Technical Program - South Tower

Group B - Mathematics in the Technical Program - North Tower

11:30 Lunch

1:00 p.m. Group A - Mathematics in the Technical Program - North Tower

Group B - Science in the Technical Program - South Tower

Reporting Groups--Topic No. 6

Group A:	Group B:
P. Hull, Co-Chairman	W. Steige, Chairman
P. Braden	H. Reed
J. Godsey	R. Roy
R. Moe	H. Taylor

Reporting Groups--Topic No. 7

Group A:	Group B:
E. Jaeger, Chairman	A. Potthast, Co-Chairman
L. Arueste	J. Salvatore
L. Heiny	R. Scott
R. Paap	J. Guthrie

Saturday, June 11 - Field Trip

Monday, June 13

8:30 a.m. Curriculum Development - Groups A and B - Circus Room Work Session

11:30 Lunch

1:00 p.m. The Vocational-Technical School - Groups A and B - Circus Room

Tuesday, June 14

8:30 a.m. Staffing the Technical Program - Groups A and B - Circus Room

10:30 Discussion

11:30 Lunch

1:00 p.m. Teacher Education - Groups A and B - Circus Room

2:45 Discussion

Reporting Groups--Topic No. 8

Group A:	Group B:
W. Putas, Co-Chairman	B. Powers, Chairman
R. Bodenhamer	E. Archer
P. Komatz	M. Severson
J. Arnold	L. McKinney

Wednesday, June 15

8:30 a.m. Technical Education Facilities - Groups A and B - Circus Room

10:30 Discussion

1:00 p.m. Work Session. Reporting Groups--Topic No. 9
Group A - North Tower
Group B - South Tower

Group A:	Group B:
B. Hanning, Chairman	H. Reed, Co-Chairman
R. Moe	G. Hardy
A. Batten	M. Sykes
N. Frigiola	R. Lano

Thursday, June 16

8:30 a.m. Financing the Technical Education Program - Groups A and B - Circus Room

10:30 Duscussion

11:30 Lunch

1:00 p.m Research in Vocational and Technical Education - Groups A and B - Circus Room

2:45 Discussion
Reporting Groups - Topic No. 10

Group A:	Group B:
P. Braden, Co-Chairman	J. Salvatore, Chairman
R. Paap	H. Taylor
L. Cunningham	G. Polak
C. Beeman	J. Harmon

Friday, June 17

8:30 a.m. Professional Organizations and Accreditation - Groups A and B - Circus Room

10:30 Evaluation
Summary of Institute

RUTGERS - THE STATE UNIVERSITY
INSTITUTE PROGRAM

Sunday, June 5

p.m. Registration. House No. 30, Gibbons Campus

Monday, June 6

a.m. Registration. Douglass College

8:45 Opening Session. Room 130--Hickman Hall. General Chairman Dr. Milton E. Larson, Institute Director and Adviser, Department of Vocational-Technical Education

A. Welcome: Dr. Carl Schaefer, Chairman, Department of Vocational-Technical Education
B. Remarks: Dr. John J. O'Neill, Dean, Graduate School of Education, and Dr. Robert M. Worthington, Assistant Commissioner of Education, State of New Jersey
C. Introductions and Announcements

9:15 The Leadership Role: Dr. Ralph Wenrich, Professor of Vocational Education and Practical Arts, The University of Michigan

Opportunities
Responsibilities
Needs

10:30 Coffee Break

10:45 Course Orientation and Organization

11:30 Lunch - Neilson Dining Hall

1:00 p.m. The Technician and His Job: Dr. Ralph Wenrich

2:30 Group Discussions - Rooms 128 and 129

4:30 Adjourn

Note: Unless otherwise indicated, major presentations will be in Room 130 with group discussions in Rooms 128 and 129 of Hickman Hall.

Meals will be served in Neilson Dining Hall according to the following schedule:

Breakfast	7:30 - 8:00 a.m.	(Close observance
Lunch	11:30 - 12:00	(of the schedule is
Dinner	5:30 - 6:00 p.m.	(mandatory

Meals will be served during the weekend June 11 and 12.

Tuesday, June 7 - Douglass College Campus, Hickman Hall

8:45 a.m. The Administrative Structure of Technical Education Institutes: Mr. John Henderson, Assistant for Two-Year College Programs, State University of New York at Albany

Statewide patterns
Public schools
  Community colleges
  Technical institutes
  Area schools
  Four-year colleges
Private schools
Military services
Other governmental agencies
Correspondence schools

10:00 Coffee Break

10:15 Group Discussions

11:30 Lunch

1:00 p.m. The Student in Programs of Technical Education: Mr. John Henderson

Economic needs of individuals
Persons who can profit from technical education
Programs to meet needs of various age groups
Criteria for selecting students
Sources of students

2:30 Coffee Break

2:45 Group Discussions

4:30 Adjourn

7:30 Interest Group Discussions - Rooms to be assigned

Wednesday, June 8 - Douglass College Campus, Hickman Hall

8:45 a.m. The Rationale and Need for Technical Education: Mr. Abraham J. Berman, Principal Statistician, Division of Research and Statistics, New York State Department of Labor

Labor market trends
Population trends
Changes in occupations
Changes in school attendance
Changes in technology
Changes in sources of technicians
Employers' needs for technicians
Assessment of present and future needs

10:30 Coffee Break

10:45 Group Discussions

11:30 Lunch

1:00 p.m. Effective Guidance Activities and Programs for Technical Education: Dr. J. Henry Zanzalari, Assistant Director Middlesex County Vocational and Technical High Schools, New Brunswick, New Jersey

Communication
Decision making
Appraisal
Other

2:15 Coffee Break

2:30 Group Discussion

3:30 Interest Group Discussions

4:30 Adjourn

Thursday, June 9 - Field Study with Presentations - Broome Technical Community College, Binghamton, New York

6:30 a.m. Bus Departure from Douglass Campus

11:45 Broome Technical Community College--Staff

Orientation
Programs
Students, faculty, etc.

12:30 p.m. Lunch

1:30 Tour of Technical Education Facilities--Broome Technical Community College--Staff

2:45 Coffee Break

3:00 Financing Technical Education
Broome Technical Community College--Staff

Capital investment
Plant
Equipment

Annual operating costs
Costs of different programs
Other cost factors

Facilities Planning, Construction, and Financing: Dr. Ellis Rowland, Director of Community College Facilities Planning, State University of New York at Albany

Capital outlay
- Plant
- Equipment
- Site selection
  - Free vs. selected site

Other

Operating Costs for Technical Education Programs: Dr. LeRoy V. Good, President, Monroe Community College, Rochester, New York

Operational finance
- Budgeting and accounting
- Personnel costs

Efficient level of operation
- Teacher load
- Room utilization
- Teachers per unit student group

Supply and overhead
- Management

Financing patterns

Funds for Technical Education: Mr. Henry Glendenning, Vice President, Butcher & Sherrerd, Philadelphia, Pennsylvania

Sources of funds
- Public
- Private

Factors in financial planning

Other

Friday, June 10 - Douglass College Campus, Hickman Hall

8:45 a.m. Program Patterns: Dr. Lynn A. Emerson, Professor Emeritus, Cornell University, and Consultant, Technical Education

Balanced curriculum for technical education
- High school and post-high school level
- Interrelationships of laboratory and shop courses with science and math

Curriculum development
- Balance for the curriculum
- Broad program plans
- Broad course of study approach
- Class approach

10:00 Coffee Break

10:15 Program Patterns (Continued): Dr. Lynn A. Emerson

11:30	Lunch
1:00 p.m.	Group Discussions
3:00	Coffee Break
3:15	Interest Group Discussions
4:30	Adjourn

Note: No formal program or presentation is planned for the weekend, June 11 and 12. However, consideration will be given to planning weekend activities if the institute participants are interested. If you desire to participate in such activities (tours, picnics, etc.) contact the Director by Tuesday, June 7.

Monday, June 13 - Field Study with Presentations - Norwalk Technical Institute, Norwalk, Connecticut

6:30 a.m.	Bus Departure from Douglass Campus
9:30	Coffee Break
9:45	Norwalk Technical Institute. Mr. Frank Juszli, Director
	Orientation — Students and faculty Programs — Introduction to facilities
10:30	Tour of Facilities--Staff
12:15 p.m.	Lunch
1:15	Facilities and Equipment for Technical Education: Mr. Lucian Lombardi, Chief, Bureau of Technical Institutes, Hartford, Connecticut

Topics related to:
- Site
- Planning facilities
  - Advanced planning
  - Construction problems
  - Construction costs
  - Planning for modern media and aids
- Equipment
- Other

3:00	Coffee Break
5:00	Dinner--Junior's Restaurant, Flatbush Avenue, Brooklyn (or similar facility in area)

6:00 Brooklyn Technical High School

Orientation: Mr. Frank Stewart, Principal

Technical education in high schools
- Programs
- Students and faculty

7:00 Tour of Brooklyn Technical High School--Staff

9:00 Arrival at Douglass Campus

Tuesday, June 14 - Douglass College Campus, Hickman Hall

8:45 a.m. Staffing Technical Education Programs: Mr. Paul K. Weatherly, Assistant Director, State Committee for Technical Education, Columbia, South Carolina

Personnel required
- Technical teachers
- Mathematics and science teachers
- General education teachers
- Auxiliary course teachers
- Librarians
- Supervisors
- Administrators
- Other

Qualifications for each type of staff member
Functions of administrators and supervisors
Sources of staff
- Recruitment suggestions
- Selection consideration

10:00 Coffee Break

10:15 Staffing Technical Education Programs (Continued): Mr. Paul K. Weatherly

11:30 Lunch

1:00 p.m. Group Discussion

3:00 Coffee Break

3:15 Interest Group Discussions

4:30 Adjourn

Wednesday, June 15 - Douglass College Campus, Hickman Hall

8:45 a.m. Program Patterns and Fundamental Knowledges: Dr. Lynn A. Emerson

Existing curricular patterns
Curricula for a high quality technical education program
Types of programs
- Coop programs
- Half-day programs
- Extended day programs
- Others

10:00 Coffee Break

10:15 Program Patterns and Fundamental Knowledges: Dr. Lynn A. Emerson (Continued)

11:30 Lunch

1:00 p.m. Group Discussion

3:00 Coffee Break

3:15 Interest Group Joint Session--Final Report

4:30 Adjourn

Thursday, June 16 - Douglass College Campus, Hickman Hall

8:45 a.m. Effective Technical Education: Dr. Robert Knoebel, Acting Assistant Director, State Vocational Service Branch, Division of Vocational and Technical Education, U. S. Office of Education

Shift in educational emphasis from doing to thinking plus doing
Social, economic, and psychological needs of individuals for training and employment
Placement of technicians - studies
Other

10:00 Coffee Break

10:15 Providing Public Information: Dr. Burr D. Coe, Director, Middlesex Vocational and Technical High Schools, New Brunswick, New Jersey

Public relations
Building the program
Internal human relations
Use of advisory committees
Other

11:30 Lunch

1:00 p.m. Evaluation, Accreditation, and Integration of Concepts for Technical Education: Dr. Lynn A. Emerson

Effective use of facilities
Curriculum improvement
Other

2:15 Coffee Break

2:30 Professional Organizations: Panel

Dr. Burr D. Coe - American Technical Education Association
Miss Mary Ellis - American Vocational Association, Director of AVA Field Studies
Dr. William G. Shannon - American Association of Junior Colleges, Associate Executive Director
Dr. Elmer C. Easton - American Society for Engineering Education, Dean, College of Engineering, Rutgers - The State University

3:45 Adjourn

6:00 Banquet - Special Dining Room, Neilson Dining Hall, Douglass College Campus

7:00 Considerations in Planning and Organizing a New Institution Offering Technical Education: Dr. Robert L. McKee, President Northern Virginia Technical College, Baileys Crossroads, Virginia, and Dr. Frank Chambers, President, Middlesex County College, Edison, New Jersey

Friday, June 17 - Douglass College Campus, Hickman Hall

8:45 a.m. Integration of Concepts and Summary: Dr. Lynn A. Emerson and Dr. Milton E. Larson and Staff

Research in technical education
- Role
- Utilization

Materials relating to technical education
- Sources

Institute summary
Institute comments
Award to participants

10:00 Coffee Break

10:15 Integration of Concepts and Summary (Continued)

11:30 Lunch

UNIVERSITY OF FLORIDA
INSTITUTE PROGRAM

Sunday, June 5

p.m. Registration, College of Education, Norman Hall

Monday, June 6

8:45 a.m. Opening Session, Room 166, Norman Hall

Welcome: Dr. Kimball Wiles, Dean of the College of Education

Orientation and Plan of the Institute: Dr. E. L. Kurth, Institute Director and Associate Professor, College of Education

Introductions of Assistants and Recorder: Dr. Fred Thornton, Associate Director and Supervisor of Mechanical Training, Tennessee Eastman Corporation

A State Role in Technical Education: Dr. Carl Proehl, Newly Appointed State Director of Vocational and Technical Education, and Dr. Walter R. Williams, Jr., Florida State Department of Education

The Leadership Role: Dr. Robert R. Wiegman, Assistant Dean, College of Education

10:45 Coffee Break

11:00 The Institute Recorder and Plan of Procedure, E. B. Moore, Institute Staff Recorder-Evaluator

12:00 Noon Lunch. Florida Room, Norman Hall

1:30 p.m. The Technician and His Job: Dr. Fred Thornton

2:30 Group Discussions. Drs. E. L. Kurth and Fred Thornton

2:45 Coffee Break

3:00 Small Group Discussions. Room 158--Institute Staff
Room 166

4:00 Group Reports. Room 166--Recorders

4:30 Adjourn

7:30 Interest Group Discussions. Rooms 158 and 166 open and reference materials available for examination

8:00 Staff Conference. Room 262, Norman Hall

Tuesday, June 7 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 The Administrative Structure for Technical Education: Dr. Harold Matthews, Dean, Vocational-Technical Education, Jackson Community College

Topics:
- Statewide patterns
- Public schools
- Community colleges
- Technical institutes
- Area vocational technical centers
- Four-year colleges
- Military services
- Governmental agencies
- Correspondence schools

10:30 Coffee Break

10:45 Group Discussions. Rooms 158 and 166, Institute Staff

12:00 Noon Lunch

1:00 p.m. The Student in Programs of Technical Education: Dr. William W. Purkey, Assistant Professor, College of Education

Topics: Social, Psychological and Economic Needs of:

a. High school students
b. Dropouts with work experience
c. Employed and unemployed adults

1:45 Large Group Discussions. Institute Staff

2:30 Coffee Break

2:45 Small Group Discussions

Topics:
- Student recruitment
- Student guidance and selection
- Student placement services
- Women as technical students

4:00 Group Reports. Room 166, Recorders

4:30 Adjourn

7:30 Interest Group Discussions. Staff Conference (if desired)

Wednesday, June 8 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 The Rationale and Need for Technical Education: Dr. E. L. Kurth

Topics: Technological changes and impact on the labor force
Population data and trends
School enrollment data and trends
Present and future needs
National, state, and local surveys

10:30 Coffee Break

10:45 Group Discussions. Rooms 158 and 166, Institute Staff

Topics: Methods and procedures used in various states to determine employment needs
Enrollments and attrition rates
Placement and follow-up
Educational requirements

12:00 Noon Lunch

1:00 p.m. Local Power Structures and Educational Programs: Dr. Ralph Kimbrough, Professor of Educational Administration, College of Education

2:15 Coffee Break

2:30 Small Group Discussions. Rooms 158 and 166

Topics: Group recommendations as to ways of initiating the process of change

4:00 Group Reports. Consensus of small group chairmen and recorders

4:30 Adjourn

7:30 Interest Group Discussions. Rooms 158 and 166, Staff Conference Room 262 (if desired)

Thursday, June 9 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Program Planning and Curriculum Development: Dr. Richard Hagemeyer, President, Central Piedmont Community College, Charlotte, N. C.

Topics: Steps in program planning
Types of programs
Curriculum development methods
Determining curriculum content
Curriculum content distribution

10:30 Coffee Break

Topics: Curriculum fields other than engineering-related
Development of courses of study
Development of instructional materials

12:00 Noon Lunch

1:00 p.m. Group Discussions. Rooms 158 and 166, Institute Staff and Consultant

Topics: Innovations in curriculum offerings
Credentials awarded for technical education program completion

2:15 Coffee Break

2:30 Small Group Discussions. Rooms 158 and 166

4:00 Group Reports. Consensus of small group chairmen and recorders

4:30 Adjourn

7:30 Scheduled Session. "Implications of PERT (Program Evaluation, Review Technique) for Educational Planning": Mr. Earl Blekking, Professional Engineer and Research Assistant

Friday, June 10 - Field Trip to Martin-Marietta Plant at Orlando, Florida

8:45 a.m. University of Florida buses leave Norman Hall

11:30 Lunch in or near Orlando

1:00 p.m. Arrive at Martin-Marietta Plant

The Martin Plant utilizes many technicians in the manufacture and assembly of its products ranging from appliance components to space vehicles. Because of the nature of the work done at this plant, special permission was necessary for the institute participants to make this tour. Company officials will explain the nature of the work done by technicians. After a tour of the plant, the group will assemble again for a further question and answer period.

4:00 Anticipated departure time from the plant

6:30 Arrival at Gainesville

Saturday, June 11 and Sunday, June 12 - No program is planned. If the institute participants are interested in planning group activities, the Institute Staff will be glad to assist. They should make their interests known to the Director no later than Wednesday, June 8.

Monday, June 13 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Organization for Research in Technical Education: Dr. Kenneth Eaddy, Director, Research Coordinating Unit, Florida State Department of Education

Topics: Research Coordinating Units Organization and Functions
Procedures for working with other state organizations, local, and national groups

10:30 Coffee Break

10:45 Research Design

Topics: Experimental and surveys: State requirements and federal requirements for projects submitted under Title 4(c) of P. L. 88-210 — Dr. Kenneth Eaddy, Institute Staff and Consultants

12:00 Noon Lunch

1:00 p.m. Research in Human Resources Development: Dr. Joseph Champagne, Director, Division of Research, South Carolina State Committee for Technical Education

2:15 Coffee Break

2:30 Group Discussions. Identifying Research Needs, Organizing for Research, Utilizing Results: Institute Staff and Consultants

4:00 Group Reports

4:30 Adjourn

7:30 Interest Group Discussions. Staff Conference, Room 262 (if desired)

Tuesday, June 14 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Staffing the Technical Program: Dr. William Bolin, Dean, Division of Technical Education, St. Petersburg Junior College

Topics: Types of teachers by experience, educational qualifications, certification requirements, part-time and full-time

10:30 Coffee Break

10:45 Total Technical Program Staff Requirements

Topics: Science and mathematics teachers
Technical report writing
Technical illustration
Teacher-student ratios
Teacher load

12:00 Noon Lunch

1:00 p.m. Group Discussions. Institute Staff and Consultants

Topics: Recruitment practices
Teachers' salaries
Student personnel staff needs
Technical program guidance staff

2:30 Coffee Break

2:45 Small Group Discussions

4:00 Group Reports

4:30 Adjourn

7:30 Interest Group Discussions. Staff Conference, Room 262 (as requested)

Wednesday, June 15 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Program Accreditation: Dr. William Bolin

Topics: State accreditation
Regional Association Accreditation
Professional association (ECPD)
Special area or technician associations
Licensing agencies

10:30 Coffee Break

10:45 Group Discussions. Rooms 158 and 166, Institute Staff and Consultants

12:00 Noon Lunch

1:00 p.m. Technical Education Program Examples. Institute Staff and Consultants

Topics: Illustrations from selected states
Public information and public relations

2:30 Innovations in Teaching Technical Content. Institute Staff and Participants

Topics: Teaching concepts

3:30 Small Group Discussions

4:00 Group Reports

4:30 Adjourn

7:30 Interest Group Discussions. Staff Conference, Room 262 (as requested)

Thursday, June 16 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Financing Technical Education: Dr. T. W. Strickland, Director, Technical Education, State Department of Education

Topics: Financial Provisions of P. L. 88-210 and other federal acts
Policies concerning funding and reimbursement
State-local patterns, tax bases
Foundation support of programs

10:30 Coffee Break

10:45 Facilities and Equipment Planning: Dr. George Mehallis, Dean, Technical and Semi-Professional Studies, Miami-Dade Junior College

Topics: Overall planning--site and plant
Staff involvement in planning
Building planning
Instructional equipment

12:00 Noon Lunch

1:00 p.m. Facilities and Equipment Planning (continued)

2:15 Coffee Break

2:30 Group Discussions. Rooms 158 and 166. Dr. Mehallis, Institute Staff and Consultants

4:00 Group Reports. Room 166. Recorders

4:30 Adjourn

6:00 Dinner - Thomas Hotel

Friday, June 17 - Room 166, College of Education, Norman Hall

8:00 a.m. Staff Planning

8:45 Technical Education and National Goals: Mr. Sam Geek, Field Representative in Technical Education, U. S. Office of Education, Charlottesville, Virginia

10:15 Coffee Break

10:30 Institute Summary. E. B. Moore, Institute Recorder

11:15 Institute Awards and Finale. Institute Staff

11:45 Lunch

UNIVERSITY OF ILLINOIS
INSTITUTE PROGRAM

Monday, June 6 - 261 Illini Union

9:00 a.m. Registration, Orientation, Introductions, Purposes of the Institute: Dr. M. Ray Karnes, Chairman, Department of Vocational and Technical Education, University of Illinois

Institute Procedures: Mr. Theodore Koschler, Vice President, Miami-Dade Junior College

Evaluation: Mr. James Gallagher, Assistant Professor of Industrial Education, University of Alberta

10:00 Rationale and Need for Technical Education--The Changing Manpower Scene: Dr. John Parrish, Professor of Economics, University of Illinois

Discussion: Mr. Richard Eno, Head, Mechanical Technology Department, Agricultural and Mechanical College, State University of New York, Canton

12:00 Noon Luncheon - 314 B Illini Union

Welcome: Dr. David D. Henry, President, University of Illinois

Mr. John Beaumont, Director of Vocational Education, Illinois State Board for Vocational Education and Rehabilitation

Dr. Rupert N. Evans, Dean, College of Education, University of Illinois

2:00 Rationale and Need for Technical Education - 261 Illini Union

Demand for Semi-Professional and Technical Manpower: Mr. Harry Bigelow, Executive Assistant, Reactor Physics Division, Argonne National Laboratory

The Technician, His Work and Education: Dr. Jerry Dobrovolny, Head, Department of General Engineering, University of Illinois

Dr. Walter J. Brooking, Curriculum Specialist, Division of Vocational and Technical Education, U. S. Office of Education

Tuesday, June 7 - 261 Illini Union

9:00 a.m. The Administrator as Educational Statesman. Establishing the Climate for Effective Instruction: Dr. David C. Epperson, Associate Professor of Higher Education, University of Illinois

Panel Discussion. Institute Participants

10:30 Coffee Break

10:45 The Leadership Function of the Administrator

Group A: Dr. Walter Bartz, Chief of Technical Education, Illinois State Board of Vocational Education and Rehabilitation

Group B: Mr. Theodore F. Koschler

1:30 p.m. Problems and Prospects in Technical Education: Dr. Harry Broudy, Professor of History and Philosophy of Education, University of Illinois

Discussion from floor

3:00 Coffee Break

3:15 Technical Education in the Years Ahead

Group A: Mr. Theodore F. Koschler

Group B: Mr. Richard Eno

Wednesday, June 8 - 261 Illini Union

9:00 a.m. Essential Characteristics of an Effective Program of Technical Education: Dr. M. Ray Karnes

Panel Discussion (Institute Participants): Mr. Richard Eno, Chairman

10:30 Coffee Break

10:45 Administrative Structure for Technical Education: Mr. Theodore Koschler, and Mr. Lee Hardwick, Field Representative, Regional Office, U. S. Office of Education, Dallas

1:30 p.m. Administrative Structure for Technical Education. Problem Assignment

Group A: Mr. Theodore Koschler

Group B: Mr. Richard Eno

Thursday, June 9 - 261 Illini Union

9:00 a.m. Bases for and Approaches to Curriculum Construction

Educational Planning to Meet Area and Selected Industry Needs: Mr. J. P. Lisack, Director, Office of Manpower Studies, Purdue University

Curricular Research: Dr. Robert M. Tomlinson, Assistant Professor, Department of Vocational and Technical Education, and Dr. William J. Schill, Associate Professor, Department of Vocational and Technical Education, University of Illinois

1:30 p.m. Professional Organizations, Accreditation Licensing: Dr. Elizabeth Simpson, Professor of Vocational and Technical Education, University of Illinois (President, American Vocational Association)

3:00 Group A: Mr. Richard Eno

Group B: Mr. Theodore Koschler

Friday, June 10 - 261 Illini Union

9:00 a.m. Recruitment, Selection and Preparation of Staff: Mr. Richard Eno

10:30 Coffee Break

10:45 Student Personnel Services: Counseling, Placement, and Follow-Up Discussion: (Panel Participants). Mr. Theodore Koschler, Chairman

1:30 p.m. Long-range Planning for Technical Education: Local, Regional, and State

Institutional Development: Mr. Theodore Koschler

Facilities for Technical Education: Mr. M. S. Cheever, Director, Plant Engineering, Bell Telephone Laboratories

3:00 Group A: Mr. Theodore Koschler

Group B: Mr. Richard Eno

Monday, June 13 - Field Trip: Argonne National Laboratory

6:30 a.m. Leave Sherman Hall

8:00 Breakfast: Manor Inn, Joliet

9:30 Orientation: Mr. A. B. Krisciunas, Director's Office, Argonne National Laboratory, and Mr. Harry Bigelow

5:00 p.m. Dinner: Manor Inn

Tuesday, June 14 - 2 Education Building

9:00 a.m. Financing Technical Education: Mr. Theodore Koschler

10:30 Coffee Break

10:45 Federal, State, and Local Sources of Support: Presentations by Participants. Mr. Richard Eno, Chairman

1:30 p.m. Evaluation of Technical Education: Dr. M. Ray Karnes

2:30 Group A: Mr. Richard Eno

Group B: Mr. Theodore Koschler

Wednesday, June 15 - 2 Education Building

9:00 a.m. The Technology of Instruction: Dr. Robert Lorenz, Head of Instructional Materials Division, Office of Instructional Resources, University of Illinois

Dr. Franklin Bouwsma, Director of Learning Resources, Miami-Dade Junior College

10:30 Field Trip: Coordinated Science Laboratory; Computer Controlled Instruction: Dr. Donald Bitzer, Research Associate Professor, Coordinated Science Laboratory, University of Illinois

1:30 p.m. Computer Services for Instruction and Institutional Management: Mr. Theodore Koschler

2:30 Work Session: Institute Participants

Group A: Mr. Theodore Koschler

Group B: Mr. Richard Eno

Thursday, June 16 - 2 Education Building

9:00 a.m. Problems and Issues in Technical Education: Participant Committee Reports

1:30 p.m. Problem Solution Discussion
Participant Reports

Friday, June 17 - 2 Education Building

9:00 a.m. Summary and Conclusions: Dr. M. Ray Karnes

10:00 Next Steps: Leadership Development in Technical Education

Discussion: Mr. Richard Eno, Chairman

11:00 Evaluation: Mr. James Gallagher

APPENDIX H

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Madison Vocational-Technical and Adult Schools
Madison, Wisconsin

501 of 86

APPENDIX J

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES

IN

TECHNICAL EDUCATION

This is to certify that _____ has successfully completed 60 clock hours in Technical Education Leadership Development.

These institutes were a cooperative effort of Colorado State University, Oklahoma State University, Rutgers – The State University, University of Florida, and the University of Illinois, coordinated by The Center for Research and Leadership Development in Vocational and Technical Education, The Ohio State University. The institutes were conducted pursuant to a grant from the U.S. Office of Education, Department of Health, Education, and Welfare.

Calvin J. Cottrell

Project Director, National
Leadership Development Institutes
in Technical Education

_____

Institute Director

Robert B. Taylor

Director, The Center for Vocational
and Technical Education, The Ohio
State University

UNIVERSITY

SEAL

_____

President

Robert M Knoebel

Acting Assistant Director,
State Vocational Service Branch,
Division of Vocational and
Technical Education
U.S. Office of Education

_____

Dean

_____, 1966

APPENDIX K

SUMMARY OF CHI-SQUARE CALCULATIONS FOR COMBINATIONS OF SELECTED VARIABLES

Independent Variables ↓ / Dependent Variables →	Percent of gain by participants	Topic evaluation (nine major topics) by participants	Participant's score on the assigned problem	Participant's plans and objectives	Participant's leadership abilities
Participant pre-test score	.001*	x	x	x	x
Institute	.050*	x	-	x	.001*
Participant's age	x	x	-	-	x
Service area of participants	x	-	x	x	-
Non-educational work experience classifications	x	-	-	x	x
Participant's institution classification	x	-	x	x	x
Participant's present position title	x	-	x	x	.010*
Years of service in present position	-	-	x	x	.050*
Professional education work experience in years	x	x	-	x	x
Number of years for non-educational work experience	x	-	-	-	x
Highest degree earned	x	x	x	x	x

x Chi-square was calculated but was not significant at .05 or higher level
- Chi-square was not calculated
* Chi-square was calculated and was significant at the indicated level

APPENDIX L

AGENDA

PROJECT EVALUATION CONFERENCE

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES IN TECHNICAL EDUCATION

October 10-11, 1966

MONDAY, OCTOBER 10

8:00 a.m.	Pick up conference participants	Staff
8:30	Welcome Remarks	Robert E. Taylor
8:45	Conference activities and expectations	C. J. Cotrell
9:00	Financial arrangements	C. J. Cotrell
9:45	Break	
10:00	Review of Instructional Materials	I. E. Valentine
10:45	Supplemental Instructional Materials	I. E. Valentine
11:45	Lunch (Jai Lai)	
1:15 p.m.	Directors' Evaluation of Instructional Activities by Topic	I. E. Valentine
2:00	Topic Evaluations by Participants	D. L. Larimore
3:00	Break	
3:15	Participant Selection and Gain	I. E. Valentine
4:00	Exploration of Interesting Relationships	D. L. Larimore
5:00	Return conference participants to motel	Staff
6:00	Dinner (Stouffer's)	
7:30	Review of Evaluation Techniques	C. J. Cotrell
8:30	Review of Consultants and Resource Persons	I. E. Valentine
9:30	Adjourn for evening	

TUESDAY, OCTOBER 11

8:00 a.m.	Pick up conference participants and luggage	Staff
8:30	Implications and recommendations for future institutes	A. J. Miller
10:00	Break	
10:15	Review of the Structure and Organization of the Project and Institutes	C. J. Cotrell
11:00	Follow-up of the 1966 Participants	I. E. Valentine
11:30	Lunch (Jai Lai)	
1:00 p.m.	Implications for other projects	C. J. Cotrell
2:00	Conference Summary	C. J. Cotrell
2:30	Adjourn	

PARTICIPANTS

Project Evaluation Meeting

October 10-11, 1966

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The Ohio State University

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VT 002 928

VT 002 928 ED

Compilation of Technical Education Instructional Materials, Supplement II, Institute Presentations. (National Leadership Development Institutes in Technical Education, Summer 1966).

Cotrell, C. J., comp. * Valentine, I. E., comp.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

Apr67

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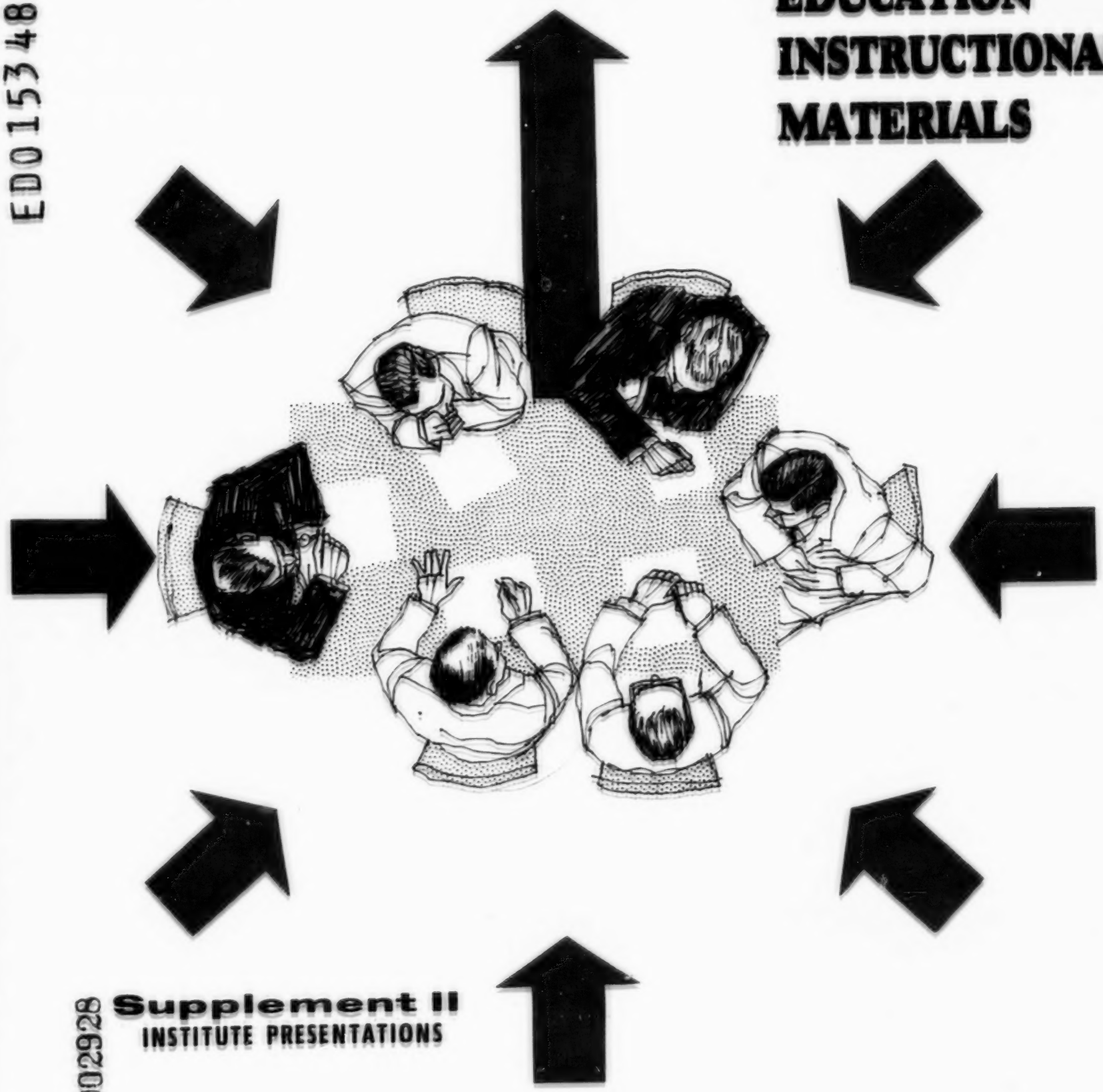
*INSTITUTES (TRAINING PROGRAMS), *LEADERSHIP TRAINING, *SPEECHES, *TECHNICAL EDUCATION, *SUBPROFESSIONALS, ADMINISTRATIVE ORGANIZATION, CURRICULUM DEVELOPMENT, EDUCATIONAL FACILITIES, INSTRUCTIONAL STAFF, EDUCATIONAL FINANCE, TEACHER SUPERVISION, INSERVICE TEACHER EDUCATION, PUBLIC RELATIONS, EDUCATIONAL OBJECTIVES, STUDENTS, EDUCATIONAL RESEARCH,

Institutes for leadership training were conducted by Colorado State University, Oklahoma State University, Rutgers State University, the University of Florida, and the University of Illinois and coordinated by The Center for Vocational and Technical Education at The Ohio State University. Participants were 195 leaders and potential leaders in technical education representing 46 states and Puerto Rico. The subject areas of the presentations were -- (1) leadership role, (2) rationale and need for technical education, (3) the technical education student, (4) administrative structure of technical institutions, (5) program patterns and curriculum development, (6) facilities and equipment, (7) staffing, (8) financing education programs, (9) supervision and inservice education, (10) establishing research, and (11) public relations. Representative presentations from selected areas are -- (1) "The Leadership Role" by Ralph C. Wenrich, (2) "Rationale and Need for Technical Education" by E. L. Kurth, (3) "The Administrator's Role in Providing Support for Effective Faculty-Student Dialogue" by David C. Epperson, (4) "Implications and Impact of The Vocational Education Act of 1963" by Roy W. Dugger, and (5) "Staffing" by Jerry Dobrovolny. VT 002 530, VT 002 936, and VT 002 930 contain additional information on the institutes. (HC)

Attachment to Final Report
Project # 6-1888
PA 08

ED015348

Compilation of TECHNICAL EDUCATION INSTRUCTIONAL MATERIALS



Supplement II
INSTITUTE PRESENTATIONS

VT002928

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES in TECHNICAL EDUCATION 1966

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION / THE OHIO STATE UNIVERSITY
980 KINNEAR ROAD / COLUMBUS, OHIO 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

COMPILATION OF TECHNICAL EDUCATION INSTRUCTIONAL MATERIALS

SUPPLEMENT II
INSTITUTE PRESENTATIONS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
in
TECHNICAL EDUCATION

SUMMER 1966

Compiled by

C. J. Cotrell
and
I. E. Valentine

THE CENTER FOR RESEARCH AND LEADERSHIP
DEVELOPMENT IN VOCATIONAL AND
TECHNICAL EDUCATION

The Ohio State University
Columbus, Ohio 43212

April 1967

PREFACE

In the summer of 1966, 195 leaders and potential leaders in technical education, representing 46 states and Puerto Rico, participated in five National Leadership Development Institutes in Technical Education. The institutes were conducted by the following institutions and directors to whom we are very grateful: Colorado State University, H. L. Benson; Oklahoma State University, Maurice W. Roney; Rutgers - The State University, Milton E. Larson; The University of Florida, E. L. Kurth; and The University of Illinois, M. Ray Karnes. The national consortium of five cooperating institutions was coordinated by The Center for Vocational and Technical Education, The Ohio State University.

The coordinating institution prepared several types of materials for use as instructional resources in the institutes. An original Compilation of Technical Education Materials was prepared in April 1966. Experience in the institutes and the project evaluation, however, revealed the need for additional instructional materials for use by the participants and institute staff for conducting future state and locally sponsored leadership training. To fulfill this requirement, new and revised instructional materials have been developed and incorporated in supplements to the original compilation.

Supplement II is a compilation of presentations and summaries of presentations by outstanding authorities in education who were consultants for the five institutes.

Recognition is due for the following staff members who prepared this document: Calvin J. Cotrell, Specialist and Director of the Project; Ivan E. Valentine, Consultant and Coordinator of the Project; David L. Larimore, Research Associate; and Betty Diehl, Secretary, The Center for Vocational and Technical Education.

Credit is also extended to the following persons who served as reviewers of this publication: Dr. Franklin Keller, Consultant, Vocational and Technical Education; and Drs. A. J. Miller and Harry Huffman, Specialists, The Center for Vocational and Technical Education, The Ohio State University.

Robert E. Taylor
Director

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INTRODUCTION

The materials presented in Supplement II represent a wealth of information on Technical Education which heretofore has not been available under a single cover. These presentations and summaries of presentations by outstanding authorities in education, who were consultants for the 1966 National Leadership Development Institutes in Technical Education, have been compiled as part of the additional instructional materials development effort recommended by the project evaluation committee.

The compilers are grateful to the following institute recorders for their outstanding services in collecting and summarizing the institute presentations:

Jack Annan - Colorado State University

James E. Gallagher - University of Illinois

John Moullette - Rutgers - The State University

E. B. Moore - University of Florida

Scott Tuxhorn - Oklahoma State University

Supplement II is divided into 12 parts and consists of selected presentations and summaries from the five institutes. Parts I through XI contain materials from the University of Florida, the University of Illinois, Oklahoma State University, and Rutgers - The State University, which have been arranged in alphabetical order by the major topics of content offered in the institutes. The institutional origin of presentations is indicated at the bottom of the first page of each paper. The name of the institution is placed after a double asterisk.

A summary of the presentations from the Colorado State University constitutes Part XII. The recorder for this institute summarized his interpretations of the presentations and, therefore, has not cited each presenter. The summary is organized by major topics of the institute program.

While we believe all materials contained in this publication have been developed with great care, it should be mentioned that some of the papers were prepared from tape recordings and are, therefore, subject to transcription error.

The compilers are hopeful that this publication will be a valuable resource in future leadership development programs in Technical Education.

C. J. Cotrell
and
I. E. Valentine

PART I

LEADERSHIP ROLE AND CHARGE

THE EMERGING THEORY OF LEADERSHIP

by

Willis A. LaVire*

The mood of man is changing. His ego is being restored by philosophy and psychology as a result of his enlightenment. His quest for self-realization and self-determination will not now be satisfied by outmoded models. With these great forces to support him, he is demanding a greater voice in his destiny, and he will have it. A newer theory of decision-making and leadership has had to emerge in answer to this demand, and it might be added that this theory is still emerging.

The democratic, or emerging, theory of leadership is based upon assumptions more nearly in accord with man's developing confidence. These assumptions are: (1) that leadership is not confined to those holding status positions in the power echelon; (2) that responsibility, as well as power and authority, can be shared; (3) that everyone affected by a program or policy should share in decision-making with respect to that policy; (4) that the line and staff organization is exclusively for the purpose of dividing labor and implementing policies and programs developed by the total group affected; (5) that the individual finds security in a dynamic climate in which he shares responsibility for decision-making; (6) that evaluation is a group responsibility; (7) that good human relations are essential to group production and the meeting of the needs of the individual members of the group; (8) that unity of purpose is secured through consensus and group loyalty; and (9) that maximum production is attained in a threat-free climate.

It can be seen that although traditional theory is perfectly satisfied by a line and staff organization which determines and also executes policy, the requirements of emerging theory are not met. Something else is needed because the line and staff organization does not provide for equality in decision-making on goals, programs, and policies. The emerging theory really calls for two types of organization within the same institution--one for determining goals, policies, and programs (policy decisions), and the other for implementing policies and programs (executive decisions). Emerging theory accepts the line and staff solely for the purpose of implementing policies and programs developed by the total group concerned.

Democratic theory does not embrace any of the following assumptions:

1. That all decisions must be shared. Many decisions, implementing ones, are individual.

---

*Dr. LaVire is Associate Professor of Education, University of Florida.
**University of Florida.

2. That the official leader never tells anyone he must do anything. He is responsible for enforcing policy.

3. That official leadership never takes a stand. He has as much responsibility for stating his position as anyone else.

4. That the amount of time available should not affect the decision-making procedure. Emergency decisions may limit discussion and degree of consensus.

5. That the official leader should not go ahead and make a decision if the group refuses to participate. Extend the opportunity and continue to do so, but do not stop action because no one wants to participate.

6. That insisting that group members work out agreements for good of group is undemocratic. The leader has the responsibility for preserving the life of the group and must fight to do so.

7. That authority is not to be used. For service of the group, not for individual aggrandizement.

It has occurred to me that the line and staff was devised for the purpose of unifying effort in the name of achievement, whereas the effect, by denying participation, might well be a coerced effort which could well be adverse to achievement.

In essence, to me, man is demanding that those who would practice leadership in the decision-making process must first be those who have sufficient faith in man to dedicate their leadership to the release of man's potential. To the school administrator, this means that he who leads best is he who can most fully release and utilize the potential of those with whom he is associated.

Man is saying that his valued participation in policy decisions is the only source for his freely given support toward policy implementation. To the school administrator, this means that if he really expects to achieve efficiency in the realization of objectives, he had better pay heed.

To me, man is saying more. He is saying that diversity should be valued, for through diversity, he is able to foresee more clearly the consequences of his decision, and this is a direct appeal to increase the intelligence which is brought to bear on the decision. To the school administrator, this means there are benefits to be derived, simply by using that which democratic man professes to cherish.

To me, man is saying that he wants his experiences to be such that he will learn to function independently in his approach to problem-solving.

To the school administrator, this means that the dependency-creating experiences found in the authoritarian climate are inappropriate.

And to me, man is asking that he be permitted to learn how to live together for he is anxious to enjoy his evolving identity. To the school administrator, this means that the only positive means yet invented for resolving conflicts is found in the democratic process.

In conclusion, I hope that it has been demonstrated in this discussion that man is once again on the move. Increased intelligence is powering this move--this time in the direction of self-direction. He marches with confidence for he has received the supreme compliment of being placed in charge of his fate. This charge requires that he have a voice in the decisions which affect him, and have it he will. The authoritarian decision-making method has tradition as its champion, but so had the horse and buggy and James Whitcomb Riley's "Outhouse."

THE LEADERSHIP ROLE

by

Ralph C. Wenrich*

Leadership is based on communication. Communication is facilitated as we come to know each other's conditions and problems. Communication often breaks down because we do not know and understand the problems and concerns of those with whom we are attempting to communicate.

In determining what leadership is and how a leader is recognized, several authorities were consulted. Webster's International Dictionary defined a leader as:

> A person.....who precedes or directs in some action, opinion or movement.

Ordway Tead defined leadership as:

> The exercising of influence over others on behalf of the leader's purposes, aims or goals. Leadership.....has the more difficult task of being concerned with what the followers should want, may come to want, or be brought to want.....

The difficulties of defining leadership are illustrated by Cartwright and Zander:

> .....leadership is a property of a group while to others it is a characteristic of an individual. (In).....the group, leadership may be synonymous with prestige, with the holding of an office, or with the performance of activities important to the group. (In).....the individual, leadership may mean the possession of certain characteristics such as dominance, ego-control, aggressiveness, or freedom from paranoid tendencies, or.....the possession of certain physical characteristics such as tallness, or an impressive physiognomy.

Leaders cannot be distinguished from non-leaders simply on the basis of personality characteristics or traits.

Admiral Rickover--lampooning the military habit of defining leadership by certain rules of conduct--said:

> Such rules are not the basic essentials of leadership. There is more to it than that.

---

*Dr. Wenrich is Chairman, Department of Vocational Education and Practical Arts, The University of Michigan.

**Rutgers - The State University.

The author of Seven Days in May describes leadership as:

> That mixture of good will, force and magnetism.

There is reason to believe that in certain situational contexts, specific traits of individuals may be associated with their leadership. Darley, in 1961, said:

> .....it has become fashionable to define leadership as related to situations and as relatively uninfluenced by individual traits.
>
> More attention.....of group behavior in leadership should be given to the interaction of individual traits and situational factors.

In support of the interaction theory of leadership, Gibb said:

> Any comprehensive theory of leadership must incorporate and integrate.....major variables.....know to be involved, namely: (1) the personality of the leader, (2) the followers' attitudes, needs, and problems, (3) the group .....(in) regards to (a) structure of inter-personal relations, and (b) syntality (sic.) characteristics, (4) the situations.....physical setting, nature of task, etc. Furthermore.....it will not be these variables per se which (will) enter into the leadership relation.....it is the perception of the leader.....the leader's perception of those others, and the shared perception.....of the group and the situation with which we (will) have to deal.

We are concerned with leadership in large formal organizations..... not all leaders.....are in administrative and/or supervisory positions. And.....not all persons in administrative and supervisory positions are .....leaders.

James M. Lipman analyzed the difference between leadership and administration:

> In examining the organizational setting.....we can conceive (it) as a hierarchy.....a structured social system. This hierarchy of relationships serves.....to achieve the goals of the organization. A social organization..... exists to discharge certain functions.....or ends toward which the (organizational) behavior is directed.
>
> The important analytical and conceptual unit of the sociological dimension is the role: the dynamic aspects of positions, offices, and statuses.....Roles are defined in terms of expectations.....Roles are also complimentary and interdependent.....The school system is structured in terms

> of such complimentary roles as board members, superintendents, directors of vocational and technical education, principals, teachers, and pupils.
>
> In terms of the psychological dimension, an organization is always interpersonal.....
>
> To understand and predict social behavior, we must take into account the need.....of the individual as well as the structure of the organization.

The two dimensions--sociological and psychological--are related to organizational effectiveness and efficiency.

Leadership, in this context, implies the initiating of a new structure of procedure.....The emphasis is upon initiating change.

The administrator.....may be identified as the person who utilizes existing structures or procedure..... The administrator is concerned with maintaining.....established structures.

There has been some research dealing with general school administration.

One study showed that principals, judged to be effective, exhibited the following characteristics: (1) engaged in strong, purposeful activity; (2) related well to people; (3) sought success and higher-status positions; and (4) felt secure in both home and work settings. On the other hand, principals, judged to be ineffective, were: (1) deliberate in nature; (2) satisfied by present status; (3) preferred assisting children to working with teachers; (4) depended on others for support; (5) showed strong emotion in charged situations; and (6) showed preoccupation with speculative reasoning.

Gross and Herriott attempted to measure Executive Professional Leadership (EPL)--defined as "the effort of a principal to conform to a definition of his role.....to improve the quality of staff performance"--of elementary school principals.

They found that the effective principal had a high evaluation of his ability to provide educational leadership to his staff, devoted off-duty time to his job, had a service motive for seeking positions, possessed intellectual ability, and commanded interpersonal skills.

They also found that effective leaders permitted teachers to share in decisions, treated teachers as equals, gave teachers social support, offered teachers managerial support, and supported teachers in conflicts with pupils.

Other studies.....dealing with large formal organizations.....identified two major dimensions of leader behavior: (1) initiating structure

in interaction, i.e., (a) delineating leader-follower relationships, and (b) establishing clear organizational goals and procedures; and (2) consideration, i.e., warmth in relationships.....

.....a person who rates high in these two dimensions.....is generally perceived to be more effective than one who rates lower.....

Cartwright and Zander pointed out that most group objectives may be accomplished under two headings: (1) activities directed toward the attainment of stated group goals; and (2) activities directed toward maintaining or strengthening the work group.

Kinds of leadership behavior in the first are: keeps interpersonal relations pleasant; arbitrates disputes; provides encouragement; recognizes the minority; stimulates self-direction; and increases the interdependence among members.

Kahn and Katy.....claim that some supervisors are production-oriented while others are employee-oriented. The former emphasize increased efficiency, and institutional goal attainment. The latter focus on employee motivation.....and the building of employee morale.

The 1963 University of Michigan Leadership Development Program in Vocational and Technical Education attempted to identify.....and develop persons for leadership roles.....and to find out how one can identify potential leadership and to learn.....what constitutes a sound program for the development of (these) persons..... Heretofore, most (vocational) teachers were recruited into the profession on the basis of technical competency and rose to positions of leadership without acquiring an understanding of our society. They need this understanding and to develop the skills and abilities of effective leaders.

The results to date of the University of Michigan project indicated that nearly two-thirds of the men in the project summer workshop and internship had moved to more responsible positions.

Effective leadership in vocational and technical education is characterized as follows:

1. The.....leader helps others to accept common goals.
2. The.....leader initiates productive action in group situations.
3. The.....leader establishes clear plans and work procedures.
4. The.....leader maintains warm relationships.....
5. The.....leader obtains commitment and cooperation from those with whom he works.
6. The.....leader effects change and builds organizations.....

Vocational and technical education.....must take new directions..... The leader can be expected to succeed only if he knows how to work with people.....

THE LEADERSHIP ROLE

by

Robert R. Wiegman*

For some time, we thought of leadership in terms of giving orders and directing the activities of others. If one aspired to be a leader, there were certain leadership traits which either had to be inherent or developed. Then we began to see that perhaps leadership was situational--fluctuating from one person to another in any given group, diffused and based upon the task at hand.

Then research on leadership began to use two different terms, one, "status leader," and the other, "emerging leader."

The status leader is one who owes much of his authority to the position he holds. He may be a president, a dean, or a colonel. His position gives him status. He is followed with various degrees of enthusiasm, depending upon how he exerts his leadership qualities. He senses the direction in which the group should move and proposes courses of action to move the group in that direction. His leadership is accepted as long as the group is moving forward toward the stated objectives. When he fails to be in the forefront, the group turns elsewhere for leadership. To reinforce his leadership, he gathers around him men and women who are also ambitious, who like power and authority, and who are willing to subordinate their own personal ambitions and ideas about institutional goals to the person whose leadership they have accepted.

Emerging leadership is based upon the acceptance and symbolizing of group goals. Emerging leaders are able to put into words the aspirations and dreams and fears of the group around them. They express in words what others are thinking but are reluctant to express. They take their strength from the groups; their leadership is accepted. They are the common denominator, the voice. These are the people who speak up in departmental and faculty meetings. They are substantial members of the faculty, and we should tap their abilities. They have much to contribute, but they can be frustrating people to have around. They are rather easy to identify--they speak out, are good committee members because they are willing to serve, and they are the people to whom others listen and with whom they visit and talk.

Leadership is based upon one overwhelming conviction: a deep faith in people. As educational leaders, we <u>expect</u> the staff to do the right thing. The problem is one of determining what the right thing is. Unless we have a clear understanding of our goals as an institution, how can we measure the extent to which we have progressed. These goals must be established in concert with the staff in order that the institution's

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goals coincide with the goals of the individual staff members.

Once the direction has been agreed upon, we, as leaders, must have faith in the subordinate's determination to reach the goal and believe that his determination is just as strong, as sincere, and as deep as our own. If we have this faith, there are several considerations which can assist us in functioning as effective leaders. These are:

1. We should have a sincere desire to develop others.

2. We should recognize leadership in others and release it.

3. We should be mature people.

4. We should value differences and see growth as a result.

5. We should involve people in policy formulation as well as policy execution.

6. We should examine ideas on their own merit, regardless of who advances them.

7. We should develop a sound organizational pattern wherein each member understands his role and authority, as well as the role and authority of others.

8. We should eliminate petty, unnecessary activities to permit the staff to engage in thinking and planning.

9. We should encourage experimentation and innovation by active support and interest.

10. We should understand and care about the program of the entire institution.

11. We should accentuate the positive in our relations with others. Keep posted on what happens to your staff. Compliment good work; recognize important events in the personal lives of your staff.

Chris Argyris, reporting in the March-April issue of the Harvard Business Review on a study of the gap which often exists between what executives say and how they behave, offers some courses of action which may be appropriate in developing more effective educational leadership:

1. The executive can strive to be aware that he is probably programmed with a set of values which cause him to behave in ways that are not always helpful to others and which his subordinates will not discuss frankly when they believe he is not being helpful.

2. The executive should not accept group ineffectiveness as part of life. Groups can be effective, and the value of a group is to maximize individual contributions. One of the main tasks of the leader is to build and maintain an effective decision-making network; therefore, he has no choice except to spend time in exploring how well his group functions.

3. A good technique is for the leader and his group members to tape record a decision-making meeting, especially one which is expected to be difficult; and later on the group members can gather and listen to the tape. This in itself is an education.

Argyris concludes by saying that he had never observed a group whose members wanted it to decay. He had never studied a group or organization that was decaying where there were not some members who were aware that decay was occurring. Accordingly, he points out, one key to group and organizational effectiveness is to get this knowledge out into the open and discuss it thoroughly.

To me, these are some of the factors that are necessary for effective leadership.

PART II

THE RATIONALE AND NEED FOR TECHNICAL EDUCATION

THE RATIONALE AND NEED FOR
TECHNICAL EDUCATION
by
Abraham J. Berman*

A three-year survey of technical manpower was recently completed in New York State. A study of this group of occupations was made because: less was known about this group of occupations than about any other; these occupations had expanded most rapidly during the 1950's; this group could offer a great many job occupations to young people during the 1960's; technical institutes and the vocational-technical high schools needed up-to-date information in order to know in which technical fields to expand offerings and in what sort of facilities to invest; it was necessary to learn what type of personnel and what type of training industry wanted; and because the employment service, guidance counselors, curriculum developers, and technicians could use information on the nature of these jobs, the skills required, and the opportunity for employment and advancement within this group of occupations.

From 1947 to 1965, the civilian labor force rose from 60,000,000 to 76,000,000. In the 16,000,000 gain, 6,000,000 were men while 10,000,000 were women.

The total labor force is expected to increase to 101,000,000 by 1980. About 13,000,000 of the gain will be men and 10,000,000 will be women. The largest gains will occur among the youngest workers--those from fourteen to forty-four years of age.

During the recent past, the largest increases in employment have occurred in service-producing industries. In the future, the largest gains are expected in the trade, service, and government sectors of the economy.

Employment for professional and technical workers between 1965 and 1975 is expected to gain by 48.6 percent. Above average increases are expected among clerical and service workers. Growth should be relatively low for operatives, and in the next decade, there should be a decline in the number of industrial laborers, farmers, and farm managers. This indicates that there is a greater need than before for post-high school education in the technical and professional fields on the part of youth.

Industry has begun to worry about recent structural labor shortages, stemming from the upward shift in skill requirements. The number of jobs may dwindle because of increasing technological change; nevertheless, structural labor shortages in engineering, management, and skilled jobs

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will become more of a problem. What is needed is continuing job opportunities for the expanding younger and older groups, with particular emphasis on increased training for youngsters.

In the New York State Labor Department's survey of technicians, the most difficult problem was to define a technician. It was broadly concluded that a technician is one who works in private industry or a public agency in a job intermediate between that of a craftsman and that of a professional scientist or engineer who needs mathematics beyond simple algebra and science beyond the typical general science course.

In New York State--within this definition--there are as many technicians as there are scientists, mathematicians, engineers, and architects. Some professionals are supported by several technicians while others have no technical assistants.

Engineering education is putting more emphasis on theoretical research and development aspects and far less on the practical aspects. The true economy calls for every engineer to be supported by four technicians. This 4:1 ratio is greater than the existing 1:1 overall ratio.

Job descriptions for the technical occupations are difficult to define. In New York State, there exists a detailed classification scheme consisting of fifteen broad groupings and several hundred minor groupings. These are further divided into product and equipment categories and also into function categories, i.e., design, development, installation, maintenance and trouble-shooting, and combinations of these functions.

The survey produced these projections: in New York State, by 1975, there will be approximately 228,000 technical occupations (this figure combines the effects of the changing and expanding industry structure with estimates obtained from employers on the expected increasing proportion of technicians to all the other employees in their establishments); The largest increases in technicians will be in the medical and biological field; services of technicians will be used more extensively than in the past; employers will supply additional support personnel for scientists and engineers in order to better utilize the latter; research and development will continue to expand; and automatic laboratory, testing, and other equipment will replace some low-level technical help which will expand the need for other technicians to develop, operate, and maintain this equipment.

Growth will continue in the computer industry for the processing of data, for the space industry, and for advances in the automation of production. As late as 1950, there were practically no programmers in New York State. By 1975, it is expected that there will be 10,000 such jobs in the Empire State.

Today, there are many opportunities for technicians in jobs related to the construction industry such as draftsman, estimator, surveyor, and

structural designer. If the expected expansion of industry takes place, persons in such jobs should prosper. A young person looking for a technician job will find openings not only because the total number of such jobs is growing, but also because people now in technicians' jobs will die, retire, be upgraded, or shift to other occupations. The latter opportunity is unusually good because a technician's practical experience and science orientation open up new challenges in high management positions.

The overview of job opportunities in the technician field indicates that graduates of two-year technical programs should find little difficulty in obtaining good jobs in the future.

The mentioned survey and its results caused teachers of technical subjects to: make contact with employers; examine carefully the nature of technical jobs; learn the knowledges and experiences expected of future technicians; identify new laboratory equipment used by industry; learn what occupations were expanding, declining, or remaining static; justify the continuation of some programs, the dropping of others, and the adding of new ones; and to rearrange programs relative to emphasis on design, development, maintenance, and trouble-shooting.

Training engineers to be a bit more theoretical and a bit less practical is leaving a gap in the structure of industry. Within this gap is much of the work that engineers did in the past. A great deal of it is being taken over by persons who are technically trained.

Whether it is better for a student to learn specialized techniques in school or on the job was a question not resolved by the survey.

The main value of the New York State survey appears to be that some light has been thrown on the number of different sorts of technical jobs; their importance; their nature, characteristics, and variety; their requirements; and the trends under way in this field.

THE TECHNICIAN AND HIS JOB

by

Lynn A. Emerson*

In achieving the goals in technician education--and in other education as well--we are faced with the task of changing the behavior of persons. In this sense, we define behavior as the composite of how persons act in their work life. This behavior is determined by the nature and quality of their knowledge and understanding, their skills and abilities, their attitudes and appreciations. An educational program for technicians must take into account the needs of workers in technician jobs with respect to these attributes. In planning programs, we must look, not only at the present job of the technician, but also at the jobs of tomorrow.

The rapidity of technological change indicates that the person entering the labor market today may be forced to make several major job changes during his lifetime. Our task thus includes his preparation for initial entrance into work life, and also such preparation for change as may be feasible to include in the program. Perhaps one of the larger tasks is that of developing proper psychological attitudes toward change, of facing change effectively. This will involve continuing study for growth and updating in the initial job, and in other jobs growing out of the initial job, and possibly a major shift into some new occupation that will emerge due to technological advancement.

An educational program that helps persons prepare for changing conditions needs breadth, and it needs attention to those bodies of content that cut across all occupations. Perhaps human relations and industrial economics should be given greater attention, as well as breadth in basic science and mathematics; and it probably will not be long before every technician curriculum will include at least a basic understanding of the functions that computers will play in the world of tomorrow.

In trying to get at a clear understanding of the present-day jobs of technicians, the charts we have to present may be of help. The first of these shows a comparison of the semiskilled worker, the skilled craftsman, the technician, and the engineer with respect to the division of their total task between manipulative and technical skills. You will note that the four sections of the chart form a continuous series, with the proportion of the technical skill of the semiskilled worker rising in certain types of such jobs to that of certain skilled craftsmen, the craftsman shading into that of the technician, and the technician into that of the engineer. You will note also that within each category are different proportions of technical and manipulative skills--some craftsmen

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requiring more than others, and some technicians differing from other technicians. In comparing the craftsman and the technician, a rough measure is, when the total technical effort of the worker exceeds 50 percent of the total effort, he might be classed as a technician.

The variations of technical and manipulative skills among the different skilled craftsmen are rather wide. Some craftsmen, such as toolmakers and printers, require a much wider range and amount of technical skills than do other craftsmen such as plasterers or bricklayers. The manipulative skills required of such craftsmen may be very high--for example, the plasterer.

It is difficult to draw distinct lines between jobs and to say that one job is in the technician category and another in the skilled crafts; but we can draw broad lines, and for convenience we group the jobs somewhat as shown in the chart. When legislation confines the use of funds to specific groups, such as N.D.E.A. funds allocated to the training of technicians, jobs must be classified; but the Vocational Education Act of 1963 makes it possible to transfer funds from one category to another, and this does away with the need for some of the fine classification of jobs.

Some occupations in the vocational-technical field are very limited in the amount of technical skill required and the range of content with which they deal. Others require that the worker deal with a considerable variety of subjects and have a high degree of scientific understanding and technical skill. The chart showing types of technical occupations illustrates these differences. At one end of the scale are the jobs of low level and narrow scope, such as routine inspection or routine engine testing. They have some technical content but can hardly be called technician jobs. Other occupations have a narrow range of technical content but demand a high level of technical ability within that range of content. Such jobs might include the servicing of color television receivers. Such workers might be classified as technical specialists.

Other technical occupations require a moderate level of ability and understanding of a moderately wide scope of content. The production technician who deals with quality control, production control, and the like, might be listed in this category, sometimes referred to as the industrial technician. The category which includes jobs which demand a high level of scientific and technical ability and acquaintance with a wide range of content, embraces the different types of engineering technicians. These persons must be able to work with engineers in a wide variety of situations. They usually need more mathematics and science than do the industrial technicians. Such jobs as tool designer, engineering aide, and electronics technician are in this category.

In some educational institutions, provision is made so that students who for one reason or an other don't fit into the engineering technician curriculum are given specialized instruction in a narrow field and thus

trained as technical specialists rather than technicians.

In looking at the different types of technical occupations--from the low-level technical jobs to those of engineering technicians--the question may be raised as to how these jobs differ from those of the skilled crafts. As noted earlier, many skilled crafts border on technical occupations, and jobs formerly classified as skilled crafts may now be considered as technician in character because of the great increase in technical content required for such jobs. There is also the temptation to put undue emphasis on the training of technicians and to neglect the training of skilled craftsmen. The number of skilled craftsmen greatly exceed the numbers of technicians, and the need for their training is great. The high rate of increase in technician jobs due to technological change is responsible for our present increased interest in the development of technician training programs, and this will probably continue for some time.

As one looks at the various stages which a product goes through from its inception to its ultimate use--as listed in the chart--and notes the types of workers that have to do with each stage, it is evident that the technician is concerned with all of them. He assists the scientist in the research aspects and the engineer in the design, development and testing. He deals with various aspects of manufacture. The technical salesman is often a technician. He is concerned with the installation of complicated technical equipment and with its operation. He is called upon to maintain the product in operating condition through technical service.

If one looks at the technician jobs in the construction field, as shown in the chart, he finds a considerable variety. The skilled crafts jobs in this field include the bricklayer, plasterer, carpenter, painter, electrician, etc. The technician jobs include the architectural draftsman, estimator, building inspector, equipment salesman, surveyor, expediter, specification writer, and the like. Some of the technician jobs require a background of experience in one or more of the skilled crafts; others require broad technical training.

In the field of manufacturing, there are many jobs of technician character. The skilled crafts jobs in manufacturing include the machinist, molder, toolmaker, patternmaker, maintenance electrician, etc. The technician occupations embrace such jobs as the tool designer, mechanical draftsman, tool inspector, time-motion study man, expediter, technical maintenance man, technical supervisor, and the like. Some of these technical jobs vary considerably in scope and level. Some draftsmen do relatively simple work; others are concerned with highly complicated tasks of basic design. Some inspection tasks are simple; others such as surface plate inspection of complicated tools, gages, and fixtures are quite difficult. The tool designer needs to know toolmaking and various phases of machine tool production processes, as does the tool inspector. Likewise, the technical supervisor needs a broad

understanding of the machinery, processes, and materials of the area in which he works.

As one looks at the greatly varied types of technician jobs, it is interesting to note that inspection techniques--diagnosis of situations and judgment with respect to the observations--are found in a high proportion of technician jobs. The techniques of diagnosis--analysis and synthesis--are thus important elements of technician training programs. Another important element that cuts across all technician jobs is that of communication--of transmitting and receiving information through all sorts of ways.

One way of differentiating between technician and skilled crafts jobs is by using a check list showing characteristic technician tasks. If the majority of the items are found in the job under consideration, it may well be classified as in the technician category. Some of the items in the check list are as follows: analysis and diagnosis of situations involving technical understanding; ability to use standard technical handbooks; the use of a variety of instruments; interpretation of plans and drawings; visualization and creative design; understanding of materials and processes in the special field, and the like. Not all technician jobs involve all of the elements in the check list, but they are useful as criteria in identifying technician jobs.

Technicians are found in a wide variety of occupational fields. The medical and health fields require many technicians. They are found in agriculture, in business offices, in the distributive field, and elsewhere. In the years ahead, we shall probably see considerable expansion of educational programs for technicians in fields outside industry.

Over the years, we have seen many programs developed for mechanical technology, electrical-electronics technology, civil technology, and the like. Great expansion has taken place in the data-processing field. Now we are beginning to see the development of programs that cut across traditional categories. The field of electro-mechanical technology is emerging. Previously it was necessary--in preparing persons for certain jobs in this field--to take a person with mechanical technology training and give him some electronics or vice-versa; but neither of these practices proved to be entirely satisfactory. We are now in the process of developing integrated curriculums, involving pertinent aspects of both technologies. This may well happen with other technologies as well.

May I call attention to the desirability of program planning for technician education on a state-wide basis. In developing a master plan for technician education for a state, one must recognize that technicians have mobility and that the placement market for graduates of an institution may extend beyond the state borders; but it must also be kept in mind that courses for employed workers must be available. Thus the programs must be made available in such fields, in such quantities, and

in such locations as will meet the needs. In certain occupational fields, perhaps a single educational program is all that is needed to provide for the state as a whole; in other fields many programs will be required. Decision with respect to the types and numbers of programs needed for the immediate future, where these should be located, and priority in their development are sufficiently important to warrant the expenditure of time and money in developing such a state-wide master plan.

The rapidly developing technology is causing great changes in many different occupations, including the semiskilled as well as the technician. The overall program required to meet all these changes goes far beyond anything we have at present. Vast changes and much expansion are needed in our programs of occupational education if the labor market needs of tomorrow are to be met. The logical place for much of this expansion lies within the framework of public vocational-technical education. If this agency does not rise to meet the needs, perhaps other agencies will be called in.

EFFECTIVE TECHNICAL EDUCATION

by

ROBERT M. KNOEBEL*

Effective technical education produces graduates who are capable of entering one or more of a group of occupations requiring scientific knowledge and skills; who are able to progress rapidly on the job; who are able to successfully pursue additional course work; and who are able, because of their educational experiences, to practice desirable citizenship in the home and community.

The advent of "Sputnik" caused technical educators to emphasize specialized subject matter necessary to support professional personnel; and the National Defense Education Act (NDEA), including Title VIII, encouraged the shift from "doing" to "thinking and doing."

The 1965 Massachusetts Institute of Technology Summer Study report indicates a continuation in this direction. It recommended:

> .....that there be initiated a program of development of new curricular patterns and instructional materials for all students beginning with the start of junior high school.....these new patterns and materials propose to utilize the potential of experimental and investigative activity as a spring board to the acquisition of skills, to understanding and to the development of the ability to think.

The successful operation of the economy of our land is dependent upon a cadre of workers content in, and capable of, filling the wide range of occupations; therefore, programs should be developed and operated in keeping with state, national, social, economic, and psychological needs.

Placement of technical education graduates is common, and all information indicates that well-prepared graduates of technical programs are in great demand. Placement is a part of evaluation essential for an effective technical education program as is the determination of how well the technical programs meet the total needs. Consequently, it is important that placement and follow-up records are maintained.

Characteristics essential for effective technical education in high schools are: programs begin not later than the tenth grade; school days contain seven or eight periods per day; and students are selected from the upper 50 percent. In junior or community colleges, the characteristics

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are: the administration understands, supports, and places technical education on a par with college transfer programs; the general education values of specialized subject matter courses and related courses are recognized; and the curriculum provides 50 to 60 percent of time for specialized subject matter, 15 to 25 percent for mathematics and science, 10 to 15 percent for auxiliary courses, and 10 to 15 percent for general education.

Effective technical education must be based upon the knowledge and skills essential for those occupations supporting professionals. Adequate time--approximately 1,000 clock hours--must be allotted to specialized subject matter. Additionally, the administration, particularly in a comprehensive institution, must understand and fully support the technical education program; and placement opportunities and follow-up studies of graduates must be provided and conducted.

RATIONALE AND NEED FOR TECHNICAL EDUCATION

by

E. L. Kurth*

The population of the United States and the changes in it effect education and the role education must play in the lives of all people. Some of the changes which will affect education, and especially programs in all occupational education, have occurred in the last five years.

The trend is toward a much more educated people. The average high school graduate today will complete more than twice as much education as his parents had. The fall of 1965 saw 54 million people in school in the U. S. This was one-fourth of the total population. By 1985, it is estimated that one-half of our total population will be in school.

Of the 54 million persons in school in the fall of 1965, there were 12.7 million in high school. That spring there were 2.3 million high school graduates, or an increase of 93 percent since 1955. It is estimated that 71 percent of the seventeen-year olds in school today will graduate from high school, and 30 percent will enroll in college.

In the employment picture in the past decade, there has been a 40 percent increase in jobs for high school graduates and a 10 percent decrease in jobs available for those without high school education. It is estimated that those with a high school education will earn, in their lifetime, $100,000 more than those with only eighth grade education. Those who graduate from college will earn $400,000 more.

The labor force of the nation is considered to be all those people who are capable of earning their living by working, including the unemployed. The work force is considered to be those who, over a major part of any year, are actually employed.

At current levels, the average American male enters the work force full-time between his eighteenth and nineteenth birthday. Today, the average young man of twenty can expect another fifty years of life spent as a worker and seven years spent in retirement.

Who, then, in the U. S. civilian labor force is working today? The U. S. Bureau of Labor reported that in July of 1964, there were 70.6 million people working, in July of 1965, some 72.8 million, and in April of 1966, 73.4 million were working with only 3.6 million or less unemployed. In July of 1965, there were 6.4 million teenagers employed or 700,000 more than in July of 1964. Of our non-white population, 7.7 million or 810,000 more were employed than in 1964. There were 22.8 million women employed or one million more than in 1964. Factory workers numbered 18.1 million,

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up 800,000 over the previous year. The total of non-agricultural workers was 61.1 million.

From 1961 to 1965, industry provided some six million new jobs which were not in existence before, with only a small percentage of new jobs provided by government programs. Indeed, with the decrease in the birth-rate from 23.4 per thousand in 1958 to 19.3 in 1965, there is concern that the increase in Gross National Product will slow down in the future because of lack of workers. This is in stark contrast to the predictions that with automation taking over, from 2 to 10 percent of the work force could do all of the necessary production and services of the nation; and the society and economy would have to devise something of an educational or recreational nature to occupy the time of the rest of the people.

In November of 1965, the Bureau of Labor reported that two-thirds of the work force was engaged in service industries and one-third in goods-producing industries. Of the 86 million people in the work force predicted by 1975, women will comprise 30 percent of them. At present, nine million of the women in the work force are in clerical jobs, seven million in service occupations, and four million in factory jobs. The percentage in professional and technical jobs requiring higher levels of education has actually decreased slightly.

The Florida Industrial Commission has reported an interesting rule of thumb as to the effect on a community by an industry which comes in and provides 150 new jobs. The U. S. Chamber of Commerce uses similar figures. One-hundred-fifty new jobs will bring 444 new people into an area. This will mean 168 more households and 111 additional jobs in trades, building, and services. It will also mean 76 more school-age children. For the economy, it will mean $885,00 in increased personal income, $405,000 in bank deposits, and $500,000 in retail sales, including 160 new cars in the community. It will also mean that of the new employees, some 50 will come from the farms in the community.

It is often asked what contributes to or causes the great increase in jobs in industry? It is more than the increase in Gross National Product, although just the increase in the economy accounts for many jobs. Much of the job increase is due to research done to develop, discover, and improve the products and goods we already have. The "research race" is what it is called by many; and it is admitted by almost every nation, including France, that this is a race the United States is winning. Europe has been concerned for some time about the "brain drain" which has been luring some of the best scientists and engineers from their countries to America. From 1952 to 1961, 30,000 engineers, 14,000 physicists, and 9,000 scientists left Germany, France, England, and other western European countries to come to the U. S. A. Research in the United States is said to be its sixth largest industry. In 1965, we spent 20 billion dollars on research. We have 23 researchers per 10,000 population at work, compared to 18 in Russia, and even fewer amounts in all other countries. In 1965, it was estimated that the United States had 800,000 employed scientists, engineers, and technicians in research

and development. The results are, of course, computers, missiles, space satellites, jet airplanes, new products in optics, drugs, biochemistry, bioengineering, synthetics, food, fibers, automated equipment, as well as the hundreds of new appliances considered necessary in our homes, offices, and automobiles. The educational requirements for a researcher are the willingness and ability to learn, solve problems, analyze results, know principles, and apply these to solve new problems.

What about the new areas defined as technology and which require technicians? Some of those identified are as follows:

1. Systems Engineering (mechanical and electronic combined). This involves new developments in power control and the rapidly developing field of fluid power.

2. Automation Engineering Technology (production and manufacturing). This requires new knowledge and skill in dealing with power sources, control mechanisms, and study of the economic feasibility of such developments in manufacturing.

3. Instrumentation Technology (hydraulic and electronic controls).

4. Materials Engineering (new synthetics as well as new uses for materials long used). Metals, plastics, ceramics, gases, liquids, and fibers.

5. Biomedical engineering (instruments and devices).

6. Oceanographic research.

7. Astronautical research and developments.

8. Water use and treatment.

9. Agricultural technology and research.

10. Conservation of natural and human resources/technologies.

11. Municipal works technologies and municipal services.

12. Quality control technology.

These are only a few. For example, in quality control, some large industries engaged in defense work and rocket and missile manufacture employ from one of every six to one of every ten workers as a quality control technician. When reliability of the product is necessary to the seventh decimal place, it is easy to see that the characteristics of technical education are precision, accuracy and reliability.

The American Chemical Society reports in a special "Careers" issue of its weekly magazine, Chemical and Engineering News, that the shortage of chemists and chemical engineers threatening the chemical industry is paralleled by a shortage of chemical technicians who can perform routine laboratory work to free the professionals for more creative work. A company executive says, "I'd hire every technician I could get my hands on." The magazine also reports that the ratio of technicians to professionals is generally higher in production than in research, and cites one production-oriented company which employs over fifteen technicians for every professional in its production department.

The overall need for increasing numbers of technicians and people with an increasing amount of technical education is reflected in the U. S. Bureau of Labor statistics for 1965, which indicate an annual need for about 200,000 technicians and less than 75,000 enrolled in all fifty states in post-high school technical education programs.

The "disaster gap," as it has been called, increases each year unless more qualified people enter the program or the economy expansion slows down or stops; and business, industry, and the society will not permit this latter possibility to occur. Education must provide the qualified people or private agencies will step in to do the job.

TECHNICAL EDUCATION
AT THE HIGH SCHOOL LEVEL
by
Frank Stewart*

Two questions arise in a dialogue on technical education. One is, "What does technical education mean?" and "Who is a technician?"

The study, Technical Manpower in New York State, defines the technician as:

> .....mid-way between the craftsman and the engineer or scientist.

Gray areas exist within the boundaries of this definition. The technician is a person concerned with the daily application of scientific principles and/or one or more aspects of design.

The term "technical education," as applied to secondary education, and also as applied to some institute level programs, is often misused and debased. Very often, programs which are distinctly trade or craft oriented, are mislabeled as technical. In some high schools, industrial arts shops are labeled as technical shops, and some institutes label every shop as a laboratory--the machine shop was called the metal working laboratory. The laboratory is a place where scientific principles are demonstrated and applied, involving: measurement, observation, and report writing based on data collected. The laboratory may also involve the use of industrial proto-type equipment.

Quality technical education at the secondary level has never reached its full potential. When a technical program is given as an adjunct to a trade program in the same building, the best quality students are not always attracted. When pairing of programs is necessary, a stronger technical program seems to result if it is paired with an academic program.

Another deterrent to the expansion of technical secondary education has been the cost of initiating and supporting such programs.

Today, there is a school of thought which believes all specialized education should be deferred to the post-high school years and that early specialization is harmful to the pupils. This is undoubtedly true if we start to train a pupil at the age of fourteen for a specific job that will be non-existent four years later. It is educationally sound to allow the sixteen-year old student to study electronics or architecture, if he is

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motivated and capable, rather than delay it until the age of nineteen or twenty.

The objectives of technical education at the secondary level are:

1. To prepare the graduate for employment in an entry job in one of the major technology areas.

2. To prepare the graduate for admission to colleges of engineering or science.

3. To provide the student with a broad general education which stresses the humanities as well as science, mathematics, and technology, and which provides <u>all</u> pupils with salable skills.

Courses should not be terminal in the sense that the graduate is not prepared or motivated to seek higher education.

The realization of these objectives requires a student body capable of profiting from a quality technical secondary program, a suitable curriculum, competent staff, and an appropriate physical plant.

THE TECHNICIAN AND HIS JOB

by

Fred Thornton*

For the purpose of this discussion, we will assume that we have defined and identified the technician. We have a reasonable idea of the general groupings presently in existence and likely to arise in the near future. My remarks will be primarily from the viewpoint of the employer.

The classification of technicians differs greatly from industry to industry. In research, production, business, and service industries, there are many diversities in job titles, descriptions, and duties of technicians. For example, in production we find technicians engaged in maintenance, installation, servicing, expediting, and other activities, while operating within the general classification of mechanical technician. Jobs and terminologies are changing now and will change even more significantly in the next few years.

The following elements or criteria are frequently used in establishing job descriptions for technic positions:

1. Job knowledge.
2. Personal requirements.
3. Physical application.
4. Job conditions.
5. Mental requirements.
6. Accountability.
7. Direction of others.

Usually, separate descriptions will stipulate beginning employment factors, and others are prepared for more advanced classifications.

Periodically, the performance of technicians is evaluated on the job. These evaluations usually include areas and point values that may be used to determine salary increases and promotion to other jobs. Included are:

1. Job knowledge.
2. Analysis and initiative.

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3. Personal requirements.

4. Accuracy and reliability of work.

5. Responsibility for cost and service.

6. Application--industry and attendance.

7. Leadership.

Jobs requiring technicians are usually classified in term of training received. In large industries, there is a need for training in broad areas, enabling the technician to qualify for a variety of assignments. It is not suggested that the training program be a series of exploratory experiences such as general shop, but rather in the broad areas such as electronics, civil drafting, design, etc. Often industry provides the specific training on particular equipment or processes after the technician is employed and has become familiar with his job. Programs for training technicians should include a common core in mathematics, science, and communications which develops within the individual a potential for growth.

Technician job titles and descriptions are changing rapidly and will continue to do so. It is anticipated that new areas and emphasis requiring technicians will occur in such fields as medicine, social service, mechanics, agriculture, education and training, and safety and plant protection.

Attention should be given to educational services for technicians after employment. Often special needs will develop after the technician is employed, and the educational institution will have an opportunity to be of further service to the technician as well as to maintain a close association with industry.

In conclusion, the following points are offered for consideration:

1. Industry needs technicians trained in occupational clusters to permit flexibility in job assignments within a particular technology.

2. Technicians must be competent in the areas of mathematics and science.

3. Speaking, listening, and writing skills are usually essential if the technician develops fully.

4. Instructional methods and laboratory practice should develop critical thinking skills and ability to see the "whole system" or process rather than isolated stages or individual units.

5. To be successful, the technician must be able to follow instructions and work well with fellow employees.

THE ROLE OF THE PUBLIC SCHOOLS
AND ADULT EDUCATION

by

Ralph C. Wenrich*

It is assumed that every educator is interested and committed to the total development of the individual. It is further assumed that an educator's primary concern is the discovery and the development of human talents as they relate to employment.

These trends are apparent in the role of education: (1) changes in our society place a major responsibility on the school to prepare people for work; (2) education for work--as a responsibility of the public schools--has been accepted in theory but not in practice; (3) programs and practices must catch up with stated policies (the public is demanding the development of special talents in children); (4) vocational education must and is being perceived more broadly to meet the public demand; and (5) diversity in educational programs is an absolute essential--a shift in emphasis is needed.

Education for work involves: cognitive learning, affective learning, and motor or manipulative learning.

Preparation for work must provide general education experiences. Each complements the other, since making a life and making a living are intertwined. The schools must help youth make the transition from school to work.

Education for work is a continuing process with the following outcomes:

1. Children will acquire a knowledge of the materials of our culture and develop a knowledge of how to use them.

2. Children will develop an understanding of the world of work and how they relate to it.

3. Children will acquire an understanding of the meaning of work in their lives and appreciate this understanding.

4. Children will develop a respect for the dignity of work and appreciate the value of work to a society.

5. Children will experience and appreciate good workmanship.

6. Children will develop good habits of work.

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7. Children will discover and develop special aptitudes and talents and relate them to productive activity.

8. Children will develop tentative career plans based on strengths and weaknesses and an understanding of the world of work.

9. Children will acquire specialized training for entry into the world of work prior to terminating their formal education programs.

10. Children will develop their capacity for continued learning in order to maintain their efficiency as workers.

11. Ultimately, adults would avail themselves of opportunities for additional training in order to maintain employment stability.

These concepts are of little value until translated into programs based on good teachers, excellent facilities, financial support, and quality leadership.

School systems must give attention to the following: (1) general education; (2) vocational guidance and career planning; (3) specialized vocational and technical programs; (4) placement services for employment bound youth; and (5) continuing programs of general and special education.

In order to give attention to these areas, the following principles of operation are listed:

1. Instruction must be given in the current fields of demand.

2. Programs must be planned in relation to local demands for youth and employers.

3. Larger units of school administration must be utilized.

4. Qualified persons must be employed to give leadership in the development of specialized vocational-technical education programs.

5. Teachers must be employed who themselves are competent in the field in which they will teach.

6. Faculty members of all subject matter areas and specialized vocational education programs must be involved in the development of the entire instructional program.

7. Adequate buildings, facilities, and equipment must be provided.

In the end, education should be determined not on cost alone but on what is best for the people. If the public schools will not meet the future, societal needs, another agency will.

PART III

DESCRIPTION OF THE TECHNICAL EDUCATION STUDENT

A STUDY ON THE FACTORS OF JOB SATISFACTION AND ON THE LEVELS OF JOB-RELATED ATTITUDES AMONG DISADVANTAGED WORKERS

by
Joseph E. Champagne*

A comprehensive project was initiated in March 1965 by the South Carolina Committee for Technical Education, to determine on a preliminary basis the relative importance of job-related motivational forces among disadvantaged workers. A secondary area of investigation involved a determination of the differences in job-related attitudes among various subgroups of this population of disadvantaged workers. The need for such a study has long been evidenced by the rapid utilization of such workers in productive positions within our economic environment as a result of the many state and federally supported programs of vocational training and retraining of underprivileged, disadvantaged workers. Such a study was severely needed in South Carolina whose illiterate population is large, whose economic growth is extremely pronounced, and whose vocational programs are actively operating. It was felt that unless such information were collected and made available, some of the efforts of these programs would be lost or diminished.

In order to obtain the desired information, trainees of the federally supported Special Training for Economic Progress (STEP) were used. This is a massive vocational training program which has trained over 7,000 persons in South Carolina during the past two years. The trainees are generally underprivileged citizens who receive up to thirty-four weeks of vocational training.

Two instruments designed to assess the relative strengths of factors of job satisfaction and to measure the levels of attitude were constructed following rigorous psychometric procedures. The instruments were bound in a booklet which was prefaced by a detailed personal history questionnaire. This personal history information gave the data necessary to study different groups within the sample, for example, male versus female, young versus old, etc.

Data were collected on nearly 700 STEP trainees during the month of June 1965, using the motivation-attitude booklet. The results were then carefully analyzed, not only for the sample as a whole, but also for 63 subgroups based on sex, age, race, length of time in training, geographic area of residence, and various combinations of these five factors. In addition, the attitude data were analyzed on 3 additional groups, based on the employment history prior to STEP training.

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In general, it was determined by this study that underprivileged workers do have a pronounced need hierarchy within their motivational scheme. This hierarchy varies across race, sex, and economic environment of the place of residence, but does not vary much with age and even less with increased exposure to job training programs. Of particular importance is the fact that this pool of citizens regard their responsibility to a job as most important. The standard reward of pay is of relatively low importance but is more important than the fear of job severance or the fear of reprimand which are of extremely low importance. These facts point out the need for an employee-oriented supervisory pattern which rewards good behavior by praise and recognition as well as by financial rewards. These citizens have long been deprived of any form of recognition, acknowledgment, and acceptance, and these factors loom important in their need structure. These findings not only have obvious implications for the industrial market which is employing these trainees, but also to those structuring curricula and counseling programs for future job training programs.

What does the material developed by the study mean, and how might the findings be put to use? First of all, there are certain conclusions that are warranted rather strongly. The underprivileged worker has a high need to prove to himself and to others, especially those of the referent group, those to whom he aspires, and those who have social and economic control over his well-being, that he is an asset to society and not a mere liability. He has to prove that he can carry his own weight and that he is a responsible person--that is, that he knows his duties and has an inner need to live up to these duties and responsibilities. While he is aware of his role, he also demands in return, rather strongly, recognition for his potentialities, at least the opportunity to prove them. The data show without much question that these intrinsic rewards are far more important than the standard reward of pay. While there is no doubt that pay is important, it is certainly less important than intrinsic rewards.

It becomes obvious that an over emphasis on salary, to the detriment of other job rewards, is not consistent with the findings of this study. Of course, much research on other workers not classed as underprivileged has demonstrated that pay is by far not the most important motivating force on a job. It can well be an incentive to seek and retain a job, but it is not generally considered as an on-the-job motivational force as great as other intrinsic and psychological forces. The study clearly points out the importance of departing, once and for all, from the early theory of the purely "economic man" concept. Man, in this case the underprivileged man, is motivated not by a fear inducing boss, but rather by a considerate yet directive superior. Most leadership studies today are so vividly bringing out this fact, and to repeat them here would serve no purpose. But the point is that the data from this study has demonstrated the validity of extending these modern theories even to those workers who are being trained for purely the entry, blue collar occupational level.

It seems very evident that a basic guidance and counseling program in job training efforts is a necessity in order that the long underprivileged trainee may be more forcefully brought to the realization that he is being given a chance for improvement and that he will be expected to fulfill new roles. He will be expected to behave differently as he accepts the challenge of economic progress and evolution.

THE STUDENT IN PROGRAMS OF
TECHNICAL EDUCATION
by
John Henderson*

The student in technical education programs is not easily defined; and perhaps there is no real need for a definition, since technical education is providing him with occupational proficiency, development of self-reliance, and a sense of responsibility toward community and civic needs.

The developing technological economy depends less and less on jobs that require limited amounts of education and skill, which previously served as a beginning point for young workers entering the world of work.

Today, the personal satisfaction of economic needs requires adequate skill and education to gain initial placement in a job offering steady and continuous employment. Today's average youth will shift occupations at least five times in a lifetime; therefore, a continuing education program is necessary to allow the worker to keep pace with technological advancements.

The following have a bearing upon the students in technical programs: personal experiences; easy access to community colleges which makes it possible for students to try even without home support; the influence of friends not in college; conflicts of interests with part-time work; purely academic, collegiate experiences; a less than competitive spirit; the role of the parents; and less opportunity for "joint effort" study in dormitories, fraternities, and sororities.

Young persons, the mature, out-of-school, employed or unemployed, the craftsmen, skilled tradesmen, highly-skilled technicians, engineering technicians, and professionals can profit from technical education. Technical education may be sought to improve.....the employment picture or to maintain minimum effectiveness in the worker's present capacity.

> A system of education that is open ended, with freedom for mature students to enter, leave when fruitful experiences seem more fruitful, and then re-enter, can be a reality through coordinated efforts of public schools, community colleges, vocational schools, universities and employers

is recommended in the report, Technology and the American Economy.

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Technical education with orientation for and preparation for post-secondary programs can be offered successfully in the high school to allow students to reduce or eliminate courses in collegiate or technical programs. A repercussion would develop only when a fraction of the high school students were afforded this opportunity for preparatory technical work. However, intensive technical programs during the high school years is narrow preparation.

In selecting students for technical programs, one should review the applicant's grades, rank in class, college entrance examinations, and interview the applicant relative to his interests and potential ability.

Students for the technical programs will be high school graduates from general or pre-technical programs, college drop-outs, returning servicemen, women, high school drop-outs, and persons with a middle or lower class social background.

THE STUDENT IN PROGRAMS OF TECHNICAL EDUCATION

by
William W. Purkey*

White rats and college sophomores have been the subjects of an amazing amount of psychological research; yet we know only a little about rats and even less about the post-high school student. Perhaps the reason for this situation lies in the preference of psychology for an exploration of organic drives and for an emphasis on an atomistic approach toward understanding people. In order to gain a more holistic and humanistic grasp of the student, this paper will present a more subjective, internal viewpoint and try to see the student as he might see himself.

In spite of the fact that today's student is more affluent than ever before (better educated, better clothed, more comfortably housed, healthier, etc.), chances are that he sees his life as more impersonal, more competitive, and probably more threatening. Often he is separated from both fellow students and teachers. Many times he is merely a statistic, a grade-point average, a student number, an address on an IBM card. He even gets letters from machines, which one day may begin, "Greetings: You are hereby ordered for induction into the Armed Forces of the United States." Coupled with this generally threatening situation is the student's low self-esteem which was developed during his public school career.

By the time high school is over, many students who graduate (as well as most of those who do not), are firmly convinced that they are generally poor bets as far as further schooling is concerned. The reason for this belief is not that the student is incapable or stupid but is that many teachers have built this negative self-concept into the student by giving him a lot of rich experience in failure. A major challenge of the technical school is to reverse this negative self-picture that so many students have.

It is fortunate that self-attitudes do not change readily, for if they did we would not have personalities. Yet marked changes in critical thinking ability, stereotyped attitudes about self and others, and dogmatism can be made during the post-adolescent period, <u>particularly</u> and <u>primarily</u> during the first two years after high school--the years when technical education is likely to play a big part.

What, then, can be done to improve self-attitudes? This paper would like to suggest three ways: (1) give students honest success experiences in worthwhile activities (success breeds success and failure breeds failure); (2) give students the feeling that they are of worth and value

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(personal interest in and respect for the student); and (3) encourage a feeling of commitment of students and faculty to each other and their subject (students are changed only by those things which have personal meaning and importance to them). Together, these approaches should produce graduates of technical education who are both competent technicians and successful human beings.

PART IV

ADMINISTRATIVE STRUCTURE OF TECHNICAL EDUCATION INSTITUTIONS

THE ADMINISTRATOR'S ROLE IN PROVIDING SUPPORT FOR EFFECTIVE FACULTY-STUDENT DIALOGUE

by
David C. Epperson*

The administrator's responsibilities for providing space, personnel, and instructional resources are well recognized by those conducting the affairs of post-high school vocational and technical education. However, their responsibilities as stimulators of educational innovation, designed to cope with the emerging realities of our rapidly changing world of work, are not so clearly understood. Administrators are often unprepared for their role as shapers of a supportive educational environment. With the accelerated expansion being experienced in the community college movement, it is easy to get caught up by the pressures of building, financing, and public relations to such an extent that there is little time left for facilitating the establishment of an effective climate for learning.

It is my intention in this paper to focus on the administrator's responsibility for providing an educational environment that makes it possible for students to learn to adapt themselves to fluctuating occupational circumstances.

The current articulated purpose of post-high school vocational and technical education, as I understand it, is not simply to transmit information or to develop specific skills, but rather to help students develop a readiness to make adaptations to a rapidly changing industrial scene. Learning how to learn means learning how to become more flexible, and learning to be more flexible is indeed a complex task. It often requires modifications in the student's basic style of approaching the world.

If we assume the responsibility for developing this flexible learner, we are taking on quite a different responsibility than our predecessors who were preparing individuals for more static careers. By assuming the task of developing the capacity for what John Gardner calls, "self-renewal," we have increased the complexity of our mission significantly. We are no longer concerned with the development of specialized skills, for now we must focus on helping students acquire an all-pervasive style of approaching work.

How can those of us concerned with post-high school vocational and technical education assist the student in his efforts to prepare for a career of continual change?

First of all, we need to help him learn to think of himself as a flexible person.

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Second, we need to help him develop enough self-confidence to be able to take risks. The flexible person is the "risk-taker."

Third, we need to stimulate, or more appropriately, emancipate his "curiosity motive." Our educational system tends to do serious damage to native curiosity.

Our major responsibility, then, is to generate a supportive interpersonal environment where the student can learn to be flexible, where he can gain self-confidence, and where his natural curiosities can be freed. What are the dimensions of such an environment?

Let me suggest that an appropriate interpersonal environment for developing adaptability on the part of students can best be created where: (1) effective two-way communication between teacher and student is established; (2) status differences between the teacher and student are reduced; and (3) the relationship tends to be emotionally close.

When Tyler (1964) asked a group of educators to specify the characteristics of an ideal teacher-student relationship, three similar dimensions were identified. It is interesting to note that these same three dimensions were specified when a group of psychotherapists of quite different theoretical persuasions were asked to characterize the ideal therapeutic relationship (Fredler, 1950). This may suggest that any interpersonal relationship that is meant to be the source of significant growth and development involves <u>two-way communication in a peer type relationship which tends to be emotionally close</u>.

The characteristic of adaptability is a dimension of personality, not simply a composite of information or a specific skill. To effect a significant change in personality is a much more difficult task than transmitting information or teaching specific skills. Hence, it is no wonder that vocational and technical preparation for our rapidly changing world deamnds new methods of instruction that provide education in depth. In the same way that a therapist has personality change as his goal, the teacher of vocational and technical education has the responsibility of assisting the student to develop adaptability, which often requires significant modification in the student's basic style of approaching the world (his personality).

Let us look at each of the components of the definition of an effective teacher-student relationship, as I have characterized it, so that we can see more clearly the nature of the problems of building an educational climate where students can learn how to learn.

In discussing effective communication, the first component of an effective relationship, I would like to include four major elements. Communication that is truly two-way demands some degree of mutual acquaintance. The teacher and the student need to know something about one another. Secondly, to learn to know one another demands mutual accessibility. Accessibility, then, becomes a prerequisite to effective communication. Thirdly,

the teacher must be willing to help students with a wide range of problems. Communication cannot be restricted to the specifics of a course. The goal of adaptability can only be achieved if the teacher deals with many dimensions of the student's personality. Finally, effective communication also demands agreement on the "rules of the game." Teachers and students need to reach consensus as to what to expect from one another.

The second component of an ideal relationship, peership, is reflected in dialogue where status differences are not evident. Teachers do not expect students to defer to them, and students do not feel the need to be ingratiating. Furthermore, democratic procedures are followed--students are involved in the processes of decision-making. A cooperative rather than a competitive climate is found, for competition with its attendant evaluation creates status differences between faculty and students. Also, mutual respect, trust, and honesty are evident.

The third component of an ideal relationship, emotional closeness, is reflected when both participants in the dialogue share with one another their personal concerns. Neither the teacher nor the student feels the need to be guarded or defensive. A teacher who provides an emotionally close relationship is one who attends to the individual needs of students. Mass treatment cannot be intimate treatment; hence, there must be an expression of interest in each and every student in the ideal relationship.

I have delineated above what I consider to be important dimensions of effective faculty-student relations if preparation for adaptability is to be achieved. It is my thesis that an administrative strategy that supports these types of faculty-student relations facilitates the process of learning how to learn. Specifically, I will outline some steps that administrators can take to generate a more effective climate for the development of flexibility in students so that they can adapt to the demands of our contemporary industrial world.

First of all, let's attend to what can be done administratively to facilitate lively and meaningful exchange between teacher and student. Unfortunately, there are few generalizations based upon research that can be drawn upon by the administrator. At Illinois, we are engaged in a series of studies to try to discover what can be done administratively. Our work is currently at a very primitive stage of development, but we have identified some factors which very well may contribute to the growth of different climates of learning. At this point, most of the factors identified have only an hypothesized relationship to the quality of faculty-student relations.

In presenting these factors, I will not attempt a thorough analysis of each. My intention is simply to offer to those involved in administering post-high school vocational and technical programs, a number of possible points of leverage if they wish to move toward improving the climate for "learning how to learn" on their campuses.

In looking at the first component of an ideal teacher-student relationship, that is, establishing communication with the student, may I suggest the following factors, all of which can be influenced to some degree by the administrator. The first group of factors is thought to influence, especially, the accessibility of faculty to students, and students to faculty.

Organizational size has often been thought of as a variable which influences the accessibility of faculty to students. There is not, however, substantial evidence to support the relationship between size and accessibility. In a recent study of Illinois junior colleges, it was found that the number of full-time students was related to faculty-student rapport (Wellner, 1966). However, it seems appropriate that this finding should be approached cautiously, since other factors regarding the way in which the campuses were organized were not controlled. It has often been thought that the size of the curriculum unit, that is the number of students enrolled in any one curriculum, would be related to the quality of student-faculty interaction. However, findings of Vreeland and Bidwell (1966) in a study of an eastern institution, and our study at Illinois of a midwestern university (Epperson, 1966) seem to indicate that the number of students enrolled in a curriculum has little relationship to the quality of faculty-student interaction. It seems logical, however, that the faculty-student ratio would have some impact on faculty-student interaction. Administrators need to concern themselves with size in planning for their institutions.

A second factor which needs to be considered is plant planning. It seems important to give recognition in designing buildings to such variables as accessibility of faculty offices to students. A report by a journalist on the progress of an institution that recently moved from an old site to a new site seems relevant here: "Students complained that at the (new campus) they did not have the informal contact that they had at the (old campus) where all faculty offices were off one corridor and it was easy to drop by for a chat.....at the new campus where all faculty offices are in a separate twenty-eight story building, faculty members are physically removed from students (Dunbar, 1966).

In addition to office accessibility, the eating arrangements made for faculty and students seem relevant. At an institution where I served on the faculty, a major eating place for both faculty and students was the Student Union. A separate room in the Union had been set aside for faculty use only. One day upon hearing students complain about the unwillingness of faculty to eat with the students, I asked them who had established the eating arrangements in the Union. The students believed that the faculty had arranged for this separate room. The conversation that I subsequently had with faculty members indicated that they were of the belief that the students had arranged to have a separate room for faculty, since it was the faculty's conviction that students wouldn't appreciate having them invade their privacy. It was necessary to conclude from the information that I gathered that the faculty and students were unaware of the sentiments of one another and that the eating arrangements which had established an apartheid system were separating students and faculty on

the basis of "pluralistic ignorance." It seems obvious that administrators have the responsibility for setting up opportunities for students and faculty to get together on an informal basis. When one plans a campus, this factor needs to be considered. It is possible to design a campus that will make it easy for students and faculty to have some form of informal contact. On the other hand, when one visits some campuses, it appears that every effort has been made to insulate the faculty culture from the student culture.

There are numerous organizational procedures which have the potential of influencing the quality of student-faculty dialogue. For example, the type of advising system that is found on campuses can influence contact between faculty and students. Some institutions hire professional advisors, a procedure which, while relieving faculty of one chore, also serves to separate faculty and students, one from the other. Administrators can influence the type of advising program that an institution establishes.

Another organizational procedure that can have an impact upon faculty-student interaction is the scheduling of teaching loads. Administrators assume responsibility for establishing equitable assignments for faculty. For some reason, we in the academic world feel as though it is essential for students to spend at least fifteen hours each week in formal classes; and on many campuses, where vocational and technical subjects are taught, a teaching load of fifteen to twenty hours is not uncommon. There is little reason to believe that there is anything sacred about fifteen "contact hours." What would happen if students were asked to meet with faculty less often, but in a more intensive fashion? We have given this alternative little chance to be tested. Administrators are in a position to encourage innovations in teaching that would permit a reduction in the number of formal contact hours, freeing teachers and students alike for more informal contact that might be much more productive than additional lectures in developing adaptability on the part of students.

Faculty personnel policies are also within the sphere of influence of the administrator. In the recruitment, orientation, and rewarding of staff, the administrator can have an impact on the accessibility of faculty to students. Establishment of rules and guidelines is not what I have in mind. The use of the administrator's position to stimulate and shape the standards and expectations of faculty is within his power. For example, the administrator can encourage faculty to be in their offices on a regular basis so that students can drop in for conversation. He can also discourage faculty from being absent from campus for long periods of time.

Since there is a tendency in the vocational and technical areas to depend upon part-time faculty members, there is always the problem of putting these faculty into contact with students. In institutions with high part-time to full-time faculty ratios, one might expect to find a lower level of rapport between faculty and students. While Wellner's study (1966) indicated a trend in this direction, the relationship was not statistically significant. It stands to reason, however, that if faculty are on campus for only a limited period, it is going to serve as a barrier to effective

informal contacts between faculty and students.

Student personnel policies can also have an influence on the quality of faculty-student dialogue. In schools focusing on vocational and technical education, there is usually a high proportion of students who are employed on at least a part-time basis. Their schedules of work put time at a real premium. Many students are on campus only when a formal class is in session. There would seem to be real advantages to working toward improving the full-time to part-time student ratio since Wellner (1966) finds a significant relationship between this ratio and faculty acquaintance with students. In view of the fact that work is an economic necessity for many and essential as training for others, it is important for the institution to take this bit of reality into consideration in their administrative arrangements. There are steps that can be taken to deal with the special needs of students who need to work. For example, the administration can aggressively seek scholarships and loans for students in need so that they can be more available for informal contacts with their teachers.

Additional student personnel procedures, such as orientation sessions, informal retreats, and student-faculty activities can contribute to the type of faculty-student relations that facilitate the development of adaptability in students.

Let us now turn our attention to an examination of some factors which may affect the status system. Since emphasis upon status differences has the potential of doing damage to faculty-student dialogue, it would seem appropriate that the administrator take steps to reduce status barriers. The place where status differences are most often revealed is in decision-making. It has been traditional in our educational system for faculty and administrators to decide upon what is appropriate for students and then to transmit and enforce these decisions. It has been in only rather irrelevant areas that faculty have invited students to participate in decision-making (e.g., when and where a dance will be held). In the past few years, students have been calling for a greater voice in campus decisions--decisions which have a bearing on curriculum and instruction. If educators fail to recognize the students' rights to participate in significant decisions, they are, in effect, reaffirming the status system.

Status defining factors include campus arrangements that enforce faculty-student segregation, such as separate faculty dining rooms as was previously mentioned. When a student walks down a corridor and sees "faculty only" printed on restroom doors, it is a clear-cut reminder of his status. These indications of segregation in post-high school vocational and technical education may very well reflect the historical linkage between secondary education and post-high school programs in vocational and technical areas. It seems imperative for the administration to make an effort to reduce the effects of this tradition if status barriers are to be overcome.

Status differences are also evident in certain types of faculty involvement in student discipline. If the administration has permitted

faculty to assume responsibility for student discipline, the effects of a punitive role may be reflected in status differences. If, on the other hand, faculty, students, and administrators, as representatives of the institutional community, jointly participate in the enforcement of order-keeping policies, the differences in status among the participants will be less evident.

The ceremonial traditions of an institution have the potential of being either unifying or status defining. Traditional academic ceremonies with clearly defined status distinctions, which evidentially are intended as rites of passage, do little to generate peer-type relations. I do not mean to imply that ceremonial traditions necessarily are a divisive element in the educational community. It is possible to conceive of ceremonies which, in effect, reaffirm peership in the community of scholars. Ceremonies might be very effective in intensifying commitment to a common set of goals, purposes, and the means for achieving them.

Finally, I would like to suggest some factors which can influence the third component in the definition of an effective faculty-student relationship, that is, emotional closeness. All of the factors I listed up to this point are, of course, relevant to an emotionally close relationship. It is quite difficult to establish a close relationship when either the faculty or students are inaccessible to one another or when the faculty insists on maintaining status barriers between themselves and their students. Here are some of the factors that I see affecting the closeness of relations between faculty and students.

The factor which has the greatest effect on the closeness of the relationship is the type of evaluation system employed. When grades are emphasized, a dimension is added to the relationship that makes it difficult for the teacher and student to get close to one another. The student is always guarded for fear that he will reveal weaknesses. The teacher, on the other hand, feels the need to maintain distance, knowing that it may be necessary to make an evaluation of the student that does not meet the student's approval. The fact that our educational institutions are charged with the responsibility of certifying and selecting students for roles in society, as well as the responsibility for teaching, imposes a distance-defining dimension on the relationship. Recently the University of California at Berkeley adopted a "pass-fail" procedure for certain courses with the hope that it might de-emphasize the evaluative role of the teacher. Another evaluation model, rarely found, is the system of external examiners, where the student and teacher join in a cooperative effort to meet the standards of an external examiner. While this approach has the disadvantage of emphasizing preparation for an examination, it does generate a different climate of relationship between teacher and student, one that has the potential of permitting greater emotional closeness.

Another type of evaluation that can influence emotional closeness is student evaluation of faculty. Some institutions are moving to a

system of evaluation of teachers, the results of which are to be offered as evidence of the teacher's competence. Introducing this evaluation dimension into the relationship can also create distance between student and teacher.

It seems important at this point that a distinction be made between feedback and evaluation. Every emotionally close relationship has the component of frank communication between the participants. They let one another know if there is something in their relationship that is not to their satisfaction. This feedback is not, however, a formal institutionalized method of communication--rather it takes place naturally in the course of interaction.

It would seem that the administrator is in a position to affect the type of evaluation systems that grow in his institution. If he chooses to support one type over another, he is in effect influencing the degree of closeness in faculty-student relationships.

The administrator can affect the closeness of his relationships in other ways as well. If he establishes, through building plans and general policies, arrangements which encourage large lectures, he is making it more difficult for the teacher-student interaction to have a dimension of closeness. Building plans and administrative policies often encourage the establishment of large lectures. Administrators have great influence on building design and on general instructional policy, policy which in some respects prescribes educational method.

One aspect of building which influences the nature of emotional closeness is the privacy afforded by faculty offices. It is a great temptation for administrators to economize by crowding staff in offices. It is difficult for a student to be candid with a faculty member when he knows that he will be overheard. The administrator's insistence on planning for office privacy can add to the probability of emotionally close relations developing between faculty and students.

Another opportunity for the administrator to exercise his influence on faculty-student closeness is in providing the necessary resources for field experiences when appropriate. When faculty and students are able to go to the field together to work on common problems, the possibility that closeness will be generated in the relationship is enhanced. Both common experiences and an informal context for interacting are provided.

In view of the fact that administrators usually play a significant role in the selection of faculty, they are in a position to influence the type of individuals recruited. There are quite different orientations toward teaching among those applying for staff positions. From letters of recommendation and in interviews, the teacher's style of relating to students is often revealed. It is within the power of the administrator to encourage the selection of those candidates who seem to have the capacity for relating effectively with students. Too often teachers are hired strictly on the basis of their academic credentials. A systematic

recruitment effort is required if a supportive faculty-student climate is to be generated.

There are still other factors over which administrators have influence that ought to be considered as contributing to the quality of faculty-student relations. For example, the system of providing rewards and recognition for faculty is within the administrator's sector of influence. He must make every effort to see that faculty members who are effective in communicating with students, who do not feel the need to hide behind their ascribed status, and who have the capacity for entering into an emotionally close relationship are appropriately rewarded. If he fails in his efforts to see that these individuals are recognized, it will be most difficult to build an effective faculty-student climate.

In addition to having influence over policies affecting rewards, the administrator can take steps to provide a program of in-service training that will give attention to the campus interpersonal climate. In-service sessions can be planned with both faculty and students working together toward the goal of improving the climate for learning. In-service training programs often get low priority in educational institutions because they are activities that can be postponed without apparent immediate consequences. It is the administrator's responsibility to keep long-term consequences always before him, for if he fails to search continuously for ways of improving the climate of interpersonal relations on his campus, he will be neglecting one of the most important aspects of his role.

I am persuaded that there are many actions that can be taken by administrators to enhance the quality of faculty-student interaction and hence improve the possibilities for developing the ability of students to make appropriate adaptations to our rapidly changing industrial world. It is my hope that those who are being called upon to plan and develop post-high school vocational and technical education will be able to keep the faculty-student interaction process central in their thinking as they make decisions affecting their educational programs. As can be seen, some of these factors I have mentioned can be influenced directly by the administrator, such as the accessibility of faculty offices. Other factors can be influenced only indirectly by such means as appropriate staff recruitment and training. Sometimes the administrator may feel that he is lacking in the power to influence the quality of faculty-student interaction. In addition, limited resources may restrict his ability to take action when a need is identified. If, however, when priorities are being set, major consideration is given to enhancing teacher-student interaction, the administrator will have taken a significant step toward establishing a viable climate for learning.

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THE ADMINISTRATIVE STRUCTURE
OF TECHNICAL EDUCATION
INSTITUTES

by
John Henderson*

Recommendations contained in the report, Technology and the American Economy, concluded that: (1) free public education should be provided to all Americans through the fourteenth year, either in junior colleges, community colleges, or appropriate post-secondary vocational institutions; (2) most vocational and occupational training should be given at the post-secondary level; and (3) the opportunity for college education should not be denied to any qualified American and should be made available through an appropriate system of loans and grants.

Specific legislation has not as yet been introduced in the states to accomplish this task.

Statewide patterns for technical education--it is observed--are under study and undoubtedly will be revised.

In New York, the State University is:

> committed to comprehensiveness in (the) two-year colleges: horizontally, in the provision of university parallel, lower-division offerings side-by-side with an array of technician-level career offerings, but also vertically in the occupational or career type of offering. We no longer confine our occupational offerings to those of the two-year technician level but .....offer programs of any duration short of two years and in practically any fields of skill demanded by persons of post-high school age to remediate their unemployment or under-employment.

There is a natural tendency for the two-year programs to follow an upward trend and arrive at a point where the breadth and depth of technical programs are quite sophisticated and beyond the ability of many potential students. Industry has come to recognize the value of graduates of this level of program and.....provide for utilization of these graduates.

Criticism of this development lies in the fact that technical positions.....cover a wide spectrum of job classifications. Most manpower analysis reports present long-range shortages.....not all require the high-level technician programs. There is a need for greater emphasis on intermediate level technician programs.

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Recent federal legislation.....is causing many new developments. In New York, the Vocational Education Act of 1963 has provided "seed money" that will allow the development of area vocational schools which will serve, primarily, the secondary education programs. Some vocational-technical adult courses will be offered; but the primary responsibility for post-secondary education is being left to the community college.

The nature of the area school is such that it provides cooperative education services on a one-half day basis five days a week, updating of vocational-technical programs, orientation for continuation in a technical program at community colleges, and needed articulation and positive outcomes.

The educational and training programs.....as provided (for) by the Manpower Development and Training Act (MDTA) and.....the Economic Opportunity Act influence administrative patterns. In New York State, they are outside the two-year colleges with the MDTA programs in the recently developed skill centers in urban areas. These devote full attention to meeting manpower needs.

Several organizational patterns for technical education are emerging in the various states. Nearly all provide technical education on a single campus. Programs of all types, in all fields, are available to meet the identified needs of the community the college serves.

Maurice Graney, author of The Technical Institute, submits that two types of technical programs exist. In one, the technician is given training with an occupational objective while the other is educated to work in a supporting role. In the latter, emphasis is on an academic approach.

Leadership for the development of post-high school technical programs has been provided by the technical institute offering curricula closely related to engineering. The proprietary institutes have tended to be single-purpose, post-high school colleges offering two-year programs with less emphasis on "general education."

Accreditation by the Engineers' Council for Professional Development (ECPD) has been one standard of excellence applicable to technical institute-type colleges. The public and non-profit technical institutes normally follow academic administration patterns. Proprietary schools resemble less the typical academic hierarchy with the owner-president deeply involved in all operational phases.

Highly reputable technical institutes will continue, but future technical programs will be developed almost exclusively in community colleges.

Some technical institute divisions continue to exist within university systems. The administration.....is typically through a technical institute director upwards to an academic dean or vice-president.

Area schools or single-purpose schools are normally administered by secondary schools and offer vocational and technical programs for in-school youth, the unemployed and underemployed, and workers seeking to improve their skills.

Considerable effort is being made by all branches of the Armed Forces to develop technical schools to train supporting technical staff to operate today's complex military equipment. Many colleges.....allow academic credit to servicemen returning to college.

Increased development of comprehensive community colleges will limit enrollments in apprenticeship programs, business schools, on-the-job training programs, and industrial and correspondence schools involved in single objective technical education.

Another recommendation contained in Technology and the American Economy was the establishment of a nationwide system of education through two years beyond high school. If established, this would require introductory courses in technical occupations; transfer, career, and specialized programs; and increased counseling, testing, referral, and placement.

In all of the recent developments in technical and career-oriented education, no fixed organizational pattern has evolved in the states.

LOCAL POWER STRUCTURES AND EDUCATIONAL PROGRAMS

by
Ralph B. Kimbrough*

Community power structure is being discussed at various levels of education and in a number of other activities. It is possible for many misconceptions to result from these discussions. We mean by community power structure the distribution of power among individuals in the community. For example, if you are interested in a program for the city of Gainesville and in influencing political conditions in favor of that program, you are concerned with locating the people and groups that hold power, and to what extent, in the city.

Little had been done to study the phenomenon of power in a community until Hunter published the results of his study of Atlanta in 1953. Hunter and we are interested in the process of decision-making, and it is assumed that if we can find out something about the process, we can influence its operation.

Starting with some smaller studies, Hunter in 1950, made a calculated study of the people who hold power in Atlanta and how they use this power to influence decisions. He shocked the academic world when he said that power in Atlanta was held by a very small monolithic group. The number of people who made the important decisions could be counted on your two hands. If the structure were sketched, it would take the form of a pyramid.

Hunter said the decision-makers were the owners of financial, commercial, and industrial corporations within or near the city. The next level of leaders set the strategy for the decisions which were initiated. This second level hierarchy was made up of bank vice-presidents, ranking public officials, public relations men, small business owners, and a few professionals. Following the second hierarchy were leaders who functioned to hold the line of policy as it was made and put into effect the strategies of the top decision-making group. Hunter found civic organization personnel, newspaper columnists, petty public officials, social workers, teachers, ministers, and small business men in the third and fourth hierarchies.

About the same time that Hunter was studying Atlanta, we were studying a small school district near Nashville, Tennessee. The population of the community was about 10,000, and we did a thorough analysis of the power system. We found quite a different structure from what Hunter found in Atlanta. We found a competitive structure where there was basic competition between two power groups with frequent participation by state power wielders. Also involved were little satellite groups which could

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get into decision-making at certain times. The basic fight was between young men who wanted to change the community and the "old gang" which wanted to maintain the community as a nice quiet residential area. So we had a regime conflict over the issue, "What kind of town should ours be?" The conflict was between elite groups with little participation by the citizens.

What we have been talking about in both situations is not a formal structure. A formal structure is the University, the Rotary Club, or the Chamber of Commerce. The types of cliques that are formed within the formal organization are known as the informal organization. They are little power factions that get started within a formal organization and try to run it or influence it in terms of their interests. The informal organization has a structure, norms, a type of communications network, and a leadership structure just as surely as a formal organization; but it does not have by-laws, elected or appointed officers, or formal meetings; it has only the name of the people associated with it such as "the old gang" or the "new bunch." Remember, power can be exercised both formally and informally.

In Hunter's situation, it was largely an informal exercise of power. Decisions were made privately and promoted publicly. Some of the decisions in our Tennessee school district were fought out long before they ever got to county officials to be voted on.

Professor R. L. Johns and I are studying intensively twenty-four school districts in four states. We are attempting to see whether we can show a relationship between community power structures and financial effort to support education. I need not remind you that if you are going to make changes in technical education, money is involved. All too often we forget that to make innovations, money is necessary. Any time your program costs money, you are going to come into contact with a community power structure which may have definite opinions about how much money should be spent. You are going to be forced to deal with the political systems of a community or a state.

I can best illustrate the relationship between community power and educational finance by reporting on another study which involved two school districts in Florida. One of the districts studied had the highest level of financial effort in the state while the other had the lowest level of effort. By financial effort, I mean that contribution made to support education with relation to the ability of the community.

The low-effort district was one of the tightest little monopolies that I ever witnessed. It was controlled by a small group which had at the top a couple of bankers, some business men, a few public officials, and businessmen-legislators. Control was extremely tight. Top men in the structure even headed committees that decided whether they were going to raise teacher salaries or not. This committee made its report to the Board of Education which had appointed the committee. The school superintendent was never mentioned by anyone in prominence as having any

leadership. I feel that he was almost powerless. There was great fear and suspicion among teachers in the district with regard to the use of instructional materials. They were very loath to use materials in social studies which might be considered as controversial. There was an extremist group in the community which continuously harassed the school. This was one of those extremist patriotic groups who played right into the hands of the conservative people who were controlling the power structure. If such extremist groups can keep us educators fearful, then we won't have to participate in any decisions. In this district, we could get only fifteen names of influential persons, and only five could be identified as decision-makers.

In the high-effort district, more influential persons were named. There were forty-three persons named as very influential in the structure. The superintendent of schools was one of the nine most influential men in the county. It was said of him that, "He runs a dynasty." There was a pluralism of five or six influential groups which were participating effectively in decision-making in this community. No one of these groups could control decisions.

From these examples, we can begin to see power as being on a continuum. At one end of the continuum are the little closed societies and at the other end the open societies. In the open societies, it is much easier for a person to gain access to leadership in the system than it is in the closed societies. In the high-effort district, one very influential leader had resided there only four years; yet he had risen to the top leadership position. A large number of leaders in this same district had resided there only a few years. By contrast, in the low-effort district, most of the leaders were over fifty years of age and had lived in the community practically all their lives.

It behooves us as educators to understand the operation of power systems, to identify the leaders who control the system, and make maximum use of power to aid the cause of education. This calls for active involvement of educators in the decision-making process. For too long, too many educators have looked upon politics as something in which they could not afford to become involved. As a result, educational programs have suffered. We can no longer afford to remain naively inactive in the application of power to bring about favorable action on educational issues.

THE ADMINISTRATIVE STRUCTURE FOR TECHNICAL EDUCATION

by
Harold Matthews*

Vocational-technical education requires an administrative vehicle to make it go. A good administrative structure can make a mediocre educational program effective, while poor administration can render the best educational program ineffective. Administration involves people and things. These two elements must be provided a common purpose and organized so that each contributes to the maximum effective accomplishment of the purpose.

Organizational structure is necessary in order that there may be a division of labor and effective cooperation between the several segments. Each person in the organization should know who is responsible for particular functions and who reports to whom. Organization is only a means to an end and not an end in itself.

The administrative process involves the following functions:

Planning--deciding what is to be done.
Organizing--providing ways and means for accomplishing purposes.
Directing--seeing that the job is done.
Coordinating--seeing that all elements work together.
Controlling--use of legal authority for financial control.

The organizational structure must provide for the effective performance of the functions just listed. Obviously, the chief administrator cannot effectively perform all these functions himself. Delegation of duties to others is necessary. This delegation and division of labor requires effective communications. Communications must be effective on a two-way basis if the task is to be clearly understood and effectively performed.

Technical education was first provided by private institutions called technical institutes. These technical institutes had the following characteristics:

a. Singleness of purpose.

b. Post-secondary status.

c. High tuition cost.

d. Part-time staff drawn from industry.

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e. High standards.

As the community college came upon the scene, technical programs were broadened and became available to more people. Tuition in the community college is low or nonexistent. Educational programs are more comprehensive and multi-purpose. The community college can effectively prepare technicians and at the same time, provide for updating the training of earlier graduates. In effect, the community college both fills in and fills out educational voids.

As programs of technical education become more extensive and more students enter the programs, greater attention must be given to administration. The comprehensive community college, with its multiplicity of programs, activities, and multiple campuses is seen as the locus for training most of our technicians. If we are to offer effective technical education in this milieu, the administrative structure must provide for:

a. A sufficient number of interested students.

b. Adequate physical facilities.

c. Qualified staff.

d. Adequate financing.

e. Administrative organization

THE STATE ROLE IN TECHNICAL EDUCATION

by
Carl W. Proehl*

I would like to share some thoughts with you on the tremendous challenge which lies before technical education today and will do so in terms of three major areas--The Challenge, The Patterns, and The Implications. Although my remarks are not directed specifically to the "state role" as such, I think that you will find the role of the state in technical education implicit in this presentation.

In speaking on the subject of leadership, I must decry, among other things, our lack of insight into the real demands for technological advance--a lack of insight conditioned, in large measure, by our own materialistic value system. The root of much of our trouble, it would appear, lies in our failure to have as much respect for developing men and ideas as for making and acquiring things.

Today, in addition to the "space race," there is another challenge to technical education. Education is beset by many problems; but our major educational problem is, in reality, a social crisis hidden by our 20th Century affluence and abundance--a crisis compounded by unemployment, racial tensions, juvenile delinquency, swelling public welfare roles, chronically depressed areas, and a growing inequity in educational opportunity. At the center of this crisis stands a system of education which, in too many ways and in too many places, is failing to prepare individuals for a new world of work in an advanced technological society. This is the challenge which the changing world of work hurls at education: there is an urgent individual and national need for the development of skills which is not being met adequately today!

Technology has indeed created a new relationship between man, his education, and his work, wherein education is placed squarely between man and his work. No level of American education has fully recognized the fact that technology today, in effect, dictates the role that education must play in preparing man for work. As though this were not enough, the nation's education system, when viewed as a whole in what has been described as a gross imbalance, is concentrating attention on the 20 percent of students who graduate from college. What about the other 80 percent who will not graduate from college?

Similarly, the full impact of the new technology itself has been slow to register on the American consciousness. To date, instances of technological unemployment are like the cap of an iceberg. Failure to understand what lies below leads us into believing that we can sail comfortably ahead without changing course. The forces of technology--

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automation, computers, laser beams, and space travel--are immediate and national in scope and carry serious consequences. Therein lies the challenge to technical education: We need to provide the kind of education which will help us deal with the impact of all the forces of technology on our society.

The patterns of technical education in Florida are based on the belief that the task of education is to adapt instruction to the abilities and capacities of students, to build on the environment in which they live, and to extend and enrich that environment. An effective program of technical education must be rooted in these beliefs and must be based on the future technical and vocational needs in rapidly growing Florida. Our educational program makes the following basic assumptions:

1. Occupational education is a necessary and integral part of the total education process.

2. An effective program of vocational-technical education requires that the program, at any level, be properly articulated with the educational program that immediately precedes or follows.

3. Vocational-technical education must be flexible so that it may continually be adapted to change.

4. Provision of equal opportunity for occupational education is conditioned by a number of factors related to population density.

To meet the requirements set forth in the basic philosophy of vocational-technical education as modified by the assumptions just mentioned, varying organizational patterns have been devised to meet the particular needs of local communities. The organizational pattern includes programs at the secondary level, including vocational high schools, technical high schools, and programs in comprehensive high schools; vocational and technical centers at and below high school level; technical institutes for technical training for high school graduates and below; area vocational-technical schools which cut across all levels; and technical training found in junior colleges.

There are four basic plans under which community junior colleges may organize and operate general adult and vocational-technical educational programs. These are:

1. The community junior college has primary responsibility for education of persons beyond high school age.

2. The community junior college has responsibility for associate degree and certificate programs, plus certain other offerings for adults, not provided in the general adult or vocational education program in the county school system.

3. The community junior college has responsibility only for associate degree and certificate program, plus certain short courses, institutes, etc., related to existing programs of the college and similar to college credit courses.

4. The community junior college has responsibility only for programs for which college credit is awarded.

The pattern varies, depending upon the local situation in which the junior college is found.

Finally, I would like to mention some implications for all of us in education. In the main, the problems facing us are those which only education can resolve. In resolving some of the major problems as created by technology, it appears that education has three major tasks:

1. Educators must acquaint themselves fully with the nature and dimensions of the problems created by automation.

2. Education must readjust its approach to vocational and technical education. There is little purpose in preparing people for jobs which will no longer exist. We must upgrade vocational and technical skills in order to eliminate the imbalance which exists between the unemployed-unskilled manpower and unfilled-skilled jobs.

3. Concern in education must shift more to the development of people as human beings and less as cogs in an economic machine. "Man has got to learn to live."

We must view technology, not as an end in itself, but as a means to an end, and that end being determined by man himself. Short of this, we must concede to Eric Fromm that while we have the technological know-how, we do not have the know-why nor the know-what-for. Such a concession could only lead us to the brink of disaster.

PART V

PROGRAM PATTERNS AND CURRICULUM DEVELOPMENT IN TECHNICAL EDUCATION

THE TECHNICIAN AND TECHNICAL INSTITUTE YESTERDAY, TODAY, AND TOMORROW

by
Harry Bigelow*

We are here today to examine the technician and the technical institute yesterday, today, and tomorrow.

Yesterday

The duties of the technical staff man and the technician are in a continual evolutionary process, particularly at the research and development level. New technology is being born somewhere every day in a research and development situation. Alert management is applying this and converting it to business and profit. Both the staff man and the technician are often quite primeval when they have entered upon something new--relatively crude or unrefined in their techniques as well as in their total knowledge of what they are doing. The degree to which they have the basic and technical knowledge to master their new field will greatly assist this evolution to a sophisticated level. Witness, for example, the evolution of nuclear energy as applied to reactor technology development since its beginnings twenty years ago in simple pile experiments to a highly sophisticated and booming reactor development program that is covering the very earth. The men who did the first experiments were working with basic principles on a very elementary experimental level. Subsequently, they developed elaborate instrumentation to control and measure the performance of their experiments. The unknown hazards were such that a whole experimental garden of reactors sprouted up over these twenty years in the southern Idaho lava bed desert. The technician level of skill was even more elementary--he was often nothing more than a high school graduate who had shown a mechanical interest, experience and aptitude, a strong back, and a willingness to follow directions. The technical know-how, as well as the applied technological aspects of the work, were largely handled by the staff. The role of the technician was simple by today's standards. It was, in fact, more the role of an assistant who required no specialized training as most of what he was expected to know or do could be taught him on the job.

The technician of twenty years ago could be compared to Rip Van Winkle awakening to a changed world were he to be brought onto the scene today. Without the intervening on-the-job experience, continuing education, or retraining, he would not be considered for employment today because of his inability to contribute sufficiently.

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The utilization problems that the Laboratory has, whether staff or technician, are no different than what any other business, including your profession, has, namely, what to do with the personnel who arrived on the scene some twenty years ago when the requirements were different from what they are today, but who do not meet the changing requirements of their positions. We have some of these technicians, and it becomes increasingly difficult to search for work at their lower level. Also, some may not have the basic aptitudes or interests to learn the sophisticated and more theoretical technology of today as contrasted to the level of the work they were quite capable of dealing with at the time they were hired. Thus, we see that each new technology becomes more complex as it evolves. For the employees to progress with it, they must be capable of evolving with the technology.

The twenty years since the birth of reactor technology have made great changes in the post-high school training requirements this man is expected to bring to his job as a technician. In fact, this man we now call a technician because he has been introduced to many of the principles of the discipline he follows and has equipped himself with sufficient applied scientific and engineering information and skills, can adapt with short company training to any of the many new technologies. For these reasons, the Laboratory, starting about 1957 or 1958, began to place a technological floor, so to speak, under the newly hired, of at least a technical institute level of education or equivalent. This criterion gave assurance that the applicants had survived a two-year program in a technical specialty of mutual interest. This also pre-supposed that they had continuing interest in their own growth. Further, because we were engaged in research and development and were dealing with theoretical and experimental scientists and engineers, we sought the best men in the class that we could hire, rarely dipping below the upper quartile. More often than not, those hired were in the upper decile. There are, however, hazards in selecting people of this caliber if they become assigned to routine operational or service technician positions where the job challenge is insufficient to halt the onset of boredom.

There are technicians who are uniquely qualified for staff assistance in these positions through maximum technical understanding of the field and characteristics that make them amenable to an ever-changing scene--interested in factual results, per se, plus the personality to persist through frustrations in the search for these facts.

Where do they come from? The two-year technical institute graduate comes to Argonne National Laboratory from any of the technical institutes in the nation or from community colleges having such graduates as well as some liberal arts and science junior college graduates. We have drawn heavily on Wentworth, Broome, Oregon Tech, DeVry Tech, Southern Illinois University, and many others too numerous to list that have tended to meet our requirements. Our recruiting program, therefore, is national in scope. Also we find that every technical institute cannot and need not offer every technology, for there is a separate demand for each technology.

What sort of training do we expect this two-year graduate technician to have upon entry into the work situation? While he wouldn't be expected to have the broadest introduction to science and math, it would be important that he have some understanding of basic scientific knowledge in the engineering or scientific area where he was to act in a supporting role. This could involve biology, medicine, industrial hygiene or safety, physics, mathematics, computers, statistics, vacuum systems, instrumentation of all sorts, electronics and electricity, drafting, materials, metallurgy, machine shop techniques, report writing-measurements, data acquisition and processing, error probability, and scientific methodology. We would also expect him to be oriented as a professional support person rather than as pre-professional or as a professional. The problem of the B. S. graduate as a technician is his professional orientation as an undergraduate, contrasted to associate degree graduates whose school and employment orientation is one of following direction with trained technical competence.

The broader technological base that you provide him, plus current continuing education upgrading courses, is the technician's primary long-range job security against obsolescence. For example, the electronics technician who has not updated his electronics information and skill in the evolution from tubes to transistors, would be unemployable in a modern computer company laboratory.

To counteract this potential under-utilization of technicians and to maintain their capability for broad individual assignments in our divisions, we do not always permanently assign technicians to staff men for indefinite periods, but often pool them under a chief technician who has knowledge of the primary requirements of the individual experimenter. At times of peak demand, or in slack periods when staff may be on extended leave, or when experiments are terminating or changing in nature, the technician may be shifted to other assignments for temporary or indefinite periods. This preserves flexibility of the group and provides a pool of skills for the experimental or theoretical staff researcher according to his needs.

The staff man normally plans his experiments and interprets the results of measurements. He looks to the support personnel for assistance in procurement, design, assembly, testing, operation, and data or measurement acquisition. This support that he must have involves substantial technical information and capability for knowing specifications and suppliers; and it also involves his having technical capability to build and test the experiment including varying degrees of scientific knowledge in the physical and natural sciences, electronics instrumentation, design and drafting, machine shop techniques, materials, etc. Thus, the technician knows how to use and apply the tools of research but is not expected to develop new concepts from basic knowledge.

What has been the scope of our utilization of the technical institute graduate? There has been a regular growth in technical institute graduates hired at the Laboratory since about 1958. At last count, there were some 259 associate degree technicians on payroll. These have been

in such technologies as electronics, nuclear, metallurgy, instrumentation, design and drafting, engineering/physics, mechanical, aeronautical, electrical power, machine, and others. There have been occasional two-year liberal arts graduates hired for a technician position in chemistry or physics/math areas.

The progress of these technical institute graduates has been universal throughout the Laboratory. Some left the Laboratory to resume full-time education at regular colleges and have received partial or full accreditation for their technical institute education. The majority of the others, if my division is typical, have participated in some form of continuing education. All of them have been promoted at least once from the hiring level of Junior Technician and most, if not all of those hired back in 1958, are now Senior Technicians. Some have attained Scientific Assistant status where they were capable and had the opportunity to do work normally required of a B. S. or B. A. Within their own classification, they have done well in four major areas as Engineering and Scientific Technicians, Reactor Operators, Health Physics Technicians, and Computer Operators.

I am sure you are curious as to what these technicians actually do. Here are three capsulations of what your graduates are doing for us:

1. An example of typical duties of an engineering or scientific technician would read as follows:

   Is responsible for the manipulation of controls--remote to direct; for servicing a nuclear reactor or Van de Graaff accelerator or other Laboratory experimental equipment and instrumentation; for insertion and removal of radioactive samples; for acquisition of data and control of operations through reading of recording devices and computers. Assists staff members in setting up all types of experimental equipment and tests and maintains same. Assists in unloading and reloading and operation of nuclear reactors.

2. An example of typical duties of a Health Physics Technician are:

   Evaluates type and degree of radiation hazard from acquired data. Recommends shielding, worktime limits, protective clothing, respiratory equipment, protective devices, and personnel monitoring equipment. Renders assistance and advises on decontamination of areas, equipment and/or personnel. Recommends storage, transfer, and transportation on or off site of radioactive materials and contaminated equipment. Assists in emergency decontamination of personnel or areas and performs on-the-scene

analysis. Collects and analyzes air and gas samples. Gives instruction in the use of all types of detection instruments, protective clothing, and respiratory equipment.

3. An example of typical duties of a Computer Operator are:

Wires control panels of peripheral equipment such as external memory, data communicating, synchronizing, input and output recording or display devices; selects and loads input and output units with materials such as tapes, punch cards or print-out cards for operating runs. Assists programmers in analyzing and debugging new programs. Operates electronic computer from console and auxiliary equipment.

Tomorrow

Having reviewed the technician yesterday and today, what about the future? You are the educational proprietors that have the vital challenge and responsibility of educating the technicians of the future. Your proprietorship has provided the basic ingredients to launch the technicians from the educational pad into the vast spaces of science. They have been prepared in your organization and are leaving their base of learning and theory, equipped with fundamental knowledge to apply in their chosen endeavors.

Their application of scientific, engineering, administrative, service knowledge will fission and fuse into a contribution and reward which will mark their progress in vocational growth and socio-economic achievement which are essential to career stability. Career stability is not only vital to them as individuals but to our nation's future, for we shall require vast numbers of technically qualified citizens to continue the explorations of unknowns, whether they be in the scientific, educational, sociological, humanities, engineering, or service fields. Technicians are one of the keys which, properly utilized, can add to the expanding framework of fundamental knowledge required for the continued preeminence of our nation in the evolution of the highly technical and specialized community.

There are dangers inherent in the present trends both to the individual and the society of the future. Two major areas are:

1. Personal development of the individual may be limited to a discipline with failure to recognize interrelationships.

2. The development of communications gaps between the various research disciplines is well known, but this is one facet of a broader problem. A stratification of society could well develop due to lack of understanding and appreciation of the contributions that each segment makes to the whole.

Moreover, it is questionable if we might not have a foreclosed society if we do not build on cooperation and use of interrelationships to demonstrate our differences rather than upon stratifications of them which will lead only to induced explosiveness. In these areas, it is essential that educational leadership create and develop programs to alleviate such hazards.

By providing a continuity of educational opportunity to amalgamate personal development with social understanding, your organizations will make a magnificent contribution to a future dynamic society. You are today in the unique position of undergirding technical development on a national basis; yet you retain a community leadership, significance, and understanding. The impersonalized remoteness of the great university even in the megalopolis does not directly challenge your community leadership or your community responsibilities.

In 1965, there was an increase of 50 percent in the younger age groups who are eligible to seek post-high school education, over the number in 1960. Population projections in the next decade show a continued growth in the eighteen-thirty year old segment of our population. In the same period, expansion of educational facilities at the technical institute and junior college levels has followed a similar pattern. Even though the number of births per thousand may have stabilized by the time today's children reach the age where they will require your facilities, future occupational requirements will be demanding that even greater numbers of our total population obtain post-high school technical competence. Hence, your responsibility is an ever-expanding one in curriculum quality and quantity. With the likelihood of changing or new technology every decade, you have thrust upon your shoulders the greatest challenge in educational history--the development of individuals to serve the community in which you are located. Your curriculum responsibilities include not only the development of trained technical intelligence but its integration with general education and retraining of obsolete or unemployable workers. With today's development of megalopolis, the survival of your community may well depend on how well you meet its total needs for basic technical, general, continuing, adult, and retraining education.

Research and development technicians are but one facet of the overall technical support picture. We should examine the full scope of positions that comprise the technical support area. So let us expand your horizons to think of your responsibility of training for the entire technical support area. This area includes junior staff personnel with or without degrees, scientific and engineering assistants with or without degrees, direct program technicians, peripheral service technicians such as Health Physics Technicians and Technician Operators. We also have other supporting personnel such as draftsmen and designers, instrument machinists, welders, opticians, fire protection specialists, and administrators. In addition to this, we have the plant service technicians handling steam, electrical and mechanical maintenance, medical technicians, glass

blowers, and clerical personnel. This may sound somewhat like Dr. Seuss with his tome--one fish, two fish, red fish, blue fish; but as in learning to read, all supporting facets must be available to make the research and development operation function.

An example of insatiable demand for curriculum development and trained personnel is the area of plant maintenance men. In a research and development organization, as well as in many diversified manufacturing industries, such a man must have considerably broader knowledge than a specific trade. He needs to understand electricity, controls, steam, heating, air conditioning, refrigeration, elevators, plumbing, etc., because of the wide variety of machinery, air, water, and underground gas and utility supply lines essential to plant operation. At present, the best source of such personnel is men with many years experience in the engineering sections aboard Navy ships. There they have acquired the most diverse and broad education in the total information needed to operate a unitized plant. I would judge that curriculum in plant maintenance is a wide-open educational field for any partially industrialized district that you serve. There must be thousands of high school boys with a jack-of-all-trades bent, who would be formative material for such a course.

As community colleges, you must think on a broader scope than that of only the technician. It behooves you to fill all the possible employment and cultural needs of your area. The degree of post-high school technical knowledge required in an ever-increasing number of positions today necessitates that you develop those living in your community for the employment of the decade whether they continue to reside in your area or not. If your area is to survive economically, its residents must be prepared to work whether they seek employment locally or follow a national pattern. If they are not prepared, your institution will atrophy with your community in an economic as well as a social sense. You must, secondly, meet their increasing cultural requirements as well, now that leisure time will be thrust upon them in greater measure. Much of the latter can be on a continuing education basis. Moreover, there will be an increasing need for the pre-professional curriculum traditionally offered by junior colleges. The student, initially oriented technically-vocationally, will undoubtedly return for those liberal arts aspects of education that he wants on an adult continuing education basis, through company financed assistance plans or on his own. Your community will expect you to take the leadership in developing the curricula that will meet the needs of this and future decades.

An analysis of your own districts will give you a scope of proprietorship considerably more awesome than your capability to fulfill it. The finest contribution that you can make is a well-trained and well-educated young man or woman enabled to make his own way in this increasingly complex technological and social world. Such a graduate will bring praise from the spouse, parents, the employer-user, and the municipal and business organizations that profit from a contributing taxpayer contrasted to a marginal or sub-marginal community member who is a liability to himself as well as to others. These interrelationships are at the heart of your proprietorship. They are also congruent with your ideals and fondest dreams for the type of educational institution your community needs.

Your institutions should be second to none in meeting the educational task that is your unique responsibility. Your community will be following your leadership role--the gauntlet of technical and community college educational proprietorship has been passed on to you.

Your responsibilities in many ways reach deeper into the grass roots of the nation's future than does any other segment of the educational panorama. It has been estimated that 50,000,000 of our citizenry are now engaged in educational pursuit of some form. Ph.D's are probably less than 1 percent of our population; graduate students comprise another modest percentage. Your institutions stand on the horizon much as the Statue of Liberty, beckoning to the major segment of our citizens--"Here is the hope, the bettering of your future; come and achieve; we stand ready for your challenge."

EDUCATIONAL INNOVATION

by

Franklin G. Bouwsma*

There are many different problems we face as administrators when we consider the prospect of educational innovation, but the first decision is yours. It is necessary to shatter inertia, and this can be accomplished only if you, the administrator, decide to innovate. In the field of innovation, the administrator cannot go on forever being a "good egg"; either you hatch or you become rotten. There is no half-way point; there is no such thing as indecisive innovation.

After you have decided to start, you must then make a second corollary decision on who must be involved in planning change. May I recommend that you consider these rules of thumb:

1. Do not go beyond the present state of the art of engineering.

2. Be sure to involve the consumer so you can insure local utilization.

We all know of projects and programs developed by eager enthusiasts in the past decade which failed because of equipment incapabilities. Many times, equipment manufacturers suggested potential automation or educational properties which were unattainable, but in the large majority of instances, the educator or administrator built up an implication in some equipment or program to an idealized state, and it was beyond the capability of the present state of the art of engineering and of education to deliver the suggested results.

It is very easy to get so involved in the aspects of the machinery and its complexities that you will tend to solve problems created by the machines with other more complex machines. We call this an improper gear ratio. The present or opposite trend is to try to use machines or programs so that we can humanize learning, not dehumanize it. A friend once stated our problem as, "How to humanize the scientist and scientize the humanist." The answer to the student's basic query, "Who am I?", is not a teaching machine but a teacher who has time when the student asks the question.

The present state of the art of engineering must be analyzed by a highly competent technical staff. The administrator must ask for their opinion, and when they give it, he should listen. The technical staff should be involved in the design of the change in order to hold it within the bounds of credibility.

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Many of the projects which failed or are now limping dismally to oblivion never involved the consumer in the design of the project. The campuses had the administrative will and the engineering know-how, but the program was designed as a type of academic fallout from on high; and the faculty and the students have successfully outlived the project. Involve your consumers, and they will make a viable project which is their own, and it will surely endure. Design the project for their continued involvement, and after initiating, the administrator can stand to one side while the faculty guides it into tracks which satisfy their needs. Without faculty and student involvement, there is little hope of real success beyond a transitory public relations story or two.

Educational innovation really has four parts of the learning process involved throughout, and the projects will require different variants of each part. You should be aware that every rule of operation has many variables and opposite views which will work well, but these are my operational guides of the past fourteen years.

The first part of the learning process is the professor--the faculty member. He is the content specialist, the inventor of the material, the selector of information, and the guider of student stimuli. It is his task to select and develop that body of material or that subject which the student should probe, sift, or question. He is not necessarily an actor, and frequently his delivery or appearance detracts from the material or distracts the students. Whether or not the professor's delivery is comparable to that of a professional narrator is not of major importance to the faculty member. Faculty orientation is to the content of material presented; this is where years of study are brought to fruition, and this is where the role of the professor cannot be questioned.

The professor must select the subject matter according to proper media and must be very aware of similar projects being developed on other campuses. An Innovations Library of research data in education and available produced materials should be designed for faculty browsing and discussion, and it should be an area designed to be conducive to straying down the path of educational heresy. The many reports and studies crammed into administrative dead files should be displayed there, and a faculty librarian should gather information for the faculty on an inter-library loan basis. We believe that the faculty will lead in innovation if they have the data and the correct information. It is easier to forge into the known, to pioneer down an expressway.

The professional team planning the design for the future should plan the project to give the faculty member a low student ratio so he is available when the student needs him. The many aspects of each subject should be analyzed for group study, group problem-solving, case analysis, programmed rote material, information practice, and concepts to question in addition to other instructional methodology or media. The methodology of epistemology should become a major part of the professorial problem for each course.

The faculty should be involved in the selection of purchased instructional materials. They should pledge a minimum of three years use of the films or tapes purchased during the year. The administration should agree to purchase the materials they have selected after the preview committee and the faculty of the department have voted to purchase them. A system of review of materials at a certain time should be developed so the material will not be out of date. The faculty viewing is not only important for proper selection, but it also creates an awareness of what is being done and gives them a greater sense of professional production. Their higher standard of acceptance will require greater selection and invention on their part and higher production quality on the part of the local production staff.

A skilled, aware faculty is the beginning of the learning process in the educational institution; all other aspects are subservient to their part of the process. Listen to their longings, phobias, and triumphs.

The second part of the learning process is the content. It must be analyzed for the differing student needs and for its ability to satisfy student needs at different times and levels.

The greatest breakthroughs in this century are the ability to store and retrieve information and the fact that we are learning how people learn. The entire educational process in the future will be based on these facts, and now is the time for the faculty to design the subject matter for this future.

Materials should be programmed in small bits in sequence to insure comprehension of the subject. I know this is quite behavioristic, but it works, and more people will tend to learn more efficiently; so it is time to use this first step in organizing material for learning. The early rhetoricians and dialecticians worked out the detail of disposition of materials for the persuasive effect. The dispositio of the future will be the design of the content to insure the acquisition of the desired information. The yellowed notes in chronological order have very little reason for existence if they are not an effective learning methodology.

The content must flow easily from one sequence to another, and tangential forays should be planned in branching form to pique the student in individual study programs. It should be noted that sheer stimulus-response instruction is usually insufferably dull but effective. Care should be taken to develop the more interesting factors of the subject throughout. Other parts of the content should be designed for student stimulation. It should force the student to question. It should be a catalyst to move the student from information to the search for knowledge.

For many years we tried to put information in the student like jam in a jar, and at the end of the year we opened the jar to see how much jam there was. Sometimes the effect was "GIGO"--garbage in, garbage out. In the era of computerized information storage, this instructional system is hopelessly obsolete. The content must stimulate the student

to question, to probe, to sift, and then to solve. Instead of using jam jar instruction, maybe we should put bees in their bonnets and see which way they jump.

The content should be designed for maximum use of stored data applied to the local case studies. The humanized give and take or dialectic must be designed into the content itself to insure student involvement. If information is stored nearby, readily available, we should teach how to find it and how to use it, not how to duplicate it unnecessarily. The Postlethwaite project at Purdue is an example of audiotape exercises in the science program to increase learning ability. It is stored data. Eight mm single concept films in the technical area is an example of stored data. The programmed learning workbook is stored data. Using some teaching machines and some computer-assisted instruction is an effective utilization of stored data in instruction; frequently, however, these projects are extremely expensive page turners. The change in content design is the most difficult problem for the faculty. It is a continuous change.

The student or learner is the third part of the process we have been analyzing. Of course we all are in this category as members of the community of scholars, but at this time we should consider especially that tuition-paying group who give us our daily bread. The student needs professorial empathy. We seldom hear a faculty member or administrator note aloud the desirability of comprehending student needs, but the student is the individual of the future and his individuality is the key to this person's learning. He will accept innovation which will enhance his ability to be an individual in a cipher-prone society. Large group projects should be designed to gain more professorial productivity for more "other-side-of-the-log time."

The students should be tested frequently to continue the improvement of the materials for more effective communication. The goal should be to improve communication so the comprehension is constant at the 100 percent level, and the time spent in study is the bell curve.

Students should analyze the projects and their effectiveness as paying consumers, and their analysis is usually quite sound. Their preferences are quite important, for student motivations can be a guide for a design for greater learner involvement. The students will tend to guide the projects for humanizing at critical learning points; they will oppose dehumanizing violently.

Obviously the fourth part is the media itself or the vehicle or occasion for learning.

The accessibility of instructional materials is a critical part of any Learning Resources Center concept. We have found at Miami-Dade that open instructional carrels, the library study divider stack, the student materials access counter, and a computer printout analysis increased our utilization of audio-visual materials 500 percent in six months. It is

necessary to distribute information widely on availability, and it is necessary to guide the purchase of equipment for a low-maintenance high-performance operation. The faculty should not be required to learn how to operate any equipment, and the student operators should operate professionally.

All media produced locally on the campus should be produced so that there is a faculty approval of all of the aspects of production along the way. This will take more time, but it insures quality production and more utilization. As much as possible, there should be multiple presentation potential for local productions, e.g., a color film has a possibility of presentation as a movie in an auditorium, can be seen as a movie in a classroom, can be reduced to an eight mm film in a student carrel for individual study, and can be seen on a television system in any situation simultaneously; a videotape can go only through a television system.

We find that faculty and student preference is for professional production quality. In order to achieve this comparable quality locally, we have acquired a professional staff. Our faculty and students have voted in favor of these presentations, and we have more faculty-requested projects than we can produce. Our faculty are professionals in their field; we try to give them professional materials.

One of the important things to remember about the use of media is that there are different strengths and weaknesses in each medium, and the content and its use will frequently recommend the proper medium. For many years, we have been videotaping programs which should have been audiotaped with a few visuals and charts passed around through the class. In our present state, we will differentiate between a color videotape and color film production according to ancillary class or student individual study projects. We will also point out the editing problems and solutions and then will decide which is the correct medium. There are differences in media; they should be used sparingly in a course, and different aspects should be used (the long distance expert phone call one week, the programmed learning workbook at certain times, the audiotape notebook one week, etc.).

It is obvious that local and regional libraries of materials are being developed. We have many projects like this in Florida and in the southern region. As long as materials are developed individually, there is no problem, but full courses in the can are on their way out. A library with infinite variety also permits instructional variety in colleges.

The interchangeability of equipment and materials will be critical in the near future. Be aware that in purchase of equipment, the extra dollars may insure your ability to get outside of your classroom walls. You must also be sure the faculty "review and edit" rights are protected for each outside use or library use. The professional rights are vital to every college, and they must be protected by written contract.

The design of building, study space, and classroom should be based on as much flexibility as possible. Unless a carrel or viewing system is flexible, it is soon obsolete for viewing, and study patterns will change daily. In the planning of new spaces for new media, tight engineering specifications and broad educational specifications should be followed.

These, then, are my thoughts on educational innovation; it's up to the administrator to start it, to keep it plausible in terms of engineering, and to insure the involvement of the faculty and students; and the varying parts of the learning process--the professor, the content, the student, and the media should be analyzed for greater learning efficiency and effectiveness. For us as administrators, it will require an innovation. "And, therefore, never send to know for whom the (school) bell tolls; it tolls for thee."

PROBLEMS AND PROSPECTS IN TECHNICAL EDUCATION

by
Harry Broudy*

Vocational education is peculiarly sensitive to the demands of the future. All schooling is to some extent for the future, but that which purports to provide us with the means of earning our livelihood is directly influenced by anticipated changes in the economy and its demands on human resources. In no sector of educational thought, therefore, is the relation between problems and prospects so intimate; determining the prospects is one of its problems. Whereas in general education we seek a formula that will be right for all men at all times, in devising schemes and justifications for vocational education, we must keep in mind thousands of occupations and millions of individuals for each of whom, ideally, there should be an occupation that will exploit his peculiar syndrome of talents at a level just a bit higher than he can hope to reach.

Assuming that the next two decades will extend the fruits of the technological revolution, especially in the direction of not only making products by machine, but also making machines and directing their operation by machines, what problems of policy confront vocational education? What shall be its relation to general education? What shall be its role in the total educational enterprise? What learning outcomes shall it make central, and in what institutions shall they be provided? What shall be the relation of vocational education to the utilization of human resources by the economy of the nation? I shall concentrate my remarks on these and kindred questions rather than on the more technical problems of accomplishing certain outcomes on which, in any event, I have nothing to contribute.

We can get at some of the more general questions by examining the claims of vocational education for a place in the secondary school. The arguments have run something like this:

1. Because the economic life of the social order is so important, everyone ought to be trained for economic productivity <u>in the schools</u>.

2. Failure in one's economic role causes or contributes to delinquency; hence vocational training <u>in the schools</u> is justified on sociological as well as economic grounds.

3. Because so many of our youth do not continue their schooling beyond high school, vocational education ought to be introduced in the early years of the secondary school.

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4. The high schools by their traditional allegiance to a literary, academic, bookish curriculum, have not given the proper attention to vocational training. Hence there should be a change, especially in the direction of secondary school vocational training for the academically limited pupil.

The trouble with the argument from the importance of economic activity is that it does not prove the need for formal vocational education.

The economic life of the Eskimo, for example, is important to the Eskimo, and if the Eskimos did not teach the young the vocational skills of the tribe, there would soon be no Eskimos. This is a truism. The important point is that the necessary occupational training can be accomplished by simple imitation and apprenticeship. No one had to urge the Eskimo to provide this type of education; it was as much a part of the milieu in which the young grew up as ice and snow. For one thing, almost everyone learned about the same occupational roles, although midwives and medicine men might be exceptions.

For another, the tasks comprising a given occupational role were familiar, and the proper procedures could easily be demonstrated. These procedures could be formulated into rules, but the rules were not derived from theory and certainly not from scientific generalizations. Presumably, for all ordinary cases, the existing procedures and rules would ensure success. Extraordinary cases would present a problem. Whether or not the tribe could cope with it was a gamble, a gamble with luck and ingenuity or trial and error. The survival of the Eskimo is witness to the fact that either extraordinary cases were few and not important, or that their luck and ingenuity did not desert them. There is no evidence, at least none known to me, that the Eskimo applied the findings and methods of science to his economic problems. Up to very recent times at least, the know-how needed for the economic well-being of the group could be acquired and perfected without the benefit of formal occupational schooling. The simple moral of this example is that the importance of economic activity does not of itself imply an argument for vocational schools, programs, or curricula any more than the importance of breathing and exercise necessarily justifies schools of physical education.

Nor is it helpful to mix up the need for facilities in vocational schooling that do not exist with the failure of young people to take advantage of the opportunities that do exist. Surely, these are different arguments and apply to quite different situations. In the first situation, one is saying that James and Peter wish to become electronic technicians, but that regrettably they can find no course or no school in which to carry on the requisite studies. In the second situation, one may be scolding Susan and Mary for electing a classical course in high school when their abilities and station in life (as determined by scientific prognosis) point to the advisability of a business course. The answer to the problems of James and Peter lie within the educational

wisdom and will of the community, but what is one to do with the alleged wrongheadedness of Susan and Mary?

The argument that we ought to use vocational education as a preventive of delinquency is both appealing and financially astute because almost everybody is against delinquency. But at most, keeping the young out of jail is an indirect goal of vocational education, as it is of all other social institutions; once it is made a primary goal, the distinctive role of vocational education in the educational system is seriously compromised. For example, it can be claimed that certain skills and knowledge cannot be acquired without schooling, but that schooling of any kind is a necessary condition for health, wealth or good character is difficult to take seriously.

The last argument, viz., that the traditional allegiance of the traditional high school to academic subjects is no longer an adequate preparation for the world of work for most of our young people, will also have to be reexamined in the light of what the world of work may look like in the next quarter of a century, and to this I now turn.

As the western world (and we may as well anticipate a bit and say the whole world) works out the logic of mass production based on scientific technology to the end, bitter or otherwise, education for vocation becomes both more common and more general, on the one hand, and more specialized and diversified, on the other. This sounds paradoxical, but then we live in a paradoxical age.

To say that vocational education will become more diversified and specialized needs no elaboration. To say that it has to become more general and common means that it will depend increasingly on the manipulation of symbols as formulated in language, science, and mathematics instead of things. As someone has said, "It takes a ton of paper to make a ton of steel," and in such an industrial system, symbolic workers are as important as manual workers. The symbolic skills, however, are at the heart of common general education, and all over Europe, as well as in the United States, the recognition is growing that more general education for the common man is indispensable if a country hopes to stay in the industrial competition.

The same conclusion is reached when the obsolescence of specific job training is considered. I have been told that in the years to come, men will work only three days a week on their present job and put in three more studying for a new job. So much for the dream of luxurious leisure. The flexibility required for frequent retraining is impossible to achieve without a solid training in the symbolic skills and basic concepts that make up general education.

Finally, there is the educational fact that young people who have a mind to become technicians in any one of a dozen fields have to undertake post-secondary schooling that requires virtually the same competencies in science, language, and mathematics as does the engineering

curriculum. In summary, the prospect is for more and more specialization and diversification, but for many of these specialties to have a short life. Common general education alone will enable men to make the rapid adaptations to new processes, new materials, new forms of energy, and new forms of production.

If these projections are in the right direction, then certain changes in the general school system will follow:

The secondary school as the proper place for vocational education may be seriously questioned. First, it is doubtful that the ordinary secondary school can provide the kind of program that will be adequate to both the increased diversity of occupations and the greater commonality of the general education that is a prerequisite for them.

The reasons for this doubt are fairly simple. A sound education in the general studies takes time and concentrated effort. Those who admire European secondary education should be reminded that even with a highly selected study body, gymnasia, lycees, and public schools do little else than teach the basic studies. If basic education is to be done thoroughly, the secondary school cannot do anything else, not even vocational training.

The other reason is that to do the kind of high-level training required by modern industry, for a wide variety of specialties, calls for a concentration of resources and staff that very few secondary schools can command. In short, what America has tried to do with its comprehensive high school will probably have to be done by a chain of regional post-secondary institutes devoted exclusively to vocational training in both depth and breadth.

Presumably, such institutes would supply training for the occupations lying just below the professions, although the possibility of transfer into professional curricula from the institutes need not be precluded. Relieved of the need to provide general secondary education, these institutes could utilize their resources for high quality specialized vocational training; relieved of the need to "dabble" in vocational training, the secondary schools could, in turn, make it unnecessary for vocational schools to give remedial work in language, science, and mathematics. I have used the word, "dabble," advertently, because most American secondary schools confine their vocational offerings to the commercial course and a little training in one of the trades or agriculture. Most American secondary schools are too small to do otherwise.

It will be objected that this division of labor is unrealistic and even wasteful. Youngsters who are unhappy with bookwork, it is argued, should begin vocational training early, say at the age of fourteen or fifteen; any further time spent on general studies would not only be a waste of time, but might even drive them out of school.

Against this objection certain observations are in order: First, among dropouts from high school, one finds all grades of intelligence,

not simply the dullards. In the second place, if the lower prestige occupations are to be made more desirable, they too will require higher intellectual competence, a point to be discussed more fully below. Third, we have not yet exhausted the pedagogical means for teaching the general studies to the lower reaches of intelligence. Fourth, the problem of rescuing children who have been radically deformed by their environment is a problem for social therapy, and the responsibility for it rests primarily on the Department of Welfare and secondarily on all social institutions rather than on vocational educators.

Finally, and most important, is the fact that to utilize the benefits of large-scale machine industry safely and productively, we need not only a high order of vocational skill, but also a high order of citizenship and a high order of personal development. Without these, the effects of automation may be disastrous, not only economically but socially and psychologically as well. Contrary to first impressions, the ultimate development of mass production is not a maximum of mediocre uniformity. It is rather the volume production of an array of products exhibiting the widest possible diversity. The trick of mass production is not to turn out cheap suits in three colors and four sizes. That is only the first step. Technology comes into its own when without raising unit costs, it can turn out suits in twenty-five colors and twenty sizes. Without the sensitive as well as voracious consumer, the high productivity of technological progress cannot be accelerated sufficiently to escape the drag of overproduction.

All of these considerations militate against the argument that general education is for the classes and vocational education is for the masses. One of the fortunate factors in the situation is that automation technology can provide the time and resources for the new educational formula. We can use the added productivity of a technologically sophisticated culture to maintain and exploit it for further benefits.

Britain's mild flirtation with the comprehensive secondary school, while admirable in intent, may be misguided, as indeed all flirtations are likely to be. The times, it seems to me, point to more high-grade general education for <u>all</u> young people rather than a greater variety of offerings as a means of providing all young people with an inducement to a longer and more interesting stay in school. The word, "comprehensive," should apply to the population being schooled rather than to an array of curricula.

If this view is correct, vocational education for the immediate future is important in more than a truistic sense. It is important in the sense that it has to become formal and more consciously and extensively based on theory. The elaboration of knowledge in interdisciplinary form may well have a profound effect on the patterns of vocational training. Solid state physics, biochemistry, and a host of other fields make the preparation of an electronic technician, for example, far more complicated than it used to be. Working in automated factories will, no doubt, create occupational patterns of its own. The service occupations also will call for theoretical scrutiny and rethinking.

These considerations force the conclusion that vocational education faces responsibilities that go beyond constructing curricula and training personnel to teach them, and it may well be that these new functions will radically alter the shape of even its instructional role. Somewhere in our educational system there must be men who not only know how to teach auto mechanics or electronics (although we can never have too many of these) but who also understand the total economy and its relation to the social order.

As one example of the kind of thinking one might expect the vocational educator to be concerned with is the upgrading of occupations that are socially necessary but which do not enjoy sufficient social status to attract a sufficient number of workers.

In one sense, this upgrading is not the responsibility of vocational education. The status of an occupation is the resultant of many factors. In another sense, however, the way a person is trained for a job has a good deal to do with the status of the job in the occupational hierarchy.

I am not now thinking of the euphemisms by which grave diggers evolved into undertakers and then into morticians, and by which janitors are transmuted into custodial engineers. This is semantic abracadabra, although like all abracadabra, not without influence. More fundamental are the mechanisms by which an unpleasant but socially important task is made tolerable and honorable. Nursing, cleaning, disposal of the dead and of refuse, and household and personal services of many sorts fall into this category. There is a constant high demand for such services, but they are unpleasant and tend to be low on the social scale. However, they are not all equally low. Nursing is a prime example of a calling that has risen on the social scale through technicalization, routinization, and intellectualization.

For there is no task so distasteful that routine, skill, a degree, and a uniform cannot transform. The sweeper of dung is low on the occupational scale; the technician who examines feces in the laboratory is not. Skill, knowledge, standardized procedures justified by knowledge, together with a uniform, help to separate the unpleasantness of the task from the character of the performer, or to put it inelegantly, from rubbing off on him.

For example, it is important that the performer of a personal service not be stigmatized as a body servant, owing personal fealty to a master. Contrary to the common impression, depersonalization, not personalization, is the key to vocational status. The loyalty of the high-grade worker must be to the task, not to the person served. Even when an agency or firm boasts of "personalized" service, the personalization is so managed and routinized that it is really depersonalized. The sleekly gracious airline stewardess is about as good an example as comes to mind. Any male traveler who construes her interest in him as personal is soon disillusioned. This deflates the ego of the customer, but it does wonders for the status of the occupation and the ego of the worker.

Thus, although vocational educators cannot by simply taking thought, raise the social status of housework, practical nursing, gardening, and the like, they can by taking thought, explore the possibilities of rationalizing, standardizing, depersonalizing, and insofar as possible, intellectualizing these occupations. I take it that such study is properly within the province of graduate students and research workers in vocational education.

But vocational educators may have to take on an even broader role in educational statesmanship. For it is doubtful that we can ever again afford lags of fifteen or twenty years between the manpower needs of the nation and the educational facilities for meeting them. On the contrary, to stay even, educational strategy should have a lead time of at least a decade.

In a culture such as that of the United States, where economic planning on a national level is not looked upon with favor (although no industrial organization would be caught dead without its plans for the future), it is difficult to project manpower needs and to translate these into educational activities.

What sort of training would it take to produce a cadre of vocational educators who could do this sort of planning; who could interpret pervasive trends in the work patterns of our culture; who could understand the impact of new discoveries and processes for the economic future? For the good of the nation, industry, and the world itself, such vocational statesmen should be sitting on boards of research and development in every major firm and governmental agency. Right now there may be possibilities aborning that ought to be translated into educational designs, a task that neither the industrialist, nor the researcher, nor the government official is trained to do.

It is for this reason that at the professional level, vocational educators need study, in the philosophical, psychological, historical, and sociological aspects of educational policy, curriculum design, organization and support, and teaching-learning as well as technical training. The phrase, "professional level," is a calculated qualification. Workers in the field who think of themselves solely as technicians perhaps can dispense with such studies. Given familiarity with the processes to be taught and some teaching skill, they can do their job without losing sleep over the vagaries of the culture. They are, in a sense, not very different from the boys and girls they are teaching, for it is a case of an experienced technician teaching a novice technician. Such men are valuable and indeed indispensable. Vocational education is happy to lure some of them away from industry for pedagogical purposes. However, such men will no more be able to shape educational strategy than will sergeants in the army or a foreman in the factory. If it takes a ton of paperwork to make a ton of steel, it will take more and more knowledge about the world to understand the world of work, and it will take even more if educators aspire to anything more than catching up with the dynamics of economic change. We are, all of us, therefore, condemned to develop our powers of

knowledge and wisdom to a degree hitherto believed to be impossible for the common man. Strange as it may seem, it is the machine that may in the last act force us to become human.

CONSIDERATIONS IN PLANNING AND ORGANIZING
A NEW INSTITUTION OFFERING
TECHNICAL EDUCATION

by
Frank Chambers*

A new institution always presents unique problems. Consequently, there is no formula for an "instant" college. Obviously, the establishment of a new college will be influenced by the laws establishing public colleges; the organization of higher education in the state; and the size, sociological setting, and purposes of the college.

Lamar Johnson suggests that the chief administrator's major tasks fall into six areas: curriculum and instruction, student personnel, staff personnel, finance, plant and facilities, and community service and relations.

The agreed-upon purposes of the college are achieved through the planning, developing, and preparation of the curriculum, and the instruction. Large numbers of needed and desirable curriculums may be identified, but as curriculums proliferate, financial cost may increase in direct ratio. In this area, other problems include the stretching of a small faculty over a large number of courses, the development of an "instant" library, the stocking of appropriate numbers of texts for day and evening students, and the preparation of equipment and supply lists.

Students need to be enrolled, counseled, organized, and provided with out-of-class services. The student personnel officer is faced with the absence of a student government to aid him. This may force him to establish authoritarian administration and minimize eventual student self-government.

In staffing the college, the chief administrator must answer these questions and solve their inherent problems:

1. What is an appropriate salary schedule?

2. Is it ethical to recruit leadership from other institutions?

3. What should be the organization of departments?

4. Should chairmen be appointed immediately or after the staff has been evaluated?

Academic regulations and policies governing the staff must be

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established immediately, and faculty participation must be invited; but the question is, "How?"

Additionally, the new and inexperienced faculty will vary in direct proportion to the number of staff. How is unity of direction given in the carrying out of the purposes of the institution?

Securing and administering funds to pay the operational and capital outlay of the costs of the college can be a dilemma. It can be influenced by the concepts of the community college role, state leadership, and the relative support of state and local support and student tuition. Comparison with other two-year colleges does not provide a solution. The nature of the college plant, kinds of curriculums, student population, and the evening program are a few of the variables that necessitate extensive financial study.

It is necessary to build facilities that will accommodate constantly changing teaching techniques and will justify the cost and satisfy the goals of design and aesthetics. The problems can be resolved through the selection of an enthusiastic and competent architect, the involvement of staff, visits to other campuses, and reference to standard works on community college planning and development. The development of a master plan, based upon projected enrollment, curriculums, and college purposes, is of great assistance.

Enlisting the interest, support, and participation of the community in the college is a factor of time versus adequate preparation. The preparation of an outstanding program to explain the college is worth the time and effort in the good public relations returned to the institution.

It has become the goal of many states to place a community college within commuting distance of all the people. This goal constitutes a dilemma at the operating level. Unless adequate financing is available, the programs of many of these colleges must be woefully weak or exorbitantly high in cost.

The college that does not provide a diversity of curriculums will limit the students it can serve. On the other hand, if the student must pay room and board to attend a comprehensive college, the result in cost will be a barrier to his education. It appears that the establishment of a community college within commuting distance of every family may not be a goal consistent with the purposes of community colleges.

IMPLICATIONS AND IMPACT OF THE VOCATIONAL EDUCATION ACT OF 1963**

by

Roy W. Dugger*

From 1962 to 1965, it was my privilege to serve as Director of the Manpower Development and Training Program and as Deputy Assistant Commissioner for Vocational and Technical Education in the U. S. Office of Education. Some of my most pleasant experiences while in Washington, D. C., were in working with members of the General Subcommittee on Education and with staff members of this Subcommittee, in the expansion and improvement of vocational and technical education opportunities for youth and adults throughout our great nation. One of the very fine pieces of legislation which the distinguished chairman of this Subcommittee and his associates sponsored was the Vocational Education Act of 1963, P. L. 88-210.

Today, I feel grateful and humble that you have invited me to share with you some personal views regarding the impact of the Vocational Education Act of 1963 on occupational training and retraining opportunities for all of our people, and to reason with you about possible solutions to problems which face youth and adults preparing to enter, re-enter, or effectively meet new and emerging demands of the changing world of work.

If the Subcommittee would indulge me, a brief description of the James Connally Technical Institute of Texas A & M University could serve as one example of the impact the Vocational Education Act of 1963 is having on vocational skill development and technical training. Under the able leadership of the Governor of Texas and through the wisdom of perceptive leaders in the Texas Legislature, Texas A & M University was authorized by the 59th Texas Legislature to establish the James Connally Technical Institute on James Connally Air Force Base near Waco, Texas. This decision was influenced significantly by findings of the Governor's Committee on Education Beyond the High School, which reported that the largest single gap in the Texas system of education beyond high school is in the providing of scientific and engineering technicians for research laboratories, businesses, industries, agriculture, and health centers of the state.

Facilities on James Connally Air Force Base are being made available for the campus of the Technical Institute as the U. S. Air Force mission is phased out at this base. The problem of financing the many remaining needs of this newly-activated educational institution will effectively illustrate the imperative requirement for federal support of such

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undertakings. Specifically, sources of funding are required for: (1) research to identify vocational skill development and technical training needs of Texas business and industry; (2) modification of buildings; (3) purchase of modern laboratory and shop equipment; (4) instructional equipment installation; (5) teacher salaries; (6) teacher training; (7) student counseling; (8) work-study activities for students who must earn while they learn; (9) student loans; and (10) evaluation of program effectiveness. The fulfillment of these needs is a joint endeavor of the state of Texas through Texas A & M University and of the Federal Government under provisions of legislation such as the Vocational Education Act of 1963 and of the National Vocational Student Loan Insurance Act of 1965. Classes were started January 11, 1966. Since that date, 60 full-time and more than 300 part-time students have enrolled. By September 1966, there will likely be 500 full-time students. Enrollment will continue to increase while the U. S. Air Force mission continues to phase out between now and June 30, 1968, when there will be facilities available for 3,500 full-time and 1,500 part-time students. In all courses offered at the James Connally Technical Institute, the primary objective is to enable men and women to escape the scourge of unemployability and participate effectively in the changing world of work.

The James Connally Technical Institute, a civilian institution, is unique since it is being developed and operated on an active U. S. Air Force Base. Through the enthusiastic cooperation of federal officials in the Department of Defense, General Services Administration, Department of Health, Education, and Welfare, Department of Labor, and Veterans Administration in this pilot program, all instructional target dates are being met. Senior military personnel in the Tactical Air Command and in the Air Training Command have been particularly helpful in starting this technical institute which will provide many courses designed to give civilians vocational skills and technical competencies that are critically needed in the military or which are necessary for national defense, industrial development, and business expansion.

While the Vocational Education Act of 1963 provides a basic framework that is stimulating the expansion and improvement of vocational and technical education in high schools and post-high school institutions, Texas is finding itself in a position similar to that reported in many other states, that of being unable to meet continued essential expansion and improvement needs with the limited funds authorized and appropriated. To meet the growing demands of the exploding youthful population for occupational training and the essential needs of adults for training and retraining, federal participation through the Vocational Education Act in the amount of $400,000,000 is necessary. This need for funds is in accord with the amount recommended in the 1962 report by the Panel of Consultants on Vocational Education requested by the President of the United States. This report includes the findings of the distinguished panel after making intensive studies of vocational and technical education in the United States during the 1961-62 period. Without an increase

in the federal authorizations and appropriations to the $400,000,000 level, many of the youth and adults of our nation and my state will be denied the opportunity of learning to earn enough to provide a satisfactory level of living for themselves and their families.

Additional funds are essential to the success of the vocational and technical education program which is being expanded and greatly improved under the provisions of the Vocational Education Act of 1963. But more money alone is not a guarantee that vocational and technical programs will meet the needs of all of our people in every community of our nation. There are critical problems which may require amendments to the Vocational Education Act of 1963 if the Congress is to be assured that vocational and technical education is to keep vocational skill development and technical training in pace with the demands of our growing economy and dynamic society. The following are among those problems which are evident:

Problem 1.

Teacher shortage.-A National Occupational Development Fund is needed provide teacher stipends and teacher development programs for vocational and technical teachers in much the same way the National Science Foundation provides for this in engineering and science. This would permit vocational and technical teachers to learn what to teach, how to teach it, and escape the plague of traditionalism which could leave their students unemployable.

Problem 2.

Limited occupational information.-A National Occupational Development Fund could stimulate the implementation of continuing qualitative studies of clusters of occupations. These studies are essential to assure that the content of vocational and technical curricula will properly prepare youth and adults for work in their time.

Problem 3.

Archaic teaching methods, procedures and techniques.-Research in education in general, and in vocational and technical education in particular, needs to be coordinated on somewhat the same basis that research in agricultural production, packaging, storing, and distribution is coordinated. Traditional public and private educational institutions cannot cope with the exploding demands for the storing and rapid dissemination of knowledge unless a major break-through in effective teaching methods, procedures, and techniques is achieved. Teaching must be audio-visualized, mechanized, and automated.

Problem 4.

Rigid matching requirements.-Matching in kind would permit greater flexibility in program development, expansion, and improvement.

Problem 5.

Inflexible fiscal procedures.-A few states and many schools are handicapped when funds are not advanced for approved vocational and technical programs. They just do not have sufficient state and local funds available to pay the costs of a program and then await reimbursement which may be delayed for three months to a year.

Problem 6.

Inadequate state and area leadership.-Funds are needed to pay 100 percent of the cost of personnel and equipment necessary to assure enthusiastic administrative leadership and adequate program supervision in state vocational education agencies and in approved area vocational schools. A program of this type appears essential to assure that competent leaders are available to pursue courses of excellence in preparation for the changing world of work.

Problem 7.

Poor articulation of vocational technical education.-Many American publics that are affected by vocational and technical education have been asleep. The majority of vocational and technical educators have thought themselves too busy to articulate occupational training with its reward in careers to all but a few of their publics. The President's Panel of Consultants on Vocational Education estimated that 80 percent of the population need specialized occupational training. A vigorous campaign is needed to identify in the minds of all Americans the dignity of work and the joy of learning to work effectively with success and happiness.

Problem 8.

Failure to reach the hard to teach.-One of the greatest failures of our time has been the reluctance to develop experimental, demonstration, and pilot programs, including, but not limited to, residential vocational schools designed to determine how to help youth and adults with severe socio-economic handicaps cope with their problems and become productive workers. Funds to pay 100 percent of the costs of these programs are essential if society is to avoid the high cost of a welfare life for many of these hard to reach and hard to teach people.

Problem 9.

Traditional school schedules.-The traditional nine-month school year and six-hour school day leaves many school facilities vacant a lot of the time. This also requires business and industry to absorb more people into the world of work in June of each year than can be efficiently accommodated in one short period. Vocational and technical education in particular should be offered on a year-around basis with course content and length tailored to the requirements of business, industry and the needs of the students.

Problem 10.

Inadequate student assistance.-The work-study program needs to be expanded significantly. In addition, a vocational and technical student loan program is needed to assist both youth and adults. The amount of the loan available to a young person should enable him to pay his own necessary living and school expenses, carry a reasonable rate of interest, and have a loan forgiveness feature if a specified amount of time is served on active duty with the military forces or public health service or in business or industry in an occupation designated as vital to national defense. The amount of the loan available to an adult with dependents should enable him to pay the necessary living expenses for himself and his dependents as well as school expenses, carry a reasonable rate of interest, and have a loan forgiveness feature if a specified amount of time is served on active duty with the military forces or public health service or in business or industry in an occupation vital to national defense.

The problems listed and the observations made are not intended to be all inclusive or exclusive. They are not listed in any particular order of importance. They are some of the problems encountered in developing a new technical institute, which will eventually include vocational skill development and technical education in fifty occupational fields. Also, professional associates in Texas and elsewhere have indicated these are some of the problems faced by them in their pursuit of excellence in training our population for the changing world of work.

If the Subcommittee will permit me one final privilege, I would like to provide each member with a copy of the Bulletin of the James Connally Technical Institute of Texas A & M University. Your comments and suggestions regarding our attempt to develop a model technical institute will be helpful and welcome. We will be glad to have members of the Subcommittee visit us and our friends in the United States Air Force at Waco to observe how the program you stimulated through the Vocational Education Act of 1963 is helping men and women, young and old, develop vocational skills and technical competencies needed in business expansion, industrial development, and national security.

PROGRAM PATTERNS
AND
FUNDAMENTAL KNOWLEDGES
by
Lynn A. Emerson*

Technical education attempts to change the behavior of persons, to prepare people for change, to develop within people an attitude for scientific approach, and to serve persons. The persons to be served include: high school youth, post-high school students, high school graduates and drop-outs, college drop-outs, employed persons, and capable students with practical interests in a technology and in a specific skill. A job of technical education is to "turn out" skilled students.

The types of technical occupations below the professional level include: the low-level, narrow scope technical occupations; the technical specialist; the engineering technician; and the industrial technician.

Students need to develop competencies at job analysis of those occupations that involve manipulation, related work experiences, and related knowledge, and the students need to identify clusters of occupations.

In the development of curricula for technical education, it is important to understand that a technician must: (1) diagnose situations; (2) use and read technical materials and handbooks; (3) make decisions relative to technical problems; (4) use a variety of instruments; (5) interpret plans and drawings; (6) visualize and design creatively; (7) understand equipment and materials; (8) make cost analyses; (9) render technical assistance to other personnel; and (10) supervise and communicate with personnel.

Curriculum is an integrated body of educational content, and procedures are usually "broken down" into courses designed to help a person to accomplish a goal. In technical education, the goals are: (1) preparation for the entry job; (2) advancement in the job; and (3) the encouragement for further study.

To achieve this, the student needs technical training, laboratory work, and classroom instruction in applied mathematics and science, in ancillary fields, and in human relations.

Curriculum is based on the method of learning, which includes: sensory impressions, readiness and stimulation, maintained interest, and favorable conditions for learning. We learn by doing and by understanding and by taking one step at a time.

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The procedure for curriculum development involves: (1) setting up objectives; (2) determining and analyzing job clusters; (3) establishing entrance requirements; (4) developing curriculum controls; (5) grouping content into areas; (6) identifying tentative course titles; (7) allocating content areas; (8) identifying types of instruction; (9) determining course lengths and instructional sequence; (10) allocating semester terms to courses; (11) making tentative time schedules; and (12) revising courses and sequences when necessary.

ELECTRO-MECHANICAL TECHNOLOGY
A NEW CURRICULUM THROUGH
COMBINING EXISTING
TECHNOLOGY COURSE
WORK

by
Austin E. Fribance*

The field of electro-mechanical technology is a new and growing field of technical endeavor. Many of the important questions concerning this new occupational area are still unanswered. Some of the fundamental questions that need to be answered are as follows:

1. Is there a real need in industry for the electro-mechanical technician?

2. If this need exists, what educational experiences can best train this new kind of technician?

The answer to the first question seems to be an overwhelming, "Yes." A survey of some twenty-six industrial firms revealed that twenty-two of these firms presently employed some form of electro-mechanical technicians. Of the four remaining firms which indicated that they did not employ electro-mechanical technicians, two of them were engaged in the aero-space industry, which, by and large, considered the majority of its technician work to be electronic in nature.

What technical foundations and skills must the electro-mechanical technician have? After surveying industries which employ electro-mechanical technicians, it appears that this person must have fundamental competencies in the areas of electrical-electronic technology, mechanical technology, instrumentation technology, and optics. The problem that is immediately visible to the technical educator is one of trying to cover these fundamental areas and cover them well in the short period of two years. The conceptual framework of theory and the accompanying laboratory skills must be developed simultaneously in the trainee. In this way, the technician develops more or less equal capabilities in all of the technical areas rather than having strengths in one technical area and weaknesses in others. By feeling equally at home in all of the technical areas, the electro-mechanical technician should look for the best solution to a technical problem, whether the solution is primarily mechanical, electrical, optical, or any combination of these approaches.

Companies that train and develop their own electro-mechanical technicians by company training programs and on-the-job training experiences, try to achieve this technological balance in the technician in several

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different ways. For example, one of the nation's leading manufacturers of data processing equipment develops its electro-mechanical technicians by employing mechanical technicians and giving them the necessary training they need in electronics and physics, with emphasis in optics and the study of light. This method of training technicians in industry seems to be somewhat typical. A company or industry that needs certain kinds of technicians for special kinds of unique jobs generally employs technicians trained in one of the connventional fields such as electronics, mechanical technology, or instrumentation technology, and then adds the necessary specialized training through on-the-job or special company sponsored training experiences to develop the new breed of technician that meets their special job demands.

Industry has great need for electro-mechanical technicians. In the San Francisco Bay area alone, employers are traveling thousands of miles in an effort to recruit this kind of technician. Salary schedules for competent associate degree electro-mechanical technicians with industrial experience ranged as high as $14,400 per year for men with straight technical assignments and no supervisory responsibilities. Numerous companies indicated that they were limited in their plans for future expansion, primarily because of the lack of electro-mechanical technicians.

Employers that were interviewed indicated that the successful electro-mechanical technician must have certain characteristics. One essential skill needed by the technician is the ability to communicate. He must be able to express himself both orally and with the written word. A second requirement indicated by the industry is that the technician have a keen analytical ability which would enable him to analyze technical problems and arrive at tenable solutions based upon his broad technical background.

With regard to technical competencies required of the electro-mechanical technician, a sound, in-depth background in both physics and mathematics (including some applied calculus) is essential. In addition, a fundamental understanding of the principles of electricity and electronics is essential foundation material in any modern technology being taught today. Almost all of the newer and emerging technologies, such as biomedical technology or instrumentation technology, start with this fundamental background of mathematics, science, and electricity-electronics, and build from that foundation into the desired field of technical speciality.

The philosophy underlying the newly developed electro-mechanical technology curriculum is that of a totally integrated curriculum designed to meet the needs of the student. Each subject in the curriculum touches every other subject in terms of application, problem solution, and the development of analytical skills. This is done by presenting the various technological principles in each course so that they relate to each other in focusing upon a problem solution. No technical subject stands alone in the curriculum. That is, no course is

taught without regard to how it might be enhanced and in turn enhance the concepts being learned in other courses.

In electro-mechanical technology, as in all of the new and emerging technologies, it is essential that the technician have a broad and basic understanding of many of the areas of technology and science. An example of this need is in the field of optics. In most of the new and emerging technical occupations, a technician is expected to know something about the principles of optics. One is expected to know the fundamental concepts of engineering stresses and the simple mathematical calculations involved in making stress calculations. The technician is expected to have some knowledge of chemistry and how the principles of chemistry might provide solutions in areas of materials selection. In the fields related to instrumentation, basic knowledge in electricity, electronics, pneumatics and hydraulics is essential for the technician to be able to function as expected. Obviously, a technician cannot be expected to be an expert in all of these technical fields. However, he must have some basic knowledge of all of these fields of technology and how they might work together to provide the answers he is seeking. It is becoming increasingly important for today's technician to have some functional knowledge of computer programming and data processing. In addition to all of these cognitive skills, the technician is expected to have a high degree of motor skill development and manual dexterity.

An electro-mechanical technology curriculum based upon these broad requirements would cover approximately two calendar years. The general content of such a training program would consist of approximately 25 percent subject matter in the area of electricity-electronics concepts, 25 percent course work in the area of mechanical-related technology, 25 percent course work related to mathematics and science; and approximately 25 percent of the curriculum time would be devoted to general education subjects, such as communication skills and humanities. A curriculum with this curricular distribution seems to meet the consensus recommendation of industries which employ electro-mechanical technicians.

The computer industry expressed a critical need for large numbers of electro-mechanical technicians. This is indicative of industry's present and projected needs of associate degree electro-mechanical technicians. These technicians are needed to affect the technical change from conventional circuitry to printed and integrated modular circuits that will be utilized in I. B. M.'s late generation data processing devices. The computer office machine industry conservatively estimates a need for some 65,000 electro-mechanical technicians within the next several years.

An example of some exotic applications where electro-mechanically trained technicians are needed by industry, may be observed at the Stanford Research Institute. In one research project at this institution, over a million electronic components are being integrated into a module no larger than one square inch. In the A. E. C. laboratory at Livermore, California, technicians are working with ionized gases at fantastically high pressures. These are but a few of the new and emerging

technical applications which will require new kinds of engineering technicians.

At the present time, there is a shortage of engineering technician manpower in nearly all fields of the older and more conventional kinds of engineering-related technologies. With the intense demand for great quantities of engineering technicians in the new and emerging areas of engineering technology such as electro-mechanical technology, the national engineering technology manpower problem becomes even more critical. If technical education is to meet this challenge, sound programs based upon the actual needs of industry must be developed and initiated to meet the anticipated technical manpower demands.

MATHEMATICS IN THE TECHNICAL PROGRAM

by

N. D. Griffin*

The Regular or Conventional College Mathematics versus Applied Technical Mathematics

Most regular college mathematics courses of the freshman and sophomore years are preparatory in nature and emphasize the development of mathematical laws, formulas, and abstract ideas. Usually, the students are expected to develop these formulas and abstract ideas as a part of each test. This is important because the mathematics courses which follow are based upon these concepts. Also, many of the students will be teaching mathematics and should be able to develop this mathematical theory.

Technical institute students who rank high in mathematics on the college entrance tests and who have done well in high school mathematics, should be encouraged to enroll in the regular college mathematics courses. Many of this group of students will be interested in doing work leading to advanced degrees after they complete the technical institute work. They should be advised that applied mathematics is terminal in nature and will not transfer into many advanced degree programs. All educators should encourage the students under their supervision to develop their capabilities and interests to the highest possible level.

College algebra and trigonometry will automatically substitute for the applied technical mathematics, Tec 115 and Tec 125, here at the Oklahoma State Technical Institute. The regular college analytic geometry, differential and integral calculus will substitute for the applied calculus, Tec 135. Students who do well in the regular college mathematics usually have the ability to apply the mathematics in their technical institute courses.

Why teach applied technical mathematics.-Many students of average ability or below average ability soon become disillusioned and discouraged by the rigorous treatment of the abstract ideas of the conventional college mathematics courses and drop out of school. Most of these students who are willing to work do well in applied mathematics courses. They are expected to understand the theory involved when developed and explained by the instructor, but are not expected to develop it themselves on tests. The emphasis is on the use of the theory and formulas in solving practical problems, and the students are expected to have the ability to solve these problems.

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The instructor of applied mathematics should have a broad background of training and experience from which to draw useful applications of the theory he teaches. The language and illustrations he uses should be simple. Illustration: Solve the formula $I=P(1+r)^n$. He should have the tendency to over-teach the theoretical material covered rather than leave too much to be thought out by the student. However, he should expect the students to attain high standards of performance when applying the theory and formulas to practical problems.

Coordination of the Mathematics with the Technical Content of the Specialized Technical Courses

The content of the mathematics courses and the sequence in which it is taught should be determined by the technical department heads and the mathematics instructors as a cooperative effort. No material should be included just because it is good to know or because the instructor likes to teach it. In a two-year program, only the essential material should be taught, because the time element will eliminate many things that are good to know but are not essential.

The sequence in which the mathematical content of the courses is taught may be altered to meet the needs of the students in their major subjects. These changes should be made when the need arises, if they do not present too much difficulty in teaching the content of the mathematics course. (Course outline for Tec 125).

Calculus in the curriculum.-Should calculus be taught in the two-year technical institute? Calculus should be taught if the instructors in the specialized course can and will use it in presenting the content of their courses in a more systematic method and to a greater depth of understanding than would be possible without it. However, if the instructors of the specialized courses need only a small part of the calculus, and if this part can be taught in a fraction of the time and with a fraction of the student effort that would be required in a separate calculus course, then it should be taught as a part of the specialized course.

The following are not valid reasons for teaching calculus as a part of any technical curriculum.

1. Calculus in the curriculum gives prestige to the institution.
2. The accrediting agencies like to see it in the curriculum.
3. It looks good in the advertising and on the curriculum.
4. Employers say it is good to know.
5. The instructor likes to teach calculus.

The good students in any technical curriculum should be permitted to take the applied calculus as an elective if they wish. One of the best ways to kill the interest of the majority of the students in a technology is to require calculus if it is not used in teaching the specialized courses.

Remedial Subjects

Many high school students in our part of the country do not plan to attend any post-high school education institution. Their parents and teachers do not insist that they take courses in high school that will prepare them to enter this kind of training; but as soon as they receive their high school diplomas and realize that most of the other high school students plan to enter some type of post-high school training, they also want to do the same. They now have the desire but are not prepared. Remedial English 105 is offered by the University and Remedial Mathematics 103 is offered by the technical institute especially for this group of students.

They receive no credit toward graduation for this work, but on completion of these courses, they may enter the technical institute work where they become average students. Most of these students realize that this is their last opportunity to receive post-high school educational training; and they are usually a serious, hard working group who make good technicians.

Conclusion

Applied technical mathematics should be a part of the curriculum of every technical institute. It should be taught by a technical institute faculty member who has the training, experience, desire, and ability to make the applied mathematics both interesting, challenging, and rewarding to technical institute students.

PROGRAM PLANNING AND CURRICULUM DEVELOPMENT

by

Richard H. Hagemeyer*

We all have in our possession, either here or in our offices, all the old and latest materials published on the subject of program planning and curriculum development by the experts in the field. We have all read them or can read them, so I am going to let you get your technical information on the subject from these scholars. I am going to generalize about program and curriculum planning from the practical standpoint and hope that I can generate enough controversy and differences of opinion so that we will have some heated discussions in the period to follow.

I am going to classify my points as "myths," for want of a better word, to describe commonly used theoretical statements that do not always work in practice.

Myth 1.-New programs or curricula arise out of a felt community need as expressed by community leaders.

Is this the way that new programs are planned and developed? Theory says, "Yes"--in practice it is a wide-awake director, teacher, counselor, or president who often plants the original idea in the minds of community leaders. After giving them the idea, the wise administrator then provides the way they can learn more about their idea, even to the extent of providing a little fertilizer occasionally that might help it grow. Educators must lead, not reflect the community's thoughts and actions. We are being paid to do this thinking and planning for the future.

The world we face today is one of dynamic and dangerous flux. We as educators have to ask ourselves constantly, "Are we contemporary?" Are we tuned to the signals that are coming from the cutting edge of our time so that we can get the message, chart the course, and work in harmony with changes? We as educators must be aware of the dynamic forces that are changing our world, but we must also be acutely aware that we can go off in the wrong direction. We can be led into an educational trap by a sense of frustration that results in an acceptance of the thesis that since things change so rapidly, what is the use of providing educational programs for occupations? This leads me to my second myth.

Myth 2.-Technological changes are occurring so rapidly that schools should only provide the liberal arts and basic academic subjects.

This statement is heard many times and is often reflected in the pronouncements by the corporation president in his Friday night banquet

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speech. At the precise minute his ringing phrases go out over his well-dressed audience, the typesetter in the local newspaper is setting copy of the personnel director's "help wanted" advertisement. In heavy black type, the message comes through loud and clear. What can you do? We need technicians in the following fields: data processing, drafting and design, accounting, nursing, and engineering aides in manufacturing and construction. We also need tool and diemakers, setup men, patternmakers, electricians, and pipefitters.

Seldom do I see a help wanted advertisement patterned after the design as expressed by the corporation president. What are the reasons for this double talk? We might draw a parallel with the westerns on TV. The president wants to put the corporation squarely on the side of the "good guys," so he sits tall in the saddle and says, "Yup, teach them the three R's and the liberal arts." The personnel director, however, has some dirty work to get done and has to recruit some "bad guys" for his nefarious purposes out in the plant, so he talks about specialized skills and technical knowledge. Meanwhile, back on the campus, those of us who try to make sense out of these corporate smoke signals are like Sitting Bull as we say, "Ugh! Corporation man speak with forked tongue."

Occupational training is still vital, more so now than ever, due to the complexities of today's automation. The automation of today, however, compared to the mechanization and cybernetics of the next decade, would be like comparing the Model "T" to a 1966 Lincoln Continental.

Myth 3.- As vocational educators, our responsibilities end when we give the students specific skills and knowledge they need to earn a living.

I would like to quote from a guest editorial in the April 1963 issue of School Shop Magazine: "Education as a currency can be likened to a coin. One side represents general education and the other side vocational education. If the coin is split in two, it becomes counterfeit and therefore unnegotiable. Vocational education is incomplete and non-negotiable without a sound general education, and likewise general education has little meaning without vocational competencies to make it complete and make the currency negotiable and acceptable in the marketplace." This statement is still true and we had best heed.

All occupational education curricula should present a carefully balanced "mix" of general education, theory courses, and specialized courses. The determination of percentages of each by formula outside the actual college setting, however, is unrealistic and unsound. These determinations should be made by faculty committees, college administration, and trustees, and be made in terms of each program's needs and in light of the overall college policies and practices.

Myth 4.-The transfer student and the student enrolled in one of the technologies should be enrolled in the same general education classes.

This philosophy, quite widely held, usually accompanies the comment that the student might change his mind and later wish to continue his education and earn the baccalaureate degree. We do not recognize that occupationally oriented students are changing their minds with increasing frequency, sometimes at the suggestion of their employer; and oftentimes success at the associate degree level challenges the graduate to pursue the next higher goal. We certainly do not want to discourage this upward mobility, but I believe that this is not enough reason to require all occupationally oriented programs to be open-ended.

Transfer and occupational students should be combined into the same class only when the objectives of the class are the same as those needed by the occupational student and the liberal arts student. Only when these objectives match should there be sufficient reason for combining the classes.

Myth 5.-Advisory committees must be organized to assist in the planning, development, equipment selection, and program evaluation in every curriculum offered in an institution.

Advisory committees can be a tremendous asset to any institution, but certain conditions must be present or they will be a handicap to the planning and development process. The college must have sufficient administrative personnel to coordinate and work with the various committees so that their efforts will reinforce the overall objectives of the college.

The theory that advisory groups can be of great assistance in the selection of equipment must also be approached carefully. The tendency for lay members of an advisory committee to look at equipment selection from personal experience in a production capacity may color the type and amount listed for procurement.

Program evaluation is a continuous requirement, and one way to evaluate is by using a formal advisory committee. It must be remembered that the members of the committee may reflect views based upon their specific problems and needs. Often they reflect the strong views of one or two more vocal members. Such a committee can be helpful if it is used in conjunction with other sources of data.

Myth 6.-Programs should be planned and developed according to the needs of the local community.

The concept of programs based on community needs is being replaced by a recognition of the need for regional and state-wide planning. Local occupational surveys must be supplemented by and coordinated with regional and national needs as identified by surveys conducted by other groups,

such as Chambers of Commerce, planning commissions, state employment agencies, employees' associations, National Institute of Health, U. S. Department of Labor, United States Office of Education, and similar agencies.

Myth 7.-Occupationally oriented curricula in community colleges are primarily engineering related.

Since Sputnik I, "technician" has been a glamour word. It has had almost exclusively an engineering connotation. Community colleges have concentrated on programs to prepare engineering and scientific technicians for industry and research.

Other programs at the technician level but not engineering related are demanding our attention. Medicare, like Sputnik, may be the driving force behind a virtual avalanche of new programs in the health-related occupations.

The areas of service open to the community colleges are limited only by the imagination of the faculties, administration, and trustees. Of course, not all colleges can or would want to provide programs in all fields. We need to cast our eyes upon a broader horizon in the years ahead.

PROGRAMS, STUDENTS, FACULTY, AND
FACILITIES AT
NORWALK STATE TECHNICAL INSTITUTE

by
Frank Juszli*

In Connecticut, the technical institute is needed! The main objective of the State Technical Institute is the preparation of fully qualified engineering technicians prepared for immediate employment on the engineering team in Connecticut.

The State Technical Institute is the only educational unit operated by the State Department of Education, specifically organized to give full-time day courses designed to prepare engineering technicians. The part-time evening programs, which provide unit offerings, are identical with the day programs.

The two-year collegiate level curriculum offerings include the following technologies: chemical, data processing, electrical, electromechanical, mechanical, and tool and manufacturing.

Participation on the students' part in the day-school program requires twenty-seven hours per week in classrooms and laboratories and a considerable amount of outside preparation.

Ninety percent of the students are recent high school graduates, and 10 percent to 15 percent are graduates of vocational high schools.

Admission requirements are high school graduation or equivalency with: four units in English; two units in mathematics--one in algebra, one in geometry, or two in algebra; one unit in history; and one unit in physical science with laboratory. Since the curriculums are closely related to the fields of engineering, a good understanding of mathematics and science (physics and chemistry) is essential.

The students stand at about dead center or middle third of the high school graduation class and average about eighteen years of age; 97 percent are males and about 2 percent are from minority groups.

There are forty full-time faculty members, including four administrators and a director of student personnel. Each is required to have a Bachelor of Science degree in mathematics, engineering, or science, with three years of industrial experience. Sixty percent of the faculty are graduate engineers with no prior teaching experience but with eleven

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**Rutgers - The State University.

or more years of industrial experience.

The faculty faces classes on a basis of seventeen contact hours with students in classes where the ratio is sixteen students to each instructor.

These people are responsible for preparing graduates, a large majority of whom are annually placed in positions that support engineers and scientists in industry or the military. About 15 percent of the graduates go on to higher education.

The Institute occupies a 17-acre plot and is housed in 3 new buildings with a total area of over 100,000 square feet. Two of the buildings accommodate classrooms, laboratories, a library, and a cafeteria; the third contains a large auditorium-gymnasium. There are 16 well-equipped laboratories.

PLANNING FOR INSTRUCTIONAL RESOURCES

by
Robert B. Lorenz*

This paper is an attempt to show the requirements of a systematic application of instructional resources at a large university, a new urban university, and a job corps center. A philosophy for this systematic operation will be stated and consideration given to the requirements for staff, space, and facilities.

Facing the challenge of increasing student enrollments in American education today, school administrators have taken another look at faculty and technological resources in order to promote a quality education for all. Trends in the application of media to solve this problem have been developing in the form of mass instruction, individualized instruction, and instructional systems. The critical problem for American educators today is how innovations, personnel, and resources can be combined into a total system capable of meeting urgent national requirements. The use of technological resources and the implications of this systematic approach extend to the point of influencing learning facilities and the conventional teaching and learning patterns.

Given the objectives of more learning for more people, greater instructional effectiveness, and instructional efficiency, some educators look to the systems approach as a tool for determining effective alternatives in designing and developing a more effective educational enterprise. The systems approach pays close attention to the information network binding interacting elements of a system together. Thus, in an attempt to improve the teaching-learning process, instructional communicators are interested in making information available in a variety of forms and in a form most appropriate to the type of information and to its use, in presenting information more efficiently, i.e., more information to more people in less time with less expense and less teacher time, and in making learning effective, stimulating, realistic, and emotional. To do the job effectively, extensive support must be given to faculty members who are on the front line of the teaching effort.

One systematic approach to supplying resources and services to the faculty members at the University of Illinois is to use the Office of Instructional Resources.

> Instructional resources refers to conceptions and personnel who will implement that which undergirds a psychological analysis on structional requirements to the measurement and research services which evaluate instructional procedures,

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to the instructional media and processes such as programmed instruction, television, motion pictures, graphics and other audio-visual aids, and to the physical settings of research and instruction.

The Office of Instructional Resources will be a service unit reponsible for planning, developing, and when appropriate, administering technological aids to instruction, and for advising and assisting faculty in using them to improve instructional effectiveness and efficiency. The Office will be responsible for keeping abreast of the developments in new programs, materials, and devices.

Organizational Structure

The conception of the Office of Instructional Resources takes the form of two groups, each having three divisions as illustrated in Figure 1.

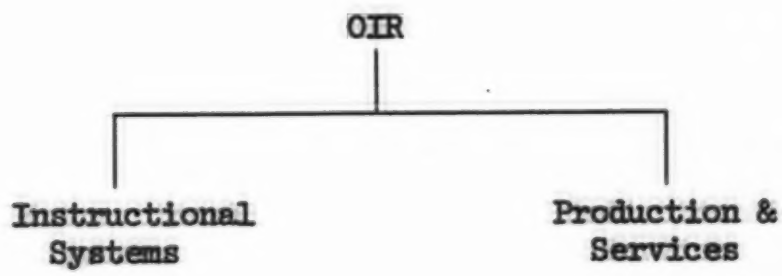

Figure 1

The Instructional Systems Group

The function of the Instructional Systems Group is to design strategies and develop techniques to apply findings from the psychology of learning to university instructional programs.

Divisions

A. Course Development Division

The Course Development Division defines course objectives, devises instructional activities, and helps to select teaching methods and media.

B. Programmed Instruction Division

The Programmed Instruction Division assists faculty in preparing programmed instruction.

C. Learning Evaluation Division

The Learning Evaluation Division assists the faculty in test scoring item analysis, test construction, and data interpretation.

The Production and Services Group

The Production and Services Group carries out instructional strategies through well-planned media production and services.

Divisions

A. Television Division

The Television Division produces and distributes programs.

B. Audio-Visual Division

The Audio-Visual Division provides information about available films, filmstrips, and audio materials.

C. Graphic Arts Division

The Graphic Arts Division contains three departments.

1. Design Department--Produces art work.
2. Construction Department--Builds sets, models, devices.
3. Photographic Department--Offers photographic services to faculty.

Service Policy

To encourage the use of these instructional resources, most services are provided without charge when used for instructional purposes. The equipment policy is consistent with the production policy, in that all major, portable, and common items of audio-visual equipment shall be purchased for and placed on the inventory of the Office of Instructional Resources. Guidelines for materials and equipment for use in higher educational institutions are available from the NEA's Department of Audio-Visual Instruction. The cost of equipment for the first phase of the development in Chicago Circle campus was $48,099.

Space Requirements

	Square Feet
Administration	2,603
Instructional Systems Group	19,378
Production and Services Group	6,370
	28,351

Staff

	FTE
Administration	2
Instructional Systems Group	6
Production and Services Group	12
	20

In order to integrate its activities successfully with the faculty, the Office of Instructional Resources was successful in identifying highly interested faculty members in local departments. These faculty members were released one-third time to identify departmental needs which might be met in significant part by the application of instructional technology. In another program designed to integrate faculty use of instructional materials, faculty members were paid full-time during the summer months and freed from teaching responsibilities to work on instructional improvement projects.

At the Champaign campus of the University of Illinois, where well-established photographic service, motion picture service, a film library, and projection operators were available to the faculty, the Office of Instructional Resources took a slightly different form. (See Figure 2.) Seeking to aid the faculty and to cooperate with existing services available, the Office of Instructional Resources in Champaign developed in the area of instructional systems groups.

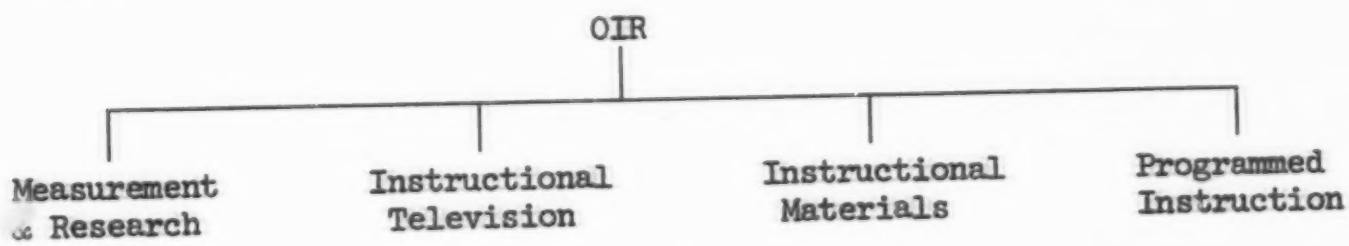

Figure 2

A proposal for a communications laboratory of the Breckinridge Job Corps Center developed along similar lines to that of the Office of Instructional Resources; however, it had, perhaps, a greater availability of funds and a more specific educational product. The differences in the two units are worthy of our attention. The goal of the Job Corps Center was to train 2,000 students.

Basic Educational Programs

	No. of Students	Hours of Training
Adult Trades Training	1,000	160
Adult Vocational Training	500	500
Adult Technical Training	500	800

A study team was assembled to consider systematically the goals of the Job Corps Center and to prescribe the necessary staff, space, and facilities. This study team recommended that major priority go to materials production facilities to stimulate the maximum use of instructional materials and to better provide materials production in excess of current demands rather than insist on full economic justification prior to acquisition. Presentation devices not likely to change were placed high on the priority schedule. Devices using relatively new materials in scarce supply were given low priority. Striving towards the goal of improving the efficiency of the learning process, the communication laboratory is seen as an organization providing a complete range of equipment and materials, production of aids and media, learning environments, automated educational systems, feedback data on student progress, and mass media communication. The communication laboratory is centrally located and is responsible for prescribing and designing learning spaces for the use of aids and media. These learning spaces will be equipped with standardized equipment, all designed for remote control from the front of the classroom. The controls for both lighting and the audio-visual equipment will be integrated into movable lecterns. Every room will be equipped with multiple screens as well as screens capable of being tilted for the overhead projector. A policy decision was made to saturate classrooms with overhead projectors since this piece of equipment requires a minimum change in habitual teaching behavior and provides an opportunity for instructors to develop a self-concept as developers of instructional materials.

Faris and Moldstad, in a nationwide survey of local production programs, cited the objectives of these programs. Local production facilities provide instructional materials not commercially available, provide materials to solve specific communication problems, and provide materials to school administrators for presenting information. All this requires space, time, equipment, and personnel. Teachers who participated in these programs not only helped to develop the instructional patterns, but also achieved, through the development of instructional materials, a better understanding of their subject as indicated in Figure 3.

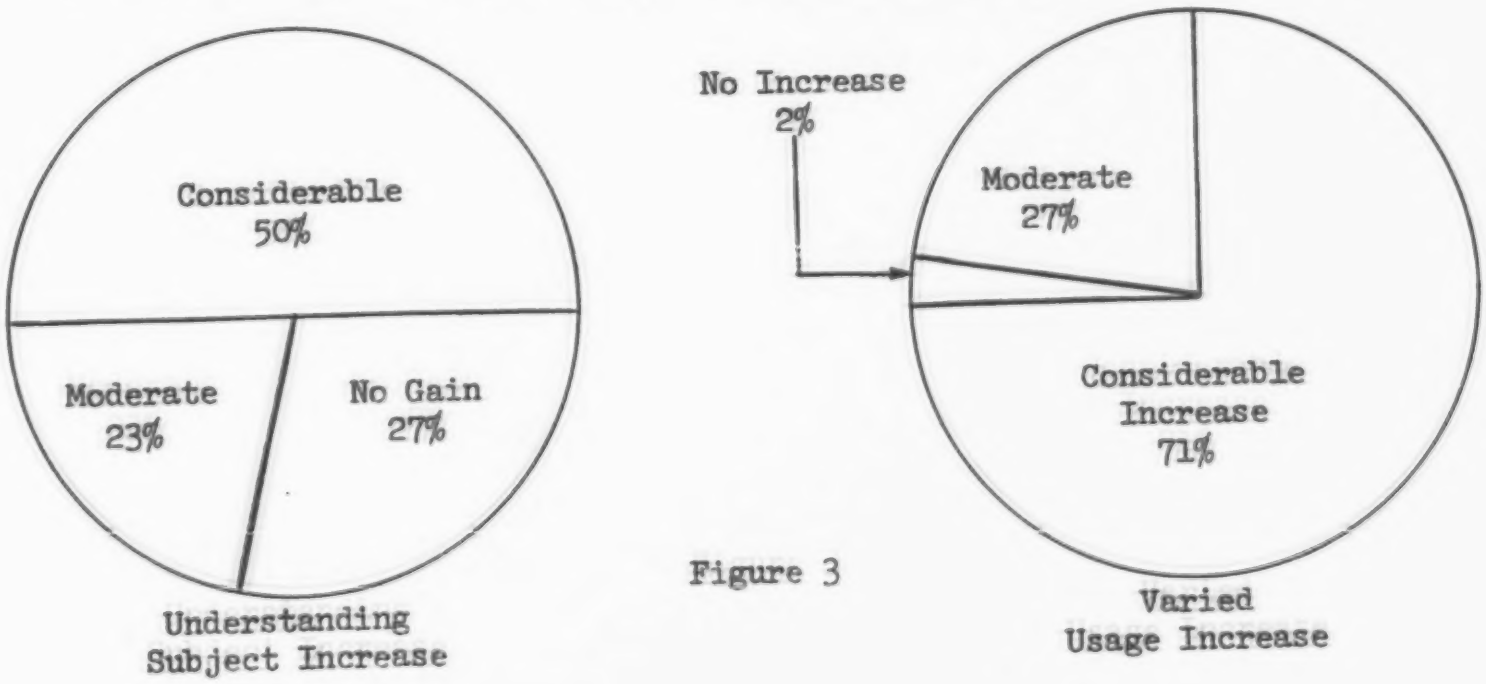

Figure 3

The production center should be able to produce instructional materials in the form of slides, graphic materials, photographs, mounted pictures, overhead transparencies, 8 mm single-concept films, audio tapes, and video tapes. Local production programs will grow only when administrators realize their value and offer substantial support to them. The goal of local production programs is to make instructional materials more accessible to instructors.

Accessibility of Instructional Materials

A TV or Radio Program	A Motion Picture	A Phonograph	A Book or Magazine Article
Low			High

The cost of equipment for both audio-visual and television equipment for the Breckinridge Job Corps Center was initially proposed at $90,000. The staff needs were seen as follows:

Administration	3
Technical	6
Production	
TV	5
Artists	3
Photographers	2
	19 Full-time Equivalents

The evidence that has been presented has been an attempt to stress the point that a systematic approach to the use of instructional resources in education can be made in a variety of educational environments. This serious undertaking cannot be accomplished without great expenditure of time, talent, energy, and money. From the experiences in three educational settings, you can see evidence of the cost in financial resources, space, and people needed to approach instructional programs systematically. Although there has not been time to evaluate the effectiveness of the communications laboratory at Breckinridge, it can be stated at this time that both Offices of Instructional Resources, one at the Chicago Circle campus and the other at the Urbana campus of the University of Illinois, are being widely used by faculties on both campuses. Keep in mind that the one goal of the Office of Instructional Resources is to improve the quality of undergraduate instruction by making available instructional resources in the right form and at the right time to faculty members.

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CONSIDERATIONS IN PLANNING AND ORGANIZING
A NEW INSTITUTION OFFERING
TECHNICAL EDUCATION

by
Robert L. McKee*

Area vocational schools and community colleges will carry the largest responsibility for occupational education in the United States. Occupational education in America can be best accomplished in specialized institutions, such as technical colleges and institutes, but it is more likely to be done in the comprehensive institutions.

The technical schools need to concern themselves with the teaching of much more than the technologies. In addition to the special occupation courses, a technical college should offer education courses to provide the student with the basic mathematical and scientific principles underlying the occupational objective. It should also include general education subjects in the area of the humanities which will help to develop the qualities of leadership and positive attitudes toward society. These enable the individual to become a better informed and more productive participant in society.

Technical students should devote approximately 50 percent of their time to technical education subjects, 30 percent to back-up subjects, such as mathematics and science, and 20 percent to general education courses.

Community colleges need to develop more effective methods of providing occupational programs where a special climate needs to be created for growth. To do this, the community and industry need to be solicited for adequate support to operate the quality education programs needed in our nation.

In the next ten years--as the vocational schools add academic offerings and as the two-year colleges add occupational offerings--the two will become one, and the problem in this evolution will be resolved.

Basically, there are three types of two-year colleges. First, there is the junior or academic transfer college which concentrates on the lower division of a normal four-year college program. Second, there is the technical college which concentrates on occupational programs, semi-professional programs, and terminal training for immediate employment. Third, there is the comprehensive college which is a blend or combination of the other two and is rapidly growing in popularity throughout the United States.

As the free, public, two-year community colleges to which every citizen has a right, assume an expanded role in American education, the

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universities will concern themselves more with graduate programs.

Emphasis in the community colleges should be placed on the occupational programs which lead to immediate employment because this is the path which the largest percentage of students will follow. Additionally, many citizens will continue their education in part-time evening courses and work to further their college education in the community colleges.

Staff wise, American educators need to buy their own product. Faculties need to be compensated adequately and paid to continue their education in the pursuit of professional improvement. Northern Virginia Technical College hired its entire staff on a twelve months' basis. During the summer, one-third will be teaching, one-third will be involved in curriculum development, and one-third will be on educational leave at the college's expense.

INNOVATION IN TEACHING TECHNICAL CONTENT

by
Thomas A. Strickland*

Concept formation, application of principles, and problem-solving procedures are becoming increasingly important in the preparation of technicians. How does one form a concept about what makes a substance radioactive when it may be something which cannot be seen, heard, felt, smelled, or tasted?

A concept is a psychological construct resulting from a variety of experiences (detached from the many situations giving rise to it), fixed by a word or an idea, and having functional value to the individual in his thinking and behavior. For technicians, as well as others, concepts are the materials and tools of thought processes, and are most important as products of the educational process.

Concepts are usually defined as informal or formal. Informal ones are those man forms independently, and sometimes haphazardly, as he interacts with his environment. Formal concepts are those which an educational program systematically attempts to develop. This process must be a part of technical education.

Development of broad concepts is based upon a system of concepts built upon previous experience. Consequently, progress in the development of new concepts may require some planned experiences to provide a base or bench mark from which to start. The next important step is to have the student react to the material presented. The student must participate in the process. A concept cannot be formed without experience.

To illustrate his point, Mr. Strickland distributed closed wooden boxes, approximately 3" x 8" x 12," each with some hard object inside which rolled or slid around as the box was tilted. Each participant was asked to form a concept of what was in the box and how the interior of the box was arranged. The participants attempted to describe what the object was like and what kinds of partitions were inside the box--half-length, three-quarter, full-length, with openings in the center, ends, or in between. The responses brought out the need for experiences and participation on the part of students in the formation of concepts. The boxes were sealed and could not be opened so no one really knew how correct his concepts were.

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EDUCATION'S LEADING EDGE

by
Kimball Wiles*

People expect many things from education. From the President on down, education is seen as the tool for the creation of the Great Society.

Education has many leading edges. Included are: the explosion of knowledge, the education of the culturally disadvantaged, and automation.

At the current rate, knowledge is doubling every seven years. By the year 2000, there will be 2,000 times as many facts to be known as there are now. This explosion of knowledge is translated into an explosive expansion of technology. As technology develops, there is an ever-increasing need for technicians. These technicians require a fundamental education which will permit them to shift with the expansion of both knowledge and technology and thus remain fully effective.

The major emphasis and expenditures in American education in the recent past has been on the education of the upper half. More effort must be directed toward the education of the lower to "break the futility cycle." The only way to break the futility cycle is through education of those who are disadvantaged.

Seventy percent of the jobs in which people earned their living in 1900 are gone. Three-fourths of the workers in 1975 will be working on products that are not yet developed. They also tell us that by 1975, if automation continues at its present rate, 20 percent of the population will be unable to find work. Only 6 percent of our jobs now are filled by unskilled manual labor. We can no longer afford the luxury of an educational system that does not develop the potential of our people.

Another aspect of automation is fairly clear--the national government is no longer going to be willing for us not to have continuous vocational retraining either in school or out. The question as to whether or not it stays within the realm of public education depends upon our creative leadership in the development of educational programs to provide the industrial and technical skills which will be needed by our society.

You and I have to think about where we stand and whether what we are doing is enough to keep the directive approach from the outside from being necessary. I think that as you deliberate in this conference, you are not dealing with technical education alone--you are dealing with the cutting edges of America. You are helping to decide the society that we will have, and you are deciding what people with your range of problems, with your vision, with your knowledge and skills, and with your opportunity can do to make technical education available to more people and make it more effective.

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EFFECTIVE GUIDANCE ACTIVITIES AND PROGRAMS FOR TECHNICAL EDUCATION

by
J. Henry Zanzalari*

There are many definitions of guidance--as many as there are people to write them.

The United States Office of Education suggests:

> Guidance is defined as the process of acquainting the individual with various ways in which he may discover and use his natural endowment, in addition to special training available from any source, so that he may live and make a living, to the best advantage to himself and to society.

Robert Mathewson views guidance as:

> .....the systematic, professional process of aiding individuals in making their choices, plans and adjustments; in understanding effective self-direction, and in meeting those problems of personal living that fall within the sphere of educational responsibility.

Arthur Traxler claims:

> Guidance implies first of all recognition and understanding of the individual and creation of conditions that will enable each individual to develop his fullest capacities and ultimately to achieve the maximum possible self-guidance and security.....

Edna Baxter succinctly notes that:

> Guidance is intended to help the child to help himself.

Guidance can be categorized and viewed from different vantage points and discussed in terms of vocational guidance, educational guidance, recreational guidance, health guidance, civic guidance, moral guidance, and social guidance.

Some techniques in the administration of guidance might be through the pseudo-sciences: astrology, phrenology, physiognomy, graphology, and numerology. However, it is recommended that guidance personnel use the

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**Rutgers - The State University.

techniques inherent in the following: testing, counseling, using occupational information, placing, and following-up on graduates.

The employment of these techniques is necessary to reach the objective of guidance services--the fulfillment of the individual. In a vocational guidance setting, the process involves understanding of self, the world of work, and the relationship of one to the other. The natural result is logical decisions.

It is important to know how a student examines himself, his interest patterns, his personality, his educational abilities, and his physical characteristics.

It is suggested that student interest patterns can be evaluated by examining: work performed with machines and tools; work with numbers; work with new facts and new problems; associations with people, promotion of new products or ideas; involvement in artistic and creative work; abilities at reading, writing, and acting; enjoyment of music; concerns for people; likes or dislikes for statistics; and work performed outdoors.

Personality patterns can be evaluated on the basis of whether a student likes: to work with ideas, to be active in groups, to avoid conflicts, to direct others, to be in familiar or stable situations, to work fast, and to do things others can't do.

Mental abilities can be evaluated in relationship to: verbal comprehension, reasoning, number and spatial abilities, and mechanical comprehension.

Evaluation of self is accomplished through a series of occupations where one learns: the workers' duties, qualifications, and preparatory needs; methods of entering the job; and its conditions, earnings, and its promotional opportunities.

At this point, the comparative method of occupational selection takes place--resulting, hopefully, in wise decisions.

The Middlesex County (New Jersey) Vocational and Technical High Schools utilize these suggestions through: recruitment and promotion; selection based on cumulative records, past performance, entrance testing, and interviews; in-school guidance including testing and counseling; and post-school guidance, i.e., the placement and follow-up of students.

Experiences in selecting students have netted these observations:

1. Overage and retarded are likely to be inferior in aptitude and represent a poor educational risk.

2. Personalities are difficult to determine.

3. There should be physical examinations, expecially where there is evidence of a disability.

4. Student records are significant in predicting future grades.

5. Number of days in attendance previous to enrollment correlates highly with subsequent educational attainment.

6. Intelligence is an important factor in vocational courses, especially where the interpretation of written instruction is a factor.

7. The average Intelligence Quotient is 100.

8. Fifty percent of the students come from families with trade backgrounds.

9. Seventy-five percent of the students have never failed a grade and are at the correct age for the grade.

10. Students tend to have part-time jobs throughout their educational careers.

11. Students have strong interest patterns.

PART VI

FACILITIES AND EQUIPMENT FOR TECHNICAL EDUCATION

FACILITIES PLANNING

by
George Mehallis*
and
Donald C. Bulat*

This presentation covers both campus development and the science and technology facility at Miami-Dade Junior College. A discussion of planning and development of the South Campus is presented first, followed by a discussion of the science and technology facility on the North Campus.

Planning and development of the South Campus was based upon a series of requirements which were prepared as guides. Each requirement will be stated, followed by a discussion of the considerations involved in planning and development.

Requirement: To place junior college facilities within reach of the people of a wide-spread metropolis

The site was selected by a team of men who had already worked together on the development planning of the North Campus, comprised of the Advisory Committee of the Junior College, staff members of the Junior College, staff members of the Dade County Board of Public Education, and Board and project architects. Through reference to the County's General Land Use Master Plan, the site selection team was able to select a site which would ultimately lie near the intersection of south and west expressways. These expressways will provide easy accessibility to any area that extensive network touches, including the existing North Campus and the future downtown campus. The three campuses, to be connected by tower-to-tower communication beams, are planned to be the basic components of a system of facilities which will grow more complex with the county's future needs. The entire system will be directed from administrative offices on the South Campus.

Requirement: To define educational goals, to formulate and describe learning processes, and to produce a guide for planning and design

The staff of Miami-Dade initiated a process in which department heads discussed basic requirements with their faculties in the first of a series of meetings; their second meetings explored imaginative teaching theories; and the third collected positive and negative reactions by the faculty to other facilities it toured. While this process

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**University of Florida.

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was, in and of itself, of great worth to those involved, the resultant educational specifications were invaluable to the planners and designers of the South Campus.

Requirement: To arrange and proportion the workings and amenities of a site to make it a unique, complete, and beautiful place

The South Campus plan, in Phase I, has provided for the daily accommodation of 3,000 automobiles at any given time. The majority of these are student cars which circulate on a four-lane perimeter road. A smaller inner loop road is restricted to service vehicles and faculty cars. The larger parking areas are landscaped to reduce their apparent size. The occupant of any parked car has no more than a five minute's walk from a building.

Much like a small city, the core of structures has been centrally placed on the site; and although it is not precisely a walled city, it is into the core buildings and plazas that pedestrians can escape the world of the automobile.

Lakes have been placed to formalize the main entrance. The excavated fill is employed to raise the central core and the parking areas above flood levels, and the lakes serve as catch basins for positive underground drainage of the entire site. Other utility systems are less extended, taking advantage of the tightly grouped core and the centrally placed utilities building.

Within the core are two plazas defined by building masses and covered walks. The entry plaza will be completed with the three buildings of the first construction phase. It will receive the action of the main entrance and, with oak trees and permanent sitting wells, will play a more formal role than the larger, lower-level, academic plaza which will receive the main focus of student attention.

Requirement: To make several thousand coordinated decisions, creating both buildings and spaces which belong to their time, place, and purpose

Planning and architecture share so many of the same processes that it is merely a convenience to discuss them separately.

The buildings are individual but strongly unified by their geometric masses and the use of exposed concrete and precast paneled walls. Generous roof overhangs produce pronounced shades and shadows. Although the buildings are solid elements, open space runs into and through them. Their effect is simple but not plain.

Educational specifications notwithstanding, it is certain that future use of interior spaces will change. Even between phases of development,

use rearrangements will occur. Long-span construction permits partition relocation. Although low partitions subdivide areas such as teaching offices, removable or folding partitions have been called for only where there is a certainty of frequent use. The most flexible feature of the campus is its large variety of facility sizes and types.

Requirement: To have determined leadership and to secure the active cooperation of people and organizations

All persons and agencies who have an interest in the college and/or a contribution to make should be called upon.

The science and technology facility was a major academic building provided in the master plan of the college. The planning sequence followed the pattern outlined earlier, involving the faculty to the maximum extent.

The new science and technology facility, designed for instruction in a variety of technological subjects, contains twenty-two large laboratory-workshop-drafting room combinations, eighteen adjoining classrooms, a unique teaching-conference room, and ninety offices for the teaching and administrative staffs. The offices have been grouped together in such a way that facilities may be shared by those having similar interests and are in close proximity to classrooms and laboratories.

Laboratories constitute the main mass of the building and surround a central classroom block. Corridor walls are built with precast framed windows which permit viewing of the laboratory spaces. Each module of laboratory space, and each classroom is supplied with individually controlled air conditioning.

Mechanical services are supplied from the perimeter of the building, and exhaust vents are situated unobtrusively in column recesses.

Laboratories for mortuary science instruction are in an adjoining, but completely separated, building to the west of the main structure in order to provide for special requirements in air conditioning and privacy.

FACILITIES FOR TECHNICAL TRAINING PROGRAMS

by
Alexander Ducat*

Vocational educators have long been leaders in the philosophy that one learns by doing. While this philosophy that one learns through activity and that one learns with every cell of his body is applicable to any learning situation, the methods and means of doing it will differ, dependent on the subject matter.

Technical education, which is largely concerned with knowledge rather than with manipulative skills, will differ in its requirement of apparatus from other vocational programs. It will use equipment to reinforce, through activity, the learning of theory. Technical programs have equipment, particularly of the type used in industry, to confirm scientific principles by experimentation and to familiarize the student with industrial applications. Such equipment speeds learning by aiding in the solution of problems and by illustrating the principle of its application.

The task of training technicians require the use of classrooms, drafting rooms, and laboratories. There is also some need for shops, such as those used for skilled crafts training which are equipped largely for the development of manipulative and tool skills. However, in the technical education program, the shops serve, not to develop manipulative skills, but to develop understanding of the materials and processes commonly used in the technology.

The Laboratory and Its Function in Technical Education

The laboratory is the "proving ground" in the technical education program. Here the student utilizes his mathematical tools and confirms the theory of the science classroom.

Laboratory equipment may be divided into two types. Some equipment is used to illustrate a scientific principle; other equipment is used to illustrate an application. In some cases, this line of demarcation is not too clear, and, of course, any application will use a scientific principle.

Educational objectives attained through the effective use of laboratory training include the following:

1. Securing functioning understanding of principles of science,

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e.g., phase shift control in electronic tubes or stress-strain relationships in tension testing.

2. Learning the properties and processing of materials, e.g., properties of semi-conductors or the welding of alloy steels used in connection with nuclear reactors.

3. Learning the construction and operating principles of industrial equipment, e.g., mechanisms used in a process control instrument or the functioning of a rotary converter.

4. Developing ability to diagnose troubles in equipment, e.g., locating malfunctioning in a tape-controlled machine tool or in a radar unit.

5. Developing skill in utilizing technical principles in performing other types of technical tasks, e.g., precision measurement of intricate products or in testing of newly developed equipment.

In summary, the function of the laboratory in technical education should enable the student to:

1. Acquire a functioning understanding of scientific principles.

2. Confirm scientific principles by experimentation.

3. Become familiar with industrial applications.

4. Become competent in the use of laboratory equipment, precision measuring and computing devices, and scientific and engineering handbooks.

5. Acquire knowledge of the tools of industry.

6. Correlate the specialized technical courses with mathematics and science.

7. Develop to his maximum capacity.

Laboratory Management--Selection and Use of Equipment

To achieve the objectives indicated through laboratory work requires a considerable variety of equipment carefully chosen to meet specific educational objectives. For achieving understanding of basic principles of science in the electrical field, the equipment needed would include meters, switches, electrical machines, control devices, resistors, capacitors, transformers, and many other items. For such an objective in the mechanical field, special equipment would be required which demonstrates the use of simple machines, such as levers, gears and cams, or

principles of hydraulic or pneumatic pressures.

Laboratory equipment for studying properties of materials would include such items as heat treatment furnaces, tensile and compression testing machines, and hardness testers. Materials processing methods would be learned through selected metal working tools of toolroom and production types, and similar machines, if needed, for other materials than metal.

For the study of construction of industrial equipment and of operating principles of such equipment, typical machines and instruments would be needed. In some cases, cutaway units might be used; in other cases, units capable of operation would be needed. For trouble diagnosis training, the equipment needs are largely instruments and their accessories, together with the equipment on which the trouble is to be located.

The range of laboratory equipment needed for technician training programs is great, and the cost of such equipment can become a sizeable item in the capital outlay budget. It is, therefore, essential that much care be taken in determining just what equipment is needed to meet the demands of the program. Since each item of laboratory equipment serves one or more specific purposes in the training program, these purposes must be listed if the task of equipment selection is to be done well. The best approach is to prepare a detailed outline of each instructional unit in each course in the curriculum. Preferably, the instructional units should be worked out by the course instructor. For each unit, he would designate the equipment needed by each student performing the laboratory assignment. In some cases, it is not possible to have the instructor make up the equipment list, and the task will need to be done by the head of the department or some other person who is familiar with the details of the instructional units of the course and the way in which they will be taught.

The quantity needed of each item of equipment will be influenced by such factors as the following:

1. The extent to which the item is used in more than one instructional unit in the course, or in other courses.

2. The number of students in the class.

3. The sequence and difficulty level of the instructional units in the course.

If each student had to start with instructional unit No. 1 in the course and continue in consecutive order through all the units, the quantity of equipment needed for this unit would be that required for a single student multiplied by the number of students in the class. That required for subsequent units would be determined in similar manner, taking into account items of equipment that were used in previous units.

Ordinarily, however, it is possible to group together certain instructional units which do not depend upon each other in the sequence of learning, and which are of approximately equal difficulty, and spread the class group among these units. This cuts down on the needed total equipment which is peculiar to specific units.

In some types of laboratory assignment, it is permissible or preferable for students to work in small groups. In such cases, the equipment needs are cut in accordance with the group size.

It cannot be emphasized too strongly that equipment should be used with a clearly defined objective, that knowledge acquired through its use should be psychologically timed in the course of study, that the student should have a concept of what it is about before he uses the equipment, and that he should be forced to summarize his conclusions after its use. All this involves considerable work by the instructor. He must choose the spot where equipment will make for more efficient learning. He must pick the equipment so that it will be effective and not confusing. He must furnish proper instructions in the use and limitations of the equipment, including possible incorrect usages. Finally, he must check the student after the equipment has been used to ascertain if learning has been accomplished.

The technician must be trained in the scientific method. He must not only understand how things work; he must be able to analyze the unknown. This does not mean that he is trained as a research scientist, but he must be able to solve problems. He must be trained to work with applications that have not as yet been invented. He must be taught to analyze.

To be able to analyze, the technician must be well-grounded in science and mathematics and have practice in problem solving. Some questions have been raised about the value of laboratory experiments. For example, it is standard practice for an individual to go through the common experimental setups as usually found in laboratory courses, and it is postulated that such experience will give the technician familiarity with problems of the type which he will encounter on the job. However, the Navy has found that this type of experience does not help much when the individual comes face to face with an actual breakdown of equipment. Why is it that laboratory learning does not transfer over to the real working world? It could be that quite a bit of research is needed in order to understand how to balance course content between the general and the specific.

It is clear that simple manual competence at a technical task cannot be expected to fulfill the needs of the current technical society. Industry requires technicians who are capable, not only of grasping concepts, but also who have the ability to take given concepts and extrapolate in a creative manner. Consider the high-reliability design philosophy which states the idea that there are two types of technical

failures which can occur in working systems. The first is a catastrophic failure, in which case, the entire system ceases operation, and the second is a functional failure caused by a system operating below its rated efficiency. The latter case creates an extremely elusive problem for the technician; and without first-rate training in technical problem-solving, today's technician is at a great disadvantage. There is no doubt that if realistic problem-solving were considered a distinct entity, equal in importance to the exposition of factual data in the technical program, we would have a product much more valuable to industry.

More emphasis on problem-solving would, of course, have some bearing on equipment requirements for technical education.

In design courses, the student is working with parts involving sizes and specifications based on empirical laws which have scientific bases. How can one design with understanding, a riveted joint, if he has not torn apart such a joint nor studied the action of metal under shear in a strength of materials laboratory? How can a designer specify with understanding carburization of a part unless he has looked at the cross-section of such a part under the microscope in a metallurgy laboratory? How much greater the understanding if he himself hardened the part, prepared the specimen, and photomicrographed it himself!

Some apparatus may be needed as samples. It is surprising to find the number of drafting rooms where parts are being drawn with no samples of the part or any concept as to the use of the part. Every good drafting room has a "bone-yard" where all kinds of parts are accumulated. These should be used by students to help them understand assembly and detailing and the use of auxiliary views. They should be used for the design of parts that fit and function with these parts. They should be used as examples of manufacturing methods and pieces for which jigs, fixtures, and dies may be designed.

In discussing the drafting room we should mention that the facilities should duplicate those used in industry. If the industry used drafting machines, and they all do, then the school drafting room should include drafting machines. The table should be the type and the boards the size that are used in industry.

All of the supplies, the instruments, the scales and the paper should meet industrial standards. Where possible, the procedures should be those used in industry. Reproducing equipment should be large and modern. The checking should be carried out as it is in industry.

Beside this conformation to industrial practice, the drafting room will need other training aids. There should be a file of industrial prints, a reference library, a large bulletin board where samples of good work may be posted, a blackboard, storage cabinets for parts and supplies, and an overhead projector for visual aids.

The same philosophy applies to electronic laboratories. The equipment with different sources of power must be readily available. There must be storage facilities with provisions for students to keep complicated wiring circuits set up for the next period if they have not finished their investigation.

The apparatus should be diversified. Several makes of the same type of apparatus should be included, not only the apparatus which pertains to electronics but also the electronic apparatus that is used for other purposes. The stroboscope and vibration meters are examples of such applications.

The recitation area for electronics should have a demonstration table with facilities for obtaining all types of power and facilities for visual aids such as blackboards and screens. The preparation room adjacent to this demonstration room should contain apparatus for demonstrating scientific principles and applications. Provision should be made that if quantitative demonstrations are to be made the results will be visible to the class.

All of what has been said so far is ideal and will be temporized by the demands of a given situation. Equipment--plenty of equipment--is essential to technician training. Ideally, every scientific principle would be backed up with scientific apparatus to demonstrate the principle and the applications. This may not be economically feasible because of the limitations in time, in the curriculum, and the budget. The local director of the training program must have a philosophy of choice based on the learning potential, balance in the program, and the cost.

The director, with the teacher involved, must decide whether the apparatus is for teacher use or for student use. Roughly speaking, demonstration equipment should be durable. In the early stages of the course, it may be necessary to have the same equipment available for all the students at the same time. In later stages, it may suffice to have one or two pieces of the same apparatus and rotate the pupils. This would be particularly so for expensive equipment.

If kits are included in a course, it means they would have to be purchased each year since they would be part of the course of study. We are talking now of the type of kit where the unassembled parts of a finished instrument or device are furnished, such as a power supply kit or a resistance-capacitance bridge kit. One would question where all these finished kits were going to be used. If not in the course of study, they should be constructed during after school hours.

This is no reflection upon the quality of such kits or the utility of the learning which may be accomplished in building them. They are expensive if they must be purchased each year. They are time consuming in an electronic technician course. It is to be hoped that the students will purchase kits and complete them on their own time.

Much can be learned by assembling kits, but some teachers in their effort to make the equipment dollar go farther, have misinterpreted their purpose. The same may be said for other equipment about the laboratory, such as breadboards and benches which teachers construct. Such items can be purchased quite reasonably, and a teacher's duties are so time consuming as it is, that any time spent on such work must surely be taken from work necessary to the course.

The same attitude must be taken toward equipment which is donated or which is acquired from surplus. Many a teacher has built up a course about some equipment acquired in such a manner which does not meet the objective of the course, or has spent valuable time altering equipment for use in the course.

In short, the selection and use of equipment for the technical laboratory should be made to permit maximum training in a minimum of time with consideration being given to the following guide lines.

1. Laboratory equipment should support a planned program.

2. Theory classes and laboratory experiences should be closely correlated and preferably taught by the same instructor.

3. Laboratory manuals should be used to supplement and expand detailed course outlines and other teaching materials.

4. Laboratory time should not be used for theory lectures or discussions. (Equipment used in directed applications to confirm and reinforce theory.)

5. Strict discipline of laboratory time is necessary

   (a) Laboratory periods should provide sufficient time to complete assignments.

   (b) Instructor-pupil ratio should be carefully controlled.

   (c) Laboratory sessions should be planned and organized so that a minimum of time is spent in setting up apparatus.

   (d) Laboratory experiments should be designed on an effective time schedule. (sufficient time.)

6. A maximum of twenty students in a laboratory section is desirable.

7. Laboratory exercises and materials should be constantly revised and upgraded.

8. Laboratory experiences should be included at the start of the technical program.

9. Staff members should be allowed planning time for developing and testing laboratory exercises and equipment.

   (a) Summer periods could be utilized for planning.

   (b) Individual released time could be used.

Design Considerations and Costs

The equipment must be chosen for its level of learning. Its place in the course and how it will be used must be well understood. It should not be purchased on the basis that, "It would be nice to have." It must match the objectives of the course. In fact, the equipment list should grow out of the course of study and not the other way around.

Equipment should be purchased with a view toward keeping the curriculum in balance. Are there courses that are weak in apparatus? Are there some fundamentals wherein presentation could be improved by the use of equipment? Might some subject matter be covered more rapidly through the use of good demonstration equipment? Will some equipment lend itself to dual application, that is, might it possibly be used in two or more courses? Is the size and model under consideration appropriate for the intended purpose? Where there is a choice between demonstration and pupil exercise, between expensive and cheap equipment, which choice will bring the greater learning?

Cost is always an important consideration. It might be wise for the director to divide his prospective purchase list of equipment into categories such as a "must list" and "desirable list" and a "nice to have list." In each case, the decision to purchase should be based on the learning that is to be accomplished and the cost per pupil.

In planning of programs, the technical educator should:

1. Plan the instructional program--that is, determine the areas of technology that are to be offered.

2. Make a survey of existing institutions and industry as well as the service area.

3. Determine how many students will be admitted to the program.

   (a) Class size of forty students and laboratory sections of twenty students.

   (b) Area in square feet varies from 40 to 170 square feet per student, depending on the type of program.

4. Determine how many teachers will be needed.

5. Plan layout of shops and laboratories and include drawings and equipment lists.

6. Specify and purchase equipment.

   (a) Good equipment is essential.

   (b) Equipment must be accurate and well designed and should be the type used in industry.

   (c) Sources of equipment other than direct purchase should be considered.

      (1) Lease-purchase

      (2) Rental

      (3) Government surplus (brochure)

      (4) National Industrial Equipment Reserve (address)

7. Employ architect to design building around layout.

8. Building for technical programs should be designed for flexibility.

9. There is a felt need for construction standards for technical education facilities.

10. A resource center at the national level would be of value to planners of technical education facilities.

11. Cost of technical education programs

    $4000 - $5000 per student for buildings and equipment
    $1000 - $1200/student/ year for operation

FACILITIES AND EQUIPMENT FOR TECHNICAL EDUCATION

by

Lucian Lombardi*

In the state of Connecticut, the technical institutes are distinct and separate from the community college. The technical institutes are state supported, financed, and equipped. The state is the only sponsor.

Prior to establishing, building, and equipping an institute, and the initiating of an educational and training program in an area, it is necessary to conduct a survey of students, labor, and industry to determine the number and kinds of job opportunities and the number of students available and interested in the technical education program. The survey can be accomplished by polling the school superintendents of an area to determine needs and by using student-labor management questionnaires to determine interest and training needs.

An advisory committee should be formed, consisting of twenty to twenty-five members to determine the size and cost of the school, the nature of the technical offerings, the curriculum, the size of classes, and the site of the school. The advisory committee should be divided into three sub-committees: legislative, site, and curriculum. The legislative committee appears before the legislature to acquire the funds to do the job.

In the selection of a site, the site committee aids in the selection and procuring of a location and uses the following criteria. The site must: (1) be central to area surveyed; (2) be large enough for parking, athletic activities, and future expansion; (3) have or be able to add the facilities necessary for water, gas, and sewerage; (4) meet zoning regulations; (5) have a favorable environment for an educational institution; and (6) stand up to construction standards determined by test borings.

Planning the development of the site requires the advice of architects, mechanical engineers, and landscape designers. Each should be selected on the basis of experience, and each must be thoroughly familiar with state and local building codes and safety requirements.

In determining space requirements for the laboratories and classrooms, it is helpful to utilize the advice and aid of the experiences of the faculty, the experiences of other schools, the United States Office of Education, the professional associations, equipment suppliers, graphic standards, and visits to other schools.

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**Rutgers - The State University.

The building should include: administrative offices; cafeteria(s); custodian storage; corridors, including elevators, lockers, and stairs; delivery doors; equipment storage; evening school facilities; faculty offices; guidance suites; library; student lounge and student union; and a ventilating and operating unit.

During the construction period, it is important to determine the equipment and service requirements, to locate ironwork, columns, and small spaces; and it is important to work closely with the architect, mechanical engineers, and the contractors.

Plan ahead for audio-visual rooms, clocks, closed-circuit television, public address systems, team teaching, and the utilization of audio-visual aids. Heavy equipment ought to be on the reinforced first floor.

When determining equipment needs, anticipate and list everything in the area of equipment, small and large tools, and supplies. Establish priorities and refer to catalogs, equipment and supply description lists. Determine special requirements and make estimate of costs. Consider, also, maintenance and office equipment.

In the selection of equipment, it is necessary to select up-to-date equipment that is moveable and allows for flexibility.

A building superintendent ought to be appointed early in the construction period so that he may become thoroughly familiar with the building. The director of the institute ought to be appointed early to oversee the total operation relative to construction, delivery, and staffing.

FACILITIES PLANNING, CONSTRUCTION AND FINANCING

by

Ellis Rowland*

Site selection is one of the most important aspects of planning for a new campus, since it will determine for many years hence the character and nature of the educational opportunities afforded the youth and adults of an area. The most judicial decision is one based on sound criteria and consultation with architects, landscape architects, and engineers.

The establishment of a checklist to be used as a guide for selecting sites for community colleges is difficult and risky, but the use of this rating provides a reasonably objective device for ranking sites under consideration. The list ought to be divided into six major sections of varying importance: size of site, site characteristics, costs, accessibility, environment, and integration with regional planning.

The most important criterion is the availability of at least 100 usable acres. Two hundred or more are preferable in most cases.

The site should be in one piece and unencumbered by existing or future easements or public rights of way. A rectangular shaped parcel is preferred over long, narrow sites to permit the best development of the academic area and maximum accessibility from the perimeter. Sites with steep slopes and irregular topography should be carefully evaluated. The central campus area should be relatively flat for economical construction. All the land need not be flat. Sub-soil conditions should be examined to insure a minimum of rock, quicksand, and sub-surface water conditions.

Site costs should include the original price, development, including demolition and utilities, and additional building costs incidental to site conditions.

Site selection should be done with deliberation and not influenced by a capital gift which may impede future expansion and have high development and building costs incidental to utilities and site conditions.

The college should be located for the easy and close accessibility for the greatest number of students, since studies show that the majority of students and faculty--day and evening--arrive by private car pools. In comparing sites to best serve all populated areas, a factor should be developed by multiplying the number of students from each area by the

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**Rutgers - The State University.

distance to be traveled, and by the time it takes to travel the distance to each of the suggested sites.

The site should provide safe and healthful conditions and should be relatively free from the sources of noise and danger. The site should also avoid the extremes of cold, excessive winds, smog, fog, and offensive odors. The surroundings should tend to create a feeling of pride and respect for the college.

The site must be acceptable in the regional plan of the locality, must not interfere with other regional projects, and must be of value for extensive use by all citizens of the region as a cultural center. It should be located for the convenience of the greatest number of students and not for what it will do for a segment of the community.

Another important aspect in planning is the development of long-range enrollment projections and the breakdown of total enrollments into major programs. Space facilities should be projected on "Space Utilization" and "Space Projections" to convert curricula to space. Building Requirements Programs giving areas and functions of each space in the building should be prepared.

In New York, the appropriate personnel of each community college are required to follow this prescribed procedure:

1. Develop long-range enrollment projections by curriculum for freshmen and returning students in regular full-time curriculum programs and special programs.

2. Complete facility projections to 1970.

3. Prepare and submit building requirements, visit sites, and appraise land.

4. Select architects--contracts drawn must be submitted to the State Director of Community College Facilities Planning for approval.

5. Have site plans approved by State University.

6. Itemize estimated costs (done by the architects) of construction, electrical, plumbing, mechanical trades, utilities, site improvements, roads and landscaping, and architectural and engineering services.

7. Include sponsor's contribution toward the construction project.

8. Submit preliminary and working drawings to the State Director of Community College Facilities Planning for approval.

9. Submit request for the total construction budget to the Executive Dean for approval.

10. Submit copies to the State Director of Community College Facilities Planning at the time the bidding is announced to the public.

TABLE #1

TYPICAL PLANNING BUDGET ESTIMATE

1.	Total Net Area from Program			65,760 Square Feet (SF)
2.	Factor of Increase (Gross/Net Ratio)			
	Function Distribution	Net Area	Gross Area	
	a. Administrative Bldg.	25,410 SF @ 150%	38,115 SF	
	b. Classroom Bldg.	19,680 SF @ 150%	29,520 SF	
	c. Science Laboratory Bldg.	20,670 SF @ 167%	34,519 SF	
	d. Average Factor of Increase		155%	
3.	Total Gross Area		102,154 SF	
4.	Building Base Cost Per SF			
	a. Administrative Bldg.	38,115 SF @ $19.66		$ 749,341
	b. Classroom Bldg.	29,520 SF @ 21.41		633,023
	c. Science Laboratory Bldg.	34,519 SF @ 26.31		908,194
	d. Average Base Cost per SF	22.45		
5.	Total Base Cost			$ 2,290,558
6.	Additive Items	Applicable Cost Gross Area		
	a. Air Conditioning	25,410 SF @ $3.02		$ 76,738
	b. Elevators	72,634 SF @ .63		45,759
7.	Location Factor	0.94%		$ 22,582
8.	Time Adjustment	2 years @ 3.5%		$ 168,913
9.	Total Building Estimate			$ 2,581,968
10.	Total Building Estimate per SF	$25.31		
11.	Site Improvements @ 10% (Site Improvement for Total Campus 12%) (Utilities for Total Campus 8%)			$ 258,196
12.	Total Construction Budget Estimate			$ 2,839,164
13.	Planning, Supervision & Administration @ 8%			$ 227,132
14.	Equipment Cost			
	a. Administrative Bldg.	18% of $749,341 - $134,881		
	b. Classroom Bldg.	23% of $632,023 - $145,365		
	c. Science Laboratory Bldg.	35% of $908,184 - $317,865		$ 598,111
15.	Total Project Cost			$ 3,664,407

TABLE #2

COST GUIDES FOR COMMUNITY COLLEGES

	Factor Net to Gross Area	Cost* per Sq. Ft.	Cost of Air Conditioning per Square Foot	Equipment Cost %
Administration Building	1.5	$24.31**	$3.02	18
Industrial and Technical Building	1.6	23.61	1.70	35
Classroom Building	1.5	21.41	3.02	23
Lecture Center	1.67	24.50**	3.10	
Fine Arts Classroom	1.67	25.00	3.02	30
Faculty Offices	1.5	20.00	3.02	18
Auditorium	1.26	30.00**	3.10	18
Library	1.32	24.32**	1.71	25
Gymnasium	1.42	23.50	2.96	12
Science Laboratory & Classroom Bldg.	1.64	26.31	2.58	35
Student Center Building	1.70	26.90	2.06	30
Service Building	1.33	15.00	--	20

* To be multiplied by location factor for various campuses
** Includes normal air conditioning

Multiply above costs by 3.5% to get labor and material escalation per year.

PART VII

STAFFING TECHNICAL EDUCATION PROGRAMS

STAFFING THE TECHNICAL PROGRAM

by

William L. Bolin*

There are several considerations which bear discussion before one is ready to staff his technical program. These include:

1. The relation of the philosophy and objectives of the institution to technical education.

2. The administrative structure and attitude toward technical education.

3. The position of technical education within the institution and among institutions and society.

4. Requirements for an "ideal" staff member.

As soon as the administrator has satisfied himself on these issues, he is ready to locate staff members who fit into the position the institution has taken.

There are some general considerations pertinent to selection of the technical staff, regardless of the philosophical base from which one is operating. First, it is desirable, nay necessary, that the occupational instructor have practical or work experience in his specialty. In order to teach effectively the subject matter consistent with the objective of employment, the instructor must be aware of the conditions which exist on the job. Could a nursing instructor effectively teach nursing students for employment in a hospital if she had never been in a hospital? It is universally recognized that experience in industry is an essential qualification for good technical instruction.

The instructor should be capable of teaching across subject lines. The scientific disciplines are interrelated and use mathematics as a common language. The effective instructor must be versed in the disciplines related to his own specialty, as well as in mathematics and other communications media.

The technical instructor must keep up-to-date in his field. The expansion of technology is rapid, and it is anticipated that this expansion will continue at an almost exponential rate. The teacher cannot afford to turn out a graduate who is filled with obsolete knowledge.

The specific educational qualifications of the faculty are related to the type of institution and accreditation standards. These

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educational requirements are frequently administered through certification by state departments of education. The general specifications include subject matter and supporting courses in excess of the level for which the program is designed. Work experience may be used to offset formal education in some cases.

Faculty loads are particularly important in determining the required staffing level. Care must be taken to insure that work loads are evenly distributed and that faculty has adequate time to prepare and study to keep abreast with developments in their respective fields.

A qualified staff of adequate size is essential to effective programs of education. In this age of technological emphasis, a highly motivated, well-prepared and current, versatile staff is imperative for successful technical programs.

STAFFING
by
Jerry Dobrovolny*

It is a pleasure to talk with all of you. I believe these kinds of meetings, conferences, and institutes have, in the last few years, brought about more understanding of technical education than has anything else. It is most important for people to communicate and keep in touch about developments.

Training teachers in technical education is not quite as serious in Oklahoma, but it is a situation that needs our attention. In 1958, we began in our state to think in terms of implementing Title VIII of the National Defense Education Act of 1958. Of course, as you know, there are many ways the NDEA 1958 Title VIII was interpreted in various states. It was somewhat happenstance that I became involved in it. I have had an interest in technical education since about 1952, but in 1958, I came in contact with the newly-appointed director of technical education. We had many things in common. We interpreted the law to mean training high-level engineering type technicians under Title VIII, and we developed a rapport between our College of Engineering, our College of Education, and our State Board in Springfield. We started discussing high-level programs of engineering technologies. The Act was restricted to the engineering-related type of activity. Of course, it has broadened now, but the same holds true in the other subject areas. We found very quickly that in order to have these so-called high-level programs, it would be necessary to have competent staff.

It was also decided at that point that the University, as such, would not enter into any two-year associate degree type programs except the one it had at the Institute of Aviation. On the other hand, the University was to do all it could to help develop competent staff for the high-level programs to train engineering technicians in engineering technology. At this time, we found out about the National Science Foundation Summer Institute programs, submitted a proposal that was funded, and have been operating since that time.

One of the problems that we encounter in a discussion of technical education is the term "technical education." I will make references, of course, to the engineering-related technology since this is my background. However, the same thing can be true for the other areas of training of semi-professional people. The business-related technologies, the health-related technologies, the agricultural-related technologies, plus the engineering-related technologies, are the ones I consider to be the four most active in terms of development. There will be other technologies that develop and others that are considered important by other people, but

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**Oklahoma State University.

if we were to break it down to the four basic ones, I think they would probably cover 80-90 percent of the programs that would be considered in the area of training semi-professional technicians that work with the professional people.

We are able to define engineering to some extent. One reason is that we've had it in this country for about a hundred years. Even today, when you get together with a group of engineering educators, they cannot agree on a definition of what an engineer is. There are some definitions that range from a reference to the application of the forces of nature to the use and convenience of man to rather long and detailed statements of half a page to a page long. We know what a doctor is because we have had doctors for many years, and we can define what sort of training it requires to train a doctor in education. The same situation is applicable to lawyers.

When we get into the area of the engineering technician, we're faced with a relatively new development in our society in America. The concept of the semi-professional has been pretty well established on the Continent--Germany, Austria, Russia, etc.--but in this country, the concept of the technical institute and the training of the semi-professional has been a fractured, fragmented effort. Its history starts back about 1895 with the Pratt Institute, and for further information through the years, refer to the Wickenden and Spahr report that was conducted in the 1920's and published in 1929, 1930, and 1931. It contained a separate section on technical institutes in 1929.

The fact that this report includes many of the ideas we're discussing and rediscovering today impresses and amazes me. It talks about needs; it projects the three to five technicians per engineer ratio that we hear so much about; it talks about staffing, financing, the administrative structure--1929. If you disregard the date and just read the copy, you would think it was written yesterday. I'm a great believer in studying history, but for some reason or another, each generation seems to have to rediscover America for itself.

Of course, there are some things that came along in the 1930's, such as the depression, that caused many ideas (that were to be implemented) to be delayed for a decade or so, but the area of technical education was delayed even longer than that. We were very much aware of its need at the beginning of World War II, when we did not have a pool of trained semi-professional personnel. We had all sorts of emergency war training programs in science, engineering, etc. Therefore, the concept of the engineering technician is somewhat hazy and not only among the professional educators; if it's hazy among them, you can imagine how hazy it is to the students, the parents, and the high school guidance counselors, et al.

It is important that, first of all, we agree on what engineering technology is and what technical education is. I hesitate to philosophize; however, I think we need to discuss some basic terms. These are the ones that are misunderstood most often. I think there are four

basic concepts when we're talking about technical education. We have industrial arts, vocational education, which I like to call occupational education today, technical education, and professional education. These are the four main categories.

I've been before industrial arts groups who claim they are vocational educators. I've been before T & I groups who claim that they are teaching technical education in their high school courses, So, we have, first of all, confusion among the people who are in the field. I've used this comment, and it may be a little harsh or too direct, that in industrial arts, for example, if one has to apologize for the work that he is doing and is ashamed of it, he had better get out of it and do something of which he is not ashamed. Now let's go back and define some of these terms.

Industrial arts, as you know, is an exploratory experience in the sixth, seventh, and eighth grades where the youngsters are introduced to some of the occupations that we have in our society. We have just as much need today for good industrial arts instructors and instruction as we have ever had--probably more so. One of the problems is that many of the people who are involved in this activity have not kept up with the developments in the field. There are a number of definitions of good industrial arts. Gordon O. Wilbur in his book on industrial education includes a quotation wherein he mentions an exploratory experience in the modern and up-to-date activities in our industrial world. On the same page as this definition, which is a good definition, there is a picture of a bench vise with a rectangular piece of metal and a hand file. This certainly is not a modern practice in our industrial complex today, and we need to bring to the youngsters the true concept of what is actually happening in industry.

Then, of course, vocational education, through some mechanism that has developed over the last twenty-five years, has come to be a rather unpopular type of activity in some of our comprehensive high schools. Those youngsters who are troublemakers and can't cope with the college preparatory academic work are unloaded into vocational education. Here again, it gets a second-rate citizenship status. I feel that, in many cases, the educators who have been in vocational education have not met their responsibilities to their profession by tolerating this situation and by refusing to stand up and fight for what they believe to be right. There are good programs in vocational education, but today, I believe occupational education is a more descriptive term. I feel we should not latch onto a term just for status reasons, but occupational education, I think, is a more appropriate term.

The technician is the new breed that comes somewhere between the occupationally qualified worker and the professional worker. We have not had a central core from which to work in terms of developing technical education. The key to this whole program, we feel, is staff. When we first became involved with technical education in the state of Illinois, we did not have such publications as, Occupational Criteria and Preparatory Curriculum Patterns in Technical Education Programs.

Maurice Roney did a wonderful job in preparing it for the U. S. Office of Education while he was working there. Then, about the same time, the publication, Characteristics of Excellence in Engineering Technology Education, came out. I'm sure you've probably discussed both of these. Prior to 1962, we really had no set of standards in terms of identifying what we mean when we say "a program in engineering technology." In fact, that term, as such, was not in very common usage. It was referred to as a "technical institute type" program. In some of our early deliberations, we dwelt on the semantics problem, and, finally, getting rather good agreement among members of the working committee, decided that we ought to refer to these programs as "programs of engineering technology." Engineering is the adjective and technology, then, is the noun as opposed to mechanical engineering programs at the baccalaureate level. This rationale seemed to prevail and satisfy the people working in this area, so we began to use this development around 1962. You can well imagine the problem we have in communicating our thoughts to the student population, their parents, the high school guidance people, and the people throughout education.

We had quite a few conferences in the state of Illinois on promoting technical education. These were two-day conferences that had about seventy people in attendance. The twelve conferences were held over a span of about eighteen months. We put together a road show consisting of two or three persons from the College of Engineering, two or three from the College of Education, and four or five from the State Office who conducted these conferences all over the state to help explain Title VIII of NDEA and technical education as we interpreted it.

In this regard, with the basis we just established in terms of industrial arts, occupational education, technical education, and professional education, we feel very strongly that technical education is a post-high school activity. As a college level program, successful completion should result in the awarding of an associate degree. This is not to say that we disregard the need for post-high school education in occupational programs, but it is the level at which these programs are taught and the requirements in terms of cognitive skill development that are the primary differentiations. Now, in some cases, the program will fall into a gray area, and then it's difficult to say whether it's an occupationally-oriented program or a technically-oriented program. Occupational education normally occurs in a preparatory situation in a secondary school system, with some spill-over into the post-high school system. Occupational education and technical education each has as its respective objective the placing of its graduates into a gainful employment situation.

Approximately 90 percent of the graduates of the technical education programs in the New York technical high schools go on to colleges of engineering. We call this a high school pre-engineering program in our state. I think what we need to do, if we're talking about a comprehensive high school situation, and this again is lacking in the high school, is to build a pre-technical program as a separate curriculum. In some cases, the courses will be the same as for the pre-engineering students; but in the eleventh

and twelfth grades, some beginning exposure to the laboratory type of experience, as opposed to the shop experience, is needed since the shop is more closely related to the occupationally-oriented programs and the laboratory to the technical programs.

In terms of staffing the technical education program, the problem is very acute. We do not have organized teacher preparation programs in the state of Illinois, and we found that we had none organized anywhere in the United States which would prepare teachers to go into the technical areas. We found that the teachers came from all walks of life. In some states, they were predominately engineering graduates. In other states, they were T & I people who had moved up through industrial experience and through other areas into technical education. In other cases, they were industrial education people. There was no uniform format, and so we approached the problem in terms of educational qualifications. It would be ideal to have someone with an engineering background, but this by itself was, we felt, not adequate because a person will tend to reflect in terms of his own immediate and past educational experience and will not have the true understanding of technical education.

In 1959 and 1960, there were a number of meetings conducted to consider the problem of the shortage of qualified staff. As a result of our discussions in the state of Illinois, we had several of the people from the U. S. Office in attendance at some of our meetings--Dr. Arnold and members of his staff. They saw the problem also. In November 1961, the U. S. Office of Education, Division of Technical Education, Area of Vocational Education Branch, conducted a conference. The purpose and objectives of the conference were to determine and to consider technical, professional, and employment experience requirements essential for successful technical teaching; to determine professional technical teacher education for course content; to design a suggested technical teacher education program; and to recommend patterns and operating procedures for the preparation of technical teachers. Most of the persons in attendance were T & I teacher trainers. About twelve states were represented. I'll not get involved in the details of it, but this will give you an idea of the development. About a half page was devoted to the consensus, in terms of the requirements of technical subject matter competency; and amazingly enough, we agreed on that rather quickly. We talked about the ability to use algebra and trigonometry as tools in the development of ideas that make use of scientific and engineering principles, etc., proficiency in the application of physical science, an understanding of the materials and processes commonly used in technology, an extensive knowledge of a field of specialization, communication skills, and the ability to interpret and define principles of economics in industrial relations as applied to technology. Then, as far as technical employment experience, it was agreed that a minimum of three years of employment experience having breadth and quality would suffice. Final determination was to be based on tests or other evaluation procedures. There is two-thirds of the conference, you might say, outlined in a little over a page. When we got to pedagogy, it took four and one-half pages to describe. The reason I bring this out is to characterize the problem we have in developing teachers for

technical education because of the professional pedagogist, a term I apply to a certain group of people with professional pedagogies, who think technical education is just business in the same old shop where potential teachers are given some educational methods courses, psychology of learning, etc. Of course, I'm accused of discounting all this professional education. Also, it is claimed that the engineers don't practice good pedagogy--this is not true. We'll get in a battle over it later, but I don't feel that thirty-six hours of formal pedagogy courses are necessary.

We feel, number one, that in order to be able to teach anything, one has to understand his subject matter. If he is going to teach mathematics, he has to know mathematics. If he is going to teach physics, he has to know physics. If he is going to teach engineering technology, he necessarily has to have some basic knowledge and understanding in the basic sciences and the engineering sciences with their applications, and know their applications to the particular area in which he is working.

In the state of Illinois, we recognized very quickly that we would not be able to attract a significant number of graduate engineers into this program of teaching engineering technology. We are having a small amount of success now, but a number of things have happened since then. In order to develop a competent staff, we had to take the staff then in the field and provide upgrading subject matter experiences for these people. This is the approach that we used in our proposals to the National Science Foundation. At the University of Illinois, we tried to get through the concept that we should develop a special Master of Arts in Teaching for those people out in the field, who had Bachelor's degrees in other disciplines, but then used the Master's degree in Teaching in engineering technology.

When Dr. Roney referred to the hierarchy within a large institution such as we have at Illinois, the above program went through relatively easily. It was approved by the College of Engineering faculty. This in itself in our school is quite an accomplishment, particularly when it includes education courses. The courses were approved by the College of Education faculty and submitted, since it was a graduate program, to the Graduate College. I don't know the situation at the other schools, but the Graduate College at our institution is a separate entity. It has a separate subcommittee on courses and curriculum. The Graduate School submitted the following comments.

Number one, they questioned some of the courses that we had especially designed to cover topics that we would normally cover in the junior and senior years in engineering. They said, "Here you want to give graduate credit in subject matter that is offered for undergraduate credit in the college of engineering. How can you do that?" We said that these were courses for more mature students; they were specially designed courses; the students move faster, etc. This did not satisfy them.

The number two comment was, "Here you are proposing a Master's degree when you don't have an undergraduate feeder program for this Master's degree." Again, this is a pretty difficult situation to resolve.

So we said, "Fine. Answer this question for us. 'Do you recognize the need for this?'" "Oh, yes, there is a need for it." "Then what do you suggest we do?" They said, "We don't know."

They appointed a committee, and the committee was chaired by an Associate Dean of the Graduate College who had his Ph.D. in philosophy. There were about eight or nine people on the committee, and it was a University-wide committee. Dr. Ray Karnes and I were the only ones who really represented technical education. The other eight were from French, chemistry, agronomy, horticulture, philosophy, and psychology; but to make a long story short, after four years of effort, we finally achieved our goal--this program was described in a brochure. Actually, there are two programs described in it. One is a Bachelor of Science in the Teaching of Engineering Technology; the other is a thirty-two semester hour Post-Baccalaureate Certificate in the teaching of Engineering Technology. It's a fine, on-going program now. We thought that it was important that we have three requirements of our teachers for technical education certification. I think we agreed that they would be in this order:

1. Subject matter competency

2. Industrial experience

3. Pedagogic ability

Of course, when this presentation is made to the traditional pedagogists, they disagree, but we've maintained our stand, and I think we've had some acceptance of this concept. This is a new program. It has been in operation less than a year.

The Post-Baccalaureate Certificate is basically the Master of Arts program that we originally presented. One of the things that we have been working on, then, is to identify status with this Post-Baccalaureate Certificate. We have an Advanced Certificate in our College of Education that is about thirty-two hours beyond the Master's, but our Post-Baccalaureate Certificate is thirty-two hours beyond the Bachelor's. It is necessary to have a degree in a discipline other than engineering. Some basic math, science, and physics is required, and if it has not been acquired, it has to be secured on a non-credit basis. At academic year institutes, we have been able to qualify, out of thirty participants, eighteen who will be receiving this Post-Baccalaureate Certificate in the teaching of Engineering Technology at our next graduation exercises.

There are quite a number of problems that remain to be resolved. One of these is that of certification. In the state of Illinois, this is going to be resolved because the junior college system is going to be considered as a part of higher education; and, therefore, it will not be

subject to the state school code in terms of teacher certification and requirements. In the past, we have had to be concerned with certification and some of this inertia, of course, is going to carry over.

We have the B. S. program in the teaching of Engineering Technology. It has been accepted for certification of teaching in the high school, and we hope that some of our people will go into the high school and teach the pre-technical programs that we expect to develop. The junior colleges in the state of Illinois are accepting the Post-Baccalaureate Certificate in the teaching of Engineering Technology as the equivalent of a Master's degree.

There are many problems from the point of view of administration. The administrators are apt to be more flexible in their thinking in terms of what constitutes professional growth and development in their teaching field. Over the last thirty or forty years, the general practice of going back to college every five years and taking five hours of graduate work in education is still in vogue today. There is a course on how to teach mathematics in the fifth grade and another course on how to teach mathematics to the twelfth grade, and both are practically the same. The teachers take these courses only because this is the way their salary structure is written in their particular school system. They have to have "X" amount of credits, regardless of whether they learn anything or not. So, we've had limited success in some of the schools with which we've worked in Illinois, Wisconsin, and some other states in that the school administrators have begun to look at these courses we have been giving in the summer institutes as upgrading course work. In addition, the administrators have been accepting participation in these institute courses as credit in lieu of graduate credit for increments on the salary schedule.

Also, the administrators will have to begin thinking in terms of accepting appropriate industrial experience in place of just plain graduate work as a qualifying part of being a good teacher. Now we get into this gray area of evaluating what acceptable experience is, and here again we have found that some of the administrators really don't know what acceptable industrial experience is. Certainly, if a man is going to teach in the area of machine design or in machine design technology, he should have some appropriate experience working as an engineering technician, a detail designer, or in some kind of a design activity where he has a concept of analysis and synthesis. He should have experience in putting things together and doing the necessary calculation work, drawing the detailed plans, preparing specifications for the machine; and he should know something about how this machine is produced, etc. The administrator has to be educated in terms of evaluating work experience because he is the one who is going to hire the teacher.

We have incorporated in our Bachelor of Science degree program a course labeled as VT 139 for six hours credit. This is not an education

course. It is a supervised summer work experience scheduled over three summers; and for each summer the student works in industry in technically related jobs; he receives two hours credit. We have just started this program, and our intention here is that during the first year, the students would experience the more routine jobs in the area of drafting; and then during the second year, possibly they would get into some more detailed layout work where they help make some of the prelimary calculations. During the third year, they would experience some project type work as they increase in their subject matter competency.

We have been successful in the state of Illinois in educating our administrators of junior colleges to the need of industrial experience. We try to demonstrate and explain to the administrators what industrial experience is and then to equate it in terms of some kind of professional recognition for competency. It cannot be equated exactly in terms of semester hours, but it has to be included in the total picture when talking about technical education. It is easy to identify a math teacher who has had a given number of hours in mathematics, thereby becoming qualified. It's easy to identify a physics teacher or an English teacher, but it is difficult to define qualifications that will enable a technical teacher to do a good job in the classroom.

The McGraw report states that fifty percent of the technical teachers should be engineering graduates. Some critics say that we just want to make this an engineering program. However, they do not go on and read the rest of that important thing--"or equivalent." We have found that we can provide this equivalent by taking selected individuals who have come up through some other discipline. This does not include everybody, but a selected group can take the additional work in the engineering-related sciences. This approach may require an academic year, or a fairly good job can be done in three or four summers. Our participants have gone out and competed successfully for teaching positions in this area because, first of all, most of them have had industrial experience of some kind in addition to all of the pedagogy. They have an edge on the engineering graduate with the pedagogy and experience. With the competency in the engineering sciences and in the engineering technical specialty, they are able to compete very successfully in the classroom. It is this equivalency to which we address ourselves in terms of helping solve the problem of competent staff in a program of engineering technology.

STAFFING TECHNICAL EDUCATION PROGRAMS

by

Paul K. Weatherly*

South Carolina utilizes a state-wide, post-high school organization that reports to a separate state board. However, South Carolina believes strongly in local control--each technical school operates under a local board with some local financing. We are involved, however, in more than just area technical schools. Technical education also operates special schools to train personnel for industry, technical services which gather labor-research data, and special training programs to meet economic problems.

In staffing single institute technical schools on a post-high school level, it is mandatory to employ the best man available, determined on the basis of proven work record. This person's philosophy should be consistent with the employing body's, and his loyalty should be to the organization.

The objectives of a state-wide or regional group of institutes should be to: (1) meet industry needs; (2) meet local and state needs; (3) provide sufficient commonality to insure transferability of student and/or credits; (4) permit flexibility of administrators; (5) encourage imaginative and enthusiastic leaders; (6) identify and develop positive thinking leaders; and (7) obtain unquestioned loyalty to each other and to the state administrators.

In the past, top vocational education administrators were developed over a period of ten to fifteen years and climbed the ladder the traditional way: from journeyman to craftsman with years of experience, through educational courses and shop teaching, to the acquisition of several degrees, supervision and state-wide experience to the top level administrative position.

Today, this path is an impossibility. The expansion of technical education is occurring at such a rapid rate that the traditional method can no longer be relied upon to provide the number of leaders needed today. Incidentally, there is very little correlation between what is required of a good teacher and a top flight administrative leader.

A technical group tied completely to industry naturally looks to industry and business as a guidepost to develop modern management selection principles.

Modern management believes that the selection of personnel is a specific skill. The principles of selection are based on: (1) the

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experiences and skills of the candidate; (2) the availability of skills through other resource people; (3) the comparison of candidates; (4) the rules and regulations that can hamper the selection of a candidate; (5) the job description; and (6) the defining of the characteristics being sought in a candidate.

In South Carolina, staffing is based on: (1) adding through in-service education; (2) identifying and locating the kind of individual needed; (3) avoiding rules and regulations which prevent the reaching of an objective; (4) operating from job descriptions; (5) allowing trained professionals to do the interviewing; (6) building a team where the weakness of one individual is covered by the strength of another; and (7) beginning a leadership program for recently employed personnel.

A president or a director should be appointed on his ability to understand relationships; to recognize power structures; and on proven administrative leadership, industrial experience, engineering background and education, and training or director experience.

Personally, he should be above average in appearance with an excellent speaking voice. Additionally, he should be dynamic, imaginative, and enthusiastic, and have a positive point of reference.

In essence, a candidate should be selected who has the basic essentials. The selecting body should assume the responsibility for in-service training in order to get the type of leadership the organization desires.

PART VIII

FINANCING TECHNICAL EDUCATION PROGRAMS

FINANCING TECHNICAL EDUCATION

by

Harmon Fowler*

Technical education is primarily a state concern. Each state makes provision for it in its state plan, utilizing federal funds plus whatever state and local support monies are allocated to it. In some states, all physical facilities are built with state support; in others, this is a responsibility of the local community; and in others, whatever is done is done primarily with federal monies.

In Florida, the technical education program is a part of the state minimum foundation program and is eligible for financial support from such funds for use in high schools, area vocational-technical schools, or junior colleges

Federal funding for technical education is available, if state laws and regulations permit, as a consequence of the following public laws:

1. PL 85-864, National Defense Education Act, first passed in 1958.
2. PL 88-204, Higher Education Facilities Act of 1963.
3. PL 88-210, Vocational Education Act of 1963.
4. PL 88-149 and 88-276, The ROTC program in junior colleges and regulations relating to scholarships and curricula.
5. PL 88-665, Amendments to the National Defense Education Act.
6. PL 89-15, The Manpower Act of 1965.

There are other federal monies which may give indirect support to technical education programs and students. Technical education programs require much equipment and often special facilities.

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FUNDS FOR TECHNICAL EDUCATION

by

Henry Glendenning*

The Federal Facilities Act of 1963 stipulates that an institution of higher education shall be eligible for a grant for construction of an academic facility providing that: (1) in the case of an institution of higher education other than a public community college or public technical institute, only if such construction is limited to structures or portions thereof, especially designed for instruction of research in the natural or physical sciences, mathematics, modern language, or engineering, or for use as a library; and (2) only if such construction will, either alone or together with other construction, be undertaken within a reasonable time.

The grant may amount up to 40 percent of the approved construction cost, but it must be administered through a state agency approved by the United States Commissioner of Education.

The loan program is the same as the grant program; however, the loan may amount up to 75 percent of the approved construction cost. If a grant has been obtained, the total amount of the grant and the loan cannot exceed 75 percent of the approved construction cost.

The interest rate on the federal loan is not less than one-quarter of 1 percent above the average annual interest rate on all interest-bearing obligations of the United States. This is handled by the United States Commissioner of Education through the Department of Housing and Urban Development (HUD).

The Commissioner requires that loans be secured in a manner which reasonably assures repayment. The security may be one or a combination of the following: (1) negotiable stocks or bonds of quality and value; (2) a pledge of unrestricted and unencumbered income from an endowment or other trust; (3) a pledge of a specified portion of annual general or special revenues of the institution; (4) full faith and credit (tax supported) obligations of a state or local public body; and (5) other types of security acceptable in specific instances.

The declared purpose of the Vocational Education Act of 1963 is:

> to authorize Federal grants to States to assist them to maintain, extend, and improve existing programs of vocational education and to develop new programs of vocational education.

A state's allotment under the Act may be used in accordance with

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its approved State Plan for any or all of the following: (1) vocational education for persons: (a) who are attending high school; (b) who have completed or left high school and who are available for full-time study in preparation for entering the labor market; (c) who have already entered the labor market and who need training or retraining to achieve stability or advancement in employment; (d) who have academic, socio-economic, or other handicaps that prevent them from succeeding in the regular vocational education program; and (2) construction of area vocational education facilities and teacher training and supervision.

The amount of grant varies in each state and is administered through an approved state agency.

The Department of Housing and Urban Development (HUD) Loan Program is designed to give long-term loans for the construction of housing, dining, and appurtenant facilities.

Factors to be considered in financial planning are: (1) the appointment of an administrative coordinator in charge of project; (2) the appointment of professional advisors (architectural, legal, and financial); (3) the determination of the scope of the project; (4) the application for the necessary approvals of grants and loans to the proper federal and state agencies; (5) the preparation of studies to determine financial feasibility; and (6) the sale of bonds--if necessary.

OPERATING COSTS FOR
TECHNICAL EDUCATION PROGRAMS
by
LeRoy V. Good*

The patterns of financing technical education programs are many, and the sources of money are varied.

A general rule of thumb is that it costs between $800 and $1,000 per student to operate a two-year program accommodating 2,000 career and transfer students meeting a faculty of 100 or more.

Financing may be done by tax authority boards, state legislatures, and/or the colleges' boards of trustees which may also operate elementary and secondary education programs.

The textbooks suggest that the method of financing should be done as follows: (1) design the educational program(s); (2) cost account it; (3) determine the amount of money needed to satisfy the design; and (4) go to the voters and solicit the money.

There is evidence that this system does not work!

A more sound approach to the financing of technical education programs might be to:

1. Require the students to pay one-third of the operating cost up to $300 per student.

2. Have the state pay one-third.

3. Have the local sponsor pay one-third of the operating cost.

Capital expenses ought to be shared by the state and by the county.

Where students cannot--by law--pay more than $300 per student, it may be necessary for the sponsor to pay the difference.

The amount invested by the state and the sponsor(s) in the preparation of technicians is a very small amount to pay for skilled manpower.

Budgeting of and accounting for the operation of the technical education programs ought to be left to the finance officers and their staffs.

Efficient level of operation depends on scheduling. It is possible

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to get up to 94 percent utilization of space. The State of New York requires only 80 percent. Phase scheduling enables the Monroe Community College to achieve this high percentage of space utilization in classrooms and laboratories.

Phase scheduling requires staggered programs wherein the schedule is divided into three phases by days and starting hours. Monday, Wednesday, and Friday, 8:00 a.m. is Phase I. Phase II is Monday at 9:00 a.m., and Tuesday and Thursday at 8:00 a.m. Phase III is Tuesday, Thursday, and Friday at 9:00 a.m. Never are there more than two phases immediately adjacent by a day and one hour apart.

Classrooms and laboratories should be utilized at all times. School administrators should make the percentage of space utilization as high as possible.

Clock hours for teachers in contact with students should average between fifteen and twenty per week. Faculty ought to be expected to accept assignment over a fourteen-hour day where the same programs are operated day and evening. The maximum spread per day, five days a week, for a teacher should never be more than eight hours.

Programs should not be offered on the basis of popularity but rather on the basis of realistic cost accounting.

PART IX

SUPERVISION AND IN-SERVICE TECHNICAL TEACHER EDUCATION

PROGRAM EVALUATION AND REVIEW TECHNIQUE

by

Earl Blekking*

During this brief period, we hope to introduce you to the application of PERT (Program Evaluation and Review Technique) to educational situations. My comments are based upon an article by Kodet and Bruce which appeared in the November 1964 issue of Spectrum, a periodical of the Institute of Electrical and Electronic Engineers.

PERT is a planning and control technique for modest task application as well as for large programs necessitating elaborate, computer-based applications.

Advantages of the technique are:

1. A disciplined approach to planning.

2. A method of visualizing the work and of communicating plans.

3. A plan which can reflect uncertainties but which can also be easily used for calculating the time to perform the project.

4. A means for appraising progress and forecasting problem areas.

PERT is a planning and control discipline which employs a specific set of principles, methods, and techniques for effective planning. The key elements of this discipline are:

1. A work breakdown structure which begins with the objectives and sub-divides them into successively smaller elements of work.

2. A network, comprising all the work which must be accomplished to reach the objectives, and depicting the planned sequence of accomplishment of this work as well as the interdependencies and interrelationships.

3. Elapsed time estimates of work to be performed and schedules which also consider the availability of resources.

4. Analysis of the interrelated networks and schedules as a basis for continued evaluation of performance and identification of problem areas.

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PERT is also a discipline for organizing data, documenting the plan, and manipulating the plan to effect a successful conclusion to the project. The statement that PERT is a discipline and a tool for planning and controlling a job is significant to an understanding of the technique. Although the technique is formalized, it is no different from what any of us must orginarily do to plan and control our work properly. The elements of this technique had their origin in engineering applications. It must be remembered that PERT is not a panacea or substitute for the decision-making process; it is only a tool to aid the decision makers.

Before any task or project, large or small, can be undertaken, it must be defined. The definition and objectives must include the work tasks or work packages. Such definitions result in a road map for planning or Network Planning. Networking techniques were derived from flowcharting used in computer programming. Networking is a logical discipline for planning a task. It is not the network which is prepared; it is the plan which is prepared, using network discipline.

The discipline of planning can be defined by a series of questions which must be answered:

1. What work must be performed?

2. What is needed to perform this work?

3. How will completion be identified?

4. How long will it take to perform the work?

Simply, a PERT network or chart is made up of two elements--events and activities. Activities are the work to be performed and are signified by arrows. Events are specific definable achievements--either the beginning or completion of one or more activities--and are represented on the network by circles, ellipses, rectangles or other geometric figures. Every activity is bounded by an event at the beginning and an event at the end.

Once the network has been developed, portraying the relationships and interdependencies among the activities, the time needed for each activity should be estimated. Three estimates of time or duration of the activity are defined as:

1. Optimistic time--(a) --The time the activity will take if everything to be done is done successfully the first time.

2. Most likely time--(m)--The time required to accomplish an activity under normal circumstances with some success and some failure.

3. Pessimistic time--(b)--The time the activity will take with extremely bad luck.

PERT Time Estimating

There are two basic methods of time estimating--probabilistic and deterministic--and the use of one or the other is optional. Probabilistic time estimating, which was developed as part of the PERT system, requires three estimates for the duration of an activity, according to the definitions previously stated. The three estimates provide a means of assessing the risk being taken in performing the job. It is specifically designed for uncertain nonrepetitive types of work.

Deterministic, or single time estimating, on the other hand, does not utilize probability weighting. The engineer or technician director can make one estimate for the length of the activity which is the time he needs to accomplish it. The single time estimate has been used mainly in process industries and construction where it has been found valuable. CPM (Critical Path Method), which is a networking system employing a slight variation of PERT in terms and methods of network preparation, also uses one time estimate.

Once the time for the activities has been estimated and, in the case of the three-time-estimate system, the expected time for the activity calculated, the expected length of the project can be calculated. These calculations are usually referred to as: (1) earliest expected date; (2) latest allowable date; and (3) slack. Slack is the time difference between the earliest expected date and the latest allowable date. Slack can be positive, negative, or zero. When the latest allowable date is later than the earliest expected date, positive slack exists. Negative slack exists when the opposite occurs. Zero slack occurs when the earliest expected date and the latest allowable date are the same. Positive slack is "time-to-spare."

The longest time path or sequence of activities through a network is called the critical path. This path controls the completion date for the task(s)/project(s) represented by the network, since all other paths are shorter. The slack time for the critical path is zero. If the length of time for the critical path exceeds the established date for completion, then the critical path has negative slack. The longest time path is the most critical in relation to the established completion date and hence is called the critical path. All other paths which are shorter than the critical path are, therefore, called slack paths.

ACCREDITATION

By

William L. Bolin*

An understanding of the purpose, philosophy, and mechanics of accreditation are essential for the educational administrator. The diversity of educational institutions in philosophy, definition, and derivation is recognized and encouraged. However, some means of comparing and equating them are necessary to provide for the mobility of population in the United States.

Educational accreditation involves several basic types: state, regional, and special. Each accrediting agency has its own philosophy, purpose, and standards for evaluation.

Each state is directly responsible for the type and quality of state supported institutions. This responsibility includes establishment of minimum criteria, evaluation against these criteria, and approval of the institution to operate. Specific methods, standards, and techniques vary from state to state.

Regional accreditation is accomplished by a voluntary, self-governing association of educational institutions. The purpose is to develop and maintain sound educational standards. Membership in the organization denotes formal accreditation. Accreditation signifies that a school or college has been carefully evaluated and found to be following basic educational policies, practices, and standards comparable to other member institutions.

Specialized accreditation refers to a portion of the total educational program of an institution, usually a single curriculum. In the engineering-related technologies, the Engineer's Council for Professional Development (ECPD) is the agency responsible for accreditation. The ECPD accredits curricula in colleges of engineering and engineering technology curricula. This accreditation is voluntary and gives professional endorsement. Many companies realize the significance of this accreditation and require graduation from an ECPD accredited institution as a prerequisite to employment.

The Council on Dental Education of the American Dental Association inspects, evaluates, and accredits schools preparing dental hygienists. This accreditation is independent of regional accreditation but must be obtained prior to graduating the first class.

There are several other special accrediting agencies, such as the National League for Nursing and the Council on Hotel, Restaurant, and Institutional Education.

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The type accreditation sought will depend upon the philosophy of the institution, legal requirements, and the ability to place students appropriately. It would appear that accreditation is becoming increasingly more important, and if the institution is to serve its graduates most effectively, it is a prerequisite.

EVALUATION, ACCREDITATION, AND INTEGRATION OF CONCEPTS FOR TECHNICAL EDUCATION

by
Lynn A. Emerson*

Industry regularly takes stock of its programs in the form of consumer research, product research, personnel audits, sales analysis, market analysis, and financial analysis. All are applicable in the assessment of technical education!

Steps in the evaluation process involve: (1) stating goals and objectives; (2) determining indicators of progress; (3) selecting and/or devising measurement instruments; (4) selecting measurable samples; (5) measuring selected samples; (6) comparing results with stated goals; (7) analyzing findings; and (8) developing recommendations for program improvement.

The basic goals of a technical education program are to meet the needs of employers for technician personnel, to meet the needs of students; to provide satisfying experiences for the school staff, and to provide a program that satisfies the public.

Items which need evaluating are the product (graduate), the organizational pattern, the effectiveness of administration, the curriculum, the instruction, the physical plant, fiscal accounting, operating costs, and guidance and placement services.

Instruments of evaluation include a review of placement records, attrition, growth, costs, enrollments, curriculum offerings, and the results of an opinion survey.

Continual assessment of program indicates change--change in organization, levels of education, curriculum, general education, methods of instruction, plants and equipment, teacher education and qualification, supervision and administration, occupational guidance and information, pre-employment and extension programs, preparation of youth for change, balance in education and training responsibilities, recognition of public and private educational functions, utilization of existing agencies, use of economic and labor data, resolving power struggles, regionalization, accreditation, student expenses and financing, research, master plans of education, and planning.

These needed changes call for an integration of concepts; one agency alone cannot do the job.

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PART X

ESTABLISHING RESEARCH IN TECHNICAL EDUCATION

RESEARCH IN TECHNICAL EDUCATION

by

Carl J. Schaefer*

The advent of 17.7 million dollars for occupational research and planning makes it crystal clear that there are problems which need solution. The research capabilities of education number about 3,070, and vocational education approximates fewer than 100 competent researchers. Obviously, we need to examine and strengthen our determination to mount a more adequate program of problem solving.

Educators, and vocational educators in particular, are quite naive when it comes to sophisticated problem solving. Enough formal research just isn't in evidence in vocational education. Since the conception of the Cooperative Research Program, vocational education has had less than a dozen studies approved for grants; and under the Vocational Education Act of 1963, proposals submitted by vocational educators are conspicuous by their absence.

Lawrence W. Prakken editorializes that:

> Changing of habit patterns of long standing is difficult and disconcerting. Problems of curriculum, courses of study, equipment, facilities, and staff are compounded by the new and broader approach vocational education can take..... Adding these new responsibilities does not mean that the old programs are bad--they just are not enough to do the present-day job. We will have to live with change.....and make every effort to adjust to new requirements, new administrative organization and changing responsibilities.

Change in our field is a must; but to know what changes produce what results and why, are the keys that need to be accounted for through research.

The development of a research proposal is a sizeable undertaking--with stumbling blocks--involving the following process: the incubation period, the prenatal care period, and the delivery.

The incubation period, of course, includes the focusing on a problem, the exploring of personal strengths and weaknesses relative to the problem and the business of research, the delimiting of the problem, the searching for funds to conduct a sizeable study, the development of the format, and the writing of the proposal, which includes the problem

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statement, the review of existing literature, the procedure section, and the budget.

Prenatal care of a research proposal involves careful attention to a well thought out plan--the writing, editing, typing, and duplicating of thirty or more copies; and the submission of the proposal within specified cut-off dates.

The waiting for a reply is a frustrating experience, and premonition is usually worthless. The delivery can be quite emphatic (Yes, we are interested, or no, we are not) or subtle--the United States Office of Education uses a lettering system to announce a proposal's status.

A few pointers might be worthwhile:

1. Sizeable amounts of state and federal funds for research are available.

2. Several sources of funding--Ford Foundation, Cooperative Research Program, Sears Roebuck Foundation--are also available.

3. Contracts officers in institutions of higher education can be of immeasurable assistance in preparing the budget phase of the proposal.

4. The principal investigator's talents are being sought, and he should devote more than one-fourth of his time to the project.

5. Assistance in revision of a proposal is available from the person monitoring the proposal.

6. Additional funds--usually small--can be requested, and the original budget request can be reduced if necessary.

7. The research grant is the right of the researcher and not the institution to which the researcher is attached.

In conclusion, it is submitted that vocational educators have a long way to go to develop a real research capability; that an interdisciplinary approach to vocational education problems is looked upon with favor; that the vocational program of research is not a moonlighting business, and that vocational education must get geared up to the research job in terms of competent personnel, time, and financial assistance.

Vocational educators must administer research programs well, for whatever is done must reflect the quality of vocational education's product and not the mass production of more of the same.

ORGANIZATION FOR RESEARCH IN TECHNICAL EDUCATION

by
Leon Sims*

My remarks are limited to the organization for research in vocational-technical education currently in effect for the state of Florida. Perhaps you can draw some useful parallels, or develop some ideas appropriate to your own situation, from this presentation.

The Florida Vocational Program Research Coordinating Unit has been established as a part of the Division of Vocational, Technical, and Adult Education of the State Department of Education. The purpose of the unit is to coordinate and encourage needed studies in vocational-technical education.

The unit seeks to accomplish its purpose by providing interested agencies with information and assistance in the preparation of research proposals, securing grants, coordination of research effort, and dissemination of the results of completed studies.

In addition, the unit provides other services, such as conducting seminars, compiling and disseminating abstracts of studies, identification of resources, compiling data on vocational needs and program potential, and providing consultative services.

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**University of Florida.

RESEARCH IN VOCATIONAL AND TECHNICAL EDUCATION

by

J. Paschal Twyman*

More and more we are recognizing the fact that research is one of the valid techniques by which we can seek tenable solutions to pressing problems. Any adequate definition depends upon both the techniques utilized and the purposes for which the research is conducted.

Whereas the Federal Government has for many years been very successful in providing funds for development and training, it was not until very recently that funds were available for associated research and evaluation.

Research is marvelously broad in its applications. From the standpoint of the administrator of technical education, then, the problem at hand is one of determining something about the nature and scope of activities designated as research and the applicability of these activities to the problems in technical education. Finally, we should probably explore some guidelines for the preparation of research proposals.

Overview of Research

Just what is the meaning of the term, "research"--a term which has turned into such a status symbol?

We might suggest, first, that research probably achieved much of its popularity because of its useful connotations rather than because of its specific denotations. It has been, depending upon the particular frame of reference used, applied to such activities as fact-finding, pupil-accounting, arranging of teaching schedules, etc., as well as to broad problem-solving activities like testing the effectiveness of particular teaching techniques, the impact of particular curriculum innovations, etc.

A general definition of research--"Research is a systematic and refined technique of thinking and acting, employing specialized tools, instruments and procedures to achieve a more adequate solution to a problem than would be possible with ordinary means"--places the emphasis on the problem-solving activity; and by its use, I am implying that the primary value of research is in providing new insights, demonstrating new relationships among variables, and, in essence, describing our social environment in some meaningful way.

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Adequate research is characterized by:

1. Objectivity

2. Measurement

3. Statement of questions or hypotheses

4. Development of a design or plan of attack which will provide answers to these questions or provide for a test of these hypotheses

5. The making of decisions regarding questions or hypotheses tested.

6. A continuous search for new data or concepts bearing upon the original problem

Types of Research

We have talked about research according to the following categories: historical, descriptive, and experimental.

Historical research is designed to explain, "What has been." This type of research is predicated upon the assumption that we can better understand today's problems if we know something about past trends. Characteristics include objectivity (attempts to report on the parade of events that have occurred rather than to justify them), inductive logic (the investigator seeks to accumulate all facts from which he then develops his ideas, concepts and principles), and non-repeatability. Sources of data include both primary and secondary sources.

Descriptive research deals with, "What is." It is predicated upon the notion that it is necessary to know where we are and what we have accomplished in order to know what we need to accomplish. It also provides a picture of things as they are at the time of the study.

Experimental research answers the question, "What will happen if we manipulate certain variables and control others?" It cannot indicate what should be. Variables are classified as independent, intervening, or dependent.

With this background in mind, let us turn now to some more basic and detailed questions concerning research: (How does one do research?)

1. First of all, a decision should be made concerning whether research is needed in any given situation. Any problem finally chosen should meet the following criteria:

a. Be a problem in which the investigator has a high degree of interest.

b. Have general interest and social significance.

c. Be a problem for which the data is available.

d. Be manageable in terms of time and effort required.

2. Once we recognize a problem, we define it as a problem for <u>someone</u>. This means that we must consider questions of sample and population.....

3. Data collection

a. Questionnaires--open ended, closed ended

b. Interviews

c. Behavioral observation

4. Data analysis is a key part of the research process. It should be noted that information in a research study is determined by how the data is collected but defined by the method of data analysis. Steps in data analysis include tabulating (putting into appropriate form) and subjecting it to some form of quantitative procedure, i.e., assigning numbers to the data. Data should be analyzed in terms of the objectives, hypotheses, or questions of the study.

5. Interpretation--Conclusions and Implications

a. The major part of the study has to do with the conclusions. This is more than just summarizing the obvious factors--it requires insightful interpretation. Any reports prepared on the research should be pointed toward a particular audience and should give enough detail regarding procedures so that anyone else using the same approach could achieve similar findings.

The overall purposes of research are twofold: to solve some immediate problem and to develop some theoretical structure which will serve as a roadmap for others with comparable problems at some future point in time.

PART XI

PUBLIC RELATIONS IN TECHNICAL EDUCATION

PROVIDING PUBLIC INFORMATION

by

Burr D. Coe*

The purpose of area vocational schools is service to the community through vocational education and training programs of broad scope; however, the job can't be done in a vacuum--buildings and equipment are needed. Therefore, a public relations program is a must since the people need to be convinced of the necessity and value of the vocational education facility.

The heart of the problem in mustering support for the program is "getting the people to tell the people who control the funds of the need for vocational education." Providing information to the public can be done in several ways:

1. Through the newspapers, which are considered--by many public relations studies--to be the most effective media for telling any story.

2. By enlisting and respecting the support of the newspapers; the papers can provide support through editorials, feature stories, and general news stories.

3. By accepting public speaking engagements and appearing before civic organizations; this is another excellent way of getting the message across to the public.

4. Through printed materials of a promotional nature; these might include guidance booklets, program brochures, and/or annual reports. These are costly and perhaps provide the least return for the monies invested.

5. By utilizing advisory committees. Advisory committees provide an educational value, an expertise value, and a placement value to the school since the committees' members are associated with the unions, industry, and management.

6. By conducting surveys to determine the expressed needs of students and employers so that the programs are kept modern and in line with community needs.

7. By cooperating with other agencies--educational, industrial, and institutional--in the community.

8. By encouraging change in existing statutes, policies, and practices which hamper the expansion of vocational education

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programs. This can be done by seeking the support of and cooperating with national, state, county, and local legislators.

9. By identifying trends and preparing for the changes which are inevitable.

At the present time, vocational education programs depend primarily on local support, and contacts with the local populace must be maintained. Public relations is a must!

PUBLIC RELATIONS FOR PUBLIC EDUCATION

by
John B. Moullette*

Keeping the public informed about the schools is a continuous responsibility of school administrators. However, this responsibility is often interrupted or neglected by the pressures of the administrators' busy days. Consequently, the public suffers and is not as fully informed as it should be and must be today in a societal area of responsibility where the complexion and the goals are swiftly changing.

The front pages of our newspapers attest to the essentiality of educational public information programs, and the professional educator is taking more time away from his traditional and accepted educational responsibilities in order to explain or defend a position which might have been handled more fully and more competently in a pre-planned public information program.

In order to obtain public support for education and especially vocational-technical education, an effective public relations program is needed.

The educational public information or public relations program should make education better understood and better known.

Walter R. King, Special Assistant for Public Relations to the New York State Commissioner of Education, submits that:

> Public relations should not only be the voice of management in education, it should have a voice in the management of education.

Public relations in public education is that function of administration and management which gives the same organized and careful attention to the asset of good will as is given to any other major asset of the business of public education.

In 1950, the American Association of School Administrators devoted its 28th Yearbook to "Public Relations for America's Schools" and established the following comprehensive objectives: (1) to inform the public about the work of the schools; (2) to establish confidence in the schools; (3) to rally support for proper maintenance of the educational program; (4) to develop awareness of the importance of education in a democracy; (5) to improve the partnership concept by uniting parents and teachers.....; (6) to integrate the home, the school, and the community in meeting the needs of the children; and (7) to correct misunderstandings as to the aims and objectives of the schools.

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The list is broad, and direction has been left to those interested but not contracted for this educational responsibility.

In the area of identifying publics, the interested public relations practitioner can only identify three: (1) those who oppose public education; (2) those who are indifferent to public education; and (3) those who support public education.

They are uncertain why the publics fall into these categories; and they feel, too, that using the same materials, the same methods, and the same information simultaneously to reach these audiences is ineffectual.

The method of attack is wrong. The "shotgun" approach must be abandoned in favor of the logical approach wherein samples of the population's attitudes for and against public education are polled and wherein conceptions and misconceptions of public education are learned as well as the values of the persons who hold these attitudes.

Basically, a public relations program must be clear-cut as to purpose and sufficiently financed to serve the purpose; and it ought to center on three central endeavors: publicity, communications (that activity that transmits policies and engenders closer relationships and willing cooperation among personnel), and the training of upcoming PR practitioners.

Sometime ago, Melvin L. Barlow wrote in the AVA Journal of the dissolution of vocational education in Any City, and he warned:

> No time for public information is a dangerous disease.

With this in mind, it is recommended that educational administrators:

1. Learn the attitudes of a variety of target groups toward vocational education.

2. Establish and budget for a formal public information program.

3. Appoint a public information practitioner with abilities in writing and publicizing, communicating, and training.

4. Permit the PR practitioner to have the same latitude for operation as any other administrator would have.

5. Don't burden the practitioner with tasks not directly related to the described public information responsibilities.

PART XII

SUMMARY OF INSTITUTE PRESENTATIONS

SUMMARY OF PRESENTATIONS OF THE
COLORADO INSTITUTE
by
Jack Annan*

The Role and Responsibility of Leaders

Leadership is defined as an expression of the relationship between the leader or the guider and the follower.

A. Situations that must be handled by a leader in decision-making:

1. Time is great essence and someone far above us wants the decision and wants it immediately.
2. A person makes a decision and then sells his decision to his colleagues or his followers.
3. A person makes a decision and then it is subject to change.

B. Responsibilities of a leader in any situation:

1. To improve the quality of all the decisions made under his guidance.
2. To develop teamwork and good morale among his colleagues.
3. To further the development of the members of the group.

Rationale and Need for Technical Education

Effective technical education produces graduates with the following characteristics:

1. Capable of entering an occupation requiring scientific knowledge and skills.
2. Able to progress rapidly on the job.
3. Can pursue additional course work.
4. Qualified to handle communication skills and practices of desirable citizenship in the home and community.

The shift in educational emphasis is from "doing" to "thinking plus doing."

Placements of technicians show that:

1. Most states have rather complete records of placement.

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2. Well prepared graduates of technical programs are in great demand.

3. It is important that placement and follow-up records are gathered and maintained.

4. Placement is a part of evaluation essential for an effective technical education program.

Effective technical education:

1. Must be based upon the knowledge and skills essential for those occupations supporting professionals or for occupations which require comparable preparation.

2. Adequate time must be allotted to specialized subject matter--approximately 1,000 clock hours.

3. Particularly in a comprehensive institution, administration must understand and fully support the program.

4. Placement and follow-up of graduates is a vital part of program.

Labor Market and Growth Trends of Population

Those who plan a program of technical education and develop facilities only for the local areas are making a tragic mistake. Not too many years ago, we were taught that the primary responsibility was to take care of the needs of the community for skilled workers and other individuals. Today, in technical education, this is no longer true. The community is our county, our state, and in many cases, an area and conceivably the nation.

Population trends in the age group 18 to 21:

1940	1.8 million
1965	12.1 million
1980	19.6 million

This shows the increase in population that we must train.

The change in the labor force numbers is also very revealing in the age group 13 to 34.

1950-60	366,000
1960-70	6,606,000
1970-80	303,170

Figures also show that in the 14 to 19 years of age group in 1965, there will be 14 percent more females to train as compared to 8 percent more males. This means, to us in technical education, that we will be training more women.

We also know that women enter the labor market early; then in many instances drop out when they are raising families, and then come back into the labor market at a later date. However, the trend is changing in that large numbers of the women entering the labor market are staying.

The percent of our population that was unemployed is as follows:

1929	3%	
1931-39	5%	
1949	6%	
1951-53	3%	(Korean War)
1954	6%	(After Korean War)
1962-66	5-6%	

Those in economics tell us that in all probability the country can expect to have 3 to 5 percent unemployed at all times. The Manpower Programs will help train many of these people.

As the farm population continues to move to urban areas, these people must be retrained for new jobs.

Sources of Technicians

We are all aware that new industries are rising, new processes are being developed very rapidly, and more and more jobs beyond the complexity of the skilled tradesman or craftsman are coming into the picture.

The sources of technicians are listed below:

1. On-the-job trainees.
2. The ranks of skilled craftsmen.
3. Those who have acquired technical competency through various types of study.
4. Schools conducted by the armed forces.
5. Dropouts from college engineering courses.
6. Engineering graduates occupying technician positions.
7. Technical institutes, junior and community colleges, and vocational and technical schools.
8. Workers who attend part-time courses while employed by industry.

We need better qualified technical institutes and/or programs that begin at the point where the engineering colleges have stopped.

Survey Methods Employed in Denver

Since 1950, Mr. R. K. Britton has surveyed Denver high school graduates and has worked with high school vocational and career counselors in developing a questionnaire to be used in interviewing employers and graduates. The counselors personally took the questionnaire to the employers and talked with the employment manager and the supervisor of the individual.

The Board of Education actually finances this survey. A staff of about 10 people survey about 1,700 post-graduates each year who are working in industry. The counselors in turn collect and summarize the data. The results point out the strengths and weaknesses that relate to any particular high school, and work is done to strengthen the areas which need help.

It is felt that this type of survey pays dividends. If the future students can be helped by introducing a revision in the training program, then much money can be saved by the city and county of Denver and by industry in that area, by providing new courses.

Panel--Assessment of Present and Future Needs in Technical Education

A summary of the panel discussion indicated the following:

1. We should be doing what is needed in the technology by industry and employers.

2. There should be a need in the local area or within the state before courses, designed to meet that need, are offered.

3. In some areas, 50 percent of the population is mobile, and many move after they are trained.

4. Local surveys are important, mainly in the contact that is made with industry.

5. The Chamber of Commerce can aid in gathering information.

6. The State Industrial Commission and the Department of Labor are also able to aid in determining future needs.

The Employer's Need for Technicians

Our society is built on the "Indians," not the "chiefs." This means that we need more people in the vocational types of programs. Too often,

a college education is emphasized to the point that people believe anything else is second-rate. This attitude is wrong.

Reasons why well-qualified young men are discouraged from entering any of the skilled trades are as follows:

1. The attitude of a few school administrators, counselors, and teachers, who believe that any position other than professional is second-rate.

2. The attitude of some people who believe that it is unnecessary to use your head if you use your hands.

3. The attitude that all education is confined to the college campus and that you must have a college degree before you can seek employment anywhere.

4. The attitude of many adults and students toward hard work and dirty hands, which are still honorable and necessary.

5. The absence of a good public relations program by industry, portraying the skilled trades and their true contribution to society.

Apprenticeship is one of the finest opportunities offered to youth. It should be treated as such and granted only to those who are the very best and the most worthy.

There is a definite need for skilled tradesmen in our society, and industry is presently beginning to become aware of the shortage that exists. We need suggestions and comments from educators who realize that there is an urgent challenge before us.

Metro Dropout and Reclaiming

Too often it is found that a dropout is not really a dropout. He is a push-out. There are people who will not realize that there are two sides to the coin--the student's and the teacher's.

In a Denver survey, it was found that of 2,300 high school dropouts, only 209 had IQ's below 80 and that 573 had IQ's over 110. This showed that poor achievement was not the sole reason for dropouts.

A school called the Metropolitan Youth Center was established to take persons who had dropped out of the full-time school. It was designed on a "work at your own speed" basis.

Personal counseling and job placement is provided by the school.

Plans are being developed for further expansion of the facilities for this program.

Description of the Technical Education Student

Technical education must be concerned with the concept that different levels of programs must be provided to meet the variety of needs of our society, both from the industrial business world and from the individual ability concerned.

If we agree with the concept that future post-high school institutions are going to be as commonplace as our high schools are today, then newly established technical institutions must be located close to where the students live. These should be low-tuition institutions so as to make it possible for people from the lower economic levels to benefit from vocational-technical education.

Points concerning the technical education student are as follows:

1. Too many times we look for students in the craftsman and technician areas where their fathers are employed.

2. We should look for future students from many different areas. Many will come from the working and labor class of people.

3. Many future students will come from professional families.

4. Only students who can profit from technical education programs should be enrolled.

5. An institution needs a program with size enough to offer a variety of programs.

6. A good technical school can make a good technician out of an average student.

7. Programs must be established for persons of all age groups for retraining and upgrading.

8. We need to take more responsibility for a broader spectrum of student interests and abilities and of occupational programs so that we offer programs that will fit the various abilities, backgrounds, and aptitudes of our society.

9. Courses must be offered in mathematics, science, and English to help build up the students' backgrounds.

Factors for consideration in attracting and selecting students are expressed in the following statements:

1. The entrance requirements must be communicated to the high school counselors and the community at large.

2. Previous research must be reviewed concerning the selection of students.

3. Students should be made aware of the dollar value of technical education.

4. Basic qualifications for students should be established for each occupational program.

5. An effective device to attract students is by means of an attractive brochure.

6. Newspaper publicity is beneficial.

7. Aptitude test scores aid in student selection.

8. Individual counseling of students prior to enrollment is beneficial.

9. Upon organizing an institution, students themselves can be asked to help set up the student organizations and activities.

To be successful, an institution must clearly define its objectives. It must communicate these objectives, and it must carefully perceive the type of student that it wants to serve.

Administrative Structure of Technical Education Institutes

Ten years ago, there were fewer than 500 public institutions offering post-secondary occupational education in America. Today, there are approximately 1,000. Ten years from today, using the same rate of growth, a conservative estimate would increase this number to 2,000 institutions offering vocational training after high school.

These institutions may be grouped according to five types of organizational structure: (1) the high school; (2) the vocational-technical school; (3) the technical institute; (4) the community or junior college; and (5) the university. Under the Vocational Education Act of 1963, all of these institutions meeting an area criterion may also be classified as an "area vocational school." Each of these schools performs a necessary function in post-high school occupational education. Their unique characteristics may be described as follows:

High School--A secondary school offering post-secondary occupational programs, in addition to its regular secondary vocational curriculums.

Vocational-Technical School or Institute--A school specializing in occupational education which may operate as a high school, although it is usually a post-high school institution. It may be administered by a local school district, a county school system, or it may be operated as a state school.

Technical Institute--A highly specialized single-purpose institution offering training in technical occupations. Emphasis is placed on the application of the functional aspects of science and technology.

Community or Junior College--A two-year college providing short and long-range occupational training, as well as academic college parallel programs.

University--A division or department of a four-year institution offering occupational curriculums designed to equip persons for useful employment in recognized occupations which require less than a baccalaureate degree for entry.

Some beliefs concerned with technical education are listed below:

1. I believe occupational education is part of the total American educational system.

2. I believe that teaching is the most important vocation of mankind.

3. I believe that every student has a creative spark and that development of this spark is the teacher's most sacred task.

4. I believe there are no poor teachers, only unawakened teachers.

5. I believe there are no poor students, only unmotivated students.

6. I believe in men rather than buildings, in values rather than statistics.

7. I believe that not only the program of instruction but also the institution operational policies should be student-centered.

8. I believe the human element in challenge can motivate individuals to achieve much beyond their predicted capabilities.

9. I believe that people are willing to involve themselves in difficult situations and problems to the limit of their capacity, but often we underestimate the individual's capacity for growth.

10. I believe that man is what he thinks he is and that he may become what he wants to become.

11. I believe an institution should be carefully planned and programmed, not only for its purpose today but also for its future for tomorrow.

12. I believe that area vocational schools and community colleges will carry the largest responsibility for occupational education in the United States, or at least they are doing so today.

13. I believe that occupational education in America can best be accomplished in specialized institutions, such as technical colleges and institutes, but it is more likely that it will be done in the comprehensive institutions.

14. I believe that quality technical schools can produce quality technicians from students of average academic ability.

15. I believe that technical schools need to concern themselves with teaching much more than technologies.

16. I believe that occupational education will have to be made co-equal to academic education.

17. I believe that community colleges will have to develop more effective methods of providing occupational programs.

18. I believe that every citizen has the right to at least two years of college education.

19. I believe that too few of our youths go to college, far too many of them drop out of college, and far too many drop out for the wrong reason.

Facilities and Equipment for Technical Programs

In the establishment of a technical program, it is necessary to complete a master plan early in the development of the program. Some of the planning details are as follows:

1. Determine how many students there are in the area to be served.

2. Determine the enrollment of the institution.

3. Locate the main campus in the center of the population concentration.

4. If necessary, locate other campuses on the outer fringes of the area.

5. Locate the campus near freeways that are easily accessible.

6. Locate the campus where it can best meet the needs of the students.

7. A rule of thumb for basic operating costs is $1,000 per full-time student.

8. A rule of thumb for equipment costs is $2,200 per full-time student.

9. One might allow 130 square feet of building space per full-time student.

10. Many times it is wiser to rent temporary buildings and spend ample time in planning.

11. Plans should be made to landscape the campus to make it attractive.

12. Laboratories should be built for many purposes.

The department heads should be given the authority to make up the proposed equipment lists for each year. Many times, the department heads have to be encouraged to spend the finances instead of discouraged. Each department should take the full responsibility for ordering equipment, with some administrative guidance as to how much money it can spend from the budget.

The key to illumination of buildings without windows is to have sources of light very high in the corridors. This illumination should equal one hundred foot candles.

The trend now, particularly in the warmer areas of the United States, is toward air conditioning. This enables institutions to utilize the buildings throughout the summer. The environment is the key factor as to whether or not the institution will have the adequate enrollment to operate in the summer.

Depending upon the type of technical education program, a suggested ratio for laboratories and classrooms is 55 percent and 45 percent respectively.

Many institutions are going toward a fairly elaborate board room and a separate conference room.

Institutions that have a highly organized student body that engages in extra-curricular social activities and athletic and physical education programs, find it necessary to have additional student officers' and conference rooms.

A budgeting figure to keep in mind for developing a library is $100 per student enrolled.

To facilitate the food problem, many small institutions use dispensing machines. It is very helpful to have a full-time attendant stay with the machines to supply and clean them and to clean the area. Another course of action is through a cafeteria. The suggested figure the first year for cafeteria supplies is $75 per student and $50 the second year.

Panel--Development of Laboratories

A summary of the panel discussion indicated the following:

1. The institution must work very closely with the architects.

2. The teacher should assist to some extent in the planning.

3. Care must be taken to include everything needed in the architect's preliminary plans.

4. Possibly 125 square feet of space for study is adequate.

5. High quality equipment and materials should be purchased.

6. Plans should be made far enough ahead so that the requisitions can be approved by the state department if it reimburses part of the purchase cost.

Conference Facilities

1. A common facility needs to be provided for use by both staff and students, or there could be multiple conference rooms.

2. The institution should offer its facilities for community conference use. A fine public relations image is provided.

3. A small kitchenette adjacent to the conference room is a helpful facility.

Library Facilities

1. It is unique and helpful to the students to have 100 percent open stacks.

Anticipatory Planning

1. Constant planning for the future is necessary.

2. The institutions must do all they can to recognize the needs of the future.

3. Plans should be made to teach some future jobs in a different way, using a more modern approach.

Cafeteria

1. A good possibility is dispensing machines.

2. Small cafeterias in many institutions are prevalent.

3. Some institutions utilize food service instruction in connection with the cafeteria facilities.

4. A cafetorium can be located so as to use it as hallways, study areas, or lounge areas when it is not being used to serve meals.

5. The absolute minimum space to allow per student is fifteen square feet with twenty-five square feet being more realistic.

Program Patterns and Curriculum Development

The central concern of technical education is with a body of knowledge rather than with specific jobs.

The basic problems in nearly every vocational-technical program in the country are those of curricular development and improvement of the overall instructional program.

The trend is seemingly toward more and more state and federal programs with little emphasis on local effort. There is a need for starting a reversal of this trend because:

1. The local teachers are the factors for success or failure of the program.

501 to 101

2. The local groups receive curriculum materials from state and national groups, but the local directors and administrators have the difficult task of getting this material in a form that can be taught by the instructors.

3. State and federally-prepared materials are not regularly used.

4. Many times, the buildings and equipment are not used in an effective manner.

Visual aids prepared by the instructor are used more effectively than ready-made purchased units. School time should be allowed for instructors to prepare these teaching aids. The staff should be employed on a twelve-month basis to be effective.

The following statements pertain to promoting a strong, continuing student appeal and/or interest:

1. The student should be helped to realize that his learning is going to aid him in accomplishing his ambitions.

2. The student should be encouraged to feel that he can "get it."

3. The student's curiosity should be aroused.

4. The student's desire for praise and recognition for good work should be stimulated.

5. The student's fear of ridicule, punishment, or loss of self-respect should be used advantageously.

6. The teacher should capitalize on the built-in drive known as "challenge."

Effective technical programs should include the following features:

1. The inclusion of shop and laboratory experiences in the very first stages of the program.

2. The use of applied and related academic courses instead of the "canned academic courses."

3. The use of knowledgeable teachers.

4. Some knowledge and concern by the faculty for understanding the ways the present adolescent sub-culture functions.

5. The development of an active placement service.

6. The establishment of a businesslike approach in dealing with students.

7. An awareness of the fact that the general appearance of the school has some bearing on the students' pride in attending.

8. Provision of counseling services and remedial programs.

9. Assistance to student in understanding his objectives and helping him to overcome his major frustrations.

10. The acquaintance of the student with the use of the independent research and development aspect of his curriculum early in his program.

11. The use of student evaluation sheets to assist in finding weak spots in the instructional program.

In training for skilled jobs, we are trying to develop technical and manipulative skills for job-entry into a single trade. However, in technical education, we are developing technical skills for entry into any one of a cluster of related technical occupations. There are different types of technicians as listed below:

1. Low level, narrow scope.

2. High level, narrow scope.

3. Industrial technician.

4. Engineering technician.

One of the factors to be considered in curriculum development is pre-planning by job clusters of various technicians.

In developing a curriculum, both the needs of industry and our human needs must be considered.

We must get more common understanding and build some strength in technical education through future curriculum development where it can be more highly respected by industry and can achieve a permanent place in the whole educational spectrum.

Procedures for Curriculum Development

Curriculum development in an institution should include the following:

1. Set up the objectives for the institution.

2. Determine the length of each course offered in each program.

3. Allow some freedom for electives.

4. Consider the entrance requirements of the institution.

It is important to watch very closely the needs as requested or stated by defense and industry. We need to know something about the replacement and growth in industry in order to adjust our curriculum to it.

To determine the need for various programs, we can secure the aid of lay people in the area and also work with the Employment Securities Commission. The involvement of more people in the community through the layman's approach often gets valid results. Many times, companies will aid in surveys to assist the technical institution in establishing and revising its curriculum.

It is essential that we have a continuous effort to anticipate the needs of individuals. Education is never terminal--it is continuous throughout a person's entire life.

Most people in technical education believe that the majority of technicians will be in the need of some upgrading at least three to five times during their work span. Therefore, we must think about and anticipate future needs.

Creativity, imagination, and a boldness or a desire to do things a little differently are the things that are required of technical education to bring it to the point where it should be. In curriculum planning, we must consider what we can give the individual in terms of technical skills, knowledge, and an appreciation of the program that will make him more productive in the society in which he lives.

Staffing Technical Education

One of the major responsibilities of an administrator or a supervisor of a technical education program is the matter of staffing. This is one of the areas on which we need to place a great deal more emphasis.

Factors to consider in staffing a technical education program are as follows:

1. Selection of the best man available.

2. The enrollments or the anticipated enrollments in the program.

3. The necessity to select, at times, a man with several competencies.

4. Whether the technical program is a day school program or an evening adult and extension program.

5 Work experience of the personnel.

6. The type and size of area where the man will work.

7. Whether program is ECPD accredited.

8. The type of degree offered by the institution as a factor in determining the educational achievements of the instructional staff.

9. The image of the institution that is projected within the community.

Qualifications of a Technical Instructor in a Technical Education Program

High School Technical Program Instructor

1. Should preferably have an associate degree with a high school diploma a must.

2. Should be encouraged to move toward a full degree if he does not have one.

3. Should have some preparation in the field of professional education or should have it provided as inserts in the early stages of his teaching career while he is on the job.

4. Should be occupationally oriented.

5. Should be the best person with regard to education and work experience that the available dollars can attract.

6. Should be a person with the necessary work experience since it is difficult to add work experience after a person is employed.

Post-High School Instructor

1. Should probably have a baccalaureate degree or be willing to work toward it.

2. Should have the necessary productive varied work experience.

3. Should have adequate technical knowledge.

4. Should have the opportunity of obtaining additional hours in professional teacher education after employment.

5. Should be able to apply what he teaches.

6. Should be the best man that can be obtained for the available money.

Supervisors and Administrators

1. Should have a knowledge of technical education as part of the total structure of vocational education and where the program of technical education fits into the broad field of all education.

2. Should have at least a baccalaureate degree and usually some hours beyond.

3. Should have potential for growth.

4. Should train their understudies.

5. Should make effective use of the principles of human relations.

6. Should have varied work experience.

7. Should have (many people believe) at least five years of vocational teaching experience.

Responsibilities of the Supervisor or Administrator

1. Leadership responsibilities include:

   a. Encouraging innovation and creativity in others.

   b. Being an intellectual skeptic.

   c. Building confidence as a result of accomplishments among our colleagues.

   d. Recognizing the ultimate importance of dealing with co-workers as human beings.

   e. Realizing that the group process basis is probably the best way to get the job done.

f. Recognizing leadership ability in other staff members and developing it.

2. Personnel management responsibilities involve:

   a. Orienting new staff members.

   b. Planning school matters cooperatively.

   c. Utilizing outside contacts such as advisory groups.

   d. Evaluating the staff periodically.

   e. Providing opportunity for each staff member to contribute to growth of the school programs.

3. Instructional supervision responsibilities include:

   a. Visiting the classroom, laboratory, and shop.

   b. Counseling with the staff concerning professional improvement.

   c. Having a sound basis for re-assignments, promotions, and transfers.

   d. Establishing criteria for evaluating instructor performance.

4. Business management and financial responsibilities include:

   a. Having knowledge of local, state, and federal regulations.

   b. Preparing budgets.

   c. Planning new buildings and making allocations for maintenance of facilities.

   d. Accounting for expenditures.

Financing Technical Education Programs

Investment in Personnel

Most vocational educators believe that the investment in personnel is probably the most valuable investment this technical age can make. The extent to which one invests in personnel determines the dividends one receives. Industry conducts educational programs for its labor force

to improve the quality of its personnel. Technical education should also invest in its programs to improve the quality of its personnel who prepare skilled workers for industry.

Factors that Influence Budget Planning

It is most important to consider the factors that will particularly influence budget planning in establishing a technical institute. Some of these are as follows:

1. Costs vary greatly depending upon the area of the country.

2. If there is a strong union labor force in the area, prices will be higher.

3. In the engineering curriculum, about 25 percent of the total cost of the installation is allotted to equipment.

4. The technical institute that is engineering-oriented in a heavy concentration of unions uses the figure of about $5,000 per student as the base figure.

5. One of the most important considerations in selecting a site for a newly established technical institute is space for adequate parking facilities.

6. Technical education should include breadth in the field of social competency, citizenship, physical education, sports, and club activities. Space needs to be provided for these.

7. The site should be near adequate freeways and highways.

8. Sewage, power, and drainage must be considered.

9. In the long run, the site is the cheapest part of the construction.

10. For a technical institute, the annual recurring costs are in the vicinity of $700 per year per student.

11. In figuring general expense items such as telephone, chalk, postage, and others, the rule of thumb figure is $20 per student per year.

12. The publication by J. N. Morris, Planning A School Maintenance and Repair Program, issued by the American Institute for Architects, might be useful in planning a school.

It suggests to figure, on a national average basis, 16 cents per square foot per year on recurring repairs; 7 cents per square foot per year for replacements of things that burn out, wear out, and break; and 8 cents per square foot per year for improvements.

13. The number of administrators and supervisors necessary to fulfill the technical programs' objectives should be employed.

14. The general rule of thumb is that the ideal teacher to student ratio in the manipulative skills is about one to fifteen. In the general liberal cultural elements of the program, it might be thirty students per instructor; however, this may vary greatly.

15. A strong public relations program must be in operation before the school is built and the curriculum is organized.

Supervision and In-Service Teacher Education

In-service teacher education includes any activity made available to the practicing teacher that will enable him to become a better teacher.

In some programs, it is apparent that there is a need for revising existing curricula or developing new curricula for the preparation of teachers.

Some purposes served by student ratings of instructors are as follows:

1. Serve as a means of expression of student opinion affording students a feeling of participation.

2. Furnish research data on student ratings, student-faculty interaction, and on the source and nature of student opinions.

3. Furnish specific diagnostic information to the instructor about various aspects of his performance as viewed by his students.

4. Furnish a source of motivation for an instructor to want to improve or maintain good instruction.

5. Furnish data of an objective type for administrative purposes in evaluating performance of staff members.

Accreditation

At the present time, the National Council on Accreditation of Teacher Education is charged with the responsibility of accrediting institutions offering teacher training programs. One of the big difficulties in technical education is the fact that there have been no established standards that have been circulated nationally to identify the criteria to be used in accrediting programs for preparation of teachers of the various technologies.

Establishing Research and Development Needs

The need for research and development in the field of technical education is greater than in any other educational field that now exists. This is partially due to the fact that this is a relatively new facet in our total spectrum of education. It is also due to the fact that we do not have an adequate number of competently trained researchers in the field of technical education.

Manpower Studies

One of the most critical needs for collecting data today is in the area of information relating to the need for technical manpower.

It has been found that too many times the term "technician" is applied across a broad spectrum of levels of activities in a particular corporation. Care must be taken to gather information that relates to data applicable to the proper interpretation of the classification of technician.

Data from manpower studies can be tremendously important to the local administrator of a comprehensive community college or technical institute. It will enable him to structure curricula that will be in the greatest demand in the local community. However, the demands of the state and nation must also be considered.

Student Selection Studies

An important facet of technical education that needs much research is student selection. More schools need to develop specific criteria for the selection of students for technical education programs. Instruments and techniques that help in determining the probable success of applicants for post-high school technical education should be identified through research.

Teacher Preparation Studies

A great deal of work remains to be done to develop a curriculum for technical teachers. Experimental research programs are needed to investigate the kind of teacher preparation programs that are best suited to developing technical teachers.

In view of the great shortage of qualified technical teachers, new methods have to be developed to re-train persons who have received basic training in other disciplines and to prepare them to be teachers in the various technologies.

Other Research Needs

A checklist of some important research needs are listed below:

1. The impact of the change of the labor market.
2. The effect of automation on our programs.
3. The areas of new technologies.
4. The teaching methods and instructional innovations that are best suited to handle the training needs.
5. Updating our instructional staff.
6. The areas of placement and follow-up.
7. The use of advisory councils.

OTHER CENTER PUBLICATIONS

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agriculture Education, "Program Development and Research.

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

"Systems Under Development for Vocational Guidance." - A Report of a Research Exchange Conference.

"Guidelines in Cooperative Education."

"A Survey of Vocational Education Programs for Students with Special Needs."

VT 002 930

VT 002 936 ED

Compilation of Technical Education Materials.

Emerson, Lynn, comp.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

66

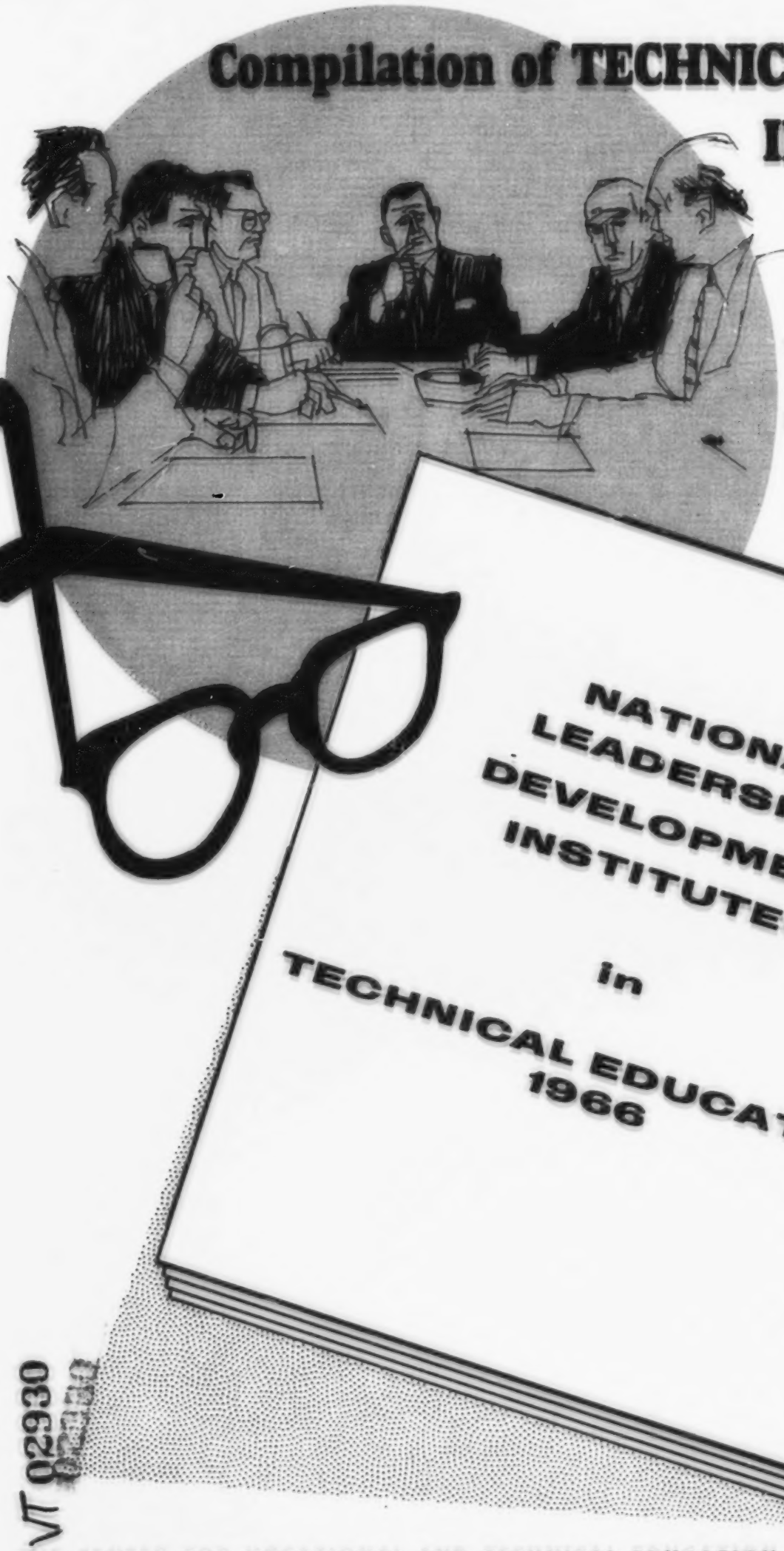
EDRS Price MF-$0.27 HC-$7.36 184p.

*RESOURCE MATERIALS, INSTITUTES (TRAINING PROGRAMS), *LEADERSHIP TRAINING, *TECHNICAL EDUCATION, *SUBPROFESSIONALS, CURRICULUM DEVELOPMENT, PROGRAM DEVELOPMENT, EDUCATIONAL FACILITIES, TEACHER QUALIFICATIONS, OCCUPATIONAL GUIDANCE, PUBLIC RELATIONS, FEDERAL AID, EDUCATIONAL RESPONSIBILITY, INSTRUCTIONAL PROGRAMS, EMPLOYMENT TRENDS, BIBLIOGRAPHIES,

The material was selected and prepared for use in the National Leadership Development Institutes in Technical Education conducted by Colorado State University, Oklahoma State University, Rutgers State University, University of Florida, and the University of Illinois and coordinated by The Center for Research and Leadership Development in Vocational and Technical Education, at The Ohio State University. The material is grouped into 12 areas relating to the needs, responsibilities, organization, and implementation of technical education. Articles are included on -- (1) the skills, knowledge and professional level of technicians, (2) the relationship to other occupational fields, (3) the types, content, and enrollment of present training programs, and (4) available employment. Other articles show the responsibilities and roles of government agencies, state departments of education, local boards of education, vocational educators, administrators and others in establishing quality programs. Problems and principles of curriculum development are presented. Material is provided on facilities and equipment, teacher qualifications, financing, and other topics. "Technology-Resource Center for Vocational Technical Education," prepared by Rutgers State University and a bibliography on technical education are included. There are two supplementary volumes (VT 002 930 and VT 002 938). (HC)

ED015348

Compilation of TECHNICAL EDUCATION INSTRUCTIONAL MATERIALS



Supplement I

NEW and REVISED
INFORMATIONAL RESOURCES

VT 02930

THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION / THE OHIO STATE UNIVERSITY
980 KINNEAR ROAD / COLUMBUS, OHIO 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Adult and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing a consortium to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and in-service education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Research Information Center located in the U. S. Office of Education;

7. To provide educational opportunities for individuals contemplating foreign assignments and for leaders from other countries responsible for leadership in vocational and technical education.

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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COMPILATION OF TECHNICAL EDUCATION INSTRUCTIONAL MATERIALS

SUPPLEMENT I
NEW AND REVISED INFORMATIONAL RESOURCES

NATIONAL LEADERSHIP DEVELOPMENT INSTITUTES
in
TECHNICAL EDUCATION

SUMMER 1966

Compiled by

C. J. Cotrell
and
I. E. Valentine

THE CENTER FOR RESEARCH AND LEADERSHIP
DEVELOPMENT IN VOCATIONAL AND
TECHNICAL EDUCATION

The Ohio State University
Columbus, Ohio 43212

April 1967

PREFACE

In the summer of 1966, 195 leaders and potential leaders in technical education, representing 46 states and Puerto Rico, participated in five National Leadership Development Institutes in Technical Education. The institutes were conducted by the following institutions and directors to whom we are very grateful: Colorado State University, H. L. Benson; Oklahoma State University, Maurice W. Roney; Rutgers - The State University, Milton E. Larson; The University of Florida, E. L. Kurth; and The University of Illinois, M. Ray Karnes. The national consortium of five cooperating institutions was coordinated by The Center for Vocational and Technical Education, The Ohio State University.

The coordinating institution prepared several types of materials for use as instructional resources in the institutes. An original Compilation of Technical Education Materials was prepared in April 1966. Experience in the institutes and the project evaluation, however, revealed the need for additional instructional materials for use by the participants and institute staff for conducting future state and locally sponsored leadership training. To fulfill this requirement, the compilers have developed and incorporated new and revised instructional materials in supplements to the original compilation.

Supplement I contains a compilation of papers on administration, evaluation, finance, and facilities for technical education; a technical education bibliography; and new and revised instructional resources.

Recognition is due for the following staff members who prepared this document: Calvin J. Cotrell, Specialist and Director of the Project; Ivan E. Valentine, Consultant and Coordinator of the Project; David L. Larimore, Research Associate; and Betty Diehl, Secretary, The Center for Vocational and Technical Education. Others who merit recognition are the authors of the four papers, Dr. Joseph T. Nerden, North Carolina State University; Mr. Lucian Lombardi, Chief, Bureau of Technical Institutes, State of Connecticut; Dr. Lynn A. Emerson, Technical Education Consultant; and Dr. Milton E. Larson, Colorado State University.

The reviewers of this supplement were Drs. A. J. Miller and Harry Huffman, Specialists, The Center for Vocational and Technical Education, The Ohio State University, and Dr. Franklin Keller, Consultant, Vocational and Technical Education.

Robert E. Taylor
Director

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INTRODUCTION

The materials contained in this publication are current, timely, applicable broadly, and should be of great value to state and local leaders in Technical Education. No comparable information is available elsewhere under a single cover.

Supplement I contains new and revised informational resources which have been recommended by the project evaluation committee as part of the additional instructional materials effort of the coordinating institution. The compilation has been divided into six parts.

Parts I through IV consist of four papers which The Center for Vocational and Technical Education commissioned. These papers are presented in alphabetical sequence by author as follows:

Administrative Patterns in Technical Education
Lynn A. Emerson

Facilities Planning for Technical Education Programs
Milton E. Larson

Evaluation Procedures for Technical Education Programs
Lucian Lombardi
Carmelo Greco

Financial Patterns in Technical Education Programs
Joseph T. Nerden

Part V contains a bibliography on Technical Education prepared by David L. Larimore which is a synthesis of bibliographies contributed by Drs. Lynn A. Emerson, Maurice Roney, E. L. Kurth, and Milton E. Larson.

Part VI is composed of materials selected and/or prepared by Ivan E. Valentine which supplement and revise information in the original Compilation of Technical Education Materials pertaining to technician employment, Technical Education enrollments, and projected facilities requirements for Technical Education.

The compilers trust that this publication will be beneficial to future leadership development programs in Technical Education.

C. J. Cotrell
and
I. E. Valentine

PART I

ADMINISTRATION

ADMINISTRATIVE PATTERNS IN TECHNICAL EDUCATION

by

Lynn A. Emerson*

Great diversity is noted in the types of institutional patterns utilized to provide technician education and in the organizational structures developed in the several states to supervise and administer the programs. In some states, the major portion of this type of education is provided through post-high school institutions. In other states, the high school carries a portion of the total load. In 1963, some 20,000 persons were enrolled in pre-employment technical education programs on the high school level as compared with some 56,000 on the post-high school level.

Great variety is found in the state organizational structures. California has a large share of the total program in its community junior colleges with a small amount in comprehensive high schools. Wisconsin has its programs in the adult and vocational-technical schools. New York has been utilizing its federal funds for technician education in schools of secondary level--comprehensive high schools, technical high schools, area vocational-technical schools--although the state has extensive technician training in its post-secondary technical institutes and community junior colleges. New Jersey subsidizes programs of secondary and post-secondary type in its county vocational-technical schools and technical institutes. The Texas program is largely in the community colleges. North Dakota concentrates most of its program in a single State School of Science, a comprehensive post-high school institution. Connecticut has technical institutes and some additional programs in its vocational-technical schools. Florida spreads its program among community colleges, area vocational schools, and high schools. Kentucky's program is almost entirely in its system of area vocational-technical schools, as is the case with Georgia. North Carolina provides most of its technician education in post-secondary schools--industrial education centers, technical institutes, and community colleges. Massachusetts has designated its former vocational schools as area vocational schools and provides most of its technician training in these schools on the secondary level with a few programs of post-high school level. The District of Columbia has one curriculum on the post-high school level in each of two vocational high schools. Some types of state administration patterns for vocational-technical education are described in the following paragraphs.

New York.--Under the Regents which have overall control of education in the state are the State Education Department which supervises the local secondary school program and the State University of New York which deals with higher education including the community junior colleges and the state agricultural and technical institutes. The state director of vocational education is located in the State Education Department, and the work of his office is confined to the secondary school program except for some allocation of federal funds to the community college program. The technical education program subsidized from federal funds has largely been in the high schools and area schools (BOCES).

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Virginia.--Programs in the high schools are under the State Board of Education. Programs in the area schools, formerly under the State Department of Education, are now under the newly developed Department of Community Colleges which recently emerged from the State Department of Technical Education. The organization chart for the State Department of Community Colleges, which has its own board separate from other state boards, includes a director, deputy director, associate director for research and development, associate director for administration and finance, associate director for instructional programs, associate director for student affairs and services, and associate director for special training programs. The department also includes a number of assistant directors for various types of services.

In this country as a whole are a number of differing patterns of state administration for dealing with technical education. Among these are the following:

Connecticut.--A state-operated and state-supported program under the State Department of Education, including vocational-technical area schools and technical institutes.

Virginia.--A state-operated technical program under a separate board of community colleges and a state board of education which supervises vocational-technical education in the high schools. The state director of vocational education is in the State Department of Education.

New Jersey.--A single state board of education which deals with high schools and community colleges, with very new legislation separating the community colleges from the state board of education and placing them under a board for higher education which includes other higher education institutions.

Wisconsin.--A separate state board for vocational and adult education with local boards for vocational education with a program including technical institute curriculums.

Massachusetts.--Separate state board for regional community colleges and a state board of education that supervises some post-high school technical programs as well as vocational-technical education in the high schools.

Maryland.--Mixed patterns, such as Maryland, in which the public school vocational-technical education programs are supervised by the office of the state director of vocational education, and the community college technical programs are under the supervision of the division of accreditation.

The foregoing listing of programs within the selected states comes from the report of the U. S. Office of Education in February 1965. Changes are taking place, and the pattern of tomorrow may be somewhat

different from that of today. But this portrayal gives a reasonably accurate picture of the situation in the United States as it exists today.

Technical Training in the Technical Institute

The institution most directly related to the training of technicians is the technical institute. It has been concerned with this field of training for many years and is particularly identified with the training of engineering technicians. In the early years, the most prominent schools of this type were private institutions with programs devoted wholly or largely to technician training. With the expansion of this type of education, new institutional patterns emerged with technician training provided in a technical institute division of a larger institution. The term "technical institute type" has come into general usage to denote training programs similar to those offered in technical institutes, and these are found today as units of vocational-technical schools, community colleges, engineering colleges, and universities.

The administrative pattern within the technical institute, or within the technical institute division of a larger institution, if the school is of sufficient size, often includes a president or director, one or more assistant directors (one of whom may have responsibility for the evening program), a director of admissions, a dean of students, and other ancillary personnel. Some typical administrative patterns are outlined in the following pages.

Mohawk Valley Technical Institute in Utica, New York, is sponsored by the County of Oneida and is under the supervision of the State University of New York. Its board of trustees has nine members, four appointed by the Governor, five by the county board of supervisors. In 1963, the Institute had an enrollment of some 900 full-time students and a total enrollment of over 2,500 including the evening program. The faculty numbered 42 persons, including seven department heads. The program includes curriculums in such fields as real estate and retail business management, as well as mechanical and electrical technology. The administrative staff includes a president, a dean of instruction, a director of admissions, a director and assistant director of evening and extension programs, a dean of students, an associate dean of student personnel services, and a coordinator of the cooperative work program.

Wentworth Institute, a large private technical institute in Boston, with a wide array of curriculums in engineering technology and industrial technology, had a full-time enrollment in October 1962 of 1894 full-time students and a total enrollment of more than 3200. The Institute operates under a board of trustees of 16 members. In 1963, the day school faculty numbered 139, including 20 department heads. The administrative staff is larger than that found in many institutions and includes a president, an assistant, two deans of instruction, and two assistant deans of instruction, a dean of students and assistant dean, a dean of

admissions and assistant, a director of placement and assistant, a bursar and assistant, a registrar, a scholarship and loan counselor, three admissions counselors, and a dormitory manager.

Southern Technical Institute, Marietta, Georgia, is a unit of the Engineering Extension Division of Georgia Institute of Technology. The enrollment in October 1962 was 952 full-time students. The Institute is under the general supervision of the Director of the Engineering Extension Division. The administrative staff at Marietta includes a director, registrar, dean of the basic studies division, dean of the technical division, dean of students, and an interviewer-counselor. The faculty consisted of 50 members in 1963, including 10 department heads.

Del Mar Technical Institute, Corpus Christi, Texas, is a branch of Del Mar College, located on its own campus. The College is a two-year institution operated under the direction of a board of trustees of nine members elected by the voters of the district. In October 1962 the College, as a whole, had an enrollment of 1346 full-time students and a total enrollment of 2559. The administrative staff of the College includes a president, dean of the college, dean of the technical institute, director of engineering technology and vocational trade education, registrar and director of admissions, treasurer, supervisor of vocational nursing, supervisor of the institute of retailing, supervisor of T & I extension, and assistant supervisor of trade preparatory education. The Technical Institute has 13 instructors in engineering technology.

New York State Agricultural and Technical Institute at Farmingdale is a unit of the State University of New York, financed by the state, and under the general supervision of the Executive Dean for Institutes and Community Colleges. The Institute has a local Council of eight members. The full-time enrollment in October 1962 was 1755 students; the total enrollment was 5582 students. The Institute is administered by a president and assistant, a dean and assistant, a dean of students and associate, director of admissions, counselor, assistant dean of the evening and extension division, director of residence halls, and public information officer. The faculty includes 129 members of which 15 are department chairmen.

Technical Institutes of Oklahoma State University, at Stillwater and Oklahoma City, are units of the College of Engineering. The University has its board of regents of nine members, and the various higher education institutions of the state are coordinated by the Oklahoma State Regents for Higher Education with its board of nine members. The Technical Institute at Stillwater has a director, an assistant director, and 24 additional faculty members. The Institute at Oklahoma City has a director, an assistant director, and 14 faculty members.

School of Technology, Purdue University, with campuses at Lafayette, Calumet, Fort Wayne, Indianapolis, and Michigan City, Indiana, includes

the Division of Applied Technology and the Department of Industrial Education. It administers the two-year associate degree programs in the Division of Applied Technology, the new continuing curriculum leading to the baccalaureate in technology, and the curriculum leading to the B. S. in Industrial Education. The administrative staff includes a dean of the School of Technology, an assistant dean of the school and director of the Division of Applied Technology, assistant director of the Division of Applied Technology, director of the Office of Manpower Studies, director of counseling services, director of admissions, registrar, and department heads of industrial education, nursing, aviation technology, electrical engineering technology, and mechanical engineering technology. The faculty at the five centers numbers 134 persons.

Technical Training in the Community Colleges

The present-day community college had its origin in the junior college which in the early years was restricted to lower division or transfer type programs. The junior college developed from two directions--upward from the high school, and downward from the university. The program of the present-day community college usually covers a wide scope--transfer curriculums of liberal arts or pre-professional type; semi-professional level curriculums designed to prepare youth for effective entry into work life; technical curriculums in the industrial, health, and other fields; business curriculums of various levels; skilled occupations curriculums; and adult and general education programs. The curriculums usually are two years in length, although shorter courses often are available. The two-year curriculums usually lead to the associate degree. The expansion of occupational education programs in the community colleges, under the federal vocational acts, has been held back somewhat by the "less than college grade" clause in the Smith-Hughes and George-Barden Acts even though the Office of Education rulings permit subsidy for vocational education programs that do not lead to the baccalaureate degree. The Vocational Education Act of 1963 removed this clause and made it possible for states to transfer funds from the Smith-Hughes and George-Barden appropriations to the 1963 Act, which has fewer restrictions.

Technician education in the community college is found in a wide range of occupational fields--industry, health, agriculture, public service, business, and others. Technological development continues to increase the range of curriculum offerings leading to such programs as radiation technology, instrumentation technology, electro-mechanical technology, and very rapid growth in electronic data processing. The proportion of the total community college program that is devoted to technical education differs widely. In some institutions which have emerged from technical schools, such as some of the New York State community junior colleges, the relative amount of technical education is much higher than in colleges that developed through the junior college transfer-program pattern. The administrative pattern and the qualifications of the personnel with respect to understanding of and competence in technical education also differ widely.

The administrative staff of the community college has to deal with all phases of community college activity, and generally a small proportion of the total effort is devoted to the problems of technical education. Sometimes the specialized technical personnel is limited to members of the instructional staff. Where the programs are of substantial size, department heads or chairmen are designated, or a dean or director may head the whole technical program. In some cases, there is a director for each major unit such as engineering technology, health technology, and business technology. Some typical administrative patterns follow:

New York City Community College is one of the institutions that emerged from the initially state-supported institutes of applied arts and sciences established on a temporary basis by the State of New York. It is a unit of State University of New York, locally sponsored, with its local board of seven trustees. Its full-time enrollment in 1965 numbered some 2800 students, and its part-time enrollment more than 6000. The administrative staff includes a president, dean of the college, dean of administration, dean of students, director of evening and extension division, finance officer, bursar, registrar, director of admissions, director of guidance, director of athletics, and numerous administrative assistants. The College has a head of the division of technology, and in the College as a whole, there are 16 department chairmen. In 1964-65, the full-time faculty had 267 members, the part-time faculty, 348 persons.

North Dakota State School of Science, Wahpeton, is a state-operated institution of community college type with a junior college (transfer programs), a business school, and a trade-technical school. The latter includes some half dozen technical curriculums for the training of technicians. The State of North Dakota has concentrated its trade and technical training in the one institution which enrolls students from all parts of the state. It is under the direct control of the State Board of Higher Education consisting of seven members and the commissioner. The State School of Science has a president, registrar and director of the business school, director of the trade-technical school, director of the junior college, business manager, dean of men, dean of women, director of placement and evening school, and numerous assistants. The full-time faculty approximates 80 members. Enrollment in 1964-65 was some 1800 full-time students.

Harford Junior College, Bel Air, Maryland, operates as a part of the Harford County educational program with its own board of trustees of seven members and a secretary-treasurer. The college's organizational chart appears on Page 21 of the Appendix. The faculty of the college, as a whole, numbers 57 persons. In the fall of 1964, the full-time enrollment was 323 students and the total enrollment 705. The college has recently occupied a new technical building.

Foothill College, Los Altos Hills, California, is one of the newer California community colleges that has grown rapidly. It offers 20 occupational curriculums of technical and semi-professional level in addition to a wide range of transfer curriculums. In October 1964, the full-time

enrollment was 4118 students, the part-time enrollment, 4615. In 1964-65, the faculty included 261 full-time persons and 217 who taught on a part-time basis. The Foothill College District serves the Palo Alto, Mountain View, Los Altos, and Fremont high school districts in northern Santa Clara County. The College operates under a board of trustees of five members. The administrative staff includes a president, dean of instruction, dean of students, business manager, director of technical education, director of evening college and summer session, director of community services, director of library services, director of student activities, director of guidance, director of athletics, college psychologist, college physician, foreign student advisor, placement officer, 11 counselors, 9 division chairmen, and many assistants in the various administrative categories. As an institution grows in size, and in the spread of its curriculum offerings, the administrative structure grows accordingly. Foothill College thus has a much more complex administrative pattern than most of the smaller schools.

North Carolina Community Colleges.--The administrative pattern of the community colleges, industrial education centers, and technical institutes in North Carolina follow the general pattern shown on Page 23. The organization chart shown is that of the community college. In the chart for the technical institute and the industrial education center, the director of academic programs is omitted.

Chicago City Junior College, with its eight campuses, offers a wide range of occupational curriculums as well as the transfer program. The organization chart for the city and a branch are combined in the chart on Page 25. A schematic diagram of faculty participation in policy formulation is shown on Page 27.

Administrative Patterns of Technical Education at the Secondary Level

Although the general trend is toward post-high school technical training, there are still many high school technical programs. New York, for instance, does a lot of its technical training at the high school level as do other states. These programs take several forms. For the technical department of a comprehensive high school, such as North High in Binghamton, New York, the technical program is usually under a single head such as a director of vocational education. For large technical high schools, such as Brooklyn Tech, under the principal and his assistants are department heads for the several major technologies. In the vocational-technical high school, such as Saunders in Yonkers, the size does not warrant separate department heads, and the direct administration is handled from the office of the principal.

Another very common type of secondary technical training takes place in the area vocational schools. A good example of an area vocational school is Penta-County, located near Toledo, Ohio. This school district is made up of 19 other school districts from five counties. It is a vocational school, a two-year technical college which gives transfer credit for continuation toward an engineering degree, as well as an adult education center. All juniors and seniors from the member schools are eligible to attend. No student is graduated from Penta-County Vocational High School. The students receive their diplomas from their home schools. The home schools also supply the extra-curricular programs for these students. The school presently has 104 teachers and 1100 students. The organizational structure of Penta-County is on Page 29.

Administrative Patterns for Area-Vocational-Technical Schools

Most area vocational-technical schools, unlike Penta-County, deal mainly with post-high school technical education and high school dropouts. The main difference here is whether the institution views itself as offering a post-high school program, a high school program, or as in the case of Penta-County, a combination of the two. Examples of the administrative structures of post-high school vocational-technical schools are Emily Griffith Opportunity School, Denver, Colorado, and Wausau Technical Institute, Wausau, Wisconsin. Both of these schools offer technical as well as vocational programs.

Wausau Technical Institute has a director, and under him are three assistants--one in charge of business operations, one for student personnel services, and one in charge of instruction. Under the assistant in charge of instruction come the different area coordinators for home economics, distributive education, business education, agriculture education, and trade and industrial education. These coordinators are then responsible for the coordination of the schools' 44 instructors.

The organizational chart for the Emily Griffith Opportunity School of Denver, Colorado, can be seen on Page 31. Also, see the organizational

Chart on Page 33, which is an example from North Carolina of an area vocational school under the directorship of a board of trustees.

Future Administrative Patterns for Technical Education

Trends That Have Bearing on Technical Education

Any discussion of trends must take into account the past, the present and the projected future. Most projections carry with them the possibility of error, for predictions must be based upon the past and events sometimes turn in quite a different direction from that followed in the past. But one must take this chance in making predictions. In this discussion, it is assumed that demographic, technological, labor market, educational, and economic aspects of society in the years immediately ahead will follow the same general pattern of change that has taken place since 1950. Major scientific breakthroughs or other changes of great magnitude will alter the projected patterns.

Technological change in the past 15 years has started unprecedented developments in many aspects of life, and its full impact lies ahead. Cybernetics--a combination of automation and computers--is having profound effect. Automation, which may be defined as the automatic production of material products, has freed man's muscle of routine operations. Computers, sophisticated analyzers and interpreters of complex data, have freed man's mind of routine thinking. It has been predicted that the computer may have a more beneficial potential for the human race than any other invention in history. Development of the transistor and laser, satellites in orbit and spacecraft on the moon, planes just under the speed of sound, and computers routing long distance telephone calls, navigating satellites, diagnosing human ailments, and achieving scores of other uses--these are a few of the developments of the type that will change our lives drastically in the years ahead. These technological changes demand new technical skills. Increasingly the public technical education programs are being called upon to supply the trained personnel.

Changes are taking place within the labor force. Engineers are moving upward into work of more highly scientific nature, leaving an applied technology gap to be filled by the technician. The technical content of a great many types of jobs is increasing; some that formerly were classed as skilled crafts now begin to take on the aspects of the work of the technician. Unemployment among youth of the 18 to 20-year age group is much higher than for older workers, with the implication and suggestion that many of them be kept out of the labor market and given additional education during these years. Many new occupations are emerging, growing out of the new technological developments, as for example, in the data processing field. Many of these new occupations fit into the province of the technical institute type of program.

Demographic changes of interstate migration, migration from cities to suburbs, commuting patterns, relocation of industries, population

growth, and the like have bearing on technician education. The mobility of technicians and the widening of the labor market into which graduates of a technical institute type of program can go have their effect on educational patterns.

Profound changes are taking place in the field of occupational education. The Vocational Education Act of 1963 removed some shackles that have held many types of occupational education in outmoded traditional paths. States and local communities are now in position to utilize federal funds much more effectively, and technical education should profit from this change. The age and grade level at which occupational education is provided appear to be steadily rising. Fifty years ago, it was common to take a boy who had completed the 6th grade, give him two years of intensive training, and place him as an advanced apprentice. Over the years, the grade level for such training has advanced; today much of it is in the post-high school level, and there seems to be some effort toward reorganizing the curriculums of the high school to provide a pre-technical sequence of science, applied technology, mathematics, and drawing which would prepare the student for effective entrance into the technical institute type of program in the post-high school institution.

Considerable increase is noted in the numbers of students who are enrolled in technician curriculums and in the increased number and range of curriculum offerings. Area vocational-technical schools are being built rapidly in many states, stimulated by the availability of federal funds. Legislation provisions tend to favor the development of programs of the post-high school level as some institutions are eligible for subsidy from the higher education acts. Many of these area schools are originally built to provide occupational education for high school youth as well as for out-of-school youth and adults, with an area school providing such education for several high schools within commuting distance. It is worthy of note that a considerable number of such schools which originally served high school youth have abandoned that practice in favor of serving out-of-school youth and adults. Furthermore, many of these schools have expanded their programs to include lower division or transfer curriculums and have expanded their service through occupational curriculums of technical nature. Many have also added skilled crafts training. The American Association of Junior Colleges has expanded its services through the addition of specialists in three occupational fields. In a number of states, recent developments have brought about the designation by the legislature of boards of control for community colleges that previously were under a state board of education or were branches of universities. This has raised problems in the distribution of federal funds for vocational education and has placed in the hands of the state director of vocational education the need for coordination of programs under two separate state agencies. Increasing numbers of entrants into technician jobs in the labor market are coming from two-year post-high school institutions, as compared with plant training programs, training on-the-job, etc. This is expected to grow.

Where Changes in Administrative Patterns for Technician Education are Likely to Occur

Changes are taking place in all aspects of technical education. We are likely to see a continuation of change in such phases as the following:

a. Shifting of technical education programs in the high school to the post-high school and adult level. In some states, most of the program is already on the post-high school level, but in others, large numbers of students are enrolled in such programs in the high schools. It is probable that many of the programs of high school level now in area vocational-technical schools will move upward and be offered only to high school graduates and out-of-school youth.

b. Change in the pattern of separate vocational institutions into schools of comprehensive character. The vocational high school will likely become a comprehensive high school and the area vocational school a community college.

c. Rapid development of new community colleges in many states, with increasing recognition of occupational education as a vital part of the total program from the inception of the college. Also, growth in the status of the extended day program of occupational character.

d. Development of master plans on a statewide basis for implementing the orderly development of the total program, expecially on the community college basis. This would go beyond the general forecast included in state plans submitted to the Vocational Division of the U. S. Office of Education.

e. Some additional establishment of state boards for community colleges separate from other state boards.

Organization Patterns for Technician Education Most Likely to be Effective

State administrative patterns, and local patterns in turn, grow out of the overall educational situation in the state, governed by existing legislation, by tradition, and by the effectiveness of the state educational leadership. Once an institutional pattern has been established, it is likely to continue. Sometimes long experience--especially if it is successful--is a doubtful asset in planning future programs, especially if the pattern has been static for some time. The many differences between states--in geography, demography, industrial concentration, wealth, educational tradition--make for differences in the best pattern. What may seem highly desirable for Connecticut may not be at all suitable for North Dakota. The pattern for Florida may well be different from that of Iowa or Colorado. Thus, no specific pattern can be stated as the best one.

The easiest way to develop technicians for industry might well be in a separate technical institute of post-high school type, for mature students, with a wide range of curriculums of occupational type, well equipped laboratories, and a relatively large student body. Such an institution can concentrate on the specific task of technician development, if it is desirable to limit the program to that for engineering technicians. This would provide an effective narrow program, effective for the specific type of student who was fitted for and wanted that type of education. But it would be narrow in program and probably in outlook. In the long run, the type of institution most likely to provide the best education for the greatest number and variety of students and occupations is the community college provided that certain important conditions be met. Such an organization must have a president of vision who accepts occupational education as fully equal to transfer programs in the objective of the college, fully qualified technical staff members, adequate laboratory and library equipment, properly developed curriculums, effective guidance service, an open-door policy toward students, and all-around effective administration. The community college can provide status that is important. It provides breadth of program offerings enabling students to transfer to another curriculum if they find it necessary. It also provides breadth of content in the field of general education. But these are assets only if the occupational curriculums for the training of technicians are carefully designed and properly implemented.

The present-day programs in the high schools, designed to prepare persons for effective entry into technician occupations upon graduation from high school, appear to be more effective in preparing youth for advanced study than for the labor market. Probably a considerable proportion of the students in such technical courses are fully capable of undertaking engineering or scientific training; if so, their contribution to society might well be greater after such advanced study. A recent report on the placement of students from high school technical programs in a large eastern state indicated that some 65 percent of the graduates entered higher educational institutions, a percentage higher than that found among the graduates of the traditional college preparatory program. A recent study of technician manpower by the Bureau of Labor Statistics indicated that the contribution of the high school technical program to the further technical education of the graduate was considerable, but that its contribution to direct entrants into the technician labor market was negligible.

The area vocational-technical school, designed to serve out-of-school youth and adults (and often high school youth as well on a shared-time basis) has been stimulated in its growth by earmarked federal funds. Just what the future is for this institution is uncertain. If community colleges were developed to their full potential and if they would offer a wide spectrum of occupational curriculums of short length as well as two-year sequences, there would probably be no need for the area vocational school, except perhaps as a skill-center for high school youth on a part-time basis. In the long run, the high school will probably alter its

entire program to provide a wide range of "tracks" including some for basic occupational education, leaving to the post-high school institution the specialized occupational education. But tradition is powerful, and it will be a long time before all high schools change their programs to gear in with a changing civilization. In a large city with adequate community college facilities in several branches, there may be a place for an adult skill center in which would be concentrated special programs involving extensive equipment, and where a wide range of skill development might be provided through short courses for updating, upgrading, or retraining purposes.

Federal, State, and Local Organizational Structures

The administrative structures of local institutions, whether they be technical institutes, community colleges, area vocational-technical schools, or high schools which offer technical training, are all influenced by the structure of the state organization under which they operate. The states in turn are affected by the administrative structure at the regional and national level.

Different states have adopted administrative structures which they feel best suit their present needs. It is inconceivable that any one administrative structure could be best for all states, if for no other reason than the difference in population. It is hoped, therefore, that states will continue to adopt the administrative structures that best fit their situations, but as situations change, administrative structures need change also. A word of caution needs to be expressed at this point, however. Many states have administrative structures today that are preserved by traditions and an unwillingness to look for and try something better. Do we really believe in change, and if so, does our administrative structure allow for flexibility and change? This question is one that needs to be answered at all levels of administration.

No one can predict or dictate what kind of an administrative structure is best for technical education in a state. Several organizational charts follow to give some insight into how other states are prepared to administer the ever-growing technical education programs. Beginning with the Department of Health, Education, and Welfare, through the Office of Education, and the regional offices, the following pages (35-49) have been presented to give an insight into different organizational patterns which presently exist.

Recommendations

In planning the administrative structure of state and local programs for the education of technicians, certain factors need to be kept in mind and taken into account. Here are some of them:

1. A sufficient number of students per curriculum should be available to warrant hiring an adequate number of staff members. One person should not be required to teach all the technical courses in the curriculum.

2. Consideration needs to be given to the changing patterns of high school curriculum offerings and the impacts of these changes on post-high school patterns.

3. Some potential students will not be able to find the particular curriculum they need and want in the local institution. Such students should be referred to other institutions offering the desired curriculum and adequate housing facilities.

4. Recognition of the breadth of the labor market for technician placement will require utilization of regional or national labor market data as well as those of the local area when programs are planned.

5. Effective programs are based upon applied research. Provision may well be made for appropriate research and development service on a statewide basis when the administrative structure is planned.

6. In statewide planning, the possible desirability of establishing a separate state board for community college administration, such as has taken place recently in several of the states, and the implications of such a move on the statewide administration of the vocational-technical funds may well be considered in states where such programs are under state boards of education.

7. The future place and function of the area vocational-technical school in the total educational pattern may well be taken into account. In what directions will this type of school move in the various states?

The following recommendations concerning the planning and development of the administrative structure for technical education on the state and local level may apply only to specific situations--certain states or certain communities within states. They are presented for consideration.

1. A statewide Master Plan for occupational education, including curricular offerings for the high school and for the post-high school institutions with areas to be served by specific

institutions and curriculums to be offered in these institutions, together with the proposed sequence of development of each new institution, should be developed and kept current.

2. The administration of vocational-technical education at the state level should be sufficiently high up on the organization chart to deal effectively with all occupational education in the statewide system, including the community colleges. This is particularly important when the secondary schools and the community colleges are under separate boards.

3. Steps should be provided for close coordination of all the occupational education programs in the community or the state into a unified whole, including those operated by the Department of Labor, the Office of Economic Opportunity, and others outside the state educational department structures.

4. Effort should be made to develop a sane distribution of federal funds for vocational-technical education among the different agencies concerned with such programs within the state, high school, and post-high school.

5. New programs should be planned in the light of the needs of the youth to be served and the occupational needs of the labor market the program should serve, keeping in mind all agencies and practices that supply workers for the occupational field. Training on-the-job and in formal employer training programs needs to be taken into account.

6. No program should be offered unless it meets the standards of quality that are inherent in adequate staffing of competent personnel, laboratory equipment sufficient in quantity and quality, and a sufficiently large potential student body to make the operation efficient.

7. Provision should be made for designated leadership of qualified persons to administer the technical program at state and local level with realistic standards set for the qualifications of such leaders. These qualifications should insure competent leadership; they may not necessarily mandate a background of technical training on the part of the leader.

8. Programs should provide for adequate numbers of qualified persons to meet the various functions, but this does not mean that the staff should be unduly large. Good judgment is needed with respect to the optimum number of positions that need to be set up in the administration of a new program.

9. In the planning of technical programs, including curriculums and physical plant, care should be taken to avoid practices that may be appropriate for skilled craft training but may not fit the situation for the training of technicians. Experience in planning programs for skilled crafts training under the Smith-Hughes and George-Barden Acts has its value, but care must be taken to avoid pitfalls.

10. The recent federal legislation requires evaluation of programs at stated intervals. In planning programs for technical education, provision may well be made for building such evaluation into the organization structure.

11. The administrative pattern should make provision for adequate entrance interviewing of students and for student counseling, as well as for placement and follow-up of students, on the state level as well as in the individual school.

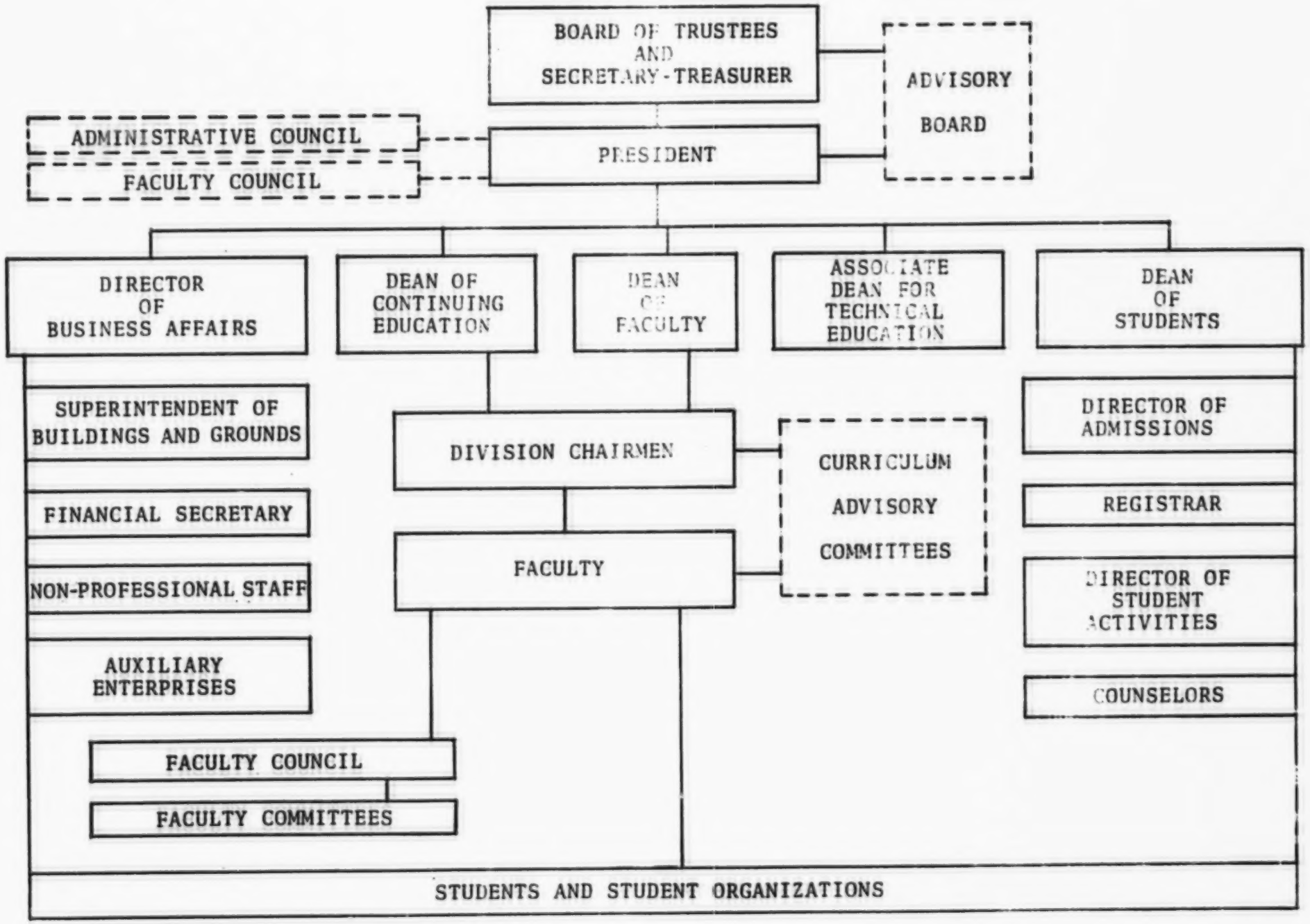
12. Public relations are vital for the success of any technical education program, and provision for these should be made in the organization structure.

13. Throughout the nation many "academic minded" administrators are in charge of institutions in which technical programs are operated. Provision should be made to induce such administrators to become familiar with the aims, procedures, and practices of such programs, and to facilitate their doing so. This is not an easy task, and no specific suggestions are made concerning its implementation.

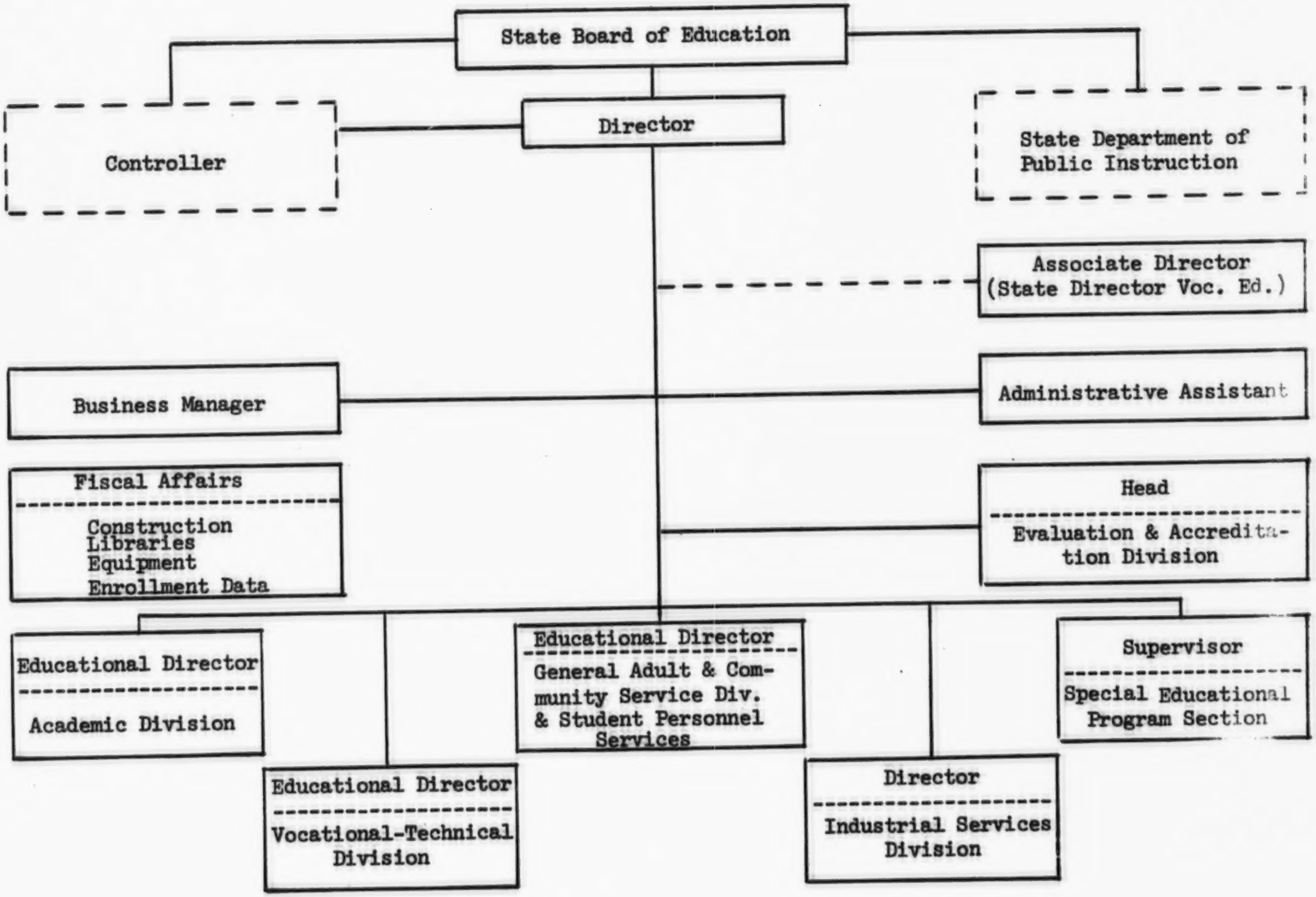
14. Every effort in planning administrative structure for new programs should look well into the future. Physical plant built today will in all probability be in use in the year 2000. Campus acreage needs should be anticipated, since land values rise in the immediate vicinity of a community college. Parking needs of the future may be much larger than for today. Wise planning of the administrative structure as well as of other aspects is highly desirable--a structure that can cope with change.

APPENDIX

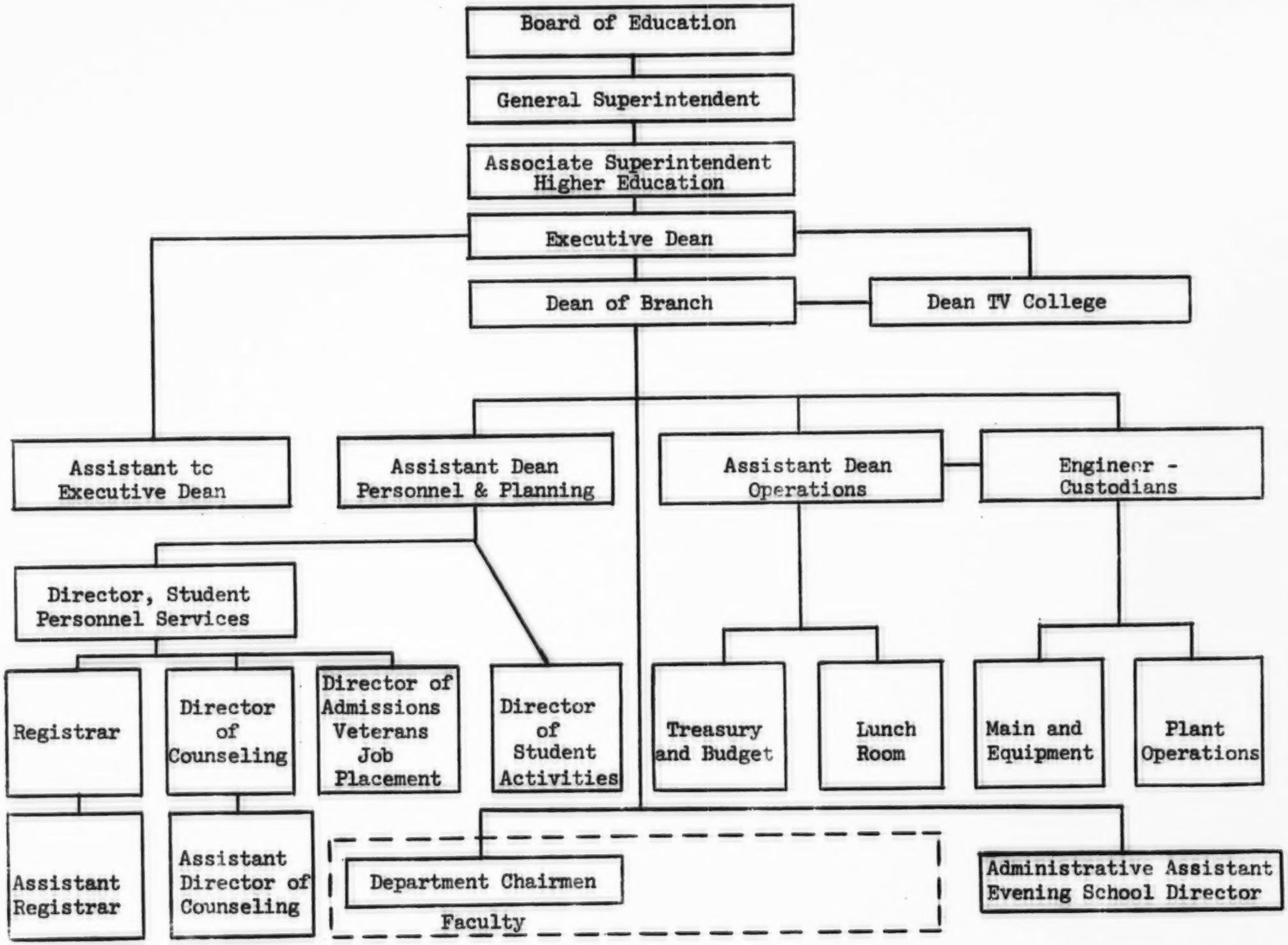
BOARD OF TRUSTEES
HARFORD JUNIOR COLLEGE
BEL AIR, MARYLAND



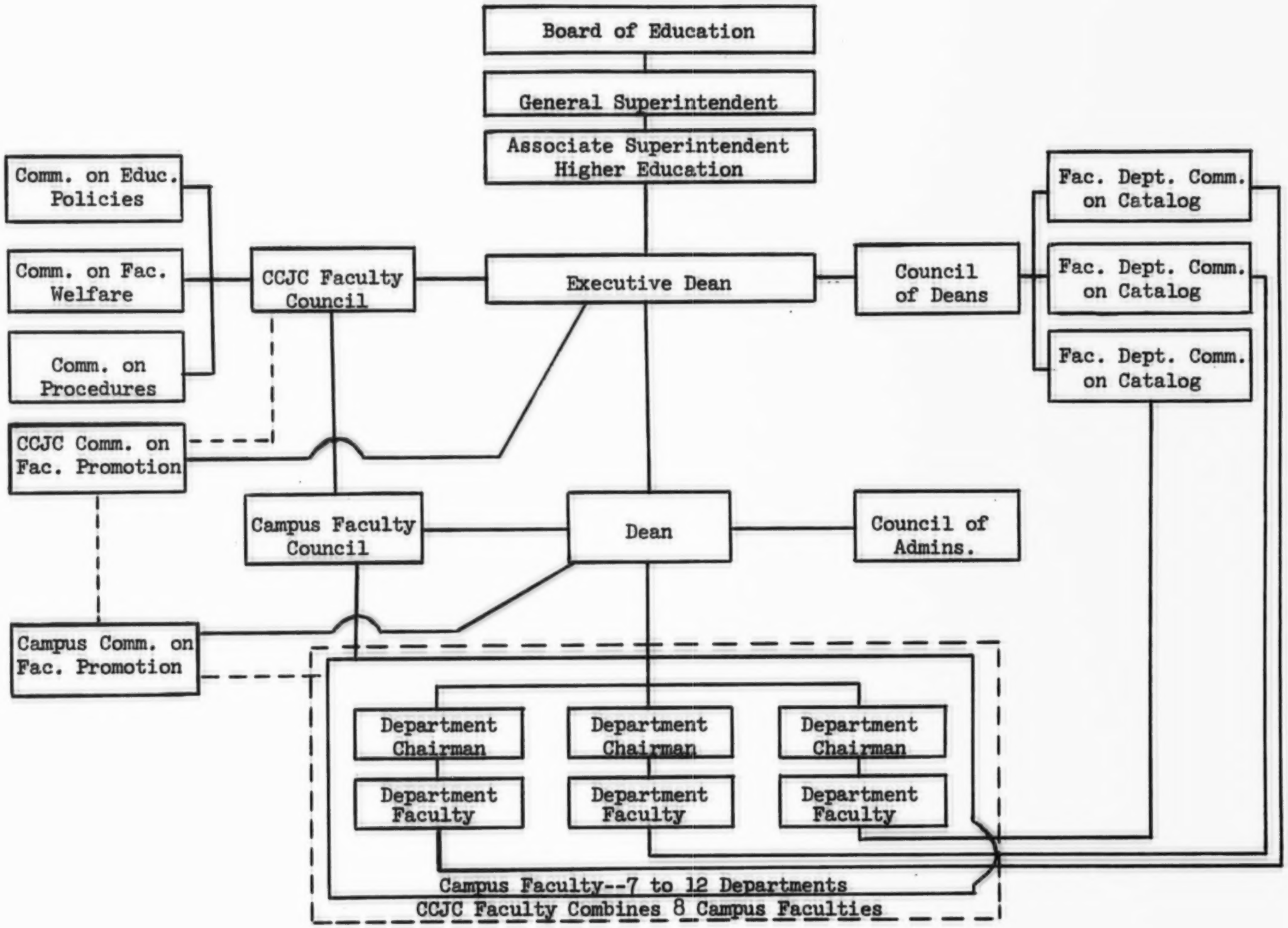
NORTH CAROLINA STATE BOARD OF EDUCATION
DEPARTMENT OF COMMUNITY COLLEGES



CHICAGO CITY JUNIOR COLLEGE BRANCH ORGANIZATIONAL CHART



CHICAGO CITY SCHOOLS



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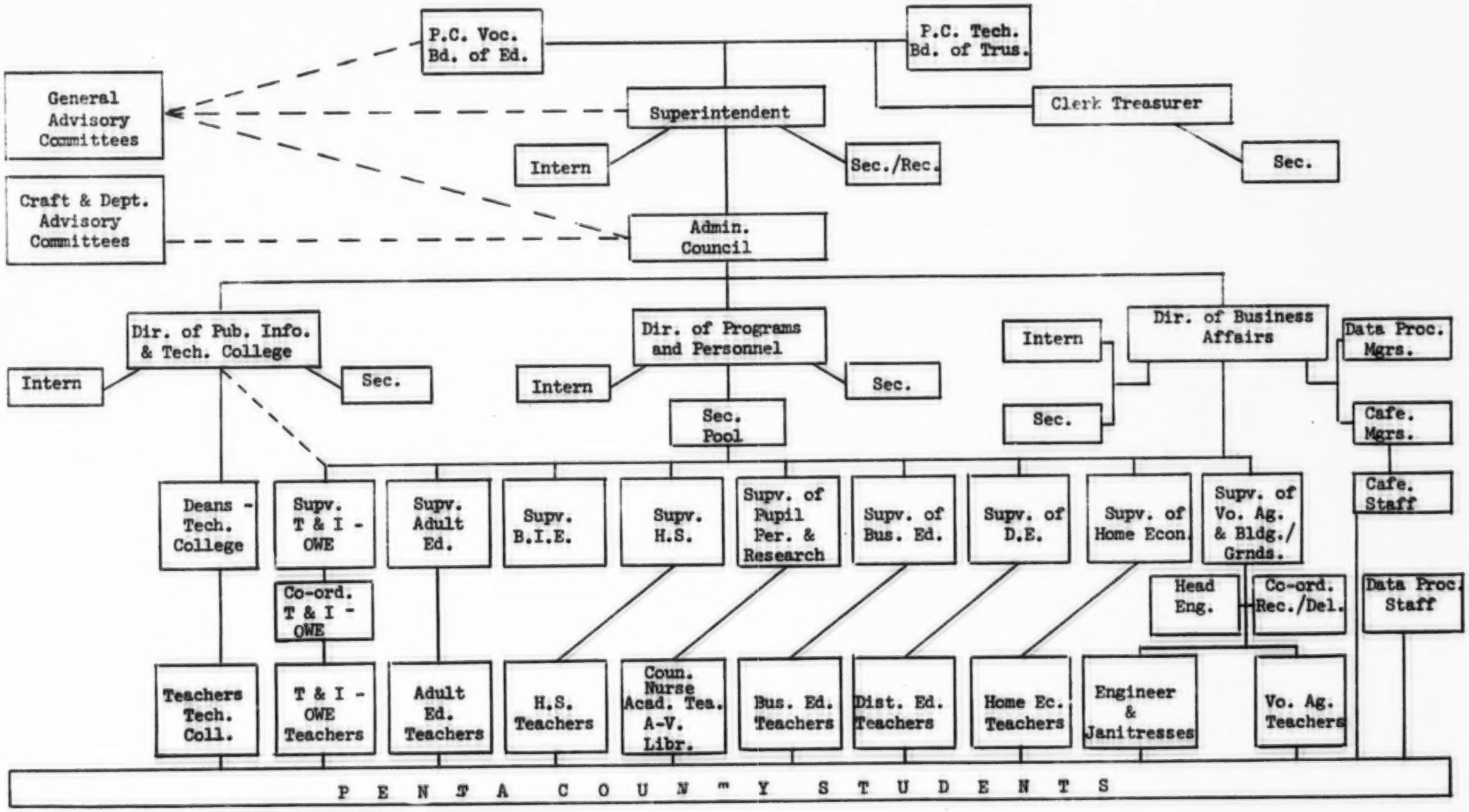
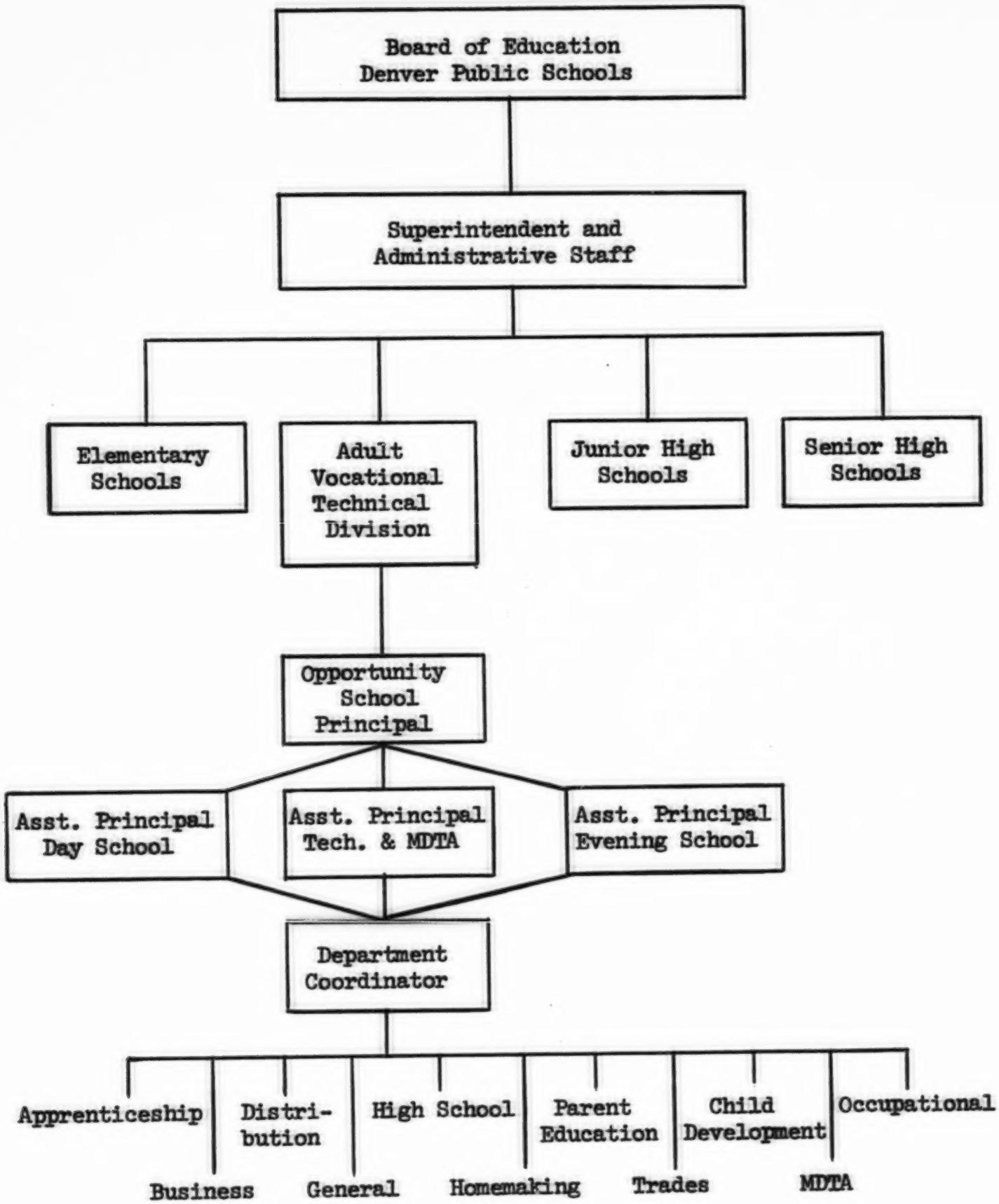
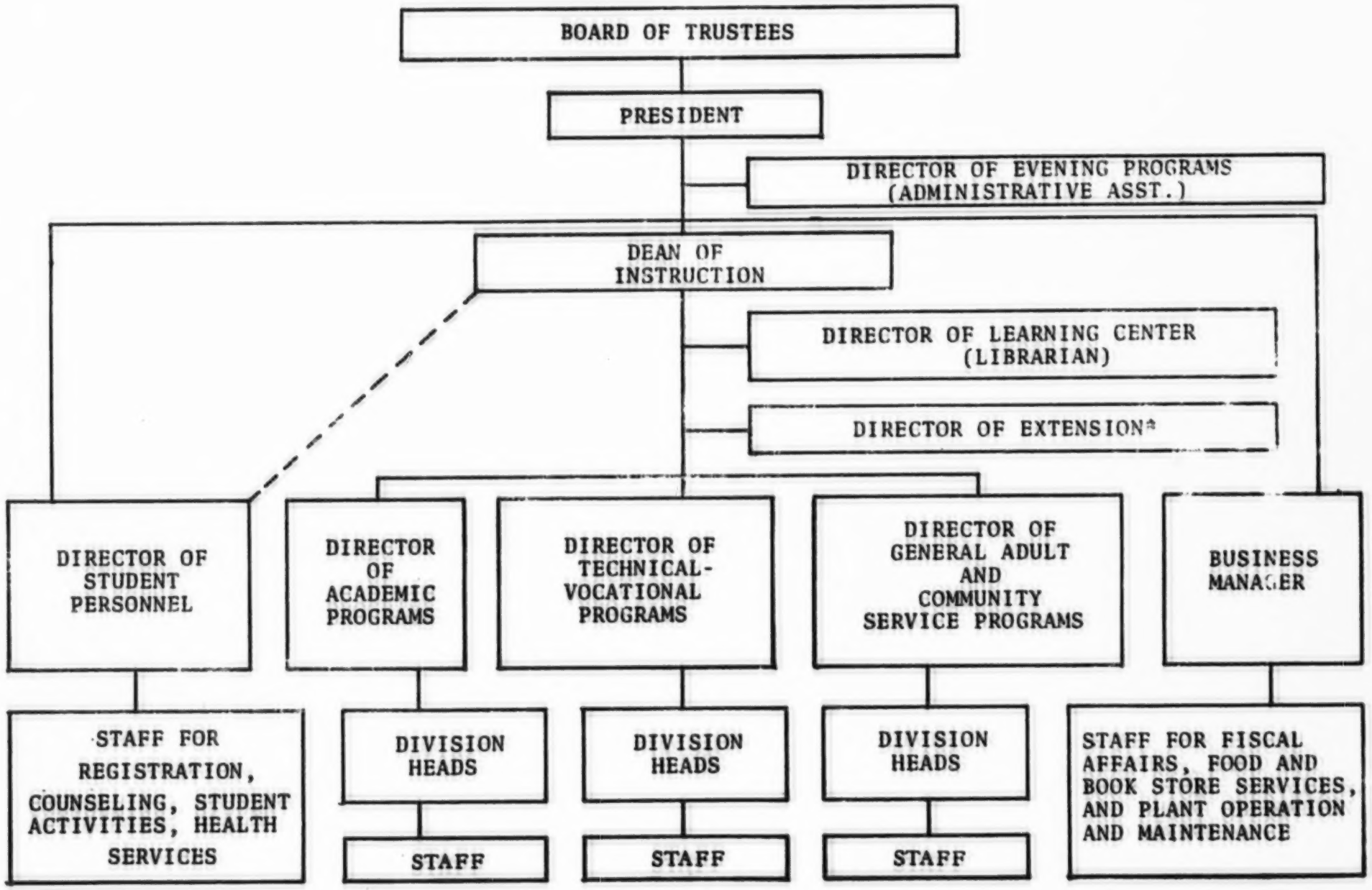


DENVER CITY SCHOOLS



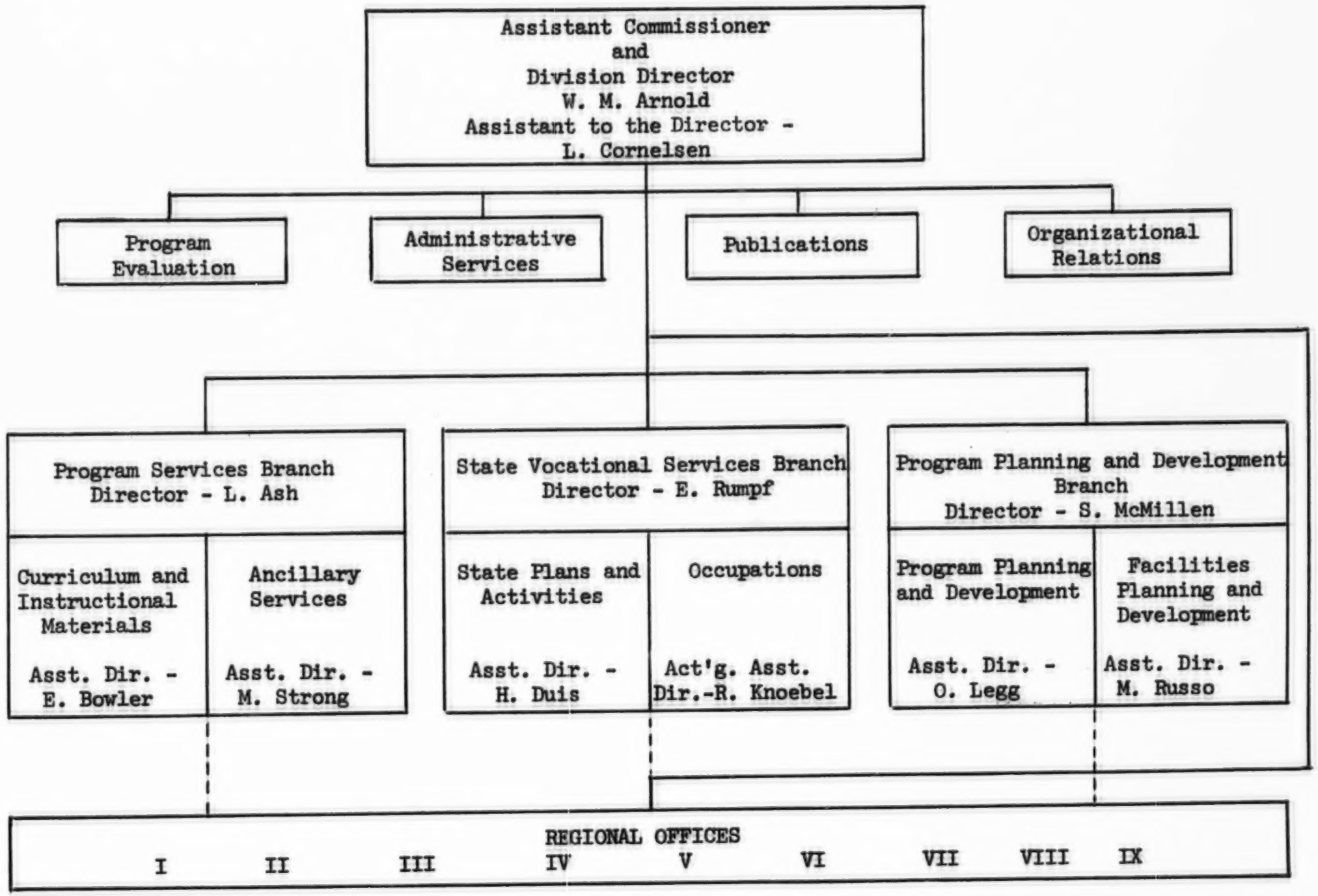
DEPARTMENT OF COMMUNITY COLLEGES
STATE BOARD OF EDUCATION
RALEIGH, NORTH CAROLINA

ADMINISTRATIVE AND SUPERVISORY ORGANIZATION CHART FOR INDUSTRIAL EDUCATION CENTERS, TECHNICAL INSTITUTES, AND COMMUNITY COLLEGES



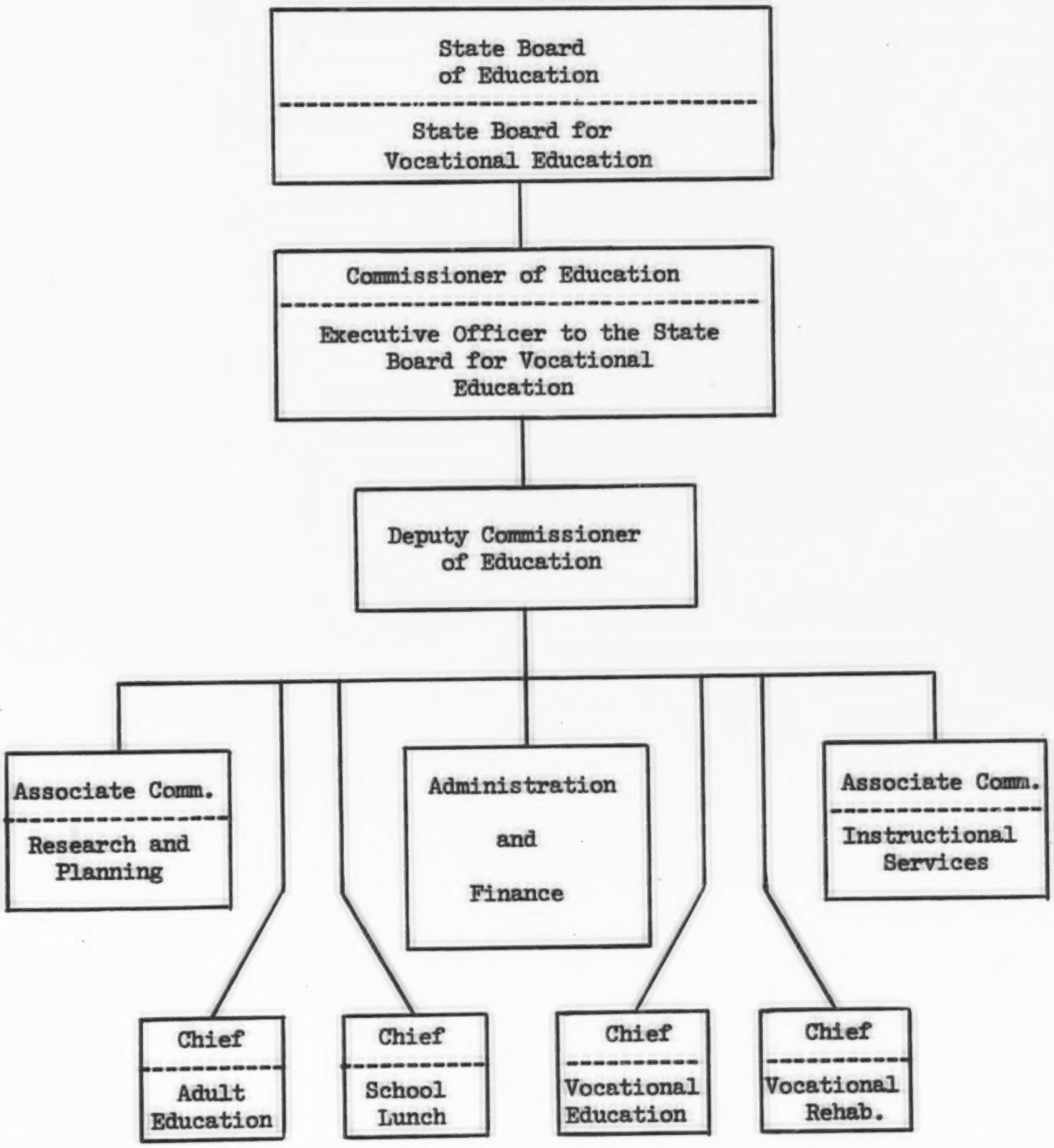
*Or under Director of General Adult and Community Service Programs if the institution finds this a more effective plan of organization.

U. S. OFFICE OF EDUCATION
BUREAU OF ADULT AND VOCATIONAL EDUCATION
DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION



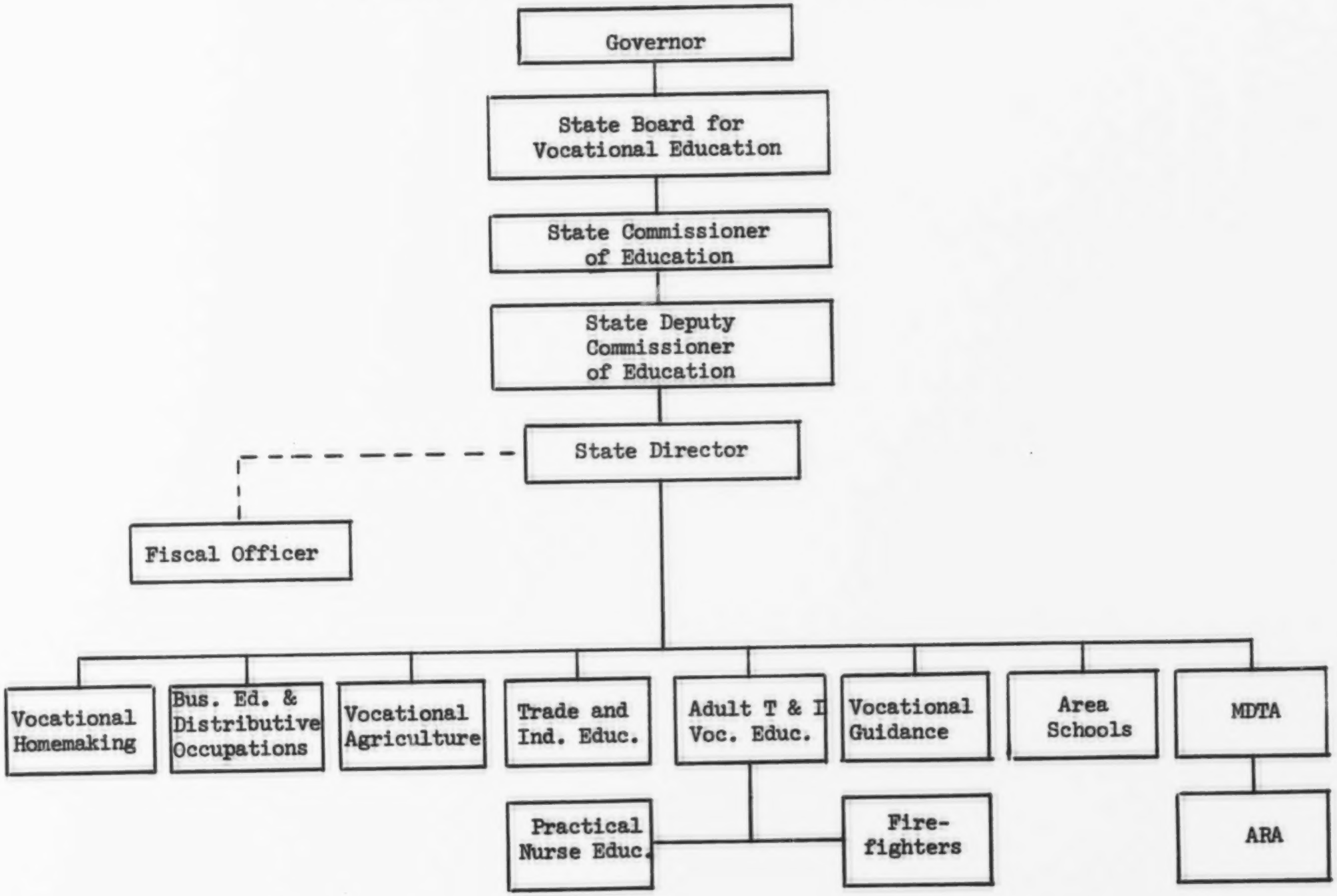
THE RHODE ISLAND STATE DEPARTMENT OF EDUCATION

ORGANIZATION - FUNCTIONS - SERVICES



RHODE ISLAND

ORGANIZATION CHART - DIVISION OF VOCATIONAL EDUCATION



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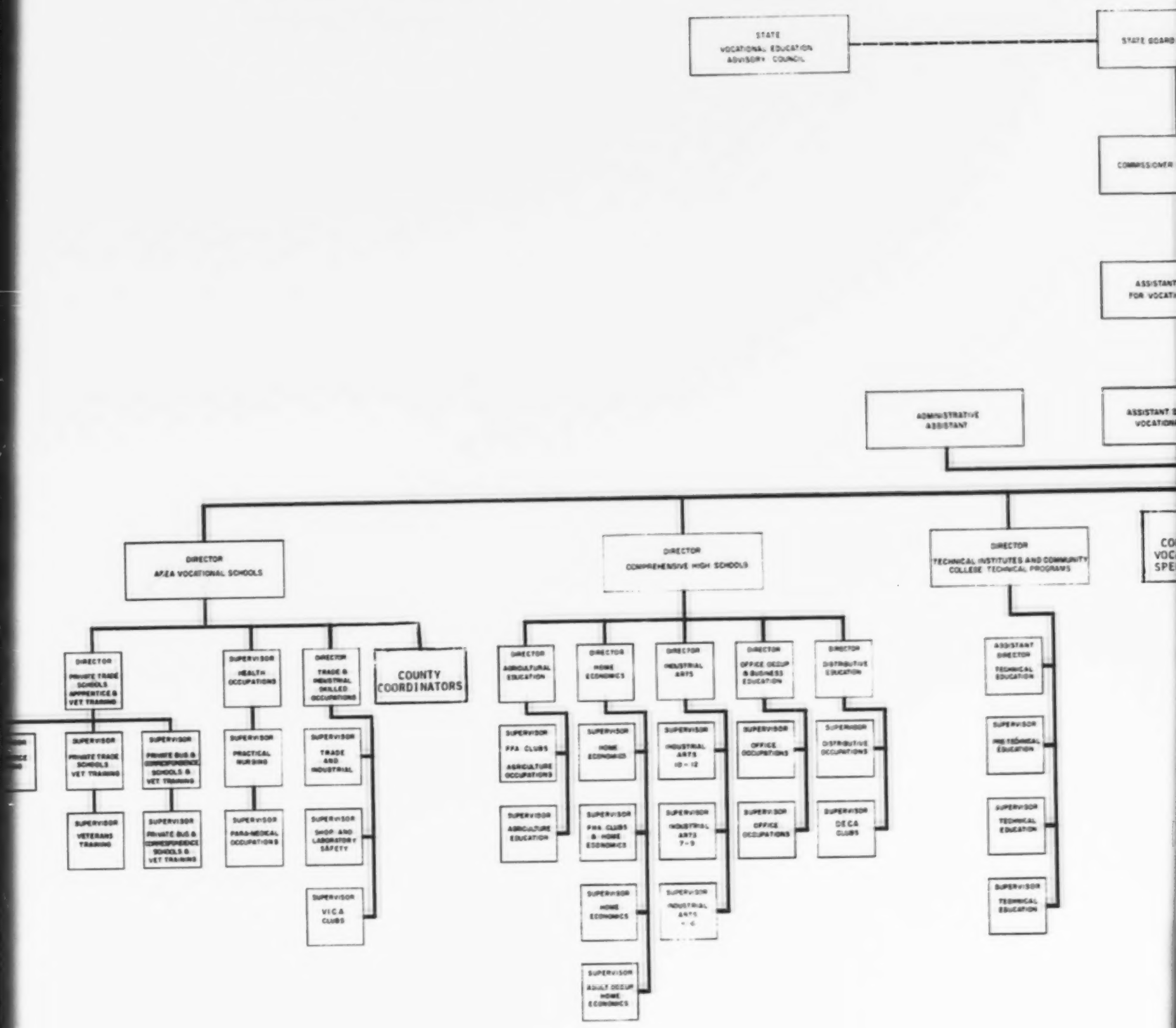
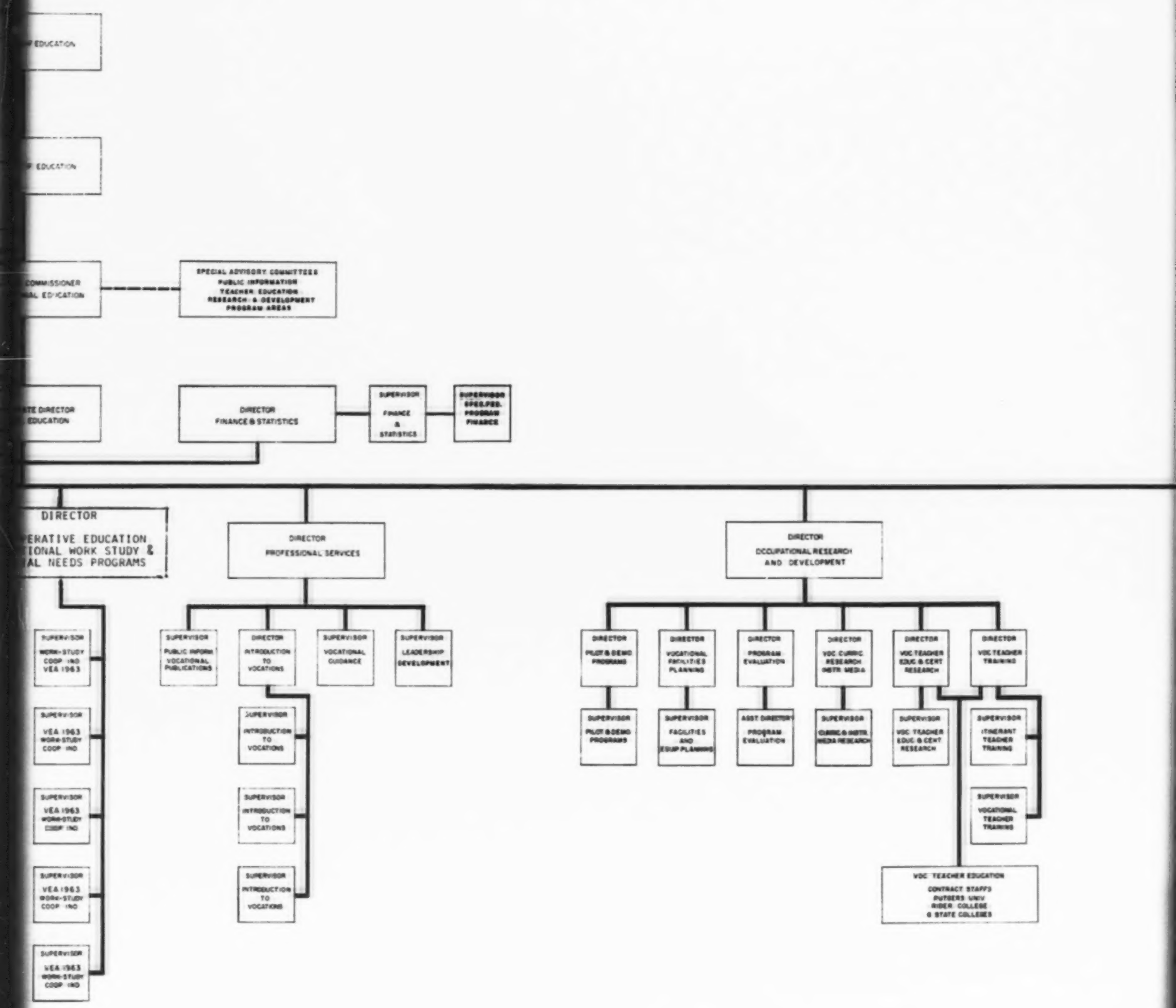


DUCATION - NEW JERSEY DEPARTMENT OF EDUC



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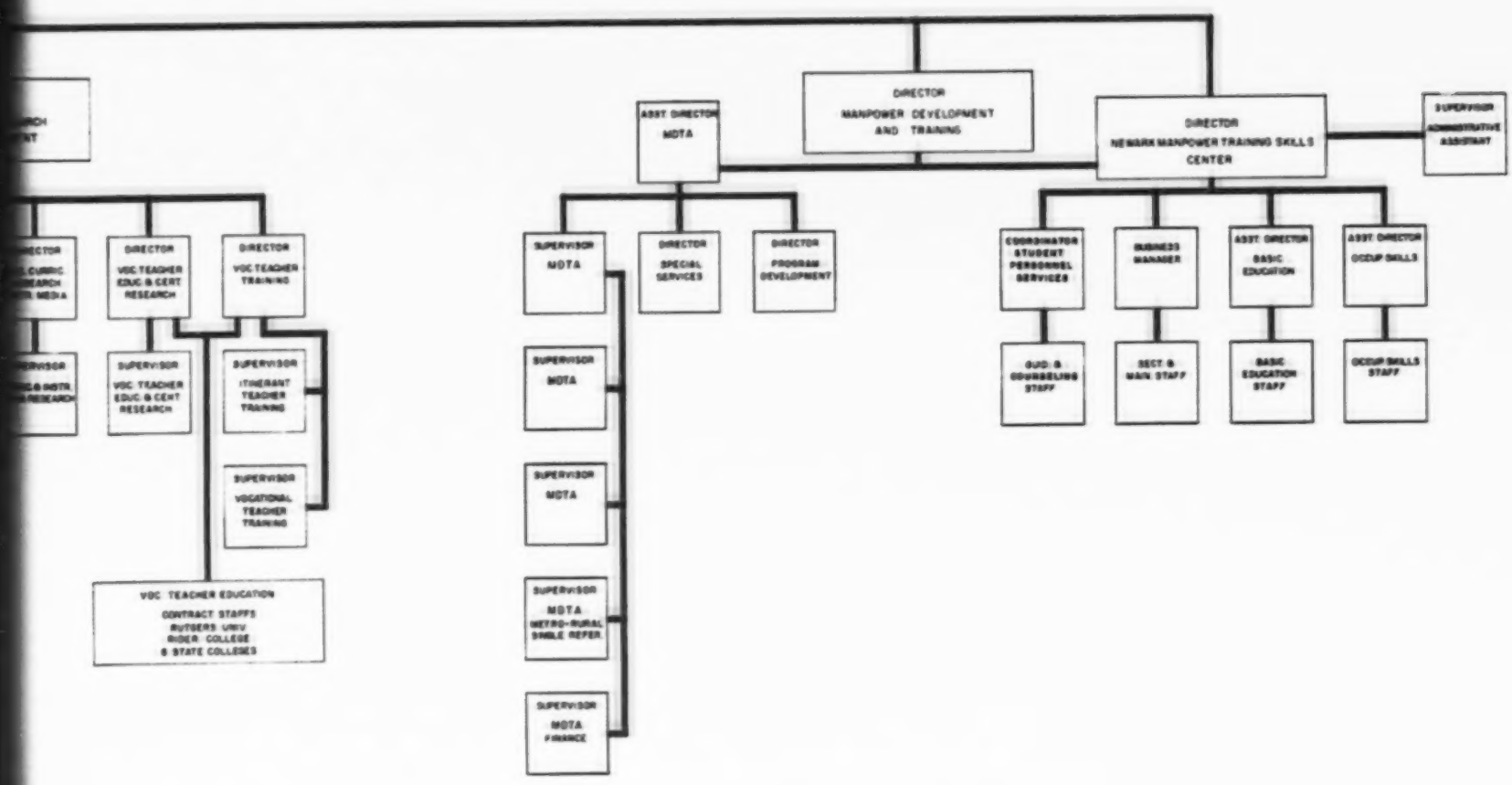
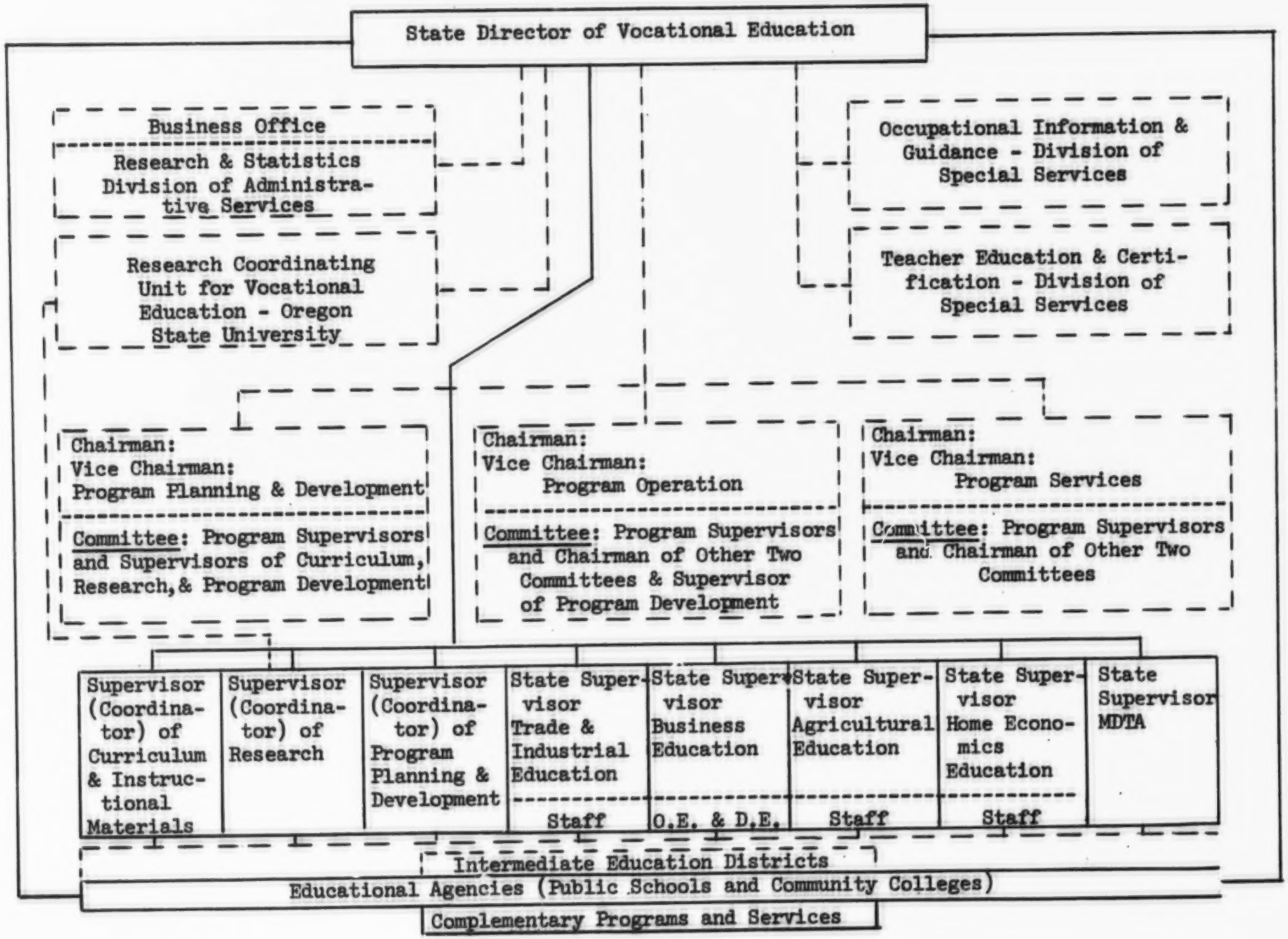
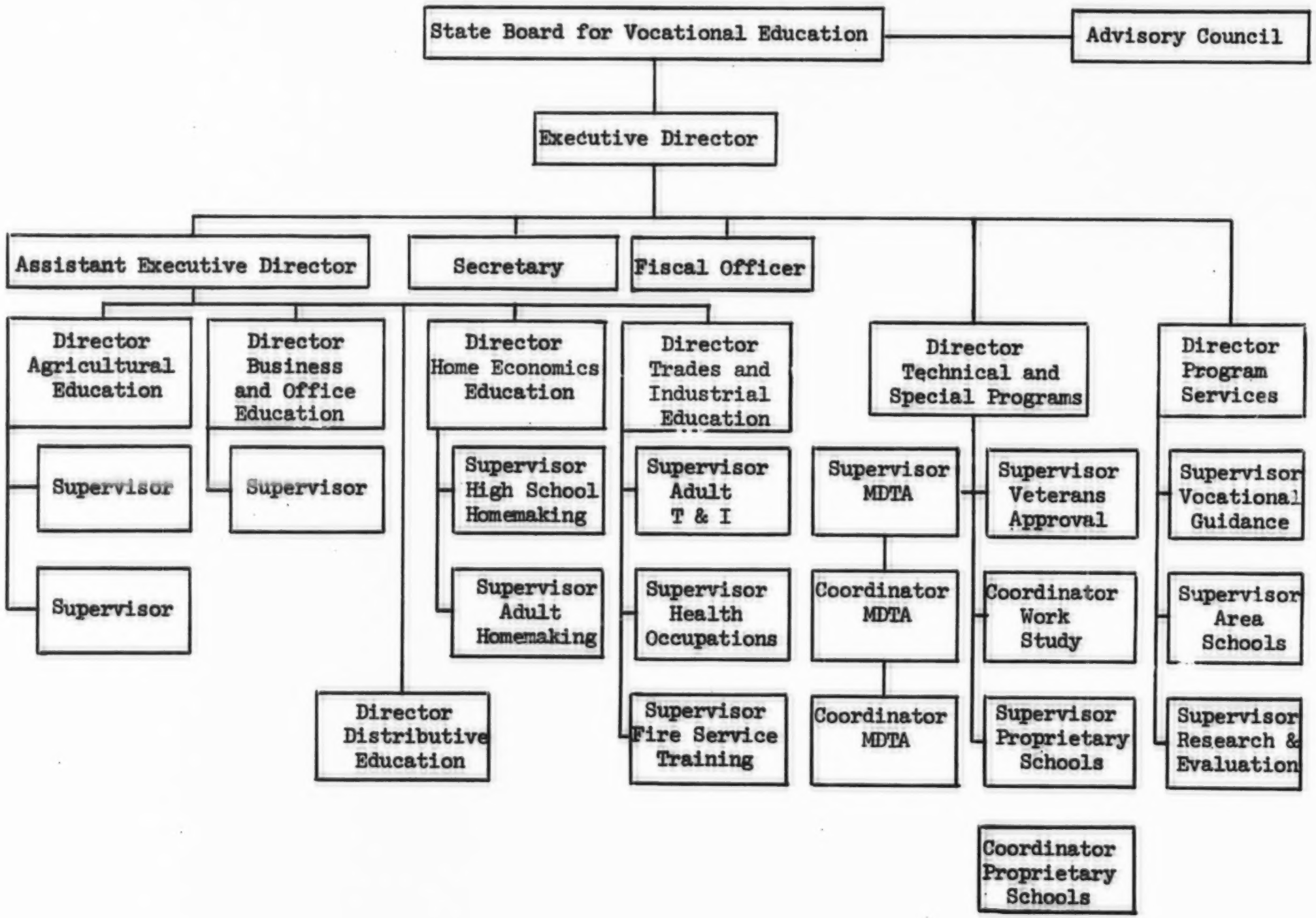


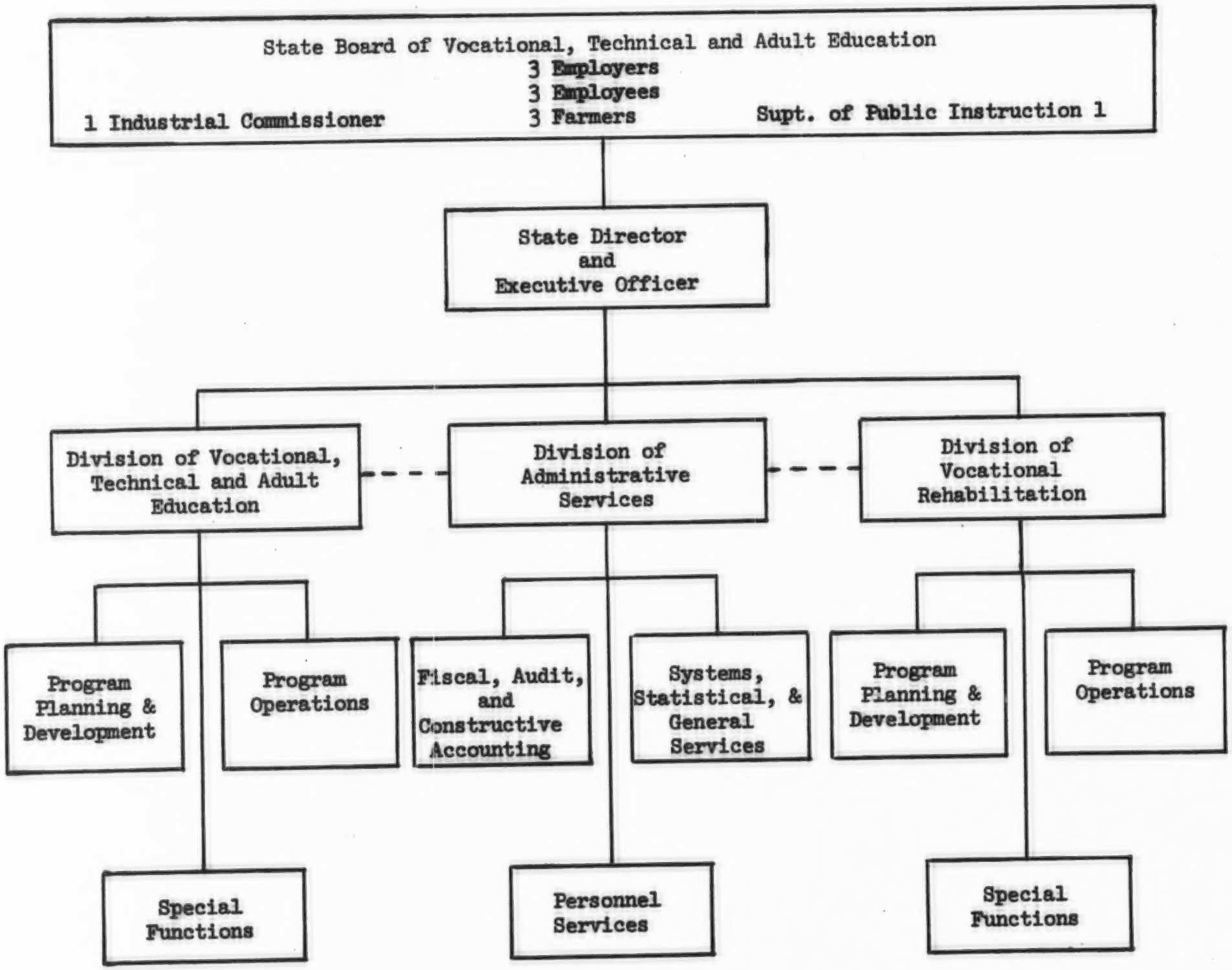
OREGON STATE DEPARTMENT OF EDUCATION - DIVISION OF VOCATIONAL EDUCATION



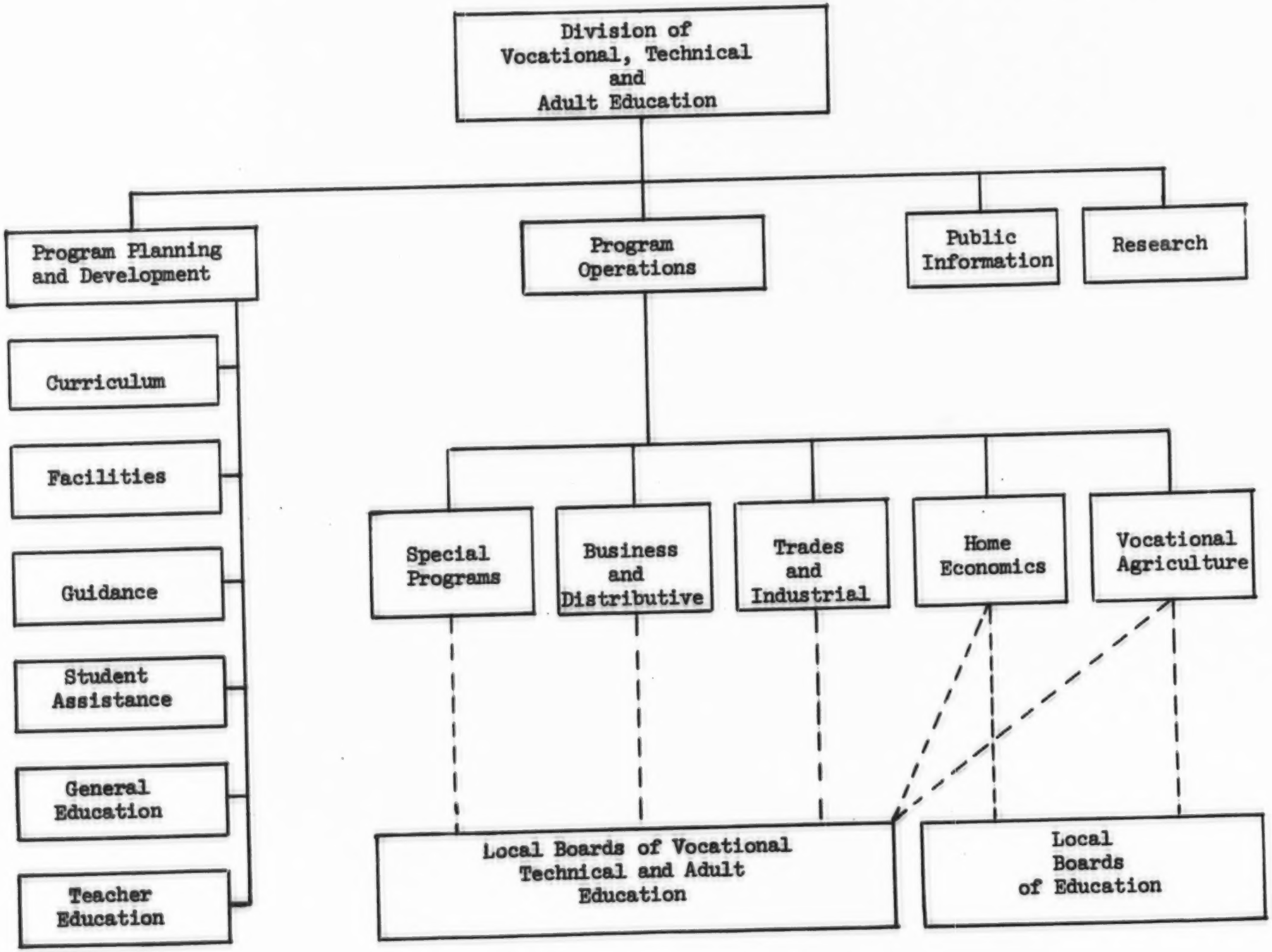
STATE BOARD FOR VOCATIONAL EDUCATION - DENVER, COLORADO



WISCONSIN


State Board of Vocational, Technical and Adult Education
3 Employers
3 Employees
1 Industrial Commissioner
3 Farmers
Supt. of Public Instruction 1
State Director and Executive Officer
Division of Vocational, Technical and Adult Education
Division of Administrative Services
Division of Vocational Rehabilitation
Program Planning & Development
Program Operations
Special Functions
Fiscal, Audit, and Constructive Accounting
Systems, Statistical, & General Services
Personnel Services
Program Planning & Development
Program Operations
Special Functions

WISCONSIN


Division of Vocational, Technical and Adult Education
Program Planning and Development
Program Operations
Public Information
Research
Curriculum
Facilities
Guidance
Student Assistance
General Education
Teacher Education
Special Programs
Business and Distributive
Trades and Industrial
Home Economics
Vocational Agriculture
Local Boards of Vocational Technical and Adult Education
Local Boards of Education

PART II

EVALUATION

A NOTE FROM THE AUTHORS

These guidelines for the evaluation of technical education programs have been prepared to assist administrators, supervisors, and teachers in the development of self-evaluation instruments.

The material has been developed for the evaluation of two-year, post-secondary, college level technical programs. However, it may readily be adapted for technical programs at other levels.

The contents are based on many years of experience in evaluation of technical education programs by the Connecticut State Department of Education, Division of Vocational Education. Consequently, they reflect philosophy and procedures as they pertain to technical education programs in that state. Self-evaluation instruments, however, should be based on the philosophy, goals, and objectives of the particular school system or institution being evaluated.

The guidelines presented here are intended to assist school personnel in cooperatively developing evaluative criteria for their school.

The writers wish to acknowledge the use of materials prepared by the Bureau of Vocational Technical Schools, Division of Vocational Education, Connecticut State Department of Education, and by the U. S. Office of Education, Division of Vocational and Technical Education, as bases and guides in the preparation of these guidelines.

Lucian Lombardi, Chief
Bureau of Technical Institutes
Connecticut State Department of Education

Carmelo Greco, Consultant
Bureau of Technical Institutes
Connecticut State Department of Education

THE EVALUATION OF TECHNICAL EDUCATION PROGRAMS

by

Lucian Lombardi* and Carmelo Greco*

The dictionary defines the word "evaluation" as "an accurate appraisal of value." Further, the word "appraisal" is defined as "an estimation of the amount, quality, or worth." Applied to technical education, evaluation can be redefined as "an accurate estimation of the amount, quality, or worth of technical education." An evaluation of an institution offering programs in technical education, as of all other types of educational institutions, concerns itself with the quality of performance as measured by various evaluative devices and the improvement of that performance.

As individuals, we are constantly concerned with the amount, quality, or worth of our efforts in performing our duties. Success is dependent upon them. We consciously or unconsciously perform an evaluation of our performances in order to improve curselves. Further, private industry has devised many methods, procedures, and instruments that will improve the amount, quality, or worth of its operations in order to develop an efficient organization producing a profit to its stockholders. This is also true in education. Educators should constantly strive to estimate the amount and kind of education needed to enable an institution to provide quality programs, quality instruction, and efficient operation so as to maintain the worth of the institution. The end result of such an endeavor will be quality graduates who have acquired the necessary skills and education to enable them to enter their life work and to become useful citizens.

In any evaluation, there should be a willingness and desire for participation and a spirit of cooperation on the part of the institution and all of the staff members. It should be thoroughly understood by all that any evaluation made of an education program--whether in whole or in part--is meant to be constructive and not critical of any individual, operation, or school and is intended to reveal the strengths and weaknesses of the programs. Naturally, there should be a willingness and desire to remedy the weaknesses revealed by the evaluation; and to make any evaluation effective, it is essential that the philosophy and the goals and objectives of technical education be understood by all concerned: the evaluators and ones being evaluated. This is very important as the philosophy and goals and objectives differ greatly from those of a two-year liberal arts transfer program which is academic in nature. Not understanding or being unwilling to understand will result in an unfair and improper evaluation of an institution having technical education programs.

The philosophy of technical education may be expressed as follows:

1. Preparation of young people for immediate gainful employment in a constantly changing technical world.

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*Mr. Lombardi is Chief of the Bureau of Technical Institutes, Connecticut State Department of Education, and Mr. Greco is Consultant, Bureau of Technical Institutes, Connecticut State Department of Education.

2. Preparation of young people for competence in citizenship and community living.

3. Preparation for social competency to achieve greater success in the satisfaction of human wants.

Preparation of young people for immediate gainful employment in a constantly changing technical world can be achieved by offering up-to-date quality programs--broad in scope. Specific training in the graduate's chosen field should be undertaken by his employer. The up-to-date quality programs should meet the needs of industry in the area served by the school. Determination of the kinds of programs and their content may be made through surveys, evaluations, and the use of advisory committees. By utilizing such procedures, particularly evaluation, obsolete programs can be discarded and new programs identified. In programs designed to prepare for gainful employment, cognizance should be taken of the fact that some of the graduates will elect to continue their education in four-year colleges; hence the program should be open-ended.

Competence in citizenship and community living is achieved through general education (including the social sciences) courses. Courses in English, literature, economics, human psychology, etc., are an important and integral part of the curriculum. They are essential as a means of developing a well-rounded individual. There must be, however, a balance between general education and technical education. One should not be over-emphasized in favor of the other. Here again, an evaluation of the entire program will assist the institution to arrive at the proper proportions required in each area.

Preparation for social competency to achieve greater success in the satisfaction of human wants may be attained through some of the offerings in the general education and participation in student activities. Such student activities include participation in sports, student government, year-book, newspapers, school bands and orchestra, membership in student chapters of professional societies, and attendance at lectures in technical education or in the liberal arts, etc. These experiences all contribute to the preparation for social competency.

The goals and objectives of technical education provide the direction for technical education. They are the targets the school concentrates on in its efforts to secure a successful program. Therefore, there must be an understanding of them and an evaluation made to determine their appropriateness and effectiveness. They are based on the philosophy of technical education and supplement that philosophy.

Some of the goals and objectives of a technical education program are:

1. To develop broad base programs which will provide quality instruction for immediate gainful employment.

The success of this objective can be determined by:

a. Evaluation of placement of graduates.

b. Evaluation of results of graduate surveys.

c. Evaluation of reactions of employers of graduates.

d. Evaluation of programs in meeting industries' needs.

e. Evaluation of adequacy and up-to-dateness of facilities and equipment.

f. Evaluation of the instructional programs.

g. Evaluation of the use of advisory committees.

h. Evaluation of supporting services in guidance, library, and visual aids.

i. Evaluation of admission policies.

j. Evaluation of the qualifications of the professional staff.

2. To develop and offer programs that will lead to competence in citizenship and community living which may be accomplished by:

a. Adequate balance of general education programs.

b. Evidence that staff and students respect the rights and values of others.

c. Adequate student government.

d. Instructors qualified to teach general education subjects.

3. To develop and offer programs that will provide social competency through:

a. Adequate student activities.

b. Adequate student government.

Accreditation and Evaluation

Evaluation

In the educational process, when one speaks of accreditation, one must also speak of evaluation, for accreditation is based upon the result of an

evaluation. Accreditation may be considered an end result, or reward, of a successful evaluation. The end result may be the authority to confer degrees or recognition of the institution that its programs meet specified standards.

Generally, an evaluation for accreditation involves the whole school in all of its aspects. Usually involved in an evaluation is an examination of:

a. The philosophy and objectives of the institution.

b. Its organization and control.

c. Its program or curricula for quality.

d. Its faculty for competency.

e. Its students with respect to admission policies, health services, and counseling services.

f. Its results, or study of graduates and placement.

g. Its resources which include physical plant and equipment, finances, and library services.

Thus, it can be readily seen that an evaluation is an appraisal of the amount, quality, or worth of technical education in an institution and is a necessary basis for accreditation.

Accreditation

Accreditation is the approval by some accrediting agency of the programs of an educational institution. Its chief purpose is to encourage better facilities and curricula that will result in quality education being offered to the students. Accreditation of an institution has come to be regarded as an indication that adequate academic standards are being maintained. Accreditation gives an institution a cloak of respectability which can hardly be achieved by any other method, and it seems to be necessary if the institution is to gain public acceptance.

Accreditation is mandatory in some states if an institution wishes to confer degrees. In other states, it is voluntary. In some of the technical fields, particularly in the paramedical fields, the programs and facilities must be approved by professional organizations that have established standards for the technical specialty. With the advent of new federal legislation providing federal funds for technical education, accreditation by a recognized accrediting agency is required if the institution wishes to participate. Some schools seek voluntary accreditation from a professional organization, such as the Engineers' Council for Professional Development, (commonly referred to as ECPD) to secure

further recognition and emphasis of quality technician programs. Others seek accreditation from a regional accrediting agency in an effort to secure maximum transfer credit for those students wishing to complete their education in a four-year institution as well as to establish status.

The forms of accreditation vary, also. Regional accrediting agencies accredit the whole school and all of its program as a total package. Professional organizations and societies usually accredit programs, only. In the total package form of accreditation, a weak or sub-standard program may prevent the issuance of accreditation. Program accreditation, on the other hand, is sought usually for strong programs, capable of meeting standards. The period of accreditation may extend from one to ten years, depending upon the accrediting agency and the results of its evaluation. The length of time devoted to the evaluation preliminary to issuance of accreditation also varies and is again based on the policies of the accrediting agencies. Some are extensive, lasting three to four days; others are quite short. Evaluation time also depends on whether or not it is being made for reaccreditation and on how familiar the agency is with the programs and facilities of the institution. Membership of the evaluating team generally is made up of individuals who are familiar with the philosophy and objectives of the type of institution being accredited.

Accreditation by State

In the hierarchy of accreditation, accreditation by a State Department of Education, State Commission for Higher Education, State University, or a voluntary state organization usually carries the least significance because, generally, "the standards enforced by these groups are neither as high nor as scrupulously applied as those administered through regional associations." (Hillway, 1958.) In some states, accreditation is required of any institution that confers degrees. In other states, it is voluntary. Normally, the whole school and all of its programs are accredited. The kinds of accreditation may also vary. For instance, in Connecticut, which has a strong accrediting procedure, there are two kinds--licensure and accreditation. Licensure is given usually to new institutions seeking accreditation for the first time and is for a period of two years. Depending upon a subsequent evaluation and its results, an institution may again be licensed for a stipulated period or accredited for two or three years. Periodic evaluations and reaccreditation are required during the institution's first twelve or more years. At the end of twelve or more years of successful operation, "continuing accreditation" is awarded for a period of ten years. Thereafter, reevaluation is required at intervals of approximately ten years. In granting "continuing accreditation," the agency may waive the inspection or evaluation if the institution has been accredited by a national or regional accrediting agency.

Regional Accreditation

The most popular and universally accepted form of accreditation is that given by one of the six regional accrediting agencies in the nation. Until recently, institutions offering technical education programs could not be accredited by a regional agency because of the agency's reluctance to recognize the philosophies and objectives of such programs. However, regional accrediting agencies now are beginning to understand and accept the role of technical education in the total educational pattern and have begun to accredit technical institutes and community colleges offering technician programs. The standards of evaluation applied by a regional agency are qualitative and are applied to an institution as a whole. The New England Association of Colleges and Secondary Schools states in its standards:

> The areas of major concern in an evaluation and accreditation of an institution are organization and control, program, faculty, students, facilities, and resources. Applications for accreditation will not be considered until two years after graduation of the first class. Accreditation is granted for ten years. Continuation of accreditation after ten years is dependent upon the maintenance of established standards.

Standards of the six regional agencies are constantly reviewed and revised to meet changing conditions. Federal legislation requiring that an institution be accredited before it is eligible to participate in federal funds for technical education has created problems for some institutions, particularly new institutions or institutions which have been in existence for some time, but which have never sought accreditation. Usually an application for accreditation is not considered until one or two years after the institution's first graduating class. This imposes a hardship on new institutions. Hardships also are imposed on old institutions never before accredited because of the time-lag from application to accreditation. Recognizing these facts, regional agencies and some professional agencies have established another category of accreditation called "Recognition of Candidacy for Accreditation." This form of accreditation recognizes an institution's ability to meet all standards for full accreditation within a specified time. The requirements for Recognition of Candidacy for Accreditation established by the New England Association of Colleges and Secondary Schools state, in part:

> One class must be enrolled and normally one year of operation must be completed, and the institution must be developing in accordance with the general standards of the regional agency.

This type of accreditation may be enjoyed for a maximum of five years. An institution may request full accreditation at any time during that period. At the end of five years, a full evaluation must be made, and failure to gain accreditation at that time requires removal from Recognition of Candidacy for Accreditation.

Accreditation by Professional Organization or Agency

Various professional groups have, for many years, made a practice of exercising an accrediting function of specialized technical education programs. Such agencies include the Engineers' Council for Professional Development (ECPD) in the engineering technologies; and in the medical fields, The American Medical Association, Board of Certified Laboratory Assistants, and the Board of Schools of Medical Technologists of the American Society of Clinical Pathologists. The specialized nature of the standards developed by these professional agencies assures greater consideration for the technical education program than is provided by the general accrediting agencies. For this reason, this type of recognition is of great significance. It denotes the offering of quality programs, meeting high standards. Some professional agencies, such as ECPD, do require prior accreditation by a regional agency. The length of accreditation offered by ECPD is from one to six years. Accreditation is by programs only, although the whole school is covered in the evaluation for accreditation. Evaluation, because of its significance, is very extensive and quite in depth.

Evaluating Advisory Committees

A very effective means of evaluating an institution's technical programs, without regard to accreditation, is through the employment of evaluating advisory committees. The members of these advisory or consulting committees should be experts in their field. It is recommended that an evaluating advisory committee be appointed for each technology. Valuable advice may be obtained from each committee with respect to quality of the instruction, obsolete subjects in the curriculum, new subjects that should be included to meet current and new trends in the field, discarding of obsolete equipment, and recommendations for new, modern equipment. The utilization of such a committee will be of great benefit to the institution and should provide for closer working relationships between the institution and the employers of the graduates. Upon completion of the committee's tasks, the same committee may be retained as an advisory committee to the particular technology. This enables the institution to continue to consult with the group on other matters and to maintain its relations with people in the field.

Self-Evaluation

A self-evaluation should be made as a preliminary step to accreditation. In fact, most accrediting agencies provide a questionnaire which must be completed and submitted before the evaluation for accreditation is made by the agency. The questionnaire is a self-evaluation instrument and may serve as a medium for evaluation and improvement of the school and its program before the official visitation. In cases where the questionnaire may not be extensive and intensive enough to examine all phases of the institution's operation and programs, a more

adequate self-evaluation instrument should be used. Perhaps the greatest benefits derived from accreditation are those benefits which result from the required self-evaluation.

However, self-evaluation prior to accreditation only is not sufficient. There is a lapse of several years between accreditation and re-accreditation. Self-evaluation should be continuous. Social, economic, technical, and educational changes are occurring constantly. What is appropriate and current today may be obsolete tomorrow.

The institution should develop self-evaluation instruments designed to evaluate all aspects of its operation--administration, curricula, staff, equipment, facilities, and all the other factors which contribute to the attainment of the school's goals and objectives. The goals and objectives also must be evaluated from time to time in view of changes in local, regional, state, and national needs, and of other educational institutions in the vicinity of the school.

All aspects covered in the instruments may be evaluated in one evaluation, or parts of it may be evaluated over a specified period of time. Generally, there should be evaluation of several aspects of the program in process at all times, with evaluation of the total program at intervals of several years. The self-evaluation may be formal or informal, but it must be done cooperatively between the staff and the administration with the understanding that it is a constructive evaluation and is not designed to criticize any individual or program. There must be, and this is important, a follow-up of all weaknesses discovered and implementation of indicated improvements as soon as possible after the evaluation.

If an institution is one of several under the jurisdiction of a central unit, the same self-evaluating instruments may be used cooperatively between the central unit and its constituents. The same principles as outlined above should apply.

Self-Evaluation Materials

The evaluative material which follows has been developed to assist persons concerned with the self-evaluation of post-secondary technical education programs and is based on the evaluation of each phase of the total school operation.

The checklists included consist of provisions, conditions, or characteristics found in good technical institutes. Although the lists are extensive, they are not all-inclusive. Some items may not be necessary or even applicable in every school while other important features or procedures may have been omitted and should be added in the appropriate places.

The use of five numbers is suggested to rate the performance of items on the checklists:

(5) Excellent

(4) Very Good

(3) Good

(2) Fair

(1) Poor

In addition a letter (M) might be used to indicate a provision or condition not being met but the need of which is questioned by the evaluators. The letter (N) might be used to indicate that the item does not apply in the particular situation.

It is hoped that this material will be helpful, as starting points, to personnel involved in cooperatively developing evaluative criteria for their schools.

Administration's Role in Evaluation

The administration and supervision of a modern technical institute carries with it a multitude of responsibilities for the administrator of the school. He is charged with the satisfactory functioning of the institution. His responsibilities include leadership in the educational program, in motivation and growth of the staff, in planning and striving to obtain adequate financing, in community, industrial and labor relations, and in management and maintenance of plant and equipment. He must be particularly sensitive to trends in education as well as in industry so that the school program may be constantly geared to meet the needs of the students and the community.

Administration is concerned with school evaluation in three ways:

1. In obtaining staff acceptance and cooperation for the evaluation--providing the climate.

2. In being evaluated itself as one of the parts of the total school operation.

3. In providing the leadership and ways and means of effecting indicated improvements.

Evaluation is, therefore, of vital concern to administration. It provides answers to such questions as: How are we doing? Is the program meeting the needs of those we serve? What can we do to improve? It provides an appraisal of the functioning of the total school program, and it can serve as a valuable in-service education program for the entire school personnel.

To be successful, evaluation must have the full understanding and whole-hearted support of the administrative staff. Evaluation must be

a democratic process, and all people affected should be included. Considerable time must be spent in cooperatively developing an understanding of the need for evaluation and a consensus to engage in one, and in motivating the faculty to study and restate school objectives, to develop or modify evaluative criteria to meet local situations, to identify evaluation procedures, and to organize for and carry through the evaluation. The administrative staff must supply the democratic leadership required in these processes. How well they sell evaluation, how well they motivate their school personnel and convince them that evaluation will result in improvement will determine the success or failure of the entire project. To do this job effectively, the administrative staff must first be sold on it themselves.

Evaluation of Administrative Functions

Evaluation of administration should determine the effectiveness of the services rendered, showing strengths and weaknesses and indicate paths for improvement in performance of its functions and responsibilities which include:

1. Exertion of Educational Leadership
2. Organization and Supervision of Instructional Staff
3. Organization and Maintenance of the Educational Program
4. Promotion of Graduate Placement and Follow-up Studies
5. Initiation of Public Relations Activities
6. Organization and Management of Administration
7. Organization and Supervision of Non-Instructional Staff and Services
8. Operation and Maintenance of the School Plant.

Educational Leadership

The Administration has the major responsibility for educational leadership.

Check List

The Administration:

( ) 1. Helps new instructors with a well-organized orientation program.

( ) 2. Aids instructors in obtaining and using a variety of effective teaching materials.

( ) 3. Encourages staff to initiate improvements in instructional programs.

( ) 4. Aids in the development and procurement of a professional library.

( ) 5. Seeks a cooperative effort of the entire staff in policy making.

( ) 6. Maintains effective communications with staff.

( ) 7. Encourages professional growth of the administrative instructional staffs.

( ) 8. Encourages intradepartment and interdepartment communication and cooperation to provide well correlated and integrated programs.

( ) 9. Provides initiative and leadership in developing ideas for research, experimental, and pilot programs.

( ) 10. Participates in and contributes to community activities and services.

( ) 11. Is a member of, participates in, and contributes to professional education organizations and educational activities on local, state, and national levels.

( ) 12. Is acquainted with educational programs of other institutions in the area.

( ) 13. Keeps informed of changes affecting student needs and considers their effects on the educational program.

( ) 14. Is aware of technological changes and their possible effects on the educational program.

( ) 15. Keeps informed of local, state, and federal laws affecting the operation of the school program.

Organization and Maintenance of the Educational Program

The organization of an educational program should be concerned with the development of an effective teaching-learning environment.

Check List

The Administration:

( ) 1. Maintains a program of instruction in accordance with existing policies.

( ) 2. Adjusts teaching loads of department heads to provide for supervisory and administrative activities.

( ) 3. Provides for the maintenance of up-to-date records of all students.

( ) 4. Prepares individual student and staff schedules before the opening of school.

( ) 5. Considers room capacities and the type of instruction when scheduling class loads.

( ) 6. Has developed school services (health, library, and audio-visual) that are up to standards indicated in respective service bulletins.

( ) 7. Maintains a reasonable distribution of co-curricular staff assignments.

( ) 8. Has an effective policy on homework.

( ) 9. Encourages student activity programs to meet their needs and interests.

( ) 10. Has an up-to-date library of policy and procedure bulletins accessible to the staff.

( ) 11. Has an organized transportation program for curricular and co-curricular activities.

( ) 12. Provides for adequate curriculum materials and instructional supplies.

( ) 13. Provides for student personnel services commensurate to the school's needs.

( ) 14. Maintains an environment conducive to learning.

Organization and Supervision of Instructional Staff

The administration's plans for a continuing program of instructional improvements must include procedures for the supervision and professional growth of the staff.

Check List

The Administration:

( ) 1. Is familiar with policies and procedures pertaining to the instructional program of education.

( ) 2. Makes certain that all staff members understand the philosophy of technical education.

( ) 3. Makes certain that all instructors know and understand the goals and objectives of their subject field.

( ) 4. Makes certain that all staff members understand their duties and responsbilities.

( ) 5. Motivates and encourages staff members to develop and use lesson plans.

( ) 6. Makes provisions for the instructional staff to be cognizant of current instructional materials and encourages their use.

( ) 7. Maintains a file of all course outlines.

( ) 8. Encourages the instructional staff to carry on a continuing program of improvement.

( ) 9. Uses the facilities and personnel of the State Education Department to assist in the improvement of instruction.

( ) 10. Makes proper decisions in accordance with established policies concerning the instructional programs.

( ) 11. Maintains contact with students and evaluates their educational needs.

( ) 12. Encourages staff members to have an active role in the study and improvement of the instructional program.

( ) 13. Secures the cooperation of the staff in carrying out recommendations and policies.

( ) 14. Acts as general coordinator for <u>all activities</u> relative to the improvement of the instructional program.

( ) 15. Provides opportunities for instructors to try new practices and techniques.

( ) 16. Provides competent planned supervisory services to help instructors to increase their effectiveness.

( ) 17. Provides opportunities for staff members to observe instructional programs in other schools.

( ) 18. Encourages the staff to be active in professional organizations.

( ) 19. Encourages staff to participate in and contribute to community activities.

( ) 20. Encourages the staff to visit industries, and attend conventions, workshops, and conferences.

( ) 21. Makes certain that all new instructors recommended for employment meet certification requirements.

( ) 22. Encourages individual staff members to evaluate and consider how their personal traits and mannerisms affect their teaching.

( ) 23. Encourages the development of sympathetic understanding and friendly rapport between staff and students.

( ) 24. Has stimulated the preparation of a Faculty Handbook which outlines all matters concerning the school and staff.

Organization and Management of Administration

Sound administrative procedures must be followed to promote an efficient school operation.

Check List

The Administration:

( ) 1. Operates in conformity with established policies.

( ) 2. Reviews departmental record-keeping procedures for sound business management and conformance to existing policies.

( ) 3. Counsels the staff in proper accounting procedures.

( ) 4. Has records well organizaed and readily available for reference.

( ) 5. Involves the staff in the preparation of budgetary requests.

( ) 6. Has budgetary requests that are realistic, adequate, and forward looking.

( ) 7. Has budgetary requests that are well documented.

( ) 8. Maintains an accounting system containing all pertinent data.

( ) 9. Maintains up-to-date records of all school personnel.

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( ) 10. Has departmental inventories on file in the office.

( ) 11. Maintains a file of supply, equipment, and maintenance contracts.

( ) 12. Provides for the safekeeping of records.

( ) 13. Has a program for determining needs and establishing priorities for supplies, equipment, and facilities.

( ) 14. Has work details well organized and appropriately delegated.

( ) 15. Has an administrative office that functions effectively and efficiently.

Promotion of Graduate Placement and Follow-Up Studies

The school should assist students and graduates to gain employment.

Check List

The Administration:

( ) 1. Involves the staff in follow-up studies of graduates and drop-outs.

( ) 2. Maintains close relationship with the local state employment office.

( ) 3. Has latest employment surveys.

( ) 4. Has an active alumni association and encourages its participation in graduate placements and follow-up studies.

( ) 5. Encourages the staff to be aware of manpower needs in their respective fields.

( ) 6. Has a recruiting policy which encourages industry to recruit prospective graduates.

( ) 7. Maintains complete and accurate students records.

( ) 8. Encourages the faculty to maintain membership and to be active in technical professional organizations.

( ) 9. Encourages faculty to maintain industrial contacts.

( ) 10. Encourages the use of school facilities by technical organizations.

Initiation of Public Relations Activities

Administration should initiate public relations programs and encourage the staff to foster school-community relations.

Check List

The Administration:

( ) 1. Makes use of all varieties of news media.

( ) 2. Is active in professional organizations, both technical and academic.

( ) 3. Promotes a program of visitations between the staff and industrial personnel.

( ) 4. Realizes the importance of the student and his parents in the public relations program.

( ) 5. Is aware of the needs and trends of the industrial community.

( ) 6. Involves the staff in disseminating information about the school.

( ) 7. Has an organized program designed to develop and maintain close relationship with industry.

( ) 8. Encourages staff members to arrange "plant tours" with students.

( ) 9. Has an active general consulting committee.

( ) 10. Has an organized program designed to develop and maintain close relationship with labor organizations.

( ) 11. Has an organized program designed to develop and maintain close relationship with area boards of education, superintendents, school administrators, and guidance counselors.

( ) 12. Has an organized program designed to develop and maintain close relationship with the local state employment offices.

( ) 13. Has continuing newspaper, radio, and T.V. publicity.

( ) 14. Participates in community civic organizations and encourages staff membership to do likewise.

( ) 15. Has a planned, well-organized, effective, continuous public activities program.

Organization and Management of Non-Instructional Staff and Services

The non-instructional staff performs services vital to the support and efficient operation of the educational program. The school nurse, cafeteria, office and custodial staffs constitute this group.

Check List

The Administration:

( ) 1. Has an organized plan designed to develop and maintain close relationship with teaching and non-instructional staff.

( ) 2. Maintains a competent, adequate office and clerical staff to take care of the clerical needs of the faculty.

( ) 3. Encourages the non-instructional staff to be courteous and efficient.

( ) 4. Makes provision for a satisfactory lunch schedule for all school personnel.

( ) 5. Provides adequate personnel for the operation of the lunch program.

( ) 6. Provides for periodic inspection of the food handling facilities by health services.

( ) 7. Maintains a competent, adequate custodial staff for maintenance and custodial work.

( ) 8. Promotes in-service training and occupational growth of all non-instructional staff.

( ) 9. Has stimulated the preparation of a non-instructional handbook which sets forth all personnel policies concerning the non-instructional staff.

Operation and Maintenance of the School Plant

The operation and maintenance of the school plant entails programs of inspections, maintenance, and safety practices.

Check List

The Administration:

( ) 1. Formulates regulations regarding the use of the school plant and other school property.

( ) 2. Sees that regulations for use of facilities are adhered to.

( ) 3. Schedules fire drills for all school personnel.

( ) 4. Requires fire regulations to be observed at all times.

( ) 5. Requires the inspection of fire fighting equipment.

( ) 6. Has an organized inspection program of the plant and grounds involving staff members.

( ) 7. Has an organized program for the maintenance of the exterior of the building and the grounds.

( ) 8. Has an organized program for the maintenance of the interior of the building.

( ) 9. Has an organized health inspection program of the building, facilities, and the grounds.

( ) 10. Has established regulations and facilities to provide for orderly parking and traffic of all vehicles.

Instructional Program

Curriculum

The curriculum is the blueprint for achieving the institution's objectives. If the plan has been well prepared for the job to be done and if the plan is executed by competent personnel provided with adequate funds, it is likely that the students will receive a high quality education. In a technical education program, the curriculum is designed with objectives in (1) general education outcomes, (2) occupational outcomes, and (3) development of the individual student.

Evaluation of the curriculum should provide information for arriving at objective and subjective answers to such questions as: How well are the objectives being met? What contribution is each segment of the curriculum making towards the end goals? Is the course content pertinent, up-to-date? What revisions, deletions, additions are indicated? The evaluation should show not only how well we are doing but also how we may improve.

Preparation for employment is one of the main objectives of technical education. The curricula are designed to prepare the graduate for work in certain technical fields--electrical, mechanical, data processing, and so forth. Therefore, every effort should be made to keep the curricula up-to-date. Technicians and engineers from the particular technical areas probably were on the consulting committees which assisted in preparing the curricula; they should also be members of the evaluation teams. These men are working in the technical fields covered by the curricula. They are cognizant of changes and new developments in the fields which should be reflected by changes in the curricula. For example, an electronics curriculum prepared a few years ago would devote considerable time to the study of vacuum tubes. In today's electronics curriculum, comparatively little time is given to the study of vacuum tubes--the emphasis is on transistors and solid state devices. The experts working in the field are invaluable in helping keep the curricula up-to-date. They can provide much of the pertinent information and data required by the faculty to arrive at recommendations for curriculum improvement.

Preparation for employment is a distinguishing characteristic of technical education; it is not its sole purpose. Education should also prepare the individual for living in a democratic, affluent society as a participating and contributing member. It should prepare him to exercise individual freedom within a modern state (Sizer, 1966). Hence, general education--English, and the social sciences--should be an integral part of a technical curriculum. Technical institute curricula, in general, allot fifty percent of the total credit hours to general education courses and basic mathematics and sciences, and the other half to technical specialty courses.

General Education Courses

General education courses are those in the humanities, the social sciences, and the natural sciences designed to promote the intellectual growth of the students and their social and civic competence. In a technical education curriculum, these usually include courses in English, literature, and the social sciences--the natural sciences being considered related to the technical fields.

Organization

Check List

( ) 1. The curriculum includes at least 15 semester hours of general education courses.

( ) 2. All regular students are required to take these courses or corresponding electives.

( ) 3. Courses are planned to provide for sequential development from course to course.

( ) 4. Teacher load is such that necessary attention may be given to the work of individual students.

( ) 5. The courses challenge the abilities of all the students enrolled.

( ) 6. The courses stimulate intellectual growth.

( ) 7. There are provisions for diagnosis and remedial instruction.

( ) 8. There are provisions for ability groupings to meet varying levels of ability.

( ) 9. There is evidence of the application of these learnings in the social and academic environment of the institution.

English (Communication)

Check List

The courses aid the student:

( ) 1. To learn and use accepted forms of punctuation, spelling, abbreviation, paragraphing, and letter forms.

( ) 2. To develop skills in thinking, reading, writing, and speaking.

( ) 3. To organize effective and logical oral and written expression.

( ) 4. To develop and apply critical standards for the evaluation of what is heard, read, written, or spoken.

( ) 5. To learn the effective use of study aids such as dictionaries, reference books, bibliographies, and guides to periodical literature.

( ) 6. To develop and employ a creative and responsible use of language.

( ) 7. To develop skill in reading different types of material with speed and understanding.

( ) 8. To develop an interest in reading worthwhile books, newspapers, pamphlets, and magazines.

( ) 9. To learn to listen and to understand.

Literature

Check List

The courses promote social competence and intellectual growth through:

( ) 1. Developing knowledge of and appreciation of literary forms.

( ) 2. Sharing the works and thoughts of the great minds of yesterday and today.

( ) 3. Acquiring a sense of personal worth and of the dignity of man.

( ) 4. Achieving a sense of social and moral values and ideals.

( ) 5. Making other studies more meaningful.

( ) 6. Learning to understand people.

( ) 7. Acquiring understanding of social, political, and industrial trends.

( ) 8. Fostering desirable attitudes and personal traits.

( ) 9. Helping in the understanding and solution of personal problems.

( ) 10. Developing ability for critical judgment.

( ) 11. Improving oral and written communication.

( ) 12. Increasing speed of reading.

( ) 13. Increasing comprehension.

( ) 14. Increasing powers of concentration and application.

( ) 15. Acquiring an extensive general and technical vocabulary.

( ) 16. Acquiring selectivity and discrimination in reading materials.

( ) 17. Promoting broad avenues of interest.

( ) 18. Stimulating interest and good taste.

( ) 19. Developing desire for better use of leisure time.

( ) 20. Raising the cultural level of home life.

( ) 21. Promoting desire to read more extensively.

( ) 22. Acquiring a better understanding of our American heritage.

( ) 23. Acquiring a better understanding of our world-wide heritage.

Social Studies

Social studies courses in technical education programs include economics, applied psychology, human relations, social institutions, comparative government, and similar courses designed to arouse the student's curiosity as to his social environment and to develop an awareness of social problems and their implications. These courses should promote growth of social and civic competence and intellectual growth by:

Check List

( ) 1. Acquainting the student with significant elements of our social, political, and economic heritage.

( ) 2. Developing in the student an understanding of the impact of recent history upon peoples and their problems.

( ) 3. Developing in the student skill in analyzing social, economic, and political problems in terms of the history, geography, and cultures of the peoples involved.

( ) 4. Giving the student an understanding of the American economic system and the contributions made to that system by capital, labor, management, and the consumer.

( ) 5. Preparing the student to be an active, contributing member to this economic system.

( ) 6. Aiding the student to understand inter-relations among political, social, and economic problems and issues.

( ) 7. Encouraging students to assume responsibility for democratic action in the conduct of school activities.

( ) 8. Developing in the student the ability to discern and deal with propaganda.

( ) 9. Developing in the student a curiosity as to his social environment.

( ) 10. Developing in the student an awareness of social problems and their implications.

( ) 11. Developing in the student a critical approach to living in society.

( ) 12. Helping the student gain insight into the intricate and stubborn character of major social issues.

( ) 13. Helping the student understand his own behavior and the behavior of others.

( ) 14. Helping the student gain an understanding of the interaction of individuals with their social environment.

( ) 15. Acquainting the student with the organization, operation, and problems of federal, state, county, city, and town government.

( ) 16. Familiarizing the student with governments in other nations.

( ) 17. Developing the student's ability to work with and get along with others.

( ) 18. Helping the student gain an understanding of motivation, feelings, and emotions as related to his actions and to inter-personal relations.

( ) 19. Developing in the student creativity and flexibility to adjust to changes in social environment.

Basic Mathematics and Science Courses and Supporting Studies

Basic courses and supporting studies include courses in basic mathematics and science which form the foundation in varying degree to all technical specialty courses and the supporting or auxiliary courses which are fundamental to the technical specialty since they provide the student with a broader base for better understanding and for functioning more effectively in the specialty area. The former include such courses as mathematics (to the extent and depth required by the technology and level of technician being prepared), physics, and general chemistry. The latter include such courses as engineering drawing, for other than mechanical technology students, materials of engineering, manufacturing processes, electricity for non-electrical students, and Fortran for non-data processing students.

Organization

Check List

The basic courses and supporting studies are:

( ) 1. Well correlated and integrated with the technical specialty courses.

( ) 2. Of sufficient length and depth to provide:

( ) a. The fundamentals needed for the beginning job.

( ) b. The background required for growth on-the-job.

( ) c. The depth required for continuing of education.

( ) 3. Designed and taught so as to teach not only theory but its application to the solution of realistic problems.

( ) 4. Sufficient in number to provide the broad base required for better understanding and functioning in the specialty area.

( ) 5. Organized to develop an understanding of the fundamental mathematics and scientific principles and processes.

( ) 6. Organized to provide sufficient laboratory experiences to teach laboratory methods and techniques and the taking, analyzing, and reporting of data.

( ) 7. Organized to provide an adequate balance between theory and laboratory course hours.

Nature of Course Offerings

Check List

( ) 1. The courses are planned to provide for sequential development of the subject.

( ) 2. Course material is up-to-date.

( ) 3. Opportunities are provided for project work.

( ) 4. The courses provide for the varying abilities among the students.

( ) 5. Time is provided for remedial work.

( ) 6. The content of the courses is clearly applicable to the technical specialty.

( ) 7. The students understand the contributions these studies make toward preparing them for work in their technical specialty.

( ) 8. Laboratory work is provided in the materials and processes related to the technology.

( ) 9. The courses emphasize the fundamental sciences basic to the technical specialty.

( ) 10. The courses have clearly stated objectives which conform to the objectives of the technical curriculum and the school.

Technical Specialty Courses

The technical specialty courses include those courses designed to provide an extensive knowledge of a field of specialization and an understanding of the engineering and scientific activities which distinguish the technology of the field. These courses develop the special abilities which technicians must have to work in a particular engineering field.

Check List

The courses should:

( ) 1. Develop in the student a degree of competence and depth of understanding to ensure:

( ) a. Satisfactory proficiency for initial employment.

( ) b. Potential for growth on-the-job.

( ) c. Preparation for continuing education.

( ) 2. Develop in the student the ability to work independently as well as with others.

( ) 3. Develop in the student the ability to think rationally, and to anlayze and solve problems in his technical field.

( ) 4. Develop in the student qualities of leadership within his capabilities.

( ) 5. Be designed with inherent flexibility so that they may assimilate new technological and educational developments and discard obsolete methods and material.

( ) 6. Have clearly stated objectives which conform to the philosophy and objectives of the school and the curriculum.

( ) 7. Be sequential with subject matter carefully coordinated in groups of concurrent courses which are arranged to blend smoothly from one group of courses into the next.

( ) 8. Provide for the introduction of specialized technical course work in the first semester or term.

( ) 9. Develop in the student the ability to perform tests, analyze data, and prepare reports.

( ) 10. Provide adequate classroom and laboratory time with consideration given to the relationship between theory and laboratory classes.

( ) 11. Be designated to distinguish between laboratory and shop courses.

( ) 12. Develop in the student the necessary skills to perform the tasks usually required of technicians in the particular specialized area.

( ) 13. Develop in the student proficiency in the use of the scientific method in the application of basic principles in the individual's field of technology.

( ) 14. Develop in the student a thorough understanding and facility in the use of:

( ) a. Materials,

( ) b. Processes,

( ) c. Apparatus and equipment,

( ) d. Procedures and methods, and

( ) e. Techniques

commonly used to perform the work and provide the specialized services required of the technology.

( ) 15. Develop in the student a depth of understanding to enable the individual to establish effective rapport with the professional people with whom he will work.

( ) 16. Provide an extensive knowledge in the field of specialization with an understanding of the application of fundamental principles of the field to work and problem situations encountered by technicians.

( ) 17. Provide electives for students wishing emphasis on certain phases of a technology.

Instruction

Faculty

A competent professional faculty is one of the indispensable elements of a good school, for it is the teachers who work directly with the students to achieve the objectives of the curriculum and the school. Such a staff is not merely a group of individually competent persons, it

is a cooperating group having common purposes and being motivated by common ideals.

Teachers are engaged constantly in the evaluation of their students and indirectly in the evaluation of their own performance and of the school.

A school evaluation will aid teachers in identifying their weaknesses and their strong points, in re-thinking objectives, and determining their success toward achieving these goals. It will motivate growth and change and may point out new goals and new paths for reaching them.

However, teachers are often apprehensive of formal school evaluations. Oftentimes such evaluations have meant considerable work, a lot of action, some criticisms, and recommendations but little in the way of implementation, improvement, and follow-up.

No evaluation can succeed without the full cooperation of the teachers. As professional people, teachers want to do a good job and to improve. They wish to cooperate individually and collectively for the effective operation of the school. They will support evaluation, if evaluation procedures and materials are cooperatively developed and applied by the entire school staff, if evaluation is based on progress rather than preconceived standards, if they are convinced evaluation techniques will lead to the identification of next steps to be taken and that every effort will be made to take these steps toward improvement of the total school program, and if they are involved in the evaluation of all school operations which affect the educational program.

<u>Check List</u>

Faculty members:

( ) 1. Have a diversity of experience within and outside their specialty field.

( ) 2. Are competently trained to undertake the tasks to which assigned.

( ) 3. Meet certification requirements and are certified.

( ) 4. Employ up-to-date methods of instruction.

( ) 5. Show evidence of constant professional growth.

( ) 6. Possess reasonable social development.

( ) 7. Show evidence of those personal traits requisite to teaching.

( ) 8. Possess those attributes which they seek to instill in their students.

( ) 9. Have a deep concern for the students.

( ) 10. Can converse with students at a level which the students can understand.

( ) 11. Are aware of the philosophies of education under which they are expected to teach.

( ) 12. Demonstrate evidence of seeking to identify and understand common educational problems and striving toward their solution.

( ) 13. Are enthusiastic and evidence high morale.

( ) 14. Work well together in coordinating course content and developing curricula.

( ) 15. Are reasonably oriented in the requirements for study in the particular technology with which associated.

( ) 16. Have a mastery of their subject fields substantially broader and in greater depth than that which they are expected to have their students attain.

( ) 17. Have an adequate amount of professional education courses.

( ) 18. Engage in continuous study of new methods and development of new materials for teaching.

( ) 19. Engage in continuous study of current developments in specialty fields.

( ) 20. Are professional in their requests and in meeting their responsibilities.

( ) 21. Are active in their technical and educational professional organizations.

( ) 22. Are active in community affairs.

( ) 23. Participate in promotion of school welfare.

( ) 24. Contribute to public relations efforts.

( ) 25. Cooperate fully in efforts to improve school program.

( ) 26. Encourage students to participate in total school program.

( ) 27. Motivate students to recognize the value of education.

( ) 28. Succeed in motivating a majority of the students to complete the program successfully.

( ) 29. Show evidence of flexibility and ability to adapt to changing situations.

Classroom

Check List

( ) 1. There is careful planning and preparation of instruction as evidenced by daily lesson plans and statements of objectives.

( ) 2. Provisions exist and are used to keep course outlines up-to-date.

( ) 3. Approved course outlines are available and in use.

( ) 4. Provisions are made for teachers to help special groups and individuals both for remedial and advanced work.

( ) 5. Time is provided in the teachers' daily schedules for preparation and correction of instructional assignments.

( ) 6. There is evidence of good rapport between instructors and students.

( ) 7. Provisions are made for challenging students of different degrees of ability.

( ) 8. Time is provided for problem solving in classroom.

( ) 9. Classroom assignments are corrected, helpful comments noted, and material returned to the student within a reasonable time limit.

( ) 10. Homework assignments are realistic and are carefully checked when handed in.

( ) 11. Lessons are well organized, present a reasonable amount of new concepts, and provide for use of the new ideas in realistic problems.

( ) 12. Frequent checks are made of student progress through quizzes, tests, special assignments, etc.

( ) 13. A variety of teaching methods are used depending on material to be taught and teaching situation.

( ) 14. Lessons present material in sequential form, preparing the students for each coming lesson.

( ) 15. Regular opportunities are provided for review and practice in the integration and use of previously learned material with new concepts in problem solving situations.

( ) 16. Field trips and outside sources are utilized to supplement instruction.

( ) 17. There is evidence of innovation and experimentation in development and use of instructional materials and in teaching and testing methods.

( ) 18. There is evidence of the use of a variety of instructional materials and audio-visual aids.

( ) 19. Instruction motivates students toward further study.

Laboratory

Check List

( ) 1. There is evidence that laboratory work is carefully planned to correlate and integrate with classroom instruction.

( ) 2. Provisions are made for development of skills in using instruments and equipment.

( ) 3. Laboratory assignments require students to inter-relate facts, figures, and concepts in the fields of science, mathematics, and technology.

( ) 4. There is evidence that laboratory work complements and supplements classroom instruction.

( ) 5. Laboratory work is organized in sequential form preparing the students, in steps, to work finally on their own.

( ) 6. A well-planned set of laboratory experiments is available.

( ) 7. Experiment sheets are quite detailed at the start and progress to those which contain just a statement of the problem.

( ) 8. Sets of laboratory instructions are available for the various laboratories and are given to each student at the start of the course.

( ) 9. More and more planning by the students is required as they progress through the laboratories.

( ) 10. Laboratories provide a broad variety of experiences ranging from basic to those intensive in practical experience.

( ) 11. Laboratory experiences teach students the use of scientific methods of inquiry and investigation.

( ) 12. Laboratory work teaches students to plan experiments, take and analyze data, and draw valid conclusions.

( ) 13. Laboratory work teaches students the use, limitations, and care of instruments and equipment.

( ) 14. Laboratory reports are corrected, helpful comments noted, and returned to the students before or at the next laboratory session.

( ) 15. Laboratory reports are corrected for English as well as for technical content.

( ) 16. A variety of laboratory reports are required, ranging from a short single page to a complete full-length report.

( ) 17. The technical laboratories provide practical work experiences similar to those the student will encounter on-the-job.

( ) 18. The technical laboratories have a large variety of instruments and equipment similar to those found in industrial laboratories.

( ) 19. Students work on experiments alone, or in groups, usually not larger than three, depending on the experiment requirements.

( ) 20. The laboratories are organized so that set-up time is reduced to a minimum.

( ) 21. A range of experiments are available to challenge the various ability groups.

( ) 22. Individual and group projects are available, and their use is encouraged.

( ) 23. Shop work aimed at developing manual skills is not included as part of laboratory time.

( ) 24. There is evidence that laboratory experiences develop a better understanding and appreciation for accuracy, dependability, validity, and honesty.

( ) 25. There is evidence that laboratory experiences develop resourcefulness, curiosity, inventivenss, and creativity.

Instructional Materials and Supplies

Modern educational methods and equipment require a prodigious amount of instructional materials and supplies. A $5,000 spectograph may have to stay unused for lack of a fifty-cent film strip. Copy reproducers are of little use if paper or transparency supplies are not available, and overhead projectors are useless without transparencies.

Check List

( ) 1. Instructors are encouraged to develop a large variety of instructional materials.

( ) 2. Facilities and equipment are available for the preparation and use of instructional materials.

( ) 3. Personnel is available for assisting the faculty in the preparation and use of instructional materials.

( ) 4. Faculty schedules provide time for preparation of instructional materials.

( ) 5. There are procedures, known to all concerned, for the purchasing of supplies and materials.

( ) 6. Adequate funds are provided for purchase of instructional supplies and materials.

( ) 7. Responsibility has been delegated and procedures developed for inventory control and for the ordering of replacements on time.

( ) 8. Adequate storage space is available for storage of materials and supplies.

Audio-Visual Aids

Objective:

To supplement and enrich the instructional program by the judicious use of audio-visual aids and to make effective use of new instructional methods through use of teaching machines, television, computerized instruction, and other new teaching devices.

The use of these aids is intended to facilitate and strengthen instruction and to complement and supplement the instructor, not to supplant him.

Check List

( ) 1. Audio-visual equipment and materials are located in an easily accessible room.

( ) 2. Facilities are provided for previewing, preparing, and producing audio-visual instructional devices.

( ) 3. Adequate audio-visual equipment and materials are available and accessible for efficient and timely use by instructors.

( ) 4. New equipment and developments are examined for their possible adaptation to programs.

( ) 5. Consideration is given to the rental of equipment rather than purchase wherever more feasible and economical.

( ) 6. All equipment on hand is well maintained and operable.

( ) 7. There is an operable plan for maintenance and replacement of obsolete equipment.

( ) 8. Adequate funds are provided in the budget for purchase of new equipment, rental of equipment, repair, and experimentation in new audio-visual developments.

( ) 9. A person thoroughly trained in the principles of Audio-Visual Aids has been appointed as coordinator.

( ) 10. In-service training is provided to instructors and students on the operation and care of equipment by the coordinator.

( ) 11. Courses in the latest developments in the field of audio-visual aids is given to the staff periodically by the coordinator.

( ) 12. The coordinator assists instructors in the preparation of audio-visual aids materials.

( ) 13. The coordinator maintains a list of audio-visual aids available to instructors, other than those available in the school, which gives the source and availability.

( ) 14. The coordinator is responsible for securing audio-visual aids for instructors and has published a plan and procedure for securing such aids.

( ) 15. The coordinator maintains an accurate inventory of all audio-visual aids and their location and assignment at all times.

( ) 16. The coordinator is a member of the area visual aids society and keeps abreast of latest developments by his attendance at conferences, work shops, seminars, etc.

( ) 17. Equipment, supplies, facilities, and personnel are available for the preparation of audio-visual instructional materials.

Equipment

Schools designed for technical education require well-equipped laboratories and shops designed to develop the technical skills and manipulative skills required by technicians to meet the needs of industry. Modern physics and chemistry laboratories are needed to teach the basic sciences. Specialized laboratories in materials, electronics, metallurgy, and other technologies included in the curricula are required to supplement theory taught in the classroom and to develop skill in measurement, obtaining and interpreting data, circuitry, systems analyses, preparation of reports, and use of modern laboratory equipment and instrumentation.

Laboratory shops with modern equipment are needed to develop safety habits and good work habits and attitudes. Here also students learn about materials, production methods, time study, quality control, and tool characteristics.

Laboratory and shop equipment should be modern and similar, in most cases identical, to the kind and type which the student will encounter on-the-job in a new, modern plant. It should be borne in mind that school equipment is not readily replaced. Therefore, the very latest models should be purchased so that obsolescence because of technological developments may be warded off as long as possible. The principle also applies to plant and grounds maintenance equipment.

The modern school also requires a multitude of instructional equipment including typewriters and copy reproducers for faculty as well as for office use, audio-visual equipment including closed-circuit television units, and microfilming and viewing apparatus.

Evaluation should determine if sufficient equipment is on hand to meet the needs of the particular area or function. In this respect, generally, laboratory shops should have work stations for each student, and laboratories for groups of twos. There should be a large variety of equipment in good working condition, of good quality, and showing evidence that it is being used. There should be a preventive maintenance schedule which is followed and indications that safety is stressed. A working policy should exist for amortization of equipment and for replacement of obsolete units.

Laboratory

Check List

( ) 1. Staff work areas are well equipped for the activities for which the areas are being used.

( ) 2. Equipment is of good quality.

( ) 3. Laboratory equipment is available in sufficient variety and quantity to permit flexibility in laboratory assignments and project work.

( ) 4. Instrumentation is of high quality and good variety similar to that found in industrial laboratories and test areas.

( ) 5. Equipment is designed to permit a minimum of set-up time.

( ) 6. Laboratory equipment in the technical areas is similar to that found in industrial laboratories and test laboratories.

( ) 7. There is evidence of the ingenuity of instructors and the students in adapting apparatus to teaching and learning needs.

( ) 8. Mock-ups, demonstrators, and simulators are in evidence for teaching various concepts, principles, processes, and interrelations in systems.

( ) 9. A large variety of equipment parts and apparatus is available for study and experimentation.

( ) 10. Equipment shows evidence of careful use and good maintenance.

( ) 11. First-aid kits are in evidence in the laboratories and are well stocked.

( ) 12. Hazardous and dangerous equipment is well identified and adequate protection and instructions for personnel provided.

Facilities

Modern educational programs require school plants which are designed as integral parts of the programs. It is no longer adequate to think of the plant as the "School house." The school plant, consisting of the site, buildings, equipment, and services, is now a major factor in the functioning of a good educational program. During school time the plant is the physical environment which assists or limits student achievement of desirable learning experiences.

For a technical education program, some guiding principles for evaluation of the school plant are:

a. The school plant should provide the physical facilities to conduct a program designed to meet the general education and technical education needs of the learners, both young people and adults.

b. The plant should provide water, heat and ventilation, illumination, electric power, and sanitation services which contribute to the educational plan and the health of its occupants.

c. The plant should be designed, equipped, and maintained so as to minimize the possibility of accidents and fires involving the occupants.

d. The interior of the buildings should be designed to provide flexibility in utilization. Changing education patterns require multiple use design.

e. The site should be, and continue to be for the foreseeable future, satisfactory for educational purposes and should allow for expansion of its educational facilities when the need arises. The planning of the building should take advantage of important site features.

f. The interior and exterior of the buildings should be attractive and appropriate in design so that esthetic quality is evident. The grounds about the buildings should be well-kept and include lawns, shrubbery, adequate parking facilities, and lighting.

g. The school plant should be an integral part of the community planning program. The entire plant should stimulate the students and the community to use its educational facilities effectively.

<u>Plant</u>

<u>Check List</u>

( ) 1. The school is readily accessible to the students within the proposed center of the population to be served.

( ) 2. The school is accessible to public transportation lines and easily reached by good highways, hard-surfaced roads and walks, and is free from traffic dangers.

( ) 3. The site is adequate for foreseeable future expansion.

( ) 4. There is ample space for good outdoor athletic programs.

( ) 5. The buildings are designed and placed so as to permit future expansion.

( ) 6. There is room for ample parking areas.

( ) 7. The plant has the necessary utilities: electricity, gas, water, fire protection, telephone services, sewage disposal, etc.

( ) 8. The interior and exterior of the buildings are well-kept and in good repair.

( ) 9. The grounds about the buildings are well-kept and include lawns, trees, and shrubbery.

( ) 10. The plant is remote from places having undesirable influences on youth.

( ) 11. The use and value of the school is not impaired by industrial smoke, obnoxious odors, noises, dust, or other hazards.

( ) 12. Space for loading and unloading buses, space for walks and driveways including front entrance driveway, service entrance driveways, and walks to all entrances has been provided.

( ) 13. Provisions exist for storage of school's own vehicles.

( ) 14. Acoustics, heating, ventilation, and air-conditioning (if required) are adequate to maintain a healthful climate conducive to study and to the other activities conducted in the buildings.

( ) 15. The exterior and interior plan, design, and materials facilitate maintenance at low cost.

( ) 16. The buildings are kept clean, well-painted, and in good repair inside and out.

( ) 17. There is evidence of good housekeeping throughout the premises.

( ) 18. The lawns, walks, drives, landscaping, etc., are well maintained and in good repair.

( ) 19. The fire alarm system provides for positive alarm from suitably convenient stations.

( ) 20. The fire alarm system is connected to the municipal system, with cut-off for tests and drills.

( ) 21. There is an adequate and well-functioning clock and program signal system.

( ) 22. Adequate telephone services are provided for staff, student, and public use.

( ) 23. Public address and audio-visual systems, including regular and closed circuit television, are available and provide adequately for a large variety of teaching situations.

( ) 24. Provisions have been made for storage of student apparel and belongings.

( ) 25. Facilities are available in classrooms, demonstration rooms, and laboratories, or adjacent to these areas, for accommodating wearing apparel, etc., of part-time and evening school students.

Administration and Staff

Check List

( ) 1. Adequately furnished, lighted, equipped, and private office space is provided for the administrative staff.

( ) 2. Adequately furnished, lighted, equipped, and staffed secretarial and clerical offices are in close proximity to the administrative staff offices.

( ) 3. Conference rooms are available for individual and group conferences and testing.

( ) 4. Adequate storage space is available for storage of office supplies and materials.

( ) 5. Adequate storage space and equipment and a vault are available for storage of records.

( ) 6. Adequately furnished, lighted, and equipped office and study space is available for the instructors.

( ) 7. Comfortable lounging areas are available to the staff.

( ) 8. Spacious and well-equipped work and preparation areas are available for laboratory instructors.

( ) 9. Large, well-equipped room (or rooms) is available to staff for preparation of instructional materials.

( ) 10. Adequate storage and filing facilities are provided in staff offices, work areas, and classrooms.

Classrooms

Check List

( ) 1. Classrooms and lecture-demonstration rooms provide sufficient space for size of groups utilizing these facilities.

( ) 2. The design of at least some classrooms is flexible permitting expansion or subdivision of space as may be required.

( ) 3. The rooms have sufficient blackboard and bulletin board space.

( ) 4. The rooms have the services required for operation of a variety of audio-visual and demonstration equipment.

( ) 5. Classroom furniture may be arranged to meet needs of a variety of instructional methods.

( ) 6. Sufficient classroom furniture is available to accommodate groups using the areas.

( ) 7. The rooms contain adequate storage space and facilities for storage of supplies, materials, and equipment.

( ) 8. There are an adequate number of classroom areas to allow flexibility in scheduling.

Laboratories

Check List

( ) 1. There are laboratories available for all courses requiring laboratory experiences.

( ) 2. Some classrooms are available near the laboratories.

( ) 3. Adequate storage space and facilities are available in or adjacent to each laboratory for storage of supplies, materials, and equipment.

( ) 4. Adequate work and preparation areas are available in or adjacent to the laboratories.

( ) 5. Provisions are made for reference books and materials in or adjacent to each laboratory.

( ) 6. Laboratory layout and design permit flexibility and a large variety of experimental set-ups.

( ) 7. Laboratory furniture, benches, cabinets, etc., are designed to permit storage of materials, supplies, and equipment close to the work areas so as to minimize set-up time.

( ) 8. Laboratories have the utilities and services required for experimentation, and these are in sufficient quantities to provide flexibility in operation.

( ) 9. Closed-circuit TV circuits for reception and transmission are available in the laboratories, with provisions for communication between the laboratories and other classrooms.

( ) 10. Sufficient blackboard and bulletin board space is available in the laboratories.

Co-Curricular Services

In the broad sense, the curriculum includes more than the course of study. It includes the functional body of materials and experiences designed to promote the growth of the student. Hence an evaluation of the instructional program should include also such areas as the student personnel services, the school library, the health services, and the student activities program.

Student Personnel Services

Student personnel services are an indispensable part of the co-curricular services offered by the school. These services extend considerably beyond the usual guidance and counseling services. They touch on all phases of the student's life--social, financial, home and family, mental health, study habits, and all the other factors contributing to his life adjustment. It is recognized that a student burdened with troubles, real or imaginary, cannot perform adequately and is a potential dropout.

Evaluation of these services should supply information with regard to such factors as:

1. Organization of the Student Personnel Services

   a. How extensive are the provisions for these services?

   b. How adequate is the concept of these services held by the faculty members?

c. To what extent is the services' personnel involved in non-services activities?

2. Services Personnel

a. How adequate is the membership of the Student Personnel Services?

b. Are provisions made for special services, such as a psychologist, a social worker?

c. Does the personnel have the required professional preparation and qualifications?

3. Services

a. What student personnel services are available?

b. How extensively are these services used?

c. How adequately are the services meeting needs?

Organization

Check List

( ) 1. The school has an effective plan for providing all student personnel services.

( ) 2. There is a properly qualified person employed full-time as head of student personnel services.

( ) 3. The administration and faculty participate as a team in student personnel services.

( ) 4. There are sufficient facilities and equipment available for the student personnel office.

( ) 5. There is sufficient clerical assistance provided.

( ) 6. All students as well as the staff are aware of the services provided.

( ) 7. A student handbook describing the services is available and is distributed to all students.

Selection and Admissions

Check List

( ) 1. There is a sound policy on selection and admission of students well correlated with the educational program and school objectives.

( ) 2. Entrance examinations and placement tests are administered to all applicants.

( ) 3. High school records, college boards scores, personal interviews, rank in secondary school class, as well as results of standardized entrance test, are considered as a basis for admission.

( ) 4. The school has a policy for accepting students on "condition."

( ) 5. The school has a policy for accepting transfer students.

( ) 6. Complete records of those accepted and those denied admission, including profiles, are maintained.

( ) 7. The school has a policy for accepting credits earned in extension courses, summer sessions, courses taken at other institutions, or by correspondence.

( ) 8. The school has close relationships with its sending schools and makes scheduled visits for the purpose of recruitment.

( ) 9. The school participates in college career days of secondary schools.

( ) 10. The school invites guidance counselors of secondary schools to visit the school as a group.

( ) 11. The school enlists the services of present students and graduates to speak to prospective students during visits to secondary schools.

( ) 12. The school publishes up-to-date catalogs and literature of its program.

( ) 13. The school encourages visitation to the school by prospective students, parents, guidance counselors, service clubs, and professional societies.

( ) 14. The student personnel office maintains a list of scholarships and loans available to students.

Guidance and Counseling

Check List

The Counselor:

( ) 1. Is a qualified person trained in guidance and counseling and meets certification standards.

( ) 2. Schedules sufficient time for student counseling.

( ) 3. Prepares for each interview by studying all data pertinent.

( ) 4. Conducts all interviews in private and is professional in handling confidential information.

( ) 5. Encourages freedom of expression during the counseling interview and avoids dominating the conversation.

( ) 6. Handles discipline except in case when adjustment problems are involved.

( ) 7. Cooperates with the staff in promotion of counseling activities.

( ) 8. Makes provision for follow-up interviews when warranted.

( ) 9. Attempts to counsel early school leavers.

( ) 10. Is thoroughly acquainted with referral agencies and refers individuals when assistance is needed.

( ) 11. Maintains current significant information about each student on a CR card (Cumulative Record).

( ) 12. Insures the accuracy, validity, and appropriateness of all information.

( ) 13. Notes referrals and interviews on the CR card.

( ) 14. Insures that information contained in the student record is considered confidential.

( ) 15. Makes available pertinent data which will assist in understanding a student's problem.

( ) 16. Maintains individual folders in addition to the cumulative record.

( ) 17. Has available sufficient funds to operate the testing program.

( ) 18. Has available special purpose tests for counseling individual cases.

( ) 19. Has suitable physical facilities necessary for the testing program.

( ) 20. Bases test selection on careful review of the most recent related research in the area.

Occupational Information and Placement

Check List

Personnel responsible for occupational information and placement:

( ) 1. Provide career information to assist students make valid vocational and educational choices.

( ) 2. Have available facilities for displaying occupational literature.

( ) 3. Accumulate information relative to industry in general and occupations for which the school trains in particular.

( ) 4. Assist students who withdraw from school to obtain additional education or training.

( ) 5. Collaborate with the department heads in the placement of graduates in full-time employment.

( ) 6. Assist students in obtaining part-time employment.

( ) 7. Cooperate with the state employment service in registering students for possible placement.

( ) 8. Cooperate and coordinate with industry in arranging a schedule for recruitment by industry and provide a suitable interviewing room for recruiters.

( ) 9. Recommend changes in placement of students for better adjustment within the school.

( ) 10. Conduct orientation meetings concerning opportunities with the Armed Forces, industry, and future educational possibilities.

( ) 11. Provide scholarship and loan information for interested students.

( ) 12. Have a complete file of latest four-year engineering college catalogs.

( ) 13. Forward transcripts promptly when requested.

Follow-Up

Check List

The Student Personnel Services Office:

( ) 1. Compiles a graduate survey of each graduate class.

( ) 2. Compiles a five-year and ten-year graduate follow-up survey.

( ) 3. Performs "exit interview" of dropouts.

( ) 4. Conducts research pertaining to students and graduates.

( ) 5. Maintains active contacts with alumni through the alumni association.

School Library

The school library should be a center of learning and research. It should be staffed with trained personnel and assistants adequate in number to serve the school. It should be centrally located and easily accessible to all students and provide an environment conducive to study, reflection, and research. In addition, the library should:

1. Provide materials that will enrich and support the curriculum of the school, taking into consideration the varied interests, abilities, and maturity levels of the students.

2. Provide materials that will stimulate growth in factual knowledge, literary appreciation, esthetic values, and ethical standards.

3. Provide materials on opposing sides of controversial issues so that young people may develop, under guidance, the practice of critical reading and thinking.

4. Provide a background of information which will enable students to make intelligent judgments in their daily lives.

5. Provide materials representative of the many religious, ethnic, and cultural groups and their contribution to our American heritage.

6. Place principle above personal opinion and reason above prejudice in the selection of materials of the highest quality in order to assure a comprehensive collection appropriate to the function of the library.

Library Services

Check List

( ) 1. The library employs a full-time librarian, fully certified and qualified.

( ) 2. The librarian has sufficient clerical and professional assistance.

( ) 3. The faculty have a voice on library policies and procedures.

( ) 4. The instructional program is geared to the maximum use of the library.

( ) 5. The library is available to students at times other than the usual school hours.

( ) 6. There are adequate funds appropriated each year to the library for the purchase of equipment, books, magazines, and periodicals.

( ) 7. The library has the proper distribution of volumes with respect to fiction, non-fiction, engineering and related chemistry, mathematics, and physics.

( ) 8. The library subscribes to current magazines (technical and non-technical periodicals and newspapers).

( ) 9. The library utilizes all sources of funds available from federal, state, and local grants.

( ) 10. The seating capacity is adequate for student needs.

( ) 11. The librarian has an adequate workroom and storage area.

( ) 12. All books are catalogued in accordance with standard practices, and the card file is kept up-to-date.

( ) 13. Circulation statistics are kept and used to interpret library usages and needs.

( ) 14. A section of the library is reserved for the professional improvement of the staff.

( ) 15. A pamphlet file, properly catalogued, is maintained containing topics of interest and use to the students and staff.

( ) 16. Reference materials are kept up-to-date.

Facilities and Equipment

Check List

( ) 1. The library is centrally located and easily accessible to all students.

( ) 2. Seating capacity and tables are adequate. (Seating for at least 40 to 45 students or 7% of enrollment.)

( ) 3. A conference room and separate work room are provided.

( ) 4. The work room has a sink and running water.

( ) 5. The work room has sufficient storage facilities.

( ) 6. A section of the library is reserved for the professional improvement of the staff.

( ) 7. The library is adequately lighted and ventilated.

The following general equipment needs are adequate:

( ) 8. Adjustable shelving

( ) 9. Magazine shelving

( ) 10. Newspaper rack

( ) 11. Charging desk and chair

( ) 12. Dictionary stand and unabridged dictionary

( ) 13. Atlas stand

( ) 14. Card catalogue case

( ) 15. Vertical-file cabinets

( ) 16. Bulletin boards

( ) 17. Display case

( ) 18. Book trucks

( ) 19. Librarian's desk and chair

( ) 20. Typewriter and stand

( ) 21. Step stools or shelf ladders

( ) 22. Book repair materials and equipment

( ) 23. Floor covering attractive, hygienic, and sound absorbing

Library Materials

Check List

( ) 1. The book collection reflects every area of the school curriculum--trade, related, and general education.

( ) 2. Materials for the cultural growth of the students are provided.

( ) 3. Materials that supplement the texts, but offering more breadth and variety, are provided.

( ) 4. Differentiation is made in the selection of books for different levels of reading ability.

( ) 5. Materials include information and assistance in all areas of learning which affect young people.

( ) 6. Books are provided that assist growing youth in the solution of their personal problems in home, family living, and social adjustments.

( ) 7. Reading materials are provided for the recreational leisure time interests of the students.

( ) 8. Materials are provided and kept up-to-date for the professional improvement of the staff.

( ) 9. Periodicals pertaining to the various trade areas are provided.

( ) 10. Daily newspapers are provided.

( ) 11. Periodicals are provided which reflect various areas of the general curriculum, world scene, and other items of general interest.

( ) 12. A pamphlet file, properly catalogued, is maintained containing topics of interest and use to the students and staff.

( ) 13. Books are catalogued according to the Dewey Decimal System, and the card file is kept up-to-date.

( ) 14. Encyclopedias and other essential references are replaced every two years.

( ) 15. Multiple copies of material in heavy circulation are maintained.

( ) 16. Circulation statistics are kept and used to interpret library usage and needs.

Library Program

Check List

( ) 1. Classes are conducted for the students, in cooperation with the English department, in the use of the library facilities.

( ) 2. Provision is made to acquaint the staff and students with new materials acquired by the library.

( ) 3. Students and faculty are made aware of the availability of materials that supplement and enrich the school curriculum.

( ) 4. Bulletin boards are changed often and kept up-to-date.

( ) 5. Display cabinets are maintained and changed often.

( ) 6. The library program provides materials to supplement and enrich the school curriculum, stimulate growth, and encourage literary appreciation and ethical standards.

( ) 7. The library assists instructors in the enrichment of their areas by providing professional as well as subject content materials.

( ) 8. Books that are used in group work and special class projects are put on reserve.

( ) 9. The library assists in the reading improvement program of the school.

( ) 10. Pupils are encouraged to use the library for leisure reading as well as for required work.

( ) 11. Library hours are such that all students have ample opportunity to avail themselves of its services.

( ) 12. A book fair or similar activity is held annually to encourage interest in reading.

( ) 13. Provision is made to obtain books, on loan, from other libraries.

( ) 14. The library is recognized as an essential segment of the instructional program.

Health Services

Health services activities should be carried out so as to increase the student's understanding of health, to develop favorable attitudes

toward health, and to produce more desirable health practices. These functions require the coordinated efforts of the school staff as well as those of the physicians, dentists, nurses, and students to meet specific objectives such as:

1. To review the health status of all students.

2. To counsel students, parents, and staff personnel in health matters.

3. To recommend correction of remediable defects.

4. To provide first aid treatment and to see that serious cases are referred for appropriate attention.

5. To inculcate good safety habits by education of a formal and informal nature.

6. To inculcate good health habits by education of a formal and informal nature.

7. To provide care for students who are ill while at school and those who return to school after illness.

Evaluation of the health services should show how well the desired objectives are being met and indicate the best elements of the health services, the least adequate elements, and what improvements should be made.

Organization

Organization for school health services will vary according to the size of the school, available resources in personnel and equipment, and administrative provisions.

Check List

( ) 1. In-service provisions are made for teachers to review their duties and responsibilities with respect to health services.

( ) 2. The functions and responsibilities of teachers, administrators, and other staff personnel with respect to health services are clearly defined and understood.

( ) 3. Appropriate programs are cooperatively planned for students who have had severe illnesses or who are otherwise physically handicapped.

( ) 4. School health services include appraisal of the health of school personnel.

( ) 5. Letters are sent to parents concerning physical defects of students.

( ) 6. School health services offer assistance in the identification and education of handicapped students.

( ) 7. Provisions exist for the identification and treatment of emotionally disturbed students.

( ) 8. Good health and safety habits are stressed throughout the school.

Health Appraisal

Appraisal procedures identify students who have health needs or handicaps that necessitate adaptation of the school program.

Check List

( ) 1. Physical examinations are required of all new students.

( ) 2. Physical examinations are required of all new employees.

( ) 3. The school medical advisor inspects monthly the kitchen, dining area, shower rooms, and medical examination room.

( ) 4. Physical examinations are provided by the school physician for Varsity and Junior-Varsity teams.

( ) 5. Vision tests are given to all new students.

( ) 6. Color blindness tests are given to all freshmen and other new students.

( ) 7. Hearing tests are given to new students and to others when the need is indicated.

Emergency Care

Planned procedures to provide emergency care (first aid) for students who become ill or injured at school are an important part of school health services.

Check List

( ) 1. School first aid kits are maintained in laboratories, laboratory shops, medical examination room, and school vehicles.

( ) 2. Health records are accurately maintained on each student.

( ) 3. First aid supplies are on hand in the medical supply area.

( ) 4. There is a written plan to handle emergencies that occur in the absence of the school nurse and medical advisor.

( ) 5. All staff members have a copy of the emergency plan.

( ) 6. There is an active school health and safety council.

( ) 7. There is an eye protection program in operation.

( ) 8. All major accidents are reported within forty-eight hours to a designated person on specified forms.

( ) 9. There are planned procedures for periodic evaluation of the school health services.

( ) 10. There are written standing orders prescribed by the school physician or the school nurse.

( ) 11. Provisions exist for the emergency care of all students and school personnel.

Co-Curricula Activities

No school can expect to maintain student interest in the usual curriculum program unless it balances this side of its offering with a less formal, more relaxing group of student activities usually regarded as extra-curricular or co-curricular.

Schools often feel that the heart of their program, the course of study, comes first, and if there is any time or interest left, a program of student activities should be organized. The student activity program should not be left to chance. It should be an integral part of the educational experience provided by the school. It is probably the best method for developing desirable social traits, good fellowship and sportsmanship, and the ability to participate in the democratic processes.

The student activity program should provide activities to meet the needs and interests of all students, with membership in groups open to all. Faculty members should understand the purposes of the co-curricular program, the contributions it can make to the education of young people, and they should participate in and cooperate with the program. Evaluation of this program will provide data for assessing the overall effectiveness of the co-curricular program of the school.

Check List

( ) 1. The school encourages extra-curricula activities which will meet the cultural, social, and physical needs of the students.

( ) 2. The school has an active student council which operates with academic freedom and has a voice in student activities.

( ) 3. The school actively promotes student organizations such as student chapters of professional societies, honor society, service club organizations, hobby clubs, school newspaper, school band, school orchestra, yearbook, etc.

( ) 4. The school encourages and promotes talks, lectures, and demonstrations on technical matters given by outstanding individuals.

( ) 5. The school encourages and promotes talks, lectures, exhibits, and programs on non-technical matters given by outstanding individuals in drama, music, art, current events, etc.

( ) 6. The school promotes interscholastic and intermural athletics.

( ) 7. The school encourages and promotes social programs.

( ) 8. Competent and interested faculty advisors are provided for all clubs.

( ) 9. Student funds are maintained in accordance with existing regulations.

( ) 10. Student financial reports are periodically posted or published.

( ) 11. Audits of student funds are periodically made in accordance with existing regulations.

( ) 12. Student dues are not too excessive.

Summary

An evaluation of an institution offering programs in technical education is concerned with the quality of performance as measured by various evaluative devices and with the improvement of that performance.

Evaluation must be a democratic process. All personnel affected should be involved in cooperatively developing and applying the evaluative

criteria, procedures, and materials. Evaluation should be based on progress rather than preconceived standards. Evaluation should lead to the identification of next steps to be taken toward improvement of the total school program. It is of utmost importance that these steps be taken.

Evaluation is of vital concern to administration, and the administrative staff must provide the democratic leadership required in the evaluation process.

No evaluation can succeed without the full cooperation of the faculty. As professional people, teachers want to do a good job and to improve. Evaluation will aid teachers in identifying weaknesses and strong points in the program and in rethinking objectives and determining their success toward achieving these goals. It will motivate growth and change and may point out new goals and new paths for reaching them. Teachers will support evaluation if they are involved in the total process.

Evaluation should be continuous, with evaluation of several aspects of the program in process at all times and evaluation of the total program at intervals of several years.

The check lists included in this paper, although extensive, are not all-inclusive. Some items may not be necessary or even applicable in every school, while other important features or procedures may have been omitted. The lists are provided only as guides for the development of similar lists appropriate for the particular school system or institution.

Accreditation by a state, regional, or professional agency certifies to the fact that the institution meets the educational and professional standards promulgated by the agency. New federal legislation providing funds for technical education requires accreditation of an institution by a recognized accrediting agency if the institution wishes to participate in the program. This legislation will have a salutary effect on technical education programs, particularly in states where accreditation is not required at present.

Accreditation of an institution requires an evaluation of that school. Perhaps the greatest benefits which will come from accreditation are those which are derived from the evaluation.

PART III

FACILITIES

FACILITIES PLANNING FOR TECHNICAL
EDUCATION PROGRAMS

by
Milton E. Larson*

Introduction

Projected construction of 1,872 new area vocational schools between 1966 and 1975, as reported in a recent survey of our 50 states, indicates the urgent need for new facilities for technical education! These facilities will cost approximately $1.5 billion and will serve an additional 2.9 million youths and adults in vocational and technical education (Chase, 1966). During fiscal 1965, 208 area vocational education schools were built or remodeled at a total cost of $101,845,074, bringing the total number of such facilities to 651. At the end of fiscal 1966, the number had increased to 756 (Miller, 1966).

In the past decade, technicians have become one of the fastest growing occupational groups in the nation. Increasing numbers have been needed to staff expanding programs. New technologies have emerged to create clusters of new occupations.

The Panel (of Consultants' Report) noted that by 1970 the American labor force will total 100 million people (U. S. Office of Education, 1964). While the ratio of 0.91 technician to one engineer expresses the present average, the gap is gradually closing. A much more desirable ratio would be an average of 2.0 technicians to one engineer.

The technician has been described as a person who works at a job which requires applied technical knowledge and applied technical skill. His work, in this respect, is somewhat akin to that of the engineer, but usually the scope is narrower. His job also requires some manipulative skills--those necessary to handle properly the tools and instruments needed to perform the technical tasks (Emerson, 1958).

Even though "accommodation," "flexibility," and "adaptability" are key words in facilities planning today, the most important single consideration is still the program which the facility will house. Consideration of needs of the program should be followed by the needs of students, then the needs of faculty and other personnel.

A study must be made of the space requirements of classrooms, laboratories, shops, and auxiliary spaces needed to carry out effectively the instructional program.

Planners of technical education facilities will profit by reading

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again the statement of John W. Gardner, "The society which scorns excellence in plumbing because plumbing is a humble activity and tolerates shoddiness in philosophy because it is an exalted activity will have neither good plumbing nor good philosophy. Neither its pipes nor its theories will hold water" (Gardner, 1958).

Facilities teach! The environment for learning adds or detracts from the learning experience. Students of architecture have long recognized that a close relationship exists between the physical environment and the teaching-learning process. Charles William Brubaker and Lawrence B. Perkins expressed this well when they wrote, "...as architects we have been given difficult jobs, but the toughest problem yet is to design space to stimulate individual learning" (Brubaker, 1959).

Procedures for Planning Facilities

Facilities planning is closely related to program planning. While the course content of technical programs varies from state to state, institution to institution, and whether on the high school or post-high school level, all planning needs to be based on present program needs with concern for the future. The ability of the planners to project the program needs will determine the adequacy of the facility for programs of the future, many of which may not now exist. Mistakes made in planning--failures to anticipate future needs or to construct the facility so that it can be readily adapted to future needs--result in educational facilities that stand as monuments of masonry and steel to incompetent and inadequate planning.

Technical Education Curricula

The Wisconsin State Board of Vocational, Technical, and Adult Education recommends for a technical education post-high school two-year associate degree program a curriculum of 68 semester hours with the following emphasis (Greiber, 1964): Technical Courses 43 percent, Mathematics 13 percent, Related Technical 13 percent, Science 9 percent, and General Education 22 percent. Analysis of the curriculum content distribution of other selected programs of technical education is shown in Table I (Report of the National Leadership Development Institute in Technical Education, Rutgers - The State University, 1966).

Translation of program into space requirements needs to consider the relative amounts of space required to serve the needs of each of the divisions represented by the curricula.

Projections of Needs for Future Programs

The needs for an educational program can be assessed in terms of national needs, state or regional needs, and local needs. Local needs can be viewed from two different perspectives: the needs of local youths and adults for the education and the needs of local industry and business for competent workers. National and state needs for semiprofessional and

TABLE I

CURRICULUM CONTENT DISTRIBUTION OF SELECTED TECHNICAL PROGRAMS

Curriculum	(In Percent) Tech-nology	Mathe-matics	Science	Draw-ing	General Education
Engineers' Council for Professional Development (Sample curriculum-1962)	45.9	16.7	8.3	8.3	20.8
Wausau Technical Institute (Mechanical Design-1965)	40.6	9.4	9.4	17.2	23.4
Purdue University (Mechanical Technology-1966)	45.3	15.7	11.4	4.3	27.1
Iowa State University (Mechanical Technology-1966)	48.2	13.9	11.1	10.2	16.6
USOE Bulletin OE-80015 (Suggested curriculum-1962)	49.2	12.9	12.7	9.9	15.5
Oklahoma State University (Metals Technology-1966)	55.9	7.3	11.8	10.3	14.7
Broome Technical Community College (Mechanical Technology-1966)	56.5	9.3	14.8	2.8	16.6
Richland Technical Education Center (Mechanical Technology-1965)	71.5	10.9	5.9	2.9	8.8

technical personnel can usually be assessed from manpower studies by the U. S. Department of Labor, the National Science Foundation, the U. S. Office of Education, and the United States Chamber of Commerce, as well as from reports of state agencies and special studies.

The community occupational survey may be approached from two directions: first, the "team of experts" approach; and second, the "citizen participation" method. A management consultant firm or consultant from a university may be employed to study the community's economic life, collect complete information on the labor force, and make projections (Harris, 1964).

In a "citizens' participation" study, the emphasis is placed on the participation of citizens representative of all segments of the community.

With the guidance of an experienced survey director, and specialists as needed, the desired data can be secured. In addition, the direct involvement of a large number of citizens of the community provides a strong public relations medium.

In conducting an area study, the following steps need to be taken (Establishing and Operating Area Vocational-Technical Education Programs in Michigan, 1966):

- o Enlist the support of educators in the area.
- o Consult with the Vocational Education Division of the State Department of Education.
- o Determine sponsorship of the study.
- o Determine a source of dependable revenue for adequately financing the study.
- o Develop a study proposal designed to determine:

  What technical education programs are needed at both the high school and post-high school levels.

  Where these programs should be located.

  How these programs will be financed.

- o Submit the proposal to the Division of Vocational Education, Department of Education.
- o Officially appoint citizen members of the study.
- o Secure consultant assistance.
- o Employ a study director.
- o Complete the study and publish the results.

If a sampling design is developed for the community survey, it is necessary to use a random sampling technique. Employing a stratified random sampling technique and thus treating each segment of the employment community separately is advantageous. The size of the sample is identified after carefully determining the specific objectives and goals of the study. Frequently a sample size from 54-68 percent of universe is employed; however, excellent results have been secured with much smaller samples.

Steps to be Taken by the Board of Education in Planning Facilities

- o Arrange for a school citizen's study.

- Consider the findings within the citizen's report and determine a course of action.

- Acquire the services of competent consultants.

- Visit other communities for the purpose of observing new school facilities.

- Select a qualified registered architect.

- With the aid of the citizen study committee recommendations, develop educational specifications for the architect. The administration, teaching and non-teaching staff, pupils, and citizen committee should be given joint responsibility in this step.

- Select site or sites. In doing this, consideration should be given to the survey recommendation and to the opinions of the architect.

- Arrange for the preliminary drawings and specifications, together with an estimate of the costs.

- Plan the publicity program. Here the various local planning committees should be used to as great advantage as possible.

- Have the architect submit preliminary plans and cost estimates to the board of education for consideration and approval.

- Determine the financial program to be followed. Estimate the funds needed for the actual construction, equipment, and landscaping. Set up a financial plan which includes the bond program, voting funds, sale of bonds, bond redemption program, insurance, and other liabilities.

- Select a date for a special election to approve the bond issue.

- Following a favorable election, instruct the architect to proceed with the final drawings and specifications. Set a target date for their completion.

- Approve the final drawings and specifications. Members of the study committee and other educational specialists may be utilized in the final review of plans--prior to board acceptance.

- With the guidance of the architect, call for bids on construction and equipment. A specified date must be set for receiving bids.

- Let contracts following final review of all bids.
- With the aid of the architect and legal adviser, prepare and execute contracts, time schedules, payments, and performance and surety bonds.
- Begin actual construction of the building.
- Select furniture and equipment; install as construction conditions permit.
- Clean school building and site. All landscaping and plantings should be completed previous to occupancy.
- When construction of the building is completed, have it inspected. This should involve the administration, board of education, architect, and contractors.
- Arrange for the school staff and student body to be instructed in the use and operation of the building. This phase of the program deserves increased attention if the features of a modern plant are to be fully utilized and enjoyed.
- Have the building formally dedicated and presented to the public. This is a magnificent opportunity for a public relations effort to boost better technical education.

Administrative Responsibilities in Planning Technical Education Facilities

- To conduct and direct research that will determine the relationship of new buildings to a forward looking technical education program to meet the changing needs of our dynamic technology. To interpret such findings to the board of education, the staff, and the community.
- To furnish pertinent facts in guiding the policy formation of the board in its many basic decisions in school plant planning.
- To establish and maintain, for each building project, a chronological schedule and record of all decisions, transactions, and steps taken from its inception by the board to the dedication of the building.
- To secure cooperative planning of the principals, teachers, and community in developing the total building program and in the immediate planning of the technical education plant.
- To convey to architects and other specialists a clearly stated program to be implemented by the building.

- To consult with the architects and other specialists on the interpretations of the program and on the educational evaluation of proposed solutions to the problems presented.

- To assist the board of education in preparing an effective presentation of the building program to the community and in developing a financial plan for servicing the building program.

- To develop plans for the maximum utilization and preservation of the building by the staff and the community.

- To translate all planning for all facilities into a creative and constructive program of technical education.

Advisory Committees

The services of advisory committees are important in planning facilities for technical education. Whether the "team of experts" approach or the "citizen participation" method of planning is employed, the role of an advisory committee is significant. However, under the "citizen participation" method, much broader and more extensive use is made of such a committee. The committee may consist of a large number of individuals representing at least three major groups: First, the users of the school and its financial supporters; second, professional and technical consultative residents willing to assist in an advisory capacity in the building program; and third, commercial representatives (NCSC Guide for Planning School Plant, 1964). Frequently a general advisory committee is established with several subcommittees relating to special problems as: enrollment; site selection; educational specifications; finances and funding; public information; etc. Normally the sub-committees are so organized that each will have a representative on the general committee.

> The function of the advisory committee is to give advice. It should be clearly understood that it does not have administrative authority. The committee can and should make recommendations, but the responsibility for action rests with the legally constituted school authorities... The committee members should be appointed by the school authority... Since advisory committee members serve without pay and are important persons in the community, every effort should be made to make the committee meetings effective (Emerson, 1962).

Five characteristics of a good community approach to determining requirements of facilities through advisory committees include (Strevell and Burke, 1959):

- A working outline is developed in advance in considerable detail as a guide for planning groups.

- The tasks performed by various groups are such as fall within their particular competencies.
- The subgroups report to a central advisory committee.
- The work of building specialists is not necessarily impeded by deliberative processes.
- It is held that interested members of the community, both laymen and teachers, are capable not only of understanding school needs but of having an active share in making the decisions.

Each planning committee must (School Shop Planning, 1959):

- Adopt or formulate a basic philosophy of technical education.
- Know its responsibilities.
- Be flexible.
- Be given enough time to do the job effectively.
- Be structured so that it can profit and grow from its own failures and disagreements.
- Have financial means to obtain expert assistance.
- Analyze needs, problems, and trends in technical education.
- Understand learning and the learner.
- Understand the curriculum and its relation to school facilities.

Guidelines for Long-Range and Master Planning for Technical Education

Determination of guidelines for long-range and master planning must be based on careful analysis of the needs and objectives of technical education. While each institution needs to consider and determine carefully its own goals and objectives, the fundamental purposes of technical education are well established.

Objectives of Technical Education

In the book, Technical Institute (Smith and Lipsett, 1956), the most important objectives were identified as:

- To prepare graduates for occupational competence in a clearly identified technological occupation or cluster of jobs.

- To serve the needs of industry for technical personnel within a geographical area, such as a city, region, or state.

- To provide instruction in the technology of specific industries.

- To serve technical education needs of employed adults.

It is vitally essential that the total program of technical education be "geared" to preparing the graduate to secure a technical position, to have enough technical knowledge and competencies to advance on-the-job, and to have an adequate background in mathematics and science so that he can progress into more advanced courses in his field.

Educational Objectives for the Institution

In determining the educational objectives for the institution, the suggestions of Smith and Lipsett (1956) are helpful. These follow:

- Determine the broad objectives of the institution.

- Survey the demand for one or more curriculums on the part of industry and potential students.

- Select a curricular area which is appropriate in terms of demand, objectives, and institutional facilities.

- Study job requirements in the occupational field selected.

- Allocate each of the required knowledges, skills and understandings to a course of instruction.

- Determine type and amount of general education.

- Plan a balanced and integrated program of study.

Master Plan for Technical Education

Comprehensive, unified state and area planning on a long-range basis is essential if the needs of most of the students within the area are to be effectively served. To avoid "blind spots" where technical education is not available as well as to eliminate unnecessary duplication, a unified effort within the state is highly desirable.

In a recent article, Lynn Emerson (1966) discusses in detail factors to be considered in the preparation of a master plan and the contents of such a plan.

Preparation of master plan.--Dr. Emerson suggests the following as important considerations in the preparation of the master plan:

- The present and potential occupational needs in the labor market area to be served, including trends in the growth or decline of specific occupational fields, the type of expanding industries, the in-migration or out-migration of industry in the state.

- Demographic data including population densities, transportation, population movements interstate and intrastate, and ethnic changes.

- School population trends with respect to numbers, retention rates, continuance into higher education institutions, with projections for a target date.

- Present organizational patterns for technical education (comprehensive high schools, area vocational-technical schools, technical institutes, community colleges); administrative control of these intitutions by local boards, state education departments, or other patterns; relative importance of each type within the state; areas of overlapping or of conflict.

- Present programs of technician education (numbers and types of institutions, curriculum offerings, enrollments, placement of graduates of preemployment programs, extent of evening and other part-time offerings); trends with respect to growth of the institutions.

- Present and potential state legislation affecting technical education.

- Cost data on construction and operation from within present institutions and from other sources.

- Methods of financing capital outlay and operation, present and projected, with respect to share of total carried by the local community, by state and federal funds, and by student tuition.

- Recruitment of teachers and other staff members (available supply, qualifications of present personnel, present and proposed teacher education programs).

- Present and proposed curriculum development services.

Contents of master plan.--In the same article Dr. Emerson discussed the content of the statewide master plan. A master plan for an area school or a local district would need to reflect the same analysis and research but on a more limited basis.

Contained in the outline of such a plan would be the following:

- o A basic statement of the philosophy and goals of the state with respect to technical education.
- o A brief summary of recent accomplishments in technical education within the state.
- o A brief summary of demographic aspects of the state, and directions in which it appears to be moving.
- o Present labor market data and projected needs to a selected target date.
- o The educational program recommended--any needed changes in the educational administrative pattern; present programs to be continued and changes needed in present programs; new programs required to meet the occupational and population needs; and priorities in the development of new programs.
- o Criteria for location of new institutions and programs.
- o Fiscal plan for the new developments (capital outlay, operating expense, long-term plan for capital outlay).
- o The role of the designated state educational agency in implementation of the plan.
- o Miscellaneous items (curriculum development service, uniformity in statewide fiscal and student accounting, teacher qualifications and teacher education, research in technical education).

Long-range planning offers many advantages. Some of these are reflected in the savings resulting from purchasing sites before costs have risen and elimination of much of the waste resulting from building facilities too small or too large for the actual needs, the locating of facilities in wrong places, and the building of facilities obsolete in terms of meeting the needs of future technical education programs (Long-Range Planning, 1962).

Studies for Technical Facilities Development

Appropriate facilities for technical education programs result when adequate time and attention have been given to determination of the

specific data supporting the need for such an institution.

Population and enrollment studies.--What is the potential number of students which the school can reasonably expect to serve? Lynn Emerson (1962) found through extensive study in this field "...that in areas of reasonable population density and good transportation facilities, post-high school institutions of the technical institute type might expect to enroll 20 percent of the high school graduates who are not going to college or professional schools." It is a fairly simple matter of determining the number of high school graduates to be served and the average percent of those graduates going on to college and professional schools.

Area and economic studies.--These studies are concerned with the problem of adequate financial support for the school. What is the tax base for a community or area? Is this adequate to support the institution? What other sources of revenue will be available for the school? While this study is mainly concerned with the economic resources of the community, some consideration is given to growth, migration, shifts, composition, and characteristics of the population. Trends in the industrial and commercial development of the community are important. Often much useful information is available through the chamber of commerce and other local organizations involved in the economic aspects of community development.

Area employment studies.--The purpose of these studies is to determine the employment opportunities for graduates of technical education programs. It is highly desirable to ascertain such information as: the total population of the area, percentage of population employed on technician jobs, unmet needs for technicians, stability of the labor force, and similar data. Before engaging in a survey of this type, it is wise to determine if this information is already available. If it is not available, the Bureau of Employment Security can be of tremendous assistance in making a labor availability survey.

Cost estimate of facility.--The cost of facilities for technical education varies with geographic area, type of construction, and nature of the program. Upon the completion of the approval of the preliminary plans by the board of education, the architect will be able to provide a fairly accurate indication of the cost of the plant.

Common modes of expressing costs are in terms of cost per student in full-time attendance or cost per square feet of floor space of new construction. In A Guide for the Establishment of Comprehensive Community Colleges in North Carolina (1963) the per student cost for construction was given at about $2100-$2250 using an average of 140-150 square feet per student with an approximate cost of $15 per square foot. In Education for a Changing World of Work, Appendix I (1963), Lynn Emerson indicates a cost of $3,000 per full-time student in post-secondary technical institutions as a figure to use for estimating. Ellis Rowland (1966), Director Community College Facilities Planning for the State of New York, reported that in the State of New York, the average cost

per student is $4,000-$6,000 for 150-180 square feet of floor space. According to a recent article (Edgerton, 1966), the Dodge Building Cost and Specification Digest indicated that during the past several years, the average increase in educational building costs has been 2.8 percent per year.

Sources of funds.--The support of technical education varies in accordance with the kind of institution (comprehensive high school, area vocational-technical school, technical institute, community college). In some states, the major effort is still local while in other states, 100 percent state support is provided. In addition to local and state sources for capital outlay, federal grants and loans may be available to qualified institutions under the Higher Education Facilities Act of 1963, The Applachian Regional Development Program, the Technical Services section of P. L. 815, the Aid to Federally Impacted Areas, and other recent federal legislation.

Bond issues are commonly employed to provide funds for capital outlay. The following factors (Glendenning, Jr., 1966) are important in financial planning:

- o Appointment of an administrative coordinator to be in charge of the project.
- o Appointment of professional advisors:

  Architect
  Legal Counsel
  Financial Advisor

- o Determination of scope of project.
- o Application to proper federal and state agencies for the necessary approvals, grants, and loans.
- o Preparation of studies to determine financial feasibility.
- o Sale of bonds if necessary.

The most important types of surveys as identified in the report Criteria for the Establishment of 2-Year Colleges (Morrison and Martorana, 1960) are:

- o Enrollment Survey.
- o Financial Support Study.
- o Community Interest Survey.
- o Unmet Student Needs Study.

- Other significant criteria related to accessibility of the school to students, and also assessed valuation.

Developing Technical Education Specifications

Educational specifications are written outlines of the educational program developed for the purpose of providing vital information to the architect for facilities planning. These specifications are formulated by educators with the assistance of advisory committees and special consultants in program planning, educational media, acoustical environment and other related fields. Involvement of lay groups, occupational advisory groups, and representatives from management and labor as well as students, provides an expanded effort which can be very beneficial in identifying needs and providing vital public information essential to acceptance of the concepts by the community.

Value of Educational Specifications

The advantages of educational specifications are summarized by Chase, Browne, and Russo (1965) in a pamphlet, Basic Planning Guide for Vocational and Technical Education Facilities, as follows:

- Stimulate more effective planning.
- Promote economy in planning the facilities.
- Aid in determining the number and types of rooms and spaces to be provided.
- Serve the architect as a guide for building design.
- Serve the students, faculty, and staff as a guide to utilize the building more effectively.
- Provide for more cooperative planning and understanding of program objectives.
- Emphasize the community's objectives and aims for the technical education program.

Statement of Philosophy and Objectives

The educational specifications need to contain statements of the philosophy underlying the educational program. If such statements have not been formulated, this formulation is one of the functions of the advisory committee working in close cooperation with the administration and the faculty. Specific written statements of the objectives of the educational program are essential. It is helpful to the architect to describe the nature of the activities to be accommodated by the facility

as well as the relationship of each activity to the other activities of the institution. The educational specifications for each school must be written specifically for that institution. These specifications must reflect the student characteristics, the nature of the instructional activities, and the objectives of the educational program.

Planning order.--In planning educational specifications, it is usually wise to consider first, educational program; then, student needs; and finally the needs of faculty, staff, and other personnel.

Reflect trends.--The specifications need to be developed to reflect new innovations and methods in the technologies of education, such as team teaching, educational television, computerized instruction, and audio-visual aids. Adaptability, accommodation, and flexibility are key words for planners of educational facilities today. Modular construction, service cavities or columns, light and acoustical control, communications systems, and environmental control are "musts" in most industrial, commercial, and educational facilities reflecting the newest innovations. The common elements of clusters of technical occupations must not be overlooked in facilities planning for technical education. Library-resource centers with study carrels, an audio-visual area, and an individual viewing center are important to learning-teaching activities in technical education. Consideration of multi-purpose uses for day and evening school programs will often result in a much higher room utilization factor. The "cigar box" approach resulting from static, load-bearing walls prohibit maximum accommodation and flexibility. Expansion is enhanced by movable partitions and utility columns. Exterior ramps, electronically operated doors, widened doorways, and rest rooms built to accommodate wheel chair traffic now are incorporated into many new technical education facilities reflecting the concern for continued educational opportunities for the handicapped.

Outline of Content of Educational Specifications

Since educational specifications need to be tailor-made to fit the particular needs, considerable variation will result. Several excellent sources of information are available suggesting the content and format for such specifications (Developing Educational Specifications for Vocational and Practical Arts Facilities, 1960; Planning America's School Buildings, 1960, (Nelms, 1965). An excellent statement of the basic requirements are as follows (Guidelines for Realistic Facility Planning for Schools of Vocational, Technical and Adult Education, 1964):

- General requirements

  Statement of the philosophy and objectives of the community for its vocational and technical education program.

A plan of the proposed vocational and technical education organization, program, and the groups to be accommodated.

A description of the educational facilities needed.

o Detailed requirements

Statement of the philosophy and objectives of each of the subject offerings.

Space requirements, numbers, and kinds of rooms needed for each subject field.

Special utilities and service needs in shops and laboratories.

o Miscellaneous information

Traffic patterns--interior and exterior.

Storage.

Floor materials in shops and laboratories.

Cleaning systems.

Intercom, program bell, and clock system (TV, audio-visual, etc.).

Furniture and equipment to be housed.

Custodial services.

Mechanical equipment.

Size and Type of Facility

Standards for offices, laboratories, shops and classrooms will vary from one state to another. In the absence of specific state standards, the following recommendation by the Office of Architecture and Facilities, Community College Services, State University of New York (Rowlands, 1966) is suggested as a guide to space requirements.

Another series of standards frequently employed by consultants in planning the instructional facilities for engineering technology programs is given below. Again, conformance with established standards of space as provided by various State Departments of Education is recommended; however, in the absence of such standards, the following are realistic as a point of departure in beginning planning. Since the requirements of institutions are different, adjustments need to be made on the basis of variations in program and planned maximum enrollments in each space.

TABLE II

SPACE REQUIREMENTS FOR ADMINISTRATIVE OFFICES, LIBRARY, DINING, AND PHYSICAL EDUCATION

Space	Net Area in Square Feet
ADMINISTRATIVE	
President	400
Vice President, Dean of College	300
Other Deans and Directors of Administration	240
Individual secretary or two secretaries	120/each
Three or more secretaries in one area	80/each
Associate Deans or Equivalent	180
Other Administrative Offices	120
Division Chairman	240
LIBRARY	
Total seating and other spaces--based on 33% of total enrollment projected	25/person
DINING AND RELATED SPACES	
Seating based on 35% of total enrollment	
Dining room area, per diner	12/person
Kitchen preparation space, per diner	3.6-5.6
Dishwashing, refrigeration, and storage, per diner	4.0-5.3
PHYSICAL EDUCATION	
Gymnasium, approximately 106' x 120'	12,720
Locker rooms, per 12x12 full length locker	6
Per tote basket	0.6

TABLE III

INSTRUCTIONAL AND ANCILLARY SPACES FOR TECHNOLOGY PROGRAMS

(Numbers indicate areas in square feet)

Departments & Sections	Sq. Ft. 1 Person	Labs	Shops	Tools & Storage	Offices	Class-rooms	Total Sq. Ft.
Building Construction							
Woodworking Shop	120		2400	300			2700
Concrete Constr. Shop	120		2400	300			2700
Arch. Drafting Room	55	2200		300			2500
Office - Dept. Head					120		120
Office - Two staff					160		160
Classroom						720	720
							8900
Civil							
Soil Mechanics Lab	60	1200					1200
Surveying Instr. Lab	32	640					640
Office - Dept. Head					120		120
Office - Two staff					160		160
							2120
Drafting & Design							
Basic Drafting Room	45	1800		300			2100
Adv. Drafting Room	55	2200					2200
Office - Dept. Head					120		120
Office - Two staff					160		160
One Classroom						720	720
							5300

TABLE III--Continued

Departments & Sections	Sq. Ft. 1 Person	Labs	Shops	Tools & Storage	Offices	Class-rooms	Total Sq. Ft.
	(Numbers indicate areas in square feet)						
Diesel - Automotive							
Basic Laboratory	170	3400		300			3700
Engine Test Lab	120	2400		300			2700
Injection Lab		650					650
Office - Dept. Head					120		120
Office - Two staff					160		160
One Classroom						720	720
							8050
Electrical							
Basic Electrical Lab	60	1200		300			1500
Electrical Power Lab	90	1800					1800
Elec. Wiring & Maint.	60	1200		300			1500
Office - Dept. Head					120		120
Office - Two staff					160		160
One Classroom						720	720
							5800
Electronics							
Basic Electronics Lab	60	1200		300			1500
Adv. Electronics Lab	90	1800		300			2100
Communications Lab	60	1200					1200
Office - Dept. Head					120		120
Office - Two staff					160		160
One Classroom						720	720
							5800
Industrial							
Methods Lab	45	900		300			1200
Office - Dept. Head					120		120
Office - Two staff					160		160
One Classroom						720	720
							2200
Mechanical							
General Metal Workshop	90		1800	300			2100
Machine Tool Workshop	170		3400	300			3700
Metallography & Metallurgy Testing	90	1800					1800
Welding & Heat Treating	120		2400	300			2700
Fluid Mechanics Lab	60	1200					1200
Office - Dept. Head					120		120
Office - Six staff					480		480
Three Classrooms						2160	2160
							14260
Metallurgical							
Adv. Metallurgical Lab	90	1800		300			2100
Foundry	120		2400				2400
Office - Dept. Head					120		120
							4620
Ref. and Air Conditioning							
Basic Refrigeration Lab	90	1800		300			2100
Adv. Ref. & Air Con. Lab	105	2100					2100
Sheet Metal Shop	45		900				900
Office - Dept. Head					120		120
Office - Two staff					160		160
One Classroom						720	720
							6100
Applied Sciences & Mathematics							
Physics & Mechanics	60	1200		300			1500
Chemistry	60	1200		300			1500
Office - Dept. Head					120		120
Office - Four staff					320		320
Four Classrooms						2880	2880
							6320
General Courses							
Business & Economics					120	720	840
Social Sc. & Mgmt.					120	720	840
English & Report Writing					120	720	840
Guidance					120	720	840
							3360

TABLE III--Continued

Departments & Sections	Sq. Ft. 1 Person	Labs	Shops	Tools & Storage	Offices	Class-rooms	Total Sq. Ft.
	(Numbers indicate areas in square feet)						
Administration & Library (Minimum)							
Administration Offices					1200		1200
Business & Records					1200		1200
Library		1800					1800
							4200
Audio-Visual Center							
Audio-Visual Lab		1440					1440

Note: Add one-third allowance for hallways, toilets, and other auxiliary spaces.

Selection and Commissioning of the Architect

The selection of the architect is a major responsibility of the board of education. This decision is usually made after consultation with the local director and a representative of the state office.

Qualifications of the Architect

Most states provide for licensing of architects who have met the minimum legal qualifications. Exceedingly important, beyond the minimum qualifications, are the architect's design ability and technical knowledge. Determination of his creative ability, business acumen, and cooperative spirit are highly desirable. Previous experience and knowledge of technical education will prove of tremendous help during the period of design and construction of the facilities. His integrity must be beyond question.

Selection Methods

The three most common methods used for the selection of the architect are: open selection (sometimes called direct selection); selection by comparative methods; and design competition. Open selection, based on the general qualifications of the architect, is the most widely used method. The main elements of the open selection method are limited to determination of the established reputation, demonstrated ability, and recommendations from previous clients. Under the comparative method, several architects are invited to present evidence of their qualifications through personal interview and written application. Less frequently employed is the method of design competition. This method is quite time-consuming and would mainly identify the architect's design ability.

Interest and Experience of Candidates

Preliminary screening of architects is a common initial step. This is followed by a more detailed investigation of a reduced number of candidates. A standard questionnaire has been developed by the National Council on Schoolhouse Construction and the American Institute of Architects for use during this screening process. Succeeding steps involve the personal interviews with candidates, examination of completed architectural projects, and discussion with former clients of the architect.

Visiting buildings designed by the candidates provides the opportunity not only to view the structure but to ascertain whether or not the board, school administrators, and faculty are satisfied with the work of the architect. At this time, additional insight may be obtained as to the architect's design competence, integrity, business ability, and cooperation.

Criteria for Selection

Excellent criteria for selection of the architect have been developed by the Wisconsin State Board of Vocational and Adult Education (Guidelines for Realistic Facility Planning for Schools of Vocational, Technical and Adult Education, 1964). These criteria are given in Table IV.

TABLE IV

SUGGESTED GUIDELINES FOR EMPLOYING ARCHITECTS

No.	Criteria	High	Average	Low
1.	Experience of the firm and past performance.			
2.	Primary emphasis of experience of the firm, such as schools, hospitals, etc.			
3.	Specific specializations of the firm as to vocational-technical schools.			
4.	Home office of the firm in relation to the project.			
5.	Size of staff and experience of staff members.			
6.	Comparative work with either public or private clients.			
7.	Past relations with local schools.			
8.	Current work loads with public and private clients.			
9.	Ability to meet budgets and schedules.			
10.	Thoroughness in plans and specifications to keep extras at a minimum.			
11.	Economic, esthetic, and mechanical success of past projects.			
12.	Recommendations and opinions of private owners.			
13.	Financial stability of firm.			
14.	Cooperative attitude of firm to meet demands and desires of owner.			

Agreement between Architect and Board

Upon the selection of the architect, the board of education should have its lawyer draw up a contract clearly stating the terms of the agreement. Not only does such a contract protect both parties but it identifies the obligations of each and obviates misunderstandings which could undermine good working relationships between the parties. A standard contract form has been developed for this purpose. Copies are available from the American Institute of Architects.

Site Selection

The selection of the site for the building is an important decision. often serious limitations are imposed through the selection of an inadequate or unsuitable site. Mainly the problem of site relates to size, location, suitability, and economy.

Securing Additional Land for Present Site

Often buildings have been erected on inadequate sites and have thus presented the problem of limited expansion or the necessity of securing additional land at an inflated price. This is the result of short-range planning. Institutions located on inadequate sites desiring to expand need to evaluate carefully the alternatives of securing additional land, modifying the existing structure on the present site, or abandoning the present location and seeking a more desirable site in some other location. Urban renewal may be the answer, Especially in the "Great Cities." Land use planners and architects have produced some marvelous innovations to overcome the limitations of an inadequate or undesirable site. However, if possible, attempts should be made, within the limitations of cost, to expand the site to meet the needs.

Selection of New Site

Under the long-range approach to the problem of sites, the site is carefully selected well in advance of the time of utilization for the new plant. School sites should be located in proper relationship with existing and proposed physical facilities of the community. Consideration needs to be given to locations relative to industrial areas, residential areas, main streets, highways, and similar factors. Central location in relation to the area to be served is important. Convenience to public transportation and adequate areas for parking is important. Most students who attend evening school classes drive their own cars.

Availability, with a minimum of additional cost, of such public-service facilities as water, gas, telephone, sewer, fire protection, and electricity is important in the selection of a site.

The National Council on Schoolhouse Construction (1958) reports on size as follows:

Although more site space may not be necessary immediately, the needs may develop soon. Experience has indicated that ultimate site requirements should be met with the initial site acquisition because land adjacent to a new school soon becomes occupied with housing developments or commercial establishments.

The size of any school site should be determined largely by the nature and scope of the contemplated educational program. Actual layouts of the spaces needed by the various phases of the program should be made.

Site information.--To secure necessary information on potential sites, the following instruments and procedures are helpful:

- o Land-use map -- shows areas of manufacturing, residence, public buildings, parks, agricultural lands, vacant property, and commercial areas.
- o Aerial photography-- provides a basic map with subdivisions.
- o Soils map -- gives soil types.
- o Topography map -- shows terrain features of the area.
- o Highway map -- presents actual and projected arterials in the community and region.
- o School service area map -- shows areas presently served and projected service for the future.
- o Dwelling unit map -- provides information about location and type of existing and proposed dwelling units.
- o Total population projection -- uses studies made by telephone, power, and water companies in their analysis of potential population development.

Site selection criteria.--While deviation from established criteria is sometimes justified, the gravity of a decision on site dictates the utmost care and consideration of all available facts, trends, and forecasts of probable future developments. Consultation with architects, landscape architects, and engineers is highly desirable in site selection. A checklist for site evaluation (Rowlands, 1966) identified the following elements:

o Size -- The most important criterion for campus planning is a site of at least 100 usable acres; 200 or more are preferable.

o Site characteristics -- The site should be in one piece and unencumbered by existing or future easements or public rights of way. A rectangular shaped site approaching a square is preferred. The area should be relatively flat; steep slopes and irregular topography should be carefully evaluated in terms of the building program. Sub-soil conditions should be examined to insure a minimum of rock, quicksand, and sub-surface water condition.

o Cost -- The site costs should include the original purchase price; development, including demolition and utilities; and any additional building costs incidental to site conditions.

The selection of a site should be done with deliberation and should not be based upon a quick decision influenced by a capital gift which may impede future expansion, have high development cost, and have other high building costs incidental to utilities and site conditions.

o Accessibility -- Studies have tended to show that the great majority of students at the existing community colleges arrive by private car pools. (Parking space should be provided for 50 percent of the student enrollment and for 75 percent of faculty and staff.) Studies also indicate that 90 percent of the evening class enrollment will drive to the site. Ease of access by automobile from all parts of the region is, therefore, rated higher than the availability of public transportation.

In comparing sites to serve best all populated areas, a factor should be

developed by multiplying the number of students from each area by the distance to be traveled and by the time it takes to travel the distance to each of the suggested sites.

- o Environment -- The site should provide safe and healthful conditions for students, faculty, and visitors and should be relatively free from sources of noise and danger such as airports, railroads, and heavily traveled highways. The site should also avoid the extremes of cold, excessive winds, smog, fog, and offensive odors. The surroundings should tend to create a feeling of pride and respect.

- o Regional planning -- The site must be acceptable in the regional plan of the locality, must not interfere with other regional projects, and must be a project of value for all citizens of the region.

Site Beautification

Attractive school grounds enhance the educational environment and give status to the total educational program. The building should be so located on the plot that plantings provide an appropriate setting for it. A plan for planting needs to be prepared by a competent landscape architect for the school grounds before actual placement of the building occurs. Once such a plan has been developed, the actual work of planting can be achieved progressively over a period of years if sufficient funds to complete the landscaping are not immediately available in total.

Long-Range Implications of Site

Site selection is one of the most important aspects of planning a new educational facility. It will determine for many years hence the character and nature of the educational opportunities which can be provided by the institution.

Establishment of Design Criteria

Design is the function of the architect. Creativity, imagination, and invention are the essentials for good design of a forward-looking technical education facility. The building must provide an environment which stimulates, motivates, and inspires those who learn and those who teach if it is to render the maximum educational service. The ability of the architect to design such structures is enhanced or limited by the

ability and effort of the educators to communicate the essence of need and the other desirable elements to be incorporated into the new building. Having identified innovative features, the architect will perform research if necessary and recommend the advisability of incorporating these into the proposed structure. Visitations by the architect and educators to outstanding facilities of the same or similar function are often helpful.

Curriculum Objective

"Form follows function" is a basic concept of design. Technical education is dedicated to preparing students for jobs, helping them to hold jobs, and expediting advancement to positions of higher responsibility and more challenging opportunities in the world of technology. These objectives must be constantly kept in mind if the school is to serve the basic purpose for which it was created. The facility must enhance and reflect these objectives in its form and design.

Space Relationships

Determination of space relationships is a fundamental responsibility of the educator in the development of the educational specifications. This may be presented as part of the tabular information using headings such as: space name, size, access to, and other significant information.

Often during the process of writing the educational specifications, schematic plans of space layouts are developed. These simple floor-plans may be of help to the architect in his space relationship study. Relative organization of instructional spaces with suggested layout of student stations, machines, equipment, furnishings, and other educational hardware is essential. Size of each unit needs to be given with indication of the provision for services and other unique features. Relationship of units requiring utilities to the sources of utilities, such as service columns, service cavities, or overhead source must be considered.

Functional storage of adequate capacity with proper provisions for safety is important. Location of spaces in relation to ramps, loading platforms and staging areas, as well as the width of doors, and the height of ceilings illustrate another problem of space relationships. Relationships of instructional areas to central units as the library-resource center (also specific laboratory-shop areas) is significant for the teaching-learning process.

Flexibility and Expansibility

Changing technologies demand changing curricula. Facilities frequently need to be modified to meet these changing conditions. Flexibility is a key word in order to accommodate changing educational needs. Movable partitions (non-load-bearing) and service cavities or columns are essential for maximum flexibility. Zoned environmental control and modular construction are helpful in securing flexibility.

Design and construction should permit expansion with minimum modification and least possible cost. It is possible to plan a one-story building in such a manner that it may be expanded at many points. Such an arrangement makes it possible to expand each service or program without locating the addition remotely from the original unit or without relocating the entire program. This type of expansibility is enhanced when a campus-type building is chosen rather than more massive building units. It is further enhanced when a finger rather than a cluster or back-to-back type of plan is adopted (Guide for Planning School Plants, 1958). However, the choice must reflect careful consideration of comparative cost, adaptability, and functional value for the educational program.

Environmental Control

This encompasses proper control and balance of temperature, humidity, dust, acoustics, and lighting. Studies have revealed that learning improves with the control of environment. Reducation of corrosion of metal in machine units is a significant cost factor in the laboratories and shops of technical programs.

Aesthetics

In architecture, the total effect produced in the structure, either inside or outside, produces the aesthetic aspects described as beauty or the lack of beauty. However, it can be said that the school plant which is truly functional does fulfill a physical function in addition to an emotional function--some describe this also as beauty. It is desirable to blend the aesthetic factor with those other essentials of spatial environment, safety environment, sonic environment, thermal environment, and visual environment. Good architecture is beauty. Beauty involves unity and proportions, fluid quality of space, structural expression, appropriate use of color and texture, and applied art (NCSC Guide for Planning School Plants, 1964).

Safety

Providing reasonable safeguards for safety is a responsibility of the school officials. Major concerns are in four basic categories which the designer of the plant is usually aware of. These are:

- o Structural safety -- Engineer and construction, i.e., soil tests under foundation; live load for rooms; lateral forces building can resist; strength of structural members.
- o Fire safety -- Materials and design, i.e., use of protected noncombustible materials (fire-resistive ceilings and fire retardent interior finishes); adequate, properly placed exits and escapes; installation

of fire walls and doors; sprinkler systems; and alarm systems.

Strict observance of safety codes and standards.

o Disaster -- Protection and evacuation in event of emergency conditions (thermonuclear warfare, earthquake, tornado, etc.).

o General safety -- Pedestrian traffic; vehicular control (segregated from pedestrian traffic); student movement within building (design of corridors, exits, stairways, etc. in relation to patterns of flow); building interior and exterior features; site condition.

Economy

Many factors are important when economy is considered. In the booklet (Thirteen Principles of Economy in School Plant Planning and Construction, 1961), the following definition is given: "Economy as applied to schoolhouse construction implies a wise and carefully managed expenditure of school funds in providing facilities which are adequate in terms of the needs of the educational program at the most reasonable cost." This publication identified the following as significant:

o Selection -- Consultants, architect, site, materials, etc.

o Educational planning -- Cooperative planning; philosophy and aims.

o Usefulness -- Adequate and efficient to meet the needs.

o Flexibility -- Internally adaptable to changing educational conditions.

o Expansibility -- Enlargement and extension at reasonable cost.

o Exactness -- Exact and accurate drawings and specifications.

o Simplicity -- Aesthetic expression combined with educationally functional design minimizing excessive ornamentation.

o Compactness -- Economical arrangement of spaces.

- o Multiple use -- Designing for a variety of activities but preserving integrity of unique spaces when essential.
- o Modular coordination -- Designing the building according to a system of modular dimensioning (savings in materials and labor; adds adaptability to changing needs).
- o Repetitive design -- Use of recurring structural units and repetitive installation procedures.
- o Durability -- Use of materials that minimize future maintenance and replacement costs.
- o Prefabrication -- Fabrication of standardized parts of the building at the factory rather than on the site.

Office Space and Service Areas

The administrative offices should be planned and designed with several ideas in mind: (1) ease of availability to the public, teachers, and students; (2) use for administrator-faculty-student-public conferences; (3) ease of inside and outside communications; (4) maintenance of school records.

Redesign of the administrative area to provide for expanding or decreasing space allocations must be considered. Flexibility can be provided by easily altered interior partitions. Careful placement of units for lighting, heating, ventilating, and special wiring for phones and electrical service outlets will add greatly to the flexibility of this area. Depending upon the size and complexity of the administrative plan for the institution, provision needs to be made for:

- o Executive offices -- President or director, and assistant directors or principals.
- o General offices -- Receptionist, office manager, secretaries, bookkeeper (accountant), record vault, machine room, and supply storage room.
- o Guidance suite -- Counseling and conference areas, records vault, browsing area of guidance materials.
- o Clinic and health services -- Nurse's room, dressing booths, rest rooms, examination room, and waiting area.

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- o Instructors' offices -- Private office for each, even though small in size; not over two in one office.
- o Cafeteria and food service -- Central service with supplementary canteens (maybe stand-up type canteens).
- o Employees' lounge -- With limited food service, convenient to office area and auditorium area.
- o Students' lounge -- A center for student hospitality with some food service (minimum: vending machines or snack bar).
- o Central supply receiving and storage -- A center for receiving, shipping, staging, and warehousing for the total institution.
- o Custodial and maintenance shops -- Custodial storage conveniently located with sinks in various locations, central repair and maintenance shop.
- o Rest rooms, and drinking fountains -- In conformance with code.

Library-Resource Center

In modern facilities planning, the library-resource center needs to be planned to provide space for reading and reference rooms, study carrels, and audio-visual library and viewing areas. Consideration needs to be given to micro-film and microfiche readers and storage of these materials. Planning should include consideration of projection and closed-circuit television as well as equipment for computerized instruction.

A standard of a minimum of 20,000 selected volumes exclusive of duplicates and textbooks for the first 1,000 students, with an additional 5,000 volumes for each additional 500 students has been suggested. (Rowlands, 1966).

Laboratories and Shops

The laboratories and shops provide the "heart" of a technician education program. Planning and designing of laboratories and shops "geared" to the needs of students whose goal is employment are mandatory. Visitation to industrial plants and deep involvement of advisory committees composed of members familiar with the needs of industry are very helpful.

Laboratories must be designed to provide for real equipment, simulators, adequate student work stations, and ample storage. The most significant laboratories for programs of technical education are: physics, chemistry, mechanics, hydraulics, fluid power, and instrumentation. Suggested space requirements range from 60 square feet per student for physics and chemistry to 70 square feet for fluid power (See Table III). Safety factors such as exhaust devices, fume hoods, and fire extinguishers need to be considered. Space for teacher preparation of at least 75 square feet should be provided for such supplies and equipment as are required for the instructor's laboratory demonstrations and experiments, i.e., sink with hot and cold water, compressed air, and common voltages of electricity. Cabinets for storing chemicals must resist corrosion and may require ventilation. Provision should be made for the storage of flammable substances in accordance with good standards of fire prevention and code requirements.

In the book Secondary School Plant Planning (1957) shop facilities are described as providing for, "...planning, investigating, testing, conferring, demonstrating, teaching with visual and auditory aids, and evaluating pupil development, as well as for manipulating tools and other equipment." Development of technical skills requires realistic, modern equipment comparable to that found in an industrial shop. The "hardware" functions of technicians are a basic part of the competencies demanded by employers in industry. The shops should be planned to accommodate actual industrial processes and activities, on a somewhat reduced scale, but utilizing the same techniques and methods, tools and equipment, and other related facilities found in industry. Table III provides suggested space requirements for shops common to technical programs.

Classrooms and Auxiliary Areas

The environment of the classroom must be conducive to discussion and learning. It must be planned to house those learning resources essential to the courses taught in the room. Some demonstrations are conducted as part of the classroom activities; so provisions must be made for introducing these at the appropriate time and then either removing the units to the shop or laboratory or returning them to proper storage. A definite advantage exists when provision is made for location of units in the area readily accessible to the laboratories or shops where the applied activities related to the classroom activities are housed.

Planning should provide an atmosphere for student participation in an informal learning environment. Provision needs to be made for applications of the recently developed and developing technologies of education (i.e. team teaching, programmed instruction, etc.) and new innovations in media (i.e. audio-visual equipment, projection television, etc.) where teaching-learning experiences are enhanced by such implementation. Table III provides information relative to suggested classroom size.

Auxiliary spaces are service areas for activities related to the instructional program. Priorities are usually determined in relation to

the value for the educational program of the institution. In fact, present trends reflect a desire to utilize as many as possible of the auxiliary spaces for some instructional purpose as well as for the usual auxiliary function. In some plants, the equipment room housing heating and air conditioning units for the facility has been planned so that learning experiences for students of heating and air conditioning take place in the space under the guidance of the instructor. These activities are limited to observation, instructor demonstration, and related experiences which do not interfere with or in any way interrupt the normal work of the service units. In other institutions warehouse and storage spaces become laboratories for students needing this kind of related instruction as part of their program. Many auxiliary areas, with careful planning and effective layout and design, can make valuable contributions to the instructional program. Suggested space requirements are given for auxiliary spaces in Tables II and III.

Local and State Approval

Customary provisions of state regulations mandate submission of preliminary drawings and specifications for state approval. Careful study and conformance with the standards established for the particular state for the various instructional and auxiliary spaces as to floor space, ceiling heights, space relationships, safety factors, and similar features need to be observed. Information is usually available from the Director of School Building Service or the Vocational-Technical Division of the State Department of Education.

Approval by the local board must conform to the legal pattern established and must involve such other steps relating to capital outlay as are required by local and state regulations. Approval of the preliminary drawings and outline of specifications by the board of education permits the architect to proceed with the development of the detailed working drawings and specifications needed so that various contractors can prepare bids for the construction of the school plant. Any changes by the board after this approval result in both additional delays and increased costs.

Development of Construction Plans and Engineering Specifications

The working drawings describe graphically the work to be performed by the contractor; engineering specifications name and describe the materials and equipment needed. Development of the working drawings and the engineering specifications represents a major responsibility of the architect. He usually employs consultants and specialists in various phases of engineering to handle certain details such as acoustics, air conditioning, mechanical, electrical, structural, and foundation engineering. The architect's office expends great care and skill on the organization, preparation, and checking of the working drawings and specifications. These documents must be free of conflicts, redundancies, omissions, or errors which would lead to confusion or waste on the job. Complete, accurate,

and carefully executed working drawings and engineering specifications have a tendency to result in lower bids than occur when incomplete, careless documents are submitted for bids. Insufficient time allocated to the architect is often responsible for shoddy work on his part.

Upon approval by the local board of the completed working drawings and engineering specifications, submission to the State Department follows. Typical of state regulations are the following (Guide for Schoolhouse Planning and Construction, 1964):

> Final plans and specifications submitted for review and approval by the State Board of Education shall meet the following requirements and shall conform with the best professional practices. They shall show clearly, accurately, and completely information on all phases of the work to be undertaken. (Then follow statements that enumerate several qualifications which must be complied with in the final plans and specifications.)

Upon the acceptance by the local board and the State Department of Education of the working drawings and engineering specifications, the steps may be taken to secure bids and let the contracts for construction.

Bidding Procedures

State law normally requires that contracts for construction of new facilities be awarded on the basis of competitive bids secured after a period of required advertising. The architect works closely with the attorney for the board of education on bidding procedures.

The architect normally takes responsibility for preparing the advertisements, bid forms, bid bond forms, performance bond forms, and forms of agreement between the board of education and the successful bidders (Guide for Planning School Plants, 1958).

Several important considerations must be resolved at this time, such as:

- o Timing of bids -- Certain seasons result in lower bids.
- o Rejection of bids -- Limited conditions justify rejection, i.e. price too high.
- o Priority plan -- Whether to provide for a base bid with additional alternates or one package bid only.
- o Portable units -- Whether to include the furniture and portable equipment as part of the total contract package or bid these separately.

o General contract -- One general contract or several separate ones.

Awarding the Contract

Bids normally must be submitted in sealed envelopes at a specified time and place. The bids are publicly opened and read and are entered in the minutes of the board of education. The bids are then analyzed, usually by or with the assistance of the architect. The contracts usually are awarded to the successful bidder at a subsequent meeting after the analysis of bids has been completed (Guide for Planning School Plants, 1958).

The standard form of contract employed has been developed by the American Institute of Architects. Departure from the form should be made only upon the advice of legal counsel. This form of AIA contract consists of a 10 page document covering 44 articles of general conditions of a contract for the construction of the structure.

Supervision During Construction

The architect sees that the building dimensions are correct and that it is properly oriented on the plot from the beginning of construction. He keeps a schedule of the work and adjudicates differences among the contractors. He supplies instructions and detailed drawings where needed in addition to the contract drawings; and he inspects the shop drawings, e.g. for steel work, cabinet work, or setting drawings for terra cotta, with minute care. He is a consultant to the contractor on materials, measurements, and many other details. He establishes a schedule of values and against it checks the contractor's claim for periodic payments on a percentage of work done; thus he certifies all payments to contractors. He arbitrates controversies arising out of the contracts. He handles change orders affecting the amount of contract. He coordinates the work of other inspectors. It is clear that these tasks are of an executive and supervisory character. Ultimately the architect's reputation is at stake, and he tries to see that his client, the school district, receives maximum value in the project (Strevell and Burke, 1959).

Often on construction of this type the board of education hires a "clerk of the works" who inspects all materials and processes during construction.

Acceptance of Completed Facility and Payment

Upon completion of the project, final inspections are made by the architect together with the board of education or its representatives. Modifications, if necessary to conform to specifications and working drawings under the contract, need to be made before acceptance of the building by the board of education. The final payment to the contractor needs to be withheld until the work of the contractor has been formally certified by the architect as having met the requirements of the contract.

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PART IV

FINANCE

FINANCING PROGRAMS OF TECHNICAL EDUCATION

by
Joseph T. Nerden*

In the recent publication, "Local, State and Federal Partnership in School Finance," Arthur F. Corey indicated: "School finance in America in 1966 is in chaos. That is to say, it is in disorder and confusion. This crisis, for such it is, exists not because of our professional leadership in school finance, but in spite of it. Educational literature is full of dire warnings which have gone unheeded." Corey (1966) indicated that public school personnel have far more useful and accurate information concerning how to finance education than they are permitted to use. In a sense, this situation is reminiscent of the anecdote of the farmer who refused to attend evening adult classes conducted by the Agriculture Extension Division, saying, "I don't need any further help and education, since I am not now farming half as well as I know how already." This salient point of view in school finance may be debatable, since it is not purely the matters of seeking sources of funds, budgeting them, and expending them that make up the bulk of the responsibilities which must be assumed by those who are responsible for financing programs of public and technical education. Knowledge of school finance presupposes that the individuals responsible for major money matters be concerned with many more important factors than just the numbers of dollars involved. Educational finance is concerned with many aspects of the total school education program which are indicated here but briefly.

Basic Factors Which Affect Financing of Technical Education

Philosophy

Finance is concerned with the philosophy of vocational and technical education held by the technical education administrator. If his philosophy is that which includes meeting the needs of all individuals who make application to the institution for some form of technical education, his procedures for financing the program will be in one direction; if, by contrast, his philosophy of technical education is narrow, and only certain levels of technical instruction are provided within an institution, then his philosophy will provide quite a different basis for financing the program of instruction. Either philosophy, when translated into dollars, must anticipate buildings, facilities, staff and all other operating expenses in terms of the philosophy held, and the results will be quite different. Hence, it is imperative in the very beginning to settle upon a philosophy which includes answers to such questions as: Whom shall we serve? What shall we serve? What facilities do we need to serve such persons? What level of instruction is anticipated?

Political Attitudes in the Region

Finance is affected by the political attitude and the manifestations of the power factors in the region. If, for instance, the

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political structure of the state is oriented in the direction of making the state one of a highly industrialized group of states, or if there is a strong effort being exerted toward attracting industry to the area and of holding and expanding the industries currently located in the region, then there is a likelihood that a very liberal attitude on the part of the political structure will be evidenced in matters concerning finance. Politics is also concerned with the attitudes and feelings of those of the electorate who are on the lower levels and who are likely to have to react to a bond election or a referendum permitting the direct appropriation of funds for building, equipping, and maintaining technical education facilities. Certainly finance must then be concerned with the attitudes held by the general population in the area, and where this attitude is positive and constructive and forward-looking, the financing of the institution will be facilitated with ease. Where the need for public information and assistance is urgent in providing the population with information concerning the value to the region of technical education, both socially and economically, then the financing will show the reluctance on the part of some individuals to expend funds, particularly if in their ignorance, they see little if any possible value to the region.

The "Status Quo"

Financing of the school and its facilities and budgeting for recurring expenses will be affected by the "status quo" in the community. This "status quo" should be considered quite apart from the requirement for widespread community information of the type indicated in the preceding section. Strategy is all-important in matters of finance, since funds needed to build and equip a technical institution usually are obtained only through regular public sources and only when the majority of the electorate believes that it can afford the investment. The strategic time for the scheduling of a bond election, the state of the tax structure in the region, and other such elements as the numbers of other types of schools that have been built recently or which are anticipated for the total school program would all have to be part of the consideration. Financing of technical education must be concerned with the timing and the strategy of the particular region, and the situation will be different for each region.

The Conflict Between Vocational and Liberal Elements

Finance is concerned with another aspect of public opinion and acceptance. In some communities of the nation where there is still a strong reliance upon liberal education as the only kind of education to fit an individual for the world of work and for participation in a world society, there is little likelihood that a program of technical education will be generated spontaneously in the population and carried forward with any degree of enthusiasm. In some of the community colleges currently in operation in the nation, this element is noticeable, and the lack of success of the occupationally oriented curriculums in

these community colleges may be in part attributed to the reluctance of some of the members of the community, and even members of the boards of trustees of such institutions, to grant equal status and respectability to occupationally oriented curriculums. Hence, in the financing of technical education, the technical educator must continually be cognizant of the necessity of working with the individuals in the area which the institution is intended to serve. This he must do to ameliorate to some degree attitudes which would in the final analysis defer the necessary action required to put into operation an appropriate program of technical education. Examples of this need to be constantly aware and fully cognizant of public opinion and acceptance for vocational-technical education may be noted in a number of the junior and community programs in the nation. In several, the intent is to make "little ivy-league two-year colleges" of the institutions, in the hope that such a procedure will bring a degree of status and respectability to them, the inference being that anything of a vocational or technical nature would lower their status. On the other hand, in Quincy, Massachusetts, a large city in the industrial northeast, public opinion and acceptance of vocational-technical education is at such a high level that several million dollars recently were actually put into the escrow account of the school department well in advance of the actual building of the new vocational-technical school for the region. This action showed a confidence in the technical education personnel at the same time that it illustrated an attitude held by the general public concerning the values which vocational education might bring to the community and the area. Further, unless the general public understands the specific objectives of technical education, is familiar with the kinds of students that are accepted for enrollment in the programs of the institution, and feels a part of the need to help these young people to prepare for job opportunities currently available, the responsibilities of the individual or committee financing technical education tend to multiply. One item of major importance which should be part of the general information held by the public, for which the school purports to provide services, is the fact that technical education will require an investment of funds much greater in magnitude than that for any other kind of public education.

Knowledge Concerning Sources of Funds

Financing of technical education presumes that the individuals who are responsible for the program of financing the project be fully cognizant of the sources of funds from federal, private, local, and state sources. They should know the answers to such questions as the following: How much of the technical program anticipated for the school may be reimbursed from state and/or federal funds? Instruction? Facilities? Supervision? All? Under what conditions will reimbursement be possible? If reimbursement is made available, what will be the net cost to the school annually for conducting the technical programs? Do the overall school administration and the general public as well as the political structure in the region also know of the possibilities available for reimbursement of some or all of the technical programs?

Reimbursement may be possible from a wide variety of state and/or federal legislative acts. For instance, where technical education is offered on a secondary level, those responsible for financing the program should carefully review the possibilities provided in the Elementary and Secondary Education Act of 1965 for opportunities to improve the program of secondary level technical education with funds made available under the Act. In Maine, the State Department of Education has already obtained from Title V of the ESEA well over $100,000, with the expectation that these funds will be used to conduct a statewide study of the need for vocational and technical education. This is interpreted within the provisions of the Act to indicate that the expenditure of the funds will improve the services of the State Department of Education and will make possible its operation at a higher level of efficiency. Here then is a prime example of funds being made available from an Act which is not primarily one of vocational intent. In his responsibilities for conducting the financial program of a school district or region, the administrator must be aware constantly of the possibilities of each of the laws and provisions in order that he may obtain every penny of funds made available for the purposes accommodated by the law.

Social and Economic Implications for the Region

Financing of technical education must also be concerned with the social and economic implications for the region. The administrator responsible for financing the project must be prepared to present positive points of view concerning questions of the following nature: Is it expected that the technical programs will meet only those needs of the youth and adults required for the industries and businesses in the region, or is the intent of the technical program to be much broader and to meet the needs of youth and adults, wherever they may wish to travel and work? Is the program of technical education concerned only with the economy of the immediate area, or is the intent of the technical program to bolster the economy locally at the same time that it contributes to the economy of the state and the nation? What is the posture and responsibility of the program of technical education where it is in direct contact with the social concerns of the communities which are now requiring increased attention to minority groups, along with the provisions of technical education facilities for the socially and economically deprived individuals?

The Legality of What Is to Be Financed

Technical education financing requires a knowledge of the legality of what is to be financed. Administrative concern with financing must be fully aware of those parts of the operating school program which under the law require a contribution to be made by students or staff or others. Conversely, in certain parts of the nation, it is illegal to make any charges whatsoever for public education. This is especially true on the secondary level where, in some states, the student is entitled to a free public technical education at no expense to himself.

The illegality of fees and charges in such cases is clearly indicated, and it would certainly be illegal to anticipate income from fees and charges by the establishment of requirements that students prepare themselves with any of the minor tools needed in connection with the technical instruction in such fields as mechanical drafting, industrial electronics, and architectural drafting. Where mechanical draftsmen are required to participate for several weeks in related technical instruction in a machine shop, it would likewise be illegal to require such students to purchase such minor equipment as a steel scale or a micrometer. Legality of financing has often opened up many serious arguments, particularly where the program of financing bears upon the expenditure of funds for which budgeting purposes did not anticipate a need. The administrator responsible for financing a technical program must continuously be cognizant of the need to expend funds only for those parts of his dollar budget program for which provisions were made and funds granted. Corbally (1962) deals extensively with this topic and cautions administrators to anticipate in such budgeting, the likelihood of future contingency and emergency financing. Only under those conditions where a contingency fund is made available and conditions surrounding the use of contingency funds are identified may the administrator with confidence made use of funds in a budget.

Knowledge of Financial Procedures

Financing of technical education requires knowledge of procedures. Administrators who are charged with the responsibility for financing technical education may learn the hard way, but they may make their tasks much easier if they know in advance that there is advantage to the responsible agency when an organized approach is made to the problem of finance and a step by step procedure is followed. It is not the purpose here to identify a long list of the steps, but any such list should include the following:

1. There should be assembled all of the pertinent facts and figures concerning the needs of students for training, as well as the employment opportunities which graduates have every reason to expect will exist at the conclusion of the training, whether those job opportunities be local or at a distance from the training center.

2. Public information must be well distributed concerning each of the items above and a constant flow of information maintained to the tax-paying general public.

3. Since the school is an instrument of the public and must be responsive to the needs of the public, all business matters concerning the school must be carried on in full view of the public. These business matters concern contracts, purchases of equipment and materials, salary structures and schedules, and other such matters. An example of this need for knowledge concerning methods and

procedures for conducting finance was indicated in the February 7, 1966, issue of the New York Times, in which it was estimated that the State of Connecticut's contribution to an elementary school in Norwalk, Connecticut, amounting to $500,000 was in danger of being withheld only because of a technicality overlooked in the formal advertisement of construction bids. The matter has since been settled, of course, but the error could rightly be charged to the lack of knowledge of the individual whose responsibility it was to prepare for the financing of a program of education. The same kind of problem has had its counterpart many times in the field of technical education, and while the administrator's chief responsibility, he believes, is with the "manipulation of dollars," occasionally he does not ultimately get to the point of having this opportunity to manipulate the dollars since his lack of knowledge of procedures and methodology for conducting financial matters has ruled him out of the possibility.

The Patterns of Organization

Financing of technical education has several other characteristics which must be considered. These include a consideration of the pattern or organization planned for the school, as well as a most important facet of financing, that of making financing serve the purpose of helping to develop future leadership in the field of technical education. In the first case, financing presupposes the knowledge of administrative, supervisory, and instructional patterns of organization which would result in the identification of the actual numbers of supervisors and administrators necessary to carry on day, evening, and/or extension programs. The identification of the specific responsibilities and duties of each classification of person would provide basic information concerning how many of each classification or category of service would be necessary to staff the institution with supervisory, administrative, and teaching personnel. A question often raised in connection with this kind of consideration is: Does each kind of activity of a supervisory or administrative nature require a totally separate individual, or is it not possible to combine several duties within the position of a single professional staff individual? Still further, in the concern for the pattern of organization, the administrator should give much thought to the purchase of supervisory and/or administrative services on an hourly basis instead of on a full-time basis, especially where the enrollments in the technical programs are low and the overhead costs of salaries for supervision and administration may be prohibitive.

Where the concern is for in-service growth of the faculty, every possible opportunity must be seized for assisting individuals to grow into positions of leadership in the field of technical education. This is especially true at the present time when there is a critical shortage of this category of high caliber personnel. Hence, in matters concerning

budgeting, financing, accounting, and management of programs of technical education, excellent opportunities prevail for the administrator to make effective use of the procedures and methods to assist other members of the school or regional faculty to grow into knowledgeable and effective leadership positions. Throughout the total program of finance (which involves all of the characteristics identified in the several items discussed up to this point), there is much learning which may take place, and this learning is essential to the effective administration of any program of technical education. Members of the teaching staff, or individuals in a department-head type of position, or others within the technical education staffing pattern should be given every possible opportunity to participate in these activities, to the extent that time for this purpose may be made available to them. In a sense, to the extent the administrator assists in the growth of professional personnel in the institution, to the same extent he is demonstrating a level of cognizance and a knowledge of his responsibility to help them acquire the additional learnings required for future leadership positions. Finally, the progressive, democratic administrator should make every possible use of the needs and demands of the school to help bind the technical school faculty together with a common purpose and common understanding of education and its financial costs and problems. The social process in supervision and administration, the involvement in the school finance program, and the opportunities to grow into leadership positions may be initiated, augmented, directed, supported, and guided by the intelligent administrator.

Methods of Financing Technical Education

There are about as many different ways of financing technical education in the United States as there are different kinds of programs of technical education. Some programs operate directly under a public school board, others operate under a public board, others operate under a board for higher education, and still others operate and are conducted by trustees who in turn report through a board of higher education or a board of regents. Many other kinds of programs of city-wide, county-wide, or state-wide nature are conducted in the nation. As was pointed out in the earlier section, the importance is not so much a matter of the organizational structure under which the program of technical education is to operate as it is the intelligent management, organization, and financing of the program which takes into cognizance all of the factors indicated earlier. Each of the different methods of school operation much be financed, and each has its merit when considered from the standpoint of the needs of the area, the community, or the state. At one time, it was believed that a small state could best operate its program of technical education by adhering to a central state control of its schools and a central state financing of the system of schools. This was the pattern that was developed in Connecticut and is the one under which that state is still conducting its vocational and technical programs. The merits and limitations of such a system will be discussed subsequently. The size of the state (which was a contributing factor in Connecticut) quite evidently did not apply when the State of North

Carolina developed its extensive system of Industrial Education Centers and later converted them to a system of comprehensive community colleges and technical institutes. Here the size of the state apparently made no difference. Other states such as Florida, California, and South Carolina organized quite extensive statewide programs in the field of technical education. It would take much time to discuss the relative merits of each, but suffice it to say that with the needs of the state and the regions of the respective state under consideration in each case, the merit of each type of state system may be successfully defended. However, there are characteristics of each which when singled out bear specific mention and attention. In the case of the statewide operation of technical education programs in Connecticut, the schools in that state are totally owned, conducted, staffed, maintained, and supplied from a central state treasury. Supervision and administration as well as teacher education are centralized in the State Department of Education, Bureau of Vocational Education, which results in many similarities in the operation of the 18 institutions, much flexibility, and, to some extent, commonality of purpose. On the other hand, in the system of 43 individual units now part of the statewide system of community colleges in North Carolina, nearly every one of the institutions has its own individual board of trustees and is particularly responsive to the needs of the immediate region. The programs of technical education offered in each of the 43 units is carefully identified with the region, and while the program lacks some of the flexibility which may be noted in Connecticut, there are certain strong characteristics which deserve commendation. The development of a program in North Carolina requires considerable local participation, local funds, and local initiative. The feeling that the school is part of the region and is the result of regional need and determination to have a program of technical education is a strong argument for local participation in a statewide program.

On the debit side, the lack of flexibility in one program and the extensive use of the flexibility factor in the other is worthy of note. In Connecticut, for example, since the budgeting and financing activity is centrally located within the broad program of vocational education of the State Department of Education, it is possible to transfer funds within the system and make them available on short notice, where in other statewide programs such as those conducted in North Carolina, Florida, California, South Carolina, and other states, the use of funds originally provided for one institution are not as easily transferred out of the budget of one unit for use by another. This would be true also of the transfer of equipment, facilities, staff, and other characteristics of the operating program.

The investment of funds in technical education is considerable and often requires that several regions or even counties give consideration to joining forces in the provision of facilities and the maintenance of an institution for the development and training of personnel for technical positions. The State of New York with its rather extensive

BOCES has done much to bring to the attention of the nation the thinking and devices that might be brought to bear upon the problem of providing regional educational services for students. The Board of Cooperative Educational Services (BOCES) has made it possible for several counties to get together on the financing of a particular service or facility needed by students in any part of the state. Approximately 15 BOCES areas were established and studies conducted during the last five years out of which came recommendations for the provision of technical education facilities to meet the need of the youth and adults in the regions. These BOCES units require that several counties merge on the matter of coordinating their resources and their personnel in order to plan, organize, supply, equip, administer, supervise, and finance programs of technical education. State support is provided, and through the Office of the State Director of Vocational Education, some federal funds are also provided for this purpose. This is an especially effective means of providing services in areas where any one region, town, city, or county would find it too much of a burden to begin operation of a technical facility on its own. Large regions of other states have given significant thought also to the development of technical facilities on a multi-county basis, and these are illustrated by the four-county project in East Central Illinois in which the four counties of Champaign, Douglas, Ford, and Piatt joined forces, intelligence, and resources toward the planning and development of a post-secondary technical facility to be located in the Champaign County area. On the eastern shore of Maryland, the same procedure was followed, and four counties (Caroline, Queen Anne's, Talbot, Kent) gave careful consideration to the technical needs of the four-county area. Joining forces through both their county resources and educational leadership has provided the beginning plans for Chesapeake College, a two-year institution soon to be erected in that area.

It has been pointed out many times to the members of state legislatures, to congressmen and senators of the U. S. Congress, and to most citizens where an institution of technical nature is under consideration that the investment of funds for technical education often is double that for similar facilities, staff, and maintenance of ongoing expenses for other kinds of institutions. "Investment in the technical future of the nation" is stressed, but individuals often refer to the investment as "expense." It is often advantageous to show graphically the returns both socially and economically to a region, state, and the nation when individuals are prepared for careers in the field of technology and by virtue of their employment return dividends to the region. The revelation of cost vs. return often provides an excellent basis for keeping the tax-paying public aware of the advantages of investing in the preparation of highly skilled personnel for this technological era. This is not a matter to be handled lightly, however, for the investment in technical education is often as much as $1,000 per student per year. On the other hand, and by contrast, the public school education provided for individuals of the same chronological age but in the liberal elements of education often approximates $600 or less per year.

Several other forms of technical education are conducted in the nation, and these are worthy of note and study. Many private technical education facilities, some of which have been in the field of technical education for many years, have been involved in the preparation of technicians prior to the strong development of public technical education. It is not the purpose of this paper to review the relative merits of the public vs. private technical education organizations. Rather it is important to note that with the critical shortage of technically trained personnel, all possible facilities are needed which will contribute to the corps of trained technicians needed in this technological era. Some colleges and universities conduct programs of technical education, but these are generally of the highly technical engineering-oriented category and/or of the agricultural technical category. At many universities, two-year agricultural technical programs are conducted and result in the granting of an associate degree. These programs enable individuals to move out immediately into occupations requiring a knowledge of both the agricultural and technical aspects of their field while at the same time they provide open end education which enables the graduate to enroll in a four-year program of agriculture with two years of transfer credit. The same procedure pertains to the two-year highly technical engineering-oriented curriculums offered by some colleges and universities. However, under the aegis of a university which offers an engineering program and at the same time a two-year technician training program, there is always the possibility that one will be regarded as of lesser status than the other. In some cases, individuals who enroll in the four-year engineering college program and who encounter some difficulty are advised to enroll in the technician training program. Psychologically, such an enrollee is at a disadvantage, and the results are appropriate and in proportion to the status and recognition which he feels he has inherited. Also, in the financing of such a university based program, problems ensue. With the many schools usually operating within the broad framework of a university, and with each of these schools competing for the rather limited dollar resources available within a university, there is little likelihood that the technical institute so operated will find ready access to the funds that it needs to conduct the kinds of programs which may be urgently needed and urgently requested by the region being served by the program of technician training. While some colleges and universities conduct excellent technician training programs, it would be unfortunate to leave the impression that location on a college or university campus automatically guarantees status and respectability. Further, problems of financial facilitation may be insurmountable in some cases and may result in stifling the program of technical education.

Sources of Funds for Technical Education Programs

Earlier in this paper it was indicated that from a variety of sources, funds may be available for conducting programs of technical education. In most cases, individuals are fully aware of the possibilities of the availability of local tax funds as well as state or county funds for conducting technical education. However, the need to

consider carefully the sources of federal funds which might be provided for a variety of technical education purposes is essential. Careful study of the Vocational Education Act of 1963 will reveal that funds are available not only for reimbursing the salaries of teachers, supervisors, administrators, and others directly connected with the program of technical education, but also that funds may be used for the construction of buildings and/or for the renovation of facilities for inaugurating a program of technical education. Further, careful study of the Vocational Education Act of 1963 will disclose that the possibilities for staff improvement and growth are reflected in the provisions of the act for ancillary services which enable an institution and its cooperating teacher-education agencies to provide the kind of professional growth programs critically needed by the kinds of administrative, supervisory, and/or teaching personnel that are inducted into technical education programs. Other federal acts also provide possibilities. These include the George Barden Act, and one's interpretation of the titles of the George Barden Act may very well determine the extent to which these titles may be brought to bear upon the financial support of the program of technical education. Under Title II of the George Barden Act in which health and other paramedical areas of health instruction are considered, strong support for the development of technical programs is provided for nursing and nursing facilities, hospital, nursing home, and other health-oriented occupations. Title III of the George Barden Act has long been a valuable source of financial support for technical education and in a sense provided the pattern for further support now reflected in the Vocational Education Act of 1963. The technical education section of the George Barden Act (Title III) which placed special emphasis upon the highly technical occupations in the interest of the national defense and which provided extensive funds for equipment as well as reimbursement of salaries of a variety of kinds, did much to expand the field of knowledge with regard to area vocational education programs and the need for facilities of this type to augment all others in the training of personnel for technological fields of employment. Many other kinds of federal legislation provide opportunities for the administrator to obtain funds for the further development and improvement of programs of technical education. These federal acts include Higher Education Facilities Act, the rapidly expanding Manpower Development and Training Act, The Nurse Training Act of 1964, and even the recently passed federal legislation, The National SEA Grant College Act. This last-named legislation provides ten million dollars in fiscal 1967 for the development of programs designed to provide scientists, engineers, and technicians deemed necessary in the wide variety of technical occupations now associated with the sea.

The administrator of a technical program should have continuously at hand copies of each of the important educational acts, whether they be specifically vocational or otherwise. Frequent review of the possibilities contained in these Acts, and frequent discussions with the attorney general of the state, with the State Education Department authorities, and others will reveal many uses for which funds in these acts may be employed for developing programs of technical education.

Some Selected Factors Affecting Financing and Budgeting for Technical Education

In this section of the paper, actual dollar figures are provided. For example, figures are supplied in connection with the estimated costs for erecting and equipping a technical institute to provide instruction for 910 full-time day students as well as approximately 3,000 adults who would be attending evening, adult, and extension programs of a technical nature. The information contained herewith indicates the extent to which site must be provided and the cost of the building made a consideration of the financing operation. Each of the items is deserving of extensive discussion, but space does not permit this. References are made to specific items only in the hope that attention drawn to these items will provide additional light on characteristics of the program of finance which are usually debated widely. Amounts and percentages shown in the tables which follow serve only to indicate approximate constants which would apply in a highly industrialized region.

A cautious approach to probable costs of facilities is provided by the guidelines included in the American Vocational Association publication which discusses the need to be judicious in the choice of an architect who is familiar with the kinds of construction needed for technical education (American Vocational Association, 1963).

The $20 per square foot indicated as the cost of erecting a technical institute may be used only as an average. As recently as 1965, the U. S. Office of Education used $15 per square foot (U. S. Government Printing Office-OE-80040, 1965). Recent buildings constructed in the industrial northeast have cost as much as $27 per square foot while buildings conducted in the Carolinas have been shown to cost but half that amount. Needed in such instances is immediate and careful identification of what is included in the cost per square foot. On the one hand, all of the equipment which would ordinarily be installed by the contractor at the time of the construction is included, while on the other hand, no equipment of any kind is included in the building estimate. Upon close examination of the details, one often finds that the range of a flat constant is not so extensive as it might have first seemed.

Attention is drawn to the item under building cost estimate which refers to the "Cost of Purchasing Equipment." This is an item which often receives little if any attention in the planning and budgeting of a new institution. The actual cost of purchasing the needed equipment for shops and laboratories for a new building requires personnel, time, and dollars. This activity is represented in the table as a flat $25,000 for a $3-1/3 million project. It involves not only personnel and time but space and contractual services such as telephone, telegraph, express, heat, light, and, in some cases, actual travel to locations where equipment and other items may be seen in operation.

TABLE #1

TECHNICAL INSTITUTE TO SERVE A REGION
910 Full-Time Students (day)
3,000 Evening and Adult Students (evening)

BUILDING COST ESTIMATE

A. Site

Approximately 50 acres @ $3,000/acre $150,000
including limited site improvement

B. Erection Costs

Approximately 110,000 sq. ft. @ $20/sq. ft. $2,200,000

C. Contingency Fund

Approximately 5% of the cost of erecting the building $110,000

D. Architectural Fees

Approximately 6% of the total of items B and C $138,600

E. Estimated Equipment Costs

Approximated from similar institute laboratory and classroom facilities $710,000

F. Cost of Purchasing Equipment

Office Space, Clerical and Secretarial Assistance, Office Supplies, etc. $25,000

Approximate Total $3,333,600

CURRICULUMS OFFERED

Engineering-oriented Technical	6
Industrial Technician	4
Business-oriented	4

In specific cases when a technical institute offers <u>only</u> engineering-oriented technical instruction, a rule of thumb often is used. This rule of thumb indicates that approximately $5,000 per student is needed to acquire an appropriate site, erect the building, and equip it ready for

occupancy. This would mean that a technical institute which would offer engineering-oriented technical programs, designed to accommodate approximately 600 students, would require very nearly $3 million for the erection of the building and for fully equipping it. Actual detailed cost analyses made after such buildings have been constructed and equipped have indicated that the rule of thumb is exceedingly close.

In instances where technologies other than the highly technical engineering-oriented variety are the concern of the administrator, other figures must be interpolated in the calculations. Thus, where business and secretarial types of technical programs are anticipated, a flat rule of thumb figure of $2,000 per student is adequate. Still further, where a second level of technician training is the concern of the administrator, still another figure used as a rule of thumb may be considered. In the training of industrial technicians, those who would normally find their way into mechanical drafting, architectural drafting, air-conditioning and refrigeration, industrial electronics and similar fields, the flat rule of thumb of roughly $4,000 per student is appropriate. Thus, with several rules of thumb including $5,000 per student, $2,000 per student, and $4,000 per student, the administrator is faced with striking an average. The anticipated enrollments in each of the major categories would affect the final selection of a flat rule of thumb figure. Hence, no attempt is made here to indicate how this final constant would ultimately work out. Each situation would require a separate calculation. In the information supplied in the following table, the actual dollars indicated are those which were used by the institution indicated in Table 1. This technical institute will soon be ready for construction. Expected occupancy is September, 1968.

The Adult, Evening and Extension Program

The offering and the conducting of such courses and curriculums as may be needed to serve personnel concerned with part-time, evening, and adult instruction are some of the several important objectives of the technical institute. It may be the intent to make this kind of instruction self-supporting, however. Fees per course, appropriate to cover the cost of instruction, materials, and other collateral costs (light, heat, janitor service, etc.) would have to be calculated and published in the catalogs and folders which describe the offerings. In general, however, the cost per course to the student would be a proportionate part of the cost charged per year of day school instruction.

Attention should be given to the matter of estimated annual recurring costs of operation and expected income as shown in Table 2. In many states, the actual cost of post-secondary technical education is divided three ways. The student pays one-third, the state pays one-third, and the school organization pays the balance. The income derived from the state and the student must be a considered part of the financial pattern for the school, and this is shown in Table 2. It should be noted that while the ongoing cost of instruction is indicated at approximately $800 per student per year for an institution of this nature, several states

TABLE #2

ESTIMATED ANNUAL RECURRING COSTS OF OPERATION AND EXPECTED INCOME

The First Year of Operation

Operating Income:	
Government Appropriations	
State	
1/3 of the cost for approximately 540 students estimated at very nearly $800 per student per year	$ 144,000
Local matching contribution	144,000
Student Fees 540 students @ $267/yr.	144,000
Federal Grants	
These would be made to the state and would be reflected in state reimbursement policies concerning construction costs, equipment, reimbursement of salaries, etc.	
Departmental Sales	None
Other Income	None
(Estimated) Total	$ 432,000
Operating Expenditures:	
Cost of Instruction	
Approximately 36 teaching staff and department head salaries @ approximate average of $8000	288,000
Teaching Assistants 5 @ approximately $6000	30,000
Library	
Cost of acquisitions as recommended by American Library Association 540 @ $2.50/student/year	1,350
Publications and Technical Journals	500
Student Services	
Guidance and Counseling	10,000
Cost of "Recruiting"	2,500
Publications, Catalogs, etc.	2,500
General Expense	
Instructional materials, telephone, freight and express, postage, mimeographing, printing, etc. 540 students @ $20/year (first year)	10,800
Plant Operation	
Heat, light, power, building and grounds, maintenance, water, repairs, etc.	28,350
General Administration	
Salaries of Administrative and Supervisory Staff 4 @ average of $11,000	44,000
Non-professional employees 6 @ Average of $3000	18,000
Building Utility Staff 2 @ $3000	6,000
(Estimated) Total First year of operation	$ 442,000

TABLE #2--Continued

The Second Year of Operation	
Operating Income:	
Government Appropriations	
State	
1/3 of the cost of 910 students estimated at $800 per student/year	$ 242,000
Local matching contribution	242,000
Student Fees 910 students @ $267/yr. (approximately)	242,970
(Estimated) Total	$ 726,970
Operating Expenditures:	
Cost of Instruction	
Approximately 60 teaching staff and department head salaries @ approximate average of $8500 This includes an increment for the teaching staff of the previous year	510,000
Teaching Assistants 7 @ $6000	42,000
Library	
910 @ $2.50/year/student	2,275
Publications and Technical Journals	800
Student Services	
Guidance and Counseling	10,500
Cost of Recruiting, Travel, Publications	5,000
General Expense	
Instructional materials, telephone, express, postage, mimeographing, printing, etc. Average: 910 students @ $20/student	18,200
Supplies for laboratories (advanced students)	10,000
Plant Operation	
Heat, light, power, maintenance of building and grounds	38,000
General Administration	
Salaries of Administrative and Supervisory Staff 4 @ $11,600 average (includes annual increment for staff employed last year)	46,400
Non-professional employees 8 @ $3200 average	25,600
Building Utility Staff 4 @ $3200 average	12,800
(Estimated) Total Second year of operation and thereafter	$ 721,575

by virtue of careful scheduling, prudent class and laboratory scheduling and use of facilities have operated and are still operating programs of technical education below the cost figure of $600 per student per year. Other states, in their beginning phases of technical operation, are operating as high as $1,100 to $1,200 per student per year. Rutgers University (Merlo and Walling, 1964) has provided a guide to classroom and laboratory scheduling. Small classes, high salaries, lack of efficient faculty assignment and facility utilization, lack of long-range planning and other factors, Rutgers University points out, are involved in these higher figures. Each would have to be considered separate and apart from the others to determine steps necessary to reduce the costs of operation. All technical education is not conducted on the post-high school level. Much technical education has been conducted in Connecticut, Massachusetts, New York, and New Jersey (Smith, 1963) on the secondary level for many years, and many states have developed highly effective secondary technical education programs. Hence, for the kind of institution which might be needed to provide technical education on the secondary level and to meet the needs of secondary school youth who plan to prepare for occupations that are currently available (and presumably will be available to them upon graduation from the 12th grade), additional information is provided concerning the costs of construction of a vocational-technical school which conceivably might be constructed and equipped to provide the required technical curriculums. (See Table 3.)

The Future in Financing of Technical Education

As the need for technical education continues to manifest itself throughout the nation, it must be contingent upon each educational agency, on its appropriate and chosen level, to assume the responsibility of providing adequate technical educational services and facilities for the preparation of youth and adults for the fields afforded by our phenomenal technological growth. The patterns of finance will vary of course, but there is a discernible trend now toward regionalization of services and the merging of forces and intelligence to provide the kinds of support and guidance needed for technical education. In the next decade, indications point to the further regionalization and building of merged county units. Financing of technical education, whether on the secondary, post-secondary, or college level, will reflect the understandings held by the educational community to provide technical education for individuals at the time when these individuals are motivated, see the meaningfulness of the instruction, and have a need to prepare for a technical occupation. In the future, financing of technical education will need to be more cognizant of the demonstrated needs of individuals and correspondingly to place less emphasis upon decisions to provide "certain kinds and levels" of technical education, especially where these decisions have been arrived at in "swivel chair" or "ivory tower" fashions and with little reference to facets of the individual noted above. Democracy in decision making, innovation in program design, creativeness in buildings and equipment matters will require that the financial handling of technical education be accompanied by a high level of educational knowledge, educational philosophy, and attention to the social and economic implications of technical education for our people and our nation.

TABLE #3

Financial Requirements for the Purchase and Cost of Developing Site; Installing Utilities; Erecting, Equipping Buildings; Architect's Fee; Department of Public Works' Fee; Contingency Fund for a Proposed New Regional Vocational-Technical School Serving the Lower Naugatuck Valley, Connecticut.

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370 Full-time all day students (Day Program)
800 Adult and part-time students (Evening Program)
8 Full-time curriculums (grades 10, 11, and 12) including:
- Industrial Electronics
- Mechanical Drafting and Design
- Tool and Diemaking and Design

Site Expenditure		
Estimated cost of site (minimum 25 acres)		$ 100,000
Erection Expenditures		
Estimated cost of school buildings, based on 74,065 sq. ft. of floor area at $20 per sq. ft. including utilities and site development	$ 1,481,300	
Estimated Contingency Fund based on 15% of the estimated cost of buildings including utilities and site development ($1,481,300)	222,195	
Estimated Architect's and Engineer's fees based on 5.37% of the estimated cost of buildings including utilities, site development and contingency fund ($1,703,495)	91,477	
Estimated Department of Public Works fee based on 2½% of the estimated cost of buildings including utilities, site development and contingency fund ($1,703,495)	42,587	
Total Erection Expenditures		$ 1,837,559
Equipping Expenditures		
Estimated cost of equipment for Vocational Shops, Laboratories, Classrooms, Administrative, Physical Education-Assembly, Cafeteria, and Custodial Service Areas	587,747	
Estimated Department of Public Works fee for the purchasing of equipment based on 2½% of the estimated cost of equipment ($587,747)	14,694	
Total Equipment Expenditures		602,441
Estimated Grand Total Cost of School Plan Including Equipment		$ 2,540,000

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PART V

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A BIBLIOGRAPHY ON TECHNICAL EDUCATION

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PART VI

REVISED MATERIALS

REVISED INFORMATIONAL RESOURCES
by
I. E. Valentine

Part VI of this publication consists of informational resources which are revisions of similar content in the original Compilation of Technical Education Materials. These new and revised materials are presented under the same headings and in the same order that they appeared in the original compilation.

The arrangement is as follows:

The Student

Secondary School Pre-Employment Technical Education Enrollments in Title III Programs in the United States--Fiscal Year 1965

Post-Secondary Pre-Employment Technical Education Enrollments in Title III Programs in the United States--Fiscal Year 1965

Percent of Growth for Technical Education by Kind of Institution and by Year from 1959 Through 1964

Actual and Projected Enrollments and Percentages for Vocational and Technical Education from 1964 Through 1975

Total State Enrollments in Title III Technical Education Programs for 1963 and 1965

Rationale and Need

The Number of Institutions Offering Technical Education Training Programs by State and by Institution Type

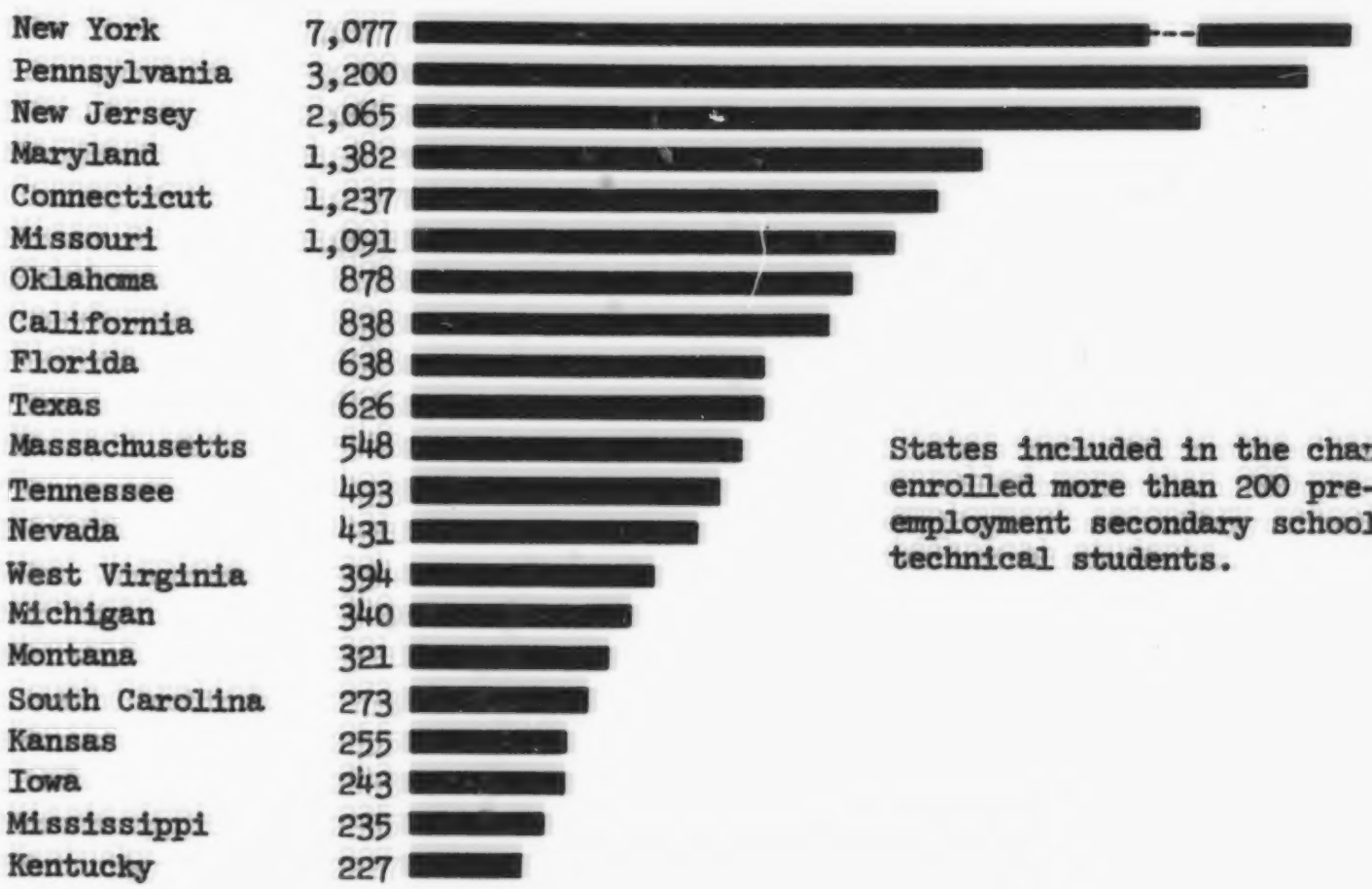
Programs and Curriculum

Distribution of Subject Matter by Year for a Two-Year Post High School Technical Education Curriculum

Facilities and Equipment

Facility Needs to Accommodate Projected Enrollments for Vocational and Technical Education

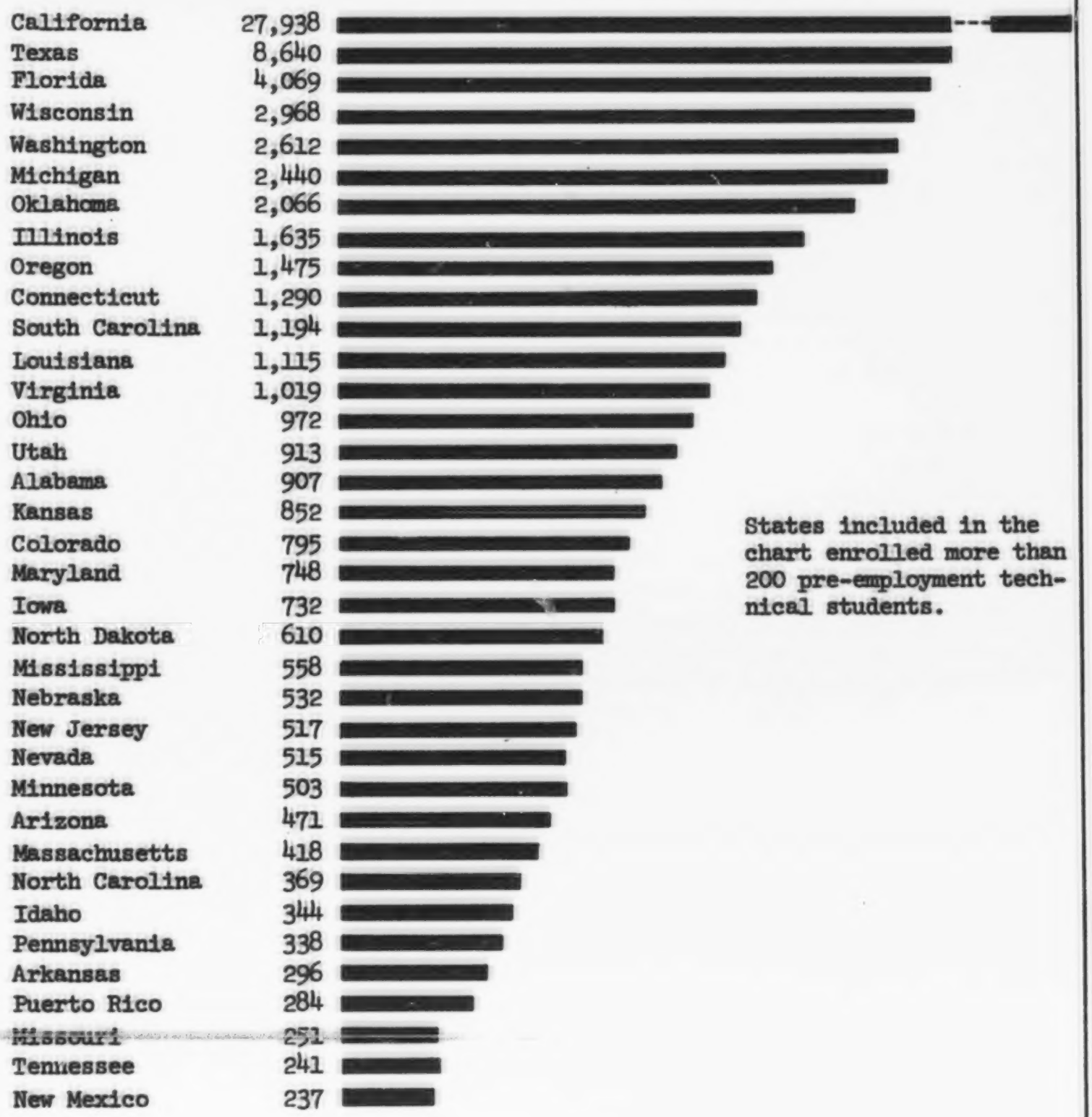
SECONDARY PRE-EMPLOYMENT TECHNICAL EDUCATION
ENROLLMENTS IN TITLE III PROGRAMS
IN THE UNITED STATES -
Fiscal Year 1965



States included in the chart enrolled more than 200 pre-employment secondary school technical students.

Source: U. S. Office of Education - Data taken from State Reports, subject to verification.

POST-SECONDARY PRE-EMPLOYMENT TECHNICAL EDUCATION
ENROLLMENTS IN TITLE III PROGRAMS
IN THE UNITED STATES -
Fiscal Year 1965



Source: U. S. Office of Education - Data taken from State Reports, subject to verification.

PERCENT OF GROWTH FOR TECHNICAL EDUCATION
BY KIND OF INSTITUTION BY YEAR
FROM 1959 THROUGH 1964

Percent of Total Technical Enrollment by Year						
Kind of Institution	1959	1960	1961	1962	1963	1964
Comp. H. S.	12.9	22.3	15.3	15.2	11.4	12.2
Voc.-Tech. School	0	5.2	11.3	13.5	19.4	14.9
Technical H. S.	10.2	9.5	11.8	11.5	9.3	8.6
Voc.-Trade School	37.1	24.3	12.4	7.9	6.4	6.5
Tech. Institute	14.4	5.5	9.3	6.7	7.5	9.1
Comm.-Jr. College	18.9	28.5	34.6	40.0	40.4	41.5
Four Year College	2.3	3.1	4.4	4.6	4.7	6.4
State Bd. for Voc. Ed.	3.9	.1	.9	.6	.9	.7
Other	.3	1.5	-	-	-	.1
Total Enrollment	48,564	101,279	122,952	148,920	184,595	221,241

Source: Percentage computed from Data-Technical Education Yearbook 1965-66. Prakken Publications, Inc., Ann Arbor, Michigan, 1965. Chart No. IV, Enrollment by Kinds of Schools, page 97.

ACTUAL AND PROJECTED ENROLLMENTS AND PERCENTAGES
VOCATIONAL AND TECHNICAL EDUCATION

	1964		1965		1966		1970		1975	
Total Enrollments and Percentages	4,566,390	100.0	5,430,611	100.0	5,789,520	100.0	9,676,415	100.0	14,000,000	100.0
Enrollment by Type of Training Program	Enrollment	%	Enrollment	$	Enrollment	%	Enrollment	%	Enrollment	%
Agriculture	860,605	19.0	887,529	16.0	868,428	15.0	1,064,406	11.0	1,230,000 1/	9.0
Distribution and Marketing	334,126	7.0	333,342	6.0	405,266	7.0	870,875	9.0	1,440,000 2/	10.0
Health	59,006	1.0	66,772	1.0	173,686	3.0	677,350	7.0	1,450,000 2/	10.0
Home Economics	2,022,138	44.0	2,098,520	39.0	1,968,437	34.0	2,322,340	24.0	2,100,000	15.0
Office	---	---	730,904	13.5	810,673	14.0	1,499,844	15.5	2,400,000	17.0
Technical	221,241	5.0	225,737	4.5	260,528	4.5	675,500	7.0	1,260,000	9.0
Trade and Industry	1,069,274	24.0	1,087,807	20.0	1,302,502	22.5	2,566,100	26.5	4,120,000	30.0

1/ 44% in farming and direct farm-related training, and 56% in occupations related to Agriculture.

2/ 40% in occupations related to Home Economics.

Source: U. S. Office of Education.

TOTAL STATE ENROLLMENTS IN TITLE III TECHNICAL
EDUCATION PROGRAMS FOR 1963 AND 1965

State	Total State Technical Education Enrollment 1963	1965
Alabama	696	980
Alaska	0	102
Arizona	384	511
Arkansas	14	357
California	24,099	28,776
Colorado	505	795
Connecticut	2,384	2,527
Delaware	76	155
Florida	3,393	4,707
Georgia	1,070	-
Hawaii	92	106
Idaho	297	344
Illinois	1,214	1,714
Indiana	143	324
Iowa	615	975
Kansas	1,266	1,107
Kentucky	317	227
Louisiana	1,706	1,115
Maine	91	114
Maryland	1,301	2,130
Massachusetts	634	966
Michigan	5,101	2,780
Minnesota	719	506
Mississippi	517	793
Missouri	508	1,342
Montana	198	410
Nebraska	482	643
Nevada	1,006	946
New Hampshire	0	0
New Jersey	1,318	2,582
New Mexico	83	237
New York	20,824	7,077
North Carolina	1,615	381
North Dakota	510	610
Ohio	1,167	1,040
Oklahoma	2,179	2,944
Oregon	965	1,475
Pennsylvania	2,572	3,538
Rhode Island	31	68
South Carolina	423	1,467
South Dakota	12	80
Tennessee	779	734
Texas	2,154	9,266
Utah	856	924
Vermont	218	299
Virginia	763	1,131
Washington	1,780	2,612
West Virginia	194	500
Wisconsin	3,750	2,968
Wyoming	16	20
District of Columbia	173	18
Puerto Rico	209	284
Virgin Islands	-	15
American Samoa	-	-
Guam	-	-
Total	91,419	95,722

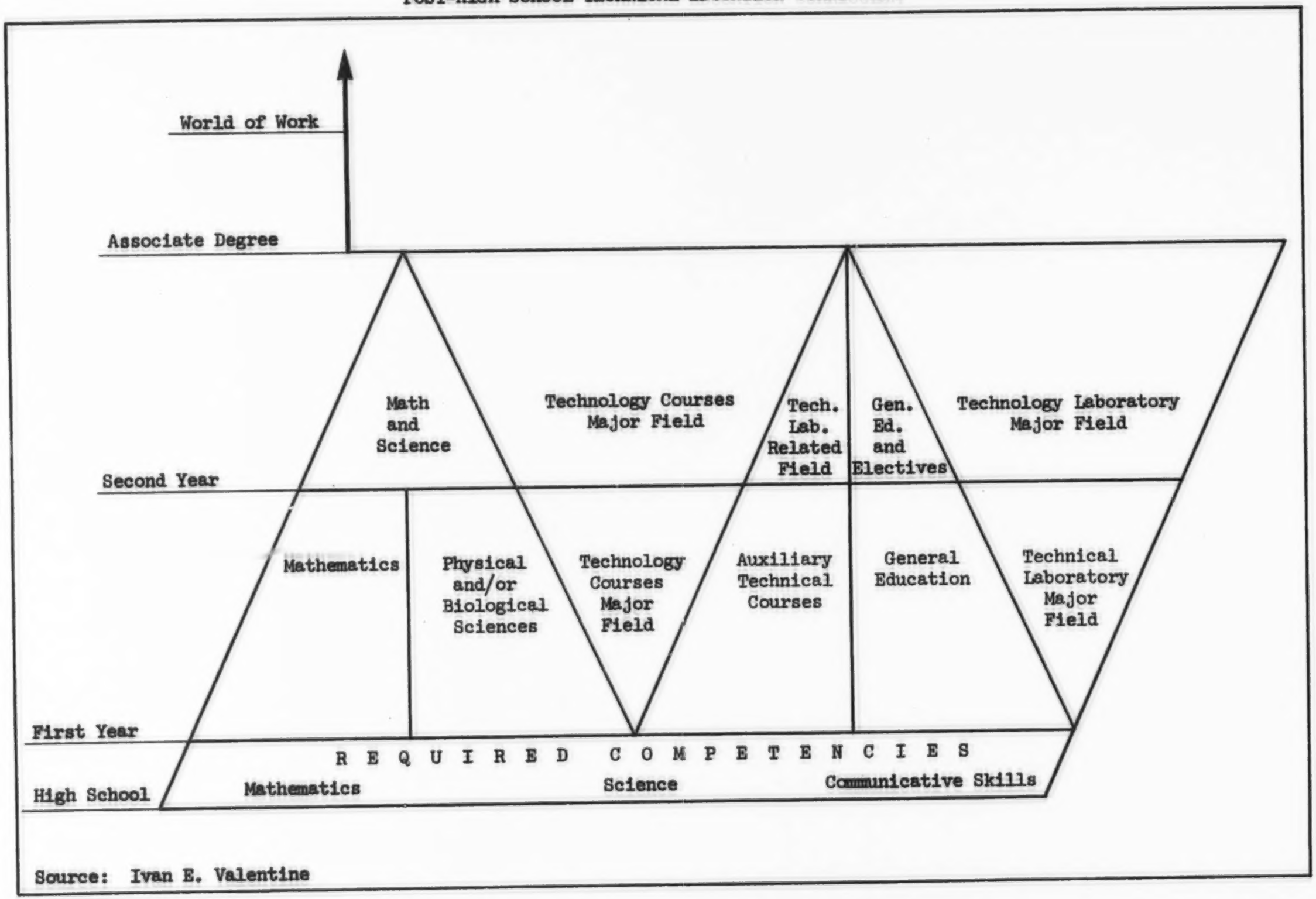
Source: U. S. Office of Education, Bulletin 80008-63, and 1965 Enrollment Title III Programs by State from U. S. Office of Education. Data were taken from state reports, subject to verification.

NUMBER OF INSTITUTIONS OFFERING TECHNICAL TRAINING PROGRAMS, BY STATE, BY TYPE

State	College or University	Community College	Technical Institute	Area Vocational School	High School	Total
Alabama	1	-	3	9	4	17
Alaska	-	-	-	-	-	-
Arizona	2	3	-	-	2	7
Arkansas	1	1	-	2	4	8
California	-	68	4	13	10	95
Colorado	3	6	-	2	1	12
Connecticut	-	1	5	11	-	17
Delaware	-	-	-	2	1	3
Florida	1	23	5	7	7	43
Georgia	3	2	1	22	-	28
Hawaii	1	-	2	-	-	3
Idaho	1	3	-	-	1	5
Illinois	3	18	9	-	7	37
Indiana	7	-	3	4	3	17
Iowa	1	8	-	6	2	17
Kansas	4	4	-	2	3	13
Kentucky	2	-	1	10	-	13
Louisiana	-	-	1	16	-	17
Maine	1	-	1	-	-	2
Maryland	-	7	1	2	3	13
Massachusetts	1	4	4	15	-	24
Michigan	6	15	4	1	8	34
Minnesota	-	2	-	16	-	18
Mississippi	-	11	-	-	3	14
Missouri	3	3	2	7	9	24
Montana	1	-	-	1	2	4
Nebraska	-	-	-	1	2	3
Nevada	1	-	-	2	3	6
New Hampshire	-	1	2	1	1	5
New Jersey	1	1	8	14	-	24
New Mexico	4	-	-	-	3	7
New York	-	22	5	3	21	51
North Carolina	1	5	11	5	-	22
North Dakota	1	-	-	-	-	1
Ohio	6	2	14	-	6	28
Oklahoma	5	8	-	-	1	14
Oregon	-	10	3	-	-	13
Pennsylvania	17	6	9	6	14	52
Rhode Island	-	1	2	1	-	4
South Carolina	-	-	-	6	2	8
South Dakota	1	1	-	-	1	3
Tennessee	-	-	2	1	10	13
Texas	6	28	-	-	5	39
Utah	6	-	-	2	-	8
Vermont	-	-	1	1	3	5
Virginia	1	1	2	2	3	9
Washington	-	14	-	6	-	20
West Virginia	3	-	-	1	6	10
Wisconsin	1	-	4	20	-	25
Wyoming	-	1	-	-	-	1
District of Columbia	-	-	1	-	1	2
Puerto Rico	1	-	1	-	-	2
Total	97	280	111	220	152	860

Source: Technical Education Yearbook 1965-66. Prakken Publications, Inc., Ann Arbor, Michigan, 1965.

DISTRIBUTION OF SUBJECT MATTER BY YEAR FOR A TWO-YEAR
POST-HIGH SCHOOL TECHNICAL EDUCATION CURRICULUM



Source: Ivan E. Valentine

FACILITY NEEDS TO ACCOMMODATE PROJECTED ENROLLMENTS
VOCATIONAL AND TECHNICAL EDUCATION

Year	Enrollment	Enrollment Increased Over Previous Year	New Work Stations Needed 1/	Estimated Cost 2/
1964	4,566,393	---	---	---
1965	5,430,611	864,218	288,073	$ 532,935,050
1966	5,789,520	358,909	119,636	221,326,600
1967	6,368,472	578,952	192,984	357,020,400
1968	7,323,742	955,270	318,423	589,082,550
1969	8,205,828	882,086	294,029	543,953,650
1970	9,676,415	1,470,587	490,196	906,862,600
1975	14,000,000	4,323,585	1,441,195	2,666,210,750
Totals	---	9,433,607	3,144,536	$ 5,817,391,000

1/ Work stations needed are calculated on the basis of each station serving three different students in classes operated--one in the morning, one in the afternoon, and one in the evening.

2/ Estimated costs for facilities are calculated by multiplying the number of new work stations needed by $1,850. Justification for the cost of $1,850 per student-work station is indicated as follows:

A sampling of 20 contracts for school construction accomplished in 1965 in several states reveals a median cost of $1,890 per pupil. Cost data are based on 1965 contract data published in the Engineering News Record. Costs per pupil ranged from a state average of $882 in Texas, to $4,300 in Massachusetts. Average costs per square foot ranged from $11 in Kansas to $25 in New York City and Hawaii. The norm was a little better than $20.

Previous projections when correlated with states' reported construction indicated average costs of $1,850 per pupil or per work station, and $20 per square foot. These costs were derived from an estimated total of $85 + million for constructing 1,978 classrooms, shops, and laboratories.

Source: U. S. Office of Education.

OTHER CENTER PUBLICATIONS

"Guidelines for State Supervisors in Office Occupations Education." 1965 Business Clinic

A Report of a National Seminar on Agriculture Education, "Program Development and Research.

"Guidance in Vocational Education." - Guidelines for Research and Practice.

"Research Planning in Business and Office Education."

"Evaluation and Program Planning in Agricultural Education."

"A Report of a National Seminar on Health Occupations Education Centers."

"A Report of a National Seminar on Cooperative Education."

A Report of "A National Leadership Seminar on Home Economics Education."

"Systems Under Development for Vocational Guidance." - A Report of a Research Exchange Conference.

"Guidelines in Cooperative Education."

"A Survey of Vocational Education Programs for Students with Special Needs."

VT 002 936

VT 002 930 ED

Compilation of Technical Education Instructional Materials, Supplement I, New and Revised Informational Resources. (National Leadership Development Institutes in Technical Education, Summer 1966).

Cotrell, C. J., comp. * Valentine, I. E., comp.

Ohio State Univ, Columbus. Center for Vocat and Tech Educ

Apr67

EDRS Price MF-$0.27 HC-$7.40 185p.

*RESOURCE MATERIALS, INSTITUTES (TRAINING PROGRAMS), *LEADERSHIP TRAINING, *TECHNICAL EDUCATION, ADMINISTRATIVE ORGANIZATION, PROGRAM EVALUATION, EVALUATION METHODS, EDUCATIONAL FACILITIES, EDUCATIONAL FINANCE, GUIDELINES, BIBLIOGRAPHIES,

Additional materials were developed to supplement "Compilation of Technical Education Materials" (VT 002 936) on recommendation of the project evaluation committee for the National Leadership Institutes. Four papers were commissioned by the Center for Vocational and Technical Education. "Administrative Patterns in Technical Education" by Lynn A. Emerson describes and compares state and institutional patterns, projects future trends, makes recommendations for planning and developing administrative structures, and includes an appendix of state and local organizational structures. "The Evaluation of Technical Education Programs" by Lucian Lombardi and Carmelo Greco presents guidelines for developing evaluative criteria and self-evaluation instruments and provides evaluation checklists for each phase of operation. "Facilities Planning for Technical Education Programs" by Milton E. Larson presents the procedures, responsibilities, guidelines, and criteria for planning and constructing facilities. "Financing Programs of Technical Education" by Joseph T. Nerden develops principles, methods, and sources of financing. A bibliography compiled by David L. Larimore and supplementary materials prepared by Ivan E. Valentine are included. There is a second supplement (VT 002 938). (HC)

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OFFICE OF EDUCATION

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ED015348

COMPILATION OF TECHNICAL EDUCATION MATERIALS

Prepared for the

National Leadership Development Institutes

in

Technical Education

Conducted by

COLORADO STATE UNIVERSITY
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RUTGERS - THE STATE UNIVERSITY
UNIVERSITY OF FLORIDA
UNIVERSITY OF ILLINOIS

These institutes are a cooperative effort of the five universities coordinated by THE CENTER FOR RESEARCH AND LEADERSHIP DEVELOPMENT IN VOCATIONAL AND TECHNICAL EDUCATION, The Ohio State University, Columbus, Ohio. This work was performed pursuant to a grant from the U. S. Office of Education, Department of Health, Education, and Welfare.

VT 02936

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Leadership Development in
Vocational and Technical Education

Calvin J. Cotrell, Specialist
and Project Director for the
National Leadership Development
Institutes in Technical Education

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I. THE TECHNICIAN

INTRODUCTION

The training of technicians is now emerging as an important phase of public education. For many years we have had programs for the training of engineers and of skilled craftsmen. The technician--whose work resembles that of the engineer on the one hand and that of the skilled craftsman on the other--has received relatively little attention in the public educational systems. Rapid advances in technology are forcing the development of technician training.

This pamphlet attempts to provide a brief description of the technician, his place in industry, and his training. It should be useful to the educational administrator in providing a broad overview; to the counselor in giving some information about a relatively new field; and to the potential student--male and female--who needs help in selecting the field of work which he desires to enter.

OCCUPATIONAL CHANGE IN INDUSTRY

More technological change in past ten years than in many previous decades.

Automation is now entrenched in American industry.

Computers are at work in hundreds of installations.

Jet aircraft circle the globe.

Atomic energy is furnishing power for ships and for industry.

More than 100 man-made satellites are now in orbit.

Transistors operate our radio receivers, and control satellites.

Electronic equipment controls our machines and tools.

Man has encircled the earth in a satellite.

The need for technical knowledge and skill far beyond that of the years just past is placing new burdens on our industrial and technical schools.

CHANGES IN OCCUPATIONS

CAUSED BY:

NEW SCIENTIFIC DISCOVERIES
NEW SOURCES OF ENERGY
NEW MATERIALS AND PRODUCTS
NEW PROCESSES
INCREASED PRECISION
INCREASED MECHANIZATION (Automation)
COMPLEXITY OF MACHINES & INSTRUMENTS
HIGHER LIVING STANDARDS

INDUSTRY NEEDS VARIOUS TYPES OF WORKERS

Industry needs engineers, technicians, skilled craftsmen, skilled operators.

All these occupations require manipulative skills and technical skills.

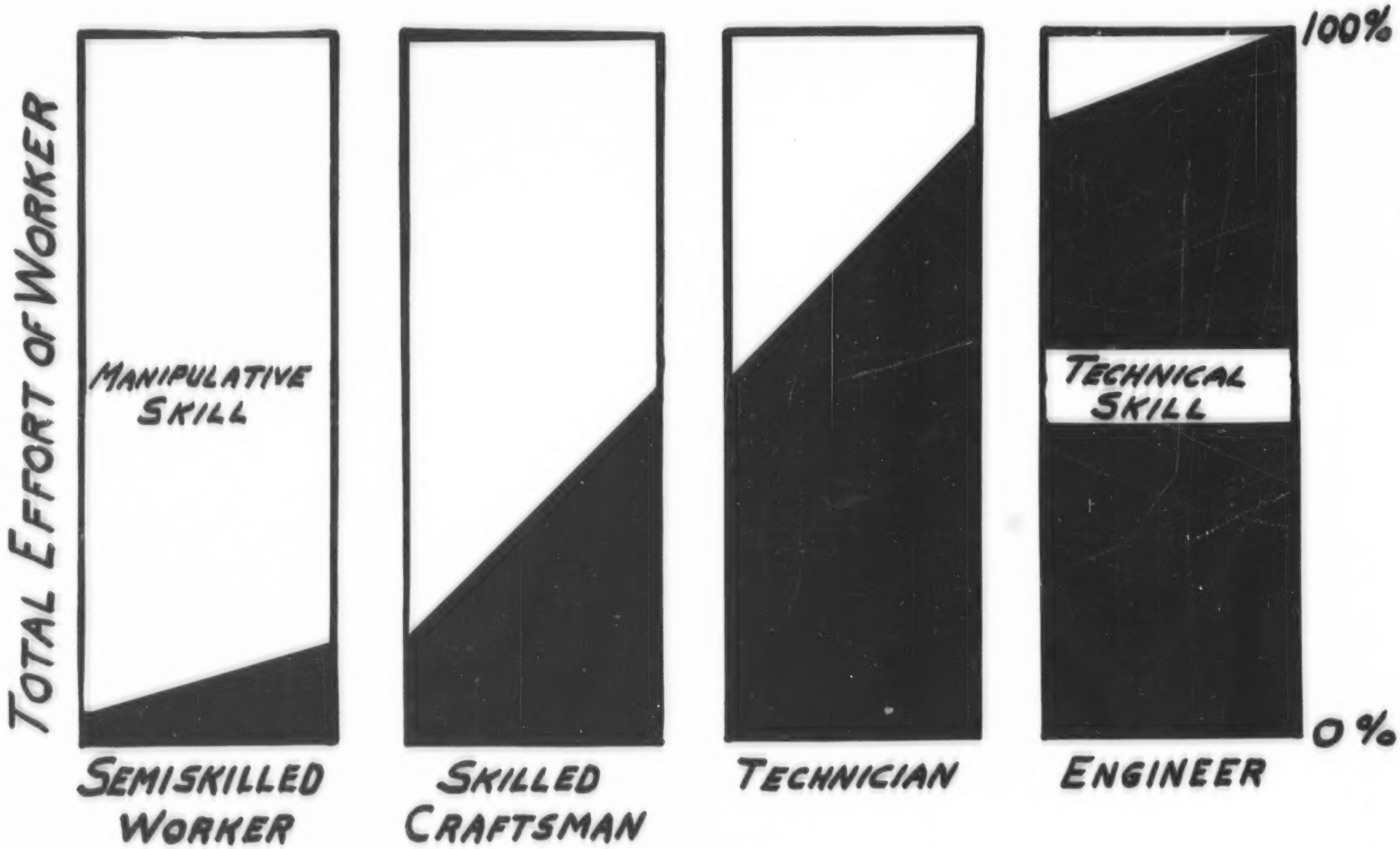
Some require much more technical skill than do others.

The engineer's work is largely technical in nature; he needs litte manipulative skill.

The technician needs some manipulative skill, but more than half of his total effort deals with technical skill - the ability to utilize technical knowledge in practical situations.

The skilled craftsman needs considerable technical skill but most of his effort is expended in manipulative effort.

The semiskilled worker uses mostly manipulative effort, and his technical skills are quite limited.


TOTAL EFFORT OF WORKER
100%
0%
MANIPULATIVE SKILL
TECHNICAL SKILL
SEMISKILLED WORKER
SKILLED CRAFTSMAN
TECHNICIAN
ENGINEER

TECHNICAL OCCUPATIONS BELOW THE PROFESSIONAL LEVEL DIFFER IN THE SCOPE AND LEVEL OF ABILITY NEEDED

Some occupations, although technical in nature, have a narrow scope or range of content, and a low level of ability needed. Such occupations might include some types of inspection or of routine testing.

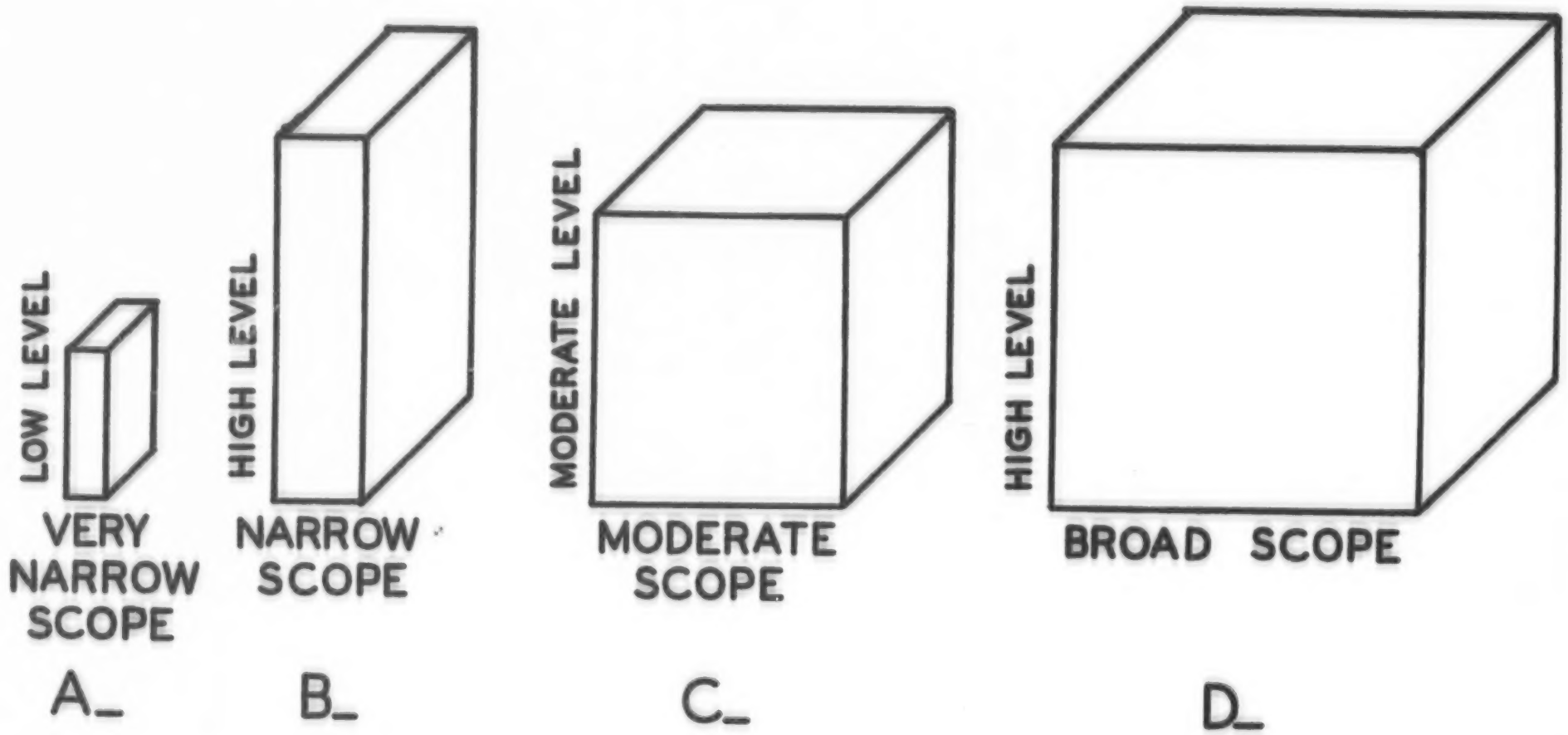
Some technical occupations have a relatively narrow scope but require a high level of technical skill. These would include radio/TV servicing, or jobs such as inspection of a limited range of technical equipment. Such occupations might be classified as technical specialists.

Technical occupations which involve a moderate scope and moderate level of ability are sometimes classified as industrial technicians, and include such jobs as time-study man or quality control technician.

The highest level of technician occupations - with a broad scope of activity and a high level of ability - are usually classified as engineering technicians. Workers in these occupations assist engineers and scientists, or work independently in a comprehensive field of technical activity.

Training for technical specialist occupations may be obtained in one year or so of appropriate technician training, in full-time study.

Training for engineering technician occupations requires the equivalent of two years of full-time intensive training.



A. Low-level narrow-scope technical occupation, not classified in the technician group.
B. Technical Specialist)
C. Industrial Technician) May be classified as technician occupations.
D. Engineering Technician)

TYPES OF TECHNICAL OCCUPATIONS BELOW THE PROFESSIONAL LEVEL

TECHNICIAN ACTIVITIES CUT ACROSS MANY FIELDS OF INDUSTRIAL LIFE

THE TECHNICIAN:

Assists the scientist in his research concerning new products.

Helps the engineer in designing the product, through detailed calculations and details of design.

Assists the engineer in making up models and prototypes, testing them in the laboratory and in the field.

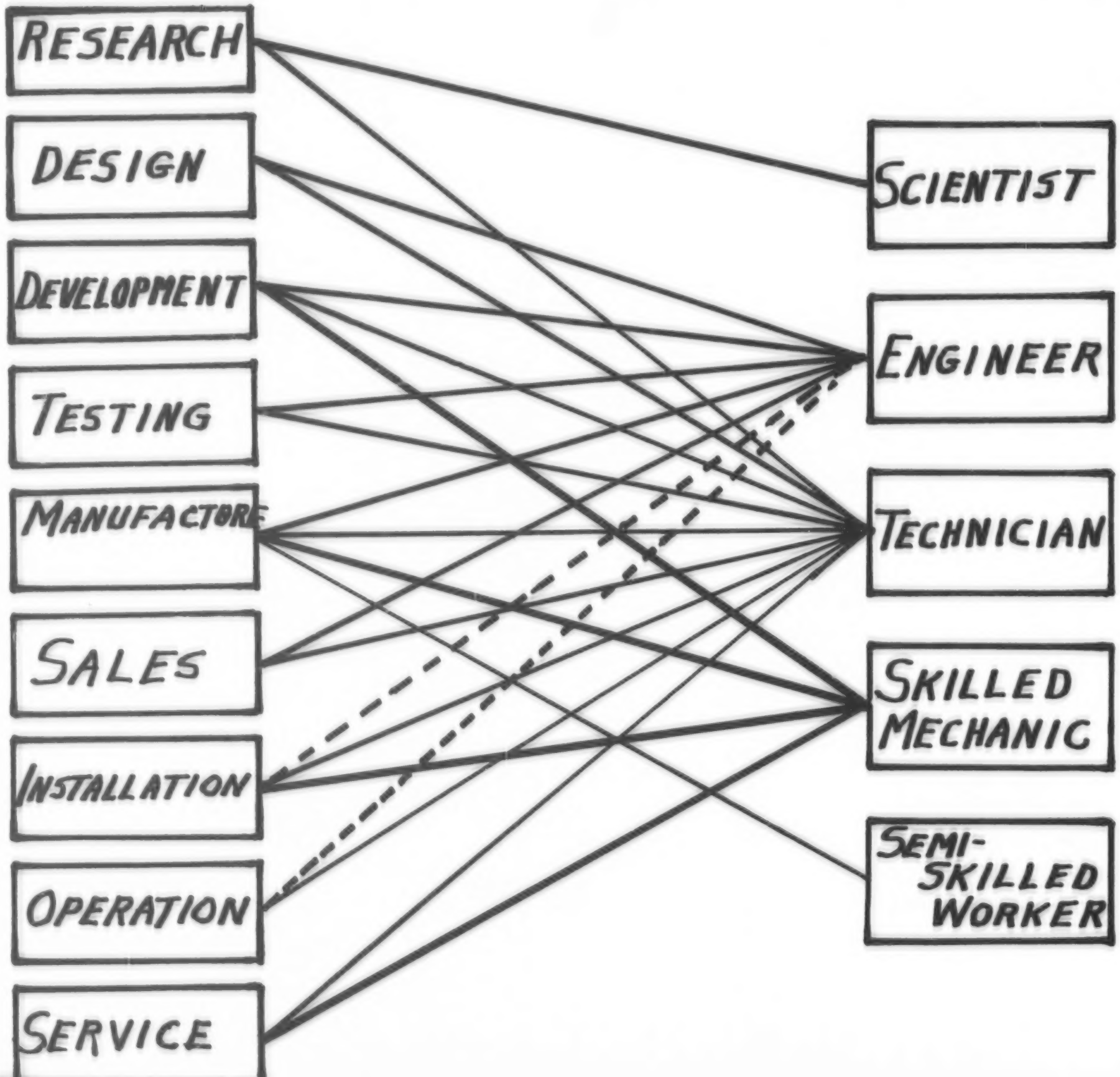
Helps plan the production processes, and carries on or supervises these production processes.

Sells highly technical equipment, assisting the customer in determining equipment appropriate to his needs.

Supervises the installation of technical equipment, making necessary adjustments to get the equipment into satisfactory working condition after installation.

Operates complicated technical equipment, such as a power station or an automated unit of a manufacturing plant.

Services complicated technical equipment, or supervises such maintenance work.


RESEARCH
DESIGN
DEVELOPMENT
TESTING
MANUFACTURE
SALES
INSTALLATION
OPERATION
SERVICE
SCIENTIST
ENGINEER
TECHNICIAN
SKILLED MECHANIC
SEMI-SKILLED WORKER

TECHNICIAN ACTIVITIES HAVE MANY FACETS

In Research and Development the technician:
- serves as a scientific or engineering aide
- works as a programmer with data-processing equipment
- sets up and tests materials and equipment in the laboratory
- makes sketches and drawings
- performs various calculations

In the field of Design the technician:
- does detailed designing under the direction of the engineer
- designs jigs, fixtures and other tools
- makes equipment and other layouts
- makes drawings of various sorts

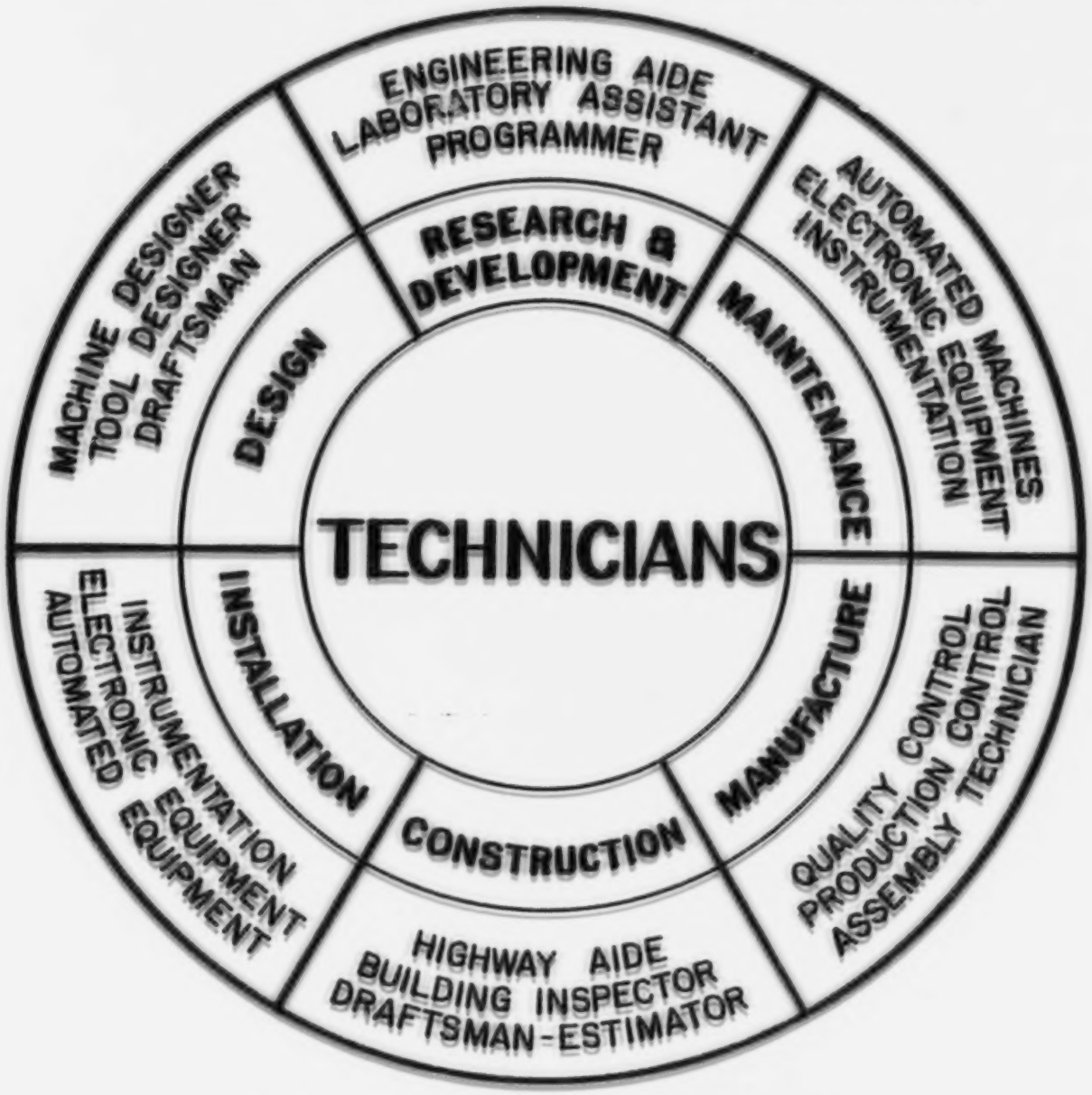
In the Installation field the technician:
- supervises the installation of automated machines
- inspects the installation of instruments and miscellaneous electronic equipment
- supervises installation of power wiring circuits

In the Construction field the technician:
- estimates building costs
- surveys building sites or highways
- draws architectural plans and specifications
- supervises construction activities

In the Manufacturing field the technician:
- assists in planning production layouts
- supervises quality control processes
- lays out and supervises assembly processes
- makes time and motion studies

In the Maintenance field the technician:
- services complicated technical equipment
- supervises such maintenance

THE TECHNICIAN



IN INDUSTRY

SOME OCCUPATIONAL FIELDS AND TECHNICIAN JOBS

501 to 101

SKILLED CRAFTS AND TECHNICIAN JOBS IN THE CONSTRUCTION FIELD

Construction projects are carried out mainly through the efforts of skilled craftsmen and other skilled workers. Buildings take shape through the work of carpenters, bricklayers, concrete workers, tilesetters, plumbers, painters, electricians, and many others.

But the work of construction cannot go on without building plans, cost estimates, inspection and supervision of the work. These are the tasks of the technician. In highway work surveying needs to be done, topographical maps prepared, materials tested, and the work supervised and inspected. This is done by technicians.

THE NORTH CAROLINA MANPOWER SURVEY SHOWS GREAT NEEDS FOR BOTH SKILLED CRAFTSMEN AND TECHNICIANS IN THE CONSTRUCTION FIELD.

TECHNICIAN JOBS IN CONSTRUCTION

SKILLED CRAFTS	CONSTRUCTION TYPES	TECHNICIANS
BRICKLAYER	HOUSES	ARCH. DRAFTSMAN
STONEMASON	STORES	STRUCTURAL DRAFT.
TILESETTER	SMALL FACTORIES	TOPOGRAPHICAL DRAFT.
CEMENT MASON	LARGE FACTORIES	ESTIMATOR
PLASTERER	OFFICE BUILDINGS	BLDG INSPECTOR
ROOFER	HIGHWAYS	EQUIPMENT SALES
LATHER	RAILROADS	AIR CONDITIONING T.
CARPENTER	BRIDGES	CONSTRUCTION SPVR
FLOORLAYER	SEWER SYSTEMS	MATERIALS MAN
PAINTER	WATER SUPPLY	HIGHWAY ENGINEERING AIDE
PAPERHANGER	POWER PLANTS	SURVEYOR
PLUMBER	AIR FIELDS	EXPEDITER
STEAMFITTER	HOSPITALS	SPECIFICATION WRITER
SHEETMETAL WORKER	SCHOOLS	TECHNICAL EQUIPMENT INSTALLER
STRUCTURAL STEEL WORKER	CHURCHES	ETC.
WELDER	ETC.	
ELECTRICIAN		
ETC.		

TYPICAL FIELDS OF TECHNICIAN TRAINING

Training programs for engineering technicians are aimed at the training of persons for groups or "clusters" of technician occupations which are distinct in themselves yet have many characteristics in common. Thus a cluster of occupations in the field of electronic technology might include radio/TV transmission, radar, electronic equipment testing, industrial electronics, and others.

To provide adequate training for such a cluster of occupations requires a comprehensive curriculum which takes two years of intensive full-time study (or equivalent time in part-time study). The curriculum includes the technology of the field, basic and applied mathematics, science and drawing, and some general education courses. Such a program requires students with good ability and aptitude in these various subjects.

Typical curriculums found in technical schools in various parts of the country are shown in the chart.

FIELDS OF TECHNICIAN TRAINING

AIR CONDITIONING TECH.
AVIATION TECHNOLOGY
BUILDING TECHNOLOGY
CHEMICAL TECHNOLOGY
CIVIL TECHNOLOGY
COMPUTER TECHNOLOGY
DIESEL TECHNOLOGY
DESIGN TECHNOLOGY
ELECTRICAL TECH.
ELECTRONIC TECH.
FIRE PROTECTION TECH.
GAS & FUEL TECH.
INDUSTRIAL LABORATORY T.
INDUSTRIAL SUPERVISION
INDUSTRIAL TECHNOLOGY
INSPECTION TECHNOLOGY
INSTRUMENTATION TECH.
MECHANICAL TECH.
METALLURGICAL TECH.
OPTICAL TECHNOLOGY
PETROLEUM TECH.
PHOTOGRAPHIC TECH.
PLASTICS TECHNOLOGY
TECHNICAL ILLUSTRATION
TECHNICAL SALES
TOOL TECHNOLOGY

HOW TECHNICIANS GET THEIR TRAINING

Technicians get their training in many different ways:

Many of them have learned on the job, supplementing their work experience with self study, correspondence courses, and evening classes.

Many present technicians have come from the ranks of the skilled craftsman, and have acquired their technical competency through various types of study.

In certain fields, such as electronics, many technicians have been trained in schools operated by the Armed Forces.

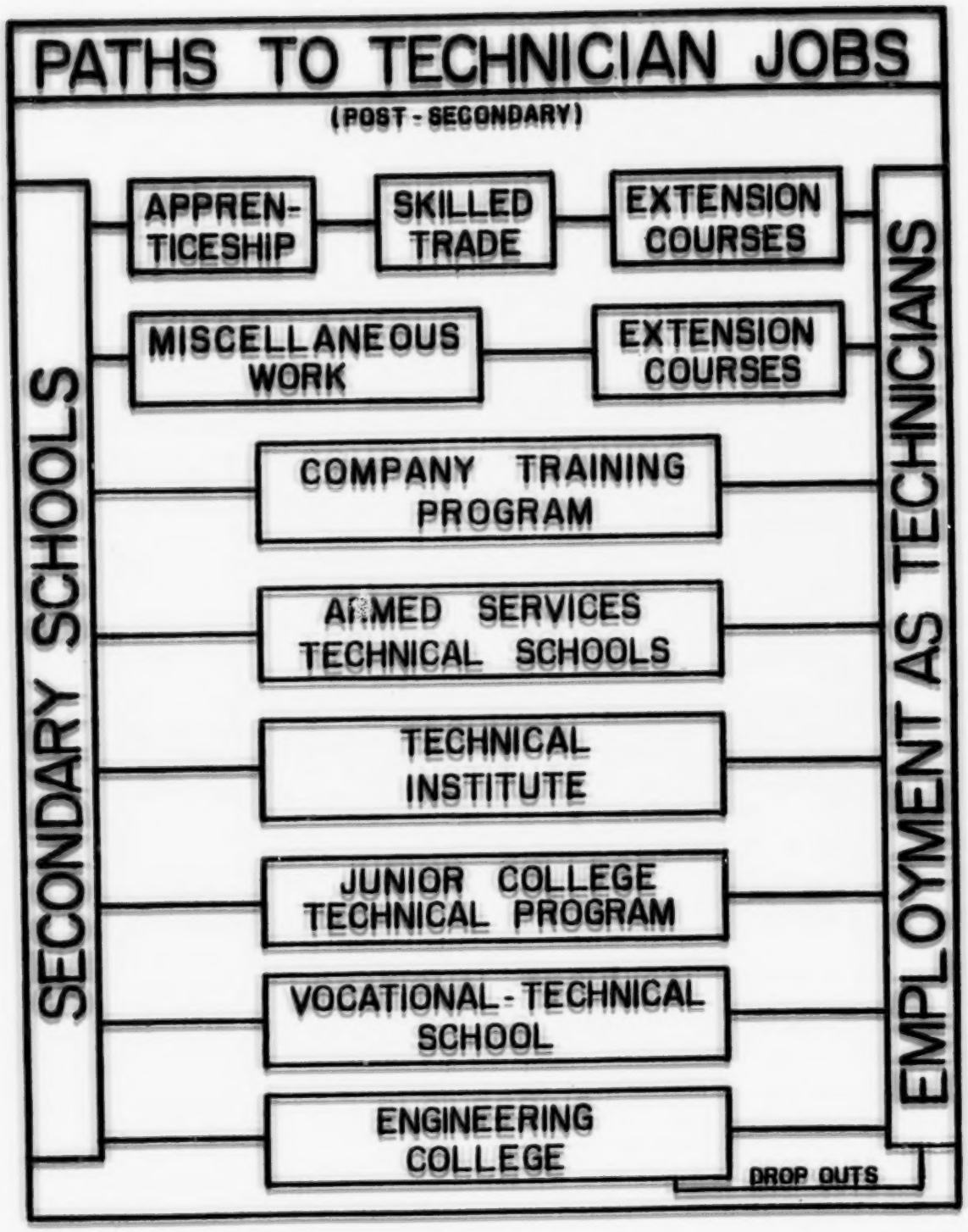
Some have started engineering courses and dropped out, getting into technician work.

Many with engineering degrees now occupy technician positions, on their way to engineering work, or as permanent jobs.

Increasing numbers are now coming from the programs specifically designed for technician training, found in technical institutes, junior/community colleges, vocational-technical schools.

Many technicians will continue to come from workers in industry who attend evening and other part-time technical courses. (THIS EMPHASIZES THE GREAT NEED FOR PART-TIME COURSES FOR EMPLOYED WORKERS.)

To meet the demands of industry for technicians will require many more than can be trained through part-time courses. (THIS INDICATES THE NEED FOR FULL-TIME TRAINING PROGRAMS IN MANY OCCUPATIONAL FIELDS.)



HOW TECHNICIANS GET THEIR TRAINING

TASKS PERFORMED BY TECHNICIANS

The kinds of technical ability found in the various technician jobs are of great variety:

Some jobs emphasize analysis and diagnosis.

Some require visualization of drawings, or a flair for creative design.

Some demand a high degree of applied mathematical ability.

Many require solid background of basic physics and its application to industrial procedures.

Some require a background of experience in the skilled crafts; others require good understanding of the crafts.

Most of them require precise methods of work - in measurement, adjustment of instruments, and the like.

Some require sales ability, or cost accounting ability.

Some require extensive understanding of industrial equipment and industrial processes.

Sometimes the job involves supervisory responsibility, and combines technological understanding with skill in dealing with people.

Some technician jobs require proficiency in the use of hand tools.

Many of them require the ability to prepare written reports.

No single technician job requires all of the abilities shown here and in the chart. A well-prepared curriculum for training technicians for a specific field will provide for the needs of that field.

TECHNICIAN TASKS

Inspecting
Measuring
Computing
Testing
Analyzing
Diagnosing
Interpreting
Liaison
Using instruments
Using hand tools
Making drawings
Sketching
Detail designing
Recording data

Writing reports
Using handbooks
Trouble shooting
Expediting
Controlling production
Making experimental equipment
Supervising technical operations
Maintaining automated equipment
Operating technical installations
Selling technical products

ETC.

SKILLED CRAFTS AND TECHNICIAN JOBS IN METAL PRODUCTS MANUFACTURE

Some persons find it difficult to differentiate between skilled crafts and technician occupations. The chart for metal products manufacturing shows some of the jobs in each group. Study of the jobs listed will reveal that the technician jobs require much more technical knowledge and skill than do the skilled crafts jobs.

This is reflected in the kind of training program needed to prepare persons for these jobs, with the technician training requiring much more science, mathematics, and technology.

For some of the technician jobs shown in the chart the technician is much more valuable if he has had appropriate experience in the craft allied to his job. For example, a tool designer or tool inspector profits greatly from previous experience as a toolmaker. And the draftsman who has had machinist experience is frequently desired.

The metal products manufacturing field lends itself well to extension courses as well as preemployment training.

METAL PRODUCTS MANUFACTURING

SKILLED CRAFTS	TECHNICIANS
Toolmaker	Tool designer
Machinist	Draftsman
Moulder	Tool inspector
Steamfitter	Time-Motion-study man
Plumber	Assembly technician
Electrician	Expediter
Millwright	Automated machine maint.
Patternmaker	Technical supervisor
etc	etc.

COMPARISON OF SKILLED CRAFTS AND TECHNICIAN TRAINING

Training for the skilled crafts differs in certain important respects from that for the technician occupations.

Main goal of the training program:

Skilled crafts - a single craft (such as carpentry, or machine shop practice)

Technician - a group or cluster of closely related occupations (such as various types of electronics jobs)

Type of skill desired:

Skilled crafts - largely manipulative skills, with such technology as is directly related to the craft. (Such as mathematics for machinists, in machine shop training)

Technician - largely technical skills, with considerable breadth in basic and applied technology of the field, basic and applied science, etc.

Nature of the training program:

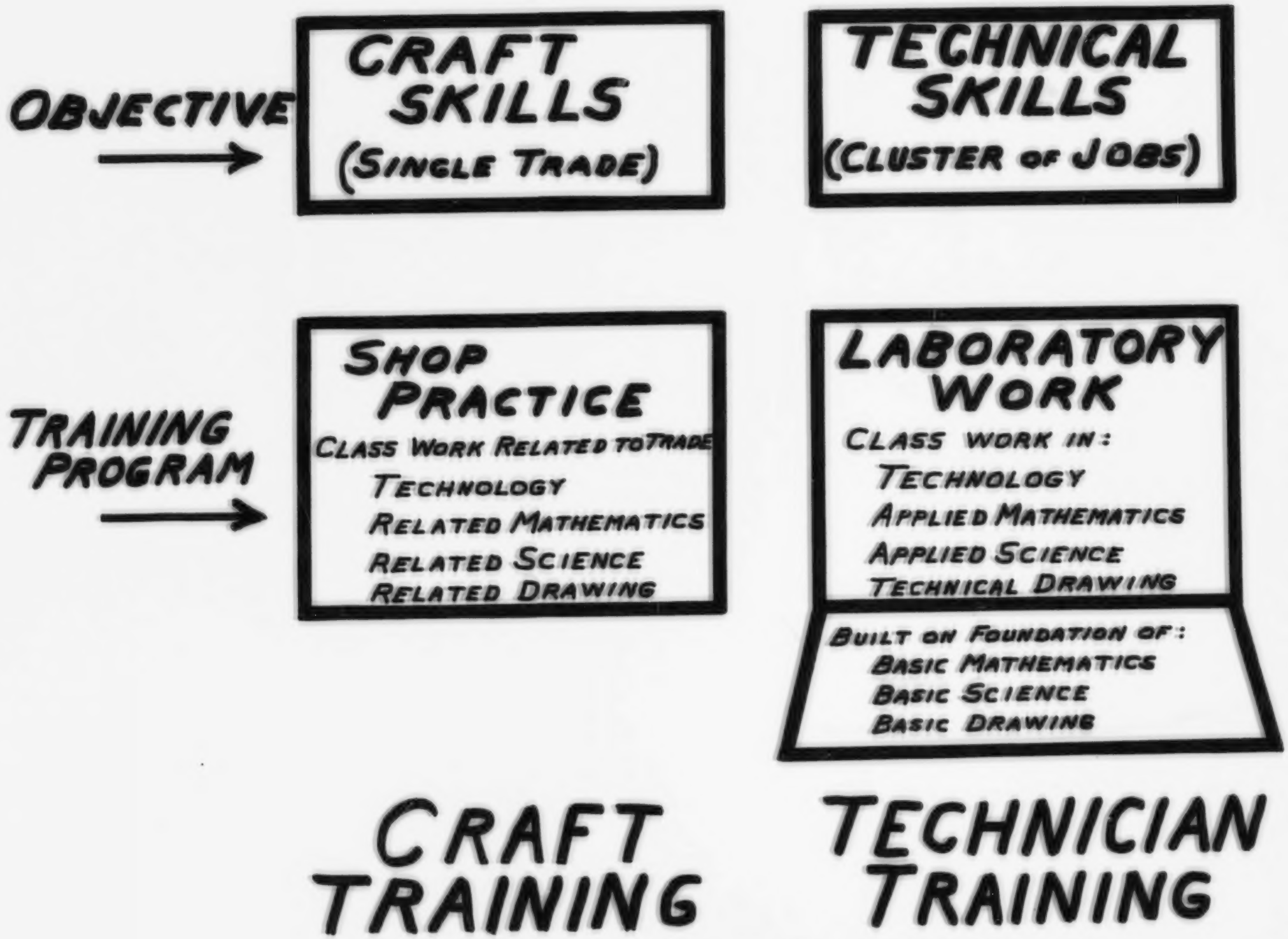
Skilled crafts - largely shop activities, with some related classroom instruction.

Technician - largely laboratory and classroom work, for developing understanding of principles and technical applications of the principles. Instruction is based on a foundation of appropriate mathematics and science.

Type of student required:

Skilled crafts - average or slightly below in academic ability, with aptitude for skilled crafts work.

Technician - somewhat above average in academic ability, with aptitude in the technical field.



COMPARISON OF TRAINING PROGRAMS FOR THE SKILLED CRAFTS AND TECHNICIAN OCCUPATIONS

COMPARISON OF TRAINING PROGRAMS FOR ENGINEERS AND TECHNICIANS

The training needed by the engineer covers a scope much wider than that for the technician. Typical engineering training programs are four years in length. A logical pattern for the engineering curriculum is to devote the first two years to basic mathematics, science, and drawing, together with a small amount of technology.

In contrast, the logical pattern for the technician is to get into the technology to some extent as early as is practicable, for the total program is usually only two years in length.

The chart compares the first two years of the engineering program with that of a technician program. It is evident that they are quite different.

The educational institution - usually a junior college - which offers the first two years of engineering training and also offers a program for the training of technicians is often tempted to utilize certain courses of instruction in both curriculums. A good program for the training of technicians is quite different from that for engineering, and the institution which attempts to merge the programs usually fails to attain its training objectives.

TRAINING PROGRAMS FOR TECHNICIANS NEED TO BE DESIGNED FOR THAT PURPOSE AND NOT PATTERNED DIRECTLY AFTER ENGINEERING TRAINING OR SKILLED CRAFTS TRAINING. THE OBJECTIVES ARE DIFFERENT AND THE TRAINING PROGRAMS NEED TO BE DIFFERENT.

JUNIOR COLLEGE CURRICULUMS

TECHNICAL COURSES	MATH.	SC.	DRAW.	GEN'L EDUC.

TECHNICIAN TRAINING - Mechanical Technology

ENGINEERING COURSES	MATH.	SCIENCE	DRAW.	GEN'L EDUC.

ENGINEERING TRAINING - Mechanical Engineering
First Two Years

Sample Curriculums from same Junior College

INSTITUTIONAL PATTERNS FOR TECHNICIAN TRAINING

Different States and different institutions provide their technician training with differing institutional patterns.

Some schools offer only technician training in a single field, such as certain private technical institutes.

Some offer only technician training but in several different fields.

Some schools combine agricultural and industrial technician training, with separate divisions in the same school.

Some schools provide training in the skilled crafts and also in technician fields.

Occasionally one finds a junior college limiting its work largely to skilled crafts and technician training.

Sometimes the technician training is in a technical institute division of a community college, or a technical institute division of an engineering college or a university, with the program offered on the same campus or on a separate campus.

In some cases a junior college and a high school share facilities for technician training.

A few high schools offer technician training either in a separate technical high school or in a technical division of a comprehensive high school.

The pattern used is influenced greatly by the extent of the junior college movement in the State, the philosophy of the State-wide junior college personnel, the extent to which skilled crafts training is offered in the junior college, and the development of the "area vocational school" idea.

Some Post-High School Institutional Patterns for Technician Training

Monotechnic Institute	Academy of Aeronautics
Polytechnic Institute	Oregon Technical Institute
Agricultural & Technical Institute	New York State Agricultural and Technical Institute
Technical Institute & Trades School	Milwaukee Inst. of Technology Burlington Indust. Educ. Center
Trade & Technical Junior College	Los Angeles Trade-Technical Junior College
Technical Institute Division of Community College	Orange Coast College
Technical Institute Division of Engineering College	Southern Technical Institute (Georgia Inst. of Technology)
Technical Institute Division of University	Oklahoma State University Pennsylvania State University

ESTIMATED EMPLOYMENT OF ENGINEERING & SCIENCE TECHNICIANS IN THE UNITED STATES BY OCCUPATIONS

Occupations	Number	Percent
Draftsmen	220,800	26.9
Engineering technicians	298,800	36.1
Chemical technicians	64,000	7.7
Physics technicians	11,000	1.3
Mathematical technicians	5,500	.7
Other physical science technicians	47,100	5.7
Life science technicians	58,600	7.1
Other technicians	120,600	14.6
Total all technicians	828,400	100.0

Source: Technical Manpower - Bureau of Labor Statistics - 1965 (manuscript)

II. LEADERSHIP ROLE

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
Office of Education
Division of Vocational and Technical Education
Washington, D.C. 20202

THE FEDERAL GOVERNMENT'S ROLE IN THE TRAINING OF TECHNICIANS

by

Walter M. Arnold
Assistant Commissioner for
Vocational and Technical Education

An address prepared for the convention of the Industrial Research Institute at Boca Raton, Florida, May 3, 1965

THE FEDERAL GOVERNMENT'S ROLE IN THE TRAINING OF TECHNICIANS

The role of the Federal Government in educating highly skilled technicians is to promote and assist in the establishment of high quality programs in all of the States, wherever there is a labor force need for trained personnel or where there are persons who can profit from such specialized occupational education.

Technicians are persons who have the scientific knowledge and competencies in some recognized branch of science to support the work of professional scientists or engineers. They are usually educated in rigorous 2-year post secondary education programs designed to provide them with knowledge, skills, and attitudes required to enable them to perform as highly skilled technicians.

There are many kinds of technicians, just as there are many kinds of professional scientists. Many are employed in the physical sciences and related engineering fields. Examples are chemical, metallurgical, mechanical design or production, civil, electrical and electronics, and architectural technicians. Many others are skilled in the applied life sciences--particularly in the medical field and in the broad spectrums of agricultural research, processing, and utilization.

Examples of life science technicians are medical laboratory, dental hygiene, dental laboratory, radiological, agronomy, horticultural, food processing, oceanographic, animal science, soil science, agricultural production equipment, and forestry or specialized plant science technicians. Some combine life science and physical science disciplines--such as sanitation, pharmaceutical, or special clinical or hospital equipment technicians.

The objective of preparatory programs for educating technicians is to provide a broadly based competency in the field of sufficient depth that the graduate technician may be employed in one of a cluster of related work opportunities in his field. Upon employment, a brief period of orientation to his particular duties in the employer's organization, together with continued on-the-job study, permit him to advance rapidly to high levels of productivity and increased responsibility.

Education programs to prepare technicians for their work as assistants to scientists must provide them with an understanding of the basic principles of their field of science, and of the related science and mathematics which support their main field. They must also absorb a comprehensive knowledge of the procedures, materials, devices, techniques, equipment, and processes used in that scientific field and learn facility in the use of them. They must develop the ability to communicate with the professional scientists or engineers with and for whom they work.

The technician must learn to employ the mode of thinking and intellectual discipline embodied in the scientific method, the ability to seek and find

pertinent information, and the capability to work with both the scientist and the skilled workman or other aides to accomplish a variety of work assignments.

Programs for educating technicians are characterized by intensive classroom and laboratory learning. About 50% of the curriculum is the study of science in classroom and laboratory work. A planned sequence of courses emphasizes scientific principles and provides practice with procedures, processes, materials, apparatus, equipment, and skills as they are currently used.

Mathematics, as required, is taught early in the technical program to obtain maximum utilization of its support of the study of the applied science. Communication skills and reporting are taught and practiced; and an elementary study of economics, organizations, and human relations provide a frame of reference to the student technician as a member of society and as an employee of a working organization.

Several types of schools offer technical and related vocational education. Of these, the greatest growth has been in junior colleges, community colleges, technical institutes, and area vocational and technical schools. Technical and comprehensive high schools also offer such programs; and their orientation toward the needs of technical and related vocational education is of great importance since they prepare students to enter technical education programs either in high school or upon graduation from high school.

The need for educating highly skilled technicians was first recognized and implemented by Federal legislation with the passage of Title VIII of the National Defense Education Act of 1958. Under this Act the U.S. Office of Education was directed by Congress to administer grants of funds to the States to be matched by the States dollar for dollar, to train highly skilled technicians "necessary for national defense."

A heading was inserted into the Act which read: "Area Vocational Education Programs." The language below that heading amended the Vocational Education Act of 1946 (which we know as the George-Barden Act) to add a new title (Title III)--and it reads as follows: to authorize". . . grants to States to assist them in training individuals for employment as highly-skilled technicians in occupations requiring scientific knowledge in fields necessary for the national defense."

The Act provided Federal funds beginning with $3.75 million in 1959 and growing to $15 million in 1963 and 1964 for the purchase of laboratory equipment, for teacher salaries, and for providing materials and other services for programs for technical education.

There were several reasons for the enactment by Congress of Title VIII of the NDEA.

-First of all, the highly skilled technician was becoming an increasingly essential part of the scientific and management team in modern

scientific research, development, production, and services. The team is composed of professional scientists, engineers, specially trained technicians, supervisors, and skilled production or laboratory workers.

-A second reason: technicians are in short supply. The ratio of technicians to scientists or engineers at present is usually less than 1 to 1, but there is need for 2 or more technicians to support each engineer or professional scientist. For many years the number of new technicians formally prepared to work with physical scientists and engineers had been limited to about 16,000 graduates of a relatively few publicly supported institutions and a number of private, nonprofit technical institutes. Studies of the physical sciences and related engineering fields indicate a need for at least 100,000 new technicians each year. These figures show that a considerable effort to educate more technicians was needed to meet the Nation's need for accelerated research, development, and productive effort.

-A third factor contributed to the passage of Title VIII. The explosion of scientific knowledge was creating changes in scientific education so that the professional scientist or engineer received little laboratory experience. He functioned more as a theoretical scientist than he had in the past. Thus, a vacuum was developing in the area of applied laboratory knowledge which had to be filled by highly skilled technicians.

Since the passage of NDEA, enrollment of full-time students in technical education programs, most of them post high school, grew from fewer than 20,000 in 1958 to more than 90,000 in 1964. In 1958, some 260 schools provided education of this type for highly skilled technicians under Title VIII, and the number had grown to nearly 800 by 1964. Many of the new schools have been built primarily to train technicians and other skilled personnel.

Federal funds expended for technical education programs from the beginning of the program in 1959 through fiscal year 1964 total $54,704,605. Added to this figure are the States' matching contributions of $30,162,487 and local expenditures of $46,429,204, making a grant total of $131,314,296.

In fiscal year 1964, a total of 221,241 students were enrolled in 881 institutions offering technical training. This is an increase of 236% since the inception of the program.

The largest number of enrollments are found in extension courses especially designed to upgrade the skills of employed adult technical workers. More than 128,000 persons took advantage of such courses in fiscal year 1964.

Some 72,000 student technicians were enrolled in 2-year post secondary programs and more than 20,000 in secondary programs during fiscal year 1964.

The 16,000 or so technicians who have been graduated each year for the past decade, are the product of about 60 to 70 private, nonprofit or proprietary technical institutes and public State or locally supported technical institutes. A few are divisions of 4-year colleges or universities. Some of these institutions are expanding their programs, particularly the public technical institutes in New York State which have been in operation for 20 to 40 years.

The excellence of the programs in these established and successful institutions provide a reservoir of experience and success which proves the practicability of establishing programs to educate technicians. These programs provide examples of what good technicians are, and also provide patterns for establishing and advertising good technical education programs.

The leadership of the group of educators in these institutions has been a major element in establishing high quality standards for such programs. They have become an active division of the American Society for Engineering Education. In 1962, it published the results of a comprehensive nationwide study of technical institute education entitled "Characteristics of Excellence in Engineering Technology Education." It is a major contribution to the literature in the field.

The Engineers' Council for Professional Development, which accredits professional engineering education, also accredits technical education programs within engineering-related technologies. In 1964 there were 127 accredited curriculums in this field in 33 institutions throughout the United States.

In recognition of the growing importance of this type of education, Congress, in the Vocational Education Act of 1963, made permanent the provisons of Title VIII of the National Defense Education Act for training highly skilled technicians. The new Vocational Act also provides substantially increased funds to meet the vocational and technical education needs of greater numbers of people of all ages in all communities.

Funds under the Act of 1963 may be used for construction of facilities, as well as for teacher salaries, libraries, laboratories and equipment, and needed materials and services for educating technicians. The 1963 Act requires a dollar-for-dollar matching of Federal funds with State and/or local funds. Technicians of all kinds may be educated--both those in the physical sciences and related engineering fields, and those in the life sciences, especially those needed for the medical and health fields and for agricultural occupations.

Research funds for vocational and technical education were, for the first time, authorized by the Congress in the Vocational Education Act of 1963. Ten percent of all funds appropriated under the Act are designated to be used for research, demonstration and experimental projects in the field. The funds are substantial: $11.85 million in fiscal year 1965, $17.75 million in 1966, and $22.5 million for every year thereafter.

These funds are used for grants by the U. S. Commissioner to colleges and universities, and other public or nonprofit private agencies and institutions, to State boards, and with the approval of the appropriate State board, to local educational agencies, to pay part of the cost of research and training programs and of experimental, developmental, or pilot programs developed by such institutions, boards, or agencies, and designed to meet the special vocational education needs of youths, particularly those with academic, socioeconomic, or other handicaps. Thus, the value to be gained from organized research, so amply demonstrated by groups such as yours, now is directed by the Congress to be used to improve vocational-technical education.

Among the key ways in which the new research and planning program in vocational education can be of great assistance to technical training are these:

- It can help to define some of the emerging technologies, identify probable future ones and make meaningful estimates of the number of technicians needed in such fields.

- It can help develop better and more efficient ways to prepare technicians through advances in methods of teacher training, ways to provide more pertinent laboratory experience, better use of visual and audio teaching aids, and the development and perfection of the applied use of programmed learning techniques.

- It can help to develop more useful curriculum and other instructional materials.

- It can help plan and design facilities for the teaching of technicians.

In addition, the research programs now being Federally supported in the occupational field should be of special benefit in setting up pilot and demonstration projects in training for the new technologies. We certainly hope that the occupational research program will achieve a breakthrough in the badly needed new methods and programs for the education of teachers of technicians.

Funds may also be used under Section 4(c) of the Vocational Education Act of 1963 (the research section) to provide for teacher institutes as a means of preparing or upgrading teachers in these special fields.

An excellent example of what can be done with such institutes is provided by an experience of two years ago when a critical shortage of teachers of electronic data processing was identified by the U.S. Office of Education in States from one coast to the other. As a result, cooperation was obtained from five State boards and five institutions to set up special teacher institutes during the summer of 1963.

From these institutes came about 100 teachers of computer programming and business application analysis, easing a demand so heavy that State and local educators throughout the country had decided to abandon any idea of waiting for the usual teacher education programs to produce these specialized instructors.

In addition to the Acts discussed above, Congress enacted the Higher Education Facilities Act of 1963, authorizing $1.2 billion for construction of facilities for public and nonprofit private colleges. Of these funds, 22% are earmarked for construction of facilities for public community colleges and public technical institutes which meet the requirements specified by the Act. These latter institutions are eligible for Federal funds in the amount of 40% of their improvements for the stated purposes -- while other institutions qualifying under Title I of the Act are entitled to Federal shares of up to one-third. This clearly indicates the importance attached by the Congress to improved facilities for institutions which offer programs to train highly skilled technicians.

In the administration of these Acts the U.S. Office of Education directs its advisory, consultative, and financial assistance through the States, strengthening the long-established and effective Federal-State-local relationship which recognizes that decisions and actions which shape the destiny of educational programs in the States must be with the States themselves. Although training programs for technicians are implemented by the States, leadership and assistance is provided by the Division of Vocational and Technical Education. This assistance takes the form of conferences, consultative advice, legal interpretations, suggestions as to the use of funds, the provision of suggested curriculum guides and similar materials, and in other ways.

Federal legislation has emphasized education as an important investment in people, and as a major element in the structure of our society. The education of skilled technicians is an essential part of such a program because the technician, with the scientist or engineer, is at the forefront of the technological developments which have made, and will probably continue to make, the greatest changes in our social and economic structure.

It follows that as more technicians are needed, <u>and are employed</u>, the number of good technician education programs must increase. I have mentioned that both Federal and local tax funds already support institutions which educate skilled technicians. However, the task of providing enough well trained technicians has just begun. Vocational educators cannot carry this new and tremendous burden alone. The guidance and assistance of the future employers of these trainees are needed if we are to succeed. Walter F. Carey, President of the Chamber of Commerce of the United States, said in a speech at Salt Lake City last October:

> "The businessman is the key element in this whole education picture. Far better than any educator or government administrator, he is in a position to know what his company's skilled manpower requirements will be for the next five years, the next ten years.

And the smartest thing he can do is to let the educators in his community in on the secret so they can adjust their program accordingly....Some communities that now are operating effective vocational-technical schools have as many as 43 advisory committees involving up to 500 businessmen. Here trained management men put their knowledge and experience to work on the real core of the problem: How best to prepare men and women for productive jobs that exist today and for new opportunities that will open before them as our technological revolution progresses."

I call upon you members of the Industrial Research Institute, as individuals or through your companies, to support technician programs and to help us provide the kind of employee you will want to hire. Really high quality is a mandatory requirement for successful technician education programs. A competent, trained teaching staff, laboratories well equipped with apparatus representative of that used in the most up-to-date industrial establishments, a good library, adequate classrooms and an administrative direction sincerely dedicated to quality occupational education are essential. It takes a minimum of 5 years and many thousands of dollars to establish a new program, assemble the staff, equip facilities, and graduate the first class or two. When these graduates are successfully employed and confidently advertising their success to their peers and parents, the program is well started.

A poor program is by far the most expensive of all because it costs almost as many dollars, wastes the time and the effort of students and school staff; and, worst of all, disappoints potential employers, and disillusions students and their parents. We can't afford programs of less than high quality!

The most important service you can render is to become involved as advisors, consultants, and supporters of technician educating institutions and programs in your locality, and the State and local organizations which administer them. The writers of the Vocational Education Act of 1963 clearly saw the necessity for knowledgeable employers to advise, counsel and support vocational educators if we are to provide high quality trainees for their future employees; and the Congress made such advisory services a mandatory part of the administration of the legislation at all levels.

I hope that some of you are already serving on such advisory groups; and that others will be moved to do so if called upon. In some situations it would certainly not be amiss to let it be known that you are available for such duty -- since there is a clear advantage to many of you to know exactly what goes on in this field from the inside.

Those of you who have no connection -- and expect none -- with advisory councils for vocational-technical education, nevertheless will need to know where to go for information on such programs and who to contact when you have business with vocational educators.

Broadly speaking, there are three levels of contact. I represent one of these levels as Assistant United States Commissioner for Vocational and Technical Education and Director of the Division of Vocational and Technical Education. The Division is divided into a headquarters staff in Washington and a field staff in 9 regional offices throughout the country. These staffs are always available directly to the general public for advice and assistance in connection with problems having to do with occupational training. You are invited to write directly to me or phone my office at any time -- or to contact the nearest regional office of the Department of Health, Education, and Welfare for the same service from the regional representatives of my office.

At the State level, the State directors of vocational education are the chief administrators. Through their State boards for vocational education, these men exercise the main control over State and Federal funds for vocational and technical education in their States. Usually, their staffs at the State capitols include a director of technical education and one or more specialists in this field whose major chore is to work directly with the local educational institutions on such programs. They are, however, also available to provide information and assistance to the general public.

At the local level, your best contact would be with the chief administrators of the local schools, colleges or other institutions which offer -- or in some cases, I'm afraid -- which <u>should</u> offer technical education programs. These people work with their State officials, of course, to receive and use Federal and State funds, and to get advice and assistance on program problems which arise from time to time. Through these State officials, they also have available the resources of the regional and headquarters personnel of the Division of Vocational and Technical Education in the U.S. Office of Education.

The directors of research in the Nation are in a peculiarly important position to provide knowledgeable and effective counsel. Their professional and corporate efforts have changed almost every facet of American life in the past few decades, and will continue to do so on an accelerating scale. Their estimates and predictions of what skills, knowledge, and capabilities will be needed and in what quantity they will be needed in years to come should be deeply perceptive because they are nearest to the genesis of change. We need this counsel and guidance.

The character, effectiveness, and economic value of capable technicians is still not universally appreciated in American industry. This is probably because there are few institutions educating highly competent technicians; and because the rewarding employment opportunities in the areas near the school keep the best technicians from going elsewhere. Thus, some employers have never had a chance to hire a really good technician, much less appreciate him.

Research directors are in a unique position to recognize and utilize the skills of technicians because of the very nature of research processes, which are not subject to the clearly structured organizational patterns of production work. It is in a research environment that the highly skilled

technician, with his competency in assembling research apparatus, performing experiments with the assistance of skilled workers or aides, gathering and reporting significant data, and entering into interpretation can be of greatest service. He becomes a leader in the pilot tests and production processes of research, and fills an essential place in the production service or distribution of the product.

I suggest that you encourage and welcome local technical subject teachers and department heads to join in your scientific and technical society activities. Active participation helps keep teachers up to date technically, broadens their perception of the practical realities and needs of employers and is reflected in the attitudes and activities of their students. Whenever possible, local student chapters of scientific or technical societies should be encouraged as a means of providing maximum technical and educational experience for teachers and students.

The image of the technicians' attractive occupational opportunities should be promoted and publicized vigorously, particularly to parents -- many of whom may be employed by local industrial firms. The best conceived high school counselors' guidance for many youth who could become excellent technicians is made fruitless because the youth's parents, girl friends or buddies don't understand the dignity, challenges, and rewards available to the competent technician. For many able youths a high quality technician preparatory program is the most attractive available avenue to early employment, and one which often leads to further education and professional attainment.

The problem of expert guidance and counseling for young people entering occupational training is one of the most difficult being faced today in the education field. All of us are deeply concerned that better methods be developed to help steer these people in the right direction. It seems certain that many potentially fine technicians, for example, never enter the field because they don't know it exists.

Ten days ago I met with the Committee on Specialized Personnel -- a Federal inter-agency group -- and the entire session of its 106th meeting was devoted to the problems of guidance and counseling.

The Committee on Specialized Personnel is attempting to find solutions to the overall problem of the shortage of highly skilled people -- the same problem which is facing nearly every one of you.

Another Federal agency which has been devoting a great deal of time and effort in the same area is the Panel on Scientific and Technical Manpower of the President's Science Advisory Committee. I hope to see this panel publish very shortly, under White House auspices, a paper on "Engineering Technician Training." Among other things, this paper will probably recommend an increase in the number of graduates of technical programs from the present 16,000 to at least 50,000 annually by 1970.

The development of institutions to educate technicians also provides adequate laboratories, libraries and staff competencies which are useful to employers in another very important way. Today's graduate technician will find tomorrow that he needs to update his skills if he is to keep his job. Many people now on the job are finding that they need more basic mathematics, physical science or specialized laboratory training. Knowledge in these fields can best be obtained in an organized school program. They are not likely to be learned adequately in an in-plant training program.

The establishment of high quality vocational programs for technicians pays an extra dividend by providing facilities for such upgrading programs on a part-time or evening basis. It is already true that schools which offer these programs enroll a larger number of already-employed adults in such special courses than they do full-time young people in preparatory technician curriculums.

While this discussion is primarily one dealing with technicians, it is important to point out that there is a whole spectrum of specialized occupational education objectives designed to support and assist professional management, of which technical education is only one. In addition to technicians who support professional scientists and engineers, their equivalent in the financial and administrative management sector of business is also required -- as are the marketing, transportation, and servicing of the products of industry. Educating these specialized management-supporting personnel is also a part of the task of our local educational institutions, whose programs must meet and serve the needs of all employers.

We are all in this endeavor together. As leaders in industry and in vocational and technical education, we are being called upon to provide realistic, high quality occupational education to meet present and future manpower needs at the lowest net long-term cost. Modern America requires technicians -- and their counterparts in management, marketing and servicing -- with better basic training at the start of their careers than ever before. The pattern of the past, which was based on a high school education only, is not good enough, largely because of the impact of research on all facets of modern living. Educators alone cannot perform the task, but together we can meet the challenge in a truly American tradition of cooperative accomplishment.

We in education know that you in industry believe as we do -- and as President Kennedy so poignantly stated it a few short years ago:

> "We believe in human dignity as the source of national purpose, in human liberty as the source of national action, the human heart as the source of national compassion, and in the human mind as the source of our invention and our ideas."

III. ADMINISTRATIVE STRUCTURE

The Function of the Administration and The Board of Education in School Plant Planning

A. ADMINISTRATIVE RESPONSIBILITIES

1. To conduct and direct research that will determine the relationship of new or altered buildings to a forward looking educational program and to interpret research to the board of education, the staff, and the community.

2. To furnish pertinent facts in guiding the policy formation of the board in its many basic decisions in school plant planning.

3. To establish and maintain, for each building project, a chronological schedule and record of all decisions, transactions, and steps taken from its inception by the board of the dedication of the building.

4. To secure cooperative planning of the principals, teachers, and community in developing the total building program and in the immediate planning of a school project.

5. To convey to architects and other specialists a clearly stated program to be implemented by the building.

6. To consult with the architect and other specialists on interpretations of the agreed upon program and on the educational evaluation of proposed solutions to the problems presented.

7. To assist the board of education in preparing an effective presentation of the building program to the community and in developing a financial plan for servicing the building program.

8. To develop plans for the maximum utilization and preservation of the building by the staff and the community.

9. To translate all planning in all facilities into a creative and constructive program of education.

B. STEPS TO BE TAKEN BY THE BOARD OF EDUCATION

1. Arrange for a school citizens study. In most communities the study should involve a larger area than the local school district. Thus, a reorganization of school districts may be considered in terms of a comprehensive K-12 program based upon adequate resources and a sufficient enrollment.

2. Consider the findings within the citizen's report and determine a course of action. A decision to try a building program should be by unanimous vote of the board of education.

3. Acquire the services of a competent adviser.

4. Visit other communities for the purpose of observing new school facilities. Comparable factors relating to reorganization, architectural services, and the functional qualities of the units should be observed.

5. Select a qualified registered architect. It is suggested that several reputable firms be interviewed prior to the selection of the architect.

6. With the aid of the citizen study recommendations, develop educational specifications for the architect. The administration, teaching and non-teaching staff, pupils and citizen committees should be given joint responsibility in this step.

7. Select site or sites. In doing this, consideration should be given to the survey recommendation and to the opinions of the architect.

8. Arrange for the preliminary drawings and specifications, together with an estimate of the cost. This is the first major assignment for the architect following the completions of the educational specifications.

9. Plan the publicity program. Here the various local planning committees should be used to as great advantage as possible.

10. Have the architect submit preliminary plans and cost estimates to board of education for consideration and approval.

11. Determine the financial program to be followed. Estimate the funds needed for the actual construction, equipment and landscaping. Set up a financial plan which includes the bond program, voting funds, sale of bonds, bond redemption program, insurance and other liabilities.

12. Select a date for a special election to approve the bond issue.

13. Following a favorable election, instruct the architect to proceed with the final drawings and specifications. Set a target date for their completion.

14. Approve the final drawings and specifications. Members of the study committee and other educational specialists may be utilized in the final review of plans -- prior to board acceptance.

15. With the guidance of the architect, call for bids on construction and equipment. A specified date must be set for receiving bids.

16. Let contracts following final review of all bids.

17. With the aid of the architect and legal adviser, prepare and execute contracts, time schedules, payments, performance and surety bonds.

18. Begin actual construction of the building.

19. Select furniture and equipment; install as construction conditions permit.

20. Clean school building and site. All landscaping and plantings should be be completed previous to occupancy.

21. When construction of the building is completed, have it inspected. This should involve the administration, board of education, architect and contractors.

22. Arrange for the school staff and student body to be instructed in the use and operation of the building. This phase of the program deserves increased attention if the features of a modern school plant are to be fully utilized and enjoyed.

23. Have the building formally dedicated and presented to the public. Here is a magnificent opportunity for a public relations effort to boost better education.

STATE DEPARTMENT OF EDUCATION

Tallahassee, Florida

ALTERNATIVE PLANS OF ORGANIZATION AND OPERATION OF GENERAL ADULT AND VOCATIONAL EDUCATIONAL SERVICES IN AREAS SERVED BY COMMUNITY JUNIOR COLLEGES

A statement for the guidance of local boards of public instruction prepared jointly by the Division of Vocational and Adult Education and the Division of Community Junior Colleges.

A junior college is defined (Section 228.14, Florida Statutes) as an institution which offers general education, terminal courses of a vocational and technical nature and courses for adults.

Since most counties offer at least some adult and vocational education as a part of their regular school programs, the addition of a junior college which is also concerned with these services makes it necessary that the county board adopt policies assigning specific responsibilities for these services to the various components of the public school systems under its jurisdiction.

As an aid to county boards and superintendents in developing such policies, the Division of Vocational and Adult Education and the Division of Community Junior Colleges have identified four general plans for the organization and operation of vocational and adult education in counties having junior colleges.

The initiation of any plan of operation will require the following:

A. The board and superintendents of cooperating counties must establish a policy of educational services for which the public school system including grades 1-12 and the community junior college is to be responsible.

B. The community junior college administration, faculty, and advisory committee must accept and support the role and responsibilities of the community junior college as envisaged in the plan of operation adopted.

C. When the community junior college assumes responsibility for programs of general adult and/or vocational education, the personnel who are assigned administrative or supervisory responsibilities for

these services must become familiar with the principles and procedures involved in the initiation and operation of such programs. Such individuals should establish working relationships and liaison procedures with appropriate divisions and sections of the State Department of Education, and avail themselves of opportunities made available for in-service orientation and education.

Following are listed the four organizational patterns, the pre-existent conditions at the county level which would make it feasible to adopt a particular pattern, and the conditions which will need to be met if the pattern is to operate efficiently. The most efficient implementation of any of these patterns is dependent upon appropriate policy decisions at the local and/or state levels.

PLAN I

If (A) there is real evidence of a philosophical commitment to the value and purposes of general adult and vocational-technical programs existing within the college administration and faculty, and

(B) there are educational needs not being met because of limited existing programs of general adult and/or vocational education; and/or there is good evidence to indicate that by administering these existing programs through the community junior college they will be expanded and improved to meet more adequately the needs of the community.

If this pattern is to operate efficiently, the following conditions must be met at the local level:

(A) A competent person qualified under existing regulations to head each of these programs, i.e., the general adult education (community services) program and the vocational-technical program, is placed on the staff of the college at a level comparable to that occupied by other major program heads, thus affording comparable opportunities and encouragement for the development of these programs within the college framework, and

(B) funds accruing to the county board of public instruction for the support of general adult and vocational-technical programs assigned to the community junior college are transferred to the budget of the college.

PLAN II

If (A) programs of general and/or vocational education as an existing

part of the county school system are serving the basic needs in these areas, and

(B) there exist unmet needs for certain types of offerings which it may be desirable to provide, and

(C) there is evidence of a genuine desire on the part of the college to serve the general adult and vocational needs not otherwise being met in the county, and

(D) the college has certain resources (physical plant, staff, organization, etc.) which may be used in serving general adult and vocational-technical needs, and there is reason to believe that such needs can better be met by the community junior college than by other agencies of the school system,

then it is recommended that the community junior colleges have responsibility for associate degree and certificate programs plus certain other offerings for adults not provided in the general adult or vocational-education program in the county school system.

If this pattern is to operate efficiently, the following conditions must be met at the local level:

(A) A coordinating committee is appointed to identify areas of responsibility of the community junior college and of other agencies for general adult and vocational education so that unwarranted duplication may be avoided. This committee should include representatives of the general adult education program, the vocational education program, the community junior college administration, and the county superintendent or a member of his staff, and

(B) A competent person qualified under existing regulations is appointed on the community junior college staff with responsibility for development and operation of such adult and/or vocational programs as may be the responsibility of the college; provided that, the certificate regulation may be waived upon recommendation of the coordinating committee when the responsibility assigned to the college in these areas is of such limited nature as to require only a minor part of the time of the administrator assigned to direct these programs, and

(C) funds accruing to the county board of public instruction for the support of general adult and vocational technical education programs assigned to the community junior college are transferred to the budget of the college.

PLAN III

If (A) excellent programs of general adult and/or vocational education are existing and serving basic needs in these areas, and

(B) there is widespread feeling in the community and among the college faculty that the college should offer only college level work or work leading to an associate degree, and

(C) there exist unmet needs for certain types of short courses, institutes, etc. similar to college credit courses which the community junior college by virtue of its physical and faculty resources is uniquely able to fill,

then it is recommended that the community junior colleges have responsibility only for associate degree and certificate programs plus certain short courses, institutes, etc. related to existing programs of the college and similar to college credit courses.

If this pattern is to operate efficiently, the following conditions must be met at the local level:

(A) a coordinating committee similar to that described in PLAN II above is appointed to make such decisions regarding program responsibility as are necessary to avoid unwarranted duplication of effort, to carry on a continuing review and study of the educational needs of adults in the area, to examine periodically the offerings of the various institutions and agencies, to encourage these institutions to meet the educational needs for which they are primarily responsible, and, when necessary to recommend changes in the assigned program and responsibilities among the institutions and programs.

PLAN IV

If (A) there exist strong general adult and vocational education programs, and the school administration and community are satisfied with these existing programs, and

(B) the prevailing philosophy and the expectation of the community is that the community junior college should offer only college credit programs,

then it is recommended that the community junior college have responsibility only for programs for which college credit is awarded.

IV. THE STUDENT

ESTIMATED NUMBERS OF NEW ENTRANTS INTO TECHNICIAN JOBS IN THE UNITED STATES ANNUALLY FROM ALL SOURCES, FOR SELECTED YEARS

Entry Source	1963		Average 1963-74	
	Number	%	Number	%
Post-secondary pre-employment technician training program	16,200	19.1	36,200	35.2
Programs under Manpower and Training Act	---	-	3,700	3.6
College degree in engineering, science or architecture	2,200	2.6	3,400	3.3
College degree in fields outside science and technology	1,100	1.3	1,600	1.6
Engineering college dropouts	2,000	2.4	2,700	2.6
Science college curriculum dropouts	800	1.0	1,300	1.3
Armed Forces training	1,000	1.2	1,300	1.3
Formal training within industry	21,600	25.4	19,400	18.9
Upgrading from skilled mechanic and other occupations	40,000	47.0	33,000	32.2
	84,900	100.0	102,600	100.0

Source: "Technician Manpower" Bureau of Labor Statistics, Dep't of Labor

The Bureau of Labor Statistics study considered the technical education programs offered in high schools, and has this to say concerning such programs:

> "Because of the relatively small number of advanced technical courses offered in these schools, graduates generally cannot enter technician jobs directly upon graduation. However, many graduates eventually enter technician jobs after receiving additional academic training from one of the other sources of technician training or after obtaining experience in related work. Therefore, pre-employment secondary school technician training plays a much more important role in the overall picture of technician education than is indicated by the number of graduates going directly into technician occupations."

ESTIMATED NUMBERS OF NEW ENTRANTS INTO TECHNICIAN JOBS IN THE UNITED STATES ANNUALLY FROM FORMAL EDUCATIONAL SOURCES, FOR SELECTED YEARS. (Data do not include entrants through upgrading)

Technician training program	1965		1974		Average 1963-1974	
	Number	%	Number	%	Number	%
Post-secondary pre employment technician training program	21,400	41.0	53,500	60.5	36,200	52.0
Programs under Manpower and Training Act	1,800	3.5	4,600	5.2	3,700	5.3
College degree in engineering, science or architecture	2,600	5.0	4,600	5.2	3,400	4.9
College degree--fields outside science and technology	1,300	2.5	2,100	2.4	1,600	2.3
Engineering college dropouts	2,000	3.8	3,200	3.6	2,700	3.9
Science college curriculum dropouts	900	1.7	1,800	2.0	1,300	1.9
Armed Forces training	1,300	2.5	1,400	1.6	1,300	1.9
Formal training within industry	20,800	40.0	17,300	19.5	19,400	27.9
TOTAL	52,100	100.0	88,500	100.0	69,600	100.0

Source: "Technician Manpower" Bureau of Labor Statistics, U.S. Dep't of Labor
Note that the numbers included in the above table do not include persons entering technician jobs through upgrading from skilled mechanic or other occupations.

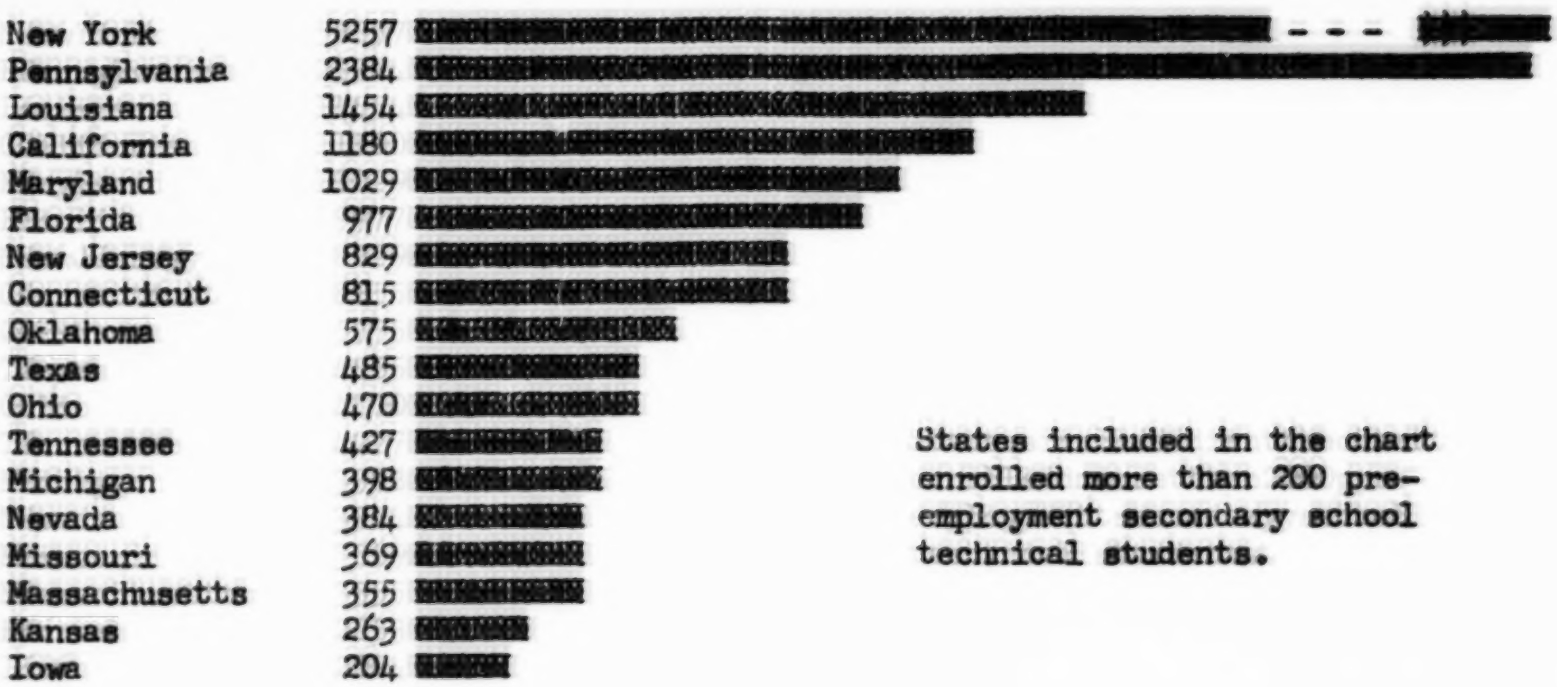
Sources under the title "Post-secondary preemployment technician training programs" include all types of 2-year technician training programs in technical institutes, community colleges, area vocational schools, and the like, and include private as well as public institutions.

ENROLLMENT IN TECHNICAL EDUCATION PROGRAMS IN THE UNITED STATES, BY STATES, BY TYPE OF PROGRAM - 1963

	Secondary	Post-secondary	Adult supple-mentary
Alabama	169	527	832
Alaska	-	-	-
Arizona	58	326	1379
Arkansas	14	-	682
California	1180	22919	41290
Colorado	-	505	1251
Connecticut	815	1469	3343
Delaware	76	-	308
Florida	977	2416	5102
Georgia	-	1070	542
Hawaii	-	92	294
Idaho	-	297	153
Illinois	122	1092	868
Indiana	39	104	1142
Iowa	204	411	1090
Kansas	263	1003	666
Kentucky	119	198	248
Louisiana	1454	252	914
Maine	-	91	28
Maryland	1029	272	81
Massachusetts	355	279	932
Michigan	398	4703	1191
Minnesota	-	719	4252
Mississippi	184	333	1692
Missouri	369	139	1262
Montana	103	95	271
Nebraska	49	433	-
Nevada	384	622	904
New Hampshire	-	-	987
New Jersey	829	489	5285
New Mexico	-	83	288
New York	5257	-	951
North Carolina	126	1525	1607
North Dakota	-	510	-
Ohio	470	697	-
Oklahoma	575	1604	1010
Oregon	-	965	84
Pennsylvania	2384	188	3668
Rhode Island	31	-	110
South Carolina	131	292	-
South Dakota	-	12	184
Tennessee	427	352	915
Texas	485	1669	6195
Utah	-	856	960
Vermont	67	151	312
Virginia	52	711	685
Washington	-	1780	11980
West Virginia	194	-	187
Wisconsin	-	3750	2433
Wyoming	-	16	-
Dist. of Columbia	173	-	41
Puerto Rico	-	209	108
TOTAL	19662	56226	108707

Source: U.S. Office of Education - Bulletin 80008-63 - Vocational and Technical Education

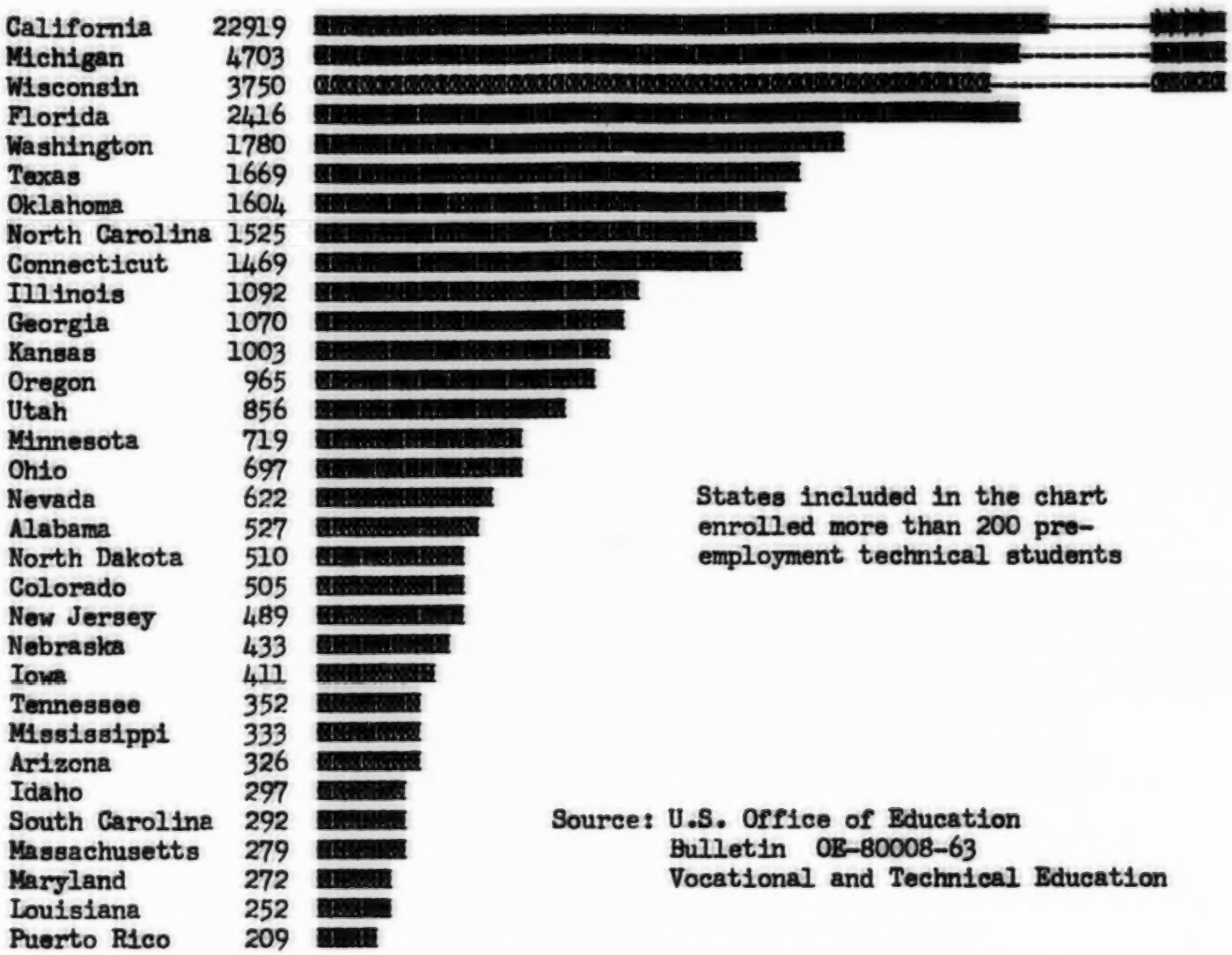
SECONDARY SCHOOL PREEMPLOYMENT TECHNICAL EDUCATION ENROLLMENTS IN TITLE III PROGRAMS IN THE UNITED STATES - 1963



States included in the chart enrolled more than 200 pre-employment secondary school technical students.

Source: U.S. Office of Education, Bulletin OE-80008-63
Vocational and Technical Education

POST-SECONDARY PREEMPLOYMENT TECHNICAL EDUCATION ENROLLMENTS IN TITLE III PROGRAMS IN THE UNITED STATES - 1963



States included in the chart enrolled more than 200 pre-employment technical students

Source: U.S. Office of Education
Bulletin OE-80008-63
Vocational and Technical Education

ESTIMATED PERCENTAGE DISTRIBUTION OF SOURCES OF NEW ENTRANTS INTO TECHNICIAN JOBS IN THE UNITED STATES - 1963-1974

Post-secondary preemployment technician training program	35.2%
Programs under Manpower and Training Act	3.6%
College degree in engineering, science or architecture	3.3%
College degree in fields outside science and technology	1.6%
Engineering college dropouts	2.6%
Science college curriculum dropouts	1.3%
Armed Forces training	1.3%
Formal training within industry	18.9%
Upgrading from skilled mechanic and other occupations	32.2%

Source: "Technician Manpower" - Bureau of Labor Statistics (manuscript) 1965

ESTIMATED EMPLOYMENT OF TECHNICIANS BY SEX AND OCCUPATION

1963

	All technicians	Drafts-men	Engineering & physical sci-ence technicians	Life science technicians	Other technicians
NUMBER:					
Total	844,800	232,000	439,000	58,100	115,700
Male	767,700	223,400	401,700	42,500	100,100
Female	77,100	8,600	37,300	15,600	15,600
PERCENTAGE:					
Male	90.9	96.3	91.5	73.2	86.5
Female	9.1	3.7	8.5	26.8	13.5

PERCENT FEMALE:

All technicians	9.1	[redacted]
Draftsmen	3.7	[redacted]
Engineering & physical science technicians	8.5	[redacted]
Life science technicians	26.8	[redacted]
Other technicians	13.5	[redacted]

Source: "Technician Manpower" - Bureau of Labor Statistics, 1966

LEVEL OF EDUCATION OF TECHNICIANS, BY OCCUPATION - 1963
Percentage

ALL TECHNICIANS	%
Less than high school	12.2
High school graduate	24.6
Some college 1/	53.1
Bachelor & bachelor plus	10.0

DRAFTSMEN	
Less than high school	6.7
High school graduate	21.6
Some college	64.5
Bachelor & bachelor plus	7.2

ENGINEERING & PHYSICAL SCIENCE TECHNICIANS	
Less than high school	14.5
High school graduate	25.8
Some college	51.0
Bachelor & bachelor plus	8.7

LIFE SCIENCE TECHNICIANS	
Less than high school	12.7
High school graduate	28.2
Some college	37.7
Bachelor & bachelor plus	20.9

OTHER TECHNICIANS	
Less than high school	14.5
High school graduate	24.5
Some college	46.0
Bachelor & bachelor plus	14.9

1/ Includes technicians without any degree and those with an associate degree but no bachelor's degree.

Source: "Technician Manpower" - Bureau of Labor Statistics, 1966

PERCENTAGE DISTRIBUTION OF TECHNICIANS BY OCCUPATIONAL FIELDS

NEW YORK STATE DEPARTMENT OF LABOR STUDY - 1962 (All technical occupations)

Technical occupation group (New York State)	Percent
Draftsmen	14.1
Structural design technicians & related specialists	1.7
Electro & mechanical engineering technicians	28.3
Mathematics technicians	0.6
Physical science technicians	6.0
Biological, medical, dental & related science technicians	17.1
Industrial engineering technicians & related specialists	4.7
Civil & construction technicians & specialists	9.1
Sales & service technicians	1.3
Technical writing & illustration specialists	2.0
Safety & sanitary inspectors & related specialists	2.7
Product testing & inspection specialists	5.4
Data-processing systems analysis & programming	4.1
Airway tower specialists & flight dispatchers	0.9
Broadcasting, recording & motion picture specialists	2.0
	100.0

BUREAU OF LABOR STATISTICS STUDY - 1963 (Engineering-related occupations)

Technical occupation group (United States)	Percent
Draftsmen	26.9
Engineering technicians	36.1
Chemical technicians	7.7
Physics technicians	1.3
Mathematics technicians	0.7
Other physical science technicians	5.7
Life science technicians	7.1
Other technicians	14.6
	100.0

When comparing the percentages in these two groups of data it is well to keep in mind that the New York study covered a much wider range of technical occupations than was encompassed in the BLS study.

NEW YORK STATE COMMUNITY COLLEGES - Enrollments, Fall 1963.

Number of community colleges: 25 (including 3 with only first-year enrollments)

Distribution of full-time enrollments by curriculum fields:

	Enrollment	Percent of Total
Medical & health curriculums	2734	12.0%
Advertising & business	6401	28.0
Industrial & technical	6364	28.0
Liberal arts	7282	31.8
Miscellaneous	68	.2
	22849	100.0

Distribution of enrollments by sex:

Male	14773	64.7%
Female	8076	35.3
	22849	100.0

Total full-time enrollment per college:

Maximum - - - - - - - - 2582
Minimum - - - - - - - - 73 (first year)
Median - - - - - - - - 962

Percentage of liberal arts students:

Maximum - - - - - - - - 77% (Onondaga)
Minimum - - - - - - - - 0 (Erie, Fashion Institute, and Mohawk Valley offer no transfer curriculums)
Mean - - - - - - - - - 31.8%

Enrollment first and second years (21 colleges with second year students):

First year - - - - - - - 14362
Second year - - - - - - 7773

Ratio second year to first year - - - 54.2%

Source: Compiled from data made available by State University of New York

NEW YORK STATE AGRICULTURAL AND TECHNICAL INSTITUTES
Enrollments, Fall 1963.

Number of institutes: 6

Distribution of fulltime enrollments by curriculum fields:

	Enrollment	Percent of Total
Agricultural curriculums	1415	21.8%
Medical and health	751	11.6
Advertising & business	2289	35.3
Industrial & technical	1840	28.4
Liberal arts	- -	-
Miscellaneous	192	2.9
	6487	100.0

Distribution of enrollments by sex:

Male - - - - - - - - - - - - - - - -	4391	67.7%
Female - - - - - - - - - - - - - - -	2096	32.3
	6487	100.0

Total full-time enrollment per institute:

Maximum - - - - - - - - 1875 (Farmingdale)
Minimum - - - - - - - - 684 (Delhi)
Median - - - - - - - - 874

Enrollment first and second years:

First year - - - - - 4090
Second year - - - - - 2397

Ratio second year to first year - - - 58.6%

Source: Compiled from data made available by State University of New York

COMMUNITY COLLEGES AND AGRICULTURAL AND TECHNICAL INSTITUTES IN NEW YORK STATE. Curriculum Offerings and Enrollments, by Institutions, Fall 1963.

Institution	Number of curriculums offered	Enrollment full-time students	Liberal arts enrollment Number	Liberal arts enrollment Percent of total
AGRICULTURAL & TECHNICAL INSTITUTES:				
Alfred	25	1491	—	—
Canton	12	689	—	—
Cobbleskil	12	871	—	—
Delhi	16	684	—	—
Farmingdale	27	1875	—	—
Morrisville	15	877	—	—
Total	49	6487	—	—
COMMUNITY COLLEGES:				
Adirondack	8	326	138	42%
Auburn	7	656	434	66
Bronx	10	1200	409	34
Broome	11	962	220	23
Corning	8	700	295	42
Dutchess	14	1022	405	40
Erie	11	1874	—	0
Fashion Institute	7	1336	—	0
Hudson Valley	16	1535	275	18
Jamestown	6	434	268	62
Jefferson(first year)	5	114	49	43
Mohawk Valley	8	922	—	0
Monroe	11	1220	717	59
Nassau	5	998	686	65
New York City	18	2582	—	0
Niagara (first year)	4	334	211	63
Onondaga	5	1060	820	77
Orange	12	1062	501	47
Queensborough	5	828	379	46
Rockland	6	503	238	47
Staten Island	6	741	268	36
Suffolk	9	1193	640	54
Sullivan(first year)	3	73	35	48
Ulster (first year)	5	193	97	50
Westchester	12	981	197	20
Total - Community Colleges	25	22849	7282	32%

Source: Compiled from data made available by State University of New York

ENROLLMENTS IN PREPARATORY VOCATIONAL-TECHNICAL PROGRAMS (TITLE III), IN SELECTED STATES, 1962-1963.

State	Enrollment			Non-agricultural employment - 1963 (thousands)	Total enrollment per 1000 in non-agricultural employment
	Secondary	Post-secondary	Total		
California	1,180	22,919	24,099	5,390	4.47
Connecticut	915	1,469	2,384	963	2.48
Florida	977	2,416	3,393	1,404	2.42
Georgia	-	1,070	1,070	1,131	.95
Illinois	122	1,092	1,214	3,605	.34
Massachusetts	355	279	634	1,952	.33
Michigan	398	4,703	5,101	2,375	2,15
New Jersey	829	489	1,318	2,096	.63
New York	5,257	-	5,257	6,298	.84
North Carolina	126	1,525	1,651	1,288	1.28
Ohio	470	697	1,167	3,126	.37
Oklahoma	575	1,604	2,179	606	3.60
Oregon	-	965	965	545	1.77
Pennsylvania	2,384	188	2,572	3,689	.70
Rhode Island	31	-	31	293	.11
South Carolina	131	292	423	617	.69
Texas	485	1,669	2,154	2,691	.80
Virginia	52	711	763	1,107	.69
Washington	-	1,780	1,780	850	2.10
Wisconsin	-	3,750	3,750	1,231	3.05
Total United States	19,662	56,226	75,888	56,283	1.35

Total males enrolled - - 72,879
" females " - - 3,009 or 4% of total

Source: Enrollment data - Vocational and Technical Education. U.S. Office of Education, Bulletin OE-80008-63 1964.
Employment data - Manpower Report of the President/ U.S. Department of Labor.

V. RATIONALE AND NEED

A PROCEDURE FOR MAKING A ROUGH ESTIMATE OF NUMBERS OF TECHNICIANS REQUIRED, ON A STATE-WIDE BASIS, WHEN ACCURATE SURVEY DATA ARE NOT AVAILABLE, TOGETHER WITH ESTIMATED NUMBERS OF STUDENTS REQUIRED TO FILL THE NEEDS.

It is often desired to arrive at a rough estimate of technician needs in a state or other area when data from specific surveys are not available. The following procedure might be utilized, if data on engineers are available from the 1960 Census. Several assumptions are required, and the validity of the end results will depend upon the accuracy of the assumptions. CAUTION IS SUGGESTED IN THE USE OF THE FINDINGS.

The recent Bureau of Labor Statistics study on "Technician Manpower; Requirements, Resources and Training Needs" (available to the writer in manuscript form) provides extensive data on technician needs and resources in the United States. Ratios found in that study are utilized here, in suggesting how estimates can be made for a single State. Certain assumptions made are as follows:

1. That the number of engineers reported in the 1960 Census for the State embraces the same types of engineers as recorded in the B.L.S. study.
2. That the ratio of engineering technicians to engineers as shown in the national study also hold for the State.
3. That the projected growth in the number of engineers follows the general pattern projected for professional growth.
4. That the sources of supply of technicians for the State follow the same pattern as the national study.
5. That attrition rates for the State for technicians are the same as nationally.

The procedure suggested is as follows:

	As applied to New Jersey
a) Number of engineers in the State according to 1960 Census --	46,381
b) Number of engineering technicians in the State in 1960, based upon .91 technicians per engineer - - - - - - - - - -	42,184
c) Number of engineers - 1970 - based upon projected growth of 62% for 10-year period by N.J. Bureau of Employment Security -	75,160
d) Number of technicians in 1970 (.91 x engineers) - - - - - - -	68,270
e) Technician growth in number of jobs - - - - - - - - - - - - - -	26,086
f) Numbers of new technicians needed because of attrition (1.2% per year for death & retirement; 3.0% for movement into other occupational fields — 4.2% total) - - - - - - -	17,718
g) Total technicians needed for 10-year period - - - - - - - - - -	43,804
h) Average number needed per year as new entrants - - - - - - - -	4,380

The B.L.S. study indicates that 35.2 percent of the entrants into technician occupations from all sources come from 2-year post-secondary formal technician training programs.

35.2 percent of the 4,380 technicians needed annually equals 1,540 technicians to be supplied by the post-secondary schools.

(The B.L.S. study indicates that the numbers of technicians entering employment directly from high school technical programs is negligible, in the nation as a whole.)

One-third of the total number of students enrolled in full-time 2-year programs can be expected to graduate each year.

65 percent of the graduates enter technician jobs directly from school.

Combining these ratios gives approximately one-fifth of the total number of students enrolled as entering technician jobs annually.

To provide 1540 technicians annually from post-secondary 2-year programs thus requires a total enrollment of 7700 students on the average for the 1960-1970 period.

Data from the B.L.S. study show a national average of some 36,200 technicians per year entering the labor market, and the projected number for 1974 is 53,500 technicians.

The total enrollment needed in two-year post-secondary schools for 1974 — assuming the same proportion of the total supplied by these schools as for the 1960-70 period — would amount to

$$\frac{53,500}{36,200} \quad \text{or 11,400 full time students}$$

The B.L.S. study predicts increasing proportions of the total supply of technicians in the years ahead to come from organized training programs, hence the enrollment needed to meet the demands may be estimated somewhat higher than the above.

Lynn A. Emerson
April, 1966

VI. PROGRAMS AND CURRICULUM

CURRICULUM DESIGN

IN

TECHNICAL EDUCATION

By

Maurice W. Roney
Director, School of Industrial Education

CURRICULUM DESIGN IN TECHNICAL EDUCATION

The educational requirements of semi-professional technical occupations present a new challenge in curriculum design for the junior college. The pioneering effort of technical institutes and the growing support of professional engineering societies have focused attention upon the need to provide more and better educational programs designed to prepare supporting personnel for engineers and scientists. The technical skills needed for these rapidly emerging occupations are peculiarly suited to the type of educational service that the two-year college can provide. Nevertheless, there are few indications that any consistent pattern of curriculum design has evolved from the work of the comparatively few two-year schools offering technical curricula. The junior college, as Henninger so aptly puts it, "is at the threshold of a really significant participation in technical education."[1] With Federal support already available through the National Defense Education Act (176 junior colleges participated in 1960-61) and with additional support legislation being considered, this area of educational services deserves careful study. Programs are in operation. How have they been developed? What can be considered a satisfactory standard for such programs? Where have the institutions now conducting technical programs turned for information in the planning and development of this form of educational service.

Technical education, like many other fields of education, suffers from a lack of definitive research. It is paradoxial, in an age of technology where new scientific achievements are becoming almost commonplace, that we have no real curriculum theories in education. For a true theory must be based on established facts and we do not have enough facts in education on which to base a theory. Einstein's theory of mass-energy equivalence is a classic example of a pure theory. It consisted of known facts, meticulously assembled, carefully arranged in a new combination, and with a resultant prediction. His theory was capable of being tested and the results could be compared with the prediction. The contrast in education is sharp. We do not have comparable theories in education because we start with opinions--not facts. Any combination of opinions results in a new opinion--not a theory. We have scientific data that enables us to put a man in exact orbit around the earth and to return him with still more accumulated data, but we do not have educational data that can be used to formulate a basic curriculum for the preparation of competent technicians--or for that matter good citizens.

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1. G. Ross, Henninger, The Technical Institute in America, (1959, New York: McGraw-Hill Book Company, Inc.) p. 5

PROBLEMS IN CURRICULUM DESIGN

Curriculum design in higher education has too often been largely curriculum construction--an assembly job. The procedure has been to start the process by selecting a core of course offerings available in an institution and putting them together in the traditional sequences. Usually this core will consist of traditional general education courses. With this as a base the remainder of the curriculum is devoted to the field of specialization, making certain, of course, not to deviate appreciably from all similar curricula. Furthermore, a multitude of other factors will influence the form and content of any new curriculum. Economic considerations, staff competencies (and prejudices), real and fancied student abilities and interests, instructional facility limitations, scheduling conveniences, and, all too often, just plain reactionary attitudes, all militate against realistic curriculum design.

In the junior college, real curriculum design is further restricted by an overriding concern for academic respectability. One of the arguments advanced for using existing courses rather than designing new ones is based on this concern. The idea is to avoid, wherever possible, the taint of specialization. Courses must be pure. Mathematics must be algebra, trigonometry, or calculus; physics must be traditional physics, not applied mechanics; and chemistry must be general chemistry rather than industrial chemistry. Except in terminal courses. Here it is customary to go to the other extreme, carefully segregating these courses (and ultimately, of course, the students) by the use of adjectives such as "practical", "applied", or "elementary". The idea is to be certain, at all costs, to differentiate between the academic and the practical.

Disturbing as it is for those who like things neat, orderly, and traditional, technical programs cannot operate under this outdated educational philosophy. For the inevitable consequence of educational snobbery is a segregation of students on the basis of academic ability. When this occurs the technical program cannot operate, simply because it must inevitably deterioriate until it has no appeal to able students with well-identified interests. It will then attract only those students who are either not willing or not able to do the work required in college level education. A curriculum designed with this as a guiding philosophy may serve an educational purpose, but it cannot be technical.

One of the most significant features of technical education is its appeal to the individual who is intensely interested in a specialized field of study. This person comes to the technical program because of its positive values--not because he cannot study in some other field. He is, in a sense, a fugitive from general education; tired of taking "subjects"; and anxious to get his teeth into something interesting. He comes to learn electronics, or metallurgy, or industrial chemistry, not more of the same things he studied in high school. Furthermore, the typical student in a technical program is likely to be more mature. He may very well have worked for a year or two since leaving high school. It is not unusual either to find individuals with one or more years of college credit enrolling in these special purpose curricula.

A First Principle in Technical Curriculum Design.

If the technical curriculum is to attract and hold the type of students that have been described--and these will be some of the very best--it must include in the first term a substantial introduction to the specialized field of study. If the first term consists only of general education subjects--mathematics, English, and social studies--it will hold very little interest for many of the most capable students. In many technical curricula, courses in the field of specialization make up from one-third to one-half of the first term. Mathematics and communications, being tool subjects are also introduced in the first term which means that social sciences, humanities, and physical sciences are deferred to the following terms.

Another important advantage is obtained by introducing technical courses in the first term. It is possible, by this design, to obtain depth in the specialized field of study in the final stages of the program. In the four-semester program, for example, if the introduction to the specialized field is deferred, even for one term, it is not possible to cover both the range of basic principles and the more advanced concepts needed for success as a technician. In this connection the so-called "core curriculum" in which students in several technologies take a common first term can be dangerously deceptive. Economically, the core curriculum is an attractive compromise. But like many such compromises in education, it sacrifices quality for expediency. The same dangers exist in trying to meet both transfer credit and occupational objectives in a single curriculum, a procedure that is often recommended for junior colleges by those who like to have their cake and eat it too. This curriculum compromise usually results in a fuzzy-objective program. It cannot be overemphasized that capable students will not be attracted to any program that gives secondary consideration to their occupational objectives. In contrast, it is a matter of record that a strong, well-planned curriculum, in which the technology is the central focus from the first day to the last, can attract and hold capable students. Such a curriculum can be extremely rigorous, as in fact it must be if it is to accomplish its purpose.

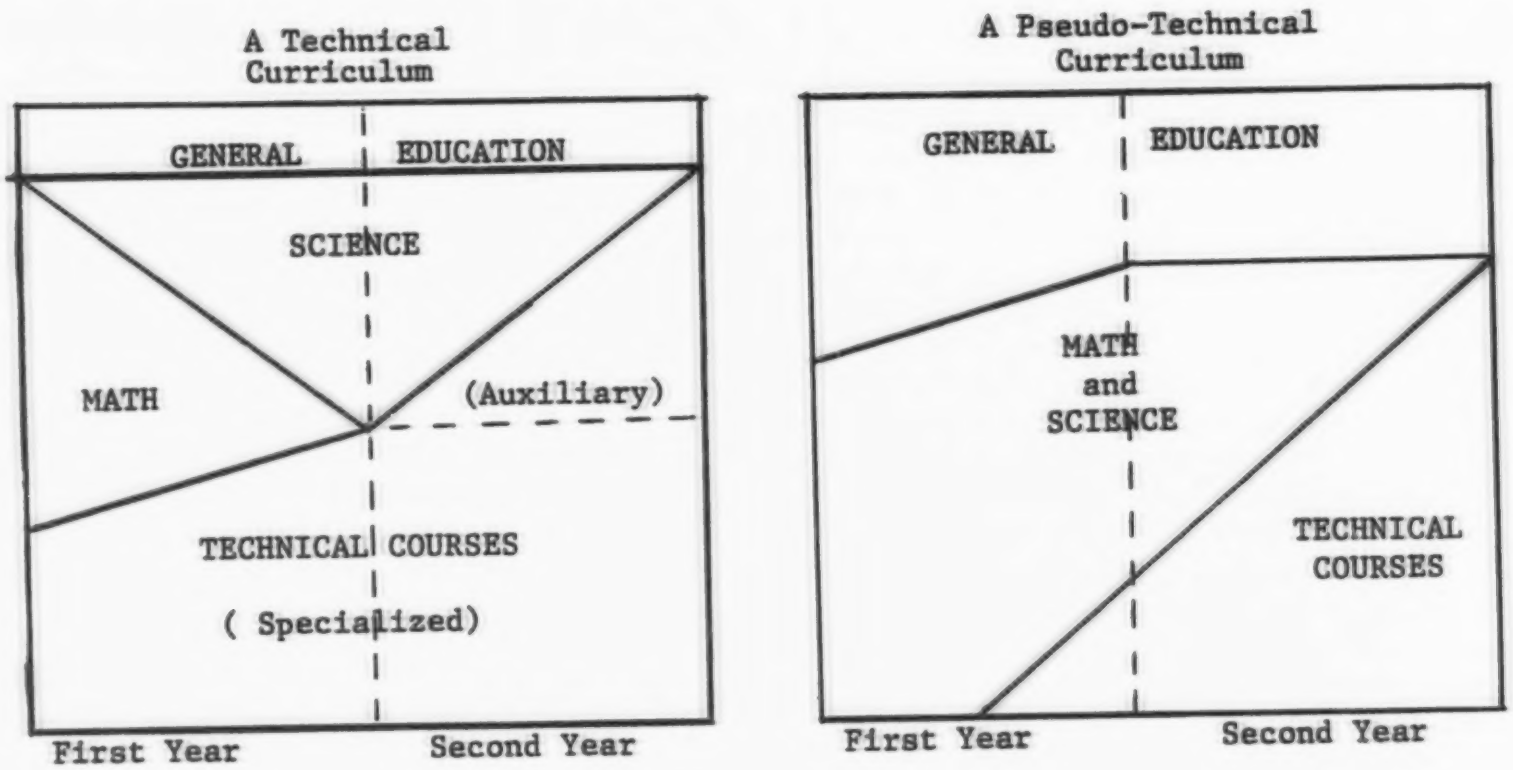
A second major consideration in the design of technical curricula is the correlation of course work in mathematics, science, and technology. A number of studies have been made to determine the relative emphasis on mathematics in technical institute curricula. This emphasis is usually measured by the credit hour requirements in mathematics. But the amount of mathematics shown in formal courses is not a true measure of the mathematical ability needed for the curriculum. True, the content of courses in mathematics should identify the concepts, formulas, and constructs that are needed. But the technical courses must provide the applications. This means that the content of technical courses must be tailored to parallel the student's progress in mathematics. With this arrangement the student has the advantage of formal mathematics instruction plus the reinforcement of learning that comes from interesting applications of mathematics in technical courses.

Science principles can be treated in somewhat the same manner, although it is not always possible to coordinate science courses with technical courses. The important consideration here is mathematics again. In general, science courses should be scheduled during the second and third terms of a four-term

curriculum. With this plan the student has one full term of mathematics preceding the study in science and takes at least one course concurrently. The choice of which science topics to schedule first in the curriculum can be made on the basis of the need for principles of electricity, mechanics, chemistry, et al, in the technical study.

To illustrate the two factors of curriculum design that have been introduced--early introduction of technical study and coordination of mathematics, science, and technical study--a graphic illustration may be helpful.

THE DISTRIBUTION OF SUBJECT MATTER IN TWO TYPES
OF TWO-YEAR POST-HIGH SCHOOL CURRICULA



The two diagrams illustrate a basic difference that exist between two types of curricula: technical curricula, and what I have chosen to call pseudo-technical curricula. In these diagrams the areas shown represent subject matter emphasis starting at the left with the first term and moving to the right through the two-year program. The first curriculum, represented by Figure 1, is a fair representation of the course organization in a technical institute type curriculum. It contains the two basic elements of strength that have been discussed. Specialized technical course work is introduced in the first term and constitutes almost 50% of the curriculum with mathematics and science courses carefully coordinated. The slanting lines indicate the change in emphasis on subjects in scheduled classes. Mathematics, for example, begins in the first term as a discrete subject but it is also an integral part of both technical and science courses. It is possible with this design to obtain effective integration of subject matter.

Figure 2 represents a compromise between the objectives of a technical curriculum and the forces that impinge on the institution to design all curricula as nearly alike as possible. Approximately two-thirds of the course work is in mathematics, science, and general education. Technical courses are concentrated in the second year. This type of curriculum has neither the appeal to students nor the effectiveness of an integrated curriculum. Its primary appeal is to administrators, since roughly two-thirds of the course work can be "taken from stock" in most institutions. A curriculum of the type represented by Figure 2 lacks the positive approach that is necessary to attract the really able student interested in a specialized field of study. It may, and very probably will, suffer from a lack of unity, cohesion, and direction. By contrast, the integrated curriculum shown in Figure 1 has a strong sense of direction. Students are normally under the guidance of technical specialists from the very first day and the interrelationship of all subjects and courses can be made apparent.

A well-designed technical curriculum will also provide numerous opportunities for individual student performance. Part of this objective is achieved by the proper use of tests and written technical reports. Good teaching will provide many opportunities for individual growth and development as in any educational program. Design courses can and should incorporate individual problem-solving assignments. Instructional material for laboratory work in advanced courses should identify only the parameters of problems, shifting to the student more of the responsibility for planning, evaluating, and summarizing the work. Further than this, however, the curriculum should include specific requirements for problems which require investigating, planning, designing, and reporting functions. In the final term of the curriculum, one course can be devoted entirely to individual design problems. In a course of this type the student should be responsible for the selection of a problem, a review of relevant published materials, and a well-organized report of the work done and the results achieved in the solution of the problem. In a very real way, the performance of students in this course can serve to evaluate both the student and the instructional program.

Student Work Load

One of the critical controlling factors in technical curriculum design is the student work-load. With the heavy emphasis on technical knowledge, rather than manual skills, much of the learning is accomplished outside of the scheduled class and laboratory periods. Class preparation, drill, report writing, and review are real elements of the curriculum and should be provided for as consistently and carefully as all other elements. A very common mistake in technical curriculum planning is to schedule the student heavily in class and laboratory courses without giving due consideration to his need for outside study time. If there is such a thing as an optimum class and laboratory load it would appear to be approximately twenty-eight hours per week. The nature of technical study is such that a great deal of reading and problem work must be done outside of class and laboratory. While the amount of outside time will vary with the type of course, a rule of thumb that can be used in curriculum design, is to allow for two hours of outside study for each hour of scheduled class time. Obviously, this rule will not always hold. For example, some laboratory courses require outside work, such as library research and report writing. The important thing in all of this is the total workload. If the student has a schedule of 12 class and 16 laboratory hours per week, he will have a total workload of 12 class-24 outside study--and 16 laboratory for a

total of 52 hours per week. Not many students will spend more than this amount of time on school work and those who must work at outside jobs to stay in school will be pressed with this amount.

The number of courses in each term must also be limited. If the student must prepare work in more than five subjects during any one term, he is unnecessarily handicapped. Three 4-credit courses carry the same total credit as six 2-credit courses but the differences between these two schedules can be extreme, as anyone who has taken 2-credit courses in college can testify.

In summary, the curriculum design principles that I am suggesting can be stated in six general rules:

1. The curriculum should have at least 30 credit hours of specialized course work in the field of specialization and from 15 to 20 credit hours of mathematics and science.
2. The technical specialty should be introduced in the first term by one or two major courses.
3. Mathematics and science courses should be coordinated with technical courses whenever possible, to introduce concepts as they are needed.
4. Auxiliary technical courses should be included to broaden the student's understanding of the technology.
5. Provision should be made for either individual or small group problem work during the final term to promote independent thinking and to test each individual's comprehension of the total curriculum content.
6. The total class and laboratory load for students should not exceed 30 hours per week and should not include more than 5 courses requiring extensive outside preparation.

The curriculum design principles outlined here are admittedly opinions. As I have indicated, research in this area of education is virtually nonexistent. Nevertheless, there is sufficient evidence to indicate that technical institutes with curricula that follow quite closely this design and this guiding philosophy have consistently attracted good students and produced outstanding graduates. They have been able to do this without the status appeal of a baccalaureate degree--an extremely significant and, in my opinion, a conclusive point.

MATHEMATICS AND SCIENCE
in
TECHNICAL EDUCATION

One of the distinguishing characteristics of technical education is its base of mathematics and science. It is this base that enables a student of technology to expand his knowledge, to transfer ideas from one technical application to another, and to continue study in his chosen field after graduation.

Technical study at any level requires a foundation of mathematics and science. Mathematics is a basic tool of learning from the most elementary stages of a high school physics course to post-doctoral study in some esoteric scientific field. The physical sciences are no less important. Without a knowledge of scientific principles, it is impossible to study with any depth in a specialized field of technology. Our total scientific knowledge is said to be doubling every ten years and technology has become the framework of our economic and social structure. In the few short years since Sputnik I, even the lay public has come to recognize the significance of science and technology in protecting and improving our way of life.

Modern technology, based as it is on change, has little in common with traditional ways of doing things. It would be unrealistic to expect that traditional ways of teaching mathematics and science would be adequate for the great variety of educational programs that relate in one way or another to technology. Instruction in mathematics and the sciences is undergoing changes at all levels of education. The School Mathematics Study Group has developed some revolutionary methods of instruction, particularly in the field of secondary school mathematics. Many of the cherished traditions of mathematics teachers are threatened by the research being done in this field. A revolution is also budding in the field of science education. New materials and new techniques for teaching the physical sciences show promise of displacing some of the built-in mystery that has characterized this instruction for many years. One example of this is the Richmond Plan, developed in the high schools of the San Francisco Bay Area. Science, shop, and mathematics have been tied together in an integrated program. This project, aimed at salvaging able students who through a lack of interest are potential dropouts, has shown real promise.

The problem of providing effective and efficient mathematics and science instruction is especially acute in the two-year post-high school technology curriculum. The post-high school program is a unique educational package. It borrows heavily from higher education for its content and from vocational education for its objectives. But its curriculum and its instructional processes are strictly its own. Neither the college nor the vocational school provide a pattern for the course work in a technical curriculum.

Prepared for the National Clinic on Technical Education, Charlotte, North Carolina, October 39 by Maurice W. Roney, Director, School of Industrial Education, Oklahoma State University, Stillwater, Oklahoma.

The traditional courses of a multipurpose university, college, or junior college do not provide the kind of mathematics and science instruction required in a technical curriculum. Colleges usually operate on the "goods-by-the-yard" system. Standardized mathematics and science courses are pulled from the shelf, supermarket style. While this kind of curriculum design may be satisfactory for the four-year college curriculum, it is highly unsatisfactory for technical programs. For one thing, the structure of a college curriculum is entirely different from that of a technical curriculum. In engineering, for example, mathematics and science courses make up the first half of the study program. The student is given an extensive program of mathematics, physics, and chemistry before he enters upon any study of a specialized nature. A two-year technology curriculum cannot afford the luxury of this kind of a plan. It is necessary, for a number of well-established reasons, to introduce the technical study in the first term of a technical program. Concurrent courses in mathematics and science must be coordinated with the technical study. For this reason, if for no other, mathematics and science courses designed for an engineering curriculum are inefficient in a technical curriculum.

Neither do the traditional methods of trade training provide the answer. Trade training normally requires a person-to-person relationship, with a single instructor responsible for most, if not all, of the training program. Skills and knowledge are integrated by the trade instructor who relates mathematics and science directly to the needs of the trade. Technical training requires an entirely different approach. First of all, the instruction is a team job. The subject matter, in any technology, is far too broad to be taught by any one person. Mathematics, physical sciences, and technical courses are frequently taught by separate instructors, each of whom is a specialist in his field. Secondly, the mathematics and sciences of the technical curriculum are not job skills, per se; they are learning skills. The content of mathematics and science courses is determined by the specific needs of technical courses. The mathematics needed, for example, in a materials testing course may be well beyond the mathematics used by the graduate technician in his job functions. These three factors; the separation of mathematics and science into discrete courses, the co-ordination of course work required in the tight vertical structure of the two-year curriculum, and the emphasis on principles rather than job skills, put special requirements on the math and science program in technical curriculums.

As a means of presenting the significant points of conclusion, I will describe the mathematics and science program in a typical school. This hypothetical school offers several two-year post-high school technology curriculums. It has an enrollment large enough to provide flexibility of schedules. The school has its own instructional staff. Entering students are average in ability based on national norms for college freshmen . Entrance requirements include two years of high school mathematics.

The mathematics and science program in this school has the following characteristics:

The mathematics program consists of algebra, trigonometry, and selected topics of analytic geometry and calculus. Two courses are required, a first term course in algebra and trigonometry and a second term course which includes algebra, trigonometry, and selected topics in analytic geometry and calculus.

Algebra and trigonometry are functional in nature. Instruction is aimed at developing practical problem-solving skills. Emphasis is on the use of formula - not the mechanics of formula derivation.

Analytic geometry and calculus are introduced by special applications. The purpose is to introduce the fundamental concepts of higher mathematics. Problem-solving using these concepts is limited.

Because the needs of individual curriculums differ, separate sections in mathematics are set up for students in each curriculum. The topics covered in algebra and trigonometry courses are much the same as those included in any college-level courses in these subjects. Important differences appear in the sequence or order in which topics are studied and in the selection of topics for special emphasis. Both the order in which topics are taught and the emphasis given to each topic are determined by the needs of each curriculum.

Coordination of mathematics instruction with technical courses is accomplished in two ways: (1) Mathematics courses give special emphasis to the topics being used in technical courses. Technical courses provide the applications of mathematics being taught in mathematics courses. (2) Instructors in technical courses review or reteach the mathematics needed in these courses. Up to twenty percent of the class time is used for this purpose.

The physical science part of the technical program consists of selected topics in physics and one general chemistry course. Physics-mechanics and physics-electricity are required in all technical curriculums. Physics courses have a base of mathematics which include algebra and plane trigonometry. Higher mathematics is not used.

The order of priority for physics courses varies by curriculums. For example, physics-mechanics is the prerequisite for technical courses in mechanical technology and civil or construction technology. Physics-electricity is an auxiliary science in these curriculums and is scheduled without particular reference to technical courses.

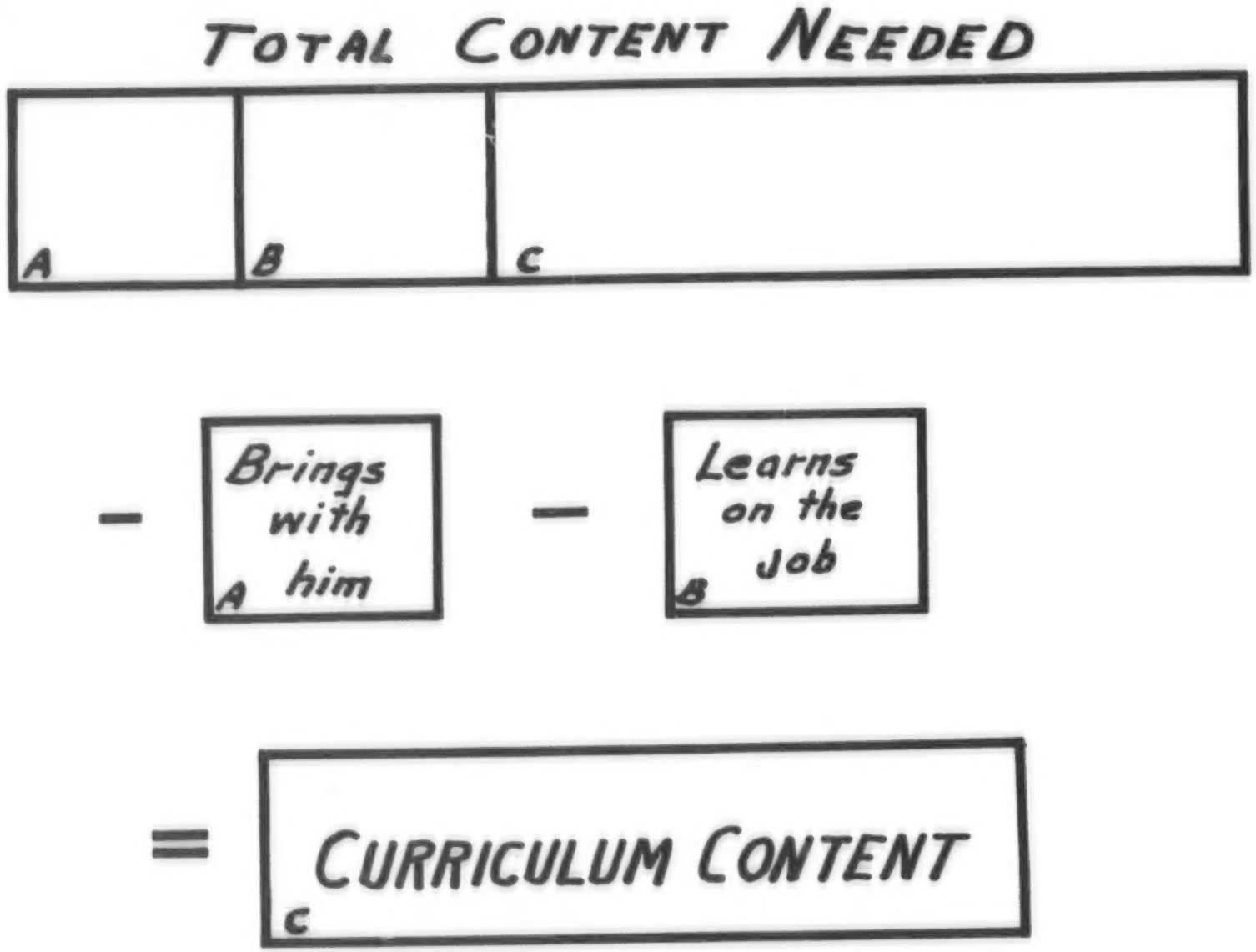
Mechanics and electricity are given special emphasis by a liberal use of applications. Auxiliary topics such as heat, sound and light are introduced but are given less emphasis.

All instructors of mathematics and science have technical education and experience.

The foregoing description is necessarily oversimplified. Many philosophical and practical problems arise in the process of developing a program in such broad and comprehensive fields as mathematics and science. There are areas of disagreement, for example, between advocates of pure mathematics and proponents of applied mathematics. In some schools, no discrete mathematics courses are included in technology curriculums; the mathematics is taught "as needed". By way of contrast, some schools will require a "common core" of mathematics for several curriculums. A similar variation is found with respect to the physical sciences in technology

curriculums. Nevertheless, the program I have described is representative of on-going programs in successful schools.

This is not to say that what is being done now will be entirely adequate for the future. What can be said, however, is that the experiences of technical educators have shown that some of the traditional methods of teaching mathematics and science are not satisfactory for technical education. Technical education has a form and character of its own. Its genesis may lead some to call it a hybrid form of education - a strange mixture of college and vocational education. If this kind of a mixture is necessary, so be it. It will be infinitely better than a failure to provide good educational services by refusing to change from our traditional ways of doing things.


TOTAL CONTENT NEEDED
A
B
C
Brings with him
A
Learns on the job
B
CURRICULUM CONTENT
C

PRINCIPLES UNDERLYING CURRICULUMS

TITLE EASILY UNDERSTOOD

CONTENT RANGE SUITABLE FOR 2-YR PROGRAM

CONTENT LENDS ITSELF TO SCHOOL INSTRUCTION

SUBSTANTIAL PORTION OF CONTENT IS TECHNICAL

APPROPRIATE DIFFICULTY LEVEL

FEASIBLE TO SECURE NEEDED EQUIPMENT

BUILT AROUND ESTABLISHED ENTRANCE REQ'TS

PROBLEMS ENCOUNTERED
IN CURRICULUM PLANNING

"DUAL PURPOSE" CURRICULUMS

GENERAL ENGINEERING CURRICULUM

USING EXISTING COURSES THAT DON'T FIT

PATTERNING IT AFTER THE SKILLED CRAFT CURRICULUM.

QUALITY STANDARDS TOO LOW

PROCEDURES IN CURRICULUM DEVELOPMENT

Setting up Objectives

Picking Job Clusters

Job Cluster Analysis

Setting Entrance Requirements

Curriculum Controls

Grouping Content into Areas

Tentative Course Titles

Allocating Content among Courses

Type of Instruction for Courses

Determine Course Lengths

Instructional Order of Courses

Course Allocation by Terms

Making Tentative Time Schedule

Revise courses, sequences, etc as needed.

CURRICULUM CONTROLS

TOTAL PERMISSIBLE LENGTH OF PROGRAM
TERMS OR SEMESTERS
COURSES REQUIRED OF ALL STUDENTS
GENERAL EDUCATION MANDATES -- Total Hours
PRACTICE CONCERNING ELECTIVES
ENTRANCE REQUIREMENTS OF INSTITUTION AS A WHOLE
TYPE OF SCHEDULE - Term length, periods per day, etc.
DIPLOMA OR ASSOCIATE DEGREE REQUIREMENTS
POTENTIAL FOR SECURING NEEDED EQUIPMENT

NUMBERS OF INSTITUTIONS OFFERING TECHNICIAN TRAINING PROGRAMS, BY STATE, BY TYPE

Listed in Technician Education Yearbook, 1965-66

	College or university	Community college	Technical institute	Area Voc'l school	High school	Total
Alabama	1	-	3	9	4	17
Alaska	-	-	-	-	-	-
Arizona	2	3	-	-	2	7
Arkansas	1	1	-	2	4	8
California	-	68	4	13	10	95
Colorado	3	6	-	2	1	12
Connecticut	-	1	5	11	-	17
Delaware	-	-	-	2	1	3
Florida	1	23	5	7	7	43
Georgia	3	2	1	22	-	28
Hawaii	1	-	2	-	-	3
Idaho	1	3	-	-	1	5
Illinois	3	18	9	-	7	37
Indiana	7	-	3	4	3	17
Iowa	1	8	-	6	2	17
Kansas	4	4	-	2	3	13
Kentucky	2	-	1	10	-	13
Louisiana	-	-	1	16	-	17
Maine	1	-	1	-	-	2
Maryland	-	7	1	2	3	13
Massachusetts	1	4	4	15	-	24
Michigan	6	15	4	1	8	34
Minnesota	-	2	-	16	-	18
Mississippi	-	11	-	-	3	14
Missouri	3	3	2	7	9	24
Montana	1	-	-	1	2	4
Nebraska	-	-	-	1	2	3
Nevada	1	-	-	2	3	6
New Hampshire	-	1	2	1	1	5
New Jersey	1	1	8	14	-	24
New Mexico	4	-	-	-	3	7
New York	-	22	5	3	21	51
North Carolina	1	5	11	5	-	22
North Dakota	1	-	-	-	-	1
Ohio	6	2	14	-	6	28

(continued)

Institutions offering technician training programs - continued.

	College or university	Community college	Technical Institute	Area Voc'l school	High school	Total
Oklahoma	5	8	-	-	1	14
Oregon	-	10	3	-	-	13
Pennsylvania	17	6	9	6	14	52
Rhode Island	-	1	2	1	-	4
South Carolina	-	-	-	6	2	8
South Dakota	1	1	-	-	1	3
Tennessee	-	-	2	1	10	13
Texas	6	28	-	-	5	39
Utah	6	-	-	2	-	8
Vermont	-	-	1	1	3	5
Virginia	1	1	2	2	3	9
Washington	-	14	-	6	-	20
West Virginia	3	-	-	1	6	10
Wisconsin	1	-	4	20	-	25
Wyoming	-	1	-	-	-	1
Dist. of Columbia	-	-	1	-	1	2
Puerto Rico	1	—	1	-	-	2
TOTAL	97	280	111	220	152	860

Rank order: States with 20 or more programs

California	95
Pennsylvania	52
New York	51
Florida	43
Texas	39
Illinois	37
Michigan	34
Georgia	28
Ohio	28
Wisconsin	25
Massachusetts	24
Missouri	24
New Jersey	24
North Carolina	22
Washington	20

CURRICULUM OFFERINGS AND ENROLLMENTS FOR ASSOCIATE DEGREES IN COMMUNITY COLLEGES AND TECHNICAL INSTITUTES IN NEW YORK STATE, FALL 1963

(The 6 agricultural and technical institutes enrolled 6,339 students, the 25 community colleges enrolled 22,638. Of the total of 28,977 students enrolled, 21,695 were in occupational curriculums, 7,282 were in "transfer" curriculums.)

Curriculum	Number of schools offering curriculums	Enrollment
AGRICULTURE		
Agricultural business	4	109
Agricultural engineering	4	131
Agriculture, general	4	207
Agronomy	4	90
Agricultural science	1	13
Animal husbandry	5	340
Biological technology	1	72
Dairy industry	3	39
Dairy technology	2	31
Floriculture production	3	75
Flower shop management	1	7
Food processing technology	2	146
Greenhouse management	1	7
Landscape development	1	20
Nursery management	1	6
Ornamental horticulture	2	117
Poultry science	1	5
FOOD, MEDICAL AND HEALTH		
Culinary arts - hotel	1	47
Dental hygiene	6	702
Dental laboratory technology	3	197
Food service administration	2	272
Institutional foods	2	112
Medical laboratory technology	8	529
Medical office assistant	5	445
Nursing (R.N.)	13	967
Ophthalmic dispensing	2	104
Restaurant management	3	110
BUSINESS		
Accounting	22	1478
Banking, insurance, real estate	3	181
Business administration	20	2293
Fashion buying and merchandising	1	421
Fashion communications	1	36
Hotel administration	3	287
International trade marketing	1	40
Retail business management	11	877
Sales	1	29
Secretarial science	24	1924
Technical sales & marketing	1	52
Commercial art	2	178
Graphic arts	1	128
Fashion illustration	1	96
Advertising design	1	133
Marketing, industrial	4	178

New York State Curriculums and enrollments -- continued

	Schools	Enrollment
INDUSTRIAL & TECHNICAL		
Air conditioning technology	4	139
Aircraft operations technology	1	80
Automotive technology	3	259
Apparel and textile design	1	673
Building construction technology	8	1030
Chemical technology	9	547
Civil technology	5	296
Construction (business)	2	33
Diesel - gas turbine technology	1	20
Electrical - electronic technology	19	2114
Engineering science	22	1078
Industrial technology	3	257
Industrial instrumentation technology	2	31
Industrial laboratory technology	2	15
Mechanical equipment for buildings	1	6
Mechanical technology	14	1015
Mechanical power technology	2	125
Mechanical product & machine design	3	273
Metallurgical technology	2	178
Photographic equipment technology	1	35
MISCELLANEOUS		
Correction administration	2	11
Data processing	1	22
Nursery education	2	227
OCCUPATIONAL CURRICULA	31	21,695
LIBERAL ARTS	31	7,282
TOTAL		28,977

OCCUPATIONAL-CENTERED CURRICULUMS OFFERED IN 10 OR MORE JUNIOR COLLEGES IN CALIFORNIA - - FALL 1963

Curriculum	Number of junior colleges offering the curriculum
Secretarial, general	64
Electronics technology	54
Accounting and bookkeeping	52
Clerical office training	51
Drafting technology	49
Business management	44
Marketing and merchandising	40
Engineering technology	39
Automotive technology	38
Nursing - vocational	37
police science	37
Home economics	34
Advertising and commercial art	31
Secretarial - professional and technical	27
Nursing - registered	26
Machine shop technology	26
Architectural drafting	24
Dental assisting	23
Business data processing	22
Real estate	22
Journalism	19
Electrical technology	16
Welding	16
Cosmetology	16
Publication and printing	14
Auto body and fender	14
Agri-business	13
Music	13
Construction technology	13
Metal trades technology	13
Plant science - crop production	12
Photography - commercial	12
TV and radio production	12
Aircraft powerplant maintenance	12
Building trades	12
Cabinet and millwork	12
Animal science	11
Women's clothing - millinery design	11
Medical assisting	11
Theater arts	10
Aircraft airframe maintenance	10

Source: A Guide for California Public Junior Colleges - 1963-64

OCCUPATION-CENTERED CURRICULUMS OFFERED BY CALIFORNIA PUBLIC JUNIOR COLLEGES — Fall, 1963

Curriculum	Number of colleges
AGRICULTURE, HORTICULTURE, FORESTRY	
Agri-business	13
Agricultural engineering & mechanics	6
Agricultural management	5
Animal science	11
Dairy husbandry (industry)	4
Forestry	6
Horticulture, ornamental	7
Landscape design & contracting	5
Plant science - crop production	12
Retail nursery management	3
APPLIED AND GRAPHIC ARTS	
Advertising & commercial art	31
Interior design	3
Journalism	19
Music	13
Photography, commercial	12
Public relations	2
Publication & printing	14
Technical illustration	8
Technical writing	2
TV and radio production	12
Theater arts	10
Womens clothing design & millinery	11
BUSINESS AND OFFICE OCCUPATIONS	
Accounting and bookkeeping	52
Advertising	4
Banking and finance	3
Business data processing	22
Business management	44
Clerical office training	51
Food store management	3
Hotel and restaurant management	2
Insurance	7
Marketing and merchandising	40
Materials management	1
Medical-dental receptionist	7
Business - continued	
Personnel management	3
Purchasing	1
Real estate	22
Secretarial - general	64
Secretarial - professional & technical	27
Stewardess training (airline)	8
Transportation & traffic management	7
HEALTH SERVICES	
Dental assisting	23
Dental hygiene	1
Dental technology	1
Dietician training	2
Medical assisting	11
Medical laboratory technology	2
Nursing - psychiatric	5
Nursing - registered	26
Nursing - vocational	37
X-ray technology	9
HOME ECONOMICS	
Home economics	34
TRADE AND TECHNICAL OCCUPATIONS	
Aeronautics	6
Aircraft (airframe) maintenance	10
Aircraft (powerplant) maintenance	12
Architectural drafting	24
Auto body and fender	14
Automated electronic control technology	2
Automotive technology	38
Building & grounds management	1
Building trades	12
Cabinet & millwork	12
Ceramics technology - industrial	4
Chemical technology	7

(continued)

Trade & Technical Occupations - continued

Construction technology	13
Culinary occupations	6
Drafting technology	49
Dry cleaning	2
Electrical technology	16
Electro-mechanical technology	2
Electronics - communications	6
Electronics technology	54
Electronics tube technology	2
Engineering technology	39
Garment manufacturing	1
Gunsmithing	1
Household appliance repair & service	2
Industrial management & supervision	7
Inspection technology, manufacturing	1
Instrumentation	3
Laboratory technology	8
Machine shop technology	26
Manufacturing technology	1
Mechanical technology	4
Mechanics - heavy equipment	9
Metal trades technology	13
Metallurgical technology	4
Mining	1
Music	1
Office machine repair & servicing	1
Ophthalmic optics	1
Painting & decorating	3
Petroleum technology	1
Physical science technology	1
Plastics technology	2
Power sewing	3
Radio and TV repair	6
Radiological technology	1
Refrigeration & air conditioning	5
Science data processing	2
Ship construction & repairing	2
Shoe rebuilding	1
Tailoring	2
Tool design & toolmaking technology	8
Upholstering	1
Vending machine repair	1
Welding	16

PUBLIC AND PERSONAL SERVICE OCCUPATIONS

Cosmetology	16
Fire science	8
Library assisting	4
Linguistic receptionist training	1
Nursery school education	4
Police science	37
Professional travel guides	1
Recreation leadership	9
Social welfare aide	2
Translator & interpreter	1

Summary: Day Curriculums in California Junior Colleges

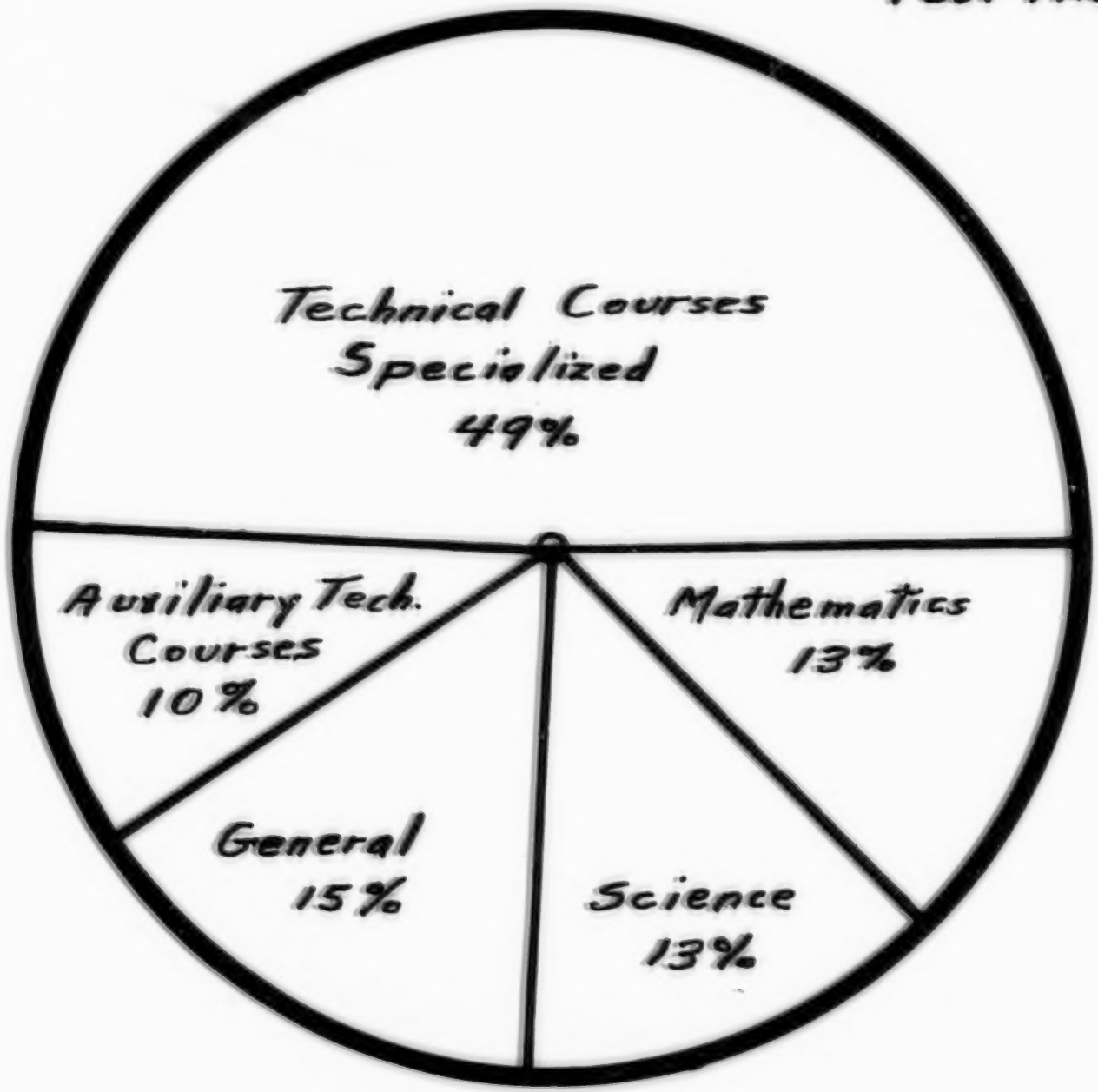
Total number of different curriculums offered, by major fields:

Agriculture, Horticulture, Forestry	10
Applied and Graphic arts	12
Business & Office Occupations	19
Health services	10
Home economics	1
Trade & Technical Occupations	55
Public and Personal Service Occupations	10
Total	117

Total number of junior colleges ----- 71

CURRICULUM CONTENT DISTRIBUTION

POST HIGH SCHOOL INSTITUTIONS



TECHNICAL SPECIALTY COURSES:
Basic and advanced courses in the specific technology (e.g. machine design)

AUXILIARY AND SUPPORTING TECHNICAL COURSES:
Mechanical drawing (general), shop, technical report writing

MATHEMATICS COURSES:
Algebra, trigonometry, analytic geometry, calculus

SCIENCE COURSES:
Physics, chemistry, mechanics, hydraulics, thermodynamics, etc.

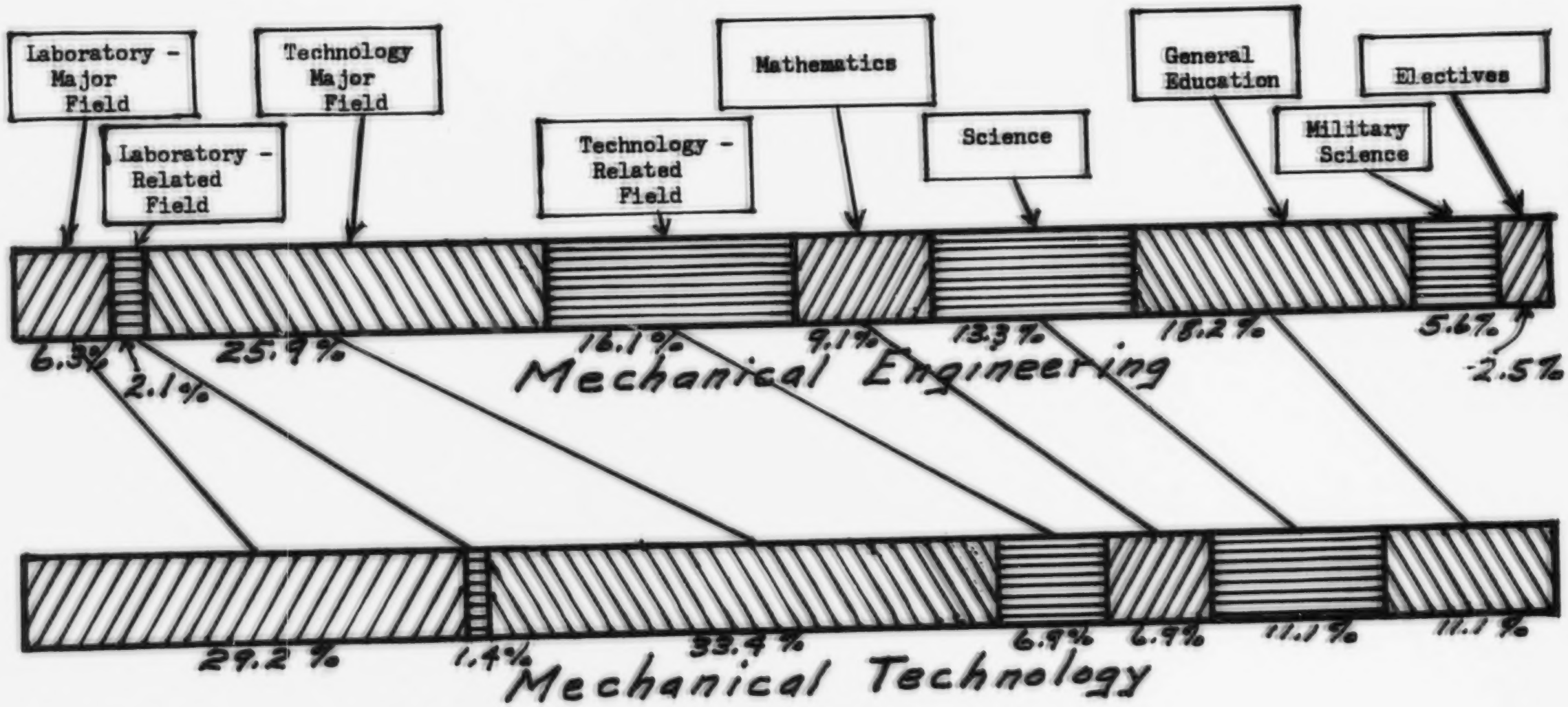
GENERAL EDUCATION COURSES:
Communications, humanities, social studies, health

SOURCE: RONEY - OCCUPATIONAL CURRICULUMS (OE-80015)

COMPARATIVE CURRICULUM CONTENT

Mechanical Engineering - Mechanical Technology

Percentage - Semester-Hours (Oklahoma State University - 1965)



CRITERIA FOR SELECTION OF TEXTBOOKS

CONTENT COVERAGE
ABILITY LEVEL NEEDED FOR MASTERY
BACKGROUND REQUIRED
USE OF ILLUSTRATIONS
READABILITY OF TEXT MATERIAL
UP-TO-DATENESS OF CONTENT
ORGANIZATION OF CONTENT
COST
REFERENCE MATERIAL AVAILABLE
STYLE OF FORMAT
QUALITY OF PRINTING

E.C.P.D - Engineering Technician Curriculums

Recommended Minimums

	Sem-Hrs
Mathematics	9 - 12
Physical Science	6
Oral & Written Communication	6
Humanistic - Social	6 - 9
Engineering Graphics	3
Mfg - Construction Techniques	3
Technical Specialties	24 (30-50 %)
Total	60

NUMBERS OF INSTITUTIONS WITH E.C.P.D. ACCREDITED CURRICULUMS FOR TECHNICIAN TRAINING

1965

E. C. P. D. ACCREDITATION OF TECHNICIAN TRAINING CURRICULUMS,
BY STATES -- 1965

STATE	NUMBER OF SCHOOLS WITH ACCREDITED CURRICULUMS	NUMBER OF ACCREDITED CURRICULUMS
California	3	14
Connecticut	2	8
Florida	2	2
Georgia	1	8
Illinois	1	1
Iowa	1	3
Massachusetts	2	16
Missouri	1	2
New York	10	35
North Carolina	1	4
Ohio	4	10
Oklahoma	1	5
Oregon	1	6
Pennsylvania	13	26
Texas	2	10
Vermont	1	1
Wisconsin	1	6
District of Columbia	1	1
18 States	48	158

Source: 33rd Annual Report - E.C.P.D.

E. C. P. D. ACCREDITATION OF TECHNICIAN TRAINING CURRICULUMS
1965

CURRICULUM	NUMBER OF SCHOOLS OFFERING THE CURRICULUM
Electronics technology	23
Mechanical technology	21
Design and drafting technology	20
Electrical technology	17
Electrical-electronics technology	12
Civil technology	9
Construction technology	8
Heating and air conditioning technology	6
Chemical technology	5
Aeronautical technology	4
Highway engineering technology	3
Industrial engineering technology	3
Mechanical power technology	2
Tool technology	2
Architectural technology	2
Structural technology	2
Surveying technology	2
Computer engineering technology	2
Electro-mechanical technology	1
Mechanical design engineering technology	1
Machine processes technology	1
Materials engineering technology	1
Metallurgical technology	1
Aircraft maintenance technology	1
Automotive technology	1
Diesel - gas turbine technology	1
Gas engineering technology	1
Industrial engineering technology - mamagement option	1
Production engineering technology	1
Nuclear engineering technology	1
Fire protection technology	1
General engineering technology	1
Commercial broadcast technology	1

Total number of curriculums accredited - - - - 158

Source: 33rd Annual Report - Engineers' Council for Professional Development

VII. FACILITIES AND EQUIPMENT

RATING FORM
for
THE SELECTION OF SCHOOL SITES

Location of Site _____

Site Size _____ acres

Assessed Value _____

Appraised Value _____

Present Owner _____

Availability _____

_____

_____

(insert photo of site)

RATING OF SITE

Basic Conditions	Ideal Score	Actual Score	Percentage Rating 0	10	20	30	40	50	60	70	80	90
1. Size	400											
2. Topography	250											
3. Location	200											
4. Cost	150											
Total	1000											

GENERAL RATING OF SITE

_____

_____

_____

ADAPTED FROM: INSTITUTE OF FIELD STUDIES....TEACHERS COLLEGE.....
COLUMBIA UNIVERSITY

SCHOOL SITE RATING FORM

INSTRUCTIONS: Score items as follows: 5 - Very Superior, 4 - Superior, 3 - Average, 2 - Below Average, 1 - Poor, 0 - Very Poor. Multiply score times weight and enter result in "total" column.

BASIC CONSIDERATIONS	SCORE	WEIGHT	TOTAL	GRAND TOTAL	NOTES
I. SIZE					
1. Size		60			
2. Expansibility		20			
II. TOPOGRAPHY					
1. Elevation		10			
2. Drainage		10			
3. Soil		10			
4. Contour		10			
5. Shape		5			
6. Natural Features		3			
7. Attractiveness		2			
III. LOCATION					
1. Central Location		5			
2. Type of Neighborhood		5			
3. Zoning		5			
4. Accessibility		5			
5. Traffic Arteries		3			
6. Water Lines		3			
7. Sewers		2			
8. Electricity		2			
9. Gas Lines		1			
10. Fire Protection		2			
11. Public Transportation		2			
12. Parks and Playgrounds		2			
13. Natural Hazards		1			
14. Noise		1			
15. Odors and Dust		1			
IV. COST					
1. First Cost		10			
2. Site development		5			
3. Building Removal		5			
4. Installation of Utilities		5			
5. Street Development		5			
GRAND TOTAL					

Standardization of Educational Specifications

WALTER L. NELMS

Dr. Nelms is an assistant professor, School of Education, Memphis State University, Memphis, Tenn.

The title of this article may cause some to be skeptical of its merit. For this reason it is vital to read the article from the correct perspective. The information presented is not an attempt to stereotype the construction of school plants. The purposes are to present arguments for standardizing the procedures by which school buildings are planned and to present the elements of an instrument designed for this purpose.

Most educators involved in school-plant planning will agree that the use of educational specifications is not widespread. Some of the possible reasons for the exclusion of this document may be (1) educational specifications are not accepted by some plant planners as necessary in school-plant planning; (2) diversification among planners as to what data should be included in educational specifications; (3) the lack of established acceptable methods by which this data may be presented to the architect; (4) the time element involved in preparing useful educational specifications; (5) the pressing need for school facilities which does not allow time for preparing a multipage document of the plant requirements of the educational program; (6) the misconceived opinion that the educator has little or no responsibility for assisting in the planning of new school facilities; and (7) the unawareness of the real value of adequate educational specifications to the usefulness of the completed school plant as well as to the architect.

Reasons for Standardization

The following four premises compose a minimum list of reasons defending the importance of some type of standardization of the procedures for writing educational specifications.

1. Most writers of educational literature dealing with school-plant planning agree that the formulation of adequate educational specifications is among the most important steps leading from the recognition of a need for new school-plant facilities to the ultimate acceptance of a plant to fulfill those needs. The unfortunate fact that the step of writing educational specifications is often eliminated, for one or more of the reasons mentioned earlier, has little or no relation to the importance of educational specifications. The possibility of an adequate school plant being constructed without the benefit of written educational specifications is a tribute to school architects and not to educators or school boards. The architect's basic responsibility is to design a building so that it will be structurally sound; this is accomplished through good design and architectural specifications. The educator's basic responsibility is to insure that the plant is adequate for the educational program to be conducted; this must be accomplished through educational specifications.

2. The rate of the construction of school plants is not diminishing to an important degree. It seems that the more classrooms that are constructed the larger the school-age population to fill them. If these new school plants are going to be adequate for changing educational programs, they must be soundly planned from an educational as well as architectural point of view.

3. True economy in school-plant construction is obtained when the school plant provides precisely what the educational program demands—certainly no less. It is conceivable that school plants constructed in 1965 may still be in use in 2065. A prerequisite to this statement must be that only those schools which are soundly planned architecturally and educationally will be utilized for long periods of time. Any part of a school plant which is not functional is a waste of construction dollars; any part of a school plant needed but omitted is a waste of educational talent and opportunity. The only method available to insure that neither of these situations is allowed to exist is through adequate educational specifications.

4. Most school districts involved in planning school plants need assistance in this planning effort. This assistance may be obtained from several sources; there is one source which as yet remains untapped, and it should be considered for it has potential as one of the most valuable of all sources. This is the use of a standard form for writing educational specifications. Immediately some will say that procedures used for writing educational specifications cannot be standardized. This is not the case. We cannot say that something cannot be done simply because it has not been tried. It is readily admitted that each school plant is, and must be, specifically designed for particular educational needs. However, we should consider that basically the same questions must be asked and answered when preparing educational specifications for any school plant. Only the answers are different; the questions and problems are basically the same whether the plant is to be constructed in Maine or California,

Mississippi or New York. Therefore, the content of educational specifications can be standardized. Only the answers to content questions must vary with the individual school being planned. It is on this basis that the study described below was conducted.

This study was concerned with the possibility of the development of a standard form to be used as an implement for preparation of written educational specifications for elementary and secondary school buildings. The form was created after an intensified search of literature dealing with all phases of school-plant planning. This literature was sifted to determine what data was essential to the adequate planning of each area of a school as well as the school plant as a whole. In order to validate items which writers of literature deemed essential to adequate educational specifications, a detailed outline of the form was submitted to 19 outstanding men involved in school-plant planning. This panel was composed of four school architects, four state directors of school-plant planning and management for their respective states, four local administrators of school-plant planning or management for selected urban school districts, three college professors who taught school plant, two members of the School Housing Section of the United States Office of Education, and two members of the school planning section of Educational Facilities Laboratories. This questionnaire contained 209 items to which each member of the panel was to respond either necessary or unnecessary in adequate educational specifications. Of these 209 questions, eight were considered by the panel to be unnecessary in written educational specifications. An analysis of the questionnaire returns revealed that there was no significant difference of disagreement among the various groups of the panel.

Conclusions of the Study

The results of this study led to the following conclusions:

1. There is general agreement among the various groups of school-plant field personnel as to the necessary elements of written educational specifications.

2. There is general agreement between school-plant field personnel and writers of school-plant literature as to the necessary elements of written educational specifications.

3. The information which architects usually need from educational specifications can be identified as a result of the general agreement shown in Conclusions 1 and 2.

4. As a result of the general agreement shown in Conclusions 1 and 2 and based on Conclusion 3, a standard form to be used as an implement for writing educational specifications could be devised for general use in school-plant planning.

Following is an outline of a form devised for this purpose. The form itself is much too long to include, and the outline presented is quite general and does not list the questions of the form, but only a skeleton of the areas covered by the form, and in some cases the type of information called for by the questions of the form.

OUTLINE OF STANDARD FORM

I. General Data Section
- A. Identification data
  1. Time placement of plant planning and construction
  2. Locale placement of the school-plant construction
  3. Personnel identification
  4. Type of construction
- B. Educational philosophy of the school and community
  1. Educational goals
  2. Anticipated methods and techniques of teaching
  3. Ways school plant may aid in reaching educational goals
- C. School organization
  1. Type of school
  2. General school and class size data
  3. Curriculum content
  4. Activity curriculum content
  5. Special services to be offered by the school

II. Site Selection and Development
- A. Site selection
  1. Site selection committee
  2. Checklist for site selection
  3. Geographical data of selected site
  4. Site size and shape
- B. Site development
  Site development checklist

III. School Environmental Factors*
- A. General characteristics of environmental factors
- B. Spatial factor
- C. Thermal factor
- D. Lighting factor
- E. Sonic factor
- F. Aesthetic factor
- G. Safety factor
- H. Balance of environmental factors

IV. Administrative Suite
- A. General characteristics of the suite
  1. Purposes
  2. Location
  3. General spaces to be provided
- B. School executives' quarters
  1. Superintendent's office space
  2. Principal's office space
  3. Assistant principals', deans', or supervisors' offices
  4. General office space
  5. Guidance suite
  6. Health suite
  7. Administrative conference room(s)
  8. Teachers' lounge

V. Auditorium
- A. General characteristics
- B. Location
- C. Seating space
- D. Stage requirements
- E. Dressing rooms
- F. Auxiliary rooms

VI. Food Services Section
- A. General characteristics
  1. Purposes of the food services center
  2. Location of the food services center
  3. General spaces to be provided
- B. Food preparation center
  1. Food circulation flow chart
  2. Receiving dock
  3. Kitchen area
  4. Storage rooms
  5. Manager's office space
  6. Housekeeping equipment and supplies storage
- C. Dining area(s)
  1. Organization of the dining area(s)
  2. Equipment for the dining area(s)
- D. Environmental aspects of the food preparation center
  1. Structural design
  2. Plumbing requirements
  3. Lighting and electrical requirements
  4. Aesthetic requirements

VII. Physical Education Suite
- A. General characteristics
  1. Purposes and location of suite
  2. General spaces to be provided
- B. Gymnasium floor space
  1. Construction data for gymnasium floors
  2. Playing-floor markings
  3. Gymnasium seating
- C. Smaller activity rooms
  General characteristics and location of auxiliary rooms
- D. Physical-education classrooms
- E. Swimming-pool requirements
- F. Dressing rooms
- G. Shower-room requirements
- H. Toilet-room requirements
- I. Team-room requirements
- J. Equipment drying rooms
- K. Laundry-room requirements
- L. Equipment-storage requirements
- M. Physical-education offices
- N. Outdoor physical-education facilities

VIII. Group Rest-Room Facilities
- A. General characteristics
- B. Group rest-room equipment

IX. Library
- A. General characteristics
  1. Purposes and location
  2. General use of spaces to be provided
- B. Specifications for specific library areas
  1. Student reading rooms
  2. Storage space for books and periodicals
  3. Librarian's office and workroom
  4. Studio and control room for ETV
  5. Individual study carrels
  6. Library conference rooms

X. School Circulation
- A. Corridors
- B. Stairways
- C. Exits
- D. Bus-loading platforms and traffic lanes
- E. Other vehicle traffic lanes

* Planning of boiler rooms, electrical services, sanitary services, etc., is a special problem of the engineer rather than of the educator who is doing the educational planning of a school.

F. School commons

XI. Teachers' Offices
A. General characteristics
B. Organization of the teachers' offices
C. Size of teachers' offices
D. Equipment and furniture of the teachers' offices

XII. Custodial Services
A. General spaces required for custodial services
B. Location of the central custodial services in the plant
C. Description of custodial storage room(s)
D. Description of custodial internal storage spaces
E. Description of custodial external storage spaces
F. Head custodian's office
G. Custodial equipment to be stored

XIII. Science Suite
A. General characteristics
B. Requirements of the general science room(s)
C. Requirements of the biology room(s)
D. Requirements of the chemistry room(s)
E. Requirements of the physics room(s)
F. Darkroom requirements
G. Requirements for special science areas
H. Science storage facilities

XIV. General Classroom Section
A. General characteristics of the general classrooms
   1. Purposes and location of the general classrooms
   2. General classroom size requirements
B. Activities of the general classrooms
   1. Teaching techniques to be used
   2. Nonteaching activities
C. Equipment and furniture for the general classrooms

XV. Special Classrooms Section
A. General characteristics of the special classrooms
   Subjects which require special classrooms and their general location within the building
B. Home-economics suite
C. Business-education suite
D. Music facilities
E. Art room(s)
F. Industrial-arts suite
G. Language laboratory

XVI. Kindergarten Section
A. Kindergarten room size requirements
B. Location of the kindergarten room(s)
C. Kindergarten program
D. Auxiliary space for kindergarten classrooms

XVII. Primary Classroom Section
A. Primary organization
   1. Definition of primary classroom
   2. Primary classroom size requirements
   3. Location of primary classrooms
B. Primary program of activities
C. Auxiliary space for primary classrooms

XVIII. Intermediate Classroom Section
A. Intermediate classroom organization
B. Intermediate program of activities

XVIX. Multipurpose Room Section
A. General characteristics of multipurpose rooms
B. Activities of multipurpose rooms
C. Size requirements of multipurpose rooms
D. Location of multipurpose rooms

XX. Classrooms for Exceptional Children
A. General characteristics of the classrooms for exceptional children
B. Facilities for trainable children
C. Classrooms for educable children
D. Facilities for children with motor handicaps
E. Facilities for children with speech and hearing handicaps
F. Facilities for children with visual handicaps

PLANNING FACILITIES - COSTS

The following overall costs of facilities built for four separate technical institutes were provided by the Connecticut State Department of Education.

1. Location of Technical Institute	Hartford	Norwalk	Norwick	Waterbury
2. Starting date of building	1959	1959	1962	1962
3. Maximum Student Capacity	360	600	360	450
4. Number of classrooms	6	15	7	10
5. Number of Laboratories	9	14	10	11
6. Drafting Rooms	5	4	3	3
7. Library	1	1	1	1
8. Audio-Visual Room	1	1	1	1
9. Student Dining Room	Shared	1	-	1
10. Faculty Dining and Conference Room	-	1	-	1
11. Administrative Offices	5	5	5	5
12. Combination Gymnasium-Auditorium	Shared	1	-	Assembly
13. Bookstore	1	1	1	1
14. Faculty Offices	3	3	1	2
15. Student Study area	2	2	1	2

16. Service Building	-	1	1	1
17. Total Square Foo Area of School	47,380	102,003	55,100	71,200
18. Cost Per Square Foot, including cost of built-in equipment, also site development	$18.95	$18.38	$21.66	$21.41
19. *General Construction Cost Per Square Foot	.90	1.08	1.25	1.28
21. *Heating & Ventilating Cost Per Square Foot	2.06	1.80	1.99	2.20
22. * Electrical Cost Per Square Foot	2.31	1.59	3.19	3.20
23. Estimated Total Cost of Additional Equipment Not in General Building Contract	--	722,068	464,134	494,262

24. Cost per student - $\frac{\text{Lines } (17 \text{ X } 18) + 23}{\text{Line} \qquad 3}$ =

*Note - Line 19, 20, 21, 22 are included in, but are only a part of the total cost shown in Line 18.

The following cost data for specific facilities for teaching various technical programs were also provided by the Connecticut State Department of education, based on bids obtained in 1962: 1/

Name of Rooms	Room Size	Area Sq. Ft.	Cost including Built-in Equipment	Additional Equipment	Total Maximum	Total Maximum
MECHANICAL, CIVIL, AND/OR METALLURGICAL TECHNOLOGY						
Drafting Room (24 large tables)	28' x 44'	1232	$ 23,600	$ 6,400	$ 20,000	$ 33,000
Drafting Room (28 small tables)	28' x 44'	1232	23,600	3,300	26,900	27,000
Metal Working Lab. including storage	28' x 60'	1680	31,000	89,000	120,000	125,000
Metallurgical Lab. including storage & dark room	28' x 60'	1680	31,000	21,000	52,000	58,000
Physics Lab. including storage	28' x 56'	1568	28,800	22,200	51,000	56,000
Material Testing Laboratory	28' x 40'	1120	20,600	30,000	50,600	55,000
ELECTRICAL, AND/OR ELECTRONIC, AND/OR INSTRUMENTATION TECHNOLOGY						
Electrical Power Lab. including storage and reference library	28' x 60'	1680	30,900	98,000	128,900	134,000
Electric Circuit Lab. including storage and reference library	28' x 64'	1792	33,000	44,000	77,000	33,000
Servo Control Laboratory	28' x 16'	448	8,200	16,000	24,200	26,000
Electronics Lab. including storage and Instrumentation Laboratory	28' x 56'	1568	28,800	55,700	81,500	89,000

1/ Note that the laboratories listed for each group of technologies does not necessarily include all facilities need for the technologies. For example, a physics laboratory is needed for teaching the electrical group of technologies and for chemistry. Similarly, a chemistry laboratory is needed for teaching metallurgy.

Name of Rooms	Room Size	Area Sq. Ft.	Cost including Built-in Equipment	Additional Equipment	Total Maximum	Total Maximum
CHEMISTRY TECHNOLOGY						
General Chemistry Lab. including storage	28' x 52'	1456	$26,800	$15,600	$44,000	$47,000
Organic Chemistry Lab. including storage	28' x 48'	1344	24,700	57,000	81,700	86,000
Quantitative " " " "	28' x 48'	1344	24,700	6,700	31,400	36,000
Instrument Lab. including Dark and Balance Rooms	28' x 44'	1232	22,600	38,400	61,100	65,000
Unit Operations Lab. including 2 story Erection Area	28' x 56'	1568	28,800	57,000	85,000	91,000
RELATED FACILITIES						
Classroom 35 capacity	28' x 28'	784	14,400	1,000	15,400	18,000
Lecture Room (40 capacity tiered seating	28' x 24'	672	12,300	300	12,600	15,000
Audio-Visual Room	28' x 12'	336	6,200	5,500	11,700	12,800
Conference Room	28' x 15'	420	7,700	1,100	8,800	10,200
Lecture Room (700 capacity tiered seating)	28' x 32'	896	16,500	2,900	19,400	22,300
Library including Librarian workroom (not including books)	28' x 60'	1680	30,900	24,000	54,900	60,400
Bookstore	28' x 12'	336	6,200	2,000	8,200	9,300
Student Lounging Room	28' x 44'	1232	23,600	4,000	27,600	30,700
Student Dining Room	44'6" x 116'3"	5173	95,100	5,900	101,000	118,000
Kitchen and Serving Area	36' x 44'6"	1602	29,500	5,000	34,500	39,700
Faculty Dining Room	28' x 15'	420	7,700	1,000	8,700	10,100
Administrative Offices	28' x 64'	1792	33,000	13,600	46,600	52,400

VIII. STAFFING

FACULTY QUALIFICATIONS FOR TECHNICIAN EDUCATION PROGRAMS

Some highlights of the recommendations made in the A.S.E.E. study "Characteristics of Excellence in Engineering Technology Education".

Desirable attributes:
- Intelligence
- A genuine interest in developing students
- Personal and professional integrity
- Capacity for communicating ideas in oral and written form
- Thorough knowledge of subjects taught and of relevant supporting subjects
- Skill in the fundamentals of the teaching-learning process

All members of the engineering technology faculty (technical and non-technical) should be familiar with and sympathetic toward the goals of this type of education.

A high proportion of the faculty should have acquired at least a bachelor's degree. Half the faculty members teaching the technical specialties should be graduate engineers or the equivalent.

Engineering technology graduates who have continued their education toward a higher degree in their field often make excellent teachers in these programs.

A significant portion of the faculty must have had relevant industrial experience of current nature, and must maintain technical competence.

CHARACTERISTICS OF SUCCESSFUL TEACHERS OF TECHNICAL EDUCATION

A summary of the findings of a study conducted by
the School of Education of Oregon State University,
as reported by George Storm, principal investigator.

The study dealt with a total of 406 instructors, in 195 schools, in 38 states. These instructors were evaluated by their supervisors, and data gathered from selected groups.

"The average high success instructor, as represented by the study participants, was male, 41 years of age, married, and had two children. He received his technical preparation from three sources: post-high school technical programs, industry, and four-year colleges and universities. In college, he completed 24 semester units of academic work in his subject field and 17 units in Education Courses. The successful instructor was a graduate of a State University with a B.A. or B.S. degree in Education or Engineering.

The high success instructor began his teaching career at age 30, after nine years of technical work experience in industry. He is teaching in a vocational-technical school or community college, between 21 and 24 hours per week, and has an average of 23.1 students in his classes. Currently he is earning $10,434 per year. He is probably teaching in some phase of Electronics, Drafting, or Mechanical or Machine Technology. He holds membership in a technical society and a national educational organization.

The successful technical teacher has no doubt about the need for industrial experience for instructors — he is definitely in favor of it. In addition to this, he believes that all candidates for technical teaching positions should be required to pass a qualifying examination in their respective subject fields. For the "ideal" technical teacher education program he recommends 29 semester hours in the "basics" (English, Speech, Psychology, Mathematics, and Physical Science), 17 units in technical subjects, 32 units in specific Education subjects, 4 units of supervised teaching, and 5 units of electives. His total recommendation came to 87 units. "

Source: Duplicated memorandum from Professor Storm.
(See also article in Technical Education News, February 1966)

THE TECHNICAL TEACHER
HIS JOB

William R. Hawthorne
U.S. Office of Education

All teachers are characters, as anyone who has seen a motion picture or looked at TV knows. And no two teachers are absolutely alike, as anyone also knows. So in talking about technical teachers as if they were a special breed we have to make general statements that will fit quite a number, and outrageous statements to point up the characteristics of a few. Certainly they are not all cast from the same mold -- and thank goodness for that.

It would not seem too difficult a task to write about technical teachers by one who has been such a teacher. But, as I undertook the task I found myself thinking of real teachers and actual situations with a tendency to arrive too quickly at the general from the specific.

There was the great temptation to tell about the odd, the lady who rode the tiger sort of thing, the teacher who always wore white ties, the chemistry teacher who prepared his food and drink from reagents in the laboratory, the science teacher who taught with his dog under the desk, the drawing teacher who started three fires by putting his lit pipe in his coat pocket and hanging it in the closet and the electricity teacher who never looked at the class but taught the blackboard with a 36 inch slide rule.

It is a fact, of course, that technical teachers work in a number of types of schools including comprehensive high schools, vocational high schools, technical high schools, community colleges, junior colleges, technical institutes and universities. This means a range of situations from where he may be the only technical teacher in a large academic faculty, such as one might find in a comprehensive high school, to being one of many technical teachers comprising a large part of the total faculty, such as in a technical institute. The generalities that follow, therefore, will not apply to all technical teachers, but have been derived from observations of many technical teachers in many situations.

What generalities can one make? If odd characters are in sufficient quantity and generally accepted this is a generality in itself. One principal who has known many says they are prima donnas. Groups of technical teachers have accepted, "You can always tell a technical teacher, but you can't tell him much," with pride rather than umbrage.

The technical teacher is what he is because of his previous experience and training and what the job demands of him. He has had a scientific or engineering type of training which always gaits one's thinking in a certain way. On top of this he has had practical experience -- work experience. This immediately separates him from some of his colleagues who have never been beyond the <u>educational cloister</u> and, it is feared gives him a superior air. Add to this that in most cases he has a competency which no one else on the faculty has and you have the ingredients of a distinct character.

It might be well to dwell a bit more on the factor of work experience. The technical teacher, along with all vocational teachers, feels that his experience enhances him as a teacher. He even feels, since this requirement of his preparation for teacher seems to be given scant consideration in salary schedules, that perhaps all teachers should be required to have it in order to bring about a greater appreciation of its value. How can the teacher prepare students for occupational productivity if he has not had the experience himself? How can he point out the applications of the principles he teaches if he is not thoroughly familiar with them?

The strictly academic teacher, on the other hand, feels that teaching is a life's work, a profession, and that the dedication should come early so that all training will be toward that work. He or she makes a great point of scholarship and abstract information, generally meaning the recognition of great thoughts, the aesthetic things, culture. He believes that by proper study one can acquire knowledge of subject matter sufficient to teach. He is suspicious of anyone who comes into teaching as a second choice of vocation, a vascillation, and confirmation of the nasty saying that if one cannot succeed he teaches.

So the academic teacher feels that the technical teacher is not scholarly and is too mundane; and the technical teacher feels that the academic teacher is too narrow and not practical. This may be unfortunate and something to which we should all devote ourselves toward better understanding, but it does exist and must be recognized in any discussion of the technical teacher.

Much of what has been expressed above may be unfair to academic teachers. It should be remembered, however, that it is written by a technical teacher and in a fair measure expresses the philosophy of the greater part of technical teachers. The question is not whether these opinions are logical or beneficial to the profession but whether they are generally true.

The technical teacher is illogical and a bundle of anomalies. He approaches life by the scientific method and abhors the inefficiency, but he may be a poor housekeeper. He wants system; but, being creative and inventive, he may be a dreamer. He can be interested in an organization plan or a utopia but not be a humanitarian, he is apt to be impatient with human foibles. He is interested in exactitude and efficiency and may be poor at keeping his own books. He is alert to improving production and the economy of cutting costs by improving design, but unconscious of his own market value. He thinks the salvation of the human race is education and education courses are a waste of time.

The technical teacher is a subject specialist and he is not a subject specialist. The boundaries of his subject matter reach out and overlap others. Thus, it is more likely that a strength of materials teacher can teach mathematics or physics than the other way around. The strength of materials teacher might also teach machine design or drafting. In fact, a guess might be ventured that the average technical teacher teaches more different subjects than any member of the faculty.

There are two reasons for this. First, (and we are talking about good technical teachers) because his training has been so thorough that he is competent, subject wise, to teach more than his specialty. Second, he generally is the odd man of the faculty. He is hired to teach strength of materials or machine design or electronics, or whatever the specialty is, and then, since this would only be ten periods a week, it is natural to ask him to teach something else.

Even in teaching his own subject he reaches more across subject lines than other subject teachers. You might say he is a special subject generalist. (Generalist being an expression much in vogue by educators who are specialists in nothing.) When an English teacher teaches English it is mostly English. A mathematics teacher teaches mathematics. They stick pretty much to their lasts.

The technical teacher is different. He teaches his subject, but he teaches across subject lines. An electronics teacher will have to pause to give a physics lesson on Doppler's Principle; a power teacher will have to stop to re-teach the Laws of Pascal, Charles and Boyle. In teaching metallurgy there will be some re-teaching of chemistry. The teacher of electricity will have to devote time to solving the root mean square value when he introduces the sine wave.

Some will immediately say that the mathematics teacher can do this. All good mathematics should be taught with applications. In fact there are books that tell the mathematics teacher how to do it such as, Basic Mathematics for Television and Radio. If a mathematics teacher would teach this way, he is a technical teacher and would be highly competent in electronics and could teach that subject. Incidentally the man who wrote the book is an electrical engineer.

Besides this overlapping of subjects adjacent to his specialty, the technical teacher teaches other subjects. The good technical teacher teaches English. He has a special vocabulary that is a language of its own. Besides this he is continually involved in report writing. It is said that English is taught by all good teachers. The fact is that report writing has to be taught by the technical teacher, if it is to be taught at all, for there are few academic English teachers capable of doing it.

As for foreign language, we have already mentioned the enormous vocabulary that goes with a technology. We can add that blueprints are a foreign language to most people and that fortran, algol, cobol are the foreign languages of the computer. But most important of all is the necessity to stress the exactitude of technical language. The technical student must be taught to eliminate the "weasel words" and use language with the nicety of the lawyer. This becomes most evident in the writing of specifications.

The technical teacher unfortunately often reduces the aesthetic to a scientific basis. Music to him is hi-fi and stereophonic, and apt to become a powerhouse of warpers and woofers, even though his ear is dull to a full appreciation of what he is producing. Art becomes a theory of color based on Munsels circle, or an analysis by mechanical principles of perspective, and photography a geometric criticism or discussion of gadgetry and processes. However, to give the devil his due, where he forgets art and designs for use he approaches the acme and achieves the philosophy of Frank Lloyd Wright that a thing of utility is a thing of beauty.

The technical teacher is a creature of this age. He represents and is an exponent of the culture of advanced living. He is teaching culture, not a dead culture, but the culture of today. There is music in the riveting gun and the roar of the jet. There is art in the picture of a blast furnace being tapped. There is inspiration in the suspension of the Golden Gate Bridge and the modeling of an airfoil.

To emphasize the aesthetic work in which the technical teacher is involved see what happens when the "artist" tries to improve the technician's work. See the rows of brownstone buildings in New York City with sheet iron cornices and cast iron banisters made to look like sandstone. See what happens to the beautiful steel piers of the Washington Bridge when a silly architect covers them up to look like stone piers. Look at our modern automobile. See what is in the name of design. Compare it to the modern jet airplane streamlined for efficiency.

The technical teacher has to expand continually in depth of subject the same as a teacher of literature. But he expands knowledge that was not available yesterday. He has to run to stand still, and if we could imagine a technical teacher cut off from the stream of technological advancements for a few years, such as being abandoned on a desert island, he would be a poor teacher when he returned even though he knew as much as when he left. The technical teacher is teaching a living subject.

Stop and think a moment of the revisions in subject matter that a technical teacher must make. The transistor is only about three years old and it has been surpassed in some characteristics by at least three other devices. Hardly a technical course is written that does not have to be revised before it has been taught once.

Where can the technical teacher get the help he needs? He cannot get assistance from a large group of other teachers in the school teaching the same subject matter. He is a loner. This tends to give him the feeling of importance, of being a key teacher, and, unfortunately, may make him arrogant. He may assume that he is indispensable and become lazy, despotic and self-sufficient. He may grow to resent supervision since nobody on the staff knows what he is talking about. He may become intolerant of ignorance.

Since he is apt to neglect aesthetics and place little value on the mysteries of life, he may find himself at odds with other members of the faculty. He may resent change because he is not a blind follower or welcome change if it is based on science or logic.

The students who face the technical teacher differ from the type who generally face the trade and industrial teacher. They do, if they have been properly screened. All of the difference is not in the intelligence quotient, though this is a big factor at the high school level.

Some phases from a recent article on "The Creative Child" which appear in a recent issue of Look Magazine are apt in describing the technical student: An ability to sense and also question the implicit; a willingness to take a calculated risk larger than others would take in a given situation; considerable sensitivity and exuberance; and a greater acceptance of himself than is the norm.

If the technical teacher does not get the student out to this pattern at least he tries to form these traits in the student. He tries to instill the capacity to be puzzled, to question the implicit. His work differs from the shop teacher in that he works from the theory to the application and not only the way that it is done, but the way that it might be done. He also works from the unknown to the known and vice versa through analysis and synthesis. He tries to train his students to be curious, skeptical and never satisfied.

The technical teacher has to take the young person who is probably starry-eyed with science-fiction and introduce him to the hard disciplines of mathematics. He has to imbue a philosophy for seeking the cause, for determining the solution, for realizing that everything in nature is relationship; that these relationships can be reduced to mathematics; that each event is one of a series of events. His students must learn that just as in life, so in engineering everything is a compromise, and they must learn to appreciate the economies of production and time.

His students must grasp the fund of basic knowledge that they must accumulate or know where to find it, in order to come up with the best economical answer. They must learn to delineate a problem, to isolate those parts that lend themselves to classical or empirical solutions and those which require research and theoretical approach. They must learn the meaning of measurement and accuracy and the comprises that may be made with absolute accuracy and the allowable factors for cost, production, durability and safety. In short, they must not only know how to do the job, but to use judgment, to weigh alternate solutions in order to get around difficulties of materials, patents, production, safety and utility. They must learn that it is not "the best is good enough" but that "good enough is best."

Such a student will graduate with a fund of basic knowledge in science and mathematics and some skill in applying these fundamentals. He will be aware of what he does not know and where he can get help. He will have learned to stake out a problem, to get all the facts, or identify those that are missing, and to assemble them in order of their importance. He will be skeptical of the obvious reasons and courageous enough to depart from trammeled ways. He will know the way it has been done and be able to conjecture about how it might be done.

In engineering education we have assumed that we could give all the basic science and mathematics in the first two years and make the applications to engineering problems later. In technical education, because we are dealing with a different type of student and because we have such little time, we do both things simultaneously. You might say we do a little of each at a time. This is accomplished through spiral teaching. We teach some mathematics. Then we make an application where the mathematics is required in the solution and we teach the mathematics again. We can't teach the application without the mathematics and nobody has yet devised a mathematics course where all the applications fall in sequence to the technology as learned in studying mathematics. The practical solution, if the technical teacher is to keep his subject matter in logical order at all, is to be prepared to teach or re-teach the mathematics and science as it comes up in the subject.

This means that the technical teacher must be competent in teaching the mathematics and science as it relates to his subject and not take the high and mighty attitude that the students should know it. He must recognize this when he organizes his course of study and writes his lesson plan.

In approaching a new unit of instruction the technical teacher must be able to lead the students all around the problem, discussing all the significant facts and gradually closing in on a possible general solution. Then he must introduce a specific problem and let the students see if the general solution applies. It is all right for engineers to talk in generalities and even estimate in astronomical numbers. Sooner or later somebody has to determine the size of the bolts, make the blueprints, write the specifications, crowd the circuits in a given space, trouble shoot it and make it work. That fellow is the technician. It is the technical teacher's job to train him.

While he is keeping abreast of his technology and altering the course of study to provide for changes he is carrying out the usual duties of a member of the faculty, writing examinations, marking papers, and grading students. In addition he has the special marking of technical reports, the inventory of equipment and the organization of a laboratory. He must be aware that when the student leaves he will move into industry, hired and retained on what he can produce. The technical teacher must keep up his industrial contacts to be aware of change and to uncover employment opportunities for his students. Often he is the placement officer for his curriculum and is involved in follow-up studies of graduates.

This, then, is a rather general picture of the technical teacher and his job. Little has been indicated as to whether he should be improved or how to prepare him to perform his service. He is unique in many ways from other types of teachers and the full blown variety is a remarkable fellow rendering a great service.

IX. FINANCING

FEDERAL MONEY FOR EDUCATION: PROGRAMS ADMINISTE

PROGRAM	AUTHORIZATION	PURPOSE	HOW DISPO
Smith-Hughes Act	$7,161,455	Provide for vocational education and teacher training in agriculture, trade and industry, and home economics	Grants
George-Barden Act			
Title I	29,991,000	Extend Smith-Hughes Act to include distributive occupations, fishery trades, and vocational guidance	Grants
Title II	5,000,000	Develop training programs for health occupations	Grants
Title III	15,000,000	Train highly skilled technicians	Grants
Vocational Education Act of 1963	160,750,000	Maintain, extend, and improve vocational education programs; develop new programs	Grants
Research and training	17,750,000	Develop research and training programs, and experimental and pilot programs for special needs	Grants
Work-study program	[illegible]	Provide part-time employment for young people to help them begin or continue vocational training	Grants
Residential schools		Prepare young people for employment	Grants
Appalachian regional development program	3,000,000	Construct vocational education facilities in the Appalachian region	Grants
Manpower Development and Training Act	(2)	Train skilled workers in all sections of the Nation	Grants
Higher Education Facilities Act of 1963			
Title I: Community colleges, tech. institutes	181,200,000[3]	Construct or improve academic facilities at public community colleges and technical institutes	Grants
Other undergraduate facilities	358,800,000[4]	Construct or improve undergraduate academic facilities	Grants
Title II. Graduate facilities	60,000,000	Construct or improve graduate academic facilities	Grants
Title III. Construction loans	180,750,000[5]	Construct or improve undergraduate and graduate academic facilities	Loans
State administration	2,000,000	Help States administer program under Title I	Grants
Endowment of colleges of agriculture and mechanic arts	14,500,000	Support instruction in agriculture and mechanic arts in land-grant colleges	Grants
Library Services and Construction Act			
Title I. Extension of services	(2)	Extend and improve public library services	Grants
Title II. Construction	(2)	Aid construction of public libraries	Grants
Aid to federally impacted areas			
P.L. 874. Maintenance and operation			
School districts	(2)	Aid school districts on which Federal activities have placed a financial burden	Grants
Federal agencies	(2)	Aid Federal agencies such as Department of Defense in providing schools for children who live on Federal property	Grants
P.L. 815. Construction: School district	(2)	Aid school districts in providing minimum school facilities in federally impacted areas	Grants
Federal Agencies	(2)	Aid other Federal agencies in building schools for children living on Federal property	Grants
Technical services	(2)	Provide funds for technical services in the construction of schools in federally impacted areas	Payments to [illegible]
National Defense Education Act of 1958			
Title II. Student loans			
Contribution to loan fund	179,000,000	Provide for low-interest loans to college students	Loans
Loans to institutions	(2)	Provide for loans to colleges and universities that cannot meet matching obligation	Loans
Cancellation of loans	(2)	Reimburse institutions for their portion of principal and interest canceled for teachers	Grants
Title III. Strengthening of instruction			
Public schools	90,000,000	Strengthen instruction in critical subjects in elementary and secondary schools	Grants
Loans to private schools		Improve instruction in critical subjects in private schools	Loans
Supervision and instruction	10,000,000	Strengthen supervision and administration in State education agencies	Grants
Title IV. Graduate fellowships	(2)	Prepare more teachers	Grants
Title V-A. Guidance, counseling, and testing: State programs	24,500,000	Provide for guidance, counseling, and testing in public elementary and secondary schools; testing in private schools	Grants
Title V-B. Counseling institutes	7,250,000	Improve qualifications of guidance workers and counselors in schools and colleges	Contracts
Title VI: Language and area centers		Increase amount of study of uncommon languages and area subjects and improve quality of instruction	Contracts
Foreign language fellowships	14,000,000	Train college teachers of modern foreign languages and area studies	Grants
Research and studies		Support research on improved instruction in modern foreign languages and teaching methods	Contracts

STERED BY THE U.S. OFFICE OF EDUCATION, FISCAL YEAR 1966

	FEDERAL SHARE[1]	WHO MAY APPLY	ADMINISTRATIVE OFFICE
	50 percent	Public schools through State boards of vocational education	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	50 percent	Public schools through State boards of vocational education	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	50 percent	Public schools through State boards of vocational education	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	50 percent	Public schools through State boards of vocational education	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	50 percent	Public schools through State boards of vocational education, contracts with private, commercial institutions	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	No specific minimum Matching required	State education agencies, colleges and universities, local education agencies	Division of Adult and Vocational Research Bureau of Research
	100 percent first 2 years 75 percent next 2 years	State education agencies	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	100 percent	Public schools through State boards of vocational education	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	50 percent	State education agencies	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	100 percent	Persons referred by State employment services	Division of Vocational and Technical Education Bureau of Adult and Vocational Education
	Up to 40 percent	Public community colleges and technical institutes	Division of College Programs Bureau of Higher Education
	Up to 33 1/3 percent	Public and private, nonprofit colleges and universities, except community colleges and technical institutes	Division of College Programs Bureau of Higher Education
	Up to 33 1/3 percent	Public, private nonprofit, and cooperative graduate centers of high learning	Division of Graduate Programs Bureau of Higher Education
	Up to 75 percent	Public and private, nonprofit colleges and universities, cooperative graduate centers, boards of higher education	Division of College Programs Bureau of Higher Education
	100 percent	State commissions set up to administer the program	Division of College Programs Bureau of Higher Education
	100 percent	The 68 land-grant colleges	Division of College Programs Bureau of Higher Education
	Matching grants based on State per capita income	State library administrative agencies	Division of Library Services and Educational Facilities Bureau of Adult and Vocational Education
	Matching grants based on State per capita income	State library administrative agencies	Division of Library Services and Educational Facilities Bureau of Adult and Vocational Education
	100 percent	Local school districts	Division of School Assistance in Federally Affected Areas Bureau of Elementary and Secondary Education
	100 percent	Federal agencies operating schools	Division of School Assistance in Federally Affected Areas Bureau of Elementary and Secondary Education
	100 percent	Local school districts	Division of School Assistance in Federally Affected Areas Bureau of Elementary and Secondary Education
	100 percent	Other Federal agencies	Division of School Assistance in Federally Affected Areas Bureau of Elementary and Secondary Education
s to HHFA	100 percent	Not applicable	Division of School Assistance in Federally Affected Areas Bureau of Elementary and Secondary Education
	90 percent	Accredited nonprofit institutions including any accredited business school or technical institute	Division of Student Financial Aid Bureau of Higher Education
	100 percent	Colleges and universities and other institutions taking part in student loan program	Division of Student Financial Aid Bureau of Higher Education
	100 percent	Participating institutions	Division of Student Financial Aid Bureau of Higher Education
	50 percent	States get allotments; school districts apply to State	Division of Plans and Supplementary Centers Bureau of Elementary and Secondary Education
	100 percent	Nonprofit private elementary and secondary schools	Division of Plans and Supplementary Centers Bureau of Elementary and Secondary Education
	50 percent	States get allotments	Division of Plans and Supplementary Centers Bureau of Elementary and Secondary Education
	100 percent	Prospective college teachers working for Ph.D. degrees	Division of Graduate Programs Bureau of Higher Education
	50 percent	States get allotments	Division of Planning and Supplementary Centers Bureau of Elementary and Secondary Education
ts	100 percent	Accredited public and private nonprofit colleges and universities	Division of Educational Personnel Training Bureau of Elementary and Secondary Education
	50 percent	Accredited public and private nonprofit colleges and universities	Division of Foreign Studies Bureau of Higher Education
	100 percent	Persons trained in modern foreign languages with the exception of French, German, Italian, and European Spanish	Division of Foreign Studies Bureau of Higher Education
	100 percent	Colleges, universities, professional associations, public school systems, and individual persons	Division of Higher Education Research Bureau of Research

FEDERAL MONEY FOR EDUCATION: PROGRAMS ADMINISTERED

PROGRAM	AUTHORIZATION	PURPOSE	HOW DISBURSED
[illegible]onal Defense Education Act (continued) [illegible]le VII. Media Research	5,000,000	Support research on educational uses of television, radio, motion pictures, and other media	Contracts
[illegible]le X. State statistical services	2,800,000	Improve statistical services of State education agencies	Grants
[illegible]le XI. Institutes for advanced study	32,750,000	Improve qualifications of the elementary and secondary school teachers	Contracts, Stipends
[illegible]cation of the handicapped P.L. 88-164, Title III [illegible]eacher training	19,500,000	Prepare teachers and others who work with handicapped	Grants
[illegible]esearch and demonstration	6,000,000	Promote research and demonstration on the education of the handicapped	Grants
[illegible]tioned Films for the Deaf	1,500,000	Provide cultural and educational services to the deaf through films	Contracts
[illegible]perative Research Program [illegible]Arts and humanities	(2)	Support research on education in the arts and humanities at all levels	Contracts, Grants
[illegible]Curriculum	(2)	Support research on the improvement of curriculum	Contracts, Grants
[illegible]Research and development centers	(2)	Support research on the major problems of education	Contracts, Grants
[illegible]search on comparative education (special foreign currency program, P.L. 480) Research	(2)	Use counterpart funds for educational research of value to the United States and other nations	Contracts
[illegible]Travel	(2)	Finance travel necessary to complete comparative education studies conducted abroad	Contracts
[illegible]EA-related Fulbright-Hays fellowships	(2)	Improve competence of prospective teachers of modern foreign languages and area studies	Grants
Foreign language training-area studies Faculty members	(2)	Improve competence of faculty members of NDEA language and area studies centers	Grants
Elementary and secondary school teachers	(2)	Improve competence of elementary and secondary school teachers of foreign languages and area studies	Grants
Seminars	(2)	Improve competence of elementary and secondary school teachers of foreign languages and area studies	Grants
Curriculum specialists	(2)	Provide foreign curriculum specialists to U.S. schools to help strengthen language-area studies programs	Grants
[illegible]nomic Opportunity Act of 1964 College work-study program	(2)	Provide part-time employment for needy college students	Grants
Adult basic education	(2)	Provide literacy programs for adults to help them obtain employment	Grants
[illegible]il Rights Act of 1964 Institutes	(2)	Provide training on problems incident to desegregation	Contracts
Grants to school boards	(2)	Aid school boards in hiring advisors and training employees on problems incident to school desegregation	Grants
[illegible]ducational television (P.L. 87-447)	(2)	Aid in the acquisition and installation of transmitting and other type equipment necessary for broadcasting	Grants
[illegible]ience clubs (P.L. 85-875)	(2)	Encourage students interested in science to pursue their interest outside of class in science clubs	Contracts
[illegible]uban refugee program Aid to Dade County, Fla.	(2)	Assist schools in providing education for great numbers of refugee children	Grants
Student loans	(2)	Aid refugee college students to continue their education	Loans
Professional training	(2)	Provide refresher training for physicians and teachers	Contracts
[illegible]ivil defense adult education	(2)	Provide information on civil defense procedures to the public	Contracts
[illegible]nternational exchange service	(2)	Train foreign participants on programs sponsored by the Agency for International Development	Grants
[illegible]lementary and Secondary Education Act of 1965 Title I. Programs for the disadvantaged	(2)	Support educational programs in areas having high concentrations of low-income families	Grants
Title II. Library resources	100,000,000	Support provision of school library resources, textbooks, and other instructional materials	Grants
Title III. Supplementary centers	100,000,000	Support supplementary educational centers and services	Grants
Title IV. Research	(2)	Construct national and regional research facilities	Grants, Contracts
Title V. Strengthening State education agencies	25,000,000	Improve leadership resources of State education agencies	Grants

1 Proportion of the costs the Federal Government will pay.

2 Not specified.

3 Includes fiscal year 1964 unappropriated authorization of $50,000,000, which is available for reappropriation in fiscal year [illegible]

4 Includes fiscal year 1964 unappropriated authorization of $179,400,000, which is available for reappropriation in fiscal year [illegible]

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[illegible]DUSTRY–EDUCATION

RED BY THE U.S. OFFICE OF EDUCATION, FISCAL YEAR 1966

SED	FEDERAL SHARE[1]	WHO MAY APPLY	ADMINISTRATIVE OFFICE
	Some matching required	Grants: Public or nonprofit institutions; individual persons Contracts: Public agencies; individual persons	Division of Research Training and Dissemination Bureau of Research
	50 percent	State education agencies	Division of Data Sources and Standards National Center for Educational Statistics
ds	100 percent	Colleges and universities	Division of Educational Personnel Training Bureau of Elementary and Secondary Education
	100 percent	State education agencies, colleges and universities	Division of Educational Personnel Training Bureau of Elementary and Secondary Education
	100 percent	State education agencies, local school districts nonprofit private organizations, public groups	Division of Elementary-Secondary Research Bureau of Research
	100 percent	Usually by invitation	Division of Research Training and Dissemination Bureau of Research
es	No specific minimum matching required	Colleges, universities, State education agencies Private or public groups, or individuals	Division of Laboratories and Research Development Bureau of Research
ds	No specific minimum matching required	Colleges, universities, State education agencies Private or public groups, or individuals	Division of Elementary-Secondary Research Bureau of Research
ds	No specific minimum matching required	Colleges, universities, other public and private agencies, institutions, and organizations	Division of Laboratories and Research Development Bureau of Research
	No specific minimum matching required, but there must be some	Ministries of education and colleges and universities abroad	Division of Higher Education Research Bureau of Research
	100 percent	American or foreign researchers; institutions abroad	Division of Higher Education Research Bureau of Research
	100 percent	Graduate students through the National Defense foreign language fellowships committee at home institutions	Division of Foreign Studies Bureau of Higher Education
	100 percent	NDEA center faculty members through center directors	Division of Foreign Studies Bureau of Higher Education
	100 percent	Teachers and supervisors of modern foreign languages and area studies with five years' experience	Division of Foreign Studies Bureau of Higher Education
	100 percent	Teachers of foreign languages and area studies in secondary schools or colleges with two years' experience	Division of Foreign Studies Bureau of Higher Education
	100 percent	Local school agencies and State education agencies	Division of Foreign Studies Bureau of Higher Education
	90 percent	Colleges and universities	Division of Student Financial Aid Bureau of Higher Education
	100 percent	State education agencies	Division of Adult Education Programs Bureau of Adult and Vocational Education
	100 percent	Colleges and universities	Office of Equal Educational Opportunities
	100 percent	School boards and other public agencies responsible for operating public schools	Office of Equal Educational Opportunities
	50-75 percent	Nonprofit organizations, public colleges, State educational television agencies, and education agencies	Office of Educational Television U.S. Department of Health, Education, and Welfare
	100 percent	State education agencies, colleges and universities	Division of Plans and Supplementary Centers Bureau of Elementary and Secondary Education
	About 50 percent	Dade County, Fla.	Division of School Assistance in Federally Affected Areas Bureau of Elementary and Secondary Education
	100 percent	Cubans who became refugees after January 1, 1959	Division of Student Financial Aid Bureau of Higher Education
	90 percent	Refugee physicians and teachers	Division of Educational Personnel Training Bureau of Elementary and Secondary Education
	100 percent	State agencies (by invitation)	Division of Adult Education Programs Bureau of Adult and Vocational Education
	100 percent	Teachers and school administrators from other countries	Division of Educational Personnel Training Bureau of Elementary and Secondary Education
	100 percent	State education agencies	Division of Program Operations Bureau of Elementary and Secondary Education
	100 percent	Local education agencies	Division of Plans and Supplementary Centers Bureau of Elementary and Secondary Education
	100 percent	Local education agencies	Division of Plans and Supplementary Centers Bureau of Elementary and Secondary Education
cts	Some matching required	Public and private research agencies	Division of Laboratories and Research Development Bureau of Research
	100 percent	State education agencies	Division of State Agency Cooperation Bureau of Elementary and Secondary Education

5 Includes fiscal year 1964 unappropriated authorization of $70,750,000, which is available for reappropriation in fiscal year 1966.

6 $25 million authorized from fiscal year 1959 through duration of the act.

al year 1966. 7 $32 million authorized for fiscal years 1963 through 1967 plus unobligated balance of administrative funds.

al year 1966. 8 Construction aggregate of 100,000,000 for 1966 through 1970.

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X. GUIDANCE

Some Paths in the High School of Tomorrow (Explanation of the chart)

The accompanying chart attempts to portray a general idea of what the high school of tomorrow might look like, with respect to curriculum offerings. It may well be a comprehensive institution, attempting to meet the needs of the student body which has a wide range of interests and abilities. Much of the program will be of occupational preparation character, either through direct training for occupational life or basic preparation leading to later specialized training.

In planning this chart it is assumed that:

(a) Much of the specialized vocational education now found in the high school, especially in the vocational high school, will move into the post-high school years, and will be found largely in community colleges or technical institutes.

(b) The high school of tomorrow will provide a wide range of curriculum offerings, varying from a liberal arts college preparatory sequence to such specialized occupational offerings as fit better into the high school than the post-high school institution.

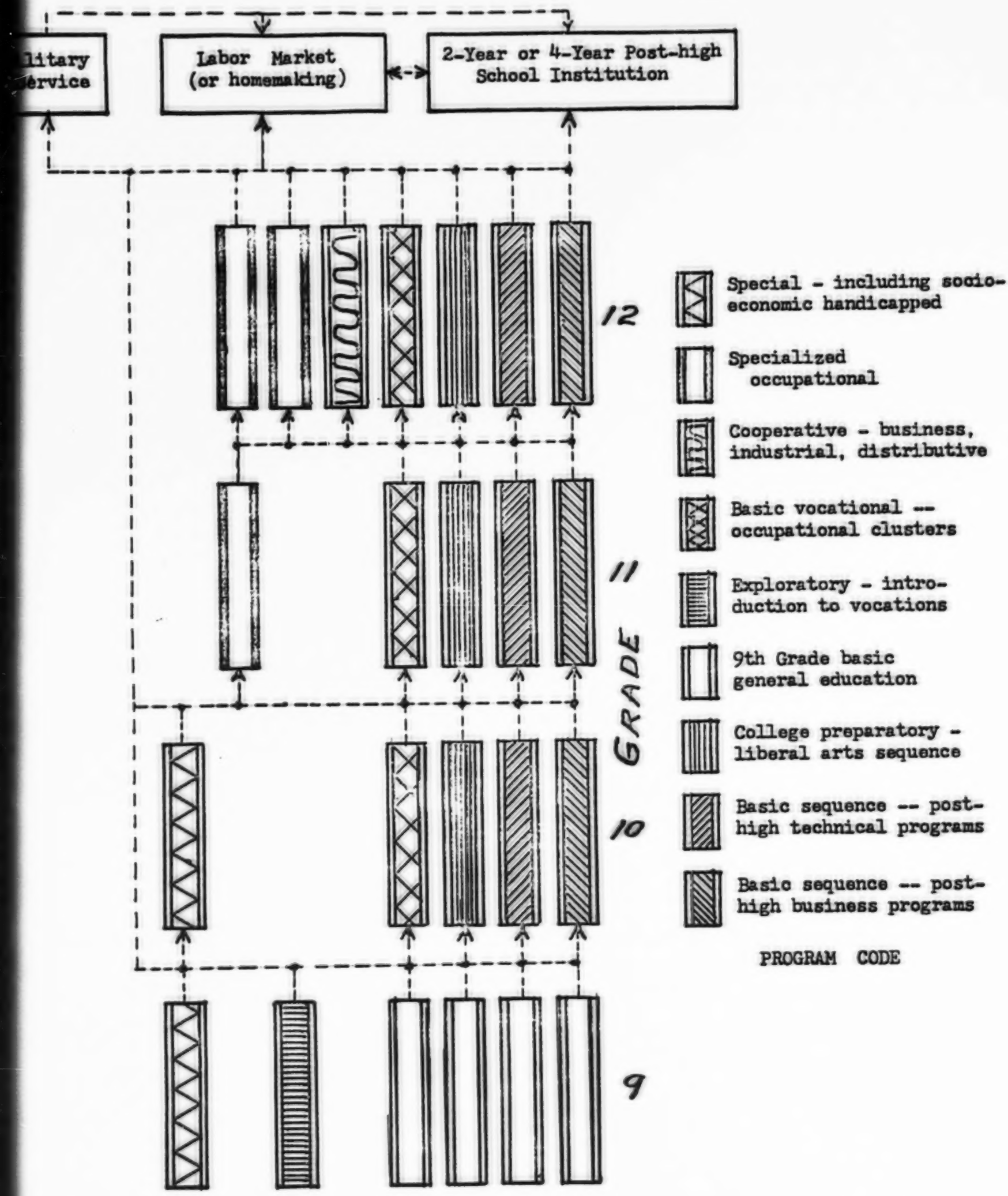
(c) Appropriate guidance and other student personnel service will be available to meet the individual needs of students, helping them in making original choices of curriculums and in making changes in such choices as needs arise.

(d) The school will provide great flexibility with respect to student adjustment. The chart shows provision for moving from one curriculum or unit to another at the end of each school year. (Some provision may also be needed for such "switching" of "tracks" or curriculums within the school year if necessary.)

The overall program outlined on the chart makes provision as follows:

1. Special, including socio-economic handicapped.
   These units - placed in the 9th and 10th grades - include those types of educational service needed by students who deviate from the broad groupings served by the other curriculums in sufficient degree to warrant special attention. This student group includes the slow learners, those emotionally disturbed, those with inadequate educational background such as in reading ability, those culturally deprived, and the like. The program might continue one year, two years, or longer, with transfer to one of the other curriculums as soon as the student reaches the point where such transfer is feasible, or with placement in the labor market for over-age students if this seems desirable.

2. Specialized vocational education curriculums.
   This type of program will include direct preparation for the labor market, with intensive specialization to the extent feasible and desirable in a comprehensive high school. This might be limited to the 12th grade, or start in the 11th grade and continue through the 12th. The occupational fields included might well be certain of the skilled and semiskilled occupations in industry, business, agriculture, para-medical field, and the like. (As the attendance in full-time school grows to include the post-high school years for many more students, this type of program will tend to be offered in post-high school institutions rather than in the high school.)



SOME PATHS IN THE HIGH SCHOOL OF TOMORROW

Emerson 3/66

3. Cooperative education programs

In these programs - which may well operate in business, distributive, industrial, para-medical, and other fields - the student spends half of the school day in school and the other half day on a paid work job. Variations in this type of program include the work period on pay with a private employer (the type most commonly found), work on projects financed by Federal work-study funds, or possibly a half-day attendance at a training skills center without pay. Some cooperative programs are operated both in the 12th grade and in the 11th grade, but labor law often restricts much of the work to the older students of the 12th grade.

4. Basic vocational programs -- occupational clusters.

Occupational changes in the labor market are revealing the need for breadth as well as depth in occupational education, and indicate the need for educational programs that prepare the person for anticipation of occupational change, as well as for the initial entry job into the labor market. These basic programs dealing with occupational clusters aim to provide knowledge, understandings and skills that are common to a number of specialized occupations that are sufficiently alike to be classified as a "cluster". The building trades, or mechanical work in the metal field, are examples of clusters. In these programs the student learns basic tools and their uses, materials used in the cluster, basic typical operations in several of the specialized occupations in the cluster, drawing common to these occupations , and the like.

This type of program prepares the student for effective entrance into the specialized occupational training in the post-high school institution, or in the high school. The basic program may take the form of a single year of study, located at the appropriate grade level in keeping with later specialized study, or of a sequence covering more than one year.

5. Exploratory program - introduction to vocations.

This 9th grade unit might well be taken by all students to provide a basis for understanding the work of the world, and for assistance in helping the student make a wise selection of occupational choice. A broad study of occupational life in this unit, followed by basic vocational education in a selected occupational cluster, and later by highly specialized occupational education in a specific field provides a logical sequence for effective occupational choice and preparation.

6. 9th Grade basic general education.

This educational "core" might well be common to most students, followed by one of the several three-year sequences, or by a program involving parts of two or three different ones.

7. College preparatory - liberal arts sequence.
Basic sequence for post-high technical programs
Basic sequence for post-high business programs

These sequences have much in common, meeting the requirements for admission to post-high school institutions. The technical sequence would include appropriate mathematics, science, drawing, and basic cluster units, aimed to provide background for effective study in a post-high school technician training program. The business sequence would include similar basic content preparatory to post-high business education. These programs have content similar to that of preprofessional sequences leading to engineering training or business management training in a four-year university progra m

The suggested program provides a variety of "tracks", but it also provides for adequate numbers of "switches" that lead from one track to another when desirable.

TECHNICIAN TRAINING:

DIFFERENCES BETWEEN TWO LEVELS

by

Frank J. Coyle

Area Vocational Education Branch
Division of Vocational Education
U.S. Office of Education

TECHNICIAN TRAINING: DIFFERENCES BETWEEN TWO LEVELS

MANY educators believe that the high school cannot train technicians as effectively as the post-high-school institution can. To be sure, high school programs of technical education differ from post-high-school programs, but these differences do not argue for the high school's staying out of technician training. In fact, there are many high schools today which have highly successful programs for training technicians. These are the schools which have recognized the differences between the two levels--and made their plans accordingly.

Three types of high schools offer technician training: The comprehensive, the vocational-technical, and the technical. Post-high-school programs are usually found in area vocational schools, community and junior colleges, technical institutes, and, in some instances, 4-year colleges or universities.

Much of the difference between technical training in high schools and in post-high-school institutions can be traced to the differences in the emotional maturity of the students the programs usually serve.

The post-high-school student is usually a few years older than the high school student. He has probably reached full physical growth, and he has very likely solved many of the psychological problems of adolescence. He is nearer the reality of working for a living--in fact, his first job or two may have shown him the need for additional or specialized training. His motivations are strong, his vocational goals more or less firmly set.

The high school student, who is still an adolescent, is more self-centered than the post-high-school student. His objectives are not so well established; he has less perspective about the future. His interest span is shorter, and he often looks on assignments as burdens, not as meaningful parts of a whole. Often he may have no other drive than a thirst for knowledge. More than likely he is taking technical courses because technology interests him or because he sees technical training in high school as a step toward college engineering.

Another difference between training at the two levels is that the high school makes more rigorous demands on the student. At the post-high-school level the student is usually a high school graduate and it is generally assumed that he has had a general education and should now have a program which concentrates more on occupational preparation and devotes proportionately less time to the humanities. The high school student, however, must take his technical work along with the regular high school course, for most States require him to have general education units for graduation. This difference between the two levels has at least three results: Technical work takes 3 years in high school but usually 2 years in the post-high-school program; the high school day must have 7 or 8 periods--more than some high schools now have; and the increased work load in the high school demands that the student be selected for high intelligence--higher than that required in the post-high-school student.

Lesser but important differences grow out of these. For instance, technician training in high school should be general--organized around a cluster of jobs. The post-high-school program can offer training for specific employment. It can be more flexible in the order of presentation since the prerequisites can be set up for mathematics and science ahead of time whereas the high school must give them concurrently.

The organizational pattern of the high school is usually more complicated than that of the post-high-school institution. When the technical program is a part of or a department of a high school, it may conflict with the philosophy and scheduling of the school, particularly since it demands only able students and special subjects. The post-high-school level, with its single purpose, may have a better overall atmosphere and its faculty probably has better morale. It is easier to teach at the post-high-school institution--the students are older and require less motivation. Because the post-high-school institution can usually offer a better salary schedule, it is able to get teachers with higher qualification than the high school. It often requires its teachers to have master's degrees, a requirement not always set by the high school. Both programs cost more than programs of general education.

In the important matter of selecting students from among those who desire to enroll, there is a wider range of ability found in the high school. In the high school it is a matter of students being selected on the basis of interest, aptitude and high intelligence, so that only those capable of performing well go into the program. At the post-high-school level the highly intelligent applicants are usually counseled to consider a college engineering program because it would be manifestly poor guidance not to do so. The high school program admits high ability students because the nature of a good secondary school technical education program is such that the graduate will be well prepared for college engineering.

THESE are the principal differences between the two programs. Lack of understanding of these differences often causes confusion about the objectives and outcomes of both programs and may account for the skepticism of some educators. Yet in high schools where there are good technical programs, we may safely assume--and examination will bear it out--that the differences between the two levels of instruction--in student ability, curriculum, and teaching--have been recognized.

JOB CLUSTERS

Closely-knit jobs with common elements

Basic jobs - supplementary jobs

Each job of technician character

Requires post high school maturity & 2 years training

Easy to shift from one job to another

Important elements are common to all jobs:
Math. - Science - industrial technology, etc.

Number of jobs in cluster to provide reasonable spread of placement opportunities

XI. PUBLIC RELATIONS

LOOKING AHEAD AT OCCUPATIONAL EDUCATION IN THE COMMUNITY COLLEGE

An address presented at the National Clinic
on Technical Education, Norwalk, Connecticut
November 4, 1964
by
Lynn A. Emerson

Technological Change

Within the past decade or so technological change has progressed at an unprecedented rate. The installation of computers in the United States started in 1951 and has now risen to well beyond 12,000 of general purpose type, with thousands more on order. Instrumentation and automatic controls are constantly taking over manufacturing and other processes. Power is coming from atomic energy. Recent demonstrations show power being transmitted without wires. Communication satellites are in orbit.

What is past is prologue to what is to come. The curve of technological development is rising rapidly. The "lead time" between discovery of a principle and its commercial use is shortening. Technological change is exerting great pressure on technical education for the adaptation of training programs to meet the changing conditions. It demands that educators lift their sights toward meeting the needs of the future as well as those of the present.

Conditions to be Faced in the Years Ahead

Many present jobs will have been eliminated or changed in character; many new ones will have emerged.

The numbers of workers in production will continue to decrease; those in professional and technical jobs will increase considerably; some increase will be noted in the service occupations.

Job entrance qualifications will require higher educational attainment.

Entry age into most occupations will be higher; young persons seeking jobs will be at a greater disadvantage than at present.

Mobility of workers will rise, with labor markets much broader than the local community.

More paid on-the-job time and off-the-job time will be given to education at all levels, to keep workers abreast of changing conditions.

Increasing amounts and kinds of services will be made available to meet the needs of the aging -- medical care, housing, recreation, and the like.

An increasing share of the GNP will be devoted to furnishing recreational services -- travel, boating, camping, sports events, etc. Some new jobs will emerge in these fields.

Most workers -- with the possible exception of professionals -- will have more leisure time. How will this be spent -- "moonlighting", avocations - ?

Changes in job requirements will become more prevalent, and workers will be desired who have flexibility, the ability to adapt to change. "No one will stay educated for very long."

Higher proportions of youth in the corresponding age bracket will attend high school; a higher proportion will graduate; more will go on to higher education.

Occupational education curriculums will have a dual responsibility: preparing students for entry jobs, and preparation for meeting changing conditions.

Programs of occupational education will become articulated at the various grade levels, with basic programs at the lower levels culminating in specialized programs at the higher levels. Many of the high schools will have developed technical education "tracks" as well as tracks leading to other post high school programs.

Curriculum objectives will have broadened, aimed at clusters of occupations. This will apply to all occupational areas, with basic training for the skilled crafts; for example, aimed at clusters of related occupations, followed by later specific education.

Research will have shown how to educate for change, and research findings will have been incorporated into occupational curriculums.

Occupational education will have become an integral part of total education, a part of the trunk of the educational tree rather than a separate branch. Appropriate portions and types of occupational orientation and occupational education will be included at all grade levels, beginning in the elementary school.

Most occupational education programs will be in institutions that also provide substantial offerings of general education, with occupational curriculums flexible enough to permit general education electives in accord with student interests and abilities.

Occupational education will have become fully accepted; on a par with college preparatory programs.

The range of occupational curriculum offerings available to every youth will have expanded considerably, made possible partly by increase in the size of the educational institutions.

The total program of the educational institution will be concerned as much with course offerings for employed workers as for preemployment students. The "extended day" program will enroll considerably more students than the full-time day program.

Many schools established as area vocational schools will have become comprehensive community colleges.

Increased public concern for, and support of, community colleges will have spread throughout the nation.

In the program of occupational education in the years ahead the community college will play an increasingly important role. We will still need some specific occupational programs at the upper high school level. Specialized area vocational schools will be established in the immediate future -- on the high school level as well as post high school. In time, however, it is predicted that these institutions will tend to grow upward in level of curriculum offerings, and to broaden into the comprehensive community college pattern, retaining within this pattern, however, the distinct characteristics of quality programs of occupational type.

Cybernation and its Impacts on Occupational Education

The impact of cybernation upon our economy, and upon occupational education may be far greater than many of us have realized. In his report on "Cybernation: The Silent Conquest" (1) Donald Michael defines cybernation as including both automation and computers, with automation described as t he automatic production of material products, and computers as sophisticated analyzers and interpreters of complex data. Michael indicates what cybernated systems can do as follows:

> "Perform with a precision and rapidity unmatched in humans.
> Detect and correct errors in their own performance.
> Make judgments on the basis of instructions programed into them.
> Remember and search their memories for appropriate data.
> Receive information in more codes and sensory modes than man can.
> Are beginning to perceive and recognize.
> Some of the machines show originality and unpredictability.
>
> "There is every reason to believe that within the next two decades machines will be available outside the laboratory that will do a creditable job of original thinking, certainly as good thinking as that expected of most middle-level people who are supposed to 'use their minds'."
>
> "But as cybernation advances, new and profound problems will arise for our society and its values. Cybernation presages changes in the social system so vast and so different from those with which we have traditionally wrestled that it will challenge to their roots our current perceptions about the viability of our way of life. If our democratic system is to survive at all, we shall need far more understanding of the consequences of cybernation.

(1) Michael, Donald N. "Cybernation: The Silent Conquest." Santa Barbara: Center for the Study of Democratic Institutions, 1962.

"The problem of retraining blue-collar workers is formidable enough. But, in view of the coming role of cybernation in the service industries, the retraining problem for the service personnel seems insuperable. No one has seriously proposed what service tasks this working group could be retrained for -- to say nothing of training them for jobs that would pay high enough wages to make them good consumers of the cornucopia of products manufactured by automation."

Gerard Piel has this to say in "Jobs, Machines, and People" (2):

"The general hypothesis of our system is that people displaced in employment in one sector will find it in others, and we are assured that retraining and other such programs will fit them to get jobs in that part of the labor force which is engaged in distribution, the service trades, and so on. But these sectors, which have been growing rapidly in the past fifty years and have been soaking up the disemployed from productive and extractive functions, are beginning to fail to soak them up. New jobs are not being created in these fields.

"The new development in our technology is the replacement of the human nervous system by automatic controls and by the computer. - - - This has staggering ramifications going way beyond the automation of production functions; the white-collar functions are even more susceptible to automation; all a computer needs to be effective as a management tool is a typewriter on each side of it. It then becomes a white-collar worker."

The development of cybernatics is rapidly bringing our social structure into an economy of abundance, as contrasted with an economy of scarcity to which our institutions and our thinking habits are largely attuned. There is now need for a revision of our total thinking on how we shall distribute the products and the services of the future, and how we shall prepare persons to work and live in the society we shall face tomorrow.

Occupational Education and Post High School Institutions

In 1961 Dr. Arthur S. Adams, President of the American Council on Education, said:

"We are approaching the time when two years of college, either to develop a vocational skill or to prepare for further college education, will be as necessary and commonplace as is graduation from high school."

Secretary of Labor Wirtz advocates two years of education beyond high school to keep youth off the labor market until they have attained the

(2) Helstein, Piel, and Theobald, "Jobs, Machines, and People", Santa Barbara: Center for the Study of Democratic Institutions, 1964.

maturity, knowledge and skills needed for today's occupations. Occupational education programs of post high school type are growing rapidly, in area vocational schools devoted solely to occupational curriculums, and in community colleges of comprehensive type including both occupational and transfer curriculums.

With the need for occupational education programs on both the high school and post high school levels, some criteria may be useful in making the decision as to whether the curriculum should be offered at the post high school level. The program may well be offered at the post high school level:

1. If the occupation is generally classified as of semiprofessional type.

2. If the geographical area required to recruit sufficient qualified students for a program of optimum size is substantially greater than that ordinarily encompassed by the high school district.

3. If the maturity demanded by employers for entrance into the occupation is beyond that of the average high school graduate.

4. If the prestige of a post high school institution is needed to attract the type of student required for the program.

5. If the on-the-job learning time required for the development of full occupational competency is substantially lower for the graduate of the post high school program as compared with a high school graduate in the same field.

6. If the curriculum content is of such type and level as to require high school graduation, including the completion of specified courses, as a minimum foundation for undertaking the occupational study.

7. If the cost of initial installation of equipment, and its upkeep and maintenance, is beyond the fiscal ability of the high school district.

8. If the State proposes to meet the needs of students from widely scattered communities with small high schools which have little or no provision for occupational education.

9. If the State desires to meet the needs of persons who went to work on graduation from high school with no specific occupational training, and who later desire to enter full-time training to prepare themselves for better jobs.

10. If there is need for a wide range of evening courses in the community which require advanced technical equipment beyond that normally possible in high school occupational training programs.

11. If a suitable post secondary educational institution is available -- such as a junior college -- to which may be added appropriate occupational education curriculums.

The growth of the junior college movement in the United States and the expansion of junior colleges into community colleges have opened up new opportunities for occupational education. The maturity of the students in such institutions, the potential for serving needs over reasonably wide geographical areas, the wider tax base for the support of the institution, and other factors combine to provide opportunity for the community college to make substantial contributions to this field.

Certain types of occupational education programs logically are located on the high school level; others on the post high school level. The post high school institutions include technical institutes, some area vocational schools, and the junior/community colleges. Some programs are offered by four-year collegiate institutions. Curriculums pertinent to the community college include the following:

Transfer programs -- liberal arts and preprofessional,
Engineering technician curriculums,
Semiprofessional nonengineering type curriculums, as in paramedical field,
Curriculums in highly technical craft or industrial technician occupations,
High level curriculums in office and distributive occupations, of middle management level,
Agricultural and agricultural-related curriculums, in rural settings,
General adult education programs.

The community college has partial responsibility, shared with comprehensive high schools and area vocational schools, for training programs in the skilled crafts, in office occupations, in semiskilled training for out-of-school youth and adults. In broad terms it has two responsibilities:

(a) Providing curriculum offerings of types and levels beyond, or not suited to the high school setting.

(b) Meeting the educational needs of adults and out-of-school youth, whether or not they are high school graduates.

In the fall of 1963 the 71 community colleges in California offered some 117 different occupationally orientated curriculums.

Perhaps the best single type of institution for training technicians for specific occupational fields is the technical institute, with its singleness of purpose. But their numbers are limited, and prospects not bright for any considerable growth. In the years ahead in which adaptation to changed conditions is essential, the technician will need breadth as well as specialization in his educational background.

The junior/community college appears to be the most promising agency for nationwide large-scale development of technician training. But this potential development is conditioned by some "ifs." The community college can make a significant contribution to the supply of technicians needed in industry and in other fields if it meets certain conditions. Here are some of them:

1. If the community college administrators throughout the nation have a thorough understanding of technician education, and a real desire to provide it.

2. If strong leadership for the technical program is provided within the community college. (The task must not be assigned to any staff member who happens to be available but who does not possess competence in dealing with technician training and who does not have interest in its success.)

3. If the community college recognizes that the technician is just as important to industry as the engineer, and if the status of the program is kept on a high level.

4. If the technical programs gear in effectively with an overall master plan for the State or other labor market area, with program offerings located properly and of appropriate size.

5. If the size of the community college is sufficiently large to provide optimum enrollments in each curriculum offered.

6. If the curriculums are built from activity analyses of closely-knit clusters of technician occupations, and are designed to prepare graduates for effective entrance into jobs in these clusters.

7. If the training of technicians is recognized as a task different from preengineering transfer programs.

8. If each course of each technical curriculum is designed to meet specific needs, and no attempt is made to utilize courses already available in other curriculums in the institution unless these courses meet specific needs in technician training.

9. If it is clearly recognized that fixed requirements of certain academic courses for all students working for the associate degree may not be quite appropriate for technical training curriculums. (General education courses are needed in technical curriculums but must be selected with care.)

10. If it is clearly recognized that there are different levels and types of technical occupations -- engineering technicians, industrial technicians, technical specialists -- and that curriculums need to be designed in accordance with the requirements of these occupations.

11. If effective curriculums, courses of study, and instructional materials are made available and are kept up to date.

12. If close working relationships are developed and maintained with competent industrial personnel in the specific fields for which training is provided.

13. If capable instructors are provided, with backgrounds of appropriate technical education, practical experience of technician type, and suitable professional education.

14. If adequate provision is made for space, specialized laboratory equipment, and classroom demonstration equipment necessary for effective instruction.

15. If students of high quality, with appropriate high school background, can be recruited in sufficient numbers for each curriculum offered.

16. If effective measures are utilized in the selection of students for the technical curriculums.

17. If appropriate recognition is given to evening and other part-time technical courses for workers employed in industry, and for others who are not able to attend courses for the full day. (The upgrading of employed workers is just as important as the preemployment day training program, and the enrollment in the part-time program may well be two or three times that of the day program.)

America needs technicians in large numbers, in industrial and in other fields, if it is to maintain its position of leadership in the community of nations. The community college, with its rapid expansion and growth, is in a unique position to make a substantial contribution in this field. The most important element in meeting this challenge is the will to do it.

XII. OTHER

PROFESSIONAL, TECHNICAL, CRAFT, AND INDUSTRIAL OCCUPATIONS

Education-Training	Titles	Divisions	Employment
University 4, 5, 6, or more years. BS, MS, Ph.D	**Scientist**	Physicist Chemist Mathematician Metallurgist	Research Invention Design Development Teaching
University 4, 5, or 6 Years. BS, MS, Ph.D	**Engineer**	Architectural Chemical, Civil Mechanical Electrical Electronics	Basic Research Applied Research Process Development Quality Control Cost Control Service-Sales Administration
State College-Junior College 2, 3, or 4 years. Emphasis on broad and basic theory. Science, Math, Engineering Subjects, Communication, Economics Not Pre-Engineering Associate Degree	**Technologist** Engineering Technician Engineering Assistant Science Technician	Specialization is Field Oriented: Chemical, Civil Mechanical, Electrical Electronics, Industrial Metallurgical	Planning-Drafting Computations-Estimate Tests-Evaluations Modifications Time Study-Safety Technical Writing Industrial Chemistry
Area-Vocational Technical Institute 2 Years or Extension Courses, Lab-Shopwork Specific Skills, Tech. & Applied Knowledge Tools-Instruments-Controls Drafting-Calculations Diploma-Certificate	**Technician** Industrial Technician Laboratory Technician	Specialization Areas: Manufacturing Construction Installation Instrumentation Customer Service	Drafting Estimating Surveying Testing Diagnosis
Area-Vocational Technical Institute 2 Years or Less Practical Pre-Employ Applied Science - Math Shopwork - Drawing Processes - Equipment Tools - Instruments Certificate - Diploma **Apprenticeship, 3 to 6 Years**	Production Technician Maintenance Technician **Highly Skilled Craftsman** **Highly Skilled Industrial Worker**	Manufacturing Construction Installation Maintenance Service Graphic Arts Building Trades	Tool & Die Model Maker Set up Men Lay out Men Millwrights Mechanics Repairmen Draftsmen Carpenters Electricians Plumbers Sheet Metal Welders Printers
Vocational Programs Pre-Employment Work-Study, Retraining	**Machine Operator** **Semi-Skilled Worker**	Manufacturing Transportation	Operators Fabricators Assemblers Inspectors Truck Drivers Helpers
On-The-Job	**Unskilled Labor**	Manufacturing Construction Transportation Custodial	Handling Moving Loading Digging Cleaning

John Butler
Dunwoody Institute

ROUGH ESTIMATE OF TECHNICAL WORKERS IN NEW JERSEY BASED UPON COMPARISON OF THE NUMBERS OF SUCH WORKERS FOUND IN THE NEW YORK STATE SURVEY IN RELATION TO THE TOTAL NONAGRICULTURAL EMPLOYMENT IN THE TWO STATES

Technical Occupation Group	Number Employed in New York 1962	Estimated Number in New Jersey
Draftsmen	20,972	7,000
Structural design technicians & related specialists	2,516	850
Electro and mechanical engineering technicians	42,031	14,000
Mathematics technicians	831	300
Physical science technicians	8,969	3,000
Biological, medical, dental & related science technicians	25,445	8,500
Industrial engineering technicians & related specialists	6,901	2,300
Civil and construction technicians & specialists	13,464	4,500
Sales and service technicians	1,932	650
Technical writing & illustration specialists	3,034	1,000
Safety and sanitary inspectors & related specialists	4,084	1,350
Product testing and inspection specialists	8,059	2,700
Data-processing systems analysis & programming	6,153	2,050
Airway tower specialists & flight dispatchers	1,373	450
Broadcasting, motion picture & recording specialists	2,920	1,000
	148,684	49,650

Estimates of numbers of technicians in New Jersey are based upon the assumption that numbers and distribution are the same relatively as the overall nonagricultural populations of New York as compared with New Jersey.

Nonagricultural population - 1962: (Statistical Abstract of U.S.)

New York - - - - - - 6,271,000
New Jersey - - - - - 2,081,000

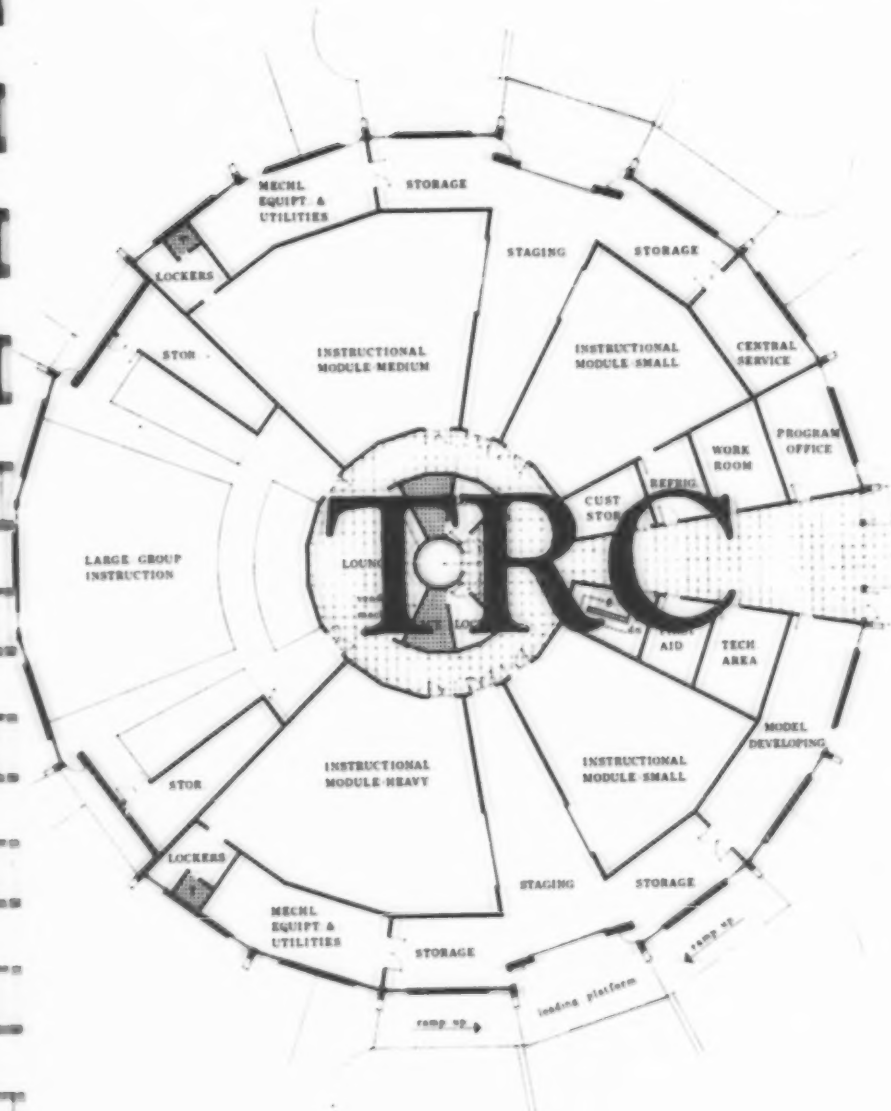
NEW JERSEY COUNTY COMMUNITY COLLEGE PROGRAM - Progress Report March 1966

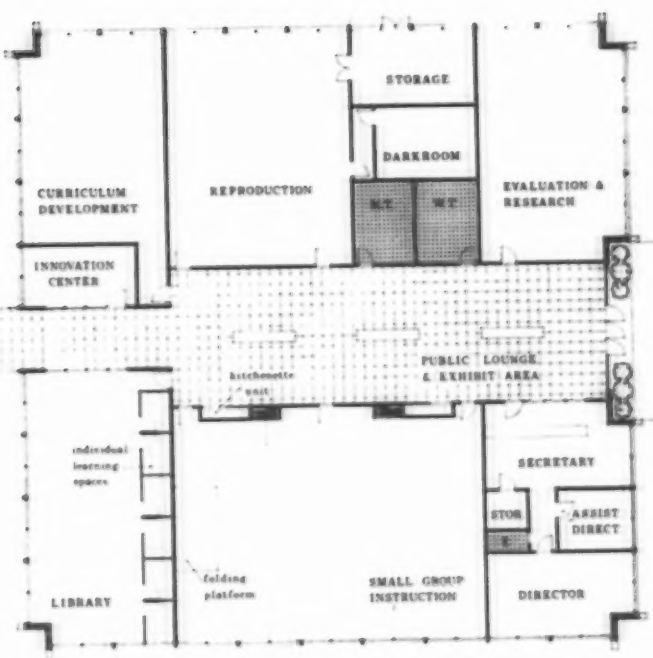
COUNTY	Date of approval by State Board	Size of campus (acres)	Possible student enrollment	Planned initial building capacity	Estimated cost (thousands) Estimate made by: (C) College (S) State	Estimated cost per full-time student
Atlantic	12/63	501	1,700	800	2,964 (C)	3700
Bergen	10/65	-	7,800	2000	10,706 (S)	5350
Burlington	10/65	-	2,800	1000	4,190 (S)	4200
Camden	9/65	-	4,600	1000	4,655 (S)	4650
Cape May	2/64	-	628	500	1,978 (S)	3950
Cumberland	11/63	78	1,300	500	2,741 (C)	5500
Essex	2/65	-	10,000	700	4,073 (S)	5800
Gloucester	(Petition to State Board 12/65. Feasibility study 2/66)					
Hudson	(No official action)					
Hunterdon	(Feasibility study 11/65)					
Mercer	5/65	-	3,000	1500	6,983 (S)	4650
Middlesex	5/64	165	6,073	1000	3,126 (C)	3100
Monmouth	(Local study not completed)					
Morris	5/65	-	3,000	1000	5,320 (S)	5300
Ocean	5/63	276	1,500	900	2,832 (C)	3150
Passaic	(Local study not completed)					
Salem	(Local study not completed)					
Somerset	10/65	-	1,700	500	2,328 (S)	4650
Sussex	(No official action)					
Union	3/66	-	4,700	800	4,682 (S)	5850
Warren	(No official action)					

Source: N.J. State Education Department - SR-1685 — March 8, 1966

Technology-Resource Center

for Vocational-Technical Education





A Research Study Supported by a Grant under the Vocational Education Act of 1963 Section (4)c

A Research Activity of

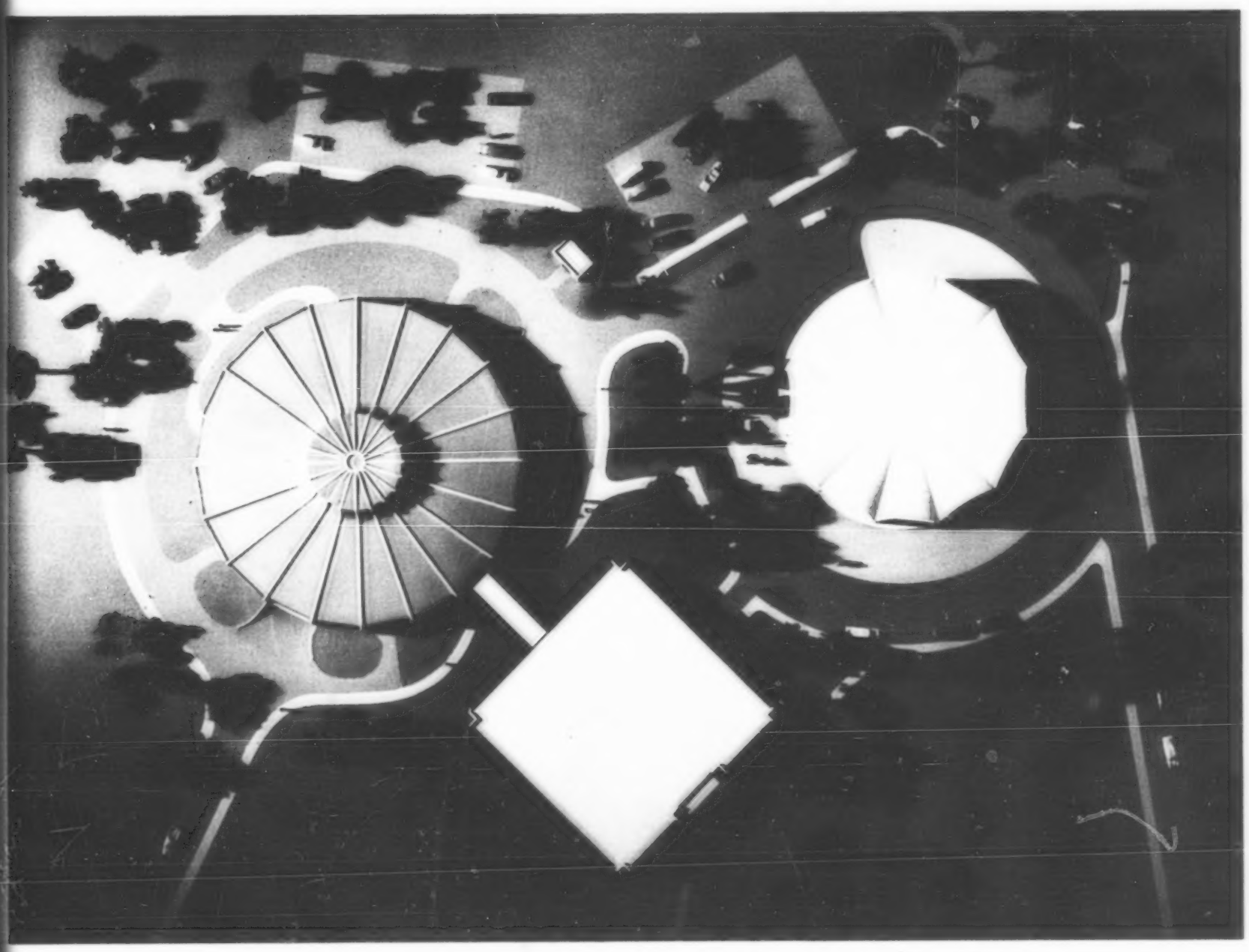
RUTGERS - THE STATE UNIVERSITY
New Brunswick, New Jersey

1766

The information contained in this brochure is the result of the research findings of the project: A VOCATIONAL-TECHNICAL TEACHER TECHNOLOGY CENTER — THE DEVELOPMENT OF A MODEL. This project was supported by a grant under Section 4(c) of the Vocational Education Act of 1963.

The purpose of this grant was to plan a model facility for updating vocational-technical teachers. The planning includes the development of the educational specifications, preliminary architectural plans, and outline of engineering specifications.

It is hoped that this model may serve as a pattern for other institutions of higher education or State departments of education in the development of TECHNOLOGY-RESOURCE CENTERS FOR EDUCATION on an area basis throughout the United States.



Aerial View of Technology Research Center for Vocational-Technical Education

Technology-Resource Center

for Vocational-Technical Education

A new innovation in facilities planning to expedite updating of in-service personnel of vocational-technical schools; enriching both undergraduate and graduate teacher education programs; and, also providing research, development, and evaluation of new instructional media such as curricula, materials, models, and devices.

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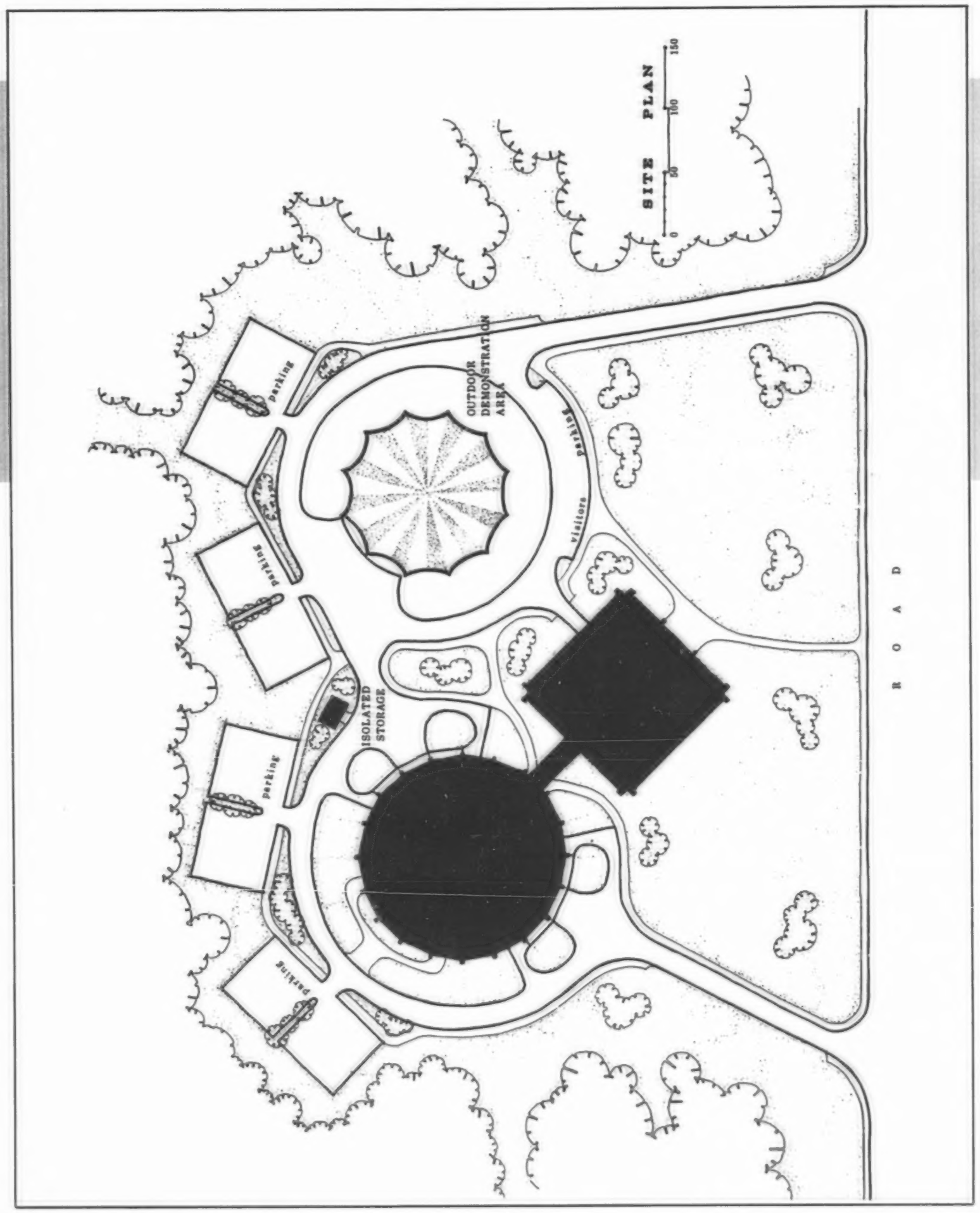

SITE PLAN
0
50
100
150
OUTDOOR DEMONSTRATION AREA
ISOLATED STORAGE
parking
parking
parking
parking
visitors parking
ROAD

Site Plan

A New Concept

Technology changes rapidly as a reflection of scientific research and industrial and business development.

Education for today and tomorrow, to be effective, needs to be based on current concepts and applications.

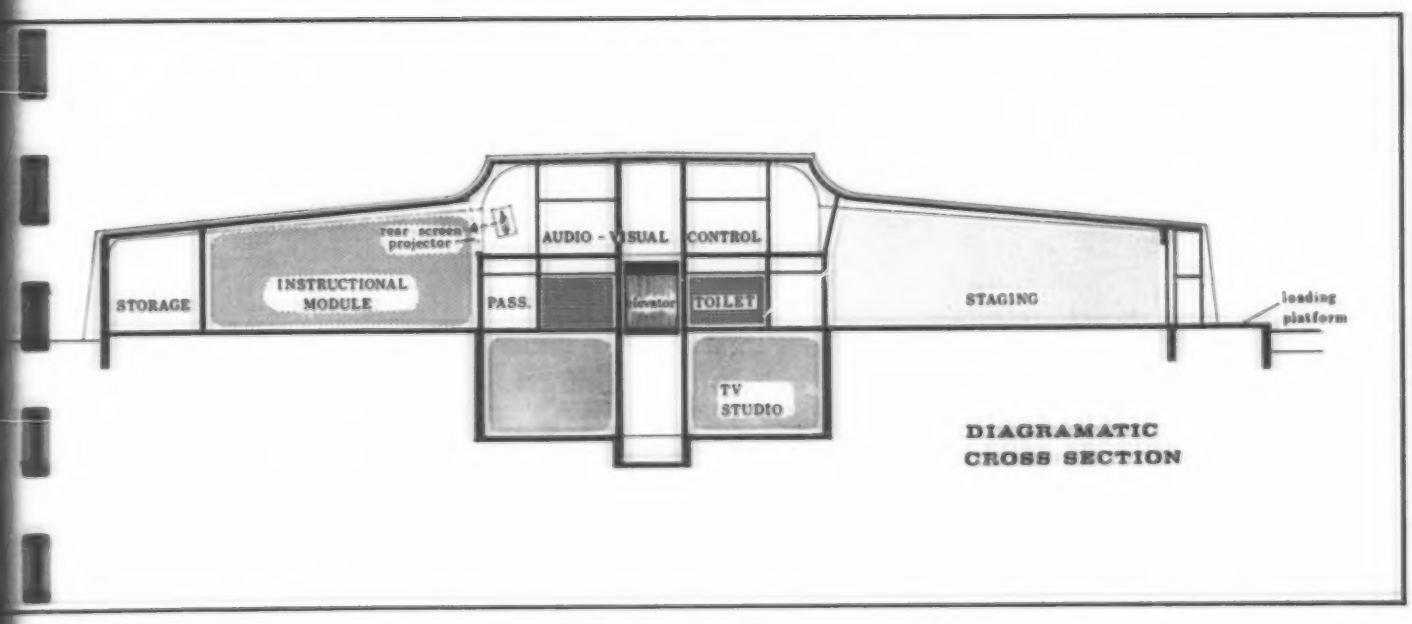
Updating of the principles of science to new applications of production and service for industry, business, and agriculture is also a major concern of education.

Vocational-technical educators, and especially teachers, require current information and familiarity with new "hardware" innovations to be effective.

The need of overcoming obsolescence is one of the greatest challenges facing vocational-technical educators today.

A new concept in teacher education and in-service growth is recognized as a supplement to existing programs, activities, and facilities.

Satisfactory implementation of this new concept mandates a unique facility for these updating and enriching activities — A Technology-Resource Center for Vocational-Technical Education.



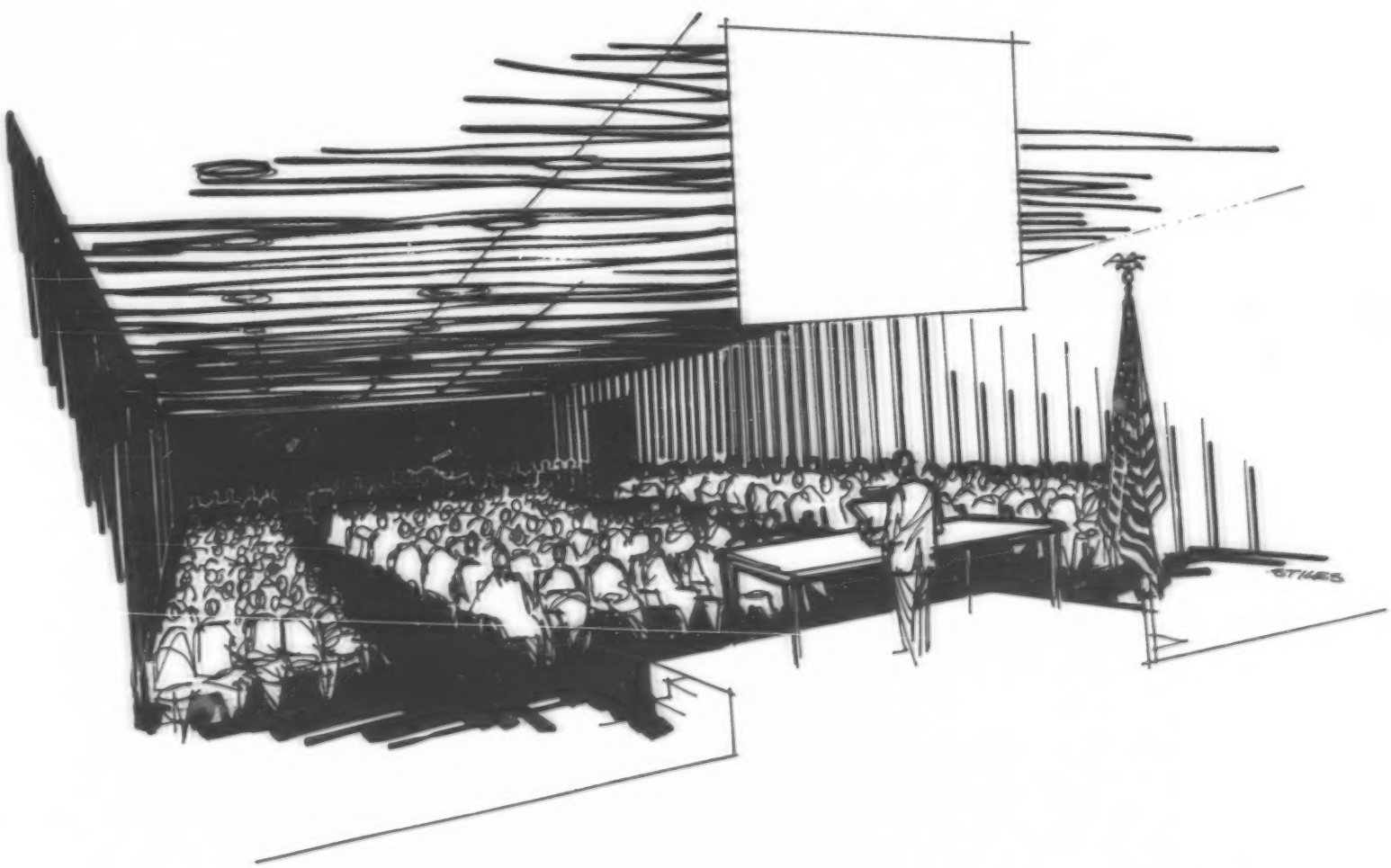
Diagramatic Cross Section

Purpose

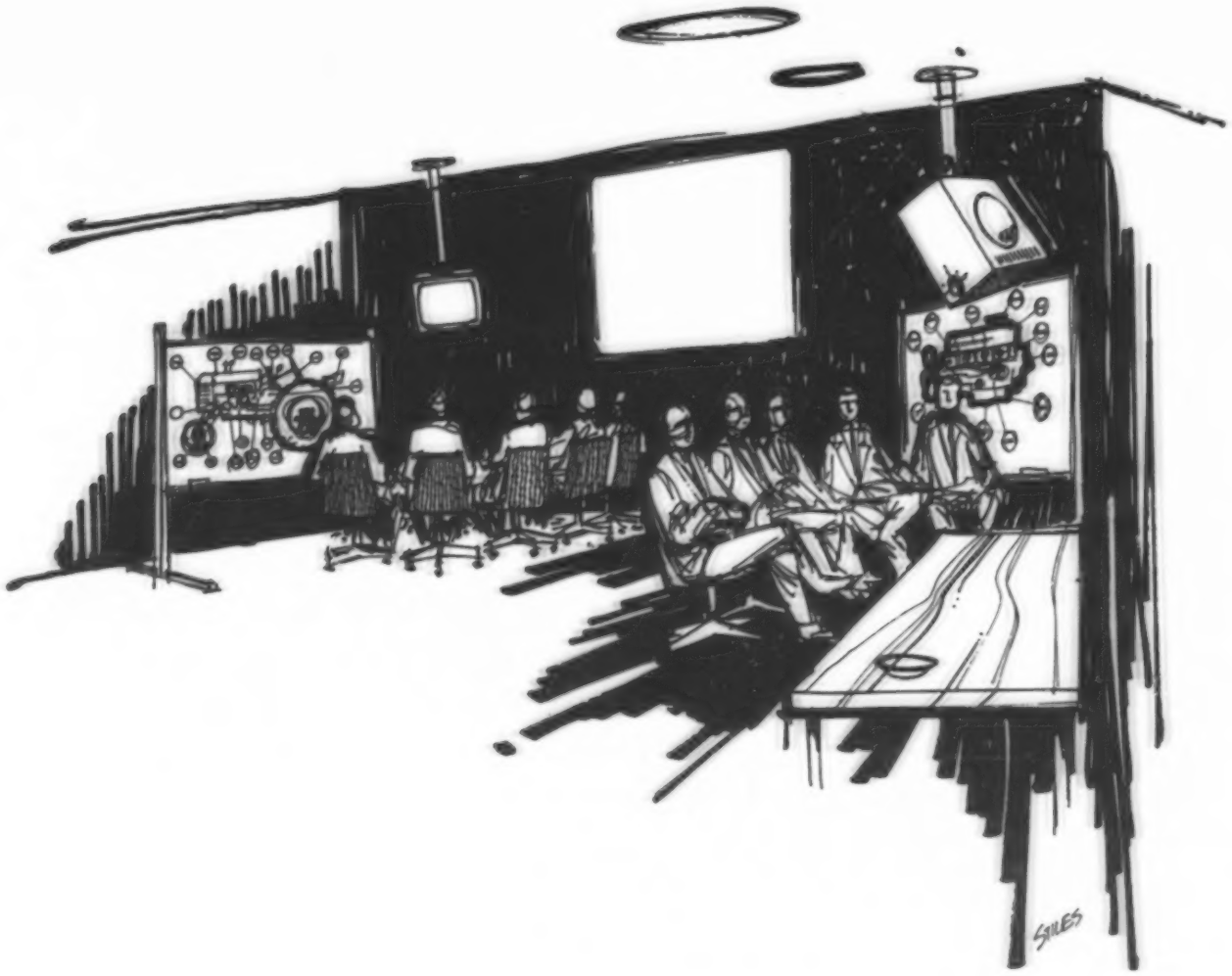
The purpose of the Technology-Resource Center is to provide a maximum of service to educators. It must represent the ultimate in educational innovations, so as to inspire and motivate, enrich the background and broaden the scope, enlarge the scientific and technical knowledge and understanding, and increase the ability to apply, in practical situations, the experiences gained.

The Technology-Resource Center is the innovation of a new and unique institution specifically designed for keeping present and future vocational-technical educators aware of new developments in technology, new "hardware", new pedagogical developments.

The Center consists of two main divisions, (1) the technology complex, and (2) the resources complex. The technology complex is devoted to updating and enriching of the vocational-technical instructional program. The resources complex is designed to supplement the teaching-learning process through curriculum research, development, evaluation and dissemination; model and innovations development; and other research oriented investigations into the improvement of teaching-learning techniques, methods, and materials.



Large Group Instructional Area



Small Group Instructional Area

Area Served

The unique characteristics of the Technology-Resource Center suggest an area or regional division of service which may be interstate as well as intrastate. Cooperation of two or more states in such an institution may not only be highly likely but extremely desirable.

Personnel Planned For

The Center is especially planned to meet the needs of in-service teachers, supervisors, guidance personnel, and administrators; it will provide enrichment for undergraduate and graduate students in teacher education; its facilities will be helpful to industrial practitioners and others in positions of leadership in business and industry.

Operational Considerations

Planning, developing and conducting programs and activities of the Center, in cooperation with other institutions of higher education will utilize and compliment other desirable and available public and private resources of equipment, technical knowledge, physical plants, and the like.

A base staff, serving on a full-time basis, needs to be provided for planning, coordinating, and providing continuous service. A supplemental call staff will need to be utilized to provide some of the aspects of technical and professional updating.

Curricula for updating educational personnel will need to reflect both horizontal articulation and vertical coordination. Horizontal articulation to express the concept of broad implications across the instructional fields; vertical coordination to indicate a level of program descriptive of "depth". Both of the above may be reflected in the same curricular activity.

Characteristics of the Physical Plant

It needs to be designed:

To meet the needs of short-time activities of such duration as 2-4 hours, 1, 2, or 3 days, 1, 2, or 3 weeks and a variety of combinations of short time spans.

To provide multi-purpose use.

For demonstration, and learning participation activities, in addition to lecture-discussions and conference-type updating activities.

To expedite moving in and out of units of the most recently developed "hardware". Convenient loading and unloading, handling, crating and uncrating, moving, and other millwright-related activities must be expedited.

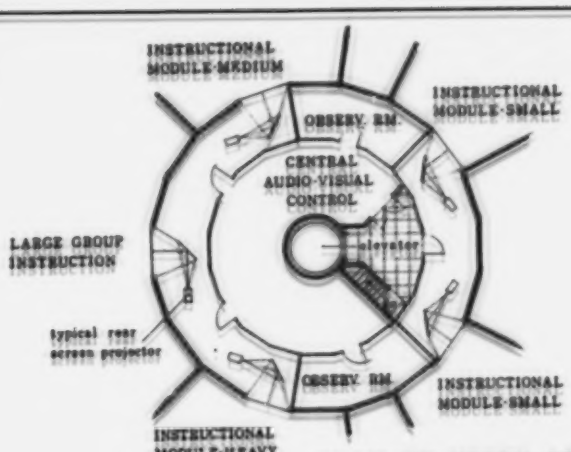
To blend the functions of the Technology Center with the functions of the Resources Center to provide maximum utilization and opportunities to serve the needs of educators.

Characteristics of the Instructional Spaces

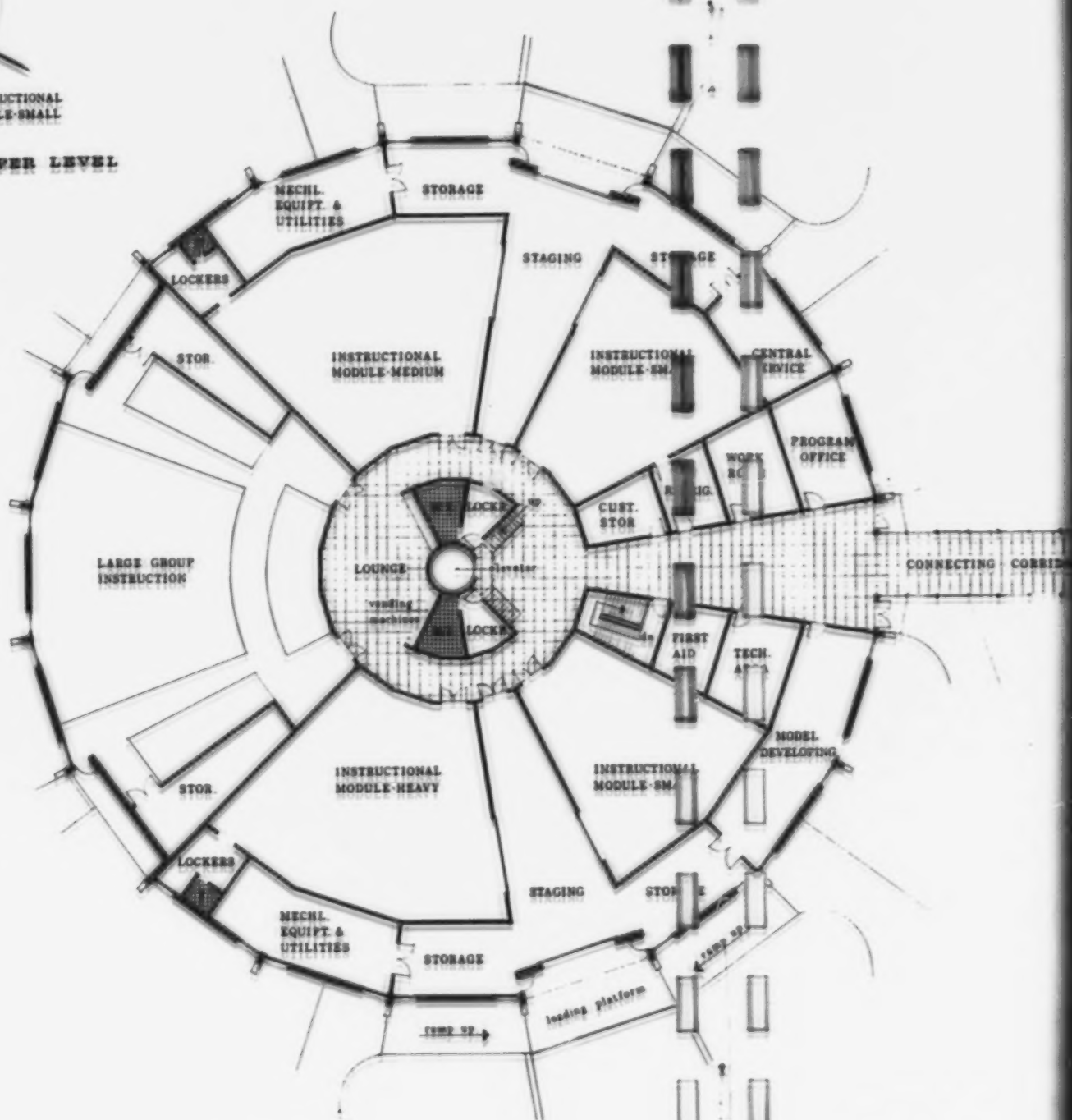
Institutes and workshops, demonstrations, and instructional methods seminars describe the broad classification of main activities of the Technology Center.

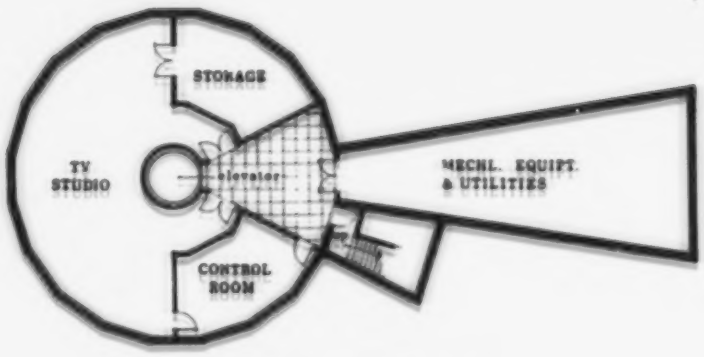
The word "module", as used in this research finding, is descriptive of a principal teaching-learning space for updating instructors and other educators relative to specific equipment, as well as applications, techniques, and processes utilizing this equipment. A module may be utilized for some or all of the functions of a laboratory, shop, or industrial demonstration, research, or production area.

The instructional suite of the Center consists of a minimum combination of modules together with the auxiliary spaces to provide required support activities. Multiples of modules may be used as desired to meet the needs identified.



PLAN OF UPPER LEVEL





PLAN OF LOWER LEVEL

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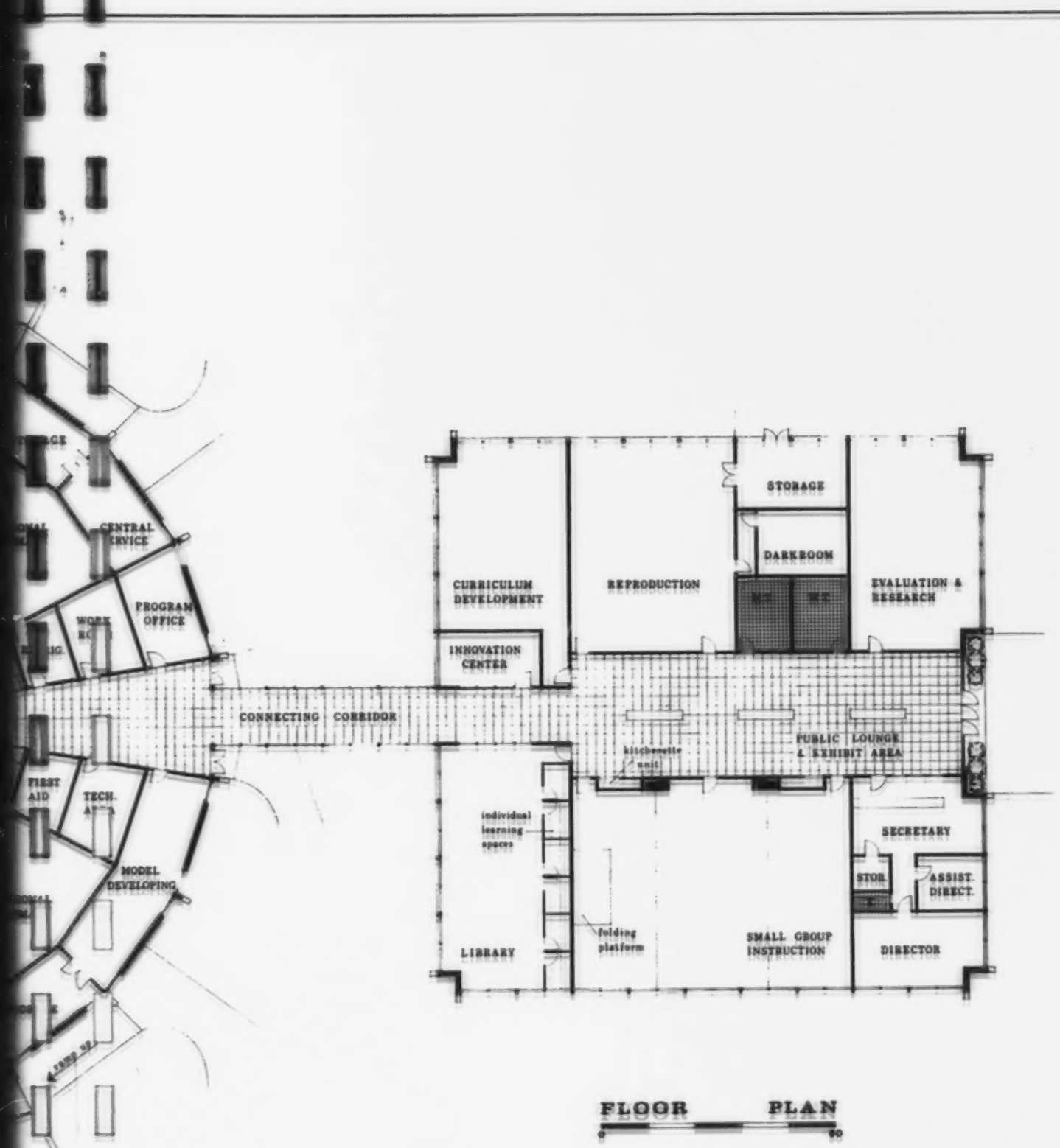

CENTRAL SERVICE
PROGRAM OFFICE
WORK
FIRST AID
TECH.
MODEL DEVELOPING
CURRICULUM DEVELOPMENT
REPRODUCTION
STORAGE
DARKROOM
EVALUATION & RESEARCH
INNOVATION CENTER
CONNECTING CORRIDOR
kitchenette unit
PUBLIC LOUNGE & EXHIBIT AREA
individual learning spaces
SECRETARY
STOR.
ASSIST. DIRECT.
folding platform
LIBRARY
SMALL GROUP INSTRUCTION
DIRECTOR

FLOOR PLAN

Technology Center Characteristics

Teaching-learning activities are focused in the four modules, the large group instructional area, and the multigroup instructional spaces. Significant planning considerations include needs such as:

- Relationship of spaces (modules and ancillary)
- Access to and egress from spaces
- Ceiling heights, and door sizes
- Sizes and arrangements of spaces
- Environmental and light control
- Facilities for the use of equipment such as:
  - Rear screen projection
  - Audio-visual equipment
  - TV, etc.
- Staging area for preparing equipment for use
- Internal communication system
- Ancillary spaces (inside)
- Demonstration area
  - (outside) for extremely large equipment

Resources Center Characteristics

This complex is designed to supplement and strengthen the Technology Center and to provide additional educational services to vocational-technical education such as curriculum development (research, evaluation, and dissemination), model development, and the expediting of teacher education innovations.
Spaces are provided for:

- Library — technical materials, microfilm, carrels, etc.
- Curriculum development — evaluation, and reproduction
- Evaluation and research — for curriculum and other related activities
- Model development unit
- Innovations center — experimentation
- Production and recording center — slides, films, etc.

Architectural Concept

The fundamental concept behind the circular plan is the creation of an enclosed space interrupted by as few columns or permanent facilities as possible. During the planning studies, and as the general concept evolved, certain principles and criteria were formulated to guide the physical planning of the center. Elsewhere in this study, concept, purposes and characteristics of the physical plan are noted.

The ability of servicing the four modules led to an intriguing possibility: It is possible to cluster all auxiliary spaces around a circular core module. The center is designed on three levels; the lower level, technology complex level, and audio-visual and observation level. The lower level accommodates a television studio, central room, storage and mechanical equipment-utilities room. The technology complex level provides for the four modules, large group instructional room, mechanical equipment and utility room, storage, staging, lounge, etc. The upper level provides for a central audio-visual control area, observation rooms, rear screen and television projection windows. All levels are serviced by a central core elevator.

The four modules provide for instructional groups of varying sizes and fields of study. The modules are readily serviced by rear platform delivery docks for varying sizes of equipment, staging areas for receiving and shipping and storage areas for instructional materials. Non-instructional areas are designed to accommodate and service the four modules which are the heart of the center.

The resource complex is joined by a glass connecting corridor to the technology complex. This complex provides facilities oriented for improvement of teaching-learning techniques and administration. The small group instructional area is subdivided by two removable acoustical doors. Instructional space can be divided into three rooms or one large lecture-demonstration room with complete demonstration facilities.

Other areas, such as, evaluation and research, darkroom, reproduction, curriculum development, innovation center, and library provide space and facilities to supplement the teaching-learning process. A public lounge and exhibit area allows for business, agriculture and industry to continuously display new materials and products.

To accommodate the display and instruction of large equipment, products, and vocational agricultural requirements, an outdoor demonstration area is planned.

Outline of Architectural Considerations

Structural System
Precast concrete frame and structural purlins.

Floor Construction
Concrete floor slab on grade.

Exterior Walls
Precast concrete frames and panels.

Roof Construction
Insulating deck with plastic membrane roofing.

Interior Partitions
Lightweight concrete block.

INTERIOR FINISHES

Corridors
Floor—Terrazzo
Walls—Vitreous enamel on block
Ceilings—Acoustical

Instructional Modules
Floor—Concrete or Terrazzo
Walls—Exposed block with acoustical treatment
Ceiling—Acoustical

Large Group Instruction
Floor—Carpet
Walls—Exposed block with acoustical treatment
Ceiling—Acoustical

Storage and Staging Areas
Floor—Concrete
Walls—Exposed block
Ceiling—Exposed construction

Toilets
Floor—Ceramic tile
Walls—Ceramic tile
Ceiling—Acoustical

Lounge and Exhibit Area
Floor—Carpet
Walls—Plaster and wood paneling
Ceiling—Acoustical

Library and Small Group Instruction
Floor—Carpet
Walls—Plaster and wood paneling
Ceilings—Acoustical

Typical Office Space
Floor—Carpet
Walls—Plaster and wood paneling
Ceiling—Acoustical

Fenestration

Aluminum frame with glare reducing glazing.

Lighting

Instructional modules, group instruction areas, library and resource center offices will be lighted with fluorescent fixtures. The modules will be provided with a minimum of 100 foot-candles, all other instructional areas with a minimum of 60 foot-candles.

Corridors, storage areas, lounge and miscellaneous areas will be provided with incandescent and fluorescent fixtures.

Electrical System

Main electrical service and panels in mechanical equipment room. All raceways in conduit or armored cable throughout.

Audio-visual control cables installed in conduit.

All conduit to be oversized to accommodate future needs.

Heating and Ventilating — Air Conditioning

Central forced air system with electric heating cooling exchangers.

Ventilation will be provided on the basis of three (3) air changes per hour during heating and cooling cycles and six (6) air changes per hour during interim periods. Exhaust will be through wall registers; central duct system; exhaust fan and fall louver.

Temperature control (and humidity where required) will be an electronic system on an individual room basis. Electronic air cleaners will be provided to remove dust, smoke, etc.

Plumbing

Plumbing system shall provide for water, waste, gas and storm drainage.

Special

Service Column—In all instructional modules and demonstration areas service columns (which provide electric, hot and cold water, air, waste, natural and special gases, liquids and audiovisual outlets) shall be provided.

Lighting—Landscaping—Well planned lighting will give the building interesting effects after dark as well as during the day. Since the facility will be used during the evening, adequate lighting in the parking areas is necessary.

Utilities—Underground services are planned with the capability of expansion considered.

Lounge and Exhibit Area

Pedagogical Hardware

The Technology-Resource Center will provide the most effective and up-to-date pedagogical hardware. It should serve as a "'showplace" for the effective utilization of such aids and a nucleus for recent innovations in teaching-learning media.

Illustrations of the types of aids considered for the modules and other teaching-learning spaces are:

- White Chalkboard (Necessary for teaching wiring for data processing)
- Multi-track Chalkboards, Bulletin Boards, Flannel Boards, etc.
- Rear Screen Projection
- Closed Circuit TV
- Projection TV (for magnification in modules)
- Student Response Stations in Multigroup Instructional Area
- Chart Racks
- Display Racks
- Data Retrieval System

Site Planning

Location

Centralized location with respect to schools utilizing this service—easy accessibility from highways and turnpikes for deliveries.

Size of Site

A ten acre site would seem to be desirable to facilitate the building complex, demonstration area, parking and service roads.

Growth

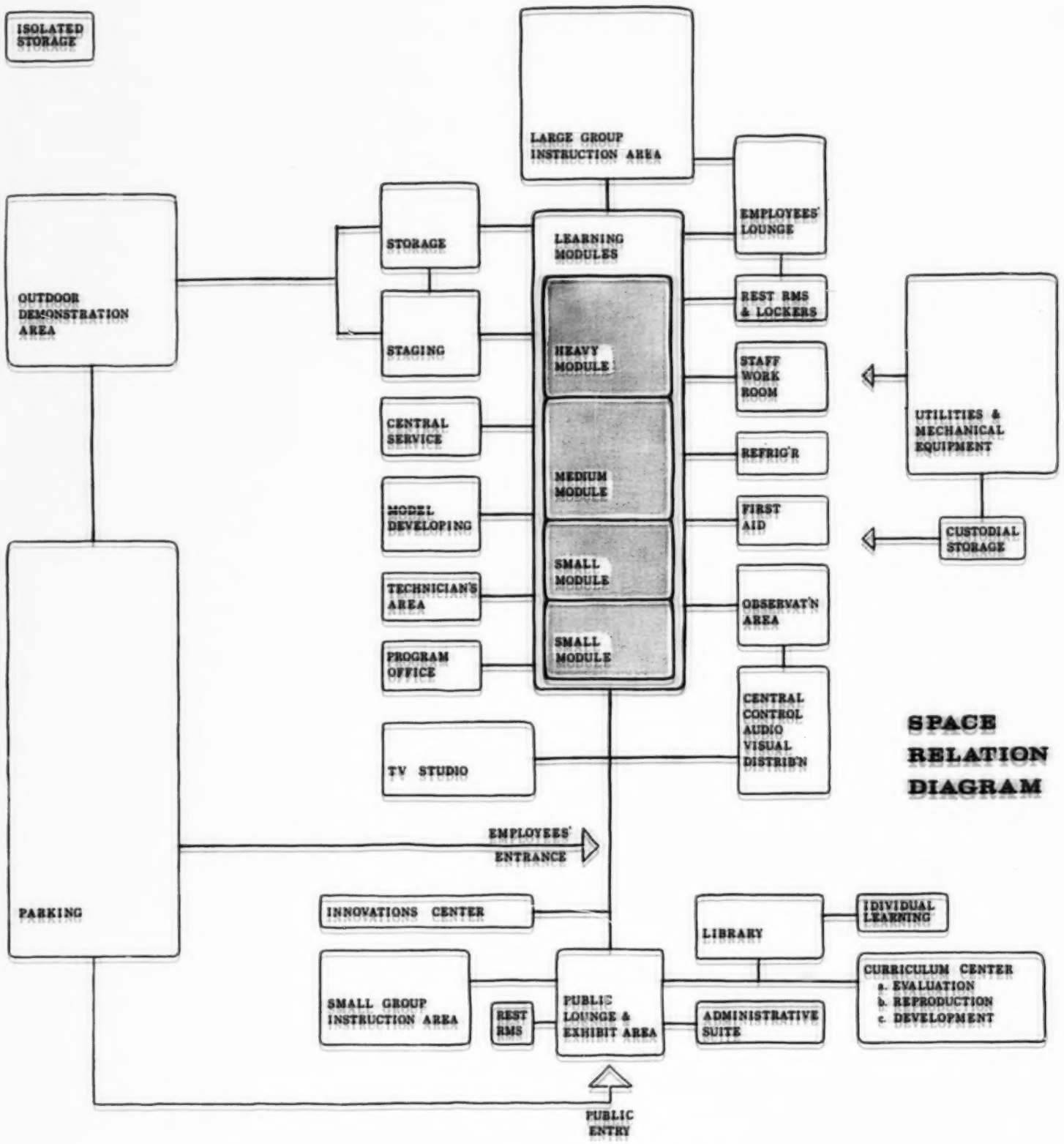
Additional module group could replace outdoor demonstration and be connected to Resources Center.

Orientation

The main consideration would be the projection of the outdoor demonstration from the prevailing winds.

Roadways, Traffic and Walks

Ease of delivery and access to building from parking areas is important. Parking is planned at the rear to eliminate "Shopping Center" appearance.



Space Relation Diagram

Panel of Consultants

The following individuals participated as members of the panel or assisted in other ways in the research project:

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A Vocational-Technical Teacher Technology Center-
The Development of a Model

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XIII. BIBLIOGRAPHY

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